

Lindsay OPS Landfill Annual Status Report 2023

Prepared for: City of Kawartha Lakes

Prepared by: Azimuth Environmental Consulting, Inc.

April 2024

AEC 24-010



Environmental Assessments & Approvals

April 27, 2024 AEC 24-010

City of Kawartha Lakes Waste Management Department 322 Kent St. West Lindsay, ON K9V 4T7

Attention: Ms. Kayla Pantaleo

Regulatory Compliance Officer

Re: 2023 Annual Monitoring Report Lindsay Ops Waste Disposal Site

Dear Kayla:

Azimuth Environmental Consulting, Inc. (Azimuth) is pleased to provide the 2023 Annual Monitoring Report (AMR) for the Lindsay Ops Waste Disposal Site (Site). The data and interpretation included provides a summary of the 2023 monitoring data with comparison to the historical data and accurate assessment of the current state of the landfill site. This report has been prepared in compliance with the existing Environmental Compliance Approval (ECA) and applicable Provincial standards. This assessment also interprets the longer term trends at the Site such that an appropriate monitoring program assesses the current state of the landfill.

The environmental setting at the Lindsay Ops Landfill Site is well understood based on over 40 years of performance monitoring. The data trends over this monitoring period have yielded a relatively consistent geochemical signature such that it is reasonable to infer that the Site reflects a steady state condition without any noted off site contamination concerns. This is supported by the general consistency between the 2023 data with the historic data set for the majority of monitoring locations.



If there are any questions regarding the content of the report, do not hesitate to contact the undersigned.

Yours truly,

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Colin Ross, B.Sc., P.Geo.

Senior Hydrogeologist



Table of Contents

Lette	er of T	ransmittal	pa	i
1.0	INT	RODUC	ΓΙΟΝ	1
	1.1	Backgrou	nd	2
		1.1.1	Surrounding Land Use	2
2.0	EN	VIRONM	ENTAL MONITORING	3
	2.1	Ground V	Vater	3
		2.1.1	Regional Characteristics	3
		2.1.1.1	Regional Geology	3
		2.1.1.2	Regional Hydrogeology	4
		2.1.2	Site Characteristics	4
		2.1.2.1	Site Stratigraphy	4
		2.1.2.2	Site Hydrogeology	5
		2.1.2.2.1	Ground Water / Leachate Levels and Flow Directions	5
		2.1.2.2.2	Hydraulic Conductivity and Ground Water Velocity	8
		2.1.3	Ground Water and Leachate Quality Monitoring Program	n 10
		2.1.3.1	Leachate Indicator Parameters	. 10
		2.1.3.2	Background Ground Water	. 13
		2.1.3.3	Leachate Quality (Old Landfill Area)	. 18
		2.1.3.4	Overburden Ground Water Quality (Old Landfill Area)	. 19
		2.1.3.4.1	North Perimeter	. 20
		2.1.3.4.2	West Perimeter	. 20
		2.1.3.4.3	South Perimeter	. 21
		2.1.3.4.4	East Perimeter	. 23
		2.1.3.5	Upper Bedrock Ground Water Quality (Old Landfill Area	a)
				. 23
		2.1.3.6	Lagoon Wells	. 26
		2.1.3.6.1	Overburden Wells	. 28
		2.1.3.6.2	Bedrock Wells	28
		2.1.3.7	Perimeter Collector Water Quality (Old Landfill Area)	. 30
		2.1.3.8	Overburden and Upper Bedrock Ground Water Quality	
			(North Expansion Area)	. 34
		2.1.3.9	Leachate Pumping Chamber Water Quality (North	
			Expansion Area)	
		2.1.4	Reasonable Use	. 38
		2.1.5	Ground Water Trigger Mechanism	. 40
		2.1.5.1	Old Landfill Area	. 40



		2.1.5.2	North Expansion Area	42
		2.1.5.3	Supplemental Ground Water Trigger Mechanism (T	oluene)
				42
		2.1.6	Estimation of Contaminant Mass Loadings	43
		2.1.6.1	Old Landfill Area	43
		2.1.6.2	North Expansion Area	44
		2.1.6.3	Lindsay WPCP Lagoon Area	44
	2.2	Surface V	Vater	
		2.2.1	Surface Water Hydrology	47
		2.2.2	Surface Water Monitoring Program	48
		2.2.2.1	Sampling Requirements	48
		2.2.3	Monitoring Record	52
		2.2.4	2023 Surface Water Monitoring Results	52
		2.2.4.1	Sampling Events	52
		2.2.4.2	Scugog River	53
		2.2.4.3	Embayment Areas	56
		2.2.4.4	Scugog River Assessment	57
		2.2.4.5	On-Site Sampling Locations	61
		2.2.4.5.1	New Compost Facility	61
		2.2.4.5.2	Stormwater Management Facility	62
		2.2.4.5.3	North and South Drainage Ditch Stations	64
		2.2.4.6	Polychlorinated Biphenyls (Surface Water)	74
		2.2.4.7	Volatile Organic Compounds (Surface Water)	74
		2.2.4.8	Sediment Monitoring	74
	2.3	WPCP O	utfall	74
	2.4	Landfill (Gas	75
	2.5	Meteorol	ogical Monitoring	78
	2.6	Biomonit	oring Program	78
	2.7	Wetland	Assessment	78
3.0	SIT	E OPER	ATIONS	81
	3.1		Operations	
		3.1.1	Solid Waste Management By-Law	82
		3.1.2	Leachate Outbreak Inspections	
		3.1.3	Screening Inspections	82
		3.1.4	Final Cover	
		3.1.5	Alternative Daily Cover	
		3.1.6	Gull Management Program	
		3.1.7	Spills and Other Incidents	
	3.2	Househol	d Hazardous Waste (HHW) Depot	
	3.3		ıcity	
			-	



			CES	
	7.4	-	Consultation	
	7.3		ration	
	7.2		Assessment	
		7.1.2	Landfill Gas	
		7.1.1 7.1.2	Surface Water	
	7.1		mental Monitoring	
/ . U				
7.0			ENDATIONS	
	6.4	_	Consultation	
	6.3		rations	
	6.2		Biomonitoring Assessment	
		6.1.3 6.1.4	Landfill Gas	
		6.1.2		
		6.1.1	Ground Water and Leachate Surface Water	
	6.1		mental Monitoring	
6.0			IONS	
5.0				
5 A	-		ComplaintsANCE OF LINDSAY WPCP	
	4.1 4.2		Seview Committee	
4.0				
4.0		_	ONSULTATION	
	3.6		nce with Environmental Compliance Approval	
		3.5.3 3.5.4	Operating Hours	
		3.5.2	Pest Control Program	
		3.5.1	Dust Control Program	
	3.5		perational Aspects	
		3.4.2	Collection System Cleaning	
		3.4.1	Leachate Volumes Collected	
	3.4		e Collection System	
		3.3.2	Remaining Site Capacity and Site Life	87
		3.3.1.3	Materials Diverted	87
		3.3.1.2	Materials Landfilled	
		3.3.1.1	Materials Received	
		3.3.1	Quantity of Materials Received, Disposed and Diverted.	85



List of Figures

Figure 1a	General Location Plan
Figure 1b	Zoning Map
Figure 2a	Borehole Location Plan
Figure 2b	Landfill Leachate Collection System Layout
Figure 3	Cross-Section A-A'
Figure 4	Cross Section B-B'
Figure 5	Overburden Ground Water Flow Direction (October 2023)
Figure 6	Upper Bedrock Ground Water Piezometric Surface (October 2023)
Figure 7	Total ammonia Concentration at the Upper Bedrock Aquifer
	Trigger Monitoring Wells (Old Landfill Area)
Figure 8	Total ammonia Concentration at the Upper Bedrock Aquifer
	Trigger Monitoring Wells (Landfill Expansion Area)
Figure 9a	Upper Bedrock Chloride Concentrations (2023)
Figure 9b	Upper Bedrock Total Ammonia Concentrations (2023)
Figure 9c	Upper Bedrock Phosphorus Concentrations (2023)
Figure 9d	Upper Bedrock Toluene Concentrations (2023)
Figure 9e	Upper Bedrock Phenols Concentrations (2023)
Figure 10	Surface Water Compost Pad & Biomonitoring Sampling
	Locations
Figure 11	Scugog River Surface Water Sampling Locations
Figure 12	2023 Site Operations & Cover Plan
Figure 13	Proposed 2024 Site Operations
Figure 14	Final Contour Plan



List of In-Text Tables

	page	
Table 2:	Summary of Background Water and Leachate Quality Monitoring	
	Data for the Leachate Indicator Parameters	15
Table 1:	Background Bedrock Monitoring Well Summary	16
Table 3:	PWQO Exceedances in Lagoon Wells	30
Table 4:	Key Downgradient Monitoring Wells – Active Area	34
Table 5:	Summary of Background & Expansion Area Ground Water and	
	Leachate Quality Monitoring Data for Leachate Indicator Parameter	S
		36
Table 6:	Old landfill Area Trigger Mechanism Results - 2023	40
Table 7:	North Expansion Area Trigger Mechanism Results - 2023	42
Table 8:	Calculated Contaminant Loadings to Scugog River	46
Table 9:	Summary of Surface Water Monitoring Program	51
Table 10:	Percent Difference Comparison Table – Scugog River	59
Table 11:	Average SWM SW Location Concentrations (2006-2023)	63
Table 12:	Average South Drainage Ditch SW Location Concentrations (2006-	
	2023)	66
Table 13:	Percent Difference Comparison Table – South Drainage Channel	68
Table 14:	Average North Drainage Ditch SW Location Concentrations (2006-	
	2023)	69
Table 15:	Percent Difference Comparison Table – North Drainage Channel	72
Table 16:	2023 Landfill Gas Summary Table	76
Table 17:	2023 Monthly Waste Volumes	85
Table 18:	Daily Waste Tonnage Exceedances - 2023	86
Table 19:	2023 Leachate Volume Summaries	89



List of Appendices

Figures

Appendix A Ground Water Level Data

Appendix B Ground Water & Leachate Quality Summary Tables

Appendix C Surface Water Quality Summary Tables
Appendix D Laboratory Certificates of Analysis

Appendix E 2023 Toxicity Testing Laboratory Results

Appendix F Borehole Logs

Appendix G 2023 Leachate Collection System Inspection Video Report

Appendix H 2023 Performance Report for the Lindsay WPCP

Appendix I MECP ECA No.: A323504 Appendix J Time Trend Chemistry Graphs

Appendix K MECP Landfill Report Submission Form

Appendix L Lindsay OPS Landfill Stormwater Management System -

Annual Status Report 2023

Appendix M Old Landfill Perimeter Ground Water Quality

Interpretation Tables

Appendix N Ground Water Quality Summary Tables – PWQO

Comparison



1.0 INTRODUCTION

The City of Kawartha Lakes (the "City") Lindsay-Ops Landfill Site (the "Site") operates under Certificate of Approval (CoA) No.: A321504 originally issued December 14, 2001. Following the issuance of the original CoA, the Ministry of the Environment, Conservation and Parks (MECP) issued several amendments. On January 25, 2008, an Amended Provisional CoA was issued that consolidated the original CoA and amendments issued to that date. In March 2013, MECP issued an updated consolidated Environmental Compliance Approval (ECA) for the Lindsay-Ops Landfill which replaced the 2008 CoA. Also, to date six (6) amendment notices have been received including:

• Notice No.: 1 dated October 5, 2015 to reflect changes to the management of compost;

• Notice No.: 2 dated May 26, 2016 providing approval for the construction of the northern portion of Cells 4 and 5;

• Notice No.: 3 dated March 27, 2017 to allow for continued use of steel plates as Alternative Daily Cover (ADC);

• Notice No.: 4 dated July 11, 2017 to include the newly constructed compost pond and associated contingency plan;

• Notice No.: 5 dated April 19, 2018 to add the leachate collection system to the waste approval; and

• Notice No.: 6 dated November 14 2018 for approval of the construction of additional gas collection wells.

Most recently, MECP has issued a new consolidated Environmental Compliance Approval (ECA) for the Lindsay-Ops Landfill on December 5, 2019 which replaced the March 2013 ECA (Appendix I). This was subsequently been amended on March 11, 2022 to approve construction of cells 4/5.

The purpose of this report is to comply with the requirements of Condition No. 15.1 of the ECA which requires the submission of an Annual Status Report.

This report has been prepared in conjunction with the City of Kawartha Lakes Waste Management Staff. The following describes the specific roles and contributions to this report:



- Azimuth Environmental Consulting, Inc (Azimuth) –
 was responsible for the overall coordination of the Annual Report and preparation
 of the ground water/leachate, landfill gas and meteorological monitoring
 components of the report; and
- City of Kawartha Lakes Waste Management Division –
 City Waste Management staff undertook some of the monitoring program,
 administered the contractors that carried out the remainder of the monitoring,
 compiled waste quantity and other information for the report.

1.1 Background

The Lindsay-Ops Landfill Site (the "Site" or the "landfill") is located on Part of Lots 25, 26, and 27, Concession 6, in the former Township of Ops, now in the City of Kawartha Lakes. The Site is approximately 500 m east of the Scugog River and 2.5 km north of Lindsay (Figure 1A). Landfill operations began at this location in 1980. On December 14, 2001, the MECP approved the City's application for the continued use and north expansion of the Lindsay-Ops Landfill.

The service area of the Site is the City of Kawartha Lakes. The Site is licensed to accept solid non-hazardous municipal waste (as defined in O.Reg. 347/90 [as amended]) including wastes generated by residential and industrial, commercial and institutional (IC&I) sectors, contaminated excess soils, and biosolids (processed organic waste) restricted to treated and dewatered sewage sludge from the Lindsay Water Pollution Control Plant (WPCP).

1.1.1 Surrounding Land Use

The Lindsay WPCP is located immediately west of the original landfill and southwest of the expansion area. The Sturgeon Lake Wetland and the Scugog River are west of the Lindsay WPCP and Landfill Site. The City owns the land to the north of the Site. Immediately south of the Site is Lagoon Road, with the adjacent land south of the road owned by the City as a Contaminant Attenuation Zone (CAZ). Immediately east of the Site is Wilson Road. The City owns all of the properties to the east side of Wilson Road with the exception of one at the northeast corner of Wilson Road and Highway 36.

As shown in Figure 1B, the Site and the lands east to Wilson Road and north to Lot 27 (area of north expansion), are zoned Industrial Disposal (MD-1). Land to the west is zoned Industrial Disposal (MD-2). The MD-2 zone establishes that the land can only be used for a sewage treatment facility. The remaining lands in Lot 27 are zoned Disposal Industrial Exception Three (MD-3). The MD-3 zone establishes that the land may only be used for a waste transfer station, a waste processing facility or uses accessory to a



landfill operation within the MD-1 zone. Lands on Lot 25, directly south of the existing Site, are zoned industrial with a temporary holding zone applied (M(H)). The holding zone dictates that the land shall be used for existing uses, in this case agricultural, and can be used for industrial purposes only after amending the Zoning By-law to remove the holding category. Finally, it is noted that all current land uses in and around the Site appear to be allowable within their respective zoning restrictions.

2.0 ENVIRONMENTAL MONITORING

2.1 Ground Water

2.1.1 Regional Characteristics

Previous studies conducted for the Site have described the regional hydrogeological setting of the area in detail. These studies are:

- Interim Landfill Expansion Study (Hydroterra Limited, 1991);
- Supplementary Report (Hydroterra Limited, 1993);
- Landfill Assessment and Wetland Impact Study (Golder Associates Ltd., 1996);
 and
- Hydrogeological Conditions and Assessment of Ammonia Loadings Proposed Lindsay-Ops Landfill Expansion (Golder Associates Ltd., 2000).

The information in these reports is summarized below.

2.1.1.1 Regional Geology

The Site is located on the Peterborough Drumlin Field which comprises a broad glacial till plain forming a mantle over limestone bedrock. The glacial till is typically comprised of dense, silty sand to sandy silt, with some gravel and cobbles/ boulders. The till is mantled by glaciolacustrine clay, silt and sand deposits within the lower lying areas adjacent to the Scugog River. Water well records published by the MECP indicate that the overburden thickness ranges on a regional basis from approximately 5 m to 10 m. The underlying bedrock is grey, fine-grained to crystalline argillaceous limestone and claystone of the Lindsay Formation (Figure 3).

Regional topography slopes northwest from a topographic high of 287 m above mean sea level (masl) located about 1.4 km east of the Site, to an elevation of 250 masl in the vicinity of the Sturgeon Lake Wetland located adjacent to the Scugog River, approximately 0.5 km west of the Site. The Scugog River flows northerly over the till plain into Sturgeon Lake, located a few kilometres north of the Site.



2.1.1.2 Regional Hydrogeology

Water well records published by the MECP indicate that the majority of domestic water wells are drilled wells, completed within the upper few metres of the bedrock. The shallow bedrock aquifer is more permeable and contains less mineralized water than the deeper bedrock sequences. Mineralized and sulphurous water quality is documented on local well records between 9 and 18 m below ground surface (mbgs).

The occurrence and movement of ground water within the upper bedrock is controlled by the variable distribution and hydraulic communication of the fractures, fissures and laterally continuous bedding planes within the bedrock. On a regional scale, the reported static water levels of the existing wells indicate northwest horizontal ground water movement within the upper bedrock, discharging to the Scugog River. A northeast-trending regional ground water divide occurs about 1.4 km upgradient (east) of the Site at the topographic high. The region west of the ground water divide and east of the wetland (including the Site and WPCP lagoons) is considered a recharge area for the regional ground water flow system. Recharge occurs via infiltration and vertical percolation of water through the overburden to the underlying bedrock aquifer. Further to the west, the ground water zone changes from recharge to discharge as the ground water discharges to the Scugog River.

Limited overburden-aquifer data is available. The till plain is not considered to be a significant water bearing zone. However, the reported static-level information suggests that the water table conforms to the surface topography and that an inferred lateral ground water movement within the till overburden is northwesterly toward the Scugog River, the ultimate discharge area for the upper bedrock aquifer around the Site. As noted above, the overburden is a vertically dominated flow system. The low permeability of these till soils restricts significant lateral flow such that this unit is considered an aquitard.

2.1.2 Site Characteristics

The following sections summarize the Site specific stratigraphy and hydrogeological characteristics of the Site based on previous studies by Hydroterra Ltd. (1991, 1993) and Golder Associates Ltd. (1996, 2000). Borehole locations are identified on Figure 2A and borehole records are provided in Appendix F.

2.1.2.1 Site Stratigraphy

The overburden stratigraphy at the Site consists primarily of sandy silt to silty sand and gravel till, containing occasional sand and silt interbeds and many cobbles and boulders. The overburden thickness at the borehole locations ranges from 6 to 9 m.



Figures 3 and 4 show a stratigraphic cross-section through the old landfill area and the north expansion area (Cell 1), respectively. The average thickness of overburden underlying the old landfill area is estimated at approximately 8 m, while that for the north expansion area is approximately 2.5 m beneath Cell 1, 3.3 m beneath Cell 2, 5.0 m beneath Cells 3 & 6 and 5 m beneath the north half of Cells 4 and 5 (constructed in 2016/17). In other words, the overburden thickness increases to the south.

The old landfill area on the north side of Lagoon Road that was filled between 1980 and approximately 2004 and has no base liner system; but, has a synthetic membrane cap and perimeter leachate collection system. The north expansion area has a geomembrane / compacted clay composite base liner system and an overlying leachate collection system, as shown in Figure 2B.

In the southwest, west and northwest portions of the old landfill area, the till overburden contains a widely distributed, sand/silt lens ranging in thickness from about 1.0 to 4.5 m generally bottoming at about 4 to 6 mbgs. This lens (referred to as the granular interbed) is typically comprised of thinly bedded silty sand and silt layers.

The native overburden beneath the WPCP lagoons consists of silty sand to sandy silt till with some clay, ranging in thickness from approximately 2 to 5 m at the locations of the lagoon monitoring wells. The native overburden is overlain by excess soil materials (consisting of local sandy silt till) up to 7 m in thickness; which comprises the interior and exterior berms of the lagoons.

The limestone bedrock beneath the landfill area slopes westward at a relatively flat gradient of less than 0.005. Regionally, the bedrock is anticipated to slope southwest.

2.1.2.2 Site Hydrogeology

2.1.2.2.1 Ground Water / Leachate Levels and Flow Directions

The ground water and leachate level data for 2004 through 2021 (inclusive) are contained in Appendix A (Table A-1). Note that leachate level data at wells 6-90-II and 7-90-II (screened within the waste fill) have been revised to account for the top of pipe elevation modifications carried out in past years, as noted in Table A-1 (Appendix A). Also presented in Appendix A (Figures A-1 to A-5) are the leachate levels measured at a total of five (5) vibrating wire piezometers installed on the surface of the geomembrane liner in Cell 1, Cell 2, and Cells 3 and 6 of the north expansion area (refer to Figure 2A for locations).

Schedule B of amended ECA for the Site dated March, 2022, requires that ground water level monitoring occur at all monitoring wells four times annually. During 2023, ground



water level monitoring occurred in February, May, July and October at all wells within both the old landfill area and the north expansion area.

The shallow overburden and upper bedrock aquifer piezometric surface for October 2023 are presented in Figures 5 and 6, respectively. As noted above, the expectation is that there is little lateral ground water movement within the shallow overburden owing to the limited hydraulic conductivity of the glacial till; but the figure reflects the topographic relief towards the Scugog River. The inferred horizontal hydraulic gradients within the shallow overburden generally range from approximately 0.005 to 0.05; but the dominant hydraulic gradient in the overburden is vertically down. Ground water movement within the upper bedrock aquifer (Figure 6) is in a west to northwesterly direction from the landfill, towards the eventual discharge into the Scugog River. Horizontal hydraulic gradients within the upper bedrock generally range from approximately 0.005 to 0.05 toward the Scugog River.

Beneath the old landfill area and the immediately surrounding lands, vertical ground water movement is interpreted to be downward through the overburden sequence to the underlying limestone bedrock. Comparison of the piezometric surface contours for the bedrock aquifer (Figure 6) with the inferred leachate surface within the old landfill footprint (Figure 5), indicates a downward hydraulic gradient of up to approximately 1.0 (using an average overburden thickness of 7.5 m beneath the old landfill footprint).

In 2006, the City initiated placement of a geomembrane final cover system over the old waste fill area. The purpose of the geomembrane cover system is to minimize leachate generation by limiting moisture infiltration into the landfill. This in turn limits leachate exfiltration from the unlined base of the landfill and allows natural processes (*e.g.* adsorption, bio-chemical decay and dispersion) to effectively attenuate the existing ground water impacts as well as any future releases of contaminants (predominantly by diffusion) from the landfill base. Placement of the geomembrane cover system was completed in October 2007.

As indicated in Section 3.4, there has been variability over time in annual pumping volumes from Leachate Pumping Station No.: 1 (*i.e.*, the perimeter leachate collector system pumping chamber at the old landfill) over time; however, since 2007 when the geomembrane was installed there has been an overall decrease in volumes indicating the geomembrane has helped to reduce leachate generation at the Site.

The height of the leachate mound relative to the base of the old landfill in 2023 ranged between 1.7 and 5.6 m at 7-90/7-90-II (base of waste at 257.5 masl) whereas at 6-90-II (base of waste at 256.3 masl) there was no significant leachate mound. The higher



leachate mound height at 7-90/7-90-II reflects its location at the outer (northern) limit of the geomembrane cover system and hence a higher infiltration rate in the area of this well, or a localized area where leachate is perched above relatively low permeability waste/ cover materials. Occasional spikes in leachate water levels have been obtained at the leachate wells (*e.g.*, relatively high leachate levels at 7-90-II in July 2017 and February 2018, [refer to Table A-1]). Golder (2019) suggested that the spikes may reflect gas pressure build-up around the well screen, which lifts the leachate column upward within the well, or may reflect temporary perched water conditions within the waste fill. However, and despite the lower leachate generation volumes, the water levels in the landfill have remained within a consistent range for the period of record.

The vibrating wire piezometer VWP02-1 is installed on the surface of the geomembrane liner in Cell 1 of the north expansion area, VWP04-1 is installed in Cell 2 and VWP12-1 and 12-2 are installed in Cells 3 and 6 (refer to Figure 2A for location and Appendix A, Figures A-1 to A-5 for measured leachate levels). The piezometers indicated negligible leachate heads (<0.01 m) during 2023. VWP04-1 has not been located since 2019 when the cable got buried and could not be located; however historically had leachate levels at or below the liner level. VWP04-2 has not been operational since mid-2012; but gave leachate levels typically less than 0.1 m from the time of installation in 2004 through to 2012. These low leachate heads reflect rapid drainage of leachate above the geomembrane liner via the granular leachate collection system indicating the leachate collection system is working as designed.

As shown on the Cell 1 cross-section in Figure 4, the piezometric level in the upper bedrock aquifer beneath Cell 1 is higher than the leachate level within the cell by approximately 1.0 to 1.8 m. This infers an inward hydraulic gradient (*i.e.*, a hydraulic trap condition). This condition is beneficial with respect to restricting outward migration of leachate through any undetected defects that may potentially exist in the composite liner system. However, the bedrock condition is separated from Cell 1 by the overburden till which needs to be evaluated in order to assess the effectiveness of the hydraulic trap. For outward leachate migration to occur from Cell 1, the leachate level within Cell 1 must be above the overburden water table level. Historically, monitored water levels in the overburden have remained relatively constant and reflected the topographic gradient. In general water table elevations as reflected in Figure 5 have existed at about 254 masl on the down gradient side of Cell 1 which also is above the base membrane elevation as depicted in Figure 4 or inferring an inward hydraulic gradient.

Ground water level monitoring over the past 19 years at various locations has illustrated a consistent environment. Annually, water levels will fluctuate one to two metres; but the longer term trend remains flat. This suggests a steady state condition is prevalent across



the Site in both the overburden and bedrock. The consistency and duration of the database suggests that the collection of ground water levels from all monitoring locations four times a year could be reduced

At certain nested overburden well locations (ex. 13-91) the deeper monitoring well shows a higher piezometric level than the well closer to ground surface. In many instances where this occurs the deep overburden well was drilled to the bedrock contact. Thus, the piezometric surface measured in the deep well installation is likely reflective of the bedrock condition and an upward flow gradient from the bedrock to the overburden.

Finally, there are noted differences in the water table condition and piezometric surfaces across the Site. It is important to realize that the Site lies at the brow of the Scugog River lands as depicted in Figure 3. Thus, the easternmost series of monitoring wells portray an elevated water level relative to the rest of the Site in both the overburden and bedrock regimes owing to this topographic difference. The schematic also provides insights into the preferential direction of flow in the vicinity of the old landfill site. For the new landfill site, Figure 4 illustrates Cell 1 on top of brow. However, as noted above in Section 2.1.2.1, the bedrock depth increases to the south.

There are some older historic transcription errors in the database which becomes apparent when the data is presented on an elevation versus time graph. Of note, in 2015 it appeared the data for different monitoring wells was mixed up (*ex.* 55-98-II and 56-02-I). This data does not alter the overall Site interpretation, and further errors since 2015 have not been identified. Aside from these minor historic inconsistencies which can be explained the overall data set is credible and valid.

2.1.2.2.2 Hydraulic Conductivity and Ground Water Velocity

The velocity of ground water can be approximated using the Darcy flow equation:

$$v = \frac{Ki}{\eta}$$
 Eqn. [1]

where v = average velocity of groundwater movement [L/T];

K = bulk hydraulic conductivity [L/T];

i = hydraulic gradient [L/L];

 $\eta = \text{effective porosity } [L^3/L^3]$

Based on in situ falling-head tests, the horizontal hydraulic conductivity (K) of the till overburden was determined to range from about 10^{-6} to 10^{-7} m/s with an average (geometric mean) value of $4x10^{-7}$ m/s. The K value was largely dependent on the



presence/absence of sand seams or potential desiccation within the tested interval. The K value for the granular interbedded sand was slightly higher than the till, averaging about $8x10^{-7}$ m/s.

The horizontal hydraulic gradient in the shallow overburden outside the landfill footprint is in the range of about 0.005 to 0.05 in a west, southwest and northwest direction (Figure 5). Based on this range of hydraulic gradient, an assumed effective porosity of 0.3 and the higher geometric mean hydraulic conductivity of $8x10^{-7}$ m/s for the granular interbedded material, the theoretical horizontal groundwater velocity in the overburden is estimated to range from 0.4 to 8.0 m/a. With the landfill operations commencing in 1980, this would translate to a mean lateral distance of 16 to 320 m away from the landfill or part way under the WPCP lagoons.

As noted above, the dominant ground water flow direction in the till overburden is vertically down. The vertical hydraulic conductivity of the till and bedrock has not been measured. It is expected that the vertical hydraulic conductivity is at least one order of magnitude lower than the horizontal hydraulic conductivity. This is a common assumption based upon the general horizontally layered nature of most overburden and bedrock materials (Freeze & Cherry, 1979).

Under the old landfill site, it is suggested that the vertical hydraulic gradient was as high as 1. This would yield an estimated vertical flow velocity of ~8 m/a. The till was suggested to be up to 9 m thick so theoretically speaking, the leachate movement into the bedrock conceivably could have occurred within a year.

In-situ packer tests were carried out on bedrock wells (Hydroterra Limited, 1993). Water bearing fractures were intercepted within the upper three meters of the bedrock (referred to as the upper bedrock aquifer zone) at each of the six bedrock wells tested. The packer testing established that the penetrated bedrock intervals had relatively higher bulk hydraulic conductivities compared to the overburden, ranging from about $3x10^{-6}$ to $7x10^{-5}$ m/s, with a geometric mean of $3x10^{-5}$ m/s or one and half orders of magnitude faster than the overlying soils from a lateral perspective and two and half orders of magnitude faster than the overlying soil from a vertical perspective.

In addition to packer testing, pumping tests were carried out on upper bedrock wells by Hydroterra Limited (1993) to evaluate bulk bedrock aquifer characteristics. Transmissivity values were estimated to be in the range of 1 to 35 m²/day ($1x10^{-5}$ to $4x10^{-4}$ m²/s). Using a bulk aquifer thickness of 3 m, the bulk horizontal hydraulic conductivity of the upper bedrock aquifer is estimated to be in the range of $1x10^{-4}$ to $4x10^{-6}$ m/s.



The horizontal hydraulic gradient in the bedrock aquifer is typically about 0.005 to 0.05 in a west to north westerly direction (Figure 6). Based on this range of hydraulic gradient, an assumed effective porosity of 0.05 and the geometric mean of the bulk hydraulic conductivity value from the packer tests (*i.e.*, 3×10^{-5} m/s), the horizontal groundwater velocity in the upper bedrock aquifer is estimated to range from about 100 to 1,000 m/a. Ground water flow modeling indicated that the horizontal bedrock groundwater velocity is likely in the upper portion of this range (Golder, 1996).

However, not all lateral bedding plane fractures flow at this rate. Hydraulic testing of 55-98-II in 2006 showed an estimated hydraulic conductivity of $3x10^{-7}$ m/s or two orders of magnitude below the reported geometric mean presented above.

All of these concepts are quite important. Laterally, the leachate movement in the overburden soils has (at the theoretical upper bounds), spanned half the length of the Site. Thus, ground water monitoring in the till unit can be used to verify this truth. Vertically, the leachate migration has long ago reached the underlying bedrock contact and this too can be assessed. However, the rapid flow in the bedrock in comparison to the vertical flux from the overburden is going to significantly dilute the leachate contribution and this also needs to be expected in evaluating the geochemical profile at the landfill.

2.1.3 Ground Water and Leachate Quality Monitoring Program

The requirements of the groundwater and leachate monitoring program are outlined in Schedules B, C and D of the current amended landfill ECA. The ground water and leachate monitoring in 2023 was conducted in accordance with the ECA requirements.

This evaluation will focus on the geochemical trends that have been detected. The entire database was used in order to fully comprehend the trend data over time. The analysis was not concerned with the occasional data point which resulted in an anomalously low or high detection. In the context of the overall database trends this anomalous data can be easily identified and/or discounted.

All groundwater quality data is presented in Appendix B.

2.1.3.1 Leachate Indicator Parameters

UEM (2010) identified chloride, ammonia, phenols, phosphorus, and toluene as the ground water "leachate indicator parameters". Each of the parameters is generally geochemically independent of each other, and an elevated concentration of these parameters occurs at the leachate wells completed within the old landfill cell (6-90-II,



7-90-II, 7-90). It appears that these parameters have continued to be used in the longer term and are supported by the existing geochemical database.

Over the past decade, the geochemical database has evolved and it is suggested that other indicator parameters may prove more valuable to the Site evaluation process as trends have been tracked. Some additional parameters that were also assessed included: alkalinity, calcium, dissolved organic carbon (DOC), iron, sulphate, Total Kjeldahl Nitrogen (TKN), barium, boron, electrical conductivity and total dissolved solids (TDS) which have been used at other landfill sites in the Kawartha Lakes area.

Four key parameters when elevated tend to define the presence of leachate waters being: chloride, sulphate, total ammonia and iron. Chloride is a readily solubilized parameter that is commonly found at elevated levels in large landfill operations. Average chloride values in the leachate are at least an order of magnitude higher than that measured in the background bedrock wells and almost two orders of magnitude higher than in background overburden wells. As with many of these indicator parameters chloride will readily move with the leachate impacted waters and hence is a good parameter to assess contaminant transport.

Ammonia is a geochemically reduced nitrogen parameter. Facultative bacteria that biodegrade the organic content of the emplaced wastes will use oxygenated nitrogen species as an oxygen donor for biosynthesis and thereby reduce nitrogen parameters to its most reduced state (*i.e.*, ammonia). Total Kjeldahl Nitrogen (TKN) is a reflection of this ammonia content; but also includes organic nitrogen and therefore is useful to discerning the degree of ammonia content in the overall nitrogen concentration. Traditionally, the ammonia concentration in the old landfill is three to four orders of magnitude higher than the background water quality owing to the biodegradation processes on-going in the landfill. The temperature increase in the vibrating wire piezometers also attests to the biological processes evident in the waste mound.

Phenolics evaluation is a legacy parameter that was used in the past to assess the organic content of the host water when other organic evaluation techniques were not available. However, this parameter does not trend as readily or as significantly as other parameters. Toluene is being used to also assess the organic content since the presence of BTEX compounds appear to be the most prevalent compounds detected in the volatile organic compound scans. However, BTEX is not routinely detected relative to other indicator parameters. A final general parameter used to assess the organic content in water samples is DOC. Elevated DOC measurements can be easily related to leachate migration; but this parameter only trends after the other indicator parameters have identified the leachate influence and thus is considered a support parameter. Elevated



barium concentrations have been known to occur especially as a complexed organic compound. Thus an elevated barium measurement along with elevated DOC can be used to identify potential leachate impacted waters.

Waste biodegradation will also release phosphorus within the waste mound. The phosphorus concentration in the waste mound is two orders of magnitude higher than in the background water quality. Phosphorus migration is attenuated to a greater degree than some of the other indicator parameters noted above; so this parameter only trends after the other indicator parameters have identified the leachate influence. It can be useful in discerning leachate migration as a support parameter. However, the variance in phosphorus concentrations in the ground water at the Site may be influenced by the fact that historically it has been represented by both total and dissolved phosphorus. Typically, more turbid water samples will influence these concentrations by dissolution of phosphorus bound to the particulate in an acidified bottle (total), whereas this condition would be avoided in the dissolved analysis. As such, this parameter should be viewed with caution.

Leachate is chemically stronger than most natural ground water and can have many elevated parameters. A reflection of this chemical strength is elevated major ion parameters such as calcium and carbonate (*i.e.*, alkalinity). The elevated chemical strength is also reflected in the electrical conductivity of the water and the dissolved content present (*i.e.*, TDS).

As noted above, the leachate water quality is often in a depleted oxygen state (*i.e.*, anoxic). An anoxic state can alter specific elements significantly, including iron and manganese. Since these are earth elements and prevalent in the environment, their concentration provides an opportunity to assess the water redox state with elevated iron and manganese concentrations indicative of an anoxic condition.

Sulphate is used for two reasons. First facultative bacteria can scavenge oxygen from sulphate and thereby alter the sulphur content to a more reduced state. Thus, the absence of sulphate or its decline over time can be indicative of this process which is associated with leachate impacted waters. Sulphate can also be elevated in bedrock settings and is therefore used to discern between overburden and bedrock waters. It is also noted that elevated boron concentrations have been detected elsewhere in the natural bedrock environments of the Kawartha Lake region, but is also a common leachate indicator parameter at many Sites.

12



The intent of this expanded list of indicator parameters is to justify elevated measurements by cross-correlating to other elevated indicator parameters and thereby reducing false positives for any one indicator parameter.

2.1.3.2 Background Ground Water

Prior to 1996, no monitoring wells were located hydraulically upgradient (*i.e.*, east and southeast) of the landfill. Background ground water quality was assessed based on data from monitoring wells 33-93-II (shallow overburden well north of the old fill area) and 27-93 (upper bedrock well southwest of the old landfill area), which did not appear to have any landfill leachate impacts. Concentrations of the indicator parameters at 33-93-II remained close to background through to the end of 2003 monitoring, after which the well nest 33-93 was decommissioned to allow construction of a compost pad and associated stormwater management pond. Concentrations of the indicator parameters at monitoring well 27-93 have remained relatively unchanged, at background levels through to the end of the 2023 monitoring, and therefore this well is still considered to provide an indication of background ground water quality at the Lindsay-Ops Landfill Site. Some variability of ammonia and TKN with concentrations have been observed on occasion, but in the absence of other parameter trends are not interpreted to be leachate sourced.

In 1996, a new background ground water monitoring well nest 49-96 was installed at a location approximately 50 m east and hydraulically upgradient of the landfill. The overburden wells at this nest (*i.e.*, 49-96-II and 49-96-III) generally indicate ground water quality consistent with the historic background ground water quality at 33-93-II. It is noted that there are elevated chloride concentrations at 49-96, as indicated in Table 1 (overleaf), which is surmised to be sourced to road salt impacts. These overburden wells at nest 49-96 have nevertheless been included for defining the range of background concentrations for the indicator parameters, as shown in Table 1. The time trend graphs for the background locations has been provided in Appendix J which shows selected indicator parameter concentrations at these two wells from 1993 to 2023. Further, ammonia concentrations over time are also shown in the graph below for all background locations to illustrate the relative consistency and difference from the leachate wells.

The bedrock well at the background monitoring well nest 49-96 (i.e. 49-96-I) has historically indicated chloride and total ammonia (as N) concentration ranges of 65 to



Ammonia Concentrations Over Time

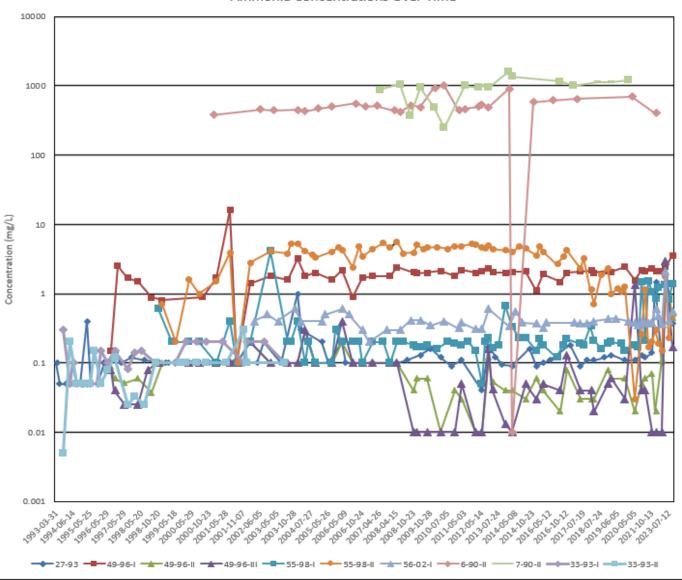




Table 2: Summary of Background Water and Leachate Quality Monitoring Data for the Leachate Indicator Parameters

Background Ground Water Quality											
(1990 - 2023)*								Leachate Quality			
Indicator	dicator Overburden Wells Bedrock Wells										
Parameter	49-96-II	49-96-III	56-02-11	27-93	49-96-I	55-98-I	55-98-II	56-02-I	6-90-II	7-90	7-90-II
Chloride	99	86	111	5	117	82	545	/106	1,186	997	1,593
Ammonia	0.1	0.1	0.2	0.2	2	0	3	0.4	529	416	971
Phosphorus	0.1	0.1	0	0.0	0.1	0.1	9.1	0.1	1.3	4	4
Phenols	0.001	0.001	0.001	0.001	0.001	0.002	0.01	0.001	0.04	0.1	0.07
EC	853	884	987	458	932	723	2,052	830	10,900	19,889	16,111
TKN	0.3	0.5	4	0.9	2	1	3	1	600	431	1,078
Alkalinity	252	295	262	211	331	235	278	251	4,347	12,657	6,547
Calcium	113	141	90	68	15	71	86	90	158	79	152
Iron	0.3	0.1	0.18	1	0.09	1	0.4	1	10.3	9	23
Sulphate	70	65	124	35	22	36	17	39	22	40	27
Boron	1	0.2	0.1	0,1	1	0.1	0.7	0.1	9	7	18
Barium	0.1	0.1	0.1	0.1	0.04	0.3	1.5	0.2	1	1	0.4
DOC	2	3	3	2	2	2	1	2	390	295	451
TDS	527	521	615	271	541	426	1,131	453	6,918	8,005	9,392
Toluene	1	0.5	0.5	0.5		0.5	0.5	0.5	2	2	16

Notes: All values in mg/L except toluene which is in ug/L and electrical conductivity in µohms/cm

^{*} Data presented represents period of record average for each monitoring well



260 mg/L and 0.2 to 16 mg/L, respectively; which are in excess of background values at the upper bedrock well 27-93. The other anomalous parameter at 49-96-I is calcium, which was quite low historically (~12 mg/L), although more recently showing increasing concentrations (~30 mg/L). However, concentrations are still well below background concentrations at 27-93 (~70 mg/L). Theoretically, if the landfill was the source of the elevated chloride and total ammonia, then higher concentrations of calcium would be anticipated. It would appear that the screened interval depth is associated with an isolated closed fracture which provides a unique geochemical signature.

Two additional bedrock wells, 55-98-I and 55-98-II with screened intervals between 11.5 and 13.4 mbgs and between 16.8 and 18.6 mbgs, respectively, were installed in September 1998 adjacent to 49-96-I (screened interval between 12.7 and 15.0 mbgs). The historical ground water sampling at these wells and the other background wells has yielded the following concentration ranges for chloride and total ammonia:

Table 1: Background Bedrock Monitoring Well Summary

Bedrock Well	Screene	Screened Interval Chloride (mg/L)		Total Amn (mg/L	Tritium		
	(mbgs)	(mASL)	Range	Ave	Range	Ave	(TU)
55-98-I	11.5 – 13.4	254.2 - 252.3	33 - 184	82	<0.1 - 4.1	0.4	14.2
56-02-I	>9.8	<253.9	<i>7</i> 5 - 161	106	<0.1 – 2.1	0.4	
49-96-I	12.7 – 15.0	252.6 - 250.3	65 - 260	117	<0.1 - 16	2	12.4
27-93	11.0 – 15.0	243.6 - 247.6	0.5 - 15	5	<0.1 - 2.0	0.2	
55-98-II	16.8 – 18.6	248.8 - 247.0	95 - 858	545	<0.1 - 5.6	3	1.5

Also shown in the above table are the results of tritium analyses conducted in 2014. The low value of 1.5 tritium units obtained for the deeper well 55-98-II compared to the shallower bedrock wells is indicative of relatively inactive "old" water pre-1953 and supports the hypothesis of negligible flushing of naturally occurring salts.

The higher tritium concentrations for the shallower bedrock wells indicate mixing with post-1953 water. However, the consistently low calcium concentration at 49-96-I is unique to this calcium-magnesium carbonate (*i.e.*, limestone) environment. Neither 49-96-I or 55-98-II is considered indicative of the conductive lateral bedding plane fractures which convey bedrock ground waters across the Site. This is likely the result isolated fractures as is evidenced by relatively slow recovery rates at 49-96-I, or possible hydraulic connection to surficial influence at 55-98-II.

At the request of the MECP, a well recovery test was performed on the deep bedrock well 55-98-II to confirm the low permeability of the bedrock at this depth. The test was performed in March 2016 and indicated a low hydraulic conductivity of $3x10^{-7}$ m/s. A



similar test for 49-96-I could be conducted to confirm the uniqueness of this contributing fracture plane.

In 2002, an additional background nest 56-02 with an upper bedrock well 56-02-I and an overburden well 56-02-II was installed southeast of the old landfill area, south of Lagoon Road. Ranges for the indicator parameter concentrations at this nest are included in Table 1 for the purpose of defining background groundwater quality. For the purpose of defining the range of background quality in the upper bedrock, the concentrations obtained for the uppermost monitoring well 55-98-I are included in Table 1.

In 2023, the data trends remained consistent with the historic database and are summarized below. The chloride concentration at 49-96-II is about ~125 mg/L reflecting the same relative concentration seen for the past decade. The same trend exists for sulphate which has a concentration at ~70 mg/L. The 2023 ammonia concentrations (0.45-2.02 mg/L) are above the more recent stable concentrations of ~0.1 mg/L, but not significantly elevated above the historical range. The DOC concentration falls within the historical range at ~2 mg/L. A subtle decreasing trend is noted for boron over the past five years. Finally, the iron concentration has varied between 0.01 and 1 mg/L for the past decade with no perceivable pattern. Similar consistency is noted for 49-96-III, although more variance is observed within a predictable range.

The chloride concentration at 27-93 remained at ~5-10 mg/L as has occurred for the past decade, although a slightly more elevated concentration was observed during October 2022 (15.1 mg/L). The total ammonia concentration remains at ~0.1 mg/L as seen for the past decade with the exception of the May 2022 (1.46 mg/L) and May 2023 (1.46 mg/L) values. The source of these recent seasonal trends is not readily known, but will be tracked moving forward. The iron concentration has existed at between 0.3 and 1.0 mg/L over the past decade and the DOC concentrations in 2023 fell within the typical range for this parameter.

Well 55-98-I has been relatively stable for the past 20+ years, although some deviations have been noted the past three years with elevations of ammonia, boron, chloride and TKN concentrations relative to the historical range. Conversely, Well 55-98-II has shown downward trending for a number of parameters including chloride, TDS, ammonia, barium, boron, TKN, while elevations are occurring for sulphate, although more stable in recent years. Given both of these locations are background bedrock wells with natural mineralization influencing the water quality, it is uncertain as to the source of these trends. Similar trends are not observed at 49-96-I a short distance away such that it is unlikely the result of a shift in leachate conditions from the adjacent waste mound,



rather variation in natural groundwater chemistry. However, these locations will continue to be monitored to assess any developing trends.

Finally, 56-02-I has had a slight upward chloride concentration from ~ 80 mg/L (2006) to ~ 160 mg/L in 2023. The total ammonia concentration has remained consistent for the past decade at ~ 0.4 mg/L with the exception of an isolated elevation in May 2023 (2.11 mg/L). The DOC concentrations over the past decade have varied between 1 and 3 mg/L, although an anomalous spike in concentration during the July 2020 event was observed (10.4 mg/L). The iron concentration for the past 5 years has remained at ~ 0.6 mg/L.

The concluding remark is that the background water quality in both the overburden and bedrock units has remained quite consistent for the past decade. Beyond this, variability is found between locations likely owing to natural variance of road salt influence and some ammonia TKN trends, which are not defined to be leachate source in the absence of other leachate indicator parameter trends, but will continue to be tracked to refine the understanding of these recent trends.

2.1.3.3 Leachate Quality (Old Landfill Area)

Four leachate wells were screened within the waste fill in the old landfill area: 6-90, 6-90-II, 7-90 and 7-90-II. The locations of these wells are shown in Figure 2A. Leachate 6-90 was installed in 1990 and decommissioned in 2000 due to damage. Well 6-90-II was installed in 2000 at essentially the same location as 6-90. In 2019, the well was redrilled in October to a depth of 14.3 mbgs (*i.e.*, 255.7 masl).

Leachate Well 7-90 was installed to the base of the waste fill in 1990. In December 2007, the 50 mm PVC pipe from well 7-90 was removed due to a blockage and the well over-drilled and re-installed to a depth of approximately 11 m within the waste fill. Sampling resumed at well 7-90 in October 2008. No sampling or water level measurement was done from 2017 to 2019 due to blockage issues in the well. This well was re-drilled in October 2019 to a depth of 15 mbgs.

Leachate Well 7-90-II was installed by the City in December 2006 approximately 125 m northwest of 7-90 and consists of 50 mm PVC threaded pipe and a 3 m long machine slotted PVC screen, installed to a depth of approximately 14 m in the waste fill. The screened interval was packed with silica sand and bentonite seals were placed above the sand.



In 2023, leachate samples were collected from Well 7-90 in May and October. Well 6-90-II was not able to be sampled 2023due to insufficient water. 7-90-II was also reportedly to have insufficient water levels for sample collection during 2023.

Leachate samples collected from the leachate wells are analyzed for pH (laboratory), conductivity (laboratory), TDS, hardness, alkalinity, major ions, trace metals, nutrients, biochemical oxygen demand (BOD), chemical oxygen demand (COD), phenols and volatile organic compounds (VOCs).

Table 1 presents a summary of the most recent leachate concentrations for five key indicator parameters: chloride, total ammonia, phosphorus, phenols and toluene at these leachate monitoring wells as well as the other indicator parameters used for this evaluation. The historical data for the leachate monitoring wells indicates fluctuating concentrations for chloride at ~1,000 mg/L, total ammonia (above 400 mg/L) and phosphorus, and decreasing concentrations for phenols and toluene presumably due to biodegradation.

Measured concentrations for PCBs at leachate wells 6-90-II, 7-90 and 7-90-II have ranged from <0.001 to 0.8 μ g/L since 2001. This measured range in PCB concentration is low and below the Ontario Drinking Water Quality Standards, Objectives and Guidelines (ODWQS) value of 3.0 μ g/L. Beginning in 2020, PCB sampling requirements were reduced and samples have not been taken from the leachate monitors. However, collected leachate samples from the leachate manholes continue to be sampled for PCBs as a precaution.

Concentrations of free cyanide have been mostly below the detection limit since the start of monitoring for this parameter in 2009. The most recent (2023) free cyanide concentrations at 6-90-II and 7-90 were near or below detection limits (<0.005 mg/L).

2.1.3.4 Overburden Ground Water Quality (Old Landfill Area)

Tables M1-M4 (Appendix M) identify the landfill leachate indicator parameters that were detected above background levels at overburden wells installed near the west, east, north, and south perimeter of the old landfill area including south of Lagoon Road in the Contaminant Attenuation Zone (CAZ). In each case, the trend in concentration of the indicator parameter(s) is described.

Of the indicator parameters, landfill impacts are most frequently represented by elevated chloride concentrations relative to background. This finding supports the selection of chloride as a key indicator of leachate impact. It was found that an increased iron concentration was also indicative of the leachate influence as was a decrease in the



sulphate concentration owing to microbial activity. The presence of elevated total ammonia concentrations was also used to identify leachate influences. As an outcome of the influence, electrical conductivity measurements also increased.

2.1.3.4.1 North Perimeter

In 2023, the only remaining well along the north perimeter of the old landfill was at Well Nest 43-93 located at the northeast corner of the old landfill area. Most of the wells along the north perimeter were decommissioned in the Fall of 2016 to allow construction of the new landfill Cells 4 and 5 (north half).

At wells 43-93-I and 43-93-II, a slight increasing chloride is noted at 43-93-I and alkalinity at 43-93-II, while the remaining concentrations have been noted to be more consistent, or within a predictable range if short term variation is noted. In 2023, the maximum chloride concentration at this well nest was 95.6 mg/L at 43-93-I. Ammonia concentrations were elevated above the historical range at 43-93-I during the May 2023 monitoring event (2.36 mg/L); however, concentrations were within the historical range for the remaining 2023 events. All other indicator parameters were generally within the background range indicating no significant leachate impacts are evident.

2.1.3.4.2 West Perimeter

Adjacent to the west perimeter of the old landfill area, leachate influence was detected in 2023 at 15-91-I, 15-91-II, 16-91-I and 16-91-II, similar to previous years. These wells are within approximately 15 m of the landfill limit and are west (downgradient) of the perimeter collector. In 2023 and similar to previous years, the greatest impact adjacent to the west perimeter was at the 16-91 well nest. Chloride concentrations remain elevated at this location (i.e., ~300-400 mg/L for 16-91-I). 16-91-II also shows a degree of seasonality with diluted readings in the Spring. This seasonality is not observed at 16-91-I, which shows consistent trend data. It is noted that the chloride concentration at 15-91-I & 15-91-II has shown an overall declining trend over the past ten years.

Total ammonia is also elevated at well nests 15-91 and 16-91, while the concentrations are generally found to fall within a predictable range over for the period or record with more stability observed the past 7 years. The May 2022 concentration at 15-91-I (8.87 mg/L) was more significantly elevated than historical values, although a lack of other LIP showing a similar trend and decreasing concentrations in 2023 would indicate this trend is isolated. Beyond the developing stability, a slow but continuous declining trend for ammonia has been noted at 15-91-II and 16-91-II over the same period.

Well nest 17-91 lies at the southwest corner of the former landfill and does not detect significant leachate impacts. With ground water flow toward the northwest, this



installation is considered parallel to the lateral landfill contaminant gradient. General stability over time is noted for most leachate parameters, although longer term chloride trending is noted at both intervals with recent increasing trends noted at 19-91-I over the past 8 years. Given similar trends are not noted for other LIP's with other LIP's indicating continued stability over time, the chloride trend is not considered to be sourced to a major shift in leachate conditions in the area. Similarly, ammonia and TKN concentrations were noted to be elevated at both intervals during the past two years. Given these isolated trends, they will continue to be tracked moving forward.

Well 19-91 is also offset from the landfill edge by about 50 m and has not detected any evidence of a significant leachate influence. However, similar chloride and more recent ammonia trends as noted above at 17-91 are observed at 19-91, as well as at another southwest corner location 18-91. The trends are also observed at 23-07 and 27-93, although much more muted for chloride. Despite these trends, the fact that the timing of ammonia and chloride trends differ and other notable leachate indicator parameters are not showing the same trends, would speak to the expected downward flow of ground water within the overburden sediments. It is also noted that the chloride concentrations are still below 100 mg/L and lower than the monitoring locations along Lagoon Road, which would indicate that road salt influence may be the source of the trending chloride concentrations. As noted in Section 2.1.2.2.1, the estimated lateral migration extent in the overburden was noted to be between 16 and 320 m. The limited leachate presence, beyond chloride and low ammonia concentrations 50 m downgradient (*i.e.*, 19-91) would infer limited contaminant migration. Well 19-91 is cross gradient to the leachate flow regime.

Overall, the stabilizing or decreasing concentrations for most leachate parameters at the west perimeter wells likely reflect the effect of the geomembrane final cover which was installed in 2007.

2.1.3.4.3 South Perimeter

Along the south perimeter of the old landfill area (*i.e.* along the north side of Lagoon Road), the two most interesting well nests are 14-07 and 23-07 since they were both moved in order to construct the landfill cap in 2007. In both instances, when the wells were re-established in 2007 and offset south of their original location; the parameter concentrations declined from those original reported. The offset distances were relatively small; but made a significant difference to the reported monitoring values being recorded at these locations. These findings illustrate the impervious nature of the overburden soil and the inability of leachate parameters to migrate away from the waste cell.



Wells 36-93 and 38-93 lie ~100 m south of the landfill and are the furthest perimeter monitoring locations. Both locations show background concentrations, although 36-93 does report an elevated iron concentration. The 36-93 well log suggests the well screen is across a more sandy unit than 38-93 which may account for this difference.

The next closest series of monitoring wells are well nest 35-93, 37-93 and 39-93, which are situated ~50 m from the landfill. The deep wells at these locations are situated immediately above the bedrock contact. In the deep wells, indicator parameters are generally close to background. A slight chloride trend over time is evident at all three locations; but more stable over past five years. Wells 37-93-I and 39-93-I also show an elevated iron concentration, albeit minimal compared to background levels. The final note is elevated concentrations of ammonia and TKN in 2022 and 2023 at all the above noted locations either at or beyond the historical range for these parameters. Similar trending is observed at other locations, including background locations, such that these trends in the absence of other leachate indicator parameter trends over the same period would suggest they are not potentially sourced to the landfill.

The shallow wells at these three locations show a greater leachate influence. Upward chloride concentration trends were evident with 39-93-II recording the highest values at ~550 mg/L (2020); however, have been more stable since. Given the lack of similar trends with other parameters, they may be more related to road salt application on the adjacent road as noted for other locations along western perimeter. Iron concentrations are also elevated at 37-93-II, albeit variable. Similarly, iron concentrations have been elevated at 35-93-II; but have declined and remained relatively stable in recent years.

Given the distances these monitoring wells are from the waste cell, the influences are considered minimal. Some upward trends may be expected at these monitoring locations; but the historic rate of increase is negligible. The three decades of monitoring has defined this trend data and the degree of variation to be anticipated year to year.

Finally, the remaining southern perimeter wells immediately adjacent to the landfill cell (wells 13-91, 18-91, 25-91 and 29-93) show varying degrees of leachate impact. The majority of these wells are screened about ~4 to ~5 mbgs where a sandier seam has been observed. 13-91-I is a deep monitor situated immediately above the bedrock contact. Indicator parameters for 13-91-I are quite stable, with the exception of a subtle increasing chloride trend and isolated ammonia / TKN elevations during the May 2023 monitoring event. The remaining parameters trend slowly, if at all. No significant leachate impacts have been detected based on the 30 years of monitoring.



In contrast, 13-91-II, 29-93 and to a lesser extent 25-91 all have elevated chloride concentrations that have ranged below 100 mg/L; but tend to be above this threshold and as high as 589 mg/L (13-91-II in 2018). The chloride concentration for well 13-91-II has been trending upward since 2014 not unlike 29-93; but has shown to be variable within a historic range without exceeding the maximum concentration from 2018.

Elevated iron concentrations are also noted for all three of these monitoring wells and a decline in sulphate has also been observed at 13-91-II, although it has shown to be more variable the past few years. The final item of note is the larger seasonal variability that has developed at 13-91-II since 2018. Concentrations are observed to be much lower during the spring monitoring event, which could be attributable to a compromised annual seal which creates dilution when the overburden water table is high in the spring.

The detection at these locations given the age of the landfill is not of considerable concern. The data suggests that the leachate migration away landfill in the overburden is not substantial based on 40 years of operations and 30 years of monitoring.

2.1.3.4.4 East Perimeter

All wells adjacent to the east perimeter of the landfill are located hydraulically upgradient of the landfill at a distance of 70 to 130 m from the landfill. In 2023, concentrations of the indicator parameters at these wells were generally within the range of background values (Table M3 – Appendix M).

2.1.3.5 Upper Bedrock Ground Water Quality (Old Landfill Area)

For the purpose of this discussion, natural (background) water quality for the upper bedrock is considered to be represented by the range of monitoring data from wells 27-93, 55-98-I and 56-02-I (refer to "overall range" for the upper bedrock in Table 1). The following assessment of landfill impacts on bedrock groundwater quality focuses on the bedrock wells located along the perimeter of the old landfill and screened within the upper 3 m of bedrock. The upper 3 m of bedrock is generally more permeable (due to fracturing) than the deeper bedrock and is expected to be the primary transmission zone of contaminant migration from the landfill (Golder, 1996). The bedrock monitoring wells along the perimeter of the old landfill area, which are screened within the upper 3 m of bedrock, are: 20-91-III, 21-91-III, 25-96 and 61-10-I. A summary of the trends for the indicator parameters at these six bedrock wells is provided below.

The chloride concentrations of these monitoring wells as shown in graph on the following page illustrate the influence the old landfill has on the underlying bedrock aquifer. Vertical percolation of the landfill leachate has allowed for a portion of the contaminant mass to distribute into this lateral flow system as expected.



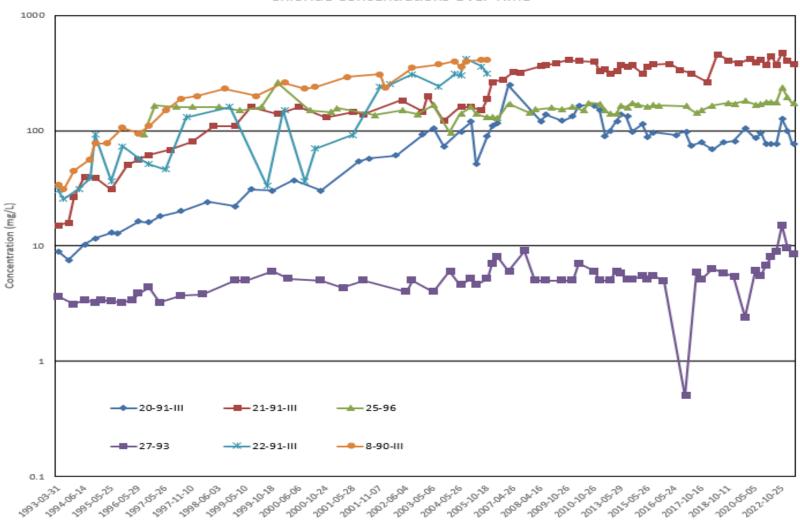
The existing database is sufficiently long enough to show the origins of this influence on several of these monitoring wells (i.e., 20-91-III and 21-91-III). As shown in the graph above, the chloride contamination increased over time which infers that the contaminant flux through the overburden soils was sufficiently slow enough for this plume development to be captured by the monitoring program. All of the surrounding bedrock monitors show a similar increase within the same general timeline.

In the case of wells 20-91-III and 21-91-III, this increase continues until an equilibrium condition is established. This equilibrium condition occurs when the vertical contaminant flux into the underlying bedrock cannot grow any further due to a steady state vertical permeability condition being established under the landfill. This is evident at 25-96 which has established that equilibrium by the time this monitoring well is constructed yielding a relatively constant chloride concentration at this sampling point.

Furthermore, the influence of the landfill capping is also expressed in this data with the decline of the chloride concentration at well 20-91-III and later at well 61-10-I, although has found to increase again, likely owing to the active waste area approaching this location in recent years. As summarized in Section 2.1.2.2.1, the volume of leachate diminishing over time following the cap emplacement would lessen the contaminant flux into the underlying bedrock. In fact, the lag which this occurs gives an indication of the vertical transmission rate that has historically existed at the Site.









Both of these findings are quite important to the overall assessment. The equilibrium condition establishes an upper bound to the contaminant flux into the underlying bedrock aquifer and would establish a steady state plume delineation based on the constant flux percolating into the bedrock unit. In Section 2.1.2.2.2, the vertical velocity into the shallow bedrock aquifer was estimated to be about a year. However, the monitoring data would suggest it took appropriately 10 years to break through based on the above noted data, thus it is inferred that the vertical permeability was about two orders of magnitude lower than the lateral estimate as opposed to the order of magnitude estimated in Section 2.1.2.2.2.

However, the hydraulic response (*i.e.*, mound reduction) through media can occur about an order of magnitude faster than the chemistry trends, which accounts for the perceived time lag with the cap construction before concentration reduction began to be seen in the monitoring wells. It is also speculated that the cap's influence on the underlying environment is not uniform across the landfill since virtually no change in the steady state condition occurred at well 25-96 and 21-91-III. These findings are used for chloride since it is deemed to be a conservative parameter and will readily move with the ground water condition.

The same equilibrium condition is established at Well 25-96 for flux of ammonia into the bedrock aquifer. At 25-96 the total ammonia has measured ~ 3 mg/L for the past two decades. Well 21-91-III rose slower and appears to have achieved an equilibrium condition as of 2012 at ~ 1.2 - 2 mg/L. Well 20-91-III has achieved a lower total ammonia equilibrium threshold at ~ 0.5 mg/L, although has trended higher over the past seven years up to ~ 1 mg/L in 2023.

In fact, many of the bedrock monitoring wells tend to show major and minor ion chemistry at constant levels which attests to the steady state condition which is established rapidly in the bedrock environment. As such, the water quality within the underlying bedrock is not expected to shift significantly over time with the current landfill configuration and operations.

2.1.3.6 Lagoon Wells

There are currently eight monitoring wells/well nests located along the exterior and central containment dykes of the lagoon system. Wells 30-93, 31-93, 59-05 and 60-05 are overburden wells, whereas well nests 45-95, 46-95, 47-96 and 48-96 have one well in the overburden (-II well) and one well in the upper bedrock aquifer (-I well). It is also noted that wells 30-93 and 31-93 lie in close proximity to each other and are screened across the same depth. In contrast, wells 59-05 and 60-05 also lie in close proximity to



each other; but are screened across different depths with 59-05 screened immediately above the bedrock contact and 60-05 screened higher in the soil profile. Finally wells 45-95-II and 46-95-II are also screened immediately above the bedrock contact whereas 47-96-II and 48-96-II are screened about a meter above the bedrock contact. As a result, the 46-95-II and 59-05 responses are similar to the bedrock well 46-95-I.

Subsequent to 1999, the lagoons have been used for sludge storage and/or equalization storage, except for Lagoon 1 which has been pumped out and used as part of the stormwater management system for the landfill expansion area. Any sludges are periodically pumped out of the lagoons to ensure optimal operation of the lagoons. The supernatant in Lagoon 6 was sampled in October 2011 and gave chloride and total ammonia concentrations of 150 and 41 mg/L, respectively. An analysis of the rate of leakage and total ammonia transport through the overburden soil layer below the lagoons is presented in Golder (1998).

In 2011, an assessment of the exceedances of the Water Pollution Control Plant ECA total ammonia trigger concentration of 9 mg/L at the lagoon monitoring wells 46-95-I (upper bedrock) plus 46-95-II and 59-05 was completed by Golder (September 2011). The primary source of the elevated total ammonia concentrations was reported to be leakage from Lagoon 6, which had been used for sludge storage over an estimated twelve year period and had reached its sludge storage capacity. The City removed much of the sludge from Lagoon 6 during 2012 and 2013 and repaired the berms. The ammonia concentrations showed a declining trend with time due to this remedial work and removal of the ammonia-rich biosolids. The decreasing trend was evident at bedrock well 46-95-I and 46-95-II, 59-05, although has since increased again to levels that are above the 2011 values indicating that similar remedial actions are required to be completed again. Similar conditions were also observed at 30-93 and 31-93, although the ammonia concentrations have not shown the recent increasing trends noted at the other locations with concentrations becoming stabilized. This relates to the overall flow patterns discussed previously where vertical migration into the bedrock represents the primary flow path relative to horizontally through the limited permeability till overburden.

The interior slopes of the west and south perimeter dyke of Lagoon 6 were inspected by Golder in 2014 for any areas of erosion, sinkhole development and/or pipe penetration that may be indicative of enhanced seepage loss. No major defects were observed. Several animal burrows were noted near the berm crest. These burrows were repaired. The exterior (west) slope of Lagoons 2, 4 and 6 continues to be visually inspected by the City at least once per month and weekly by OCWA for zones of increasing seepage, erosion and/or sloughing of the vegetative matt. No indication of lagoon seepage has



been noted. More recently, the sludge in Lagoon 4 has been removed and there is an expectation that groundwater quality in the area will continue to improve with time.

2.1.3.6.1 Overburden Wells

In general, the chloride concentration at all overburden monitoring locations is ~ 100 mg/L and has been at that level over the period of record for the monitoring wells. There is a degree of variation in some of the well data; but nothing of concern.

At well 30-93, the total ammonia concentration has steadily risen from 0.1 mg/L (2002) to ~10 mg/L in 2021 and has been noted to be stable since. A similar increase was noted at 31-93; but commencing in 2007. The increase to this level is similar to the total ammonia concentration measured at 45-95-II over the period of record. This elevated total ammonia concentration is also measured at 47-96-II and varies subtly over the same range, albeit more elevated in recent years. In contrast, 48-96-II and 60-05 show a total ammonia concentration generally below 1 mg/L over their period of record.

An elevated iron concentration is also prevalent at the overburden monitoring wells and suggests an anoxic condition associated with the sewage lagoons, which is anticipated. Most monitoring wells are reporting an iron concentration between ~ 1 and 15 mg/L in 2023. Well 45-95-II and 60-05 generally shows lower iron concentrations with concentrations declining the past several years at 49-95-II. The DOC in these monitoring wells is also slightly elevated ($\sim 1-10$ mg/L).

2.1.3.6.2 Bedrock Wells

Unsurprisingly, the chloride concentration in the underlying bedrock is also $\sim 200 \text{ mg/L}$ (including 46-95-II and 59-05), except at 48-96-I which has historically been lower but trending up in recent years to $\sim 100 \text{ mg/L}$.

The total ammonia concentration at 46-95-I (plus 46-95-II and 59-05) had trended up from 1 mg/L (1996) to \sim 20 mg/L (2011) and then declined presumably due to the biosolids removal which occurred in 2011 to \sim 3 mg/L by 2015 before trending up again to \sim 30 mg/L (2023). However, this response is unique to this area of the Site. At 47-96-I and 48-96-I, the total ammonia concentration has varied around 0.3 mg/L and been as high as 3 mg/L and as low as 0.1 mg/L. At 45-95-I, the same general variability is noted although more muted with concentrations generally falling around \sim 1 mg/L.

Iron concentrations are elevated suggesting anoxic conditions. At 46-95-I (plus 59-05 and 46-95-II), the iron concentration is trending up from \sim 3 mg/L in 1997 to \sim 13 mg/L (2023). A downward iron trend has been observed at 45-95-I over the past ten years from \sim 5 to \sim 2 mg/L. At 47-96-I the iron varies at about 0.3-2 mg/L, with more elevated



concentrations the past two years. However, at 48-96-I, the iron concentration was originally about 0.1 mg/L; but has fallen to around 0.03 mg/L over the past eight years, although shows low concentration seasonal variability.

A downward trend in sulphate to non detectable levels occurred by 2008 at 46-95-I and by 2006 at 59-05; but these are the only monitors to measure this trend. In contrast, sulphate concentrations have increased at 45-95-I since 2007 from ~40 to ~425 mg/L, although steadily decreasing since. The previous increase and longer term trend could be attributed to potential alum based compounds commonly used in the sewage treatment process. The remaining locations have consistent concentrations of ~10 mg/L.

Appendix N provides a comparison of the lagoon monitoring well water quality to Provincial Water Quality Objectives ("PWQO"). Similar to previous years, the data for 2023 indicates concentrations greater than PWQO for several parameters as summarized in the table below. These PWQO exceedences tend to correlate with the parameters noted above (*i.e.*, iron,); but also include a couple other parameters including cobalt and arsenic.

The inferred anoxic conditions permit higher iron water solubility concentrations owing to valence shift (*i.e.*, ferrous iron). Arsenic was exceeded by a marginal amount at 47-II during October 2023, but not at any other location or monitoring event, indicating it is likely anomolous. Cobalt was noted above criteria at a few locations during the May monitoring event. However, these detections occur on occasion; but, are felt to be sporadic at best and will be monitored for future consistency.



Table 3: PWQO Exceedances in Lagoon Wells

Well No.	Iron	Arsenic	Cobalt						
Overburden Monitoring Wells									
30	S/F	-	S / F						
31	S/F	-	-						
45-II	-	-	-						
46-II*	S	-	S						
47-II	S/F	F	-						
48-II	S/F	-	-						
59*	S/F	-	-						
60	S/F	-	S						
Bedrock Mo	onitoring Wells	3							
45-I	S/F	-	S						
46-I	S/F	-	-						
47-I	S/F	-	S						
48-I	-	-	/						

Notes:

Beyond the general water quality parameters, BTEX compounds are also sampled for these locations which did not indicate any exceedances in 2023.

2.1.3.7 Perimeter Collector Water Quality (Old Landfill Area)

Schedule C of the amended landfill ECA requires that the perimeter Leachate Collector Pumping Chamber (LPC-1) adjacent to the old area of the Lindsay-Ops Landfill Site be monitored monthly for a comprehensive list of water quality parameters. Further monitoring for parameters including additional major ions, additional trace metals, free cyanide, nitrilotriacetic acid (NTA), pesticides, radionuclides and trihalomethanes is required on a semi-annual basis (*i.e.*, May and October). LPC-1 is shown on Figure 2B.

In 2023, leachate samples were collected monthly from LPC-1, as summarized along with historic data in Appendix B. Laboratory Certificates of Analysis are also provided on compact disc in Appendix D.

The perimeter leachate collector system collects groundwater and leachate. In the past and prior to 2005, the perimeter collection system also collected surface water run-off. The surface water entered the collector via a catch basin near the old landfill entrance area, which was subsequently sealed and covered with waste. The Golder (2019) report

^{*} geochemistry indicative of the bedrock water quality

⁻ no exceedences reported in 2023

S –spring sampling exceedence in 2023

F – fall sampling exceedence in 2023



indicated that this surface water and ground water ingress is believed to be diluting the landfill leachate component. Hence, the concentrations of contaminants in the perimeter collector system pumping chamber tend to be lower than leachate concentrations within the landfill such as at leachate wells 6-90-II, 7-90 and 7-90-II.

It is acknowledged that the LPC-1 chemistry data is more dilute than the leachate monitoring well chemistry. In some instances, the difference is considerable. For example, the leachate quality wells at the base of the landfill have consistently recorded chloride at \sim 1,000 mg/L over the past decade, if not longer. In contrast, the LPC-1 data has measured a chloride concentration at \sim 100-200 mg/L.

While the difference between these two measuring points could be reconciled through dilution, it is felt the volumetric requirements for the ingress of "clean" water are not rational. Percolation through the waste mound to the landfill base yields a stronger leachate signature then the capture at the periphery of the waste mound. For example, the water quality at 16-91-I is comparable to the LPC-1 data. This follows the Site conceptual model which indicates vertical migration is the dominant flow path versus horizontally through the till overburden.

Prior to 2006 and the cap emplacement, the key LPC-1 indicator parameter data was trending upward (*i.e.*, chloride, ammonia, iron, *etc.*). Once the cap was constructed, the LPC-I chemistry stabilized in terms of chloride, calcium, conductivity and alkalinity following an abrupt downward shift in concentration. Other indicator parameters (*i.e.*, total ammonia, DOC, sulphate) declined more slowly before stabilizing. Thus, the cap has had a significant mitigating effect on the collection system water quality.

Originally the LPC-1 chloride data had trended upwards from ~100 mg/L (1991) to ~450 mg/L (2005); but then dropped by 2006 to ~200 mg/L. Since then, the chloride trend in the LPC-1 data is remarkably consistent. A seasonal variation is evident where the chloride concentration declines to ~100 mg/L; but consistently returns to the 200 mg/L threshold every summer season.

The ground water evaluation in the sections above suggest that the landfill leachate is diffusing outward slightly in the overburden soils, albeit to a very limited extent. This is expected and not a concern due to the low concentrations. The reduced concentrations in the perimeter collection system are also partially likely due to the capture of younger waters at the periphery of the landfill site.

Like the chloride concentration, the total ammonia data has followed a similar path. In 1991, the LPC-1 total ammonia concentration was ~1 mg/L and increased to ~90 mg/L



by 2005 before falling back to \sim 20 mg/L by 2011 and then has remained at this level (*i.e.*, \sim 5 to 30 mg/L in 2023). The leachate monitoring data tends to yield 400 mg/L or more at the base of the waste mound. As anticipated, TKN mirrors the total ammonia data in the LPC-1 data.

The DOC concentrations also followed a similar trend as the total ammonia data. In 1990, the LPC-1 total ammonia concentration was \sim 30 mg/L and increased to \sim 180 mg/L by 2005 before falling back to \sim 20 mg/L by 2011 and then has remained at this level (*i.e.*, \sim 6 to 20 mg/L in 2023).

The sulphate data has also followed this trend with concentrations in 1991 at \sim 50 mg/L and then steady increasing to \sim 200 mg/L in 2002 before trending down to \sim 50 mg/L in 2006 and then have remained at this level since that time (*i.e.*, 14 to 49 mg/L in 2023).

In general, the iron concentrations have measured between ~ 10 and ~ 70 mg/L (*i.e.*, ~ 5 to 90 mg/L in 2023) with the occasional measurement at or below 1 mg/L. These occasional low measurements have been much less frequent once the cap was constructed.

The MECP has also required the evaluation of specific chemical suites as is discussed below. For minor ion metals, all concentrations were found at trace concentrations. Aluminum concentrations ranged from 0.05 to 0.27 mg/L. Manganese concentrations ranged from 0.284 to 0.53 mg/L owing to the geochemically reduced state of this parameter. Alkalinity as an indicator parameter had a concentration that was elevated and ranged from 443 to 801 mg/L with an average of 664 mg/L.

In 2023, all cyanide samples were below the detection limit as has been the case over the past decade. Biochemical oxygen demand (BOD) concentrations were relatively low all samples below 12 mg/L, with a maximum concentration of 7 mg/L. In general, this parameter has been below 15 mg/L for the past decade. Phenols were below the detection limit for all 2023 samples, similar to last year. This parameter has also been below the detection limit about half the time for samples collected in the past decade. This accounts for a recommendation to remove cyanide and phenols as an indicator parameter / analyte.

Selenium was below detection limits for all samples in 2023. The period of record has shown to be below 0.0012~mg/L and only infrequently detected since 1998. Further evaluation of this parameter is unwarranted. Similarly, mercury was not detected above the MDL in 2023. It has never been detected above $0.6~\mu\text{g/L}$ and only detected in 9 of 176 samples run since 2002. Further evaluation of this parameter is unwarranted. A



trace silver detection was observed in 2022 (0.2 mg/L). Silver was below detection limits in 2023 and only 24 of 2,164 samples have had detections. Further evaluation of this parameter is unwarranted. Boron concentrations in 2023 varied from 0.266 to 0.581 mg/L and have yielded these results for the past decade. Fluoride concentrations in 2023 were below the MDL for all samples. The fluoride concentration has not been above 0.3 mg/L since 2005. Further evaluation of this parameter is unwarranted.

Low concentrations of BTEX compounds were detected in 2023. Toluene was not detected in 2023 and has been sparingly detected for 10+ years. This accounts for a recommendation to remove it as an indicator parameter. Xylenes were detected at very low levels in 8 of the 12 months in 2023, although<2 μ g/L. Similarly, ethylbenzene was detected but at very low levels in on 11 occasions in 2023 at concentrations <1.2 μ g/L. Benzene was consistently detected but again at very low levels at concentrations below <3.6 μ g/L, which is only marginally above the ODWQS of 1 μ g/L. As such, the low and consistent concentrations are not viewed as a concern.

Nitrilotriacetic acid (NTA) was not detected again for the seventh year in a row. Similarly, trihalomethanes (THMs) were not detected in 2023 and have only been detected three times at trace levels since 2006. Further evaluation of this parameter group is unwarranted. PCBs were also not detected for the tenth year in a row. PCBs while being recalcitrant (resistant to degradation) are highly sorptive and therefore unlikely to move with ground water at significant concentrations. Further evaluation of this parameter group is not warranted. Similarly, the organochlorine pesticide scan failed to detect any parameter above the MDL for the 15th year. Further evaluation of this parameter group is unwarranted.

Finally, a radionuclide screening yielded detections of gross-alpha particles below 0.2 Bq/L which are screening thresholds recommended by the World Health Organization. Gross Beta detections were observed in both the spring and fall sample results with concentrations ranging between 0.46 to 1.23 Bq/L, which in range with previous results.

The conclusions drawn from this evaluation are that the LPC-1samples appear to be quite stable in terms of their major ion chemistry over the past decade and that other screening analysis recommended in the past have been conducted over numerous years and their continued evaluation in the absence of any significant historic results is unwarranted.



2.1.3.8 Overburden and Upper Bedrock Ground Water Quality (North Expansion Area)

The north expansion area of the landfill started receiving waste in 2003 in Cell 1 (*i.e.*, most northern cell) which was constructed in late 2002. Cell 2 was constructed in the fall of 2004 and did not receive waste until December 2004. The northern halves of Cells 3 & 6 were constructed during the summer/fall of 2008, with waste receipt commencing in November 2008. The southern halves of Cells 3 & 6 were constructed in the summer of 2011 and started receiving waste in November 2011. The western portion of the northern half of Cells 4 & 5 was constructed in late 2016/early 2017 and starting receiving waste in March 2017, while the eastern portion was constructed in 2019.

The key overburden and upper bedrock monitoring wells downgradient of the active fill area during 2023 are as follows:

Table 4: Key Downgradient Monitoring Wells – Active Area

Overburden Wells	Upper Bedrock Wells			
(Downgradient of Active Fill Area –	(Downgradient of Active Fill Area –			
North Expansion)	North Expansion)			
57-02-II 58 61-10-II	57-02-I 11-90 61-10-I 61-17-I 62-17-I 62-17-II 62-17-III			

It is our opinion that the above-noted wells display a near background water quality based on the indicator parameters being used (Table 5 – below). The total ammonia concentrations are comparable to the background water quality data; however, increasing trends are evident, most notably at MW59-05, which has occurred consistently over the past ten years along with subtle alkalinity, barium, chloride, TDS, TKN and iron trends. More recent upward trends are evident at 11-90, 57-02-II and 58-02-I.

Similarly, the traditional indicator parameters (*i.e.*, phosphorus & phenols) exist within the background range. The toluene concentration at 58 is elevated and this represents a series of measurements between 2007 and 2011. Since 2011, toluene has not been detected. No other BTEX parameter detection was noted in 2023.

The elevated conductivity measurements are attributed to the elevated chloride concentrations which are discussed below. The iron concentration also reflects a



background water quality as do the sulphate concentrations and the DOC concentrations. All of these parameters are relatively stable in time and do not reflect any perceived trending.

However, the chloride concentrations are elevated at some wells and show some upward trends; but many have stabilized. Well 57-02-II had a chloride concentration at ~50 mg/L in 2002 which remained at this level until 2004 when it increased to 360 mg/L (2006). Since that time is has increased slightly and become more variable within a predictable range. In 2023 the chloride concentration was ~400-500 mg/L. At 58-02, the chloride concentration has been trending up since 2002. In 2002, the concentration was ~2 mg/L and has risen since then to ~300 mg/L in 2023; but this still isn't considered to be overly significant. The same can be suggested for 61-10-II where the chloride concentration is at ~200 mg/L in 2023. This increasing trend in the absence of other more dominant indicator parameters (*i.e.* ammonia) is considered to represent a road salt or dust suppressant influence given the proximity of these wells to the internal road system.

The same can be stated for the bedrock monitoring wells. As seen on Table 5 (below), these wells show consistent and flat / level responses for the key leachate indicator parameters, except for chloride (and those affected by chloride including electrical conductivity [EC]).



Table 5: Summary of Background & Expansion Area Ground Water and Leachate Quality Monitoring Data for Leachate Indicator Parameters

					Backg	round & E	-	n Area Gr 0 - 2023)*	ound Wat	er Qualit	у							
		0\	verburden	Wells						В	edrock W	ells				Lead	Leachate Quality	
	Вас	kground Wel	lls	Expans	ion Area	Wells	Back	ground \	Wells		E	xpansion	Area We	lls				
Indicator Parameter	49-96-11	49-96-111	56-02-11	57-02-11	58-02	61-10-II	27-93	55-98-1	56-02-1	11-90	57-02-l	61-10-l	62-17-I	62-17-II	62-17-III	6-90-11	7-90	7-90-11
Chloride	99	86	111	267	54	51	5	82	106	101	267	113	134	49	134	1,186	997	1,593
Ammonia	0.1	0.1	0.2	0.4	0.1	0.1	0.2	0.4	0.4	0.3	0.4	0.5	0.7	0.2	0.7	529	416	971
Phosphorus	0.1	0.1	0.3	0.1	0.1	0.4	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.1	1	4	4
Phenols	0.001	0.001	0.001	0.003	0.001	0.005	0.001	0.002	0.001	0.003	0.003	0.003	0.005	0.008	0.005	0.04	0.1	0.1
EC	853	884	987	1,399	975	889	458	723	830	929	1,399	1,088	1,693	972	1,693	10,900	19,889	16,111
TKN	0.3	0.5	4	1	0.4	1	1	0.5	1	1	1	1	1	1	1	600	431	1,078
Alkalinity	252	295	262	288	425	324	211	235	251	292	288	403	533	391	533	4,347	12,657	6,547
Calcium	113	141	90	146	150	127	68	71	90	120	146	124	86	80	86	158	79	152
Iron	0.3	0.1	0.2	0.4	0.5	0.4	1	/ 1	1	1	0.4	0.2	0.3	0.1	0.3	10	9	23
Sulphate	70	65	124	42	55	91	35	36	39	31	42	20	189	68	189	22	40	27
Boron	1	0.2	0.1	0.1	0.1	0.04	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.2	9	7	18
Barium	0.1	0.1	0.1	1	0.2	0.2	0.1	0.3	0.2	0.2	1	0.5	0.2	0.2	0.2	1	1	0.4
DOC	2	3	3	2	3	3	2	2	2	3	2	7	21	3	21	390	295	451
TDS	527	521	615	829	600	525	271	426	453	553	829	601	1,038	569	1,038	6,918	8,005	9,392
Toluene	1	0.5	0.5	0.4	1	0.6	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	2	2	16

Notes:

All values in mg/L excep All values in mg/L except toluene which is in ug/L and electrical conductivity in µohms/cm

^{*} Data presented represents period of record average for each monitoring well



The 57-02 well nest consists of a shallow well (screened from 2.5 to 4.0 mbgs) located immediately adjacent to the drainage ditch which conveys run-off from the landfill access road and parking areas to the stormwater management pond. It is considered that the elevated chloride and calcium concentrations at this shallow well reflect infiltration of road salt/ dust suppressant impacted surface water along the ditch. Vertical percolation of the road salt is also considered to have resulted in the 57-02-I increase. The chloride concentration at this well dropped from ~300 mg/L in 2003 to ~100 mg/L in 2005 and then has increased up to ~500 mg/L in 2019 and has since been removed from the monitoring program due to redundancy in monitor locations in this area. Similarly elevated chloride is observed 61-10-I (~200 mg/L) with increasing trends; however, these match concentrations and trends observed in the overburden monitor 61-10-II such that it is interpreted to be vertical migration from surficial road salt sources similar to 57-02.

2.1.3.9 Leachate Pumping Chamber Water Quality (North Expansion Area) Schedule C of the amended landfill ECA requires that monitoring of the north expansion Leachate Collector Pumping Chamber LPC-2 (located immediately west of Cell 1), occur for a select ("comprehensive") list of parameters on an annual basis, and for additional select ("indicator") parameters on a semi-annual basis. The results of the chemical analyses are used to characterize the leachate from the north expansion area and to address Condition No. 4.48 of the ECA. The results of leachate quality monitoring at LPC-2 for 2023 and the previous 17 years are summarized in Appendix B. Laboratory Certificates of Analysis are also provided on compact disc in Appendix D.

During 2023, the leachate pumping chamber received leachate from Cells 1, 2, 3, 6 and the north portion of Cells 4 and 5. A review of the 2023 data for the leachate pumping chamber indicates that the key leachate indicator parameters have remained essentially constant since the monitoring commenced in 2006, although some parameters show a greater range of variability.

The average chloride concentration in the leachate is ~600 mg/L which is reflective of the data trend. These chloride concentrations are approximately three times stronger than that measured at the old landfill LPC-1.

The total ammonia concentration average is ~170 mg/L which is reflective of the general trend. These total ammonia concentrations are an order of magnitude higher than that measured at the old landfill LPC.

The iron concentration average is \sim 20 mg/L (discounting anomalously high August 2022 value), which is reflective of the general trend which varies between 1 and 100 mg/L.



This parameter concentration is comparable to that measured at the old landfill LPC. The DOC concentrations were initially quite high (i.e., ~600 mg/L in 2007); but have declined to a degree over time. In 2022, the DOC concentrations were between ~40 and 80 mg/L. The DOC concentration is significantly higher than that measured at the old landfill LPC. The sulphate concentrations tend to be quite variable between 1 and 150 mg/L and average about the same as the old landfill LPC (i.e., ~65 mg/L).

As expected, the phenols concentration is orders of magnitude higher than the old landfill LPC which is attributed to the "young" nature of the leachate signature (*i.e.*, ~0.3 vs. 0.009 mg/L average). Over time the expectation is that it will trend to non detectable levels, which has been initiated already. Similarly, the toluene concentration is elevated compared to the old landfill (*i.e.*, ~18 vs. 0.6 μg/L average). Over time the old landfill toluene concentration degraded two orders of magnitude to a point where it is sparingly detected today. Toluene concentrations are noted to have declined over time with it routinely found below detection limits the past few years. Phosphorus concentrations are averaging 0.7 mg/L which is twice that measured in the old landfill LPC.

The obvious conclusion is that the expansion area leachate quality is relatively strong and reflective of a young leachate quality and will likely decline in strength with time similar to the old landfill.

2.1.4 Reasonable Use

The Reasonable Use Guideline establishes limits for contaminant impacts along the property boundary of the landfill based on background ground water quality and the "reasonable use" of groundwater on adjacent property. Where a reasonable use of groundwater on the adjacent property is for drinking water, which is the case for the adjacent properties to the south, north and east of the Lindsay-Ops Landfill, the Reasonable Use Guideline stipulates that the quality of the groundwater at the property boundary may not be degraded by an amount in excess of:

- 50% of the difference between background and the ODWQS for non-health related parameters (e.g., chloride), or
- 25% of the difference between background and the ODWQS for health related parameters.

For example, chloride which is a non-health related parameter with an ODWQS of 250 mg/L and average overburden and shallow bedrock background concentration of 100 mg/L, the Reasonable Use Criteria for the overburden is 175 mg/L.



The property boundary to the south of the Lindsay-Ops Landfill Site is outside the potential pathway of leachate migration from the landfill (see Figures 5 and 6) and therefore is not impacted by the landfill. This is supported by the absence of any significant leachate impacts at the furthest south monitoring wells: 36-93 (overburden), 38-93 (overburden) and 54-98 (historic - upper bedrock). Parameters that were naturally occurring at concentrations above the ODWQS at some of these monitoring wells in 2023 including iron.

The property boundary to the north of the landfill is also outside of the potential pathway of leachate migration from the landfill (see Figures 5 and 6) and is not impacted by the landfill. However, the upper bedrock well 53-98 has indicted an overall increasing trend in chloride concentration since approximately 2003, reaching a peak concentration of 834 mg/L in 2023. Furthermore, concentrations exceeding the ODWQS were observed at well 53-98 for hardness, iron, aluminum, barium, manganese and total dissolved solids, which are considered naturally occurring. It is noted, that the increasing trend in chloride concentration reflects impacts from salt application over the asphalt surface surrounding the landfill administration building. Snow plowed from this surface was normally piled in the vicinity of this well. Iron and manganese concentrations at this well have increased since the installation of this well, reaching values of 1.79 mg/L in 2022 and 0.14 mg/L in 2022, respectively, although have been more stable for the past several years. The slightly elevated iron and manganese is considered to be the result of a valence change in the water chemistry owing to the oxygen depleted ground waters occurring naturally in the bedrock aquifer. In this anoxic environment the geochemically reduced iron and manganese have an elevated solubility limit compared to the oxygenated valence of these parameters. Both iron and manganese are readily available earth elements and thus the valence change merely permits the naturally occurring elements to be in solution. Ironrich ground waters from bedrock well are a common occurrence in Ontario owing to this condition. The barium concentration has shown a slight rise for the period of record, but is considered more likely naturally sourced.

The property boundary to the east is at a distance of approximately 130 m from the edge of the landfill and is upgradient of the landfill relative to the direction of ground water flow (Figures 5 and 6). This boundary is not impacted by landfill leachate. Parameters that are naturally at concentrations above the ODWQS at the east boundary monitoring wells include iron, hardness and manganese.

The Reasonable Use Guideline does not apply to the west property boundary as there are no private lands in this area and there is no drinking water usage of the ground water along the ground water flow path downgradient of this boundary. As shown on Figures 5 and 6, the ground water flow path from the west property boundary is to the Scugog



River, and the land between the west property boundary and the river is occupied by a wetland and the Lindsay WPCP lagoons.

2.1.5 Ground Water Trigger Mechanism

The approved trigger levels and response plans for the landfill are described in detail in Section 12 of the Design Report – Continued Use of North Expansion of Lindsay-Ops Landfill (EarthTech, 2000). The following discussion summarizes separately the trigger mechanism for the old landfill area and for the north expansion area and provides a comparison of these trigger levels to the ground water quality monitoring results obtained for 2023.

2.1.5.1 Old Landfill Area

The ground water trigger mechanism for the old landfill area applies to the following bedrock monitoring wells located downgradient (*i.e.*, west and northwest) of the old landfill area:

The trigger level for the monitoring wells identified below (i.e., Table 6 - below) is a total ammonia concentration of 9 mg/L, which is based on a maximum allowable total ammonia loading of 0.6 kg/day from the overall landfill (i.e., old landfill area and landfill expansion area combined). For the monitoring carried out in 2016, prior to decommissioning of the trigger Well Nests 8-90 and 22-91, there was no exceedance of the total ammonia trigger level of 9 mg/L at any of these wells. After decommissioning of Well Nests 8-90 and 22-91 in 2016 to allow construction of Cell 4/5 (north half), replacement well 61-17-I and Well Nest 62-17 were installed in the winter of 2018 as required by Condition 11.1 of the ECA and monitored then.

Table 6: Old landfill Area Trigger Mechanism Results - 2023

Trigger Bedrock	Depth to	Depth of Well Screen Interval	Maximum Measu Concent			
Monitoring Well (Old Landfill Area)	Bedrock Surface (mbgs)	Relative to Bedrock Surface (m)	2016 (prior to well decommissioning)	2023		
8-90-I**	9.0	6.9 - 8.4	2.1	D		
8-90- II**	9.0	3.0 - 4.5	2.2	D		
8-90-III**	9.0	-0.6* - 0.9	1.2	D		
20-91-I	10.7	6.9 - 8.4	4.0	7.96		



Trigger	Depth to	Depth of Well Screen Interval	Maximum Measu Concent			
Bedrock Monitoring Well (Old Landfill Area)	Bedrock Surface (mbgs)	Relative to Bedrock Surface (m)	2016 (prior to well decommissioning)	2023		
20-91-II	10.7	4.2 - 5.7	0.8	1.61		
20-91-III	10.7	0.8 - 2.3	0.2	1.09		
21-91-I	9.9	7.5 - 9.0	2.2	3.35		
21-91-II	9.9	4.2 - 5.7	1.5	2.15		
21-91-III	9.9	0.8 - 2.3	1.7	1.65		
22-91-I**	7.0	8.8 - 10.3	3.5	D		
22-91-II**	7.0	4.8 - 6.3	1.3	D		
22-91-III**	7.0	1.0 - 2.5	0.4	D		
61-17-I***	4.4	4.8 - 6.3		2.51		
62-17-I***	4.5	9.0 - 10.5		2.01		
62-17-II***	4.5	5.0 - 6.5		1.88		
62-17-III***	4.4	2.2 - 3.7		0.31		

Notes:

values rounded for presentation purposes

- well has been decommissioned
 - top of well screen extends above bedrock surface by 0.6 m
- well decommissioned in 2016 to allow construction of Cells 4/5 (north half)
- new trigger wells installed in 2018 to replace decommissioned wells

Including these new wells, there were no exceedances of the total ammonia trigger level of 9 mg/L in 2023. Figure 7 show all of the historical total ammonia results through to the end of 2023 for the old landfill area trigger monitoring wells.

Similar to previous years, the maximum total ammonia concentration in 2021 was at 20-91-I (2.71 mg/L) which is located west of the old landfill area. Well 20-91-I has one of the deepest well screens relative to bedrock surface amongst the bedrock trigger wells and has indicated a gradual but consistent upward trending for total ammonia concentrations, which is interpreted to be associated with naturally mineralized ground water in the deeper bedrock. The shallow bedrock well at 20-91 (i.e., 20-91-III) indicated



lower total ammonia concentrations (i.e. \sim 1 mg/L in 2023) within the background range which would support a natural source.

2.1.5.2 North Expansion Area

The ground water trigger mechanism for the north expansion area applies to the following bedrock monitoring wells located downgradient (west) of the landfill expansion area:

Table 7: North Expansion Area Trigger Mechanism Results - 2023

Trigger Bedrock Monitoring Well (Landfill Expansion Area)	Depth to Bedrock Surface (mbgs)	Depth of Well Screen Interval Relative to Bedrock Surface (m)	Maximum Measured Ammonia Concentration in 2023 (mg/L as N)
11-90	7.6	0.5* - 1.0	2.71
61-10-I	7.6	1.5 - 3.1	4.68

Notes: values rounded for presentation purposes

The trigger level for the above trigger monitoring wells is total ammonia concentration of 3 mg/L, which is based on a maximum total ammonia loading of 0.6 kg/day from the overall landfill (*i.e.*, old landfill area and landfill expansion area combined). For the monitoring carried out during 2023, 61-10-I exceeded during the May monitoring event, but was significantly lower in July and October (0.38 & 39 mg/L), which is more in line with historical concentrations. As such, the May event is considered anomalous and will be tracked in 2024. Monitor 11-90 is elevated above historical concentrations as well, but is below the trigger limit. Given a similar decline in July and October values as at 61-10-I was observed, it is uncertain as to the source of the elevations, but could be anomalous data. Figure 8 show the historical total ammonia results through to the end of 2023 for the landfill expansion area trigger monitoring wells (*i.e.* 11-90, 57-02-I [no longer included for sample collection], and 61-10-I) which further illustrates the isolated deviation in ammonia concentrations during May 2023. A subtle increasing trend has been noted over time at 11-90, which will continue to be monitored in 2024; however, has still generally remained within the historical range.

2.1.5.3 Supplemental Ground Water Trigger Mechanism (Toluene)

In a memorandum from Mr. Dana Cruikshank of the MECP dated October 1, 2014 regarding review of the 2013 Annual Status Report, it was recommended that "... a trigger mechanism be tied to one of the ground water wells that would trigger VOC sampling in surface water before the four (4) year sampling time frame ...".

^{*} top of well screen interval extends above bedrock surface by 0.5 m



In response to this request, it was proposed that a trigger be set for toluene at $0.8~\mu g/L$ (PWQO value) at shallow ground water wells 18-91 and 58-02. Well 18-91 is located near the southwest corner of the old landfill area and well 58-02 is located just west of Cell 2 of the landfill expansion area. Together these proposed shallow wells allow coverage of both the old landfill and the landfill expansion areas. Should the toluene concentration exceed $0.8~\mu g/L$ on three consecutive monitoring events at either well (not necessarily the same well each time) then monitoring for VOCs at the surface water drainage ditch stations should resume at least twice per year. In 2023, the toluene concentration at these two wells was below the detection limit of $0.5~\mu g/L$, similar to previous years.

2.1.6 Estimation of Contaminant Mass Loadings

Condition 15.1 of the ECA requires mapping of concentrations of the indicator parameters: chloride, total ammonia, phosphorus, toluene and phenols in the upper bedrock aquifer. This condition also requires estimates of mass loadings for these indicator parameters to the Scugog River from the landfill area and from the Lindsay WPCP lagoons via migration through the upper bedrock aquifer. The mapping of concentrations in the upper bedrock is presented in Figures 9A to 9E. The calculation of mass loadings is presented below.

As required by Condition 15.1, the contaminant mass loadings to the Scugog River via the upper bedrock aquifer were calculated separately for each of the three sources: the old landfill area, the landfill expansion and the Lindsay WPCP lagoons.

2.1.6.1 Old Landfill Area

The loadings from the old landfill area were calculated using the following equation:

$$Loading \left(\frac{kg}{day}\right) = v_{BR}\left(\frac{m}{yr}\right) \times W(m) \times H(m) \times (C_{BR} - C_{BG})\left(\frac{mg}{L}\right) \times \frac{1}{365}\left(\frac{yr}{days}\right) \times 1,000\left(\frac{L}{m^3}\right) \times \frac{1}{10^6}\left(\frac{kg}{mg}\right)$$

where

- v_{BR} = ground water flux in the upper bedrock aquifer along the downgradient (west) side of the old landfill area;
 - = 10 m/yr based on a horizontal hydraulic gradient of 0.003 (Figure 6) and a upper bedrock hydraulic conductivity of 10⁻⁴ m/s;
- W = width of landfill footprint perpendicular to the direction of ground water flow in the upper bedrock aquifer;
 - = 270 m;



H = thickness of the upper bedrock aquifer contaminant mixing zone;

= 3 m (Golder, 1996);

C_{BG} = median of the "overall range" of background concentration in the upper bedrock aquifer (Table 1);

C_{BR} = average of maximum measured concentrations in 2023 in the upper bedrock aquifer along the downgradient (west) side of the old landfill area

(i.e. maximum concentrations at wells 20-91-III, 21-91-III and 62-17-

(i.e., maximum concentrations at wells 20-91-III, 21-91-III and 62-17-III, as shown on Figures 9A to 9E).

2.1.6.2 North Expansion Area

The loadings from the north expansion area were calculated using the same equation presented above for the old landfill area, but using the following input parameters:

 v_{BR} = ground water flux in the upper bedrock aquifer along the downgradient (west) side of the current filling area of the north expansion;

= 63 m/yr based on a horizontal hydraulic gradient of 0.02 (Figure 6) and a upper bedrock hydraulic conductivity of 10⁻⁴ m/s;

W = width of landfill footprint perpendicular to the direction of ground water flow in the upper bedrock aquifer;

= 300 m:

C_{BR} = average of the maximum measured concentrations in 2023 in the upper bedrock aquifer along the downgradient (west) side of the current filling area of the north expansion (*i.e.*, maximum of concentrations at wells 57-02-I, 11-90 and 61-10-I, as shown on Figures 9A to 9E).

2.1.6.3 Lindsay WPCP Lagoon Area

The loadings from the Lindsay WPCP lagoon area were calculated using the same equation presented above for the old landfill area, but using the following input parameters:

v_{BR} = ground water flux in the upper bedrock aquifer along the downgradient (west) side of the lagoons;



= 32 m/yr based on a horizontal hydraulic gradient of 0.01 (Figure 6) and a upper bedrock hydraulic conductivity of 10⁻⁴ m/s;

W = width of landfill footprint perpendicular to the direction of ground water flow in the upper bedrock aquifer;

= 1,000 m;

C_{BR} = the average of the maximum measured concentrations in 2023 in the upper bedrock aquifer along the downgradient (west) side of the lagoon area

(*i.e.*, average of concentrations at wells 45-95-I and 46-95-I, as shown on Figures 9A to 9E).

Table 8 below shows the calculated loadings for the indicator parameters in 2023 based on the above method of calculation. The primary loadings are for chloride, with calculated loadings of 0.3 kg/day from the old landfill area, 233 kg/day from the landfill expansion area and -18 kg/day (background more elevated) from the lagoon area. Note that the calculated loading from the lagoon area may include some loading from the landfill area, as the lagoons are located downgradient of the landfill. Furthermore, the calculated loadings for chloride from the landfill expansion area are considered to be primarily from road salt impacts at 57-02-I.

For total ammonia, the total calculated loading from the overall landfill (*i.e.*, old landfill area and the landfill expansion area combined) is 0.01 kg/day, which is much less than the design criteria of a maximum allowable total ammonia loading of 0.6 kg/day. Given that the dissolved phase contaminant plume is in steady state in the bedrock aquifer, this loading will not vary appreciably and is an order of magnitude below the allowable limit.



Table 8: Calculated Contaminant Loadings to Scugog River

Indicator Parameter	Median of Background Concentration	Average Concentrations in Upper Bedrock Aquifer in 2023 C _{BR} (mg/L)				Loading (kg/day)	
	Range in Upper Bedrock Aquifer ⁵	Downgradient ¹ of Old Landfill Area	Downgradient ² of Expansion Area	Downgradient ³ of Lagoon Area	Old Landfill Area	Landfill Expansion Area	Lagoon Area ⁴
Chloride	158	173	1,661	123	0.3	233	- 18
Ammonia	1.1	0.8	1.6	16	- 0.01	0.08	8
Phosphorus	<0.1	<0.1	<0.1	<0.1	<0.002	<0.012	<0.04
Phenols	0.001	<0.001	<0.001	<0.001		<0.00002	<0.0001
Toluene	<0.0005	<0.0005	<0.0005	<0.0005		<0.00005	<0.0002

Notes: All values in mg/L

2.2 Surface Water

Surface water quality at the Lindsay-Ops Landfill Site is currently monitored at various locations along the drainage ditch system bordering the Site and at the compost facility located on-Site (see Figure 10). In addition, surface water quality is also monitored along the Scugog River, which is located downstream of both the landfill and WPCP (see Figure 11).

The approval in 2001 to expand the Lindsay-Ops Landfill Site resulted in modifications to the surface water monitoring program existing at that time for the old landfill area, including the addition of drainage ditch sampling stations SW14, SW15 and SW16, the removal of station SW12, and the re-establishment of two downstream stations, SW3 and SW13 (see Figure 10). Additional sampling stations were also established in the Scugog River embayments contiguous with the Sturgeon Lake Wetland (see Figure 11) to capture the potential discharge of leachate impacted ground water from the old landfill area (Embayments A and B) and the potential discharge of the north expansion area of the landfill (Embayment C). These embayments are also adjacent to the Lindsay WPCP Lagoons.

In 2003, permission was granted to construct a stormwater management facility to service the Lindsay-Ops Landfill Site in Lagoon 1. Two storm water retention ponds were located immediately adjacent to Cells 2, 3 & 6 which captured runoff from the active area of the landfill and associated roadways, which provides both quantity and quality control prior to discharge into Lagoon 1 and ultimately discharging to the northern drainage swale. This resulted in additional sampling requirements at station SW15 and later on at SW3 when the Certificate of Approval (No.: 5134-7JURG6) was amended in 2008.

¹ average of maximum concentrations at wells 20-91-III, 21-91-III and 62-17-III in 2023

 $^{^{2}\,}$ average of maximum concentrations at wells 11-90, 57-02-I and 61-10-I in 2023

 $^{^{\}rm 3}\,$ average of maximum concentrations at wells 45-95-I and 46-95-I in 2023

⁴ loadings from lagoon area may include loadings from the landfill, as the lagoons are located downgradient of the landfill

 $^{^{\,\,\}mathrm{5}}$ includes median concentrations of wells 55-98-I and 56-02-I for period of record



Subsequently in December 2012, station SW14, which is located downstream of the stormwater ponds, replaced station SW3 for monitoring of the stormwater management facility (ECA No.: 8668-92MTKT).

The operation of a compost facility was initiated in 2005 that required additional water quality monitoring to ensure surface water being discharged from the compost facility to the stormwater management facility is not impaired (Figure 10). In addition to the stormwater management pond at the compost facility (CP-A), two other sampling stations were established along the drainage swale west of the pad (CP-B and CP-C). The drainage system around the compost facility was reconstructed in 2008 and stations CP-B and CP-C were replaced with two alternative stations (CP-D and CP-E) along the drainage swale (see Figure 10). When the ECA (No.: A321504) was amended in October 2015, monitoring stations CP-A, CP-D and CP-E were renamed to CP-1, CP-2, and CP-E, respectively. Following the construction of the northern portions of Cells 4 and 5 at the landfill in the fall of 2016, the compost facility was relocated to the northeast portion of the Site, near the north drainage ditch. Stations CP-1 and CP-2 were then relocated to the new compost facility, while CP-E was kept at the old compost pad location to continue monitoring the outfall ditch from the old pond. CP-1 was established within the new runoff collection pond and CP-2 along the north drainage ditch immediately downstream of where the runoff collection pond discharges into the ditch during overflow periods.

Construction of the low permeability final cover system over the old landfill area in 2006 required the establishment of station SW17 along the south drainage ditch at the outfall of the steel culverts. Monitoring of station SW17 was discontinued in 2015 as SW-2, which is located a short distance downstream of SW-17 provides representative water quality for the water quality in road side ditch of Lagoon Road.

In April 2015, station SW18 was established along the north drainage ditch, upstream of station SW14 at the point where the discharge from the stormwater management ponds enters the ditch. Station SW18 was established to clarify inputs to the ditch from the stormwater management ponds and was officially added to the surface water monitoring program when the ECA (No.: A321504) was amended in October 2015.

2.2.1 Surface Water Hydrology

Surface runoff at the Lindsay-Ops Landfill Site is collected in drainage ditches that have been constructed along the north, east and south edges of the landfill (see Figure 10). The topography of the landfill site is such that the majority of surface runoff from the current landfill site flows towards the stormwater management facility, which is located to the west of the landfill facility. Outflows from the stormwater management facility,



old landfill site and WPCP Lagoons are diverted through ditches bordering the Lagoon area and discharged in outlets on the Scugog River at SW13, west of Lagoon 2, and SW3, west of Lagoon 6. Ultimately, the runoff from the drainage ditches enters the Scugog River after passing through the Sturgeon Lake Wetland area, situated along the east bank of the river. The Scugog River flows in a northerly direction into Sturgeon Lake.

Runoff from the new compost pad and any lateral seepage occurring within the sub-base materials of the pad are collected in the surface water swale that runs along the east, north, and west edges of the compost pad. Surface water collected in the swale is directed to the runoff collection pond, which has been constructed on the west side of the compost pad.

Water collected in the drainage ditches is typically shallow and the flow low and intermittent. Dry conditions or stagnant waters are typically observed in many parts of the ditches during the spring and fall sampling periods. Water quality in the drainage ditches can also be influenced by factors or sources other than the landfill, such as road salt, the Lindsay WPCP, or agricultural and other activities occurring off-Site. Factors such as stagnant water, intermittent flow and influence of other contaminant sources often challenge the ability to adequately interpret water quality data between upstream and downstream stations, to meet water quality sampling requirements for the drainage ditches, and to collect samples representative of water quality on-Site. Therefore, these observations need to be considered when assessing on-Site water quality at the Lindsay-Ops Landfill Site. However, the number and locations of sampling stations are sufficient to adequately monitor surface water quality in and around the Site.

2.2.2 Surface Water Monitoring Program

2.2.2.1 Sampling Requirements

The current ECA (No.: A321504 last amended March 11, 2022) stipulates sampling of drainage ditch flows four times a year following rainfall events for general chemistry, biological and metal parameters. Sampling is required at two upstream locations (SW1 and SW4) and five downstream locations (SW2, SW3, SW13, SW14 and SW18) as well as two on-Site locations (SW15 and SW16) that were constructed after the completion of the landfill expansion. Monitoring of the Scugog River is also required at one upstream (McQuarrie Point) and one downstream site (Alpine Street /Pickerel Point where the Scugog River flows into Goose Bay on Sturgeon Lake). In addition, although not required by the ECA, three downstream sites in the Scugog River embayments that extend into the Sturgeon Lake Wetland (Embayments A, B and C) are also sampled in a similar manner four times a year. These sampling stations are shown on Figure 11. The ECA also requires annual sampling of upstream/downstream sites along the Scugog River and biannual (every 2 years) sampling of two downstream on-Site stations (SW3)



and SW13) and two on-Site stations potentially affected by discharge from the stormwater management ponds (SW14 and SW18) for VOCs. Finally, two additional sample locations were added in Embayment B in 2019 (Nearshore 1 and Nearshore 2) to further assess iron, TSS, pH, turbidity and ammonia concentrations in the shallow inlets of the embayment. Each sample includes a field filtered and non-filtered sample for iron.

In November 2002, MECP approved the construction of a leachate and seepage collection and disposal system to service the Lindsay-Ops Landfill Site (ECA No.: 0579-5FDS7X, issued November 15, 2002). In June 2003, MECP approved the construction of a stormwater management facility for the Site (ECA No.: 8632-5MCQFH, issued June 2, 2003). Although the ECA did not require the establishment of any new surface water sampling stations, it did require additional sampling at station SW15.

The ECAs granted in 2002 and 2003 were replaced in October 2008 by a consolidated ECA for both the leachate collection and disposal system and the stormwater management facility and included approval for the construction of the south stormwater management system (drainage perimeter ditches and associated culverts) to manage runoff from the closed landfill site (ECA No.: 5134-7JURG6, issued October 10, 2008). The consolidated ECA required additional sampling at station SW3¹ as well. The consolidated approval requires that sampling at station SW15 (entrance to the quality control pond) and station SW3 (discharge to Scugog River) be sampled for pH and total ammonia during at least four storm events through the spring, summer and fall periods that cause stormwater runoff from the landfill site.

In the event that the total ammonia level exceeds 1 mg/L, subsequent storm events causing stormwater runoff to the quality control ponds are to be monitored for trigger parameters (pH and total ammonia). Stormwater sampling should continue until four consecutive monitoring results show that total ammonia levels are less than 1 mg/L and pH is between 6.0 and 8.5. Once these conditions are met, the outlet can be re-opened and normal operations resumed. Stormwater sampling occurs in addition to the sampling conducted as part of the regular monitoring program on a quarterly basis.

The sampling requirements for the stormwater management facility for the Site were modified in December 2012 when the ECA (No.: 8668-92MTKT) was amended to replace monitoring of station SW3 with respect to this facility with station SW14, which is located along the north drainage ditch and downstream of the discharge from the stormwater management ponds. In June 2015, the MECP requested that station SW14 be renamed and moved to another location along the north ditch to capture direct inputs

As noted below, monitoring at SW3 was later switched to SW14 as the latter station is downstream of the stormwater ponds



from the stormwater management ponds. Instead of replacing station SW14, station SW18 was established upstream of SW14 at the point where the discharge from the stormwater management ponds enters the north drainage ditch. Monitoring of station SW18 was initiated in April 2015 and the station was added to the amended landfill ECA (No.: A321504) in October 2015. As such, discussion regarding surface water downstream of the stormwater management facility refers to stations SW14 and SW18 and not station SW3.

Annual sampling for PCBs at downstream stations SW2 and SW14 was initiated in 2005, following a recommendation made by the MECP in 2004. In addition, in 2007 two upstream (background) stations (SW1 and SW4) and SW15 were added to the PCB monitoring program by the City. In the October 2015 amendment to the ECA (No. A321504), the PCB monitoring program was modified to include all surface water stations appearing in Schedule E: stations SW1, SW2, SW4, SW14, SW15, SW16, and SW18 in the drainage ditches and upstream/downstream stations SW3, SW13, and along the Scugog River (McQuarrie Point and Alpine Street/ Pickerel Point). The sampling frequency was also changed from annual to every three (3) years for all stations with the exception of SW3 and SW13, which are sampled four (4) times per year, every year. In the event that the total PCB concentration is found to exceed 0.001 mg/L at SW3 or SW13 on any occasion, PCB sampling is completed at all surface water stations for two (2) consecutive sampling events with the District Office being notified if a total PCB concentration greater than 0.001 mg/L is measured in any sample.

In March 2005, amendments were made to the ECA for the operation of the compost facility (now the former compost facility), stipulating semi-annual sampling for general chemistry, biological and metal parameters of the runoff collection pond at the compost pad which as located in the area of Cells 4/5. Following the construction of the northern portions of Cells 4 and 5 at the landfill in the fall of 2016, the compost facility was relocated to the northeast portion of the Site, near the north drainage ditch. Stations CP-1 and CP-2 were then relocated to the new compost facility. CP-1 was established within the new runoff collection pond and CP-2 along the north drainage ditch immediately downstream of where the runoff collection pond discharges into the ditch during overflow periods.

Analytical parameters have also been added to the program over time including VOCs in 2001, PCBs in 2005 and 2007, and tannins and lignins in 2015. Although not required by the ECA, sampling in the Scugog River was expanded in 2002 to include three stations in embayments located close to the facility (Embayments A, B and C).



Sampling of the WPCP outfall has also been added to the surface water monitoring program in recent years. In response to recommendations that were made by the MECP in the report "Biomonitoring Study of the Scugog River Near the Lindsay/Ops Landfill and Town of Lindsay's Sewage Lagoons" (prepared by EMRB, September 2008), the City initiated sampling of the WPCP outfall for PCBs on a quarterly basis beginning on January 1, 2009. In addition, the City also initiated sampling of the WPCP outfall in 2009 for metals and general chemistry parameters to help assess metal accumulations in caddisfly (*Trichoptera*). In its Action Plan (November 2009) to address metal accumulations in caddisfly submitted to MECP in November 2009, the City proposed that this sampling continue on a quarterly basis. Based on recommendations provided in the "2014 Lindsay Biomonitoring Program" report (NEA, 2015), the City initiated annual sampling of the WPCP outfall for VOCs on a quarterly basis. Effluent quality and flows from the WPCP are included in Appendix H of this report.

Sediment sampling for Total Organic Carbon (TOC) and total PCB concentrations at stations SW3, SW13, Embayment A, Embayment C, and McQuarrie Point was initiated at the request of the MECP in 2015 and every three (3) years thereafter.

A summary of the Surface Water Monitoring requirements for the Lindsay-Ops Landfill Site is presented in Table 9:

Table 9: Summary of Surface Water Monitoring Program

Table 7. Summary of Surface Water Womening Fogura									
Station	Parameters	Frequency							
Drainage Ditches:	conductivity, pH, total alkalinity, hardness,	Four (4) times per year							
SW1, SW2, SW3,	COD, chloride, fluoride, nitrite, nitrate,	 samples shall be 							
SW4, SW14 ³ , SW15,	total phosphorus, sulphate, calcium,	collected within							
SW16, SW18 ³	sodium, potassium, iron, manganese,	12 hours of the							
//	phenols, DOC, ammonia, in-situ	first rainfall greater							
Up- and	temperature, in-situ conductivity, in-situ	than 15 mm							
Downstream:	pH, aluminum, beryllium, cadmium,	starting from							
SW13, SW14,	chromium, cobalt, copper, lead,	February 1,							
Scugog River	molybdenum, nickel, silver, thallium,	May 15, August 1,							
(1 upstream,	vanadium, zinc, antimony, arsenic,	and October 1							
1 downstream,	selenium referred to as the general water								
Embayments A, B, C	chemistry								
and Nearshore 1* &									
2*)	*just for pH, iron (field filtered duplicate),								
	turbidity and TSS								
	and in-situ dissolved oxygen, total								
	suspended solids, turbidity								



Table 9: Summary of Surface Water Monitoring Program

Station	Parameters	Frequency
SW3, SW13, SW14,	Volatile Organic Compounds (VOCs),	Biannual
SW18	Halogenated and Non-Halogenated	(every two [2] yrs)
Scugog River		
(1 upstream&		
1 downstream)		
&WPC-Eff)		
SW3, SW13 ¹	Polychlorinated Biphenyls (PCBs)	Four times per year ²
Compost Facility:	The general water chemistry referred to	Twice (2) per year
CP-1 and CP-2	above and total dissolved solids, strontium,	during the spring and
	magnesium, total Kjeldahl nitrogen,	late summer/early fall
	mercury, barium, boron, tannins and lignins	

Notes:

- all surface water monitoring locations, except for CP-1& CP-2 appearing in Schedule E shall be sampled for total PCBs every three (3) years
- should concentrations of total PCBs at SW3 or SW13 exceed 0.001 mg/L then the City shall sample all stations in Schedule E for total PCBs for two (2) consecutive sampling events. Should the City find exceedences of 0.001 mg/L total PCBs in any samples in the following sampling events the District Office should be notified
- tannins and lignins are to be included in the analytical parameters for SW14 and SW18

2.2.3 Monitoring Record

Monitoring stations SW1, SW2 and SW4 have the longest data record (1981 to 2022) and the downstream (Alpine Street/ Pickerel Point) station along the Scugog River has been sampled regularly since 1994. McQuarrie Point, which is an upstream station along the Scugog River located 2 km south of the landfill, has been monitored since 2001. Stations SW3, SW13 and SW14 were initially sampled in the early 1990s and then dropped from the program and then sampled regularly again since 2002. Stations SW15 and SW16 were created as part of the landfill expansion (construction completed in December 2003) and have been monitored since the spring of 2004. Sampling at stations along the Scugog River (Embayments A, B and C) was initiated in 2002 and at the former compost pad facility in the spring of 2005. Stations CP-1 and CP-2 were later established at the new compost pad facility in the northeast portion of the Site where monitoring commenced in 2017. Station SW17 was established along the south drainage ditch in November 2006 and was sampled until 2015. Station SW18 was established in 2015 along the north drainage ditch at the point where the discharge from the stormwater management ponds enters the ditch and has been sampled since April 2015.

2.2.4 2023 Surface Water Monitoring Results

2.2.4.1 Sampling Events

Stations along the Scugog River need to be monitored four (4) times per year following rainfall events, as per the ECA (see Table 9). In 2023, all river stations were sampled on four occasions: April 24, June 8, August 16 and October 5. Similarly, stations located



along the drainage ditches (i.e., SW14, SW15 and SW18) are also required to be sampled four (4) times per year following rainfall events and were sampled on the following dates: May 1 and June 26 and August 16. While every effort was made to sample the ditches following rainfall events as stipulated in the ECA, similar to previous years, dry, stagnant water, or low flow conditions were often encountered when surface water samples were collected. This is often the case at these locations even after significant rainfall events. These conditions have likely influenced the results of the 2023 drainage ditch surface water sampling program, resulting in more concentrated levels of parameters during some sampling events.

Water quality at the compost facility needs to be monitored twice a year, once in the spring and once in late summer/early fall. Stations CP-1 and CP-2 at the compost pad were sampled in June, August and October in 2023.

The WPCP outfall was sampled on four (4) occasions in 2023 in April, June, August and October. Sediment sampling, which is required every three years, was conducted in 2021 such that no sampling was completed in 2023 with the next event in 2024. The complete set of surface water monitoring data for 2023 is presented in Appendix C. All the required parameters as per Table 9 are included in these tables.

The discussion in this section focuses on a limited set of general chemistry and total metal parameters that were chosen because they are common indicators of water quality and/or reported detectable levels in at least some surface waters. PCBs and VOCs that were sampled in 2023, are also discussed in this section. The concentrations of many of the parameters included in Appendix C, especially those of trace metals, were below respective method detection limits (MDLs) at both river and drainage ditch stations and are thus not discussed.

2.2.4.2 Scugog River

Data collected from 2016 to present for select general chemistry and total metal parameters from the Scugog River sites are summarized in Appendix C. For comparative purposes, the Provincial Water Quality Objectives (PWQOs) for the protection of freshwater aquatic life are included wherever available.

The upstream and downstream stations along the Scugog River are sampled to monitor for potential cumulative effects in the receiving environment, including leachate from the landfill as well as the treated effluent discharge from the Lindsay WPCP. Alpine Street/Pickerel Point is located downstream of the landfill site and WPCP whereas McQuarrie Point is located upstream of the facilities. Stations at Embayments A and B were established to monitor for potential discharge of leachate impacted ground water



from the closed old landfill area and the station at Embayment C for potential discharge from the north expansion area. However, the three embayment sites are downstream, as well as directly downgradient of both the landfill and the WPCP, and therefore can be influenced by either of the facilities.

The most important finding is that the downstream water quality is generally similar to upstream water quality (graph below) and there is no indication of any impairment of the water as a result of the landfill.

The graphic shows the consistency in the major ion chemistry for the Scugog River sampling at the upstream and downstream locations. As anticipated, there has been no meaningful shift in the data between these two sampling points, beyond some occasional differences in sodium and chloride concentrations. This is stated because the volumetric flow through the Scugog River² is very much greater than the ground water seepage that is coming from the shoreline and from external areas including the WPCP property. In essence, the dilution capacity of the river very much controls the resulting water chemistry.

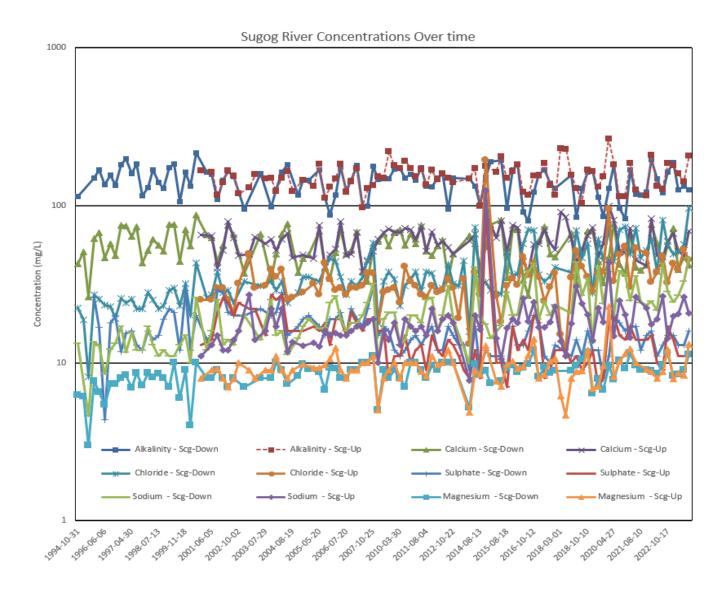
It is interesting to see that over time that chloride is trending upward from ~30 mg/L in 1995 to peaks of ~70-90 mg/L since 2016; but this trend is consistent at both locations. The downstream location does "spike" up on occasion typically during summer or fall monitoring events; but the trend remains the same. In the past, it has been suggested that higher concentrations of some parameters have been observed over time at the upstream station and this has been attributed to an increase in stormwater sewers in residential areas and agricultural runoff. The 2023 data suggests the relative sodium and chloride concentrations between upstream and downstream locations are variable over time with the variance likely sourced to the large catchment area and various tributaries that discharge into the River creating some level of localized variability. Boron also indicates a notable and consistent increase in concentrations downstream between 30 and >100%, which has also been seen in previous years. There is a singular large elevation in ammonia concentration during the August monitoring event with the upstream location indicating a concentration of 0.21 mg/L and the downstream location indicating 1.58 mg/L; however, the remaining 2023 monitoring events indicate more marginal differences or higher in the upstream locations. The remaining LIP's do not show similar trends such that it is not obviously sourced to leachate influence. It is also noted that Embayment A, which is receptor for sewage effluent and potential ground water leachate

Parks Canada suggests that 17 m³/s must flow through Lakefield to maintain a base flow at Trenton and that this requires 35 m³/s from the Haliburton Lakes system. These type of flow requirements from the system including that flowing through Sturgeon Lake are very much greater than the Site flows (0.1 m³/s)

https://www.pc.gc.ca/en/lhn-nhs/on/trentsevern/info/infonet/eaux-water-questions

-







discharge did not show more elevated concentrations in these parameters from previous years supporting the fact the trends are not likely landfill derived.

The majority of the heavy metals are not detected above the MDL or detected at trace levels.

Furthermore, the ground water assessment of the landfill influence suggests that the majority of impacted water will move through the upper bedrock horizon. The four critical landfill parameters were identified as chloride, total ammonia, sulphate and iron. Of these indicator parameters chloride is considered to be the most prevalent. However and as illustrated above, the Scugog River does not see a pronounced influence between the upstream and downstream sampling location, beyond the 2023 results noted above.

This is not unexpected. In Section 2.1.6 it was suggested that the bedrock flow was 32 m/yr across 1,000 m width and over a bedrock thickness of ~3 m. This yields a flow into Embayment A of ~100,000 m³/yr. In comparison, the WPCP reportedly discharged ~5,000,000 m³ into Embayment A in 2023. Both the bedrock chloride concentration and the sewage effluent had a chloride concentration of ~100 - 300 mg/L. However, the Scugog River with a chloride concentration of ~40-100 mg/L fails to detect any significant influence between the upstream and downstream sampling locations. Thus, the flow in the Scugog River is sufficiently larger than the annual WPCP discharge such that the influence is not measurable within the river.

2.2.4.3 Embayment Areas

Unlike the Scugog River, the influence of the WPCP outfall is detectable but has been very low in Embayment A historically. Key indicator parameters associated with the effluent quality are readily evident and elevated compared to the Scugog River quality or even that sampled at the other two embayment locations.

The water quality in Embayment B reflects that seen in the Scugog River given that it is upstream to the landfill and sewage treatment plant, although an elevated ammonia concentration during the June monitoring event was noted (1 mg/L). At Embayment C, the water quality is slightly above that seen in Scugog River and is believed to represent a muted reflection of that present in Embayment A. Waters leaving Embayment A would flow downstream; but potentially in proximity to the eastern shoreline since full mixing would not occur until further afield. Presumably, a back eddy into Embayment C provides the ability to reflect this muted signature at this sampling location.

Additional locations were added in 2019 to Embayment B to target further into the inlets of Embayment C. These locations (Nearshore 1 & 2) are analyzed for TSS, turbidity, pH,



ammonia and iron (filtered & unfiltered). The iron (dissolved) and ammonia results are generally comparable or within the range found at Embayment B, which would indicate seepage into the inlets of the embayment is not occurring to an extent that is measureable within the embayment. The continued monitoring of these nearshore locations is considered unwarranted.

During the 2023 monitoring period, the following observations were noted:

- Scugog River monitoring locations were sampled on four dates in 2024: April 24,
 June 8, August 16 and October 5. These sampling events meet the ECA requirements for Scugog River sampling four times per year;
- In terms of PWQO parameters, the naturally occurring water hardness owing to the limestone setting is consistently above the standard in the Scugog River samples. Phenol concentrations were exceeded on one occasion in 2023 (0.002 mg/L at Embayment A), but have historically sporadically detected above the MDL of 0.001 mg/L. Phosphorus is also routinely detected above the PWQO limit of 0.03 mg/L. A bit more sporadically detected above the PWQO limit is aluminum a naturally occurring earth element, which was localized to Embayment A in 2023. Unionized ammonia is also exceeded, which most routinely occurs in Embayment A, although was also seen at Embayment B, Embayment C and the downstream locations in 2023. The elevations at Embayment A are most likely sourced to sewage effluent, while the exceedances at Embayment C could be sourced to this source as well. However, it is noted that the concentrations in the river locations exceed PWQO much less frequently and are observed lower concentrations such that the upstream exceedances would indicate that there is a low level natural / alternative source and that the elevations in the Embayment are attenuated through dilution such that the elevations are localized in nature. Beyond these parameters the remaining detections above the PWQO limits were for copper and zinc on single occasions, as well as chromium, which was observed at all locations during the April monitoring, including upstream at the same concentrations such that they are no considered sourced to the landfill;
- Overall, good water quality was noted in the Scugog River in 2023 where
 parameter concentrations were generally similar between upstream and downstream
 stations throughout the year and metal concentrations low and in many cases below
 MDL values.

2.2.4.4 Scugog River Assessment

The focus of the MECP evaluation of the 2017 Lindsay-Ops Landfill Annual Monitoring Report was to assess whether an impact to the water quality of the Scugog River had occurred. This was accomplished by averaging the historical data and then assessing the



percentage difference between stations. The issue with the technique is when anomalous and elevated results skew the average, such that this needs to be accounted for in the evaluation.

The MECP suggested that the percentage difference between stations is usually less than 100%. It was also suggested that a difference of 25% is considered significant. The percentage differences in the following table have been colour coded as outlined by the MECP in their previous review. All downstream sampling stations are being compared to the upstream station (*i.e.*, McQuarrie Point).

The first station downstream of the McQuarrie Point station is the Embayment B station. The evaluation suggests that there is virtually no difference between these two stations which is anticipated. The only parameters greater than 25% are ammonia and boron. The boron results are similar to previous years, while the ammonia is newer and is reflective of isolated elevated concentration during April 2022 and August 2023, which were an order of magnitude larger than historical values. Given the subsequent 2022 and 2023 values were more in line with the historical range and other parameters did not show similar elevations, it is uncertain as to the source of these elevations in the absence of other more notable leachate indicator parameters. It is known that boron is evident in the upper bedrock waters and is used as an indicator parameter for that reason. However, it is unlikely that a ground water source has resulted in this difference.

The next downstream station is found in Embayment A where the WPCP and landfill discharge. As a result numerous parameters show a different of more than 25% and several show a significant elevated difference of more than 100% (*i.e.*, ammonia, unionized ammonia, chloride, nitrate, TKN, sodium, sulphate, potassium, aluminum & boron).



Table 10: Percent Difference Comparison Table – Scugog River

Table 10.	1 01 001	nt Differe	mee et	mpai	13011 1	ubic	Sec	15 ⁰ 5 1			
							Percentage Difference				
Parameter	Units	dn-bos	Embayment B	Emabayment A	Emabyment C	Scg-Dwn		Scg-Up vs Embayment B	Scg-Up vs Embayment A	McScg-Up vs Embayment C	Sog-Up vs Scg-Dwn
pH -Lab	pH units	8.0	8.0	8.1	8.1	8.0		0%	1%	1%	0%
Conductivity	uS/cm	418	427	732	465	409		2%	75%	11%	-2%
BOD	mg/L	4	3	3	3	3		-13%	-15%	-12%	-6%
COD	mg/L	27	29	27	28	27		6%	-2%	3%	1%
Total Dissolved Solids	mg/L	238	237	405	257	236		0%	70%	8%	-1%
Total Suspended Solids	mg/L	7	8	8	7	7		9%	15%	-5%	-2%
Alkalinity	mg/L	152	143	165	141	143		-6%	8%	-7%	-6%
Hardness	mg/L	186	176	215	176	173		-6%	16%	-5%	-7%
Ammonia	mg/L	0.09	0.14	1.15	0.26	0.16		54%	1135%	180%	70%
Un-ionized Ammonia	mg/L	0.02	0.02	0.07	0.03	0.02		2%	242%	47%	14%
Calcium	mg/L	59	55	67	55	55		-6%	14%	-6%	-6%
Chloride	mg/L	35	42	106	51	38		18%	202%	44%	8%
DOC	mg/L	9	9	8	9	9		-2%	-15%	-2%	-3%
Fluoride	mg/L	0.14	0.11	0.16	0.10	0.10		-25%	11%	-27%	-30%
Iron	mg/L	0.12	0.09	0.08	0.09	0.10		-28%	-30%	-27%	-20%
Magnesium	mg/L	9	9	11	9	9		-1%	16%	1%	-8%
Manganese	mg/L	0.03	0.03	0.03	0.03	0.03		0%	21%	-6%	7%
Nitrate	mg/L	0.5	0.5	2.0	0.6	0.4		-11%	280%	10%	-16%
Nitrite	mg/L	0.08	0.07	0.13	0.08	0.07		-9%	70%	-3%	-11%
TKN	mg/L	0.8	0.9	2.2	1.1	0.9		9%	164%	29%	5%
Sodium	mg/L	19	23	64	29	21		20%	239%	55%	11%
Sulphate	mg/L	15	14	38	18	16		-6%	146%	20%	4%
Phenols	mg/L	0.001	0.002	0.002	0.002	0.002		9%	17%	30%	30%
Phosphorus	mg/L	0.05	0.05	0.04	0.06	0.04		17%	-11%	28%	-16%
Potassium	mg/L	2	2	6	3	2		8%	233%	45%	21%
Aluminum	mg/L	0.07	0.04	0.14	0.05	0.06		-35%	113%	-20%	-3%
Antimony	mg/L	0.0035	0.0030	0.0031	0.0030	0.0042		-14%	-12%	-14%	21%
Arsenic	mg/L	0.0038	0.0034	0.0034	0.0033	0.0043		-13%	-12%	-13%	13%
Barium	mg/L	0.06	0.05	0.06	0.05	0.05		-11%	1%	-8%	-21%
Beryillium	mg/L	0.035	0.030	0.030	0.030	0.024		-15%	-13%	-15%	-30%
Boron	mg/L	0.03	0.04	0.08	0.05	0.04		36%	160%	52%	23%
Cadmium	mg/L	0.0001	0.0001	0.0001	0.0001	0.0002		-1%	-10%	-9%	228%
Chromium	mg/L	0.003	0.003	0.003	0.003	0.005		-10%	-9%	-12%	35%
Cobalt	mg/L	0.0009	0.0010	0.0010	0.0010	0.0010		10%	11%	8%	14%
Copper	mg/L	0.0032	0.0016	0.0026	0.0017	0.0022		-51%	-20%	-47%	-31%
Lead	mg/L	0.0005	0.0005	0.0006	0.0005	0.0011		-10%	6%	-9%	97%
Mercury	mg/L	0.00187	0.00062	0.00062	0.00062	0.00062		-67%	-67%	-67%	-67%
Molybdenum	mg/L	0.0009	0.0009	0.0017	0.0010	0.0013		-7%	90%	12%	38%
Nickel	mg/L	0.008	0.008	0.008	0.008	0.008		-1%	-2%	-4%	0%
Selenium	mg/L	0.004	0.004	0.004	0.004	0.005		-10%	-9%	-10%	11%
Silver	mg/L	0.0001	0.0001	0.0001	0.0001	0.0002		5%	4%	1%	187%
Strontium	mg/L	0.2	0.2	0.2	0.2	0.2		-4%	20%	-1%	-9%
Thallium	mg/L	0.00015	0.00015	0.00013	0.00017	0.00049		0%	-8%	17%	236%
Vanadium	mg/L	0.0013	0.0012	0.0011	0.0012	0.0016		-7%	-16%	-6%	22%
Zinc	mg/L	0.011	0.010	0.019	0.010	0.013		-16%	69%	-9%	14%

Most of the elevated differences can be associated with the Site operations. The nitrate, unionized ammonia, TKN, and total ammonia concentrations are anticipated to be an outcome of a combination of the WPCP effluent and potentially other land uses in the area (ex. Agriculture and urban development). Sewage effluent is typically nutrient rich. Nutrients include nitrogen, phosphorus and potassium. The elevated sodium, chloride and EC concentrations are likely from both the WPCP discharge and the spring freshet containing road salt elements. Sulphate and aluminum are also elevated and may be from



coagulants at the WPCP containing aluminum or other sources. Boron is surmised to be associated with liquid laundry detergents, which are reported to use borax and this may account in part for this detection. Finally, it is noted that many of these noted differences are only found in Embayment A and despite these concentration differences, the flow from Embayment A is insufficient to meaningfully influence the Scugog River. It should be noted that there are major treatment upgrades being done to the WPCP that were started in 2020 which will create a positive effect on the effluent quality from the plant in the future.

The next downstream station is Embayment C. The percentage difference between Embayment A and Embayment C are considered to illustrate the limited influence Embayment A has on the Scugog River outside of the actual embayment. At Embayment C, only ammonia shows a difference greater than 100%, while the difference from upstream is only 25% of that seen at Embayment A. In total, eight parameters show a difference more than 25% being: unionized ammonia, chloride, TKN, sodium, phenols, phosphorus, boron and potassium. It is also noted that the relative differences are very minor and are lower than that shown for Embayment A.

In evaluating the data, some parameters are consistently elevated over all the stations and therefore not readily attributable to the landfill and WPCP. The focus of this assessment was to point out those parameters which trend down from the Embayment A sampling data. Sodium and chloride trend down and it is conjectured whether the waters leaving Embayment A skirt the east shoreline and back eddy in Embayment C before being fully dispersed in the river further downstream. Several of the parameters have declined an equivalent amount (*i.e.*, ~2/3) which would indicate dilution within the river is significant directly relating to the flow differential between the interpreted ground water contributions from the landfill (~100,000 m³/year) and WPCP outflow (5,000,000 m³/year) relative to the much more significant flow rates of the river (~0.5 to 1 billion m³/year) It is further noted that of the 5,000,000 m³/year of WPCP effluent discharged to the river, only about 1% of that volume represents treated leachate volume.

Finally, some parameters could be attributable from other sources. Agricultural application and runoff will provide a similar nutrient-rich signature (*i.e.*, nitrogen, potassium) as can decaying vegetation. While this is expected as a result of the agricultural fields surrounding the river in this area, there will be some nutrient provided by the WPCP effluent. As stated, the WPCP is currently undergoing major upgrades to the treatment system which will see effluent quality improvements.

The downstream sample records show that the majority of the parameters considered above have dissipated by the Alpine Street (Scg-Down) station. An elevated ammonia



concentration is shown. However, the downstream water quality also reports several elevated metal parameters unique to this one station (*i.e.*, silver, thallium, cadmium, chromium, lead and molybdenum). A series of samples collected two decades ago are elevating these parameters and could be discounted given the data collected in the intervening years which would negate the majority of the metal results.

In summary, there are some limited/sporadic concentrations of parameters that have not shown consistent presence in the samples over time and are judged to be questionable. Discounting the questionable concentrations, then the data conforms well to the upstream station. The Embayment A waters has some elevated parameters; but this does not appear to significantly influence the downstream water quality at the Alpine Street station.

2.2.4.5 On-Site Sampling Locations

Data collected in 2023 for select general chemistry and total metal parameters from stations at the new compost facility and along the drainage ditches are presented in Appendix C. Past reporting has established that PWQOs are not applicable to water quality in the drainage ditches and hence data from the on-Site sampling locations are not compared to the guideline values (Golder, 2019).

2.2.4.5.1 New Compost Facility

The compost facility was re-located in 2017 and was the first year of monitoring stations CP-1 and CP-2 in their new locations. CP-1 was established within the new runoff collection pond and CP-2 was located along the north drainage ditch immediately downstream of where the runoff collection pond discharges to the ditch during overflow periods.

Runoff from the new compost pad and any lateral seepage occurring within the sub-base materials of the pad are directed to the surface water swale running along the east, north and west perimeters of the compost pad. The surface water swale in turn discharges into the runoff collection pond (CP-1). Water quality at station CP-2 can be influenced by water flow and other conditions in the drainage ditches off-site and thus is not entirely indicative of conditions at the compost facilities.

As per the ECA (No.: A321504), the compost pad stations were monitored in late summer and early fall, on June 8, August 16 and October 5. The data, which is provided in Appendix C indicates that a number of parameters are frequently elevated at CP-1 & CP-2 including alkalinity, ammonia, iron, chloride, TDS, COD, sodium, strontium and phosphorus. No defined trends are noted beyond a consistent upward trend for TKN and



ammonia at CP-1. As similar trends are not found at CP-2 which is downstream of the storm pond, these conditions are considered localized.

2.2.4.5.2 Stormwater Management Facility

Stations SW15 and SW16 are located along the drainage ditch that runs along the east side of the stormwater management facility, as shown in Figure 10, and were established once construction of the north landfill expansion was completed in December 2003. Station SW15 is located at the entrance to the stormwater quality control pond and station SW16 is located further north along the ditch. Both stations are immediately downstream from the north landfill expansion area and monitored for potential effects from the expansion. Given that the north landfill expansion area is lined, it is not expected to influence water quality at stations SW15 and SW16. The drainage swale that collects run-off from the old compost facility also drains into this ditch upstream of station SW15.

As previously noted, the amended requirements (December 2012) for the operation of the stormwater management facility involve sampling at drainage ditch stations SW15 and SW14 (located along the north drainage ditch downstream of the landfill as well as the point where the stormwater management ponds drain into the north drainage ditch) to monitor water quality entering the quality control pond and the Scugog River from on-Site runoff. In 2015, station SW18 was also established along the north drainage ditch at a location upstream of SW14, where water flowing from the stormwater management ponds discharges into the ditch (see Figure 10); the purpose was to help clarify inputs entering the ditch.

The 2023 data (Appendix C) for stations SW14, SW15, SW16, and SW18 (stations SW14 and SW18 are also discussed in a later section relative to upstream drainage ditch stations):

• Samples were successfully collected from most stations on a quarterly basis on April 24, June 8, August 15 and October 5 where water depth facilitated sample collection. Additional stormwater sampling for pH and total ammonia was conducted at SW14, SW15 and SW18 on May 1 and August 16;



Table 11: Average SWM SW Location Concentrations (2006-2023)

Indicator Parameter				
	SW16	SW15	SW18	SW14
Chloride	231	138	97	48
Ammonia	0.1	0.2	0.2	0.1
Phosphorus	0.2	0.2	0.2	0.1
Phenols	0.003	0.002	0.003	0.002
Toluene	<0.03	<0.03	<0.03	<0.03
EC	1201	829	752	604
TKN	2	2	2	1
Alkalinity	235	178	221	230
Calcium	119	108	96	96
Iron	3	3	2	1
Sulphate	34	34	17	19
Boron	0.1	0.1	0.04	0.1
Barium	0.1	0.1	0.1	0.1
DOC	9	8	9	8
TDS	680	477	409	343

Notes: All values in mg/L except toluene which is in ug/L and electrical conductivity in µohms/cı Data presented represents period of record average for each monitoring well

- The table above provides a summary of the leachate indicator parameters for these four stations. In general parameters tend to be comparable with minor exceptions;
- The chloride concentration has historically been elevated at SW16 reaching ~500 mg/L in the spring of 2007 and 2010 and the same in early summer of 2018, which it has maintained since. This is likely sourced to road salt application within the Site;
- This same seasonally elevated chloride concentration (i.e., ~200 to 500 mg/L) is evident in the SW15 data for virtually every year since 2005;
- In contrast, SW18 and SW14 have shown an increasing trend in the chloride data from ~20 mg/L in 2002 to ~100-200 mg/L in 2023. The seasonal highs in this data tend to occur in the late summer/ early fall sampling events and could represent soil desorption when the flow in the ditches are quite low or a response to storm events;
- Historically, the parameters noted in the sections above tend to frequently exceed the PWQO limits being: hardness, iron, phenols, phosphorus and aluminum for all sampling locations;
- At SW15 and SW16 detections of chromium, copper, cobalt, lead, vanadium and zinc have been measured at slightly elevated concentrations repeatedly, although no upward trending is noted;
- At SW15 boron concentrations have been noted to be elevated but variable with an overall increasing trend since 2017. As other notable leachate indicator parameters



- do not show similar trends, it is uncertain as to the source of the boron, but will continue to be tracked;
- Measurable concentrations of tannins and lignins continue to be detected at SW14 and SW18 in 2023. This is not unexpected since there is a measurable difference between the TKN and total ammonia results at all of these stations which supposedly reflects an organic nitrogen content like due to seasonal vegetation decay. The DOC data also suggest an organic content to the ditch corridors. This is also anticipated to account for the phosphorus concentrations that are detected at these locations. Contributing to this is the fact that the drainage is seasonal at the Site and dries out over the summer. Often and in the past stagnant waters are being sampled since the water table lies below ground surface and flow only occurs during the spring melt and regional storm events in part because the surficial tills are not overly permeable; and
- The 2022 total ammonia results at SW18 continued to be somewhat seasonally elevated in comparison to past years, although a similar trend at SW14 was not observed in 2023, indicating the trends are likely a remnant of the elevated WPCP discharge in 2018.

Overall, the surficial drainage network essentially conveys seasonal excess waters and is perched above the ground water table. The ground water flow in the overburden is vertically down and the surface drainage may contribute to some degree; but are likely limited owing to the low vertical permeability. As the excess flow diminishes past the spring freshet, water becomes stagnant in the channels owing to local undulations in the network. Small flows are typically recorded even during significant storm events; but are temporal in nature and wholly dependent on a climatic contribution to sustain the flow conditions.

2.2.4.5.3 North and South Drainage Ditch Stations

Stations SW4, SW14, SW18, and SW13 are located along the north drainage ditch and stations SW1, SW2, and SW3 along the south drainage ditch. Stations SW1 and SW4 are upstream of the landfill while the remaining stations are downstream of the landfill. Any change in SW2 versus SW1 or SW14 versus SW4 is presumed to indicate an influence of the landfill and/or the WPCP sewage lagoons. However, other sources may also influence water quality in the north and south drainage ditches. Stations SW1, SW4, SW14 and SW18 are being influenced by runoff from agricultural/farming activities conducted in the area, as evidenced by elevated nitrate concentrations at SW-4 on occasion. Similarly, the upstream stations (SW1 and SW4) are also affected by road salting along the access road to the Site. Station SW14 may be influenced by the stormwater management facility, which discharges along the north drainage ditch upstream of SW14 at station SW18. Station SW18 was established in April 2015 to help



ascertain whether the outflow from the stormwater management facility impacts the north drainage ditch. Finally, stations SW3 and SW13, in addition to being downstream of the landfill, are also downstream of the Lindsay WPCP, agricultural fields, and potential road runoff.

Parameter concentrations measured at the drainage ditch stations are also greatly affected by dry conditions, and low and intermittent flows often encountered in the drainage ditches. The upstream station SW1 was noted to be dry during all events in 2023, while SW4 was sampled in April, August and October. However, even when water is present, stagnant and shallow waters were often reported at these stations. The following observations were noted from review of the 2023 data (Appendix C).

South Drainage Ditch

- In 2023, the south drainage ditch was sampled on April 24, June 8, August 16 and October 5. The ECA stipulates that there should be at least four sampling events for each of these stations; but as noted, dry conditions were frequently encountered in the south drainage ditch, especially at SW1 which was dry throughout most of the field season;
- In 2023, the water quality sampling results were comparable to the historic database for these sampling locations. The database shows no obvious trend in the data. Table 12 below provides the average concentrations over the period of record for these sampling stations. It is noted that the chloride concentration diminishes away from the entry road (*i.e.*, SW1) and is attributed to road salt impacts;
- The same general trend with certain parameters was evident with this data. Overall, the difference between the TKN and total ammonia results is considered to show organic nitrogen. DOC concentrations also suggest an organic signature and the detection of phosphorus contributes to the assessment that decaying vegetative matter likely contributes to these results;
- Historically, the parameters noted in the sections above tend to frequently have elevated concentrations including hardness, iron, phosphorus and aluminum for all sampling locations. Phenols detections above the limit are more infrequent and not observed in 2023. Many of the elevated concentrations are related to shallow, stagnant conditions which increase potential for sediment entrainment, which can skew these parameter concentrations;
- Occasional elevated concentrations of chromium, copper, cobalt, and zinc are
 historically noted for all three sampling stations. In 2023, only chromium and zinc
 were shown to have a marginally elevated concentration at SW-2 and only
 chromium at SW3;
- The data at all three locations has been shown to be stable, with variance, but within a predictable range for the period of record; and



• In 2023, SW3 was analyzed for PCBs, which were found to be below the MDL value.

Table 12: Average South Drainage Ditch SW Location Concentrations (2006-2023)

Indicator Parameter										
	SW16	SW15	SW18	SW14						
Chloride	231	138	97	48						
Ammonia	0.1	0.2	0.2	0.1						
Phosphorus	0.2	0.2	0.2	0.1						
Phenols	0.003	0.002	0.003	0.002						
Toluene	<0.03	<0.03	<0.03	<0.03						
EC	1201	829	752	604						
TKN	2	2	2	1						
Alkalinity	235	178	221	230						
Calcium	119	108	96	96						
Iron	3	3	2	1						
Sulphate	34	34	17	19						
Boron	0.1	0.1	0.04	0.1						
Barium	0.1	0.1	0.1	0.1						
DOC	9	8	9	8						
TDS	680	477	409	343						

Notes: All values in mg/L except toluene which is in ug/L and electrical conductivity in µohms/cı
Data presented represents period of record average for each monitoring well

South Drainage Channel Assessment

The MECP used the same evaluation technique to assess the water quality in the north and south drainage channels. For this evaluation the same techniques is used; but with median values as was discussed above (see Table 13 below).

The first downstream station from SW1 is SW2. The evaluation has identified nitrate as having the most significant difference at 300%, while an additional five parameters with greater than 25% difference with SW1, being: iron, magnesium, sulphate, silver and strontium.

Some of these parameters are different than those identified for the Scugog River. This is felt to be important since the concern is how Embayment A is influencing the downstream water quality. If the drainage contribution were significant then the elevated differences for the drainage channel should be reflected in the embayment water quality.

The identified differences above appear to be related to major ion species as opposed to the key leachate indicator parameters, likely due to natural variation between surface water features or alternative sources (*i.e.*, sewage effluent). Iron is an earth element and infers issues with sediment entrainment in the sampling program. The silver is sourced to



a few isolated elevated concentrations which is skewing the average concentrations. The elevated nitrate parameter has been related to vegetation decay as opposed to a landfill influence. It is worthwhile to point out that nitrate concentration results in the south drain have a lower median value than that in Embayment A and thus would provide a diluting effect.

The low total ammonia concentration attests to this hypothesis of vegetation decay as does the higher TKN result suggesting presence of organic nitrogen. The sulphate difference is another indicator of sediment entrainment.

The differences at SW3 are comparable to those at SW2. The iron difference also speaks to issues with sediment entrainment especially when sample results have greatly exceeded 10 mg/L for several samples. The sampling result variability also infers entrainment issues. For example, the June 2008 sample reported an iron concentration of ~74 mg/L and also reported a manganese concentration at 18.7 mg/L, an aluminum concentration at 11.1 mg/L and elevated concentrations of boron, cadmium, chromium, cobalt, copper and lead. There are several other instances where the TSS exceeded 1,000 mg/L in the sampling result and had similar elevated parameter concentrations.

It has been speculated by others that seepage from the lagoon system could be influencing the south drainage water quality. Azimuth would disagree with this notion. Between SW2 and SW3, both chloride and sulphate concentration diminish which are elevated within the WPCP effluent. Also, total ammonia concentration is muted at both SW2 and SW3 compared to the lagoon effluent concentrations. When evaluated as a whole there does not appear to be the data supporting this concept.

As such, these differences are not considered significant in terms of contaminant migration. They reflect challenges with sample collection when water depths are quite minimal during the summer season. The south drain dries out over the summer season which also speaks to the fact that ground water is not likely coming to surface. From above, it was shown that the ground water elevation data does not vary appreciably and is about a meter below ground surface. It was also shown that the overburden soils are not overly permeable. All of this information and the recognition that the drainage channels dry out over the summer lead to the inference that ground water contributions to the surface water condition in this area are unlikely to occur.



Table 13: Percent Difference Comparison Table – South Drainage Channel

pH -Lab pH Conductivity uS BOD m COD m Total Dissolved Solids m Alkalinity m Hardness m Ammonia m Un-ionized Ammonia m Calcium m Chloride m DOC fluoride m Iron m	Units I units S/cm ng/L ng/L ng/L ng/L ng/L ng/L ng/L ng/L	SW1 7.9 920 5 25 569 110 307 352 0.1 0.01 127 121 9	SW2 7.8 943 4 25 574 48 311 397 0.2 0.01 139	SW3 8.0 898 4 22 529 446 301 381 0.2 0.02 136	% Diffe \$\frac{\text{SM}}{\text{SM}} \text{CM}{\text{SM}} \text{CM}{\text{SM}} \text{CM}{\text{SM}} \text{CM}{\text{SM}} \text{CM}{\text{CM}} \text{-1%} \\ -1\text{-1%} \\ -56\text{-1}{\text{1}} \\ 13\text{-22\text{-1}} \\ 22\text{CM}	2% -2% -16% -7% 307% -2% 8%
pH -Lab pH Conductivity uS BOD m COD m Total Dissolved Solids m Alkalinity m Hardness m Ammonia m Un-ionized Ammonia m Calcium m Chloride m DOC fluoride m Iron m	units S/cm ng/L ng/L ng/L ng/L ng/L ng/L ng/L ng/L	7.9 920 5 25 569 110 307 352 0.1 0.01 127	7.8 943 4 25 574 48 311 397 0.2 0.01	8.0 898 4 22 529 446 301 381 0.2	-1% -21% -1% -1% -1% -1% -1% -1% -36% -1% -13% -22%	2% -2% -16% -10% -7% 307% -2% 8%
pH -Lab pH Conductivity uS BOD m COD m Total Dissolved Solids m Alkalinity m Hardness m Ammonia m Un-ionized Ammonia m Calcium m Chloride m DOC fluoride m Iron m	units S/cm ng/L ng/L ng/L ng/L ng/L ng/L ng/L ng/L	7.9 920 5 25 569 110 307 352 0.1 0.01 127	7.8 943 4 25 574 48 311 397 0.2 0.01	8.0 898 4 22 529 446 301 381 0.2	-1% -21% -1% -1% -1% -1% -1% -1% -36% -1% -13% -22%	2% -2% -16% -10% -7% 307% -2% 8%
pH -Lab pH Conductivity uS BOD m COD m Total Dissolved Solids m Alkalinity m Hardness m Ammonia m Un-ionized Ammonia m Calcium m Chloride m DOC fluoride m Iron m	units S/cm ng/L ng/L ng/L ng/L ng/L ng/L ng/L ng/L	7.9 920 5 25 569 110 307 352 0.1 0.01 127	7.8 943 4 25 574 48 311 397 0.2 0.01	8.0 898 4 22 529 446 301 381 0.2	-1% 3% -21% -1% 1% -56% 1% 13% 22%	2% -2% -16% -10% -7% 307% -2% 8%
Conductivity us BOD m COD m Total Dissolved Solids m Total Suspended Solids m Alkalinity m Hardness m Ammonia m Un-ionized Ammonia m Calcium m Chloride m DOC m Fluoride m Iron m	S/cm ng/L ng/L ng/L ng/L ng/L ng/L ng/L ng/L	920 5 25 569 110 307 352 0.1 0.01 127 121	943 4 25 574 48 311 397 0.2 0.01 139	898 4 22 529 446 301 381 0.2	3% -21% -1% 1% -56% 1% 13% 22%	-2% -16% -10% -7% 307% -2% 8%
BOD m COD m Total Dissolved Solids m Total Suspended Solids m Alkalinity m Hardness m Ammonia m Un-ionized Ammonia m Calcium m Chloride m DOC m Fluoride m Iron m	ng/L ng/L ng/L ng/L ng/L ng/L ng/L ng/L	5 25 569 110 307 352 0.1 0.01 127 121	4 25 574 48 311 397 0.2 0.01 139	4 22 529 446 301 381 0.2 0.02	-21% -1% 1% -56% 1% 13% 22%	-16% -10% -7% 307% -2% 8%
COD m Total Dissolved Solids m Total Suspended Solids m Alkalinity m Hardness m Ammonia m Un-ionized Ammonia m Calcium m Chloride m DOC m Fluoride m Iron m	ng/L ng/L ng/L ng/L ng/L ng/L ng/L ng/L	25 569 110 307 352 0.1 0.01 127 121	25 574 48 311 397 0.2 0.01 139	22 529 446 301 381 0.2 0.02	-1% 1% -56% 1% 13% 22%	-10% -7% 307% -2% 8%
Total Dissolved Solids Total Suspended Solids Alkalinity Hardness Ammonia Un-ionized Ammonia Calcium Chloride DOC Fluoride Iron	ng/L ng/L ng/L ng/L ng/L ng/L ng/L ng/L	569 110 307 352 0.1 0.01 127 121	574 48 311 397 0.2 0.01 139	529 446 301 381 0.2 0.02	1% -56% 1% 13% 22%	-7% 307% -2% 8%
Total Suspended Solids Alkalinity Hardness Ammonia Un-ionized Ammonia Calcium Chloride DOC Fluoride Iron	ng/L ng/L ng/L ng/L ng/L ng/L ng/L ng/L	110 307 352 0.1 0.01 127 121	48 311 397 0.2 0.01 139	446 301 381 0.2 0.02	-56% 1% 13% 22%	307% -2% 8%
Alkalinity m Hardness m Ammonia m Un-ionized Ammonia m Calcium m Chloride m DOC m Fluoride m Iron m	ng/L ng/L ng/L ng/L ng/L ng/L ng/L ng/L	307 352 0.1 0.01 127 121	311 397 0.2 0.01 139	301 381 0.2 0.02	1% 13% 22%	-2% 8%
Hardness m Ammonia m Un-ionized Ammonia m Calcium m Chloride m DOC m Fluoride m Iron m	ng/L ng/L ng/L ng/L ng/L ng/L ng/L ng/L	352 0.1 0.01 127 121	397 0.2 0.01 139	381 0.2 0.02	13% 22%	8%
Ammonia m Un-ionized Ammonia m Calcium m Chloride m DOC m Fluoride m Iron m	ng/L ng/L ng/L ng/L ng/L ng/L ng/L	0.1 0.01 127 121	0.2 0.01 139	0.2	22%	
Un-ionized Ammonia m Calcium m Chloride m DOC m Fluoride m Iron m	ng/L ng/L ng/L ng/L	0.01 127 121	0.01 139	0.02		0.407
Calcium m Chloride m DOC m Fluoride m Iron m	ng/L ng/L ng/L ng/L	127 121	139			64%
Chloride m DOC m Fluoride m Iron m	ng/L ng/L ng/L	121		136	-6%	47%
DOC m Fluoride m Iron m	ng/L ng/L		440		10%	7%
Fluoride m	ng/L	9	110	96	-10%	-21%
Iron m			7	7	-19%	-26%
		0.1	0.1	0.1	-13%	-12%
Magnesium m	ng/L	0.5	0.9	2.5	76%	416%
	ng/L	9	13	/13	48%	50%
Manganese m	ng/L	0.24	0.21	0.43	-9%	82%
Nitrate m	ng/L	0.2	1.0	1.0	306%	320%
Nitrite m	ng/L	0.1	0.1	0.1	0%	-1%
TKN m	ng/L	1.2	0.9	1.7	-25%	46%
Sodium m	ng/L	67	61	52	-9%	-22%
	ng/L	22	41	35	90%	62%
	ng/L	0.001	0.001	0.001	7%	3%
	ng/L	0.1	0.1	0.1	-36%	8%
	ng/L	10	4	4	-59%	-65%
	ng/L	0.3	0.3	0.7	16%	139%
	ng/L	0.006	0.004	0.004	-31%	-41%
	ng/L	0.005	0.004	0.004	-23%	-31%
	ng/L	0.1	0.1	0.1	35%	16%
	ng/L	0.05	0.04	0.03	-23%	-24%
	ng/L	0.1	0.1	0.1	-8%	-10%
	ng/L	0.0002	0.0001	0.0001	-53%	-48%
	ng/L	0.005	0.005	0.005	-4%	-9%
	ng/L	0.001	0.001	0.001	-3%	9%
	ng/L	0.004	0.003	0.003	-24%	-28%
	ng/L	0.002	0.002	0.002	-37%	-18%
	ng/L	0.00005	0.00004	0.0003	-25%	419%
-	ng/L	0.002	0.001	0.001	-33%	-39%
	ng/L	0.01	0.01	0.01	6%	-11%
	ng/L	0.01	0.005	0.005	-18%	-26%
	ng/L	0.0001	0.0002	0.0001	60%	-2%
	ng/L	0.3	0.0002	0.0001	31%	27%
	ng/L	0.0008	0.0005	0.0003	-33%	-64%
	ng/L	0.000	0.0003	0.0003	5%	59%
	ng/L	0.001	0.001	0.002	0 /0	0070



In this case, the total flow in the South Drainage Channel was estimated to be between 5,000 & 30,000 m³based on weekly flow measurements taken following spring melt in 2019 & 2021. A more significant flow period was noted in 2019 with flow observed throughout the summer, while most years do not have persistent flow past May. Regardless, the high-end range of flow is insignificant compared to other inputs into the embayment including the WPCP effluent of 5,000,000 m³/year and flow within the river itself of 0.5 to 1 billion m³/year. The weekly monitoring suggested that the South Drain effectively dries out by the end of June in a typical year.

North Drainage Ditch

- In 2023, quarterly sampling was completed at stations along the north drainage ditch (SW4, SW13, SW14, and SW18) on April 24, June 8, August 15 and October 5;
- Table 14 below provides the average concentrations for SW4 since this data has remained constant. Sampling at SW18 commenced in 2015 and reflects a post 2012 era. SW13 and SW14 show both the pre- and post-2012 data;

 Table 14: Average North Drainage Ditch SW Location Concentrations (2006-2023)

Indicator Parameter											
	SW4	SW18	SI	N14	SW13						
	Post	2012	Pre 2012	Post 2012	Pre 2012	Post 2012					
Chloride	32	97	28	68	29	125					
Ammonia	0.1	0.2	0.1	0.2	0.1	1					
Phosphorus	0.03	0.2	0.1	0.2	0.2	1					
Phenols	0.001	0.003	0.002	0.002	0.001	0.003					
EC	676	752	466	731	504	982					
TKN	1 /	2	1	2	3	7					
Alkalinity	288	221	206	250	233	239					
Calcium	116	96	85	107	96	128					
Iron	0.1	2	0.3	2	1	4					
Sulphate	18	17	21	17	19	31					
Boron	0.01	0.04	0.1	0.05	0.1	0.1					
Barium	0.04	0.1	0.1	0.1	0.1	0.1					
DOC	6	9	8	8	10	10					
TDS	367	409	278	393	331	533					
TSS	9	82	14	145	138	521					
Toluene	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03					

Notes: All values in mg/L except toluene which is in ug/L and electrical conductivity in µohms/cm Data presented represents period of record average for each monitoring well

• After 2012 and along this north drainage channel, several indicator parameters including: chloride, phosphorus, TKN, ammonia and iron showed an upward seasonal trend where sample concentrations generally peaked in the dry seasons.



However, they have occurred within a predictable range with chloride being the exception;

- Dry season sampling is challenging due to the minimal flow present and it was
 observed that TSS concentrations also spiked with these elevated sampling events.
 It is speculated that the elevated TSS concentrations could account for the elevated
 indicator parameters which could be present as sorbed elements;
- The same general trend with certain parameters was evident with this data. The
 difference between the TKN and total ammonia results is considered to show
 organic nitrogen, although the total ammonia concentrations do increase
 downstream after 2016. DOC concentrations also suggest an organic signature and
 the detection of phosphorus contributes to the assessment that decaying vegetative
 matter likely contributes to these results as do the tannins and lignins
 measurements;
- Historically, the parameters noted in the sections above tend to frequently have elevated concentrations including chloride, sodium, ammonia, hardness, iron, phosphorus and aluminum for all sampling locations;
- Occasional elevations of chromium, vanadium, copper, cobalt, and zinc are historically noted for all sampling stations, albeit less frequently at SW4; and
- In 2023, SW13 was analyzed for PCBs, which were below the MDL value (see Table C3).

North Drainage Channel Assessment

The same general evaluation was also performed for this drainage channel corridor (see Table 15, below).

While several parameters are the same as those identified for the Scugog River, it is noted that the most elevated or dominant parameters are not the same or not as consistent between locations. This is important information since the concern is how Embayment A is influencing the downstream water quality. If the drainage contribution were important then the elevated differences for the drainage channel should be reflected in the embayment water quality.

For CP-2, the evaluation has identified 16 parameters greater than 25%, which is likely a reflection of this location having sampling events during the summer and fall where water is able to be collected when conditions are shallow and stagnant, while SW-4 is typically only sampled in the Spring, when dilution potential is higher, therefore skewing the comparative results.

The next station downstream is SW18 which is used to contrast upstream contributions from outflows at the stormwater management system. Sixteen (16) parameters are



considered to have a difference greater than 25% from SW4; however the most prominent parameters are COD, phosphorus, potassium, TKN, chloride, TSS, iron, and manganese; many of which would be heavily influenced by sediment entrainment as evidenced by the more elevated TSS concentrations in the downstream location. Other parameters such as ammonia, show more meaningful increases (144%), while concentrations are both ~0.1-0.2 mg/L. This illustrates that parameters with a small concentration can show significant % differences with modest parameter variations. The sodium and chloride are more prominent elevated parameters and speaks to road salt influence contribution at the Site downstream of SW-4. As noted above, the limited depth of SW-4 does not allow for sample collection during the summer when vegetative growth and stagnant conditions can provide natural influences to the surface water quality. As such the background reference values are low biased for many parameters representing only the Spring freshet.

A short distance further downstream SW14 is collected below the stormwater management system outlet. At this location, 16 parameters had a difference greater than 25% from the SW4 data, with the results correlating closely with the further upstream location. This is expected as they fall along the same channel and both are sampled more frequently during shallow and stagnant conditions are present, as noted above. The response at SW14 indicates decline in difference from the upstream location with a similar number of parameters greater than 25%, but most locations were found to decline significantly from the upstream locations indicating attenuation processes are active with distance along this channel.

The final station on the North Drainage Channel is SW13. The response at SW13 compared to SW14 is considered to be elevated and reflected in the differences noted above. Twenty-five (25) parameters show a difference greater than 25% of that measured at SW4. As anticipated the parameters are similar to those noted above for the north drainage channel. This location always has limited water depths and stagnant conditions as illustrated by the TSS concentrations. As such, the same rationale noted above applies to this location.



Table 15: Percent Difference Comparison Table – North Drainage Channel

Table 13. Tercent Difference Comparison						11010						
								Percentage Difference				
							SW4 vs	SW4 vs SW18	SW4 vs SW14	SW4 vs SW13		
Parameter	Units	SW4	CP2	SW18	SW14	SW13	S C	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	8 8	8 8		
pH -Lab	pH units	8.0	8.2	7.9	8.0	7.9	2%	-1%	0%	-1%		
Conductivity	uS/cm	611	970	752	604	728	59%	23%	-1%	19%		
BOD	mg/L	3	3	6	4	10	3%	90%	32%	189%		
COD	mg/L	13	28	45	32	191	113%	240%	141%	1355%		
Total Dissolved Solids	mg/L	373	531	409	343	433	42%	10%	-8%	16%		
Total Suspended Solids	mg/L	10	29	82	84	330	200%	761%	779%	3377%		
Alkalinity	mg/L	268	286	221	230	235	7%	-18%	-14%	-12%		
Hardness	mg/L	311	384	264	264	277	23%	-15%	-15%	-11%		
Ammonia	mg/L	0.1	0.2	0.2	0.1	0.6	147%	144%	47%	613%		
Un-ionized Ammonia	mg/L	0.02	0.02	0.01	0.02	0.03	-13%	-35%	-12%	56%		
Calcium	mg/L	113	133	96	96	111	18%	-15%	-15%	-2%		
Chloride	mg/L	30	120	97	48	76	306%	226%	62%	157%		
DOC	mg/L	6	8	9	8	10	42%	49%	34%	63%		
Fluoride	mg/L	0.1	0.1	0.1	0.1	0.1	0%	2%	4%	20%		
Iron	mg/L	0.2	0.3	1.6	1.0	2.5	89%	857%	526%	1401%		
Magnesium	mg/L	7	10	8	7	9	47%	14%	2%	27%		
Manganese	mg/L	0.05	0.20	0.99	0.47	0.79	291%	1814%	810%	1420%		
Nitrate	mg/L	1.1	0.8	0.3	0.3	1.2	-26%	-70%	-70%	3%		
Nitrite	mg/L	0.1	0.1	0.1	0.1	0.1	-24%	-5%	1%	31%		
TKN	mg/L	0.5	1.0	1.7	1.1	4.7	103%	240%	131%	863%		
Sodium	mg/L	18	56	53	30	52	206%	186%	63%	180%		
Sulphate	mg/L	26	32	17	19	25	22%	-37%	-27%	-4%		
Phenols	mg/L	0.001	0.005	0.003	0.002	0.002	203%	69%	26%	48%		
Phosphorus	mg/L	0.03	0.05	0.16	0.14	0.47	69%	492% 254%	414% 141%	1590%		
Potassium Aluminum	mg/L	0.1	0.1	0.2	0.2	5 2.8	305% -2%	81%	151%	208%		
	mg/L											
Antimony	mg/L	0.005	0.0003	0.0002	0.003	0.004	-95% -84%	-96% -86%	-48%	-33%		
Arsenic Barium	mg/L	0.005	0.001	0.001	0.003	0.004	19%	2%	-35% 2%	-20% 59%		
Barium	mg/L mg/L	0.1	0.002	0.002	0.1	0.1	-96%	-95%	-36%	-16%		
Boron	mg/L	0.04	0.002	0.002	0.03	0.04	-36%	-95%	2%	53%		
Cadmium	mg/L	0.0002	0.00002	0.00005	0.0001	0.0001	-89%	-75%	-61%	-24%		
Chromium	mg/L	0.0002	0.0002	0.0003	0.0001	0.0001	-78%	-68%	-30%	5%		
Cobalt	mg/L	0.003	0.0003	0.001	0.003	0.003	-70%	88%	35%	40%		
Copper	mg/L	0.001	0.0003	0.002	0.001	0.001	-31%	1%	-12%	465%		
Lead	mg/L	0.002	0.0002	0.002	0.002	0.012	-84%	-67%	-39%	209%		
Mercury	mg/L	0.00004	0.00002	0.00002	0.0004	0.00005	-51%	-49%	-8%	24%		
Molybdenum	mg/L	0.0004	0.0005	0.0002	0.0004	0.0003	-61%	-81%	-37%	-6%		
Nickel	mg/L	0.001	0.0003	0.002	0.01	0.01	8%	21%	-6%	28%		
Selenium	mg/L	0.01	0.001	0.001	0.004	0.00	-83%	-82%	-35%	-21%		
Silver	mg/L	0.0003	0.0001	0.0001	0.0001	0.0001	-74%	-73%	-68%	-63%		
Strontium	mg/L	0.0003	0.0001	0.0001	0.3	0.0001	52%	4%	-7%	5%		
Thallium	mg/L	0.0012	0.0001	0.0001	0.0001	0.0002	-96%	-95%	-90%	-85%		
Vanadium	mg/L	0.0012	0.000	0.001	0.001	0.002	-44%	14%	40%	94%		
Zinc	mg/L	0.02	0.01	0.06	0.02	0.04	-50%	154%	-31%	63%		
	g/ L	0.02	0.01	0.00	0.02	0.04	-50 70	10770	-0170	0070		

This assessment while informative and useful in highlighting consistent parameters fails to illustrate the underlying situation. During the spring freshet when there is a plentitude of flow (*i.e.*, 400,000 m³) the data suggests that parameter values are diminished with the notable exception of the road salt related parameters. As the ditch dries out, summer and fall sampling event yield elevated results owing to minimal flow and sediment



entrainment which elevates concentrations, especially metal and nutrient values. As noted above, this is exacerbated due to the fact that these conditions are not characterized in the upstream location as it is typically dry beyond the April monitoring event. Beyond this, it is important to note that there is virtually no flow during these drier periods and hence no significant mass flux contribution to the embayment. Therefore, while the parameter measurements are high, there is no appreciable flow and thus no significant impairment to the embayment from the north drainage channel.

This raises an interesting question regarding the usefulness of the data if interpreted incorrectly. Is there a need to collect surface water data when flow is below an inconsequential level since the contribution to the embayment is effectively negligible? The elevated parameters cause concern; but shouldn't in light of the associated flow condition. Both elements are vital to the correct assessment. The merits of waiving the need to sample when flow falls below a critical rate are worth future consideration. Although standard practice for surface water collection is to have unfiltered samples to account for sediment transport within the water, the slow moving nature of the channel and wetland outlet would create little opportunity for mobilization of sediment. As such, incorporation of the bed load within the surface water feature at this location is not considered appropriate.

Similar to the discussion with the South Drainage Channel, ground water flow into this feature is not anticipated. The drainage channel dries out over the summer months, which negate ground water flow contribution in those months. The overburden soil permeability and downward hydraulic gradient also are contrary to this concept as ground water migration would be vertical and not discharge to surface.

Finally, and like above, it has been questioned whether the recent spikes in the north drain water quality are possibly due to seepage from the adjacent lagoons. Azimuth does not share this interpretation based on the available data. The argument is that the full complement of the data does not match well. For example, seasonal spikes at SW13 show increases in total ammonia, iron, manganese, and several heavy metal elements. Comparison to the WPCP effluent data would suggest that elevated parameters match for some; but not all parameters.

The chemical signature of the North Drainage Channel is not similar to that measured in the Embayment A area and it is concluded that the contribution from the drainage ditch is inconsequential to the embayment water quality.



2.2.4.6 Polychlorinated Biphenyls (Surface Water)

The PCB monitoring program was modified in October 2015 when the ECA (No.: A321504) was amended. The amended ECA requires PCB monitoring at all surface water stations appearing in Schedule E (*i.e.*, SW1, SW2, SW3, SW4, SW13, SW14, SW15, SW16, SW18, and one upstream [McQuarrie Point] and one downstream [Alpine Street /Pickerel Point] station in the Scugog River) every three years with the exception of SW3 and SW13, which are sampled for total PCBs four (4) times per year, every year. If a total PCB concentration greater than 0.001 mg/L is measured at station SW3 or SW13, then all surface water stations are sampled for total PCBs for two consecutive sampling events.

In 2022 PCB monitoring was conducted only at SW-3 and SW-13 as the remaining locations were last sampled in 2021 with the next event being in 2024. The total PCB concentrations measured in surface waters at all of the monitoring stations were below MDL values (<0.05 mg/L) and are summarized in Appendix C. Further sampling for PCBs would appear unwarranted as inferred by the recent MECP reviews.

2.2.4.7 Volatile Organic Compounds (Surface Water)

The VOC sampling was limited to SW3, SW13, SW14, SW18, an upstream and downstream location in the Scugog River, & WPCP effluent outfall, which is to be completed every two years. Detections were limited to chloroform (1 µg/L at SW13 & WPCP Eff during April) and toluene (3 µg/L at SW18 in August). The chloroform detections are in range with previous years which is typically observed owing to the source in sewage effluent, but the SW13 is not understood and could be considered anomolous.

The toluene detection has never been observed at SW18 historically and the subsequent sample was non-detect indicating it is potentially anomolous.

2.2.4.8 Sediment Monitoring

Sediment samples are to be collected from upstream/downstream river stations (McQuarrie Point, Embayments A and C) and downstream drainage ditch stations (SW3 and SW13) for total PCB and total organic carbon (TOC) analysis every three years with the last sampling event completed in 2021. As such no samples were collected in 2022, with the next event to be completed in 2024.

2.3 WPCP Outfall

Sampling at the WPCP Outfall is completed on a quarterly basis. General chemistry parameters, total metals were measured at the WPCP Outfall on four occasions (April,



June, August and October) in 2023. Select general chemistry, total metal data for the WPCP Outfall dataset is presented in Appendix C. Based on recommendations that were made for the biomonitoring program, the City of Kawartha Lakes initiated VOC monitoring at the WPCP Outfall in 2015. This monitoring is required on a bi-annual basis and the last sampling event was in 2023.

The concentrations of general chemistry parameters indicated concentrations in 2023 fall within the historical average, with previous elevated concentrations noted in 2021 and 2022 reduced. These previous trends were attributed to the WPCP operations, which appear to have been rectified in 2023.

As before, the concentrations of several metals such as boron, copper, chromium and zinc were observed above PWQO, but at generally consistent concentrations over time. A number of parameters were seen to be consistently higher at the outlet of the WPCP as compared to the upstream Scugog River station (McQuarrie Point) including ammonia, chloride, nitrate, sulphate, TDS, aluminum, zinc, copper & phosphorus. This is not unexpected since the effluent from the WPCP contains residuals from the treatment process.

2.4 Landfill Gas

Schedule F of the ECA for the Lindsay-Ops Landfill Site requires that landfill gas monitoring occur monthly during frozen ground conditions and quarterly thereafter at monitoring wells 6-90-II, 7-90-I/II, 12-91-I/II, 13-91-I/II, 14-91 (replaced by 14-07 in December 2007), 16-91-I/II, 17-91-I/II, within the old landfill area, and at shallow monitoring probes GP1 to GP10 (inclusive) that were installed to the depth of the ground water table in January 2002. The locations of the monitoring probes are identified on Figure 2A.

During 2023, landfill gas monitoring occurred on eight occasions. Combustible gas is measured as a % by volume and/or as a % of the Lower Explosive Limit (%LEL). The LEL is 5% by volume. The combustible gas is interpreted to be mainly composed of methane, although gas samples were not collected and analyzed to determine individual constituents. The results of the 2023 landfill gas monitoring program are provided in Table 16 below.

In 2023, methane was detected in the leachate monitoring wells 6-90-II, 7-90 and 7-90-II at concentrations greater than 100% LEL. This is expected as these monitoring wells are screened in the waste. Methane was also measured at concentrations greater than 100% LEL in monitoring well 16-91-II.



 Table 16:
 2023 Landfill Gas Summary Table

og	18-Ja	18-Jan-23 10-Feb-23		01-Mar-23 01-May-23		16-Aug-23		17-Oct-23		30-Nov-23		18-Dec-23				
Well	(%Vol)	(%LEL)	(%Vol)	(%LEL)	(%Vol)	(%LEL)	(%Vol)	(%LEL)	(%Vol)	(%LEL)	(%Vol)	(%LEL)	(%Vol)	(%LEL)	(%Vol)	(%LEL)
12-91-I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-91-II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-91-II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14-07	0	0	0	0	0	0	0	0	0	0 /	0	0	0	0	0	0
16-91	0	0	0	0	0	0	0	0	0	0	0	0				
16-91-II	>5	>100	>5	>100	>5	>100	>5	>100	>5	>100	>5	>100			>5	>100
17-91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-91-II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-90-II	>5	>100	>5	>100	>5	>100	>5	>100	>5	>100	>5	>100	>5	>100	>5	>100
7-90-I	>5	>100	>5	>100	>5	>100	>5	>100	>5	>100	>5	>100	>5	>100	>5	>100
7-90-II	>5	>100	>5	>100	>5	>100	>5 /	>100	>5	>100	>5	>100	>5	>100	>5	>100
GP 1	0	0	0	0	0	0	O	0	0	0	0	0	0	0	0	0
GP 2	0	0	0	0	0	0 /	0	0	0	0	0	0	0	0	0	0
GP 3	0	0	0	0	0	o	0	0	0	0	0	0	0	0	0	0
GP 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GP 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GP 6	0	0	0	0	/0	0	0	0	0	0	0	0	0	0	0	0
GP 7	0	0	0	0 /	0	0	0	0	0	0	0	0	0	0	0	0
GP 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GP 9	0	0	0 /	0	0	0	0	0	0	0	0	0	0	0	0	0
GP 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Well nest 16-91 is located immediately adjacent to the northwest corner of the old landfill area and concentrations greater than 100% LEL have been noted in previous years as well. This is not unexpected due to the proximity of the waste

No significant levels of methane were obtained at the gas probes GP 1 to GP 10 installed in January 2002. These probes have historically indicated non-detectable methane concentrations.

Overall, combustible gas concentrations in 2023 were generally consistent with those observed in previous years. The landfill gas monitoring program indicates that methane gas from the landfill is not migrating off-Site.

During 2008, as a result of recent amendments to Ontario Regulation 347 General — Waste Management (O.Reg. 347/90) relating to the collection and utilization of landfill gas, the City re-examined the landfill gas utilization potential of the old landfill area. Landfill gas capture modeling completed by Integrated Gas Recovery Services in 2003 indicated that the collection of methane from the old landfill area was not an economically favourable endeavour for the City to undertake. In September 2008, a new study was completed by Golder that considered the effect of the newly installed geomembrane final cover system and passive landfill gas vents. The secondary assessment revealed that power generation has since become a viable option for the City.

A conceptual design plan for a landfill gas collection and flaring system, as well as an electricity generation system intended for operation of both the landfill site and the Lindsay WPCP was completed by Golder (2008) and submitted to the MECP as part of the City's Application for Funding of Landfill Gas Capture Facilities in November 2008. A design report (prepared by Comcor Environmental Ltd) was submitted to the MECP in June 2009, as per O.Reg. 347/90 (as amended). The City received an amendment to the ECA (Notice No.: 4) for the landfill gas collection and flaring system in April 2010. On November 10, 2010, ECA (Air & Noise - No.: 5211-8ASRRU) was granted.

Construction of the landfill gas collection and flaring system was carried out in 2011. Commissioning of the system and completion of the Operations and Maintenance manual in accordance with Conditions 2(1)(a) through 2(1)(e) of ECA (Air & Noise - No.: 5211-8ASRRU) occurred in 2012. Also, in October 2015 the City commissioned a Power Generation Facility (*i.e.*, landfill gas generator) that operates under Renewal Energy Approval No.: 8446-9HSGRP. The City continues to operate the system and adds extraction wells as the landfill construction progresses.



2.5 Meteorological Monitoring

Condition No.: 67 requires that the City install an on-Site meteorological station to measure weather conditions during the operating life of the Lindsay-Ops Landfill Site. The weather conditions to be monitored are:

- ambient temperature;
- precipitation;
- barometric pressure; and
- wind speed and wind direction.

The purpose of the meteorological monitoring is to confirm estimates of infiltration and leachate generation, and to correlate with any nuisance complaints (*e.g.*, odours and litter). A meteorological station capable of providing the required data was installed in July 2003 at the top of the old landfill area. In 2006, the meteorological station was moved to the west of the administration building parking area at the north end of the Site, in order to allow construction of the geomembrane final cover system on the old landfill area. Information obtained from the meteorological station is routinely used by the City for Site operations and monitoring.

2.6 Biomonitoring Program

Condition 12.2 of the ECA requires that annual biomonitoring investigations be undertaken in February each year; however, this was recommended for removal with replacement of the program with lethality testing of the water at SW13. Given this location typically have sufficient water levels to obtain the required volume for analysis (~20 L pail), the location was shifted into Embayment A, where SW13 discharges.

The results, which are provided in Appendix E, indicated that all four sampling events (April, June, August & October) indicated a 0% impairment and mortality rate for both Rainbow Trout and *Daphnia magna*.

2.7 Wetland Assessment

Condition 12.1 of the ECA requires that a Wetland Assessment and Impact Study be reviewed and updated every 5 years and included with the Annual Report. Azimuth was retained by the City of Kawartha Lakes to conduct the 2023 Wetland Assessment and Impact Study in the Scugog River. The goal of the study was to assess surface waters, sediments, benthic invertebrate communities, fish communities, and aquatic habitats, and evaluate potential impacts associated with the landfill by comparing results to those obtained through previous studies. However, the benthic analysis was unable to be properly completed by the retained laboratory in 2023 due to extended processing times that resulted in limited analytical findings. Similar assessments were carried out by other



firms in 1995, 2003, 2008, 2013 and 2018. However, sampling design and methodologies have varied significantly over time. The full report provides the results of the 2023 monitoring program, compares them to select historical data, and provides recommendations for future monitoring work. The conclusions and recommendations for the report have been included below for reference.

- The Reference location (A1) that was selected in 2023 is a suitable location for reference data to be collected upstream of the Lindsay OPS landfill. Based on site observations in 2023, other suitable reference locations were not observed upstream of the Lindsay OPS landfill site due to the developed/altered nature of the Scugog River shoreline, shallow water conditions, and/or lack of backwatering/embayment vegetation. Similar channel characteristics to those observed in Embayment's A and B are not present in this section of the river, but the dense vegetation and isolated segment of the Reference location (due to the remnant bridge crossing that blocks flow) should be suitable for this monitoring program.
- Embayment A had noticeably lower vegetation coverage and species diversity when compared to Embayment B and the Reference Location. The lower percentage of submerged and floating vegetation in Embayment B, which was also noted in 2018, and the abundance of algae noted along the bottom of the embayment in July 2023 are indicative of an impaired system. It is expected that multiple factors may be contributing to impaired water quality in Embayment A (B6 and B7), which include natural and anthropogenic sources (*i.e.*, agricultural run-off, WWTP outfall, private sewage systems, *etc.*). Future studies should continue to monitor vegetation coverage and species diversity to determine if the aquatic habitat/vegetation community within Embayment B may be impaired. Similar 20x20m plots should be used to provide a quantitative measurement of species coverage and diversity.
- The presence and abundance of invasive species should continue to be monitored to identify an increase in invasive coverage or species presence. Due to the heavy boat traffic on the Scugog River, the likelihood of invasive species being introduced is high. While the presence of invasive species is not directly tied to the Lindsay Ops Landfill or its discharge into the river, invasive species should still be documented as an overall aquatic health indicator.
- The fish community composition appears to be similar to that of recent studies, which depicts a diverse warm/coolwater fish community. While the total abundance of fish captures was lower than previous studies and continues a downward trend since 2008, the five-year sampling interval of the current study limits the overall predictive ability as it relates to the fish community health and



any trends or concerns that may arise. Based on the fish captures in 2023 (all healthy specimens aside from one "black spot" observation), and the abundance of minnows noted in the dense vegetation of Embayment B and the Reference location, the fish community appears to be healthy in these areas. For these reasons, fish community sampling may no longer be needed. In addition, it is also our opinion that any trends in fish community health as it relates to the overall aquatic health of the Scugog River would be observed in other study parameters (*i.e.*, aquatic vegetation health, water quality, benthic community, sediment).

- It is noted that the surface water and sediment quality has remained relatively consistent over time with the exception of some of the 2008 results potentially due to the elevated suspended solids. This consistency over a 10-year period suggests no trending in the data associated with source inputs. Overall, this portion of the program is considered redundant as both sediment and water quality samples are collected more frequently and summarized in the annual monitoring report for the landfill.
- Historically, the Scugog River has been a contaminating source. Recalcitrant compounds continue to be detected in some sediment samples (*i.e.*, PAHs). PCBs were not detected during the 2023 monitoring period. PAHs and PCBs are considered to be more historical contaminants and it is suggested their continued detection is likely due to the persistence of these compounds in the environment. It is likely that the accretion of recent sediments or organic deposits have sequestered these compounds deeper in the sediment profile, which has resulted in the limited detection. This trend result is expected to continue, as long as the river substrate remains undisturbed. As such, continued sampling is considered unwarranted.
- Some heavy metals and nutrients (TKN and TOC) are elevated above the PSQG (LEL and SEL) within the sediment quality results; however, these are generally elevated at all locations including background and reference Sites.

 Concentrations are highest in Embayment A (B6 and B7), which are more likely the result of the WWTP outfall, rather than landfill leachate contributions.

 Notwithstanding, the embayment is expected to have a higher residence time, which limits the amount of mixing (and dilution) from the river. As such, these results are not unexpected.
- Overall, surface water quality is fairly consistent and appears to occur within a similar magnitude range to previous monitoring periods. Parameter concentrations at B6 and B7 are generally elevated above upstream monitoring locations, which has been observed over the period of record. It is possible that inflowing effluent from the WWTP could be influencing water chemistry in the



- embayment. Notwithstanding, natural eutrophication, due to the shape and stagnant nature of the bay may also be contributing to these elevated parameter concentrations. This is mainly due to the limited mixing with channel waters which results from a longer residence time in the bay.
- Based on these findings, there is no evidence to suggest that the landfill is having a measureable effect on the surface or sediment quality within the river. A recent evaluation of the landfill site indicates the measured leachate plume extending from the landfill does not reach the Scugog River. It is expected that multiple factors may be contributing to impaired water quality in Embayment A (B6 and B7), which include natural and anthropogenic sources (*i.e.*, agricultural run-off, private sewage systems, *etc.*). Furthermore, based on the findings summarized in the annual monitoring reports for the landfill, leachate impacts in the shallow water table are not observed to reach the river. This further reduces the potential for the elevated parameters at B6 and B7 to be sourced to the landfill. Notwithstanding, the assimilative capacity of the Scugog River is high and is expected to equilibrate parameter concentrations not far downstream of the bay. This is consistent with annual river sampling results completed for the approved Lindsay OPS landfill monitoring program.
- Given the findings of this assessment and overall determination that the influence observed at the monitoring locations is not attributable to the landfill, consideration should be given to discontinue this monitoring program.

3.0 SITE OPERATIONS

3.1 General Operations

The Lindsay-Ops Landfill Site generally consists of two parts, the original southern disposal area that began operation in 1980 and the northerly expansion area that was approved in December 2001. The City operates the disposal site utilizing municipal staff. Major activities occurring at the Site in 2023 included the following:

- Construction of Cells 4 and 5 (South Half) Stage 1
- Disposal operations occurred in the expansion area in the north section of Cells 4 and 5. Steel plates continued to be used as alternative daily cover;
- Calibration completed to methane detection system; and
- The City continued using the residential household hazardous waste (HHW) depot which was established in September 2005.

Other minor miscellaneous works were conducted throughout the year.



3.1.1 Solid Waste Management By-Law

In 2007, the City implemented a Solid Waste Management By-Law, which came into force and took effect on April 1, 2007. The By-Law was enacted for the purposes of regulating the collection, removal and disposal of solid waste in the City of Kawartha Lakes. The By-Law defines items permitted for collection and disposal, fees for disposal, operating hours for landfills and other waste related items. A consolidated Solid Waste Management By-law was released June 30, 2009.

A new By-Law for the collection and management of waste and recyclables within the City of Kawartha Lakes (By-law No.: 2016-144) was passed by Council on August 9, 2016 and replaces By-law No.: 2007-024. The City's new waste by-law requires residents to set out waste in clear bags.

In February of 2020 Council received and accepted the recommendations to amend By-Law 2016-144 (A By-Law for Collection and Management of Waste and Recyclables Within The City of Kawartha Lakes) to reduce the allowable amount of recycling in clear bag waste from 20% to 10% by volume per bag. Staff also recommended making a few administrative changes to the by-law that will ensure operations are more efficient.

3.1.2 Leachate Outbreak Inspections

Condition No. 4.47 of the ECA requires that the landfill be inspected for evidence of leachate seepage or leachate springs at least once per month. Any incidents of leachate outbreaks and remedial action taken are to be reported monthly to the Lindsay Ops Landfill Public Review Committee (PRC) and MECP District Manager as well as annually to the MECP Regional Director through submission of this Annual Report.

Inspections are conducted for leachate outbreaks on a monthly basis. Results are recorded by City staff on inspection reports.

3.1.3 Screening Inspections

Condition No. 4.26 of the ECA requires that visual screening be installed, inspected and maintained as required. The City developed a vegetative screening plan in June 2003 and began plantings in September 2003. The vegetative plantings continue to grow, thicken and mature each year increasing the visual screening from surrounding land uses.

Inspections of new and existing screening are conducted by City Staff on a monthly basis. Observations from each inspection are recorded by City Staff on the Inspection Reports. No issues were identified in 2023.



3.1.4 Final Cover

With respect to the old landfill area, final contours were reached in the latter part of 2004. The City also added soil materials to this area from the excavation of Cell 2 of the expansion area in 2004 for pre-loading of the North Slope. Following a two-year period after closure to allow for settlement, the City initiated placement of the final cover and the geosynthetic cap on the old landfill site in 2006. Application of the liner and final capping was started on the east side of the old landfill site in 2006 and was completed in October 2007. Seeding for vegetation of the entire old landfill area was completed in 2008.

At the request of the MECP, the City began preparing an annual Cover Plan for the landfill site, beginning in December 2005. The Cover Plan shows the following:

- Areas of the landfill site where landfilling has been temporarily discontinued;
- Areas of the landfill site where landfilling has been temporarily discontinued and interim cover has been applied and vegetated;
- Areas where the active working face was compacted and covered for that monthly inspection period; and
- Bare soil surfaces.

In 2022, disposal occurred in the northeast section of Cells 4 and 5 (north half). Final cover, including topsoil and seed, and was placed on the north and south sections of Cell 2 as well as the sections of Cells 3 and 6 in 2018. Material excavated as part of the construction of Cells 4 and 5 was used as final cover. Interim cover was placed in the southeast section of Cells 3 and 6. Figure 12 (Site Operations and Cover Plan) shows cover conditions relative to the end of 2023. Figure 14 shows the proposed final contour plan for the Site.

3.1.5 Alternative Daily Cover

On January 28, 2014, staff submitted a report to City Council proposing a one-year pilot project for the use of steel plates to cover the exposed tipping face of the landfill as an alternative to the use of soil as daily cover. City staff discussed this with MECP and approval was provided by MECP for a pilot project, without requiring an amendment to the ECA. Approval from City Council was received and fabrication of the steel plates took place in the spring of 2014. Operations staff began to use the steel plates in August of 2014.

At the end of the one-year steel plate pilot project, the City provided MECP with a summary of the effectiveness of the steel plates in a letter dated August 31, 2015. From the pilot program, the City determined that:



- There had been no operational challenges using the steel plates;
- There was no major wear on the equipment used to reposition the plates;
- During winter months there was no issue with the plates freezing to the ground or waste:
- Significantly less sand/soil was used for daily cover preserving landfill capacity; and
- Less litter was blown away from the tipping face when the steel plates are in use.

The City concluded that the steel plates one-year pilot project had been successful and should be used permanently to improve landfill operations and preserve landfill disposal capacity. The City submitted an ECA amendment application to MECP on December 7, 2016 to have the steel plates added as an acceptable form of Alternative Daily Cover (ADC). The ECA Amendment Application also requested that partially composted leaf and yard waste from on-Site composting operations be approved as an acceptable form of alternative daily and interim cover material. The City received an approved amendment to the ECA from the MECP regarding this application on March 27, 2017.

3.1.6 Gull Management Program

Condition No.: 4.29 of the ECA requires the development and implementation of a Gull Management Program. In September 2002, the City retained a consultant to develop the gull management program and to obtain all necessary equipment, licensing and develop training program. These activities were completed during late 2002 and early 2003. The gull management program was formally implemented in March 2003 and City staff began to record daily logs for the program in September 2003. Daily log information indicated the time, day and area where gulls were observed, the estimated number of gulls observed, non-lethal control measures taken and gull reactions.

In September 2003, the City designated a Gull Control Officer and alternate. The Gull Control Standard Operating Procedure (SOP) was revised on August 15, 2014. The revised SOP indicates that equipment operators on the tipping face shall be conscious of gull activity, perform gull control as required (with either portable propane noise cannons, bangers or pyrotechnics), and record gull control activities on a daily basis.

The City employs the use of noise bangers as a method to deter gulls. The current gull control permit (Permit No. DA1417) is valid until December 31, 2024. The City did not receive any indication from the Lindsay Airport Authority that the landfill was causing bird hazard issues at the airport during 2023. The Lindsay Airport Authority is provided a copy of the annual report when completed.



3.1.7 Spills and Other Incidents

No spills or other operational events creating any environmental issues were documented in 2023.

3.2 Household Hazardous Waste (HHW) Depot

In 2022, the HHW depot operated during all hours that the landfill site was open to the public to receive residential materials. The HHW depot was operated by City Staff, except for Saturdays when the HHW depot was operated by a private contractor (GFL) on behalf of the City. All material was transported and processed by GFL.

3.3 Site Capacity

3.3.1 Quantity of Materials Received, Disposed and Diverted

3.3.1.1 Materials Received

The total amount of material received at the Site in 2023 was 35,997 tonnes. The material received was either: disposed in the landfill; segregated and stockpiled for use as daily cover (soil material and partially composted leaf and yard material); or diverted off-Site for recycling. The total collected solid waste volume reported on a monthly basis is provided in the following table (Table 17). This volume represents ~78% of the total material received at the Site.

Table 17: 2023 Monthly Waste Volumes

Month	Total Waste Volume
	(tonnes)
Jan-23	1,979
Feb-23	9,482
Mar-23	1,882
Apr-23	2,663
May-23	2,625
Jun-23	2,931
Jul-23	2,272
Aug-23	2,861
Sep-23	2,159
Oct-23	2,708
Nov-23	2,571
Dec-23	1,857
Total	35,997



3.3.1.2 Materials Landfilled

The total amount of waste disposed at the Site in 2023 was 35,997 tonnes (including soil received that was segregated and used for daily cover). This did not exceed the annual approved rate of fill of 58,200 tonnes (Condition No.: 4.6 of the ECA).

The composition of waste received in 2023 included bulky items, compacted waste (including waste from curbside collection program), construction and demolition waste (C&D), clear bags, loose mixed waste, material recovery facility (MRF) residue, waste from public garbage cans, soil (for cover and not for cover), and street sweepings & catch basin waste.

The approved daily rate of fill as indicated in Condition No. 4.6 of the ECA is 240 tonnes per day (TPD). Short-term exceedances (no more than 2 consecutive days) are permitted with concurrence from the MECP District Manager.

A review of the daily landfill records indicate there were 6 days where there were exceedances of the maximum daily rate of fill in 2023 (Table 18). None of these exceedances occurred on more than 2 consecutive days. The following summarizes the 2023 daily exceedances of the 240 TPD waste disposal limit. The majority of these days occurred when the City undertook road clean-up and the landfill received street sweepings or excess soil.

Table 18: Daily Waste Tonnage Exceedances - 2023

Date	Total Waste Disposed (Tonnes)	Tonnes Above 240 TPD Limit	Reason				
2023-02-01	/7650	7410	Street Sweepings				
2023-05-30	263	23	Street Sweepings				
2023-06-12	407	167	Street Sweepings				
2023-06-13	324	84	Soil and Street Sweepings				
2023-06-15	248	8	Soil and Street Sweepings				
2023-07-06	254	14	Phragmite Root Portion				
			Asbestos, Construction and Compacted Waste				
2023-08-08	268	28	(equally)				
2023-08-24	310	70	Asbestos, Compacted Waste (equally)				
2023-09-28	241	1	Asbestos				
2023-10-05	270	30	Street Sweepings				
2023-11-28	289	49	Soil				



3.3.1.3 Materials Diverted

A number of materials are received at the Lindsay-Ops Landfill Site that was diverted from disposal. This includes car batteries, goods requiring Freon removal, scrap metal, household hazardous waste (HHW) material, construction & demolition materials, electronics, wood chips, and items donated for reuse to local Habitat for Humanity. Also, 'blue box' recyclable materials (glass, cans, newspaper, magazines, PET plastic and cardboard) can be taken to the depot at the landfill by residents and businesses for recycling.

In 2023, a total of 10,345 tonnes of material were received at the Lindsay-Ops Landfill, which were diverted from disposal. This includes:

- 143 tonnes of electronics:
- 143 tonnes of HHW material;
- 2,305 tonnes of leaf and yard material;
- 5,530 tonnes of 'Blue Box' curbside recyclables;
- 293 tonnes of scrap metal;
- 158 tonnes of mattresses; and
- 1,701 tonnes of construction & demolition wastes
- 9 tonnes of textiles
- 61 tonnes of Bulky plastics

3.3.2 Remaining Site Capacity and Site Life

In 2023, 35,997 tonnes of waste was disposed at the Lindsay-Ops Landfill. The City began using steel plates in August 2014 as alternative daily cover in conjunction with soil/sand and this continued in 2023. The City uses approximately 22% less soil/sand as daily cover by using steel plates compared to years when steel plates were not used. Assuming a waste density of 700 kg/m³, approximately 51,424 m³ of airspace was used in 2023 for waste (35,997 tonnes of waste divided by 0.7 tonnes/m³). Based on a 6:1 waste to daily cover ratio, and a density of 700 kg/m³ for the daily cover material, approximately 5,694 m³ of air space was used for daily cover (6,000 tonnes minus 22% for the use of steel plates divided by 0.7 tonnes/m³). Therefore, total air space used in 2023 for waste and daily cover was 58,110 m³.

The total approved waste disposal capacity for the north expansion fill area including waste, daily cover and interim cover is 1,487,240 m³. Based on the volume of waste (including daily cover) disposed in 2023 (*i.e.*, ~58,110 m³ of airspace used in 2023), the remaining capacity is 511,387 m³ and Site life is approximately 11 years at December 31, 2023. This is based on an assumed annual fill rate of 45,000 m³. Based on the estimated



remaining capacity, approximately 66% of the total approved capacity of the north expansion area has been used to the end of 2023.

3.4 Leachate Collection System

3.4.1 Leachate Volumes Collected

The Leachate Pumping Chambers currently pump the following liquids to the WPCP:

- Ground water and leachate from the perimeter LCS surrounding the Old Landfill Area;
- Leachate collected by the engineered LCS constructed as part of Cells 1, 2, 3, 6 and the western part of Cells 4 and 5 (north half) of the North Expansion Area;
- Sewage from on-Site buildings and RV septage disposal station at the north end of the North Expansion Area; and
- Water pumped from the new compost stormwater pond as per its contingency plan to prevent overflow. If the water is tested to be contaminated and inappropriate for discharge to the main Site stormwater facility. It is noted that the City is approved to divert excess stormwater via the compost pond to the stormwater management ponds in former Lagoon 1.

Flow volumes are regularly monitored and recorded by operators of the Lindsay WPCP. As shown in table below (Table 19 below), a total of approximately 79,838 m³ of ground water/leachate was pumped from the Lindsay-Ops Landfill to the WPCP for treatment in 2023. This total volume consists of 14,520 m³ from Leachate Pumping Station No. 1 (old landfill area) and 50,798 m³ from Leachate Pumping Station No.: 2 (north expansion area).

The ECA specifies that the average daily flow volume of ground water/ leachate from the leachate pumping chambers (combined) does not exceed 300 m³/day based on a calendar year (Condition 4.1(ii)(c)). As shown below, in the average daily flow from the leachate pumping chambers (combined) did not exceed on a monthly basis in 2023.

The peak permissible flow rate is set at 750 m³/day (8.7 L/s) at any time for the combined pump station contributions to the WPCP. The instantaneous rate measured at each location was not exceeded in 2023 for either location with a maximum flow rate of 2.2 L/sec at LPS-2.

The City initiated placement of a geomembrane final cover system over the old waste fill area in 2006. The primary objective of the geomembrane cover system is to minimize leachate generation by limiting moisture infiltration into the landfill. This in turn will limit leachate exfiltration from the unlined base of the landfill and allow natural processes (*e.g.*, adsorption, bio-chemical decay and dispersion) to effectively attenuate



the existing ground water impacts as well as any future releases of contaminants (predominantly by diffusion) from the landfill base. Placement of the geomembrane cover system was completed in October 2007 and has resulted in reductions in leachate generation and leachate exfiltration. This is evidenced by the decrease in annual pumping volumes from Leachate Pumping Station No.: 1 (*i.e.*, the perimeter leachate collector system pumping chamber) from volumes of up to 28,126 m³ in 2005 to 15,927 m³ in 2010. The annual pumping volumes subsequently increased to between 23,800 m³ and 28,800 m³ and then decreased to 16,304 m³ in 2019, 15,771 m³ in 2020, 9,813 m³ in 2021 and slightly up again in 2022 at 11,756 m³ and in 2023 at 14,520 m³. The perimeter collector is cleaned regularly.

Table 19: 2023 Leachate Volume Summaries

Month]	LPS No.: 1				Combined	
	Average	Daily	Total	Average	Daily	Total	(m³/day)
	Flow	Average	(m^3)	Flow	Average	(m^3)	
	Rate	(m^3)		Rate	(m^3)		
	(L/s)			(L/s)			
Jan-22	0.60	51.8	1605	1.75	150.9	4,678	203
Feb-22	0.72	62.5	1751	2.08	179.7	5,031	242
Mar-22	0.75	65.1	2017	2.22	191.2	5,928	256
Apr-22	0.78	67.7	2031	2.15	185.4	5,562	253
May-22	0.65	56.4	1748	1.60	138.3	4,288	195
Jun-22	0.37	32.2	965	1.08	93.2	2,797	125
Jul-22	0.25	22.0	681	0.90	78.1	2,422	100
Aug-22	0.29	25.3	783	2.26	195.2	6,052	220
Sep-22	0.19	16.2	487	0.98	84.6	2,537	101
Oct-22	0.23	19.6	607	1.40	121.2	3,758	141
Nov-22	0.27	23.7	711	0.73	63.3	1,900	87
Dec-22	0.42	36.6	1,134	2.18	188.5	5,845	225
Total			14,520			50,798	

Annual pumping volumes from the Leachate Pumping Station No. 2 and Sewage Pumping Station (combined) have steadily declined since 2009 from a volume of 42,900 m³ to 19,000 m³ in 2016. This reduction may be due to the progressive capping of the landfill as areas reach final grade and moisture uptake by the waste fill as the fill thickness increases. In 2017, pumping volumes from Pumping Station No. 2 and the Sewage Pumping Station (combined) increased to 46,929 m³. This was due to the abnormal high amount of precipitation and the small amount of waste in the newly constructed cell to uptake the rainfall that fell over the cell capture area (*i.e.*, most of the precipitation over the new cell entered the leachate collection system with little uptake by



the waste fill). In 2023 the flow volume from Pumping Station No. 2 increased to 50,798 m³, approximately double the past few years. This could be the result of the expansion of the waste area further south.

3.4.2 Collection System Cleaning

Condition No.: 5.16 of the ECA requires the City to high pressure wash and video inspect the leachate collection system annually.

Jet flushing and CCTV video inspection were performed in October and November 2023 for the North Expansion Area LCS, as well as the Old Landfill Area Perimeter Collector. The work was carried out by Nieltech Services Ltd. A copy of the inspection report is provided in Appendix G. Figure 2B shows the landfill leachate collection system layout. The systems were noted through video inspection to be draining effectively with no indication of damage or repairs required.

3.5 Other Operational Aspects

3.5.1 Dust Control Program

Condition No.: 4.27 of the ECA requires that a dust control program be carried out. In response to dusty conditions as observed by the City's Site operations staff and when complaints are received from residents in the vicinity of the Site, water is applied as a dust suppressant. Water was applied to roads and other Site areas as a dust control measure as required throughout 2023. Beyond water, calcium chloride was applied, but only once in June 2023. There were no complaints for dust received in 2023.

3.5.2 Pest Control Program

The City undertakes a regular pest control program. Miller Pest Control was on Site in the Spring and Fall to complete standard pest control measures. No concerns or complaints regarding pests were identified at the landfill in 2023.

3.5.3 Loads Refused (Landfill Disposal Privileges)

Starting in September 1994, a record of loads refused for disposal, and the reason for refusal, has been logged. A load refusal program and Standard Operating Procedure (SOP) was developed in 2014. Information is recorded for each refusal: the date, materials that would have been tipped, origin of material, vehicle type and license and reason for refusal. In 2023, waste refusal was documented by the City six times throughout the year. The household hazardous waste (HHW) incidents were related to the Site not accepting tires, commercial hazardous waste quantities and improper containment such as loose needles and old motor oil. There were also a few incidents



with some customers with aggressive behaviors towards City staff, that have been banned from attending the site.

3.5.3 Operating Hours

Posted operating hours for 2023 (public) were Monday, Tuesday, Wednesday, Thursday and Friday from 8:00 am to 5:00 pm, and Saturday from 8:00 am to 3:00 pm during the winter (Oct. 16 through April 30th), while summer hours are the same with the exception of the Site being closed to the public on Wednesdays (but still accepting waste from the curbside program.

3.5.4 Staff Training

City of Kawartha Lakes Waste Management Staff receives training on various aspects of waste management operations throughout the year. In spring and fall of 2023, training was completed for landfill staff that included ECA compliance and general landfill operations.

3.6 Compliance with Environmental Compliance Approval

In 2019, the ECA No.: A323504 was amended on December 5, 2019 and again on January 8, 2023, which was to include the valve chamber at the compost pad infiltration pond. The most recent amendment was issued on March 11, 2022 to approve construction of cells 4/5. Beyond the most recent two amendments which had a specific purpose, the 2019 amendment was intended to consolidate the Approval license given the various changes that have occurred over time (Appendix I). The following summarizes the changes that have occurred from the last ECA major revisions in 2013:

- the Liner System Approval (Condition No. 3.1) was updated to include the construction of Cells 4 and 5 as well as the alternation of the base liner and collection system connections;
- for the Landfill Gas Collection System, minor edits to Condition No.: 3.5 recognized that the original landfill gas collection and flaring system has already been built:
- a new Condition (No. 37) provides details on the Leachate Collection and Disposal System. Furthermore, under General Operations a new subsection was added at Condition No. 4.1 which addresses the Leachate Collection and Disposal System Operations. The clauses in this Condition subtly change the operations and as noted above (Section 3.4.1) could require some adjustment to the current LPS transfer;



- Condition No. 4.4 which addresses the Service Area was altered subtly and now allows for temporary storage of wastes outside the geographic boundaries of the City of Kawartha Lakes;
- Condition No. 4.22 that addressed On-Site Roads was modified to permit temporary working roads;
- the Section on Landfill Gas Management in the former ECA (Condition No. 4.41 to 4.43) were dropped from the new ECA;
- Condition No.: 5.14(2) regarding Alternative Daily and interim Cover Material was altered to include partially composted leaf and yard waste and steel plates;
- Condition No.: 6.2 regarding the Recycling Depot has been added to permit outdoor bin to temporarily store: construction and demolition materials, materials destined for off-Site reuse or disposal, textiles and mattresses;
- The Leaf and Yard waste Composting Facility (Condition No.: 6.3) has been updated and limits this material to 8,000 tonnes at any time. Materials must be windrowed within four days. The need for grinding has been reduced to semiannually. Segregated granular materials at this facility are not to be greater than 750 tonnes. Weekly monitor of the temperature of the composting materials is to be conducted on a trial basis for three years. A report on the Leaf and Yard Composting Facility is to be completed within three years based on this trial program. An infiltration pond to collect and treat unsegregated and impacted storm water from the compost pad is granted. Water levels must be monitored weekly at the pond and if the level exceeds an alarm trigger then the water is to be transferred to WPCP. Water from this pond is not to be discharged to the drainage ditches and any overflow will be treated as a spill (note the City has been granted interim approval to allow discharge of water to lagoon one where it can be regulated and tested prior to discharge to avoid surcharging the WPCP during times of high flow. A formal application has been submitted to MECP and the City is awaiting final approvals);
- The hours of the HHW Depot have been changed as per Condition No.: 6.5(c) to 7:00 am and 7:00 pm from Monday through Saturday;
- The Environmental Monitoring Program (Condition No.: 10.6 to 10.8) have been revised from the 2013 ECA;
- A Leachate Collection and Disposal System Monitoring and Recording section has been added (Condition No.: 10.10 to 10.14). These terms define the sampling frequency and parameters as per Schedule G. The requirements also demand flow measuring device at LPS No.: 1 and 2 and the Sewage Pumping Station;



4.0 PUBLIC CONSULTATION

4.1 Public Review Committee

In 1994, a Public Review Committee (PRC) was formed for the existing Lindsay-Ops Landfill Site. That Committee functioned until about 2001, when the north expansion was approved. The original PRC disbanded as many of the residents who were on the Committee had sold their properties to the City and had moved away from the Site area.

Condition No.: 13.1 of the ECA requires the City to establish a new PRC for the Site. The PRC was re-established in the Spring of 2003 and held its first meeting on April 16, 2003. In 2023, six meetings of the PRC were held in January, February, April, June, September and November.

PRC meetings are open to the public. The meeting provides an opportunity for area residents to stay informed of current issues and operational matters relative to the Lindsay-Ops Landfill Site.

4.2 Public Complaints

In January and May of 2023, two complaints were received by staff regarding litter on a neighbouring property. The City responded by sending out additional staff members to monitor and pick-up litter if present along Wilson Rd. adjacent to the neighbouring property. At the May PRC meeting the neighbouring property owner was in attendance and noted that litter had improved.

An additional complaint was received, through the MECP, on June 16th regarding concerns that excavation of "waste" from Lindsay Ops landfill was being relocated to an area near the river. The City and WSP responded to the Ministry with photos and explained that the hauled material was topsoil being relocated to a historically used area off Lagoon Rd. for storage of similar type material. This clean soil material was stripped as part of the Cell 4/5 construction project to allow for proper grade and appropriate material to be placed prior to installing the GCL (liner). The MECP inspector was on site to inspect the Site and confirmed that there were no issues with the material or the project.

5.0 PERFORMANCE OF LINDSAY WPCP

A copy of the 2023 Performance Report for the Lindsay Water Pollution Control Plant (WPCP) prepared by the Ontario Clean Water Agency (OCWA) on behalf of the City of Kawartha Lakes is provided in Appendix H.

Conclusions relevant to the landfill facility are as follows:



- All maintenance required during the 2023 operations was performed/ completed as per manufacturers' instructions by staff and/or contractors. Maintenance records are kept by Operations Staff at the WPCP for updating and for inspection as required;
- The Lindsay WPCP treated a total of 5,174,898 m³ of raw sewage influent in 2023;
- ECA 7748-AYRL8C beginning January 1, 2020 ending June 28, 2020 and the current ECA 1696-BPLL4R beginning June 29, 2020 requires the Owner to make an assessment of the issues and provide recommendations on pro-active actions if the Annual Average Daily Flow reaches 80% of the Rated Capacity. The Annual Average Daily Flow in 2023 was 14,178 m³/day 58% of the Rated Capacity of 24,500 m³/day;
- Treated effluent loadings and concentrations for CBOD₅, total suspended solids (TSS), total phosphorus and pH were under the allowable receiving stream discharge criteria as set by the ECA No.: 6145-AJDQ9K (issued June 5, 2017) and current ECA No.: 7748-AYRL8C (issued October 18, 2018) with the following exceptions:
 - monthly final effluent TSS concentrations exceeded in April, June, July and September.
- Quarterly treated effluent samples were collected on January 4, April 5, July 6, and October 17, 2023 for analysis of acute lethality to rainbow trout and *Daphnia magna*. All sample results returned a 0% mortality rate with the exception of a 56.7% mortality rate for Daphnia Magna during the July 5th monitoring event. However a resample was completed July 12th, which indicated 0%;
- The treated effluent monthly *E.coli* Geometric Mean Density met the allowable effluent discharge criteria of 175 CFU per 100 mL during 2023;
- The total volume of sludge generated in 2023 was 133,943 m³;
- There was no sludge removed from the Site in 2023; and
- In 2023, there were no bypass or overflow events at the Site.

6.0 CONCLUSIONS

The general conclusions of the 2023 Annual Report for the Lindsay-Ops Landfill Site are provided below.

- 6.1 Environmental Monitoring
- 6.1.1 Ground Water and Leachate
 - The landfill is not creating an offsite impact and meets reasonable use criteria
 - Monitoring of ground water and leachate in 2023 was carried out in accordance with the requirements of the ECA;



- The conceptual ground water flow regime at the old landfill site is vertically downward flow through the till overburden to the upper bedrock aquifer. The bedrock aquifer flows laterally toward the Scugog River;
- The old landfill has a limited "halo" effective in the overburden soils given the age of the facility. However, this lateral extent is limited given the low permeability of the overburden till soils;
- The landfill expansion is a lined site where the water levels within the waste cells are kept to a minimum using a leachate collection system. Vibrating wire transducer data confirms leachate collection system is continuing to operate effectively. Based on the Site hydraulics there is little opportunity for contaminant migration away from the landfill expansion area;
- The vertical ground water flow estimate through the overburden till under the old landfill to the upper bedrock was estimated to be about 0.8 m/a which indicate that the vertical flow through the overburden till sediments to the bedrock took about 10 years to occur. The impact to the bedrock aquifer is minor and does not create an off-site impact;
- The lateral flow in the bedrock aquifer is much faster than the vertical percolation through the overburden till (*i.e.*, 100 to 1,000 m/a). As a result, the overburden till contaminant flux has limited effect on the bedrock aquifer. The bedrock aquifer is currently in a steady state condition. This occurs because the rate of flow in the bedrock is sufficiently large enough to attenuate the overburden contaminant flux such that an equilibrium state is established in the bedrock flow field. This equilibrium condition has existed for decades based on the bedrock aquifer monitoring program and will persist into the future until the leachate contaminant flux through the overburden till is completely depleted;
- The contaminant loading calculations indicate that the mass flux in the bedrock aquifer is at least an order of magnitude below the permissible limit in the ECA. Since the contaminant plume has been in a steady state condition for over a decade, this loading will not change over time;
- Given the rate of ground water flow in the bedrock aquifer, it is expected that a steady state contaminant plume extends to the new monitoring wells nests being: 62-17, 61-17 and 61-10; however unlikely to be further such that there is no offsite impact;



- Trigger monitoring for the north waste area indicated an exceedance for ammonia at 61-10-I during the May monitoring event, but was significantly lower in July and October (0.38 & 39 mg/L), which is more in line with historical concentrations. As such, the May event is considered anomalous and will be tracked in 2024. Monitor 11-90, also in this area is elevated above historical concentrations as well, but is below the trigger limit. Given a similar decline in July and October values as at 61-10-I was observed, it is uncertain as to the source of the elevations, but could be anomolous data. A subtle increasing trend has been noted over time at 11-90, which will continue to be monitored in 2024; however, has still generally remained within the historical range; and
- The leachate strength under the old landfill is stronger than that observed at the perimeter/ periphery. It is that the slow percolation through the waste mass accounts in part for this stronger leachate at depth. This is considered to account for the quality differences that exist between the leachate monitors situated at the base of the waste fill and the leachate collection system encircling the perimeter. Liquids captured by the leachate collection system have not had as long a residence time in the landfill and also represent a composite of younger and older waters.

6.1.2 Surface Water

The surface water monitoring program focuses on two systems. The first is the surface water flow system in the Scugog River passing by the Site. The other is considered to be the on-Site drainage network.

Scugog River

- In the Scugog River, parameter concentrations between the upstream and the downstream are generally similar. Therefore, the Site has no environmental impact to the surface water that can be readily sourced to the landfill;
- The ground water contribution to the Embayment A is estimated to be ~100,000 m³/year. The outflow from the WPCP was ~5,174,898 m³ in 2023 (i.e., ~0.1 m³/s). The flow in the Trent-Severn system must exceed 17 m³/s at Lakeview to maintain a base flow at Trenton, which infers a significant flow from Sturgeon Lake. As a result and despite the concentration differences, the flow from Embayment A is considered to be insufficient to meaningfully influence the Scugog River;

On-Site Drainage System



- Flow in the drainage system is seasonal. Flow commences with the spring freshet and is typically exhausted by June / July;
- Weekly flow monitoring in 2019 and 2021 of the south drainage channel estimated that between ~5,000 m³ (2023) & 30,000 m³ (2019) flowed in this channel before it dries out in the summer. The same weekly flow monitoring in the north drainage channel estimated that ~150,000 m³ (2021) and 400,000 m³ (2019) flowed in this channel before it dried up in the summer.
- The magnitude of these flows, although variable, is insufficient to influence the Scugog River with the current contaminant levels. Furthermore, when the drainage ditch flow subsides in the summer season, there is no contaminant contribution to the Scugog River;
- The overburden till is not conducive to providing a base flow condition in the drainage ditch system(s). The soil permeability does not allow substantial flow and the hydraulic gradient in the overburden is vertical down;
- The natural condition of the overburden soils will also not facilitate significant infiltration during excess water conditions and thus promotes overland flow to the drainage ditch system;
- The parameter differences highlighted in the drainage ditches differ from those seen in the Scugog River. The flow in the south drainage channel is ~0.1-1% of that discharged by the WPCP. Similarly, flow from the north drainage channel is ~3-10% of that discharged by the WPCP. Parameter concentrations in the south drainage channel would need to be orders of magnitude larger to affect any influence. Furthermore there is no defined or consistent seasonal "shift" in the Embayment A water that would be anticipated if being influenced by the drainage channels since the drainage channels dry out in July and don't contribute until the following spring freshet;
- Concerns of contaminant flow into Embayment A are unfounded since there is no substantial flow during these dry weather samples. In the absence of flow, there cannot be contaminant migration. Thus, the stagnant samples with an elevated chemical signature have no meaningful influence on the on-Site surface water flow system; especially as it pertains to impacts on the Scugog River;
- Seepage from the lagoon system is not influencing the south drainage water quality;



 The organic sampling in surface waters regardless of where these samples are collected are not yielding significant results. Both VOC and PCB sampling at surface water sampling stations are unnecessary and can be excluded from the monitoring program;

6.1.3 Landfill Gas

The landfill gas monitoring program is design to evaluate the migration potential of these compounds in the environment.

- The landfill gas sampling results in 2023 are consistent with the previous years;
- Landfill gas concentrations exceeding the Lower Explosive Limit (LEL) of 5% (by volume) are seen primarily at the leachate monitoring wells;
- Landfill gas concentrations are also routinely detected at two downgradient perimeter wells being 16-91 and 12-91 on the west side of the old landfill, although the concentrations at 12-91 are more typically trace or non-detect. This location did not show detection the past two years. Consistent detection at 16-91 is anticipated given the monitor's proximity to the landfill edge. However, these results were not considered important in terms of off-Site migration;
- The landfill gas monitoring program indicates that methane gas from the landfill is not migrating off Site. The remaining landfill gas monitoring locations indicated insignificant methane levels;
- If the landfill gas sampling program which has been run for years yields the same results and indicates there is a negligible chance for off-Site migration then there may be little need to continue to monitor this system or at a minimum reduce the frequency of the program;

6.1.4 Biomonitoring

Condition 12.2 of the ECA requires that annual biomonitoring investigations be undertaken in February each year; however, this was recommended for removal with replacement of the program with lethality testing of the water at SW13.

The results, which are provided in Appendix E, indicated that all four sampling events (April, June, August & October) indicated a 0% impairment and mortality rate for both Rainbow Trout and *Daphnia magna*.



6.2 Wetland Assessment

The wetland assessment is completed on a five-year frequency and was updated by Azimuth in 2023.

• The findings of this assessment and overall determination that the influence observed at the monitoring locations is not attributable to the landfill, consideration should be given to discontinue this monitoring program;

6.3 Site Operations

The Conditions associated with the landfill operations are to ensure the facility is being properly operated. The City of Kawartha Lake is diligent in their operations and protocols.

- The Site is being operated well and has no significant problems. Complaints were not received in 2023 relating to any operational items at the Site. Overall, operational protocols are effective in remaining attentive to the Site requirements, which are addressed as identified;
- The amount of waste material (including soil received, segregated, stockpiled and used for daily cover) disposed in the landfill in 2023 was 35,997 tonnes, which is comparable to previous years;
- Gull control measures continued to be used in 2023, including pyrotechnics as historically outsourced methods were not proving effective. These methods proved effective and will be continued in 2024;
- The total recorded volume of leachate and sewage (combined) pumped from the landfill to the Lindsay WPCP in 2023 was approximately 37,556 m³. This total leachate pumping volume consists of 14,520 m³ from Leachate Pumping Station No. 1 (Old Landfill) and 50,798m³ from Leachate Pumping Station No. 2 (North Expansion Area), which represents a larger increase (~100%) from 2022 for the expansion area. This could be related to the expansion the active area further south;
- The average daily flow volume of leachate pumped to the WPCP from the Lindsay Ops Landfill for each month of 2023 did not exceed the maximum allowable average daily flow of 300 m³/day specified in the ECA. The peak permissible flow rate is set at 750 m³/day (8.7 L/s) at any time for the combined pump station contributions to the WPCP. The instantaneous rate measured at each location was not exceeded in 2023 at either LPS No. 1 or No.2;



• Construction of the eastern portion of Cells 4 and 5 were completed in 2019 such that filling in 2023 was in the north half of these cells;

6.4 Public Consultation

• The Public Review Committee (PRC) continued its activities and mandate in 2023. In 2023, six meetings of the PRC were held;

7.0 RECOMMENDATIONS

The following are the recommendations of the 2023 Annual Report for the Lindsay-Ops Landfill Site:

7.1 Environmental Monitoring

7.1.1 Ground Water / Leachate

The environmental monitoring program is to evaluate the key contaminant flow pathways that exist at the Site.

- The sampling for organic priority pollutants has not detected a significant contaminant threat in the decades this program has been conducted:
 - o PCBs are considered immobile in the environment. Decades of sampling have not yielded significant results. PCBs were banned from use in 1977. Further evaluation for this parameter is unwarranted. A few key monitoring wells (*i.e.*, 20-91-III, 23-91-III, 25-96 & 61-10-I) detecting the leachate influence in the bedrock flow system should be sampled infrequently (*i.e.*, once every three to five years);
- O Decades of sampling for VOC's have not yielded significant results. BTEX concentrations have degraded over time to trace or non-detectable levels. Only limited trace detections were observed at a few monitoring wells in 2023 beyond those at 7-90-II. Given the limited and inconsistent detections over the period of record, further evaluation for these parameters is unwarranted.
- The five primary historic indicator parameters used in the landfill evaluation are not considered to be the best parameters for this assessment. Therefore the following recommendations are:
 - Discontinue BTEX monitoring since, the BTEX signature in the ground water environment has degraded over time;



- o Discontinue Phenols monitoring since, the phenols concentrations tend not be consistently detected and appear to have degraded over time;
- Discontinue phosphorus monitoring since the phosphorus concentrations tended not to be consistently detected such that they can be relied upon to monitor trends.
- o Continue using chloride and total ammonia parameters in assessment as they are considered to be appropriate for the performance monitoring program;
- o Continue using other parameters (i.e. sulphate, iron, DOC) in assessment as suggested in Section 2.1.3.1;
- Decades of quarterly water quality monitoring results have suggested that changes at the landfill site occurs slowly and the landfill is now stable. The system is considered to be in a steady state equilibrium. The contaminant flux toward the Scugog River is an order of magnitude below any level of concern.
 - o A quarterly ground water monitoring program would appear excessive under these conditions and semi-annual monitoring (or less) should be considered;
 - O The existing database could be used to establish normal steady state conditions or slow trending conditions at targeted monitoring locations. This could permit less frequent sampling under a specified condition based on the past year or more of sampling. Similarly, a perceived departure from the norm could necessitate a return to the quarterly to confirm the trend or refute the anomalous data;
- Hydraulic evaluation (*i.e.* slug testing) of all monitoring wells could be completed. This could help to assist in determining low yielding monitors which are not targeting leachate migration pathways and thus support their removal from the monitoring program;
- Reduce frequency of leachate collection system inspection and flushing to every three years, or as required based on operational requirements

7.1.2 Surface Water

The surface water monitoring program is to assess any influence the Site may have on the adjacent Scugog River. The monitoring program is also intended to detect contaminant migration via the Site drainage channel network.

• the sampling for organic priority pollutants has not detected a significant contaminant threat in the decades this program has been conducted:



- o Decades of sampling have not yielded significant PCB results. Further evaluation for PCBs is unwarranted;
- o Decades of sampling have not yielded significant VOC results.
 - BTEX concentrations have degraded over time to trace or non-detectable levels. Further evaluation for this parameter would appear unwarranted;
 - trihalomethanes is a by-product of WPCP processing and therefore need not be assessed as it does not relate to the landfill;
- the Scugog River sampling program is recommended for the inorganic suite of parameters currently being used;
 - Establish an interim / temporary sampling location at the exit of Embayment A
 and the entrance to Embayment C to assess the mechanism(s) for the mixing of
 embayment waters with the Scugog River;
- The nearshore samples collected from 2019 to 2023 have yielded results that indicate generally consistent results for iron and ammonia between the inlets and Embayment B sampling point at the opening to river. This would indicate that seepage of the lagoons into these inlets is negligible and not creating a measurable influence in the embayment / river. As such, it is recommended that the nearshore samples be removed from the monitoring program;
- The on-Site drainage sampling program is recommended for the inorganic suite of parameters currently being used;
 - The database needs to be separated between wet weather / active flow conditions and dry weather conditions;
 - The value of the dry weather sampling program is minimal due to significant sediment entrainment. Stagnant/ pooled waters should not be sampled;
 - It is recommended that filtering of surface water samples (field or lab) could be completed to address the low flow sampling deficiencies so that the information can be reliably used to remove the bias created by entrained sediments, which skews water quality results if TSS values exceeds an established trigger value;

7.1.3 Landfill Gas

The landfill gas monitoring program is design to evaluate the migration potential of these compounds in the environment.



- The findings from the landfill gas monitoring suggest that there is no meaningful gas migration at this Site. A monitoring program needs to be maintained as a safeguard; but should reflect the relative risk given the current understanding;
 - It is proposed that if monitoring wells have not shown any detection in the past five years, then sampling should be reduced to an annual late winter measurement;
 - If a detection occurs during the annual monitoring, then quarterly sampling should be re-established or if source concentrations increase abruptly by more than 25%;
 - o If a monitoring well has shown no detection for a decade, then monitoring should be terminated;

7.2 Wetland Assessment

Given the findings of the assessment completed in 2023, the overall determination is that the influence observed at the monitoring locations is not attributable to the landfill. As such, consideration should be given to discontinue this monitoring program

7.3 Site Operation

The Conditions associated with the landfill operations are to ensure the facility is being operated according to Site specifications outlined by the MECP.

- The City of Kawartha Lakes has been issued a new ECA license and there are new conditions for Site operations;
 - The peak maximum flow of 750 m³/day (at any time) for leachate transfer to the WPCP appears to be anomalously low if related to the peak instantaneous flows which have historically occurred based on the past operating data. However, when the average daily data is reviewed, the thresholds are met throughout 2023;
 - The City should enter into discussions with the MECP if this peak maximum flow rate is set too low for the Site conditions, or whether the intent is to review the daily average data, for which the Site remains in compliance with;

7.4 Public Consultation

No new recommendations.



8.0 REFERENCES

Azimuth Environmental Consulting Inc. 2023 2022 Annual Monitoring Report: Lindsay-Ops Landfill, City of Kawartha Lakes

Azimuth Environmental Consulting Inc. 2022 2023 Annual Monitoring Report: Lindsay-Ops Landfill, City of Kawartha Lakes

Azimuth Environmental Consulting Inc. 2023 2020 Annual Monitoring Report: Lindsay-Ops Landfill, City of Kawartha Lakes

Azimuth Environmental Consulting Inc. 2020 2019 Annual Monitoring Report: Lindsay-Ops Landfill, City of Kawartha Lakes

Azimuth Environmental Consulting Inc. 2012
Performance Monitoring Program Efficiency Evaluation
Lindsay-Ops Landfill, City of Kawartha Lakes

Cambium Inc. 2020
2020 Biomonitoring Report:
Lindsay-Ops Landfill, City of Kawartha Lakes

Cambium Inc. 2019
2019 Biomonitoring Report:
Lindsay-Ops Landfill, City of Kawartha Lakes

City of Kawartha Lakes, 2008

Landfill Gas Capture Funding Program – City of Kawartha Lakes Lindsay Ops Landfill Site Correspondence to the Landfill Gas Capture Program, Waste Management Policy Branch, Ministry of the Environment, dated November 7, 2008

Freeze, A.R. & Cherry, J.A., 1979 Groundwater Prentice Hall



Golder Associates Ltd, 1996

Landfill Assessment and Wetland Impact Study Golder Report No. 951-1582

Golder Associates Ltd, 1998

Estimation of Ammonia-N Loadings Due to Leakage from the Sewage Lagoon System, Lindsay-Ops Landfill Site Golder Report No. 981-1494

Golder Associates Ltd, 2000

Hydrogeological Conditions and Assessment of Ammonia Loadings – Proposed Lindsay-Ops Landfill Expansion Golder Report No. 991-1353-3

Golder Associates Ltd, 2005

Monitoring Plan for Compost Pad Facility Lindsay-Ops Landfill, prepared for City of Kawartha Lakes

Correspondence to Mr. I. Parrot, Ministry of the Environment Assessment and Approvals Branch, dated February 9, 2005

Golder Associates Ltd, 2008a

Landfill Gas Utilization Assessment, Lindsay/Ops Landfill, City of Kawartha Lakes, ON

Correspondence to Mr. A. Boyd, Solid Waste Services, City of Kawartha Lakes, dated September 25, 2008

Golder Associates Ltd, 2008b

Application for Funding of LFG Capture Facilities, Lindsay/Ops Landfill, City of Kawatha Lakes, Ontario

Correspondence to Mr. A. Boyd, Solid Waste Services, City of Kawartha Lakes, dated November 6, 2008

Golder Associates Ltd, 2011

Ammonia-N Trigger Concentration Exceedance, Lagoon Monitoring Wells, Lindsay Water Pollution Control Plant, City of Kawartha Lakes Correspondence to Ms. Cathy Curlew, Ministry of the Environment, Peterborough District Office, dated September 16, 2011

Hydroterra Limited, 1991

Interim Landfill Expansion Study



Hydroterra Limited, 1993 Supplementary Report

Urban & Environmental Management Inc., 2012 Consolidated Maintenance and Operations Report

WESA, 2014

Lindsay-Ops Waste Disposal Site (ECA # A323504) 2013 Annual Status Report



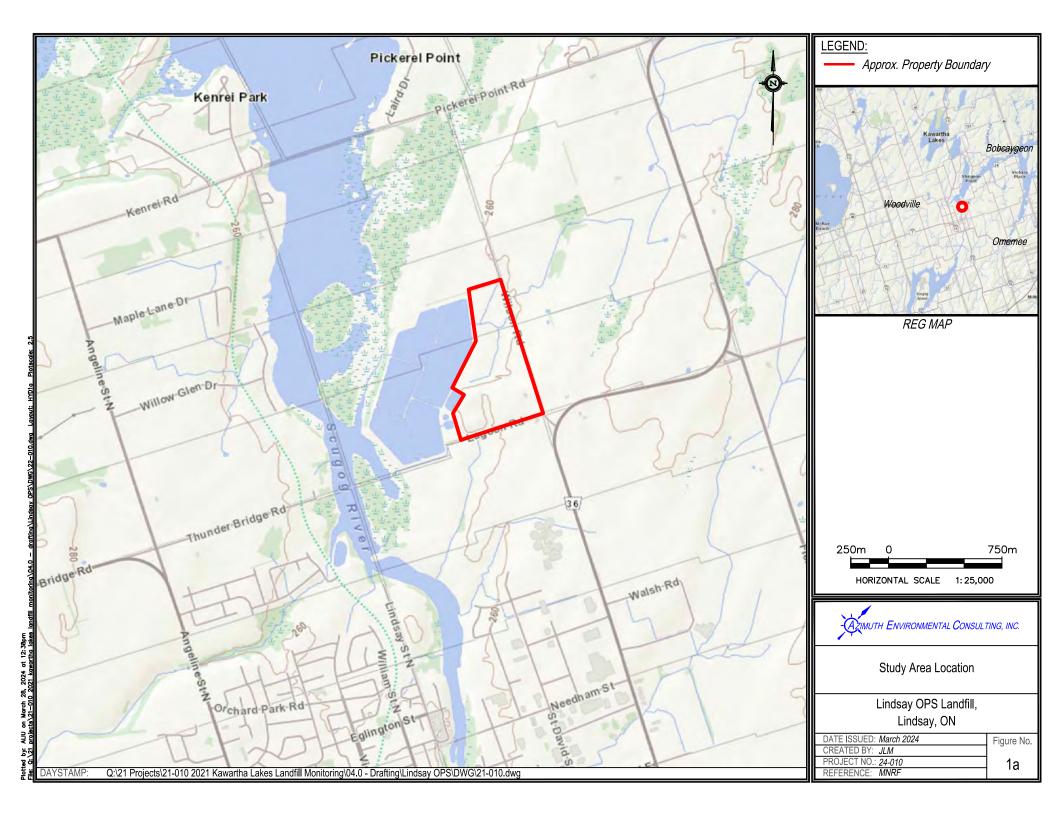
APPENDICES

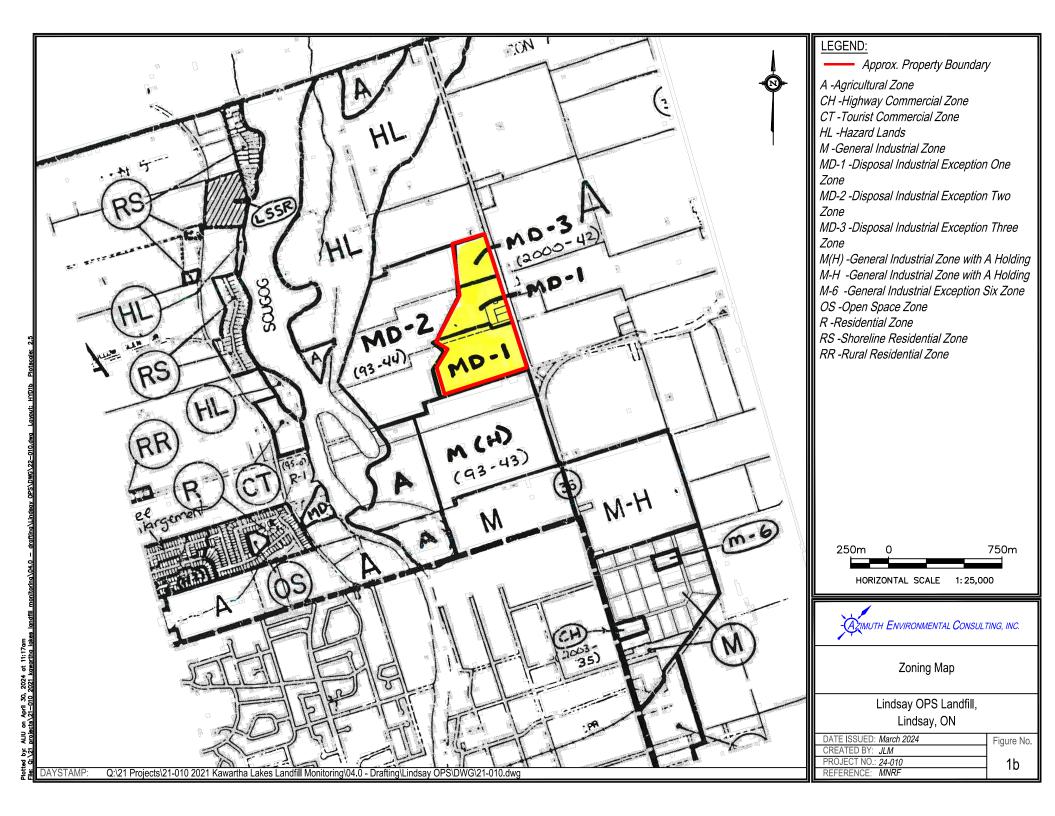
Figures

Appendix A	Ground Water Level Data
Appendix B	Ground Water & Leachate Quality Summary Tables
Appendix C	Surface Water Quality Summary Tables
Appendix D	Laboratory Certificates of Analysis
Appendix E	2023 Toxicity Testing Laboratory Results
Appendix F	Borehole Logs
Appendix G	2023 Leachate Collection System Inspection Video Report
Appendix H	2023 Performance Report for the Lindsay WPCP
Appendix I	MECP ECA No.: A323504
Appendix J	Time Trend Chemistry Graphs
Appendix K	MECP Landfill Report Submission Form
Appendix L	Lindsay OPS Landfill Stormwater Management System -
	Annual Status Report 2023
Appendix M	Old Landfill Perimeter Ground Water Quality Interpretation
•	Tables
Appendix N	Ground Water Quality Summary Tables –
	PWOO Comparison



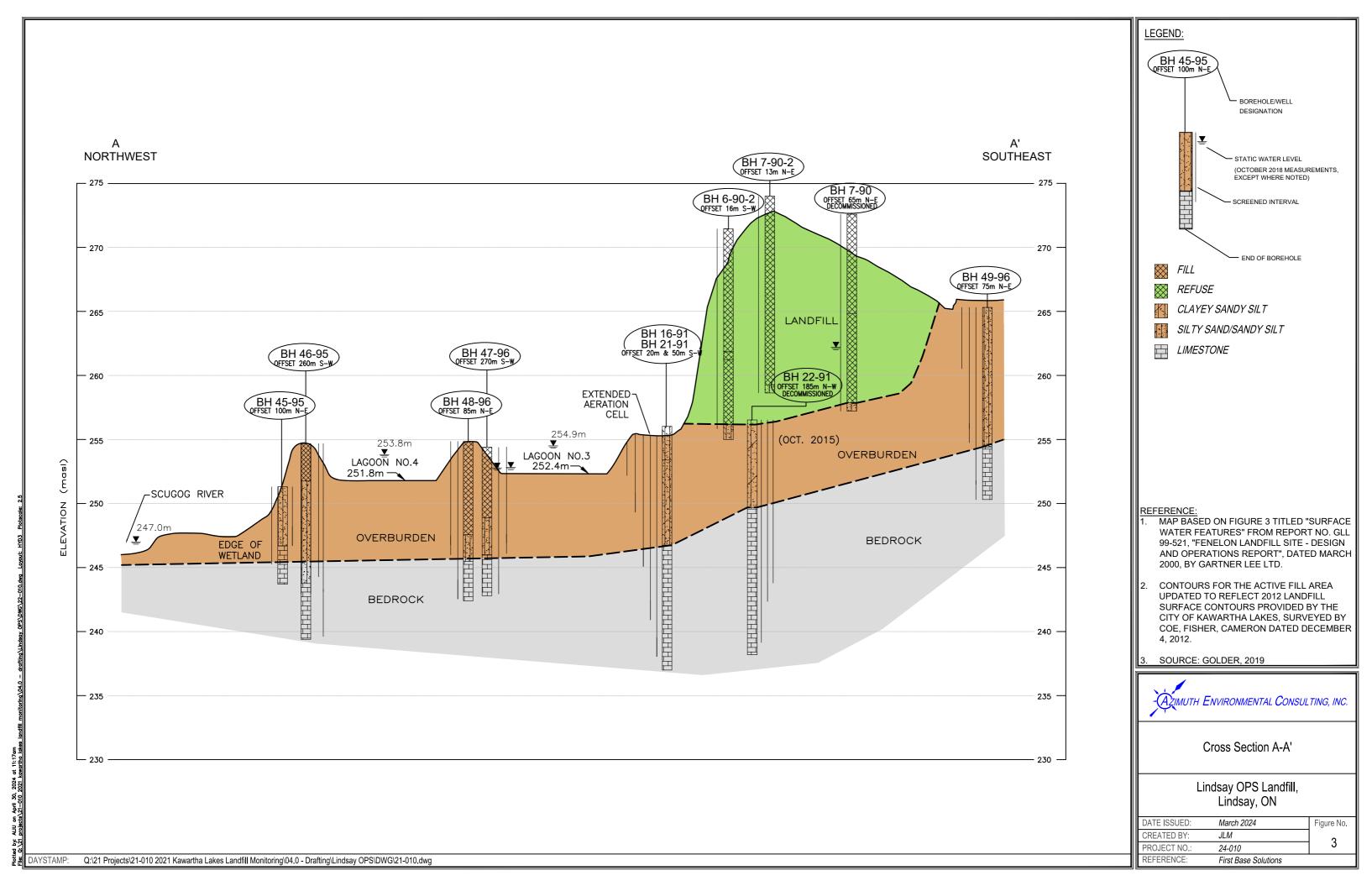
Figures	

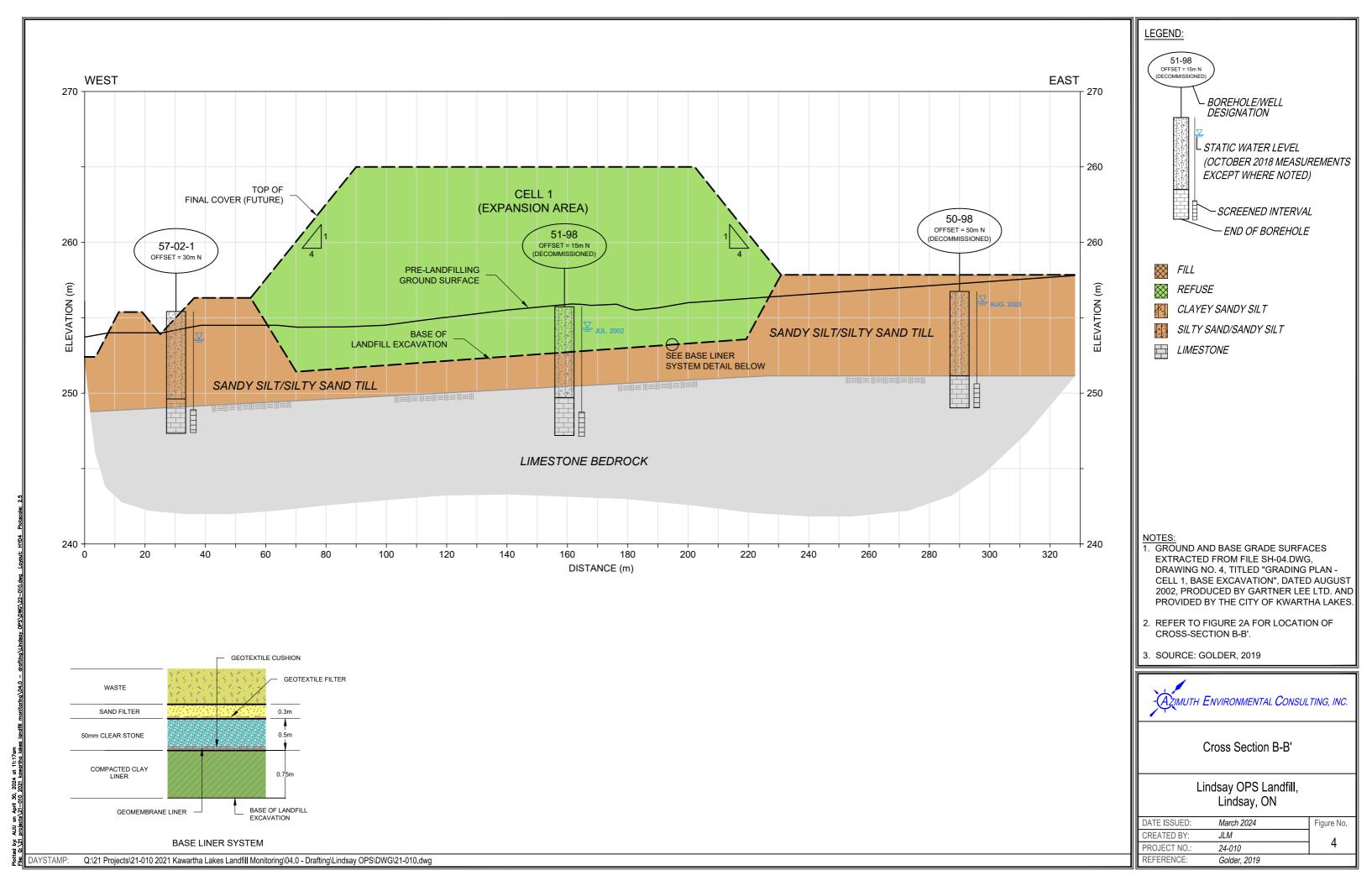


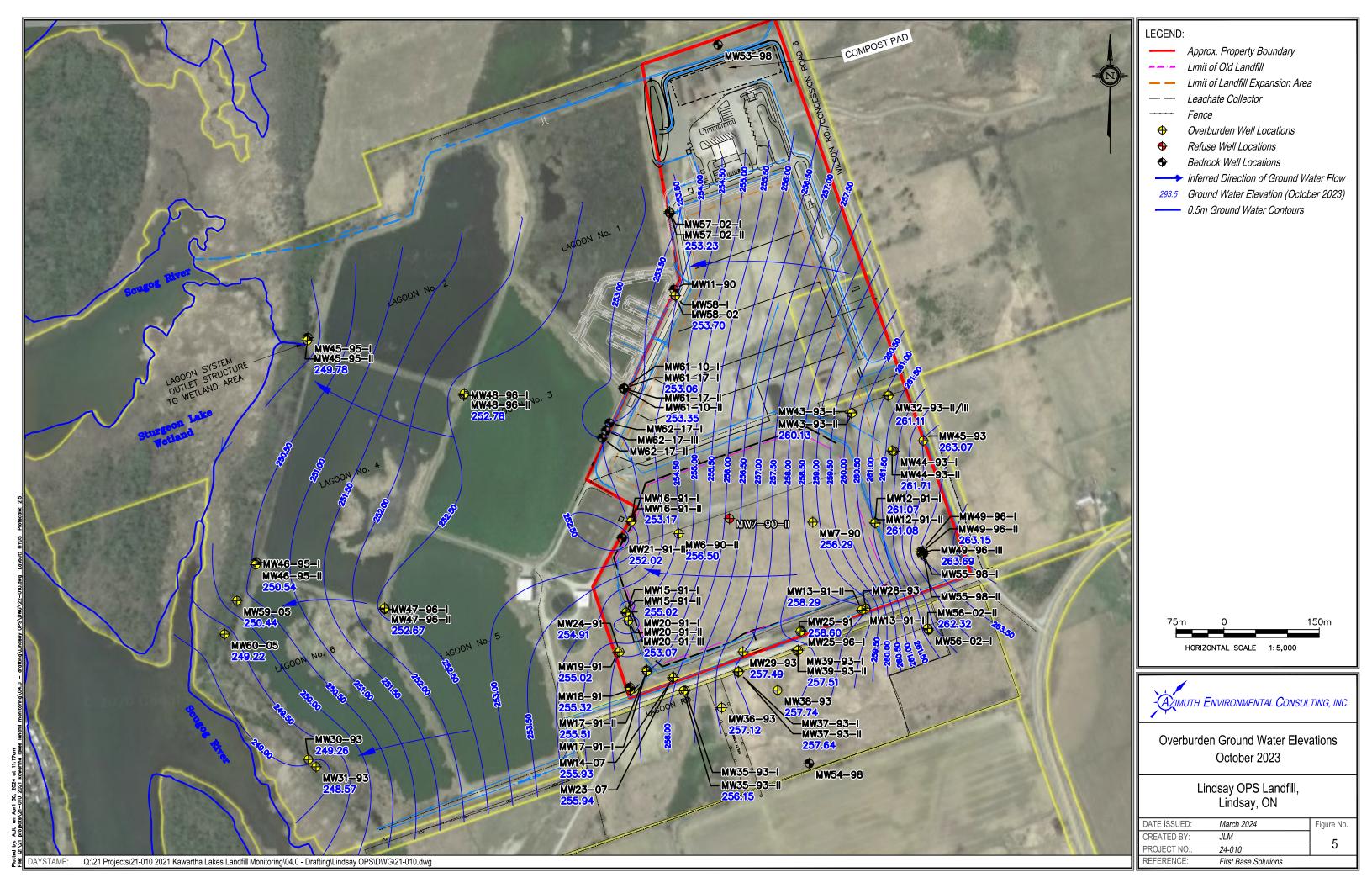


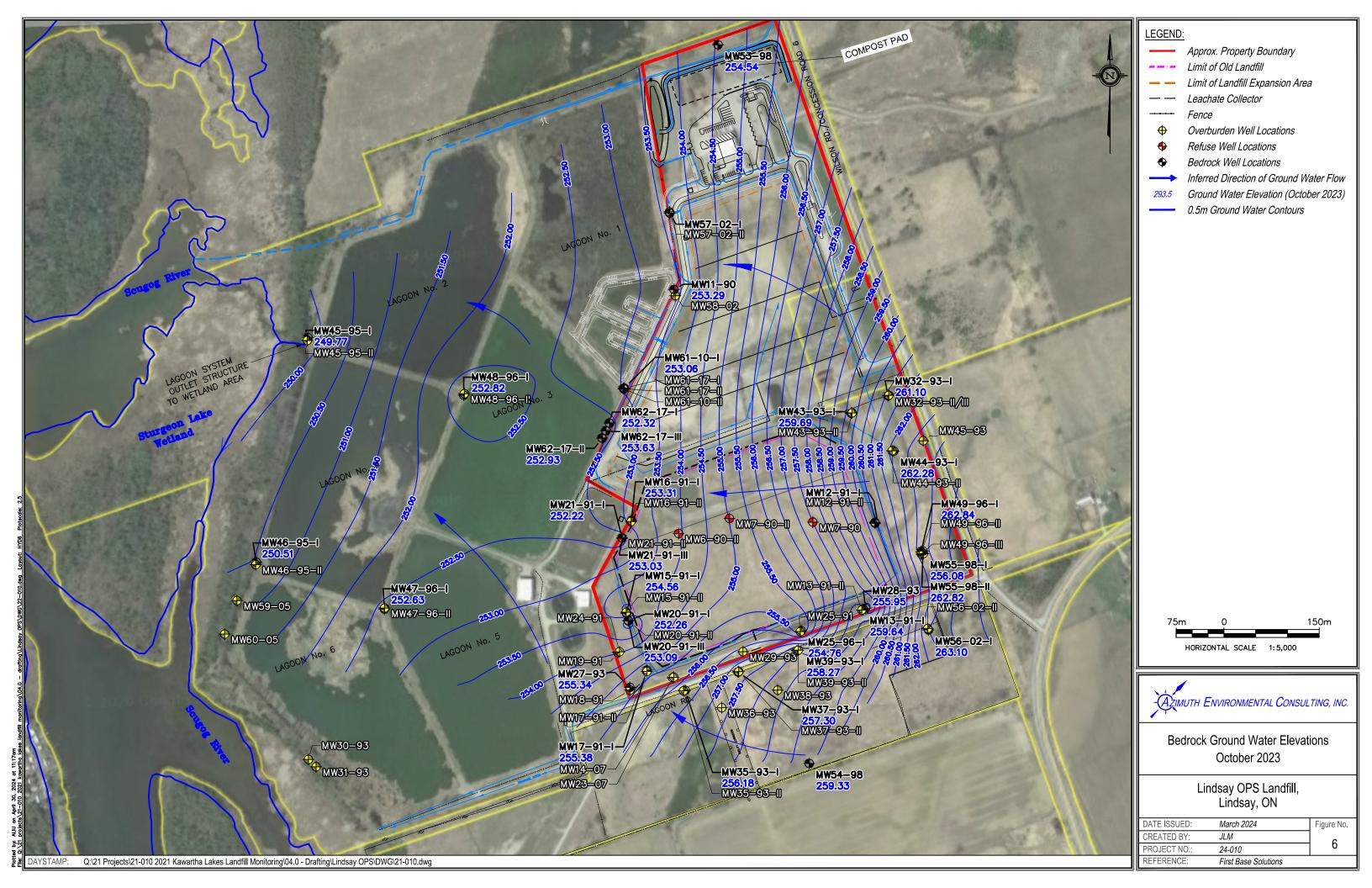












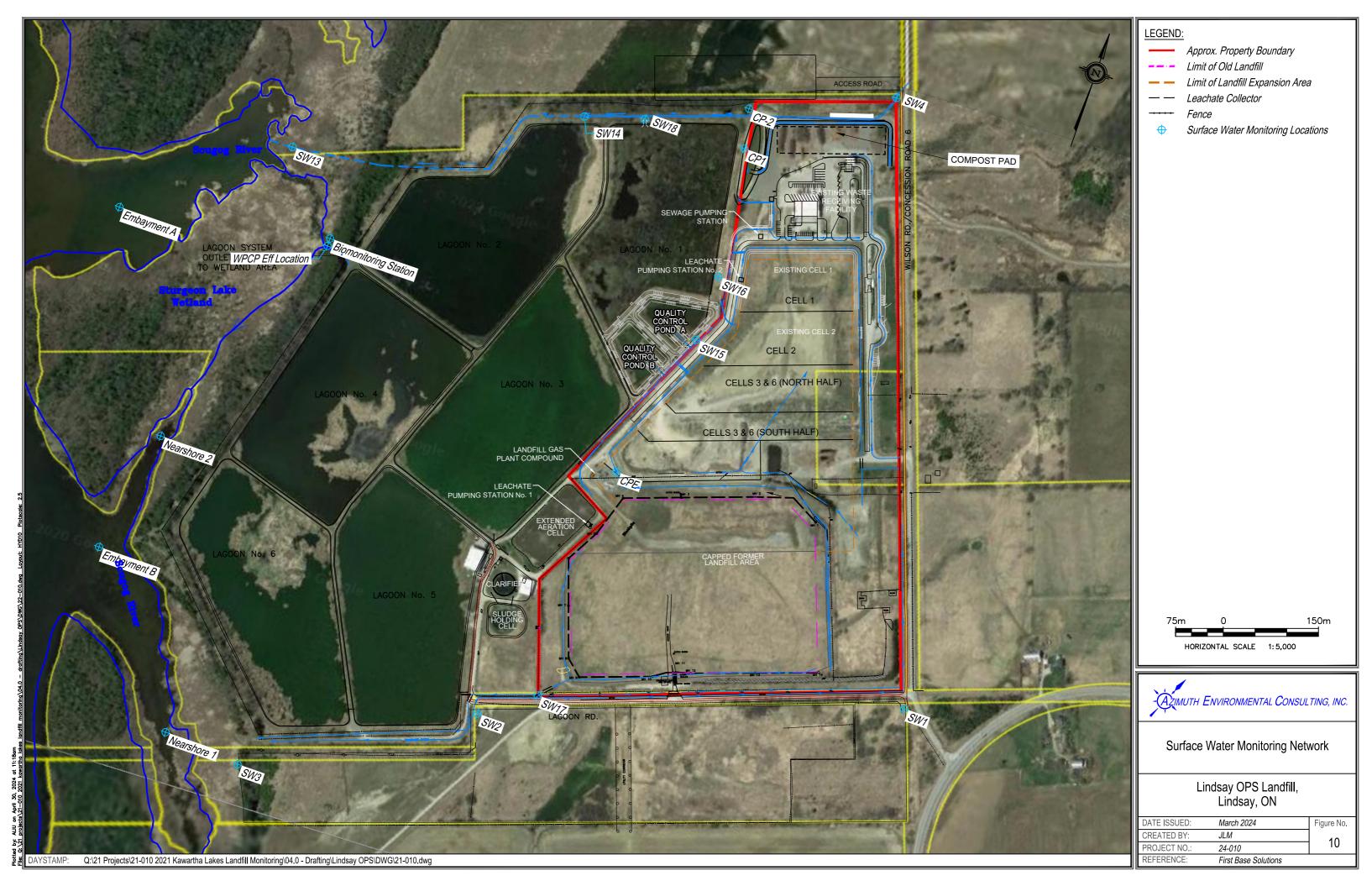


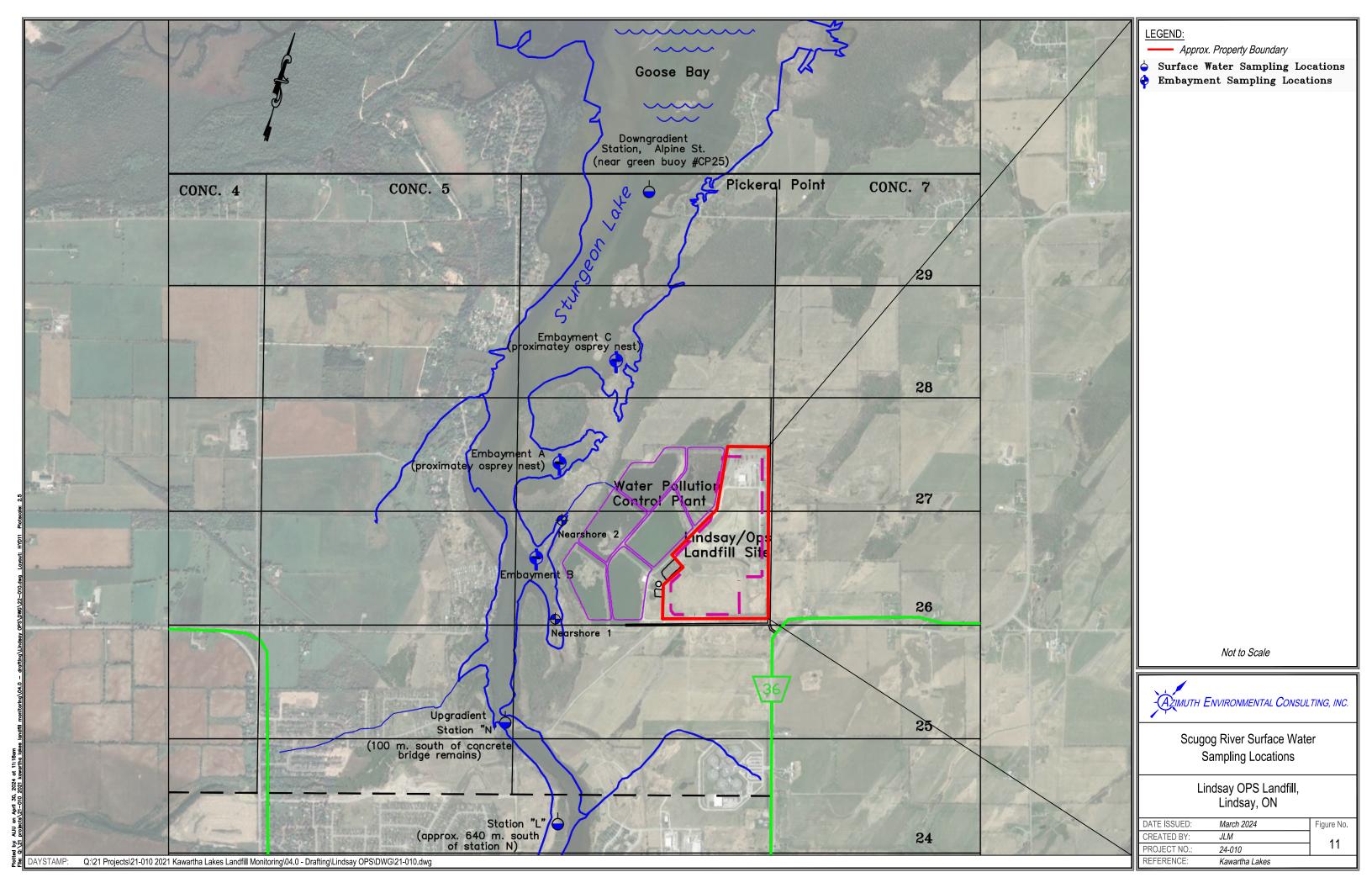


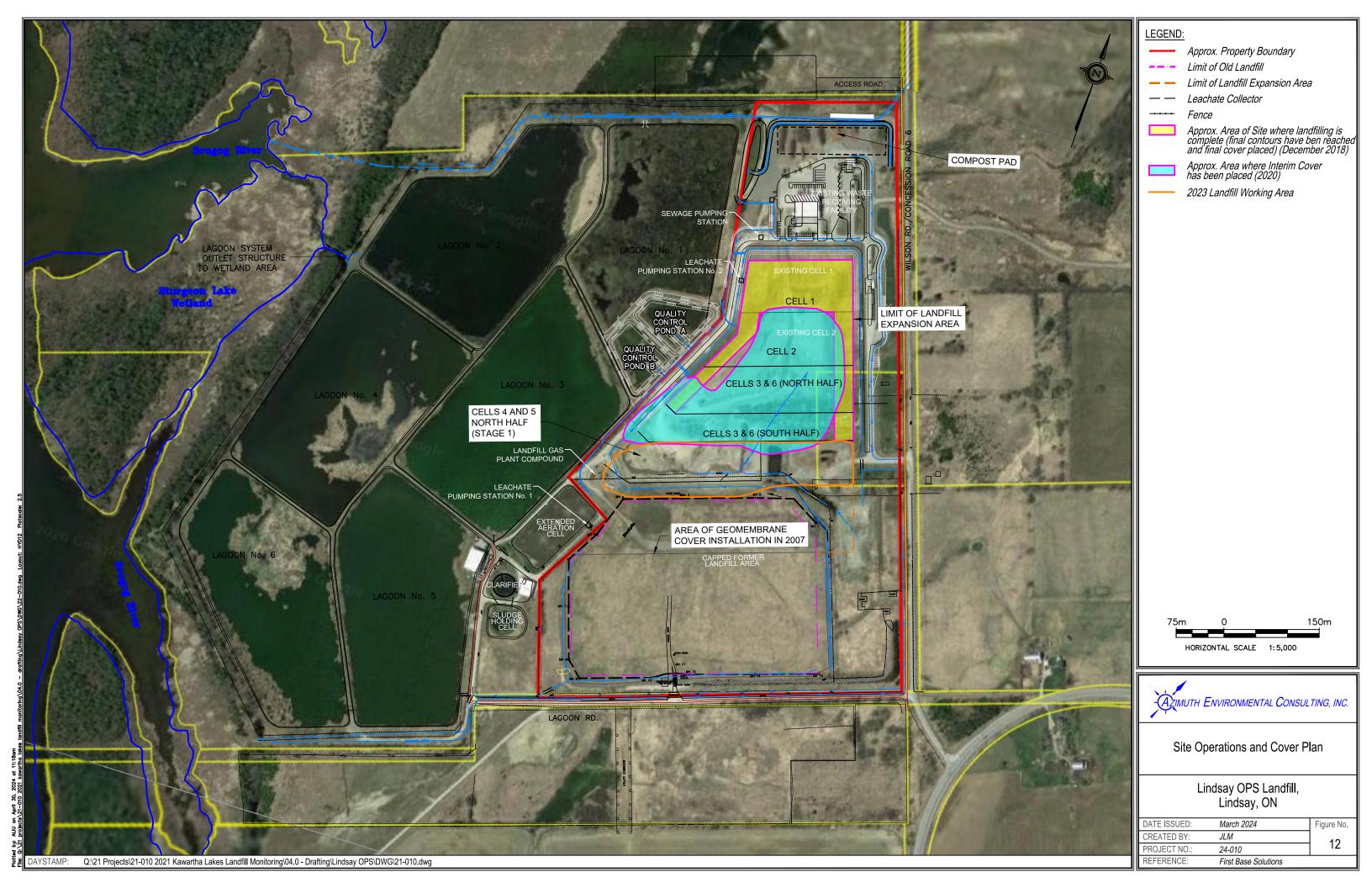


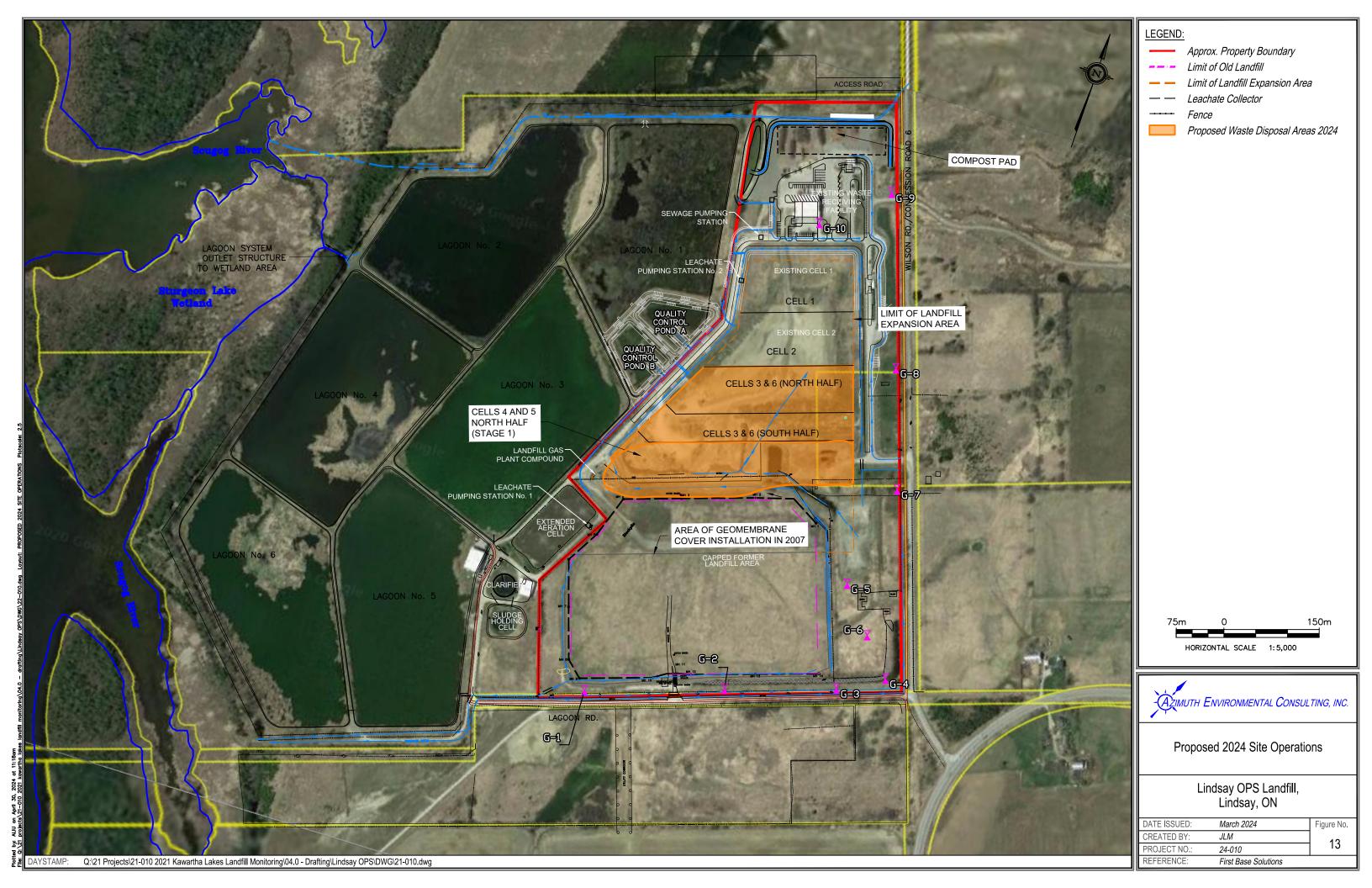


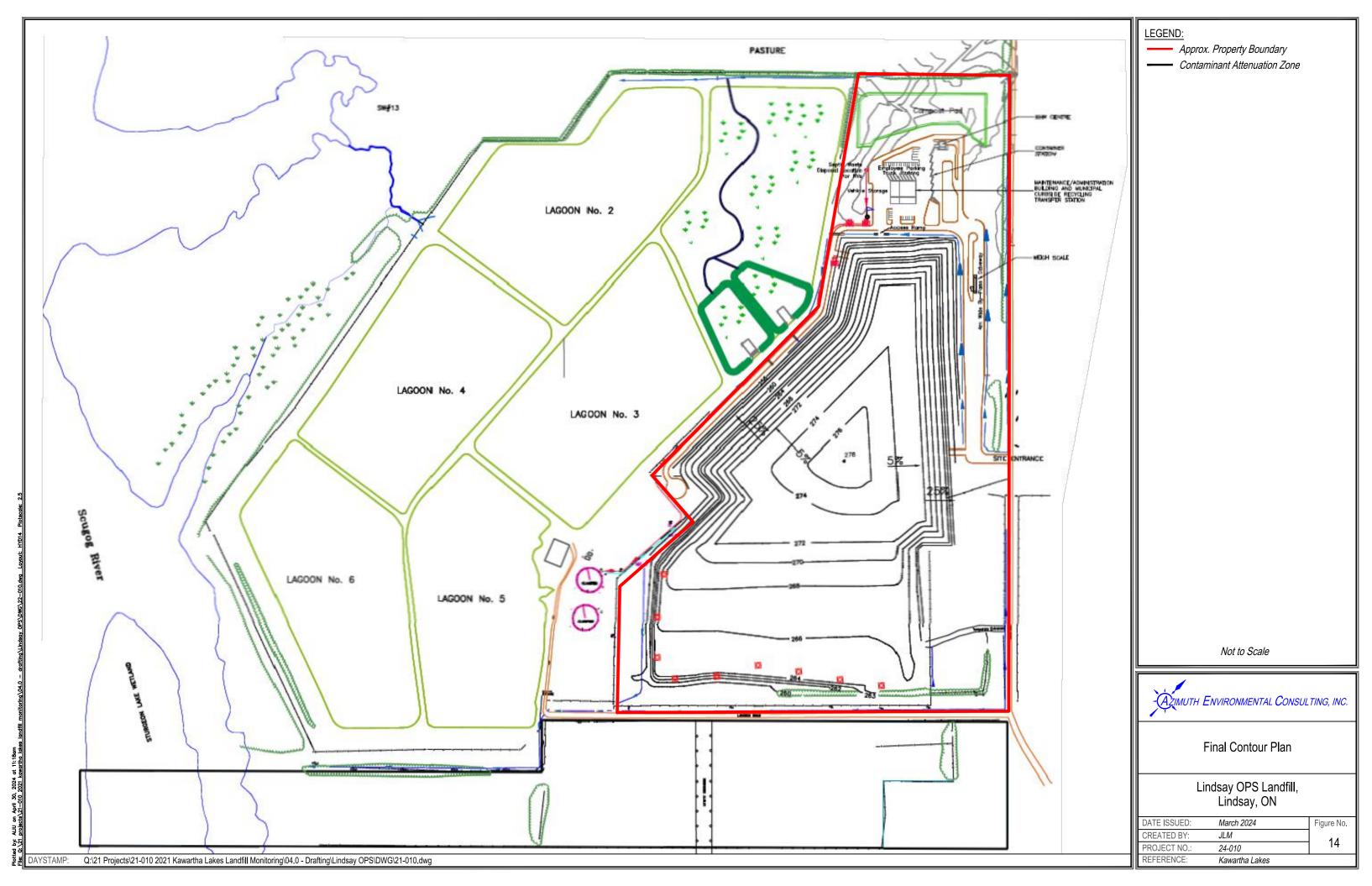














APPENDIX A

Ground Water Level Data

Table A-1: Groundwater Level Elevations (mASL) (2004-2022) Lindsay-Ops Landfill Site

	Reference	_	4	4			10				"0				_		_					
Monitor No.	Elevation (mASL)	-Mar-04	-Мау-04	27-Jul-04	-Oct-04	-Feb-05	5-May-05	-Jul-05	-Oct-05	-Feb-06	-Мау-06	90-Inc-	-Oct-06	-Apr-07	-Aug-07	-Oct-07	-Feb-08	-Apr-08	-Jul-08	-Oct-08	-Feb-09	-May-09
6-90-II	270.96	න 256.12	255.60		255.96	255.67	255.80	. 1	. 5	255.59	257.32	. 1	255.15	256.53	256.14	256.22	265.74	267.65	256.65	256.18	256.43	256.60
7-90	271.99	262.84	263.49	-	263.22	-	-	264.62	-	-	-	263.31	261.71	-	-	-	-	260.74	261.81	263.38	263.59	261.86
7-90-II 11-90	273.82 255.53	-	254.06	254.17	253.15	-	254.45	-	-	254.48	254.39	254.13	254.28	265.46 254.50	268.79 252.95	268.92 252.88	264.21 254.48	262.43 254.88	265.75	263.51 254.31	263.11 254.71	270.88 254.97
12-91-I	263.18	261.38	261.18	260.86	260.59	261.35	261.20	260.71	260.32	261.19	261.09	260.62	261.24	261.27	260.26	260.63	260.32	260.54	261.12	260.95	261.31	261.39
12-91-II	263.39	261.31	261.07	260.79	260.57	261.35	261.11	260.69	260.37	261.15	261.03	260.60	261.49	261.15	260.09	260.77	260.34	261.70	261.14	260.91	261.25	261.37
13-91-I 13-91-II	262.24 262.53	261.23 258.50	261.16 258.58	260.89 258.39	260.31 258.03	261.16 258.53	261.25 258.65	260.56 258.20	259.70 257.81	261.20 258.64	261.12 258.58	260.53 258.18	260.72 258.18	261.83 259.80	260.26 258.63	259.97 258.39	261.76 259.57	261.89 259.67	261.33 259.24	260.97 258.50	261.32 258.74	261.39 258.78
14-07	259.66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	258.67	257.11	256.36	256.30	256.48	256.62
15-91-I	261.00	255.08	255.42	254.80	254.52	254.77	255.01	254.46	254.20	254.67	254.84	254.58	254.88	255.40	-	253.36	254.06	254.45	253.86	253.73	253.95	254.10
15-91-II 16-91-I	260.89 257.71	255.79 254.53	254.98 253.97	255.24 253.67	254.98 253.57	255.33 253.73	255.52 253.81	255.06 253.56	254.68 253.12	255.24 253.50	255.30 253.84	255.04 253.84	255.20 254.30	255.98 254.52	253.24	253.81 253.76	254.42 254.31	254.72 254.51	254.28 254.11	254.10 253.78	254.31 254.07	254.45 254.18
16-91-II	258.06	255.53	253.59	253.37	253.38	253.49	253.53	253.36	253.25	253.39	253.97	254.43	254.95	255.06	253.64	253.93	254.45	254.78	254.11	253.44	253.72	253.82
17-91-I	259.92	256.03	255.89	255.53	254.17	255.67	255.94	255.21	254.75	255.47	255.78	255.37	255.60	256.16	254.87	255.05	256.09	256.38	255.77	255.61	255.82	256.11
17-91-II 18-91	259.97 259.51	256.42 255.77	256.21 255.56	255.73 255.25	255.36 254.89	255.98 255.49	256.30 255.75	255.47 255.00	255.05 254.57	255.86 255.24	255.99 255.56	255.58 255.09	255.79 255.48	256.46 255.80	255.24 254.57	255.27 254.63	256.40 255.76	256.74 256.22	256.07 255.47	255.85 255.37	256.13 255.68	256.44 255.90
19-91	258.48	255.43	255.30	255.10	254.80	255.16	255.37	254.88	254.18	255.01	255.28	254.93	255.15	255.57	254.39	254.58	255.43	255.85	255.27	255.12	255.41	255.57
20-91-I	260.81	253.33	253.50	253.32	252.96	253.28	253.55	252.84	252.67	253.23	253.17	252.90	252.90	253.48	-	252.18	252.67	252.99	252.72	252.44	252.65	252.80
20-91-III 20-91-III	260.82 260.81	253.39 253.59	253.75 253.86	253.54 253.72	253.23 253.31	253.41 253.11	253.35 253.45	252.84 252.98	252.81 252.96	253.25 252.81	253.33 253.47	253.17 253.33	253.37 253.44	253.64 253.79	-	252.34 252.48	252.87 253.02	253.42 253.56	252.89 253.04	252.59 252.74	252.87 253.00	252.99 253.10
21-91-I	258.01	253.36	253.51	253.34	252.97	253.32	253.56	252.83	252.60	253.11	253.17	252.94	252.92	253.49	252.62	252.89	253.57	253.77	254.13	253.22	253.42	253.58
21-91-II	258.02	251.61	252.62	250.57	251.92	250.98	252.45	252.38	252.49	250.70	252.50	253.98	251.47	252.30	249.53	251.58	251.79	252.06	256.26	253.26	250.60	252.68
21-91-III 23-07	258.02 259.72	253.41	253.61	253.43	253.13	253.23	253.27	252.73	252.69	253.14	253.22	253.06	253.18	253.45	252.63	253.01	253.52	254.04 256.82	256.28 256.19	253.23 256.14	253.54 256.27	253.63 256.40
24-91	258.66	255.45	255.32	255.11	254.79	255.18	255.38	254.86	254.56	255.07	255.30	255.08	255.16	255.50	254.47	254.66	255.45	255.89	255.26	255.14	255.45	255.60
25-91	259.87	258.77	258.58	258.41	257.50	258.84	258.81	257.76	257.04	-	258.84	258.11	255.77	259.12	257.41	257.10	259.37	258.96	258.81	258.94	259.25	259.26
25-96 27-93	259.80 259.83	255.19 255.88	255.26	256.25	254.72	255.14 255.57	255.41	254.68 255.09	254.48	255.48 255.48	255.25	255.12	258.17	255.92	254.79 254.89	254.89 254.87	255.83 255.96	255.96	255.43 255.69	254.98	255.51	255.78 256.06
28-93	262.41	200.88	255.77 255.95	255.39 256.01	255.02 255.96	255.90	255.85 256.08	256.00	254.78 255.72	255.48	255.67 256.87	255.33 256.12	255.50 256.03	256.03 256.33	254.89	255.96	256.04	256.33 256.06	256.07	255.54 256.03	255.85 256.18	256.91
29-93	259.36	257.61	257.50	257.51	256.78	257.62	257.72	256.96	256.72	257.68	257.60	257.23	257.90	258.18	-	257.19	258.06	258.22	257.86	257.48	257.66	257.75
30-93	249.50	249.23	249.32	249.01	249.22	-	249.29	249.17	249.22	-	249.31	249.26	249.28	249.22	249.17	249.67	249.78	249.87	249.77	249.68	249.77	248.86
31-93 32-93-I	249.16 262.48	248.75	248.79	248.63	248.35	248.75	248.77	248.43	248.68	-	249.07	-	249.49	249.48	248.75	249.34	249.57	249.49	249.21	249.38	249.19	249.48
32-93-II	262.28	261.18	261.05	260.90	260.00	-	261.03	260.14	259.16	-	260.96	260.20	260.77	261.02	-	-	-	-	-	261.35	-	261.63
32-93-III	262.48	261.65	261.58	261.31	-	-	261.52	260.75	-	-	261.45	260.73	261.39	261.49	-	-	261.55	261.61	261.36	261.19	261.68	261.57
35-93-II	258.62 258.86	-	256.36	256.23	256.03	255.84	256.52	256.04	255.80	255.68 256.40	256.40 256.14	256.02 255.84	256.65 256.44	256.69 256.38	255.94 255.92	255.96 255.93	255.48 256.56	256.96 256.72	256.39 256.11	256.33 256.14	256.54 256.30	256.77 256.54
36-93	258.63	257.63	257.27	257.07	256.61	-	257.44	256.70	256.40	-	257.30	256.65	257.50	257.38	256.42	255.93	257.93	257.86	257.33	257.33	257.73	257.67
37-93-I	258.61	257.83	257.45	257.45	256.91	257.65	257.76	256.95	256.50	-	257.64	257.10	256.79	258.07	256.73	256.82	258.26	257.86	257.83	257.65	257.62	257.92
37-93-II 38-93	258.93 259.30	257.58 258.22	257.18 257.95	257.15 257.69	256.46 257.15	258.03	257.43 258.10	256.58 257.22	256.40 256.83	258.29	257.07 257.59	256.83	257.49 258.11	257.66 258.23	256.34 256.85	256.55 256.80	257.83 258.50	257.76 258.13	257.36 258.02	257.30 258.03	258.01 258.40	257.60 258.33
39-93-I	259.55	257.91	257.72	257.55	257.14	257.81	257.99	257.32	256.82	258.03	257.85	257.28	257.91	258.52	257.29	257.20	258.39	258.50	258.14	257.83	258.00	258.05
39-93-II	259.87	258.74	258.31	257.91	256.95	-	258.61	257.27	256.60		258.49	257.68	258.19	258.61	-	256.67	258.69	258.76	258.46	258.30	258.81	258.66
43-93-II	261.54 261.54	260.19 260.28	260.04 260.15	259.93 260.01	259.21 259.15	260.13 260.30	260.14 260.25	259.19 259.11	258.61 259.03	260.27 260.46	260.05 260.09	259.26 259.22	259.88 259.87	260.27 260.31	258.69 258.47	258.83 258.64	260.50	260.33 260.41	259.77 260.20	259.86 260.15	257.22 260.32	260.30 260.39
44-93-I	263.39	-	262.73	262.11	261.69	-	262.93	261.19	260.85	-	262.36	261.86	262.23	263.20	261.76	261.13	262.96	263.41	262.89	262.64	-	262.37
44-93-II	263.46	262.15	261.91	261.41	261.05		261.76	261.68	260.54	262.12	261.78	261.04	261.60	262.07	260.98	260.58	262.01	262.46	261.59	261.39	262.61	
45-93 45-95-I	266.78 251.92	264.00 250.35	264.87 250.20	263.89 250.01	262.83 249.81	265.13 250.08	265.35 250.15	263.65 249.58	261.98 249.16	265.55 250.16	265.08 249.74	264.59 249.23	262.99 249.67	265.62 250.00	263.21 249.22	261.95 249.69	265.51 250.10	266.03 250.56	264.63 250.25	263.83 249.84	265.68 250.28	265.87 250.30
45-95-II	252.28	250.01	249.84	249.67	249.52	249.78	249.82	249.32	248.95	249.91	248.83	249.06	249.38	249.70	-	249.36	249.76	250.24	249.95	249.55	249.97	249.98
46-95-I	254.87	251.77	251.62	251.44	251.21	251.62	251.65	250.37	250.05	250.43	250.30	250.23	250.25	250.32	250.15	250.34	250.41	250.87	250.54	250.33	250.51	250.65
46-95-II 47-96-I	254.64 255.17	253.06 253.42	251.95 253.44	251.71 253.19	251.47 252.92	252.82 253.21	251.85 253.26	250.46 252.06	251.79 251.72	250.54 252.76	250.45 252.43	250.37 252.32	250.39 252.42	250.46 252.54	250.26 252.36	250.47 252.71	250.54 252.77	251.01 253.57	250.65 253.00	250.44 252.49	250.62 252.81	250.76 252.97
47-96-II	255.15	253.56	253.52	253.23	252.99	253.27	253.33	252.03	252.11	252.83	252.47	252.42	252.44	252.54	252.41	252.77	252.83	253.69	253.16	252.50	252.85	253.04
48-96-I	255.57	252.82	252.99	252.66	252.40	252.66	252.96	252.03	251.79	252.51	252.29	252.14	253.11	252.50	251.97	252.21	252.58	253.16	252.85	252.41	252.72	252.84
48-96-II 49-96-I	255.65 266.27	252.80 263.61	253.00 263.62	252.67 263.04	252.35 262.32	252.69 263.63	252.85 263.70	252.07 262.89	251.85 260.68	252.54 263.61	252.33 263.49	252.15 262.81	252.19 262.77	252.52 263.85	251.77 262.03	252.22 261.46	252.63 263.81	253.38 264.03	252.82 263.48	252.39 263.25	252.79 263.91	252.83 256.01
49-96-II	266.27	263.83	263.84	263.32	262.61	263.87	263.90	263.04	261.44	263.85	263.72	262.83	262.98	265.05	262.19	261.50	264.08	264.29	263.65	263.46	264.11	264.20
49-96-III	266.28	265.02	264.87	264.02	263.48	265.16	264.88	263.69	261.85	265.02	264.76	263.62	263.40	265.16	262.88	261.71	265.10	265.27	264.61	264.52	265.43	265.27
53-98 54-98	257.12 260.78	255.20 259.02	255.05 258.83	254.84 258.56	254.17 257.95	255.12 258.80	255.22 258.93	254.28 258.20	253.31 257.23	255.48 258.96	255.07 258.81	254.14 258.52	254.41 258.39	255.25 259.05	254.03 257.97	253.48 257.50	255.30 259.35	255.53 259.34	254.86	254.84 259.38	255.29 259.50	255.38 259.53
55-98-I	266.38	263.58	263.51	263.19	262.21	263.59	263.66	262.58	261.38	263.58	263.45	262.58	262.77	263.81	262.33	261.39	263.80	264.04	263.44	263.22	263.90	263.97
55-98-II	266.35	255.56	255.87	255.90	255.80	255.61	255.93	255.78	255.35	255.75	256.47	255.88	256.15	256.44	255.97	255.94	255.92	256.20	256.27	255.81	255.91	256.28
56-02-II	264.53 264.41	263.20 263.20	263.50 263.00	263.04 262.50	262.21 261.49	263.20	263.75 263.36	262.63 262.09	261.17 260.02	263.17	263.09 263.10	262.74 262.12	262.82 261.37	262.85 263.31	262.14 261.15	261.17 259.90	264.03 263.30	264.08 263.48	263.50 262.86	263.49 263.44	263.40 263.57	262.97 263.51
57-02-I	256.04	253.89	253.69	253.79	252.68	-	-	253.32	253.06	-	253.96	-	253.88	253.97	252.79	252.78	253.43	253.79	253.25	253.24	253.67	253.80
57-02-II	255.92	254.06	254.09	254.17	253.04	-	-	253.55	253.23	-	254.32	-	254.17	254.31	253.00	252.99	253.82	254.13	253.51	253.41	253.91	254.09
58-02 59-05	256.67 250.63	254.39	254.07	254.19	253.20	254.19	254.57	253.64	253.53	254.14	254.26	-	254.37	254.50 250.29	253.33	254.02 250.26	254.52 250.36	254.63 250.80	254.16 250.51	254.24 250.26	254.59 250.47	254.67 250.63
60-05	250.47	-				-							-	249.60	-	249.52	249.51	249.69	249.42	249.48	249.55	249.58
61-10-I	256.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
61-10-II 61-10-III	256.02 255.98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
61-10-III	255.96																					
62-17-I	256.19																					
62-17-II	256.20																					
62-17-III	256.17	l											l	1	<u> </u>	l	l	1	1			

Table A-1: Groundwater Level Elevations (mASL) (2004-2022) Lindsay-Ops Landfill Site

		_	0							8		_									"		
Monitor No.	-Oct-09	0-Feb-10	0-May-10	5-Jul-10	-0ct-10	24-Feb-11	-May-11	0-Oct-11	22-Feb-12	31-May-12	-0ct-12	5-Feb-14	5-May-14	Jul-14	-Oct-14	eb-15	-May-15	Jul-15	-0ct-15	4-Feb-16	20-May-16	-Jul-16	18-Oct-16
	7	1	1		10		က်	_			-	7		15.7	20.	1-Fe	_	15.	_			12	_ `
6-90-II 7-90	263.64 257.19	255.47	268.11 257.39	256.09 267.51	255.85 261.69	256.15	256.02 271.85	255.75 261.79	-	255.83 261.57	255.66 261.33	-	261.03	261.07	261.12	-	-	-	-	Dry -	254.63 262.19	-	Dry Dry
7-90-II	264.15	265.05	263.39	263.35	265.84	264.83	265.04	263.72	-	265.37	-	-	265.12	264.51	-	-	-	264.12	-	-	262.84	-	265.02
11-90 12-91-I	254.46 261.22	254.39 261.19	254.43 261.22	254.38 260.99	254.44 261.23	254.37 261.26	254.87 261.41	254.62 261.22	254.65 261.19	254.59 261.11	254.35 260.82	254.80 261.23	254.93 261.40	254.45 260.84	254.65 261.01	254.39 261.13	254.53 260.90	254.77 261.00	254.51 260.61	255.15 261.46	254.85 260.95	254.68 260.57	254.73 260.53
12-91-II	261.30	261.13	261.22	260.97	261.67	261.18	261.55	261.22	260.65	261.07	260.98	261.28	261.50	260.81	261.10	261.17	260.94	260.96	260.60	261.73	260.95	260.60	260.80
13-91-I 13-91-II	261.22 258.61	261.15 258.63	261.21 258.68	261.10 258.57	259.8 258.35	261.28 258.68	261.45 258.77	261.31 258.72	261.33 258.75	261.33 258.8	260.24 258.09	261.39 258.79	261.41 258.80	260.71 258.39	260.95 258.49	260.92 258.47	261.01 258.58	261.08 258.60	261.05 257.97	260.38 258.55	260.20 258.51	259.42 257.99	258.62 257.56
14-07	256.38	256.34	256.37	256.26	256.29	256.25	256.72	256.52	256.60	256.33	256.16	256.70	256.57	256.17	256.40	256.10	256.15	256.23	255.99	256.66	256.20	256.02	255.93
15-91-I 15-91-II	253.81 254.10	253.87 254.18	253.79 254.18	253.74 254.1	253.58 253.88	253.82 254.18	254.06 254.52	253.83 254.11	255.24 255.76	253.82 253.94	253.44 253.82	253.81 254.18	254.04 254.53	254.06 253.64	253.99 253.60	253.68 254.11	253.69 254.16	253.79 254.25	253.40 253.88	253.89 254.31	254.00 254.20	253.27 253.95	252.12 253.62
16-91-I	253.87	253.91	253.93	253.87	253.64	253.95	253.86	253.69	253.63	253.65	253.5	254.64	253.87	253.62	253.64	254.85	253.68	253.72	253.49	253.69	253.54	253.45	253.33
16-91-II 17-91-I	253.62 255.81	253.59 255.82	253.59 255.69	253.54 255.61	253.28 255.45	253.67 255.76	253.41 256.14	253.38 256.78	253.29 255.81	253.29 255.81	253.21 255.23	255.92	253.39 256.05	253.18 255.47	253.23 255.58	254.61 255.54	253.23 255.63	253.25 255.73	253.13 255.09	253.19 256.77	253.06 255.70	253.06 255.22	253.02 254.89
17-91-II	256.09	256.03	255.94	255.88	255.68	256.01	256.5	255.98	256.07	256.08	255.43	256.17	256.39	255.66	255.79	255.46	255.84	255.96	255.27	256.39	255.70	255.19	254.80
18-91	255.57	255.51	255.55	255.42	255.25	255.64	255.98	255.67	255.64	255.62	255.01	255.73	255.91	255.25	255.51	255.16	255.44	255.46	254.78	256.01	255.45	254.90	254.46 254.43
19-91 20-91-I	255.25 252.48	255.25 252.56	255.2 252.35	255.13 252.39	254.97 252.24	255.21 252.68	255.59 252.57	255.32 252.32	255.26 252.47	255.27 252.33	254.87 252.05	255.35 252.21	255.51 252.43	254.98 252.54	255.11 252.12	255.03 259.00	255.15 252.85	255.21 252.34	254.78 254.39	255.61	255.20 251.68	254.81 251.98	251.76
20-91-II	252.64	252.66	252.66	252.64	252.54	252.85	252.95	252.67	252.60	252.63	252.37	252.80	257.01	252.34	252.62	252.62	252.70	252.78	252.47	252.89	252.67	252.78	252.13
20-91-III 21-91-I	252.79 253.06	252.73 253.3	252.74 253.13	252.86 253.16	252.62 253.03	252.78 253.28	253.09 253.35	252.79 253.1	252.64 250.46	252.70 253.10	252.4 252.83	252.86 255.53	252.96 253.22	252.59 253.08	252.67 252.81	252.63	252.70 252.83	252.78 253.21	252.48 252.80	252.91 250.63	252.69 252.78	252.17 252.84	252.13 252.51
21-91-II	253.19	250.62	252.36	247.28	253.25	250.65	251.98	252.08	250.62	252.28	251.58	-	252.48	248.66	251.74	-	252.63	246.73	251.01	253.58	252.70	248.26	251.38
21-91-III 23-07	253.24 256.21	253.34 256.15	253.34 256.15	253.33 256.06	251.58 256.01	253.49 256.14	253.61 257.45	253.35 256.28	253.30 256.35	253.34 256.15	253.13 255.86	256.44	253.71 256.43	253.36 255.97	253.43 256.16	255.98	253.53 256.05	253.56 256.04	253.26 255.80	253.58 256.67	253.39 256.04	252.60 255.86	252.86 255.67
24-91	255.28	255.26	255.24	255.15	255.01	255.32	255.63	255.36	255.31	256.3	254.9	-	255.56	255.03	255.16	255.08	255.21	255.29	254.83	255.79	255.33	256.54	254.60
25-91 25-96	259.16 255.51	259.29 255.6	257.14 255.42	258.66 255.34	259.01 255.02	255.3	258.89 258.8	259.17 255.29	255.94 253.59	258.99 255.34	258.06 254.84	255.41	259.25 255.64	258.45 255.24	259.21 255.19	254.96	258.69 255.12	258.81 255.49	257.66 254.95	259.09 255.74	258.86 255.50	256.10 255.25	Dry 254.46
27-93	255.73	255.71	255.65	255.56	255.41	255.65	256.08	255.83	255.77	255.76	255.16	255.88	256.05	255.42	255.58	255.45	255.61	255.69	255.04	256.04		254.78	254.62
28-93 29-93	256.17 257.68	255.68 257.62	256.32 257.76	255.97 257.33	256.08 257.59	255.88 257.64	256.19 258.78	256.18 257.71	255.58 257.76	256.31 257.65	255.97 257.09	256.32 257.92	256.40 257.93	256.64 257.19	256.32 257.62	256.34 257.12	256.54 257.33	260.94 257.48	256.24 256.83	256.49 258.05	256.47 257.54	256.24 256.92	256.10 256.61
30-93	249.75	249.69	249.67	249.47	249.71	237.04	249.77	249.87	247.77	249.78	249.66	-	-	249.86	249.57	249.59	249.54	249.50	249.44	249.59	249.65	249.65	249.57
31-93 32-93-I	249.46	249.57	249.45	249.18	249.47	-	249.47	249.48	-	249.42	249.37	-	249.47	249.42	249.41	249.46	249.24	249.12	249.15	249.44	249.38	249.20	249.06
32-93-II	261.43	261.44	261.53	261.09	261.1	261.4	261.53	261.30	-	261.4	259.63	-	261.41	262.33 260.90	262.38 260.69	262.46 261.58	261.03	261.10	261.72 260.16	261.39	-	260.31 259.94	260.74 259.04
32-93-III	261.35	261.54	261.51	261.04	261.19	-	261.49	261.37	-	261.59	-	-	261.59	260.86	261.38	260.14	261.26	261.39	-	261.55	-	Dry	260.69
35-93-II	256.53 256.29	256.4 256.14	256.46 256.21	256.32 256.1	256.26 256.12	256.37 256.09	256.85 256.65	256.63 256.41	256.70 256.52	256.46 256.22	256.13 256	-	256.88 256.76	256.19 256.00	256.34 256.13	250.92 257.12	256.27 256.03	256.34 256.08	256.06 255.92	257.05 257.11	256.30 255.88	255.77 255.95	255.91 255.85
36-93	257.66	257.82	257.61	257.25	257.46	-	257.74	257.67	257.66	257.54	256.96	257.73	257.68	256.97	257.31	257.50	257.06	257.20	256.74	257.87	257.33	256.66	256.35
37-93-I 37-93-II	257.89 257.57	257.64 257.69	257.87 257.6	257.54 257.11	257.72 257.47	-	257.94 257.6	257.88 257.55	256.87	257.84 257.57	256.86 257.27	-	257.91 257.62	257.31 256.88	257.68 257.46	257.57 258.05	257.43 257.03	257.55 257.54	256.89 256.60	257.94 257.65	257.67 257.41	256.95 256.44	256.34 255.91
38-93	258.35	258.38	258.34	257.91	258.1	258.36	258.39	258.34	258.33	258.28	257.44	-	258.32	257.53	258.02	257.36	257.79	257.93	257.07	258.39	258.13	257.09	256.27
39-93-I 39-93-II	257.96 258.61	258.84 258.65	257.95 258.66	257.77 258.1	257.74 257.73	257.9	258.02 258.67	254.95 258.57	257.99	257.93 258.47	257.26 257.26	258.06	258.97 258.62	257.46 257.54	257.72 257.75	258.65	257.67 258.18	257.70 258.16	257.09 256.83	258.98 258.65	257.81 258.45	257.22 257.23	256.58 256.02
43-93-I	260.04	260.1	260.18	259.86	259.86	260.15	260.20	260.13	259.55	260.12	259.17	260.21	260.26	259.50	259.87	259.93	259.63	259.88	-	260.28	260.09	259.15	258.23
43-93-II 44-93-I	260.37 262.86	260.21 263.31	260.42 263.07	259.9 262.75	260.07 262.37	260.27 263.37	260.49 263.41	260.55 262.94	260.00 261.86	260.24 262.96	259.04 261.86	260.46	260.35	259.40 262.46	260.15 262.61	260.02 263.38	260.13 262.81	260.11 263.03	261.87	260.47	260.22 263.01	259.03 262.18	258.09 261.07
44-93-II	261.70	261.69	261.73	261.5	261.45	261.79	262.38	261.71	-	261.8	261.09	261.88	262.34	261.31	261.47	261.56	261.52	261.79	261.06	262.50	261.71	261.12	260.67
45-93 45-95-I	263.94 249.54	264.95 249.85	264.84 249.77	264.27 249.73	264.01 249.8	264.92 249.79	265.82 250.37	264.02 250.05	264.93 250.17	264.86 250.33	262.84 250.27	264.92 250.33	265.76 250.36	263.72 249.95	262.98 250.25	264.24 Feb-15	264.54 May-15	264.95 Jul-15	262.74 Oct-15	265.66 250.43	264.78 251.16	263.35 250.96	261.93 249.80
45-95-II	249.54	249.53	249.77	249.73	249.51	249.79	250.01	249.73	249.83	249.92	249.91	249.97	250.02	249.56	249.92	250.19	250.12	249.14	250.10	250.43	249.76	249.62	249.50
46-95-I	250.36	250.32	250.39	250.34	250.48	250.33	250.6	250.53	250.57	250.77	250.58	250.46	250.85	250.42	250.36	249.82	249.78	249.74	249.75	250.43	250.51	250.40	250.31
46-95-II 47-96-I	250.48 252.51	250.42 252.54	250.49 252.51	250.41 252.55	252.38 252.64	250.48 252.55	250.7 252.98	250.65 252.73	250.68 252.66	250.89 252.69	250.69 252.49	250.68 252.67	251.08 252.93	250.66 252.68	250.61 252.42	250.30 250.46	250.35 250.59	250.33 250.50	250.28 250.52	250.66 252.60	250.75 252.60	250.58 252.50	250.61 252.52
47-96-II	252.53	252.56	252.52	252.58	252.67	252.64	253.04	252.75	252.56	252.51	252.42	252.67	252.85	252.58	252.39	252.38	252.55	252.72	252.40	252.59	252.53	252.46	252.55
48-96-II	252.36 252.35	252.5 252.52	252.45 252.45	252.43 252.41	252.39 252.43	252.63 252.57	252.82 252.86	252.49 252.54	252.80 252.79	253.01 252.98	252.79 252.78	253.10 253.15	253.45 253.35	252.89 252.94	252.83 252.87	252.33 253.00	252.57 252.97	252.83 253.03	252.40 252.72	252.98 253.03	252.97 252.99	252.72 252.72	252.59 252.60
49-96-I	263.49	263.67	263.65	263.35	262.92	263.79	264.03	263.58	263.94	263.67	262.32	263.79	263.97	263.02	262.98	252.97	252.95	252.97	252.73	264.00	263.61	262.74	261.41
49-96-II 49-96-III	263.75 265.06	263.82 264.83	263.87 265.12	263.48 264.44	263.04 263.58	263.86 264.89	264.23 265.4	263.72 264.95	263.88 265.14	263.83 264.87	262.42 262.74	264.20 265.29	264.34 265.37	263.30 263.97	263.25 264.14	263.36 263.86	263.33 263.69	263.59 263.82	262.36 262.65	264.50 265.38	263.93 264.87	263.05 263.70	261.62 261.95
53-98	254.98	254.96	255	254.78	254.79	255.07	255.42	-	255.34	254.97	254.16	255.20	255.27	254.52	254.95	252.83	252.63	252.79	252.65	255.51	254.98	254.24	253.44
54-98 55-98-I	259.54 263.49	259.62 263.6	259.51 263.66	259.33 263.3	259.38 262.91	263.76	259.6 265.00	259.62 263.56	263.72	259.46 263.63	258.7 262.29	263.81	259.50 263.97	258.65 262.96	259.39 263.07	254.83 259.42	254.63 259.21	254.96 259.26	254.17 258.41	259.61 264.03	263.53	258.76 262.66	257.52 261.28
55-98-II	254.11	256.58	265.42	256.62	257.12	-	256.33	256.24	256.50	256.31	255.93	256.36	256.42	256.50	256.27	263.32	263.35	263.51	262.29	255.48	256.30	256.34	256.04
56-02-I	263.70	264.05	263.69	263.46	263.23	263.94	263.59	263.78	264.02	263.76	262.46	-	263.90	263.14	263.34	256.14	256.09	256.50	255.43	264.09	-	262.77	261.05
56-02-II 57-02-I	263.24 253.36	263.71 253.19	263.37 253.34	263.01 253.19	262.04 253.37	263.48 253.16	263.64 253.7	263.31 253.76	263.26 253.44	263.37 253.28	261.08 253.25	-	263.53 253.66	262.46 253.21	262.57 253.48	264.08 263.58	263.37 262.98	263.43 262.97	262.37 261.44	263.54 253.82	253.64	262.01 253.51	259.88 253.60
57-02-II	253.62	253.37	253.58	253.51	253.65	253.24	254.00	253.4	253.62	253.46	253.53	-	253.99	253.35	253.76	254.83	253.36	253.56	253.43	254.13	254.06	254.08	254.15
58-02 59-05	254.49 250.34	254.28 250.28	254.51 250.36	254.22 250.32	254.57 250.44	254.4 250.22	254.12 249.46	254.56 250.51	254.62 250.50	254.39 250.65	254.48 250.51	-	254.83	254.35 250.38	253.93 250.36	253.20 253.59	253.65 253.68	253.91 253.46	253.81 253.55	253.99 250.39	250.43	250.30	253.76 250.22
60-05	249.55	249.41	249.57	249.35	249.59	249.51	249.44	249.55	249.54	249.5	249.46	249.54	249.60	249.29	249.45	250.56	250.23	250.31	250.22	249.51	249.37	249.21	249.21
61-10-I 61-10-II	-	-	253.98 253.98	253.73 253.75	253.73 253.71	253.86	254.01 254.05	253.86 253.90	253.85 253.90	253.85 253.91	253.62 253.64	251.08 254.19	254.21 254.28	253.80 253.81	253.97 254.09	249.37 253.91	249.24 253.88	248.91 254.05	249.32 253.69	254.18 254.24	253.97 253.94	253.57 253.61	253.50 253.49
61-10-III			_50.00	_55.75	_55.71	_50.00		_50.00	_50.50	_50.01	_50.04	_510	_520	_55.51	_000		_50.00	_500	_55.05		_30.04	_50.01	_30.40
61-17-I 62-17-I																							
62-17-II																							
62-17-III																							

Monitor No.	-Feb-17	-May-17	1-17	-0ct-17	5-Feb-18	8-May-18	25-Jul-18	6-Oct-18	14-Feb-19	8-May-19	-Jul-19	-Oct-19	5-Feb-20	5-May-20	5-Jul-20	13-Oct-20	26-Feb-21	3-May-21	1-21	13-Oct-21	22-Feb-22
	1-Fe	1-Ma	1-Jul	o ¹	15-F	8-Ma	25-Jı	16-0	14-F	8-Ma	15-71	2-Oc	5-Fe	5-Ma	15-71	13-0	26-F	3-Ма	5-Jul-21	13-0	22-F
6-90-II 7-90	256.25 blocked	257.27 blocked	258.84 blocked	256.11 blocked	256.32 blocked	256.13 blocked	Dry blocked	256.08 blocked	256.16 blocked	DRY	256.46 blocked	255.93 blocked	256.45 259.18	255.75 264.56	256.40 258.06	256.12 259.17	256.27 259.74	256.40 259.33	256.06 259.17	256.16 259.23	256.61 259.85
7-90-II	264.52	265.28	269.99	263.32	273.28	262.97	263.14	264.21	265.14	262.76	-	263.12	264.26	259.63	262.81	265.06	263.07	263.05	264.22	262.50	263.17
11-90	255.28	255.63	255.01	254.69	254.91	255.03	254.33	254.10	254.90	255.16	254.45	253.92	254.80	254.73	253.80	253.77	252.45	253.95	253.33	253.36	254.02
12-91-II	261.62 261.85	261.23 261.22	261.16 261.05	261.10 261.16	261.19 261.06	260.90 260.92	261.19 261.51	260.87 260.85	261.08 261.04	261.10 261.31	260.75 260.83	260.23 260.50	260.97 261.19	260.95 261.19	261.11 261.19	260.49 260.80	260.90 261.20	261.41 261.66	261.61 261.52	261.00 261.11	261.50 261.48
13-91-I	261.28	261.23	261.33	259.65	261.23	261.29	260.41	259.50	260.15	260.37	259.65	258.75	260.20	260.24	259.63	258.97	260.03	260.36	259.84	259.88	260.40
13-91-II 14-07	258.52 257.59	258.52 256.50	258.52 256.39	258.27 256.34	258.50 256.33	258.57 256.35	259.02 256.06	257.82 256.07	258.26 256.14	259.02 256.62	258.37 255.98	257.92 255.82	258.69 256.33	259.84 256.13	258.48 255.86	258.01 255.89	258.59 255.86	259.03 256.38	258.33 256.06	258.49 255.89	258.99 256.43
15-91-I	253.91	253.81	253.77	253.55	253.79	253.94	253.46	253.43	253.70	255.20	254.93	254.30	254.90	254.99	254.53	254.49	252.80	252.98	252.39	252.86	254.02
15-91-II	254.32	254.39	254.32	254.03	254.22	254.47	254.04	253.95	254.15	255.57	255.12	254.76	255.38	255.33	255.09	254.91	255.21	255.14	254.75	254.66	255.14
16-91-II	252.55 251.12	253.08 253.86	253.67 253.21	253.61 253.12	252.74 251.01	253.13 254.04	253.61 253.13	255.62 253.12	253.69 253.15	253.96 253.48	253.46 253.20	253.36 253.26	253.64 253.43	253.70 253.45	253.06 253.05	253.43 253.25	251.44 253.15	251.55 253.35	251.43 252.90	251.73 253.12	252.75 253.31
17-91-I	256.08	255.65	255.77	255.37	255.74	255.83	255.11	255.22	255.47	256.12	255.50	254.88	255.82	255.77	255.12	255.17	254.22	254.78	249.67	254.52	255.35
17-91-II	256.42	256.14	256.04	255.66	255.95	256.14	255.23	255.37	frozen	256.35	255.61	254.99	256.03	255.93	255.22	255.31	254.86	255.49	254.79	255.05	255.77
18-91 19-91	256.06 255.65	255.69 255.32	255.64 255.24	255.40 255.08	256.56 255.23	255.74 255.48	254.79 254.87	254.91 255.92	255.40 255.12	255.93 255.73	254.99 255.03	254.60 254.62	255.70 258.18	255.60 255.35	254.81 254.90	254.68 254.90	255.01 257.18	255.43 254.50	255.16 253.88	254.95 254.21	255.48 254.90
20-91-I	frozen	252.27	252.28	252.00	252.10	252.37	258.95	258.53	253.42	253.01	253.22	252.52	253.32	252.72	252.80	257.37	250.66	251.04	250.99	251.42	252.06
20-91-II	252.84	252.89	252.73	252.77	252.10	253.28	252.75	252.74	252.89	253.16	253.32	253.05	252.95	253.63	252.84	253.21	249.82	249.54	249.28	249.40	251.39
20-91-III 21-91-I	252.86 258.03	252.90 253.16	252.75 253.00	252.78 252.69	252.92 250.91	253.30 253.12	252.76 252.67	252.76 252.60	252.91 252.41	253.16 253.12	253.77 252.84	253.05 252.23	253.54 252.80	255.52 252.72	253.32 249.48	253.21 252.41	249.95 250.65	249.56 251.07	249.31 250.80	249.37 251.80	251.39 252.08
21-91-II	258.03	252.87	247.78	251.57	253.76	253.02	250.51	252.30	251.51	253.02	249.41	251.75	251.02	252.76	250.30	251.79	250.56	250.00	246.87	248.65	249.03
21-91-III	258.03	253.66	253.51	253.55	252.64	254.09	253.66	253.56	253.68	254.16	253.76	253.04	253.53	253.62	250.17	253.19	249.33	249.43	248.91	249.29	251.34
23-07 24-91	256.84 255.71	256.31 255.38	256.20 255.32	256.10 254.91	256.19 255.30	256.12 255.54	255.84 254.92	255.85 255.02	256.00 frozen	256.55 255.71	256.02 255.15	255.77 254.61	256.33 255.34	255.18 255.35	255.80 254.91	255.86 254.89	255.45 257.68	255.91 254.41	255.62 254.37	255.61 254.16	256.17 254.81
25-91	Frozen	259.23	259.14	259.21	259.43	259.15	256.01	258.08	frozen	258.97	258.36	256.75	259.04	258.87	257.51	258.05	259.11	259.06	258.97	258.72	259.09
25-96	255.45	255.67	255.39	254.99	255.49	255.49	254.05	254.99	255.47	255.60	255.02	254.68	255.32	255.42	254.89	254.95	254.05	254.30	253.20	253.80	254.85
27-93 28-93	256.10 256.01	255.84 256.33	255.74 256.01	255.39 256.35	255.68 256.18	255.88 256.32	255.06 256.29	255.12 256.15	255.48 256.27	256.04 256.11	255.44 256.28	254.31 256.17	254.59 256.13	255.32 255.49	255.05 256.17	255.10 256.04	254.13 255.92	254.64 255.71	254.31 255.30	254.27 255.51	255.17 255.70
29-93	258.01	257.81	257.77	257.73	257.74	257.80	255.99	256.96	257.32	257.98	257.36	256.56	257.87	257.85	256.83	256.98	257.67	258.07	257.66	257.52	258.05
30-93 31-93	249.60 249.45	249.87	249.87	249.63 249.33	249.63	249.87 249.40	249.63	249.66	frozen	249.50	249.30	249.18 248.42	249.38 248.75	248.51	249.05	249.27	249.21	249.32	249.30	249.50	249.37
32-93-I	262.48	249.36 261.31	249.37 261.38	261.16	249.57 261.44	262.48	249.15 261.68	249.32 261.43	frozen	248.66 262.48	248.47 262.48	260.94	262.48	248.56 262.48	248.18 262.38	248.56 261.91	248.67 261.64	248.70 261.60	248.73 261.27	248.58 261.23	248.76 261.68
32-93-II	frozen	262.50	262.50	262.18	262.50	262.50	260.35	260.50	frozen	261.35	260.94	259.44	261.20	260.80	260.75	260.77	262.50	262.50	262.27	262.50	262.50
32-93-III 35-93-I	261.57 257.28	261.56 256.54	261.51 256.42	261.36 255.37	261.70 256.43	261.51 256.56	Dry 256.04	260.88 256.09	frozen 255.93	261.47 257.13	260.96 256.20	dRY 255.91	261.53 256.59	261.36 256.41	260.84 255.99	260.83 256.04	261.53 255.84	261.59 256.51	261.20 255.99	261.19 255.79	261.56
35-93-II	257.33	256.36	256.15	256.25	256.18	256.42	255.90	255.95	256.33	257.13	256.14	256.04	256.59	256.36	255.99	256.09	256.33	256.95	256.44	256.19	
36-93	257.99	257.51	257.55	257.27	257.43	257.50	256.53	256.73	256.17	257.95	256.84	255.80	257.47	257.32	256.45	256.59	257.29	257.53	257.23	256.75	257.63
37-93-II	258.07 257.65	257.86 257.36	257.83 257.55	257.66 257.20	257.82 257.56	257.89 257.30	256.82 256.45	257.06 256.83	frozen	258.03 258.07	257.11 257.24	256.41 256.42	257.84 258.06	257.81 257.84	256.35 257.09	256.85 256.90	257.54 257.70	257.77 257.99	257.51 257.83	257.37 257.48	257.98 258.15
38-93	258.41	258.29	258.21	257.94	258.29	258.29	257.06	257.11	frozen	258.40	257.54	256.45	258.29	258.22	257.34	257.03	258.16	258.36	258.07	257.76	258.48
39-93-I	258.00	257.92	257.93	257.70	257.97	257.90	257.17	257.23	257.60	258.04	257.27	256.57	257.83	257.83	257.00	257.12	257.33	257.35	257.33	257.33	257.85
39-93-II 43-93-I	frozen 260.12	258.37 260.22	258.35 260.14	258.41 259.76	258.67 260.20	258.55 260.21	257.28 259.41	256.88 259.55	frozen 259.99	259.07 260.30	258.18 258.58	256.78 258.86	259.06 259.98	258.90 260.00	257.39 259.26	257.48 259.27	259.02 259.81	258.80 260.15	258.77 259.58	258.39 259.64	259.05 260.09
43-93-II	260.64	260.20	260.10	260.19	260.25	260.19	259.22	259.67	260.11	259.95	258.28	258.33	259.93	259.85	258.91	259.09	259.81	260.11	259.60	259.59	260.09
44-93-I	263.41	263.19	263.07	262.51	263.31	263.17	262.11	261.71	frozen	263.29	262.40	261.26	263.34	262.66	261.99	261.64	262.94	263.26	262.25	262.36	263.04
44-93-II 45-93	262.78 265.49	262.81 265.36	262.70 265.09	262.08 263.48	262.86 265.04	262.77 265.61	261.56 263.54	261.24 262.63	frozen	262.89 265.72	261.84 264.12	261.03 262.51	263.41 265.34	262.26 265.10	261.52 263.54	261.16 262.38	261.80 264.01	262.84 265.47	261.81 263.63	261.60 263.35	262.05 264.30
45-95-I	250.49	250.37	250.25	250.02	250.08	250.35	250.12	249.92	250.03	250.27	249.79	249.71	250.03	249.96	249.59	249.79	249.84	249.91	248.77	249.98	250.11
45-95-II 46-95-I	250.26 250.52	249.99 250.85	249.90 250.79	249.81 250.52	249.74 250.48	249.92 250.77	249.77 250.57	249.59 250.44	249.67 250.51	250.24 250.82	249.90 250.44	249.74 250.23	250.02 250.33	249.77 250.42	249.60 250.57	249.78 250.38	249.84 249.81	250.01 250.14	250.02 252.23	249.97 250.42	250.09 250.55
46-95-II	250.71	251.07	251.06	250.77	250.73	251.04	250.80	250.69	250.65	250.95	250.49	250.25	250.44	250.54	250.44	250.50	249.89	250.24	250.01	250.54	250.63
47-96-I	252.63	253.11	253.07	252.68	252.78	253.28	252.88	252.78	252.83	253.43	252.97	252.52	252.45	252.65	252.15	252.42	250.38	250.74	250.72	251.48	252.04
47-96-II 48-96-I	252.60 252.94	253.08 253.50	253.06 253.38	252.64 253.05	252.71 253.26	253.27 253.72	252.90 253.14	252.82 252.90	252.82 253.25	253.59 253.59	253.12 253.27	253.80 252.69	252.47 253.07	252.74 253.12	252.09 252.71	252.46 252.83	251.50 250.85	251.97 250.87	250.71 251.00	252.71 251.42	252.65 252.21
48-96-II	253.04	253.54	253.36	253.10	253.35	253.75	253.14	253.30	253.35	254.20	253.81	DRY	253.02	253.07	252.67	252.76	250.72	250.95	251.00	251.45	252.32
49-96-I	263.95	263.84	263.88	263.02	263.73	263.83	262.56	262.17	263.34	263.83	263.06	261.68	263.67	263.59	262.61	262.05	263.30	263.89	262.89	263.04	263.83
49-96-III	264.51 265.32	264.36 265.18	264.20 265.09	263.44 264.00	264.22 265.05	264.34 265.18	262.91 263.63	262.42 262.68	263.72 264.36	264.40 265.26	263.47 264.12	261.92 262.36	264.16 265.15	264.10 264.98	262.89 263.53	262.24 262.60	263.92 264.82	264.21 264.60	262.57 263.66	263.53 264.32	264.43 265.38
53-98	255.61	255.19	255.15	254.78	255.06	255.16	254.23	254.15	254.84	255.18	254.42	253.63	253.89	254.94	254.13	254.06	254.76	255.22	254.34	254.60	255.21
54-98 55.08.1	259.79	259.45	259.53	259.13	259.47	259.40	260.66	258.46	frozen	259.91	- 202.07	257.77	259.50	259.45	258.57	258.09	259.38	259.66	259.14	259.21	259.68
55-98-II	264.01 256.17	263.78 256.60	263.74 256.28	262.96 256.24	263.66 256.45	263.82 256.33	262.56 256.30	262.07 256.37	264.49 256.30	263.89 256.17	263.07 256.30	261.62 256.09	263.71 256.06	263.60 256.23	262.49	262.04 256.04	255.77 263.31	255.59 263.68	255.18 262.85	255.48 263.01	256.13 263.82
56-02-I	264.12	263.89	263.77	263.17	263.94	263.26	264.50	264.50	frozen	263.61	-	261.60	263.97	263.75	262.59	261.97	263.71	264.10	263.40	263.31	264.05
56-02-II 57-02-I	263.62 253.95	263.68 253.96	263.23 253.74	262.86 253.51	263.56 253.76	263.49 253.79	264.46 253.38	264.46 253.57	263.12 254.09	263.55 254.75	254.21	260.01 253.61	263.45 253.31	263.37 254.36	262.01 253.44	260.60 253.52	264.14 255.68	263.54 254.09	261.91 253.52	262.66 253.46	263.50
57-02-II	254.28	254.26	253.74	253.76	254.65	254.15	253.55	253.57	253.83	255.03	254.21	253.61	253.69	254.71	253.44	253.52	253.60	254.69	253.52	253.46	
58-02	254.12	253.97	253.83	253.75	253.86	253.91	252.88	253.63	253.94	254.90	253.93	253.44	254.72	254.64	253.36	253.62	254.36	254.58	253.66	253.52	254.61
59-05 60-05	250.43 249.54	250.78 249.46	250.72 249.50	250.43 249.41	250.41 249.45	250.70 249.52	250.49 249.36	250.43 249.30	frozen frozen	250.63 249.50	250.29 248.97	250.04 249.15	250.20 249.30	250.19 249.26	249.93 248.41	250.30 249.28	249.76 249.20	250.02 249.34	250.15 249.36	250.37 249.35	250.41 249.41
61-10-I	254.19	254.18	254.06	253.90	253.75	254.05	253.49	253.53	254.78	254.19	253.83	253.13	253.65	253.74	253.18	253.25	250.57	250.77	250.32	250.75	252.10
61-10-II	254.30	254.23	254.13	254.01	253.85	254.31	253.58	253.71	254.92	254.34	253.85	253.21	253.86	253.93	253.25	253.36	251.43	252.20	251.92	252.08	253.21
61-10-III 61-17-I					255.98	254.16	253.60	253.64	254.84	254.21	253.81	-	-	-	-	-	250.56	250.94	243.48	250.76	252.11
62-17-I					256.19	246.46	244.45	247.77	247.45	248.89	244.80	247.07	245.82	247.93	243.63	245.28	247.85	248.16	250.74	245.48	246.57
62-17-II					256.20	254.14	253.56	253.53	254.15	254.16	253.75	253.07	253.55	254.01	253.18	253.19	249.19	249.24	249.04	249.21	251.11
62-17-III		<u> </u>		l	256.17	254.46	253.54	253.92	253.67	254.60	253.77	253.00	253.83	253.62	253.21	253.34	251.83	252.62	253.56	252.06	253.48

Monitor No.	2-May-22	26-Jul-22	25-Oct-22	10-Feb-23	1-May-23	12-Jul-23	17-0ct-23
6-90-II	256.59	256.47	256.36	256.42	256.74	256.63	256.50
7-90	259.74	259.55	259.22	259.66	259.95	259.62	259.29
7-90-II	263.59	263.50	263.91	263.07	262.69	262.43	
11-90 12-91-I	254.12 261.30	253.62	253.38 260.84	261.76	253.96	253.33	253.29 261.07
12-91-II	261.22	260.99 260.98	260.89	261.76	261.61 261.62	261.12 261.10	261.07
13-91-I	260.35	259.77	259.31	260.42	260.52	259.78	259.64
13-91-II	259.04	258.48	258.20	259.19	259.32	258.42	258.29
14-07	256.30	255.93	255.89	257.10	256.69	255.91	255.93
15-91-I	254.26	254.06	253.81	254.92	254.59	254.58	254.56
15-91-II	255.36	255.36	254.76	255.28	255.40	255.11	255.02
16-91-I 16-91-II	252.89 253.39	252.81 253.22	252.59 252.93	253.54 253.36	253.16 253.38	253.43 253.24	253.31 253.17
17-91-I	255.40	255.09	254.91	255.93	255.79	256.38	255.38
17-91-II	255.79	255.34	255.16	256.20	256.18	255.51	255.51
18-91	255.53	255.20	255.00	255.86	255.82	255.22	255.32
19-91	255.02	254.77	254.54	255.62	255.39	255.04	255.02
20-91-I		252.08	251.94	252.47	252.55	252.37	252.26
20-91-11	251.60	251.44	251.15	253.55	252.18	253.18	253.09
20-91-III 21-91-I	251.60 252.32	251.45 252.08	251.16 251.89	253.56 252.45	252.18 252.54	253.18 252.62	253.07 252.22
21-91-I 21-91-II	252.32	248.53	251.89	252.45	252.54	249.81	252.22
21-91-III	251.50	251.26	251.11	253.55	252.14	253.21	253.03
23-07	256.17	255.86	255.75	256.60	256.48	255.92	255.94
24-91	254.96	254.75	254.19	257.66	255.30	254.96	254.91
25-91	259.05	258.52	257.85	259.22	259.06	258.26	258.60
25-96	255.02	254.43	254.45	255.40	255.28	254.72	254.76
27-93 28-93	255.29 255.85	254.99 255.92	254.84 255.81	255.96 255.89	255.81 256.07	255.35 255.92	255.34 255.95
29-93	257.93	257.66	257.10	258.18	258.19	257.23	257.49
30-93	249.41	249.50	249.31	249.32	249.44	249.37	249.26
31-93	248.70	248.54	248.58	248.76	248.73	248.64	248.57
32-93-I	261.54	261.18	262.16	262.48	262.48	262.18	262.48
32-93-II	262.50	262.50		261.59	261.53	261.00	261.11
32-93-III	261.58	261.09	260.76	261.56	261.57	260.95	261.10
35-93-I 35-93-II	256.50 256.55	256.15 256.17	256.07 256.14	257.85 258.32	256.89 256.96	256.15 256.12	256.18 256.15
36-93	257.44	256.93	256.80	257.79	257.71	256.86	257.12
37-93-I	257.88	257.25	257.02	257.73	258.01	257.20	257.30
37-93-II	257.95	257.31	257.02	257.39	258.02	257.15	257.64
38-93	258.33	257.56	257.26	258.46	258.42	257.55	257.74
39-93-I	257.85	257.41	257.15	248.20	258.01	257.38	257.51
39-93-II 43-93-I	259.00 260.17	258.25 259.68	257.70 259.46	258.82 260.19	259.04 260.21	258.21 259.56	258.27 259.69
43-93-II	259.98	259.51	259.42	260.49	260.37	259.75	260.13
44-93-I	263.14	261.60	261.86	262.04	263.33	262.37	262.28
44-93-II	262.86	262.42	261.22	262.41	262.90	261.78	261.71
45-93	265.40	264.00	262.68	265.41	265.72	263.78	263.07
45-95-I	250.10	249.68	249.75	250.48	250.23	249.73	249.77
45-95-II	250.08	249.76	249.86	250.50	250.22	249.78	249.78
46-95-I 46-95-II	250.17 250.80	250.45 250.50	250.45 250.50	250.62 250.71	250.63 250.74	250.54 250.66	250.51 250.54
47-96-I	252.33	252.10	252.08	252.76	252.43	252.78	252.63
47-96-II	252.96	252.74	252.70	252.73	252.83	252.80	252.67
48-96-I	252.57	252.23	252.11	252.97	252.66	252.94	252.82
48-96-II	252.53	252.21	252.12	253.13	252.65	252.95	252.78
49-96-I	263.84	262.97	262.39	263.91	264.00	262.99	262.84
49-96-II 49-96-III	265.19 265.15	263.38 263.94	262.74 263.04	264.53 265.38	264.53 265.39	263.37 264.09	263.15 263.69
53-98	255.13	254.36	254.08	255.35	255.27	254.42	254.54
54-98	259.51		258.75	259.96	259.92	259.19	259.33
55-98-I	255.68	256.38	252.68	255.98	256.30	256.12	256.08
55-98-II	263.81	262.88	262.27	263.98	264.05	262.93	262.82
56-02-I	263.93	263.19	262.58	264.16	264.21	263.16	263.10
56-02-II	263.50	262.46	261.45	263.53	263.52	262.59	262.32
57-02-I 57-02-II	254.04 254.70	253.80 254.18	253.52	254.58	254.63	253.28	253.23
58-02	254.70	253.62	253.52	254.58	254.63	253.28	253.23
59-05	250.55	250.33	250.39	250.50	250.58	250.44	250.44
60-05	249.38	249.25	249.30	249.50	249.43	249.17	249.22
61-10-I	252.28	252.09	251.84	253.61	252.72	253.28	253.06
61-10-II	253.35	252.99	252.54	253.94	253.53	253.57	253.35
61-10-III	250.07	050.44	254.04	255.98	255.98	255.98	252.00
61-17-I 62-17-I	252.27 252.83	252.11 251.22	251.84 250.77	253.62 253.20	252.72 252.01	253.29 252.35	253.06 252.32
62-17-II	251.24	251.22	251.00	253.49	252.01	252.33	252.93
62-17-III	253.57	253.27	252.57	254.18	253.80	253.14	253.63
			· · · · · · · · · · · · · · · · · · ·				



TECHNICAL MEMORANDUM

DATE April 4, 2024

Project No. 04-1113-171

TO

Kayla Pantaleo

City of Kawartha Lakes

CC

FROM Santosh Rimal, Frank Barone

EMAIL santosh.rimal@wsp.com

LINDSAY OPS LANDFILL VIBRATING WIRE PIEZOMETER LEACHATE HEAD AND LINER TEMPERATURE MONITORING (2023 UPDATE)

Attached are updated plots of measured leachate head and temperature on the surface of the geomembrane liner at the Lindsay Ops Landfill through to the end of 2023.

The following table provides a summary of Vibrating Wire Piezometer (VWP) monitoring:

Vibrating Wire Piezometer	Location	Figure Number	Average Leachate Head in 2023 (m)	Average Geomembrane Liner Surface Temperature in 2023 (°C)	Remarks
VWP 02-1	Cell 1	A-1	<0.01	21.3	Data updated for 2023. Could not obtain reading in April, June, July, August and September due to overgrowth and/or deep waters.
VWP 04-1	Cell 2 (East Side)	A-2	Not operational	Not operational	The piezometer cable got buried and could not be located since June 2019.
VWP 04-2	Cell 2 (West Side)	A-3	Not operational	Not operational	Has not been operational since mid-2012.
VWP 12-1	Cells 3 and 6 (West Side)	A-4	<0.01	19.6	Data updated for 2023. Could not obtain reading in April, July, August and September due to overgrowth.
VWP 12-2	Cells 3 and 6 (East Side)	A-5	<0.01	17.4	Data updated for January and February 2023. Was inaccessible in March to December 2023.

WSP Canada Inc.

Santoch Rinal

Santosh Rimal, Ph.D., P.Eng.

Geotechnical Engineer

Frank Barone, Ph.D., P.Eng.

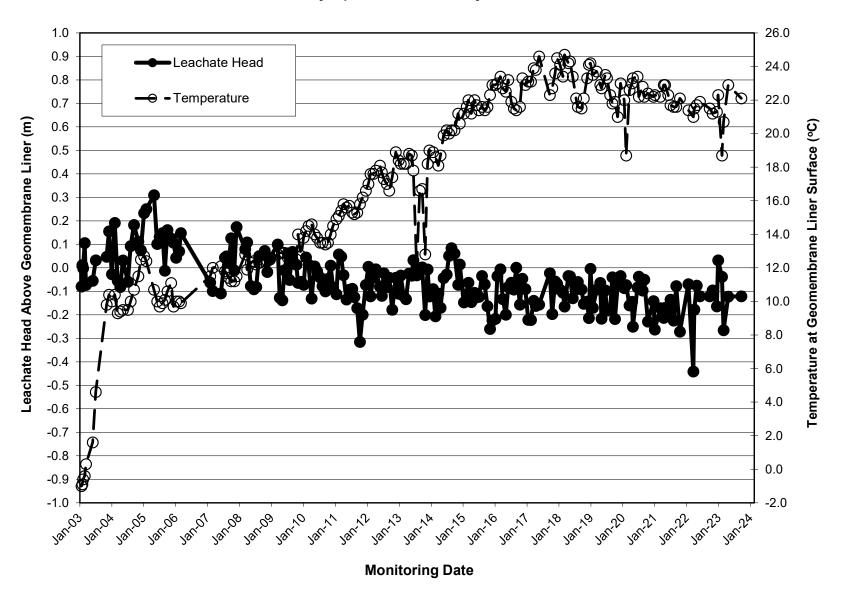
Principal

Frank Barone

SR/FSB/sr

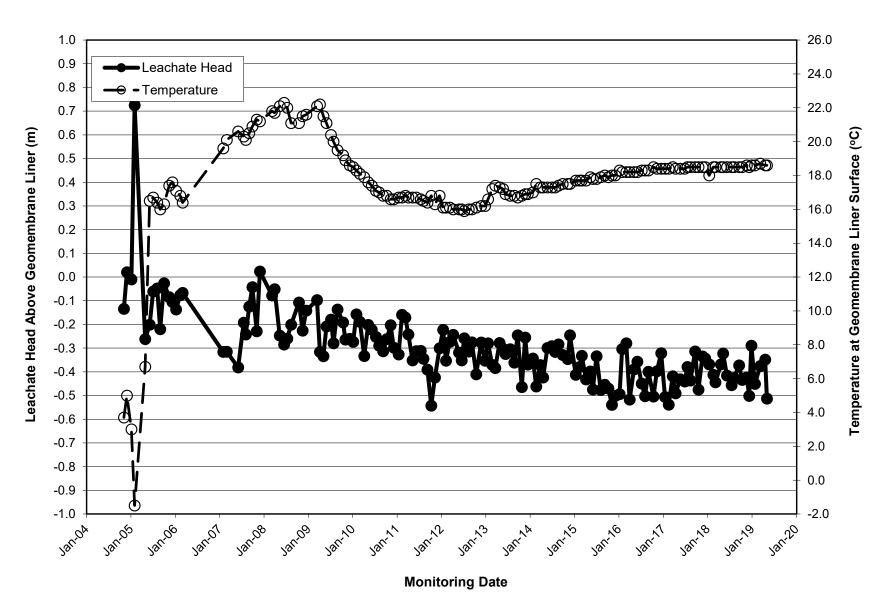
April 2024 04-1113-171

Figure A-1: Vibrating Wire Piezometer Pressure Head and Temperature Monitoring, Cell 1 (VWP 02-1)
Lindsay-Ops Landfill Site, City of Kawartha Lakes, ON



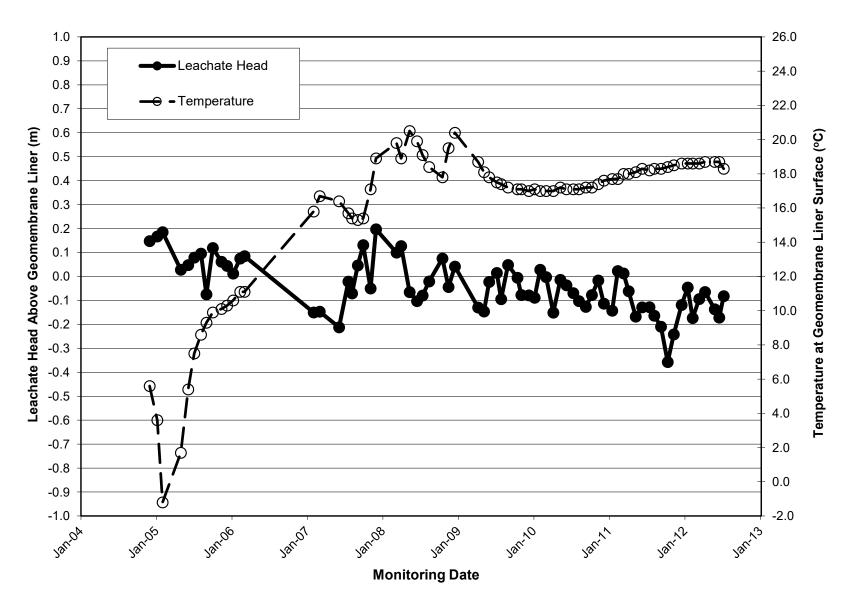
April 2024 04-1113-171

Figure A-2: Vibrating Wire Piezometer Pressure Head and Temperature Monitoring, East Side Cell 2 (VWP 04-1) Lindsay-Ops Landfill Site, City of Kawartha Lakes, ON



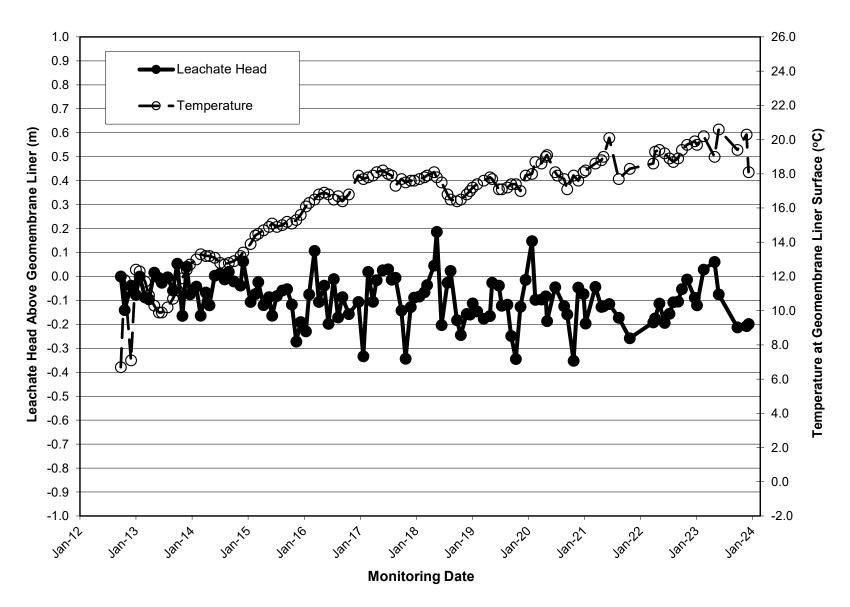
April 2024 04-1113-171

Figure A-3: Vibrating Wire Piezometer Pressure Head and Temperature Monitoring, West Side Cell 2 (VWP 04-2) Lindsay-Ops Landfill Site, City of Kawartha Lakes, ON



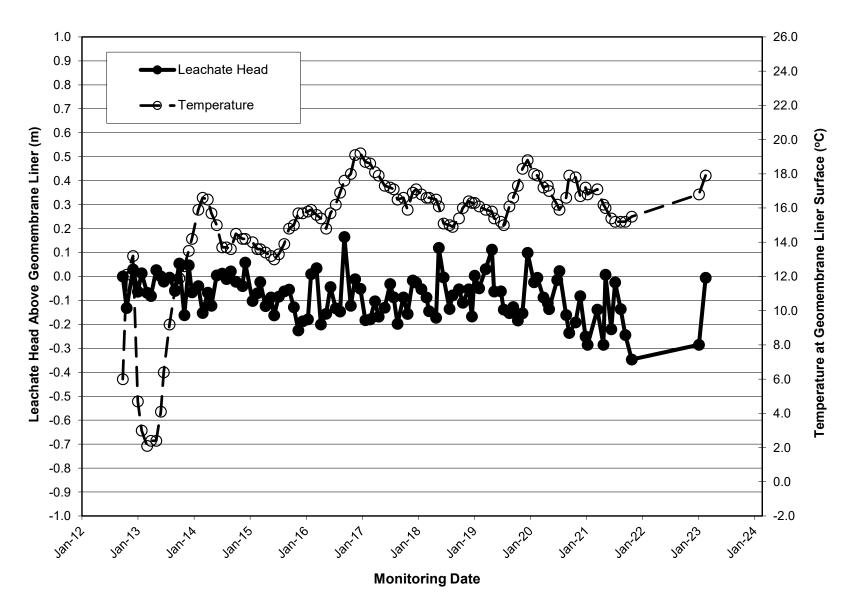
April 2024 04-1113-171

Figure A-4: Vibrating Wire Piezometer Pressure Head and Temperature Monitoring, West Side Cell 3/6 (VWP 12-1) Lindsay-Ops Landfill Site, City of Kawartha Lakes, ON



April 2024 04-1113-171

Figure A-5: Vibrating Wire Piezometer Pressure Head and Temperature Monitoring, East Side Cell 3/6 (VWP 12-2) Lindsay-Ops Landfill Site, City of Kawartha Lakes, ON





APPENDIX B Ground Water & Leachate Quality Summary Tables

Parameters	6280 520 0.46 1.5 709 45 21 17 115 100 1220 134 1290 95 13200 1130
Unionized Ammonia	0.46 1.5 709 45 21 17 115 100 1220 134 1290 95 13200 1130 61. <3 <1 1250 886 5.69 11. 2.1 1.2 235 156 0.143 0.1 <<1 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0
Ammonia mg/L N/A 0.01 580 622 645 695 401 BOD mg/L N/A 61 105 >20 91 141 18 COD mg/L N/A 101 104 114 55.3 85.5 128 CDD mg/L N/A 784 1060 997 1420 900 3170 Chloride mg/L 250 1250 1240 1210 971 1350 547 Conductivity umhos/cm N/A 11200 10900 11400 11700 9730 6880 Cyanide mg/L 0.2 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.00 < 0.005 < 0.00 < 0.00 < 0.00 < 0.00 < 0.00 < 0.00 < 0.00 < 0.00 < 0.00 < 0.00 < 0.00 < 0.00 <td< th=""><th>709 45 21 17 115 100 1220 134 1290 95; 13200 1130 6 0.005 < 0.0 130 61. < 3 < 1 1250 886 5.69 11. 2.1 1.2 235 15; 0.143 0.1 < 1 < 0.0 <</th></td<>	709 45 21 17 115 100 1220 134 1290 95; 13200 1130 6 0.005 < 0.0 130 61. < 3 < 1 1250 886 5.69 11. 2.1 1.2 235 15; 0.143 0.1 < 1 < 0.0 <
SOD	21 17 115 100 1220 134 1290 95; 13200 1130 6 0.005 < 0.0 130 61. < 3 < 1 1250 884 5.69 11. 2.1 1.2 235 15; 0.143 0.1 < 1 < 0.
Calcium	115 100 1220 134 1290 95; 13200 1130 6 0.005 < 0.0 130 61. < 3 < 1 1250 886 5.69 11. 2.1 1.2 235 15; 0.143 0.1 < 1 < 0.0
COD mg/L N/A 784 1060 997 1420 9000 3170 784 1610 1450 988 785 785 785 786	1220 134 1290 95 13200 1130 0.005 < 0.0 130 61. < 3 < 1 1250 886 5.69 11. 2.1 1.2 235 156 0.143 0.1 < 1 < 0.0
Chloride	1290 95: 13200 1130 0.005 < 0.0 130 61. < 3 < 1 1250 880 5.69 11. 2.1 1.2 235 15: 0.143 0.1 < 1 < 0.0
Conductivity	13200 1136 6 0.005 < 0.0 130 61. < 3 < 1 1250 886 5.69 11. 2.1 1.2 235 158 0.143 0.1 < 1 < 0.0
Cyanide	0.005 0.005 0.005 130 61.
DOC mg/L 5 209 196 273 155 96.6 68.1 Fluoride mg/L 1.5 < 0.1 0.2 < 1 < 0.5 < 3 < 1	130 61. < 3 < 1 1250 888 5.69 11. 2.1 1.2 235 159 0.143 0.1 < 1 < 0.0
Fluoride	 < 3 1250 88 5.69 11. 2.1 1.2 235 150 0.143 0.1 < 1 < 0
Hardness mg/L 500 1290 1370 1430 1280 1260 908	1250 888 5.69 11. 2.1 1.2 235 156 0.143 0.1 < 1 < 0.
Ion Balance	5.69 11. 2.1 1.2 235 158 0.143 0.1 < 1 < 0.
Iron	2.1 1.2 235 159 0.143 0.1 < 1 < 0.
Magnesium mg/L N/A 253 271 279 278 255 143 Manganese mg/L 0.05 0.08 0.079 0.104 0.029 0.067 0.14 Nitriate mg/L 10 < 0.1 < 0.1 < 1 < 0.3 < 1 0.91 Nitrite mg/L 1 < 0.1 < 0.1 < 1 < 0.3 < 1 0.91 Tot Kjel N mg/L N/A 727 641 733 686 864 461 pH-Lab pH unit 6.5-8.5 7.38 7.53 7.57 7.51 7.68 7.49 Phenols mg/L N/A 0.022 0.014 0.015 0.226 0.027 0.007 Phosphorus mg/L N/A 367 365 387 378 311 171 Sodium mg/L N/A 365 387 378 311 171 TDS mg/L 500 5680 <td>235 159 0.143 0.1 < 1 < 0.</td>	235 159 0.143 0.1 < 1 < 0.
Manganese mg/L 0.05 0.08 0.079 0.104 0.029 0.067 0.14 Nitrate mg/L 10 < 0.1	0.143 0.1 < 1 < 0.
Nitrate mg/L 10 < 0.1 < 0.1 < 1 < 0.3 < 1 0.91 Nitrite mg/L 1 < 0.1 < 0.1 < 1 0.4 < 1 < 0.5 Tot Kjel N mg/L N/A 727 641 733 686 864 461 pH-Lab pH unit 6.5-8.5 7.38 7.53 7.57 7.51 7.68 7.49 Phenols mg/L N/A 0.022 0.014 0.015 0.226 0.027 0.007 Phosphorus mg/L N/A 1.4 1.8 1.2 0.2 0.3 < 0.1 Potassium mg/L N/A 367 365 387 378 311 171 Sodium mg/L 200 1010 953 1100 1170 1030 459 Tots mg/L 500 21 30 23 28 < 30 15 Tot Kjel N mg/L N/A 150 110 650 280 26000 10200 Turbidity NTU N/A 122 74.2 192 450 1700 18200 Colour TCU 5 410 350 454 350 187 138	< 1 < 0.
Nitrite mg/L 1 < 0.1 < 0.1 < 1 0.4 < 1 < 0.5 Tot Kjel N mg/L N/A 727 641 733 686 864 461 pH-Lab pH unit 6.5-8.5 7.38 7.53 7.57 7.51 7.68 7.49 Phenols mg/L N/A 0.022 0.014 0.015 0.226 0.027 0.007 Phosphorus mg/L N/A 1.4 1.8 1.2 0.2 0.3 < 0.1 Potassium mg/L N/A 367 365 387 378 311 171 Sodium mg/L 200 1010 953 1100 1170 1030 459 TDS mg/L 500 5680 6330 6710 6550 6081 3627 TSS mg/L N/A 150 110 650 280 26000 10200 Turbidity NTU N/A 122 74.2 192 450 1700 18200 Colour TCU 5 410 350 454 350 187 138	
Tot Kjel N mg/L N/A 727 641 733 686 864 461 pH-Lab pH unit 6.5-8.5 7.38 7.53 7.57 7.51 7.68 7.49 Phenols mg/L N/A 0.022 0.014 0.015 0.226 0.027 0.007 Phosphorus mg/L N/A 1.4 1.8 1.2 0.2 0.3 < 0.1	
PH-Lab	
Phenols mg/L N/A 0.022 0.014 0.015 0.226 0.027 0.007 Phosphorus mg/L N/A 1.4 1.8 1.2 0.2 0.3 < 0.1	709 507
Phosphorus mg/L N/A 1.4 1.8 1.2 0.2 0.3 < 0.1 Potassium mg/L N/A 367 365 387 378 311 171 Sodium mg/L 200 1010 953 1100 1170 1030 459 Sulphate mg/L 500 21 30 23 28 < 30	7.44 7.4
Potassium mg/L N/A 367 365 387 378 311 171 Sodium mg/L 200 1010 953 1100 1170 1030 459 Sulphate mg/L 500 21 30 23 28 < 30 15 TDS mg/L 500 5680 6330 6710 6560 6081 3627 TSS mg/L N/A 150 110 650 280 26000 102000 Turbidity NTU N/A 122 74.2 192 450 1700 18200 Colour TCU 5 410 350 454 350 187 138	0.029 0.02
Sodium mg/L 200 1010 953 1100 1170 1030 459 Sulphate mg/L 500 21 30 23 28 < 30	0.5 0.2
Sulphate mg/L 500 21 30 23 28 < 30 15 Dry Dry TO < 30 64 < 50 < 1 TDS mg/L 500 5680 6330 6710 6560 6081 3627 5993 8266 7494 7481 543 TSS mg/L N/A 150 110 650 280 26000 102000 23200 9600 6920 219000 940 Turbidity NTU N/A 122 74.2 192 450 1700 18200 9020 11600 24400 31600 419 Colour TCU 5 410 350 454 350 187 138 310 518 410 533 290	361 249
TDS mg/L 500 5680 6330 6710 6560 6081 3627 5993 8266 7494 7481 543 TSS mg/L N/A 150 110 650 280 26000 102000 23200 9600 6920 219000 940 Turbidity NTU N/A 122 74.2 192 450 1700 18200 9020 11600 24400 31600 419 Colour TCU 5 410 350 454 350 187 138 310 518 410 533 290	2240 184 < 30 < 1
TSS mg/L N/A 150 110 650 280 26000 102000 Turbidity NTU N/A 122 74.2 192 450 1700 18200 Colour TCU 5 410 350 454 350 187 138 23200 9600 6920 219000 940 9020 11600 24400 31600 419	8929 641
Turbidity NTU N/A 122 74.2 192 450 1700 18200 Colour TCU 5 410 350 454 350 187 138 310 518 410 533 290	21700 217
Colour TCU 5 410 350 454 350 187 138 310 518 410 533 296	3190 218
	433 377
[Additition]	0.07 0.0
Antimony mg/L 0.006 0.0017 0.0019 0.0013 0.0104 0.0014 0.0036 0.0027 0.0025 0.0021 0.0037 0.00	
Arsenic mg/L 0.025 0.0503 0.018 0.0565 0.029 0.0093 0.005 0.0044 0.0047 0.0045 0.0046 0.006	0.0255 0.00
Barium mg/L 1 1.48 1.32 1.59 0.255 0.7 1.18 0.603 0.744 0.587 0.398 0.0	0.312 0.21
Beryllium mg/L N/A <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.0	
Boron mg/L 5 5.38 5.38 5.88 5.87 6.42 5.49 3.36 4.15 3.07 4.28 1.3	3.89 2.9
Cadmium mg/L 0.005 0.00003 < 0.00002 < 0.000014 < 0.00012 < 0.000059	
Chromium mg/L 0.05 0.109 0.164 < 0.0002 < 0.001 0.008 < 0.001 0.044 0.07 0.05 0.039 0.00	0.044 0.02
Cobalt mg/L N/A 0.017 0.016 < 0.05 0.017 0.017 0.007 0.017 0.017 0.007	
Copper mg/L 1 0.0102 0.0044 0.005 0.0105 0.0012 0.0004 <0.0006 0.0025 0.0007 0.0018 0.00	0.143 0.00
Lead mg/L 0.01 0.00028 0.00025 0.00006 0.0001 < 0.0004 0.0013 < 0.0004 0.00053 < 0.0004 0.00485 0.003	0.33 0.000
Mercury mg/L 0.001 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.000	2 0.00008 < 0.00
Molybdenum mg/L N/A 0.0116 0.0018 0.0056 0.0026 0.0139 0.0236 0.0015 0.0015 0.0024 0.0018 0.0152 0.00	0.0075 0.00
Nickel mg/L N/A 0.04 0.05 < 0.1 0.07 0.08 0.02 0.07 0.09 0.07 0.1 0.0	0.11 0.0
Selenium mg/L 0.01 0.01 < 0.001 0.025 0.011 0.012 < 0.02 0.005 0.006 0.012 < 0.02 < 0.0	<0.02 < 0.0
Silver mg/L N/A 0.00009 0.00011 < 0.00002 0.00003 0.0008 < 0.0002	5 < 0.0005 < 0.00
Strontium mg/L N/A 1.2 1.16 0.762 1.27 1.29 1.09 1.05 0.967 0.952 0.35	5 < 0.0005 < 0.00
Thallium mg/L N/A < 0.00005 < 0.00005 < 0.00005 < 0.00008 < 0.00008 < 0.00005 0.00018 0.00029 < 0.00008 0.00009 < 0.000	0.8 0.69
Vanadium mg/L N/A 0.0909 0.0842 0.0157 0.0314 0.0051 0.0039 0.0053 0.0077 0.0061 0.0099 0.00	0.8 0.69
Zinc mg/L 5 < 0.005 < 0.005 < 0.005 < 0.005 0.006 0.006 0.006 0.005 0.006 0.005 0.006 0.013 0.006 0.013 0.006 0.013 0.006 0.013 0.006 0.013 0.006 0.013 0.006 0.005 0.006 0.005 0.006 0.005 0.006 0.005 0.006 0.005 0.006 0.005 0.006 0.005 0.006 0.005 0.006 0.005	0.8 0.69 08 0.0005 < 0.00

General Water Qu	iality		1						I		::						
Davamatava	Units	ODWQS	7-90 18-Oct-23	7-90-II 7-May-14	7-90-II 18-May-16	7-90-II 18-Oct-16	7-90-II 8-May-18	7-90-II 8-May-19	7-90-II 8-Oct-19	7-90-II 2-May-23	7-90-II 18-Oct-23	14-07 8-May-14	14-07 21-Oct-14	14-07 26-May-15	14-07 13-Oct-15	14-07 12-May-16	14-07 13-Oct-16
Parameters Alkalinity	mg/L	500	6500	7-IVIAY-14 7100	6920	6740	6030	6090	6260	Dry	10-001-23	267	256	336	325	300	259
Unionized Ammonia	mg/L	N/A	0.05	15.3	2.23	7.59	26.5	7.59	11.1	Diy		201	230	330	323	300	< 0.01
Ammonia	mg/L	N/A	579	1360	1160	1000	1130	1140	1210			< 0.01	0.08	0.1	0.04	0.09	0.09
BOD	mg/L	N/A	373	139	>20	88	48	49	43			1 0.01	0.00	0.1	0.04	0.00	0.03
Calcium	mg/L	N/A	111	95.7	97.6	106	124	107	107			127	102	149	142	105	126
COD	mg/L	N/A	1080	1550	1530	1600	351	2040	1940			26	< 5	62	204	254	8
Chloride	mg/L	250	1250	2010	2380	2220	2260	9.7	1190			2.4	15.9	2.2	3.1	2.6	21.1
Conductivity	umhos/cm	N/A	13400	17400	17800	17600	16100	16400	16000			580	602	649	647	583	629
Cyanide	mg/L	0.2		< 0.005	0.014	0.006	0.011	0.009	0.005								
DOC	mg/L	5	208	382	315	312	427	265	243			2.2	2.9	1.3	0.8	0.5	1.4
Fluoride	mg/L	1.5	<0.1	3	< 10	< 10	< 10	< 0.1	<10			< 0.1	0.2	0.1	0.1	0.1	0.1
Hardness	mg/L	500	1110	1110	1130	1110	1120	1170	1280			334	286	392	374	277	352
Ion Balance	%	N/A	11.8	2.49								10	3.08				
Iron	mg/L	0.3	4.05	2.5	3.92	3.91	8.8	9.33	3.49			< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.04
Magnesium	mg/L	N/A	203	213	215	206	198	219	246			3.86	7.51	4.57	4.88	3.32	9.41
Manganese	mg/L	0.05	0.15	0.188	0.175	0.173	0.253	0.216	0.2			< 0.001	0.019	< 0.001	< 0.001	< 0.001	0.075
Nitrate	mg/L	10	<0.05	< 0.1	< 10	< 10	< 5	< 0.05	< 5			0.2	0.1	0.9	0.6	0.3	0.2
Nitrite	mg/L	1	<0.05	< 0.1	< 10	< 10	< 5	< 0.05	< 5			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	578	1390	1430	1410	1180	1260	1150			1.8	1.5	3.5	4	2.8	2.3
pH-Lab	pH unit	6.5-8.5	7.76	7.51	7.75	7.76	7.69	7.51	7.88			7.94	7.84	7.55	7.74	7.79	7.94
Phenols	mg/L	N/A	<0.005	0.042	< 0.001	0.034	0.024	< 0.002	0.019			0.008	< 0.001	< 0.001	< 0.001	< 0.001	0.002
Phosphorus	mg/L	N/A	1.6	3.3	< 10	3.7	3	2.2	4.9			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	326	586	529	537	629	592	635			0.3	0.9	0.3	0.4	0.2	8.0
Sodium	mg/L	200	2290	1750	1960	1880	1890	1850	1910			4.5	4.6	3.9	5	3.5	15.1
Sulphate	mg/L	500	<1	< 1	< 100	< 100	< 100	< 1	< 100		Dry	10	36	16	21	10	35
TDS	mg/L	500	7810	10700	10800	10300	10185	7914	544			309	321	382	374	307	363
TSS	mg/L	N/A	1140	440	1100	195	2000	440	950								
Turbidity	NTU	N/A	884	236	903	146	407	415	1030								
Colour	TCU	5	465	1350	880	890	875	1200	10213								
Aluminum	mg/L	0.1	0.7	0.12	< 0.5	0.27	1.18	0.16	0.14			0.03	0.03	0.04	0.04	0.02	0.06
Antimony	mg/L	0.006	0.0034	0.0077	0.0004	0.0091	0.356	0.0103	0.0041			< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0003
Arsenic	mg/L	0.025	0.0084	0.0861	0.0016	0.0346	0.015	0.0247	0.0117			< 0.0001	0.0002	0.0001	0.0001	< 0.0001	0.0005
Barium	mg/L	1	0.48	0.289	0.256	0.242	0.317	0.295	0.31			0.036	0.055	0.041	0.045	0.027	0.067
Beryllium	mg/L	N/A	<0.0005	< 0.002	< 0.2	< 0.002	< 0.002	< 0.002	< 0.02			< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	3.93	19.8	9.3	14.6	15.4	18.3	23.4			0.01	0.013	< 0.005	0.008	< 0.005	0.01
Cadmium	mg/L	0.005	<0.000590	0.00007	< 0.00002	0.00005	< 0.00059	0.00135	< 0.00030			< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Chromium	mg/L	0.05	0.071	0.229	< 0.0002	< 0.0002	0.043	0.03	0.06			< 0.0002	0.0002	< 0.0002	0.0046	< 0.0002	0.0018
Cobalt	mg/L	N/A	0.0208	0.023	< 0.5	0.048	0.0425	0.037	< 0.05			< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0433	0.0174	0.0006	0.0131	0.0113	0.0414	< 0.002			0.0003	0.0011	< 0.0001	0.0003	< 0.0001	0.0004
Lead	mg/L	0.01	0.0658	0.00022	< 0.00002	0.00187	0.286	0.0245	< 0.0009			< 0.00002	0.00004	< 0.00002	< 0.00002	< 0.00002	0.00006
Mercury	mg/L	0.001	<0.00002	< 0.00002	< 0.00002	0.00003	0.00003 0.0073	0.00005	0.00003			< 0.00002	< 0.00002	0.00006	0.0001	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0092	0.0121	0.0005	0.0054		0.0086	0.0033			< 0.0001	< 0.0001	< 0.0001	0.0001	0.0008	0.0004
Nickel	mg/L	N/A	0.0992 <0.021	0.13 0.014	0.001	0.15 0.024	0.16 < 0.02	0.15	0.16			< 0.01 < 0.001	< 0.01 < 0.001	< 0.01 < 0.001	< 0.01 < 0.001	< 0.01 < 0.001	< 0.01 < 0.001
Selenium	mg/L	0.01 N/A	<0.021	0.0014	< 0.0001	0.0024	< 0.02	0.015 0.0006	0.01			< 0.0001		< 0.0001	< 0.0001	< 0.0001	< 0.0001
Silver	mg/L			0.00026								< 0.00002	< 0.00002				
Strontium	mg/L	N/A	0.765	< 0.00005	0.873	1.03	1.11	1.2	1.51			< 0.00005	0.225	0.257	0.255	0.175	0.239
Thallium	mg/L	N/A	0.0004	< 0.00005	< 0.00005	< 0.00005	0.0102	0.00067	0.00047			< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0159 0.049	0.207	0.0026	0.0314	0.0146	0.0146	0.009 < 0.05			0.0032	< 0.0001	0.0034	0.0018	< 0.0001	0.0008
Zinc	mg/L	5	0.049	< 0.005	< 0.5	0.013	0.134	0.052	< 0.05		l	0.008	0.007	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	lanty		14-07	14-07	14-07	14-07	14-07	14-07	14-07	14-07	14-07	14-07	14-07	14-07	14-07	14-07	23-07
Parameters	Units	ODWQS	23-May-17	16-Oct-17	7-May-18	9-Oct-18	8-May-19	8-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21	3-May-22	25-Oct-22	2-May-23	18-Oct-23	7-May-14
Alkalinity	mg/L	500	281	269	258	259	258	271	240	265	251	286	260	285	244	293	197
Unionized Ammonia	mg/L	N/A	201	200	200	200	200	2,,	210	200	201	200	200	200	211	200	107
Ammonia	mg/L	N/A	0.06	0.14	0.06	0.07	0.06	0.11	0.03	0.19	0.08	0.05	0.46	0.23	1.67	0.51	0.11
BOD	mg/L	N/A	0.00	0	0.00	0.01	0.00	· · · ·	0.00	00	0.00	0.00	00	0.20	1.01	0.01	0
Calcium	mg/L	N/A	107	130	102	115	110	129	104	117	100	116	107	109	89.3	106	77.5
COD	mg/L	N/A	23	37	5	< 5	220	24	152	17	43	8	48	10	21	20	55
Chloride	mg/L	250	3.9	21.6	2	16.5	2.5	27.8	5.5	32.6	11.7	39.8	4.1	43.6	2.5	23.5	7.1
Conductivity	umhos/cm	N/A	505	622	470	598	527	660	517	677	525	681	537	673	482	664	457
Cyanide	mg/L	0.2	000	ULL	470	000	OZ.	000	017	011	020	001	007	0.0	102	001	107
DOC	mg/L	5	0.7	2.2	1.7	1.6	1.8	2.3	2.4	2.3	2.4	1.9	2.3	1	2.5	3.3	3.5
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	0.2
Hardness	mg/L	500	284	353	272	321	291	355	278	325	272	326	286	308	239	288	234
Ion Balance	%	N/A	204	000	ZIZ	021	201	555	3.47	1.32	0.0119	2.58	3.72	6.87	1.84	8.38	1.85
Iron	mg/L	0.3	< 0.005	0.005	0.022	< 0.005	0.005	0.007	< 0.005	0.01	< 0.005	0.005	< 0.005	0.005	0.012	<0.005	0.086
Magnesium	mg/L	N/A	4.23	6.8	4.22	8.26	3.89	7.91	4.34	8.02	5.25	8.71	4.53	8.73	3.7	5.67	9.78
Manganese	mg/L	0.05	< 0.001	0.058	0.001	0.043	< 0.001	0.056	0.001	0.044	< 0.001	0.011	< 0.001	0.006	0.001	0.003	0.011
Nitrate	mg/L	10	< 0.05	< 0.05	0.05	< 0.05	< 0.05	< 0.05	0.001	< 0.05	0.22	0.011	0.08	< 0.05	< 0.05	0.000	< 0.1
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.00	< 0.05	< 0.05	< 0.05	<0.05	< 0.1
Tot Kjel N	mg/L	N/A	< 1	1.1	2.2	1	3	1.1	1	0.6	2.1	0.3	2.3	0.5	2.3	1	0.5
pH-Lab	pH unit	6.5-8.5	7.85	7.81	7.87	7.92	7.91	7.7	7.76	7.63	7.98	7.74	7.49	7.68	7.78	7.34	8.05
Phenols	mg/L	N/A	0.001	0.003	< 0.001	0.003	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	5.72	1.22	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1
Potassium	mg/L	N/A	0.3	0.9	0.4	0.8	0.3	0.8	0.4	0.9	0.4	0.9	0.3	0.9	0.4	0.9	1.6
Sodium	mg/L	200	2.6	13.8	2.4	12.3	2.3	16.2	2.5	12.5	4.7	11.1	2.5	9.7	2.1	3.5	3.9
Sulphate	mg/L	500	10	31	7	30	6	32	16	32	13	25	6	32	5	22	28
TDS	mg/L	500	296	365	273	339	280	377	276	362	286	374	281	375	249	345	246
TSS	mg/L	N/A	230	303	210	000	200	511	210	302	200	014	201	010	240	040	240
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.03	0.07	0.07	0.06	0.07	0.08	0.06	0.08	0.06	0.05	0.06	0.07	0.04	0.04	0.06
Antimony	mg/L	0.006	< 0.0001	< 0.0001	0.0002	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0002	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001
Arsenic	mg/L	0.025	0.0001	0.0002	< 0.0001	0.0003	< 0.0001	0.0002	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	0.0001	0.0003
Barium	mg/L	1	0.036	0.066	0.036	0.055	0.035	0.059	0.037	0.057	0.034	0.052	0.039	0.058	0.038	0.058	0.075
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002
Boron	mg/L	5	< 0.005	0.011	0.006	0.01	0.007	0.01	0.006	0.011	0.008	0.011	0.005	< 0.005	0.008	0.012	0.013
Cadmium	mg/L	0.005	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000010	<0.000015	< 0.00002
Chromium	mg/L	0.05	0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	0.0003
Cobalt	mg/L	N/A	< 0.005	< 0.005	0.0005	0.01	< 0.005	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.0001	< 0.005
Copper	mg/L	1	0.0002	0.0003	0.0002	0.0006	0.0006	0.0003	0.0007	0.0019	0.0006	0.0005	0.0004	0.0004	0.0077	0.0007	0.0011
Lead	mg/L	0.01	< 0.00002	< 0.00002	0.00005	0.00004	0.00003	< 0.00002	0.00003	0.00006	< 0.00002	< 0.00002	< 0.00002	0.00002	0.00005	<0.00002	0.00016
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0002	0.0002	< 0.0001	0.0004	0.0001	0.0003	0.0001	0.0003	0.0004	0.0003	0.0003	0.0002	0.0003	0.0002	0.0013
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0003	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.00002	< 0.0001	< 0.0001	< 0.001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.0001	< 0.001	< 0.001	< 0.0001	<0.001	< 0.00002
Strontium	mg/L	N/A	0.192	0.203	0.178	0.212	0.188	0.233	0.185	0.219	0.194	0.233	0.19	0.235	0.164	0.195	3.30002
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005
Vanadium	mg/L	N/A	0.000	0.0009	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	<0.00003	0.000
	1115/ L	13/7	0.002	0.0003	- U.UUU I	١ ٥٠٥٥٠٠	- 0.0001	· 0.0001	- 0.0001	· 0.000 i	- 0.0001	- 0.0001	· 0.000 i	· 0.000 i	- 0.0001	-0.0001	0.001

General Water Qu	uanty		23-07	23-07	23-07	23-07	23-07	23-07	23-07	23-07	23-07	23-07	23-07	23-07	23-07	23-07	23-07
Parameters	Units	ODWQS	21-Oct-14	26-May-15	13-Oct-15	24-May-16	13-Oct-16	24-May-17	16-Oct-17	7-May-18	9-Oct-18	8-May-19	8-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21
Alkalinity	mg/L	500	200	193	194	193	205	210	203	216	184	197	234	194	226	241	275
Unionized Ammonia	mg/L	N/A	200	100	101	100	< 0.01	210	200	210	10-1	107	201	10-1	220		210
Ammonia	mg/L	N/A	0.09	0.06	0.05	0.05	0.09	0.19	0.05	0.04	0.07	0.05	0.05	0.04	0.08	0.07	0.09
BOD	mg/L	N/A	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.01	0.07	0.00	0.00	0.01	0.00	0.07	0.00
Calcium	mg/L	N/A	73.5	76.4	79.9	77.8	85.9	83.2	82.1	84.4	77	88.8	99	85.6	91.7	95.1	110
COD	mg/L	N/A	69	12	16	26	< 5	31	9	< 5	15	20	12	22	34	23	15
Chloride	mg/L	250	8.2	7.7	8.4	8.4	9.4	8.3	8.5	11.1	9.1	9.6	12.1	9.5	15.1	16.1	26.1
Conductivity	umhos/cm	N/A	452	443	446	445	488	473	447	479	450	478	548	463	544	522	622
Cyanide	mg/L	0.2	.02				.00				.00		0.0	.00	• • • • • • • • • • • • • • • • • • • •		
DOC	mg/L	5	2.3	1.5	0.8	1	1.2	0.9	1.3	1.6	2	1.9	2.7	2.6	2.6	2.7	1.5
Fluoride	mg/L	1.5	0.2	0.1	0.2	0.2	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	225	235	244	239	262	251	252	257	236	268	297	258	274	284	322
Ion Balance	%	N/A	0.993	200	2-1-1	200	202	201	202	207	3.9	200	207	6.33	2.18	0.447	0.0775
Iron	mg/L	0.3	0.221	0.051	0.122	0.023	0.322	0.034	0.239	0.044	< 0.005	0.011	0.032	0.072	0.021	0.193	0.551
Magnesium	mg/L	N/A	10.1	10.7	10.7	10.8	11.4	10.5	11.3	11.2	10.6	11.2	12	10.6	10.8	11.3	11.4
Manganese	mg/L	0.05	0.018	0.065	0.017	0.014	0.019	0.012	0.021	0.008	< 0.001	0.004	0.023	0.006	0.03	0.021	0.02
Nitrate	mg/L	10	0.1	0.1	0.017	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.08	< 0.05	< 0.05	< 0.05
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Tot Kjel N	mg/L	N/A	0.3	0.7	0.4	0.6	0.9	0.5	0.2	0.2	0.7	0.3	0.3	0.5	0.2	0.4	0.4
pH-Lab	pH unit	6.5-8.5	8.05	7.94	8.05	7.9	8	8.03	8.04	7.99	7.96	8.04	7.88	7.9	7.94	7.96	7.75
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	0.003	0.008	0.005	< 0.001	0.006	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	3.89	1.07	1.28	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	1.7	1.4	1.8	1.6	1.7	1.3	1.7	1.8	1.9	1.5	1.8	1.6	1.5	1.4	1.5
Sodium	mg/L	200	3.6	4.2	4.4	4.3	5.7	4.8	4.4	6.5	5.1	5.2	8.1	4.4	7.7	6.1	8.7
Sulphate	mg/L	500	27	26	28	28	31	24	24	31	33	30	33	28	32	32	32
TDS	mg/L	500	245	242	250	247	269	259	254	276	247	265	306	256	294	307	355
TSS	mg/L	N/A	2.0		200		200	200	20.	2.0		200	000	200			- 555
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.02	0.02	0.02	0.02	0.07	0.02	0.04	0.05	0.05	0.05	0.06	0.06	0.05	0.06	0.04
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0003	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0003	0.0003	0.0004	0.0003	0.0009	0.0003	0.0003	0.0002	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Barium	mg/L	1	0.072	0.083	0.084	0.084	0.102	0.075	0.092	0.078	0.075	0.078	0.087	0.07	0.082	0.076	0.1
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.016	< 0.005	0.01	0.015	0.014	0.01	0.017	0.013	0.009	0.011	0.014	0.014	0.014	0.01	0.011
Cadmium	mg/L	0.005	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.05	< 0.0002	0.0019	0.0021	< 0.0002	0.0011	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0002	< 0.005	0.007	< 0.005	0.0001	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0003	< 0.0001	< 0.0001	0.0002	0.0002	< 0.0001	0.0001	0.0005	0.0007	0.0005	0.0002	0.0007	0.0019	0.0007	0.0002
Lead	mg/L	0.01	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	0.00064	< 0.00002	0.00002	0.00016	0.00005	0.00003	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0007	0.0004	0.0015	0.0009	0.0013	0.0009	0.001	0.0013	0.0012	0.001	0.0013	0.001	0.001	0.0006	0.0006
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	0.246	0.255	0.283	0.263	0.275	0.243	0.233	0.26	0.248	0.259	0.284	0.257	0.26	0.264	0.288
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0001	0.0012	0.0009	0.001	0.0005	0.0014	0.0004	0.0001	0.0005	< 0.0001	< 0.0001	0.0002	0.0001	< 0.0001	< 0.0001
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	iality		1		1		1						1				
Daramatara	Unito	ODWQS	23-07 3-May-22	23-07 25-Oct-22	23-07	23-07 18-Oct-23	11-90 8-May-14	11-90 29-Jul-14	11-90 20-Oct-14	11-90 29-May-15	11-90 13-Jul-15	11-90 13-Oct-15	11-90 17-May-16	11-90 13-Jul-16	11-90 12-Oct-16	11-90 25-May-17	11-90 20-Jul-17
Parameters Alkalinity	Units mg/L	500	268	280	2-May-23 256	269	314	303	309	309	310	320	316	316	291	320	316
Unionized Ammonia	mg/L	N/A	200	200	256	209	< 0.01	< 0.01	< 0.01	309	310	320	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ammonia	mg/L	N/A	0.68	0.05	1.13	0.76	0.17	0.26	0.22	0.2	0.28	0.19	0.01	0.24	0.29	0.38	0.36
BOD	mg/L	N/A	0.00	0.03	1.13	0.70	<3	<3	6	5	0.20	4	2	< 3	< 3	< 3	< 3
Calcium	mg/L	N/A	112	107	97.1	99.8	127	128	129	131	148	152	136	129	118	143	146
COD	mg/L	N/A	16	17	< 5	21	< 5	< 5	< 5	6	< 5	5	9	6	< 5	9	< 5
Chloride	mg/L	250	27.2	37.8	23.6	19.9	112	98.9	98.7	104	119	123	117	135	101	108	113
Conductivity	umhos/cm	N/A	661	659	612	607	952	902	919	936	1010	1030	1000	1070	959	1080	1070
Cyanide	mg/L	0.2	001	000	012	007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
DOC	mg/L	5	2.3	1.7	2.3	3.7	3	3	3.6	1.1	1.1	1.1	2	1.8	1.9	2.9	3.1
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	<0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2
Hardness	mg/L	500	329	318	287	296	432	432	442	444	498	527	473	447	414	483	493
Ion Balance	%	N/A	3.06	4.24	2.96	1.84	1.07	0.45	0.0298		100	V2.				.00	
Iron	mg/L	0.3	0.198	0.206	0.012	0.029	0.933		0.832	0.355	0.615	0.932	1.39	1.13	0.768	0.548	0.634
Magnesium	mg/L	N/A	11.9	12.2	10.8	11.2	27.9	27.4	29.2	28.6	31.2	36	32.2	30.5	29	30.7	31.6
Manganese	mg/L	0.05	0.02	0.024	0.011	0.024	0.061	0.051	0.06	0.069	0.073	0.119	0.132	0.104	0.094	0.041	0.041
Nitrate	mg/L	10	< 0.05	< 0.05	< 0.05	0.16	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.8	0.4	1.1	1	0.5	0.2	0.3	0.3	1.3	0.5	0.4	0.5	0.4	0.5	0.6
pH-Lab	pH unit	6.5-8.5	7.73	7.76	7.9	7.51	7.63	7.67	7.77	7.76	7.57	7.56	8.06	7.48	8.12	7.69	7.64
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.051	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	1.4	1.5	1.6	1.7	2.9	3	3.1	3	3.5	3.3	3.6	3.8	3.4	4.3	4.6
Sodium	mg/L	200	11.2	11.3	8.3	9	15.8	14.7	14.3	16.9	19	19.3	26.9	45	39.2	23.4	23.6
Sulphate	mg/L	500	31	40	35	30	31	29	30	31	31	31	27	30	54	27	26
TDS	mg/L	500	357	378	330	315	506	484	491	500	539	558	535	565	521	530	535
TSS	mg/L	N/A					3	4	8	150	6	88	46	4	7	12	5
Turbidity	NTU	N/A					11.4	14.1	5.6	32.6	6.5	21.1	22.2	14.3	14	19.7	5.9
Colour	TCU	5					2	10	7	10	7	2	< 2	10	< 2	2	2
Aluminum	mg/L	0.1	0.06	0.07	0.03	0.03	0.03	0.02	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.04	0.05
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0001	0.0002	0.0001	0.0001	0.0006	0.0005	0.0005	0.0004	0.0005	0.0006	0.0007	0.0003	0.0005	0.0006	0.0005
Barium	mg/L	1	0.091	0.091	0.082	0.086	0.228	0.221	0.211	0.224	0.263	0.3	0.296	0.287	0.365	0.302	0.349
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.008	< 0.005	0.01	0.011	0.066	0.053	0.073	0.057	0.074	0.093	0.081	0.053	0.075	0.085	0.094
Cadmium	mg/L	0.005	< 0.000015	< 0.000010	< 0.000010	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	<0.001	< 0.0002	0.0055	< 0.0002	0.0043	< 0.0002	0.0048	0.002	< 0.0002	0.0008	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	0.005	0.0003	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0002	0.0005	0.0005	0.0004	0.0002	0.0002	0.0005	< 0.0001	< 0.0001	0.0001	0.0003	0.0001	0.0002	0.0011	0.001
Lead	mg/L	0.01	< 0.00002	0.00007	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00004	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	0.00008
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0006	0.0006	0.0007	0.0009	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0005	0.0003	0.0002	0.0002	0.0001
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	0.0008	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	N/A	0.28	0.288	0.26	0.264	< 0.00005	1.07	1.03	1.07	1.29	1.28	1.3	1.19	1.52	1.24	1.34
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.0038	0.0055	< 0.0001	0.0024	0.0042	0.0016	0.0008	0.0005	0.0004	0.001	0.0017
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	lanty		11-90	11-90	11-90	11-90	11-90	11-90	11-90	11-90	11-90	11-90	11-90	11-90	11-90	11-90	11-90
Parameters	Units	opwos	18-Oct-17	8-May-18	24-Jul-18	11-Oct-18	9-May-19	16-Jul-19	9-Oct-19	5-May-20	13-Jul-20	13-Oct-20	4-May-21	5-Jul-21	13-Oct-21	3-May-22	26-Jul-22
Alkalinity	mg/L	500	304	310	281	284	300	281	280	318	299	295	328	328	286	310	321
Unionized Ammonia	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	020	020	< 0.01	< 0.01	< 0.01
Ammonia	mg/L	N/A	0.27	0.3	0.24	0.26	0.34	0.31	0.31	0.48	0.3	0.43	0.41	0.23	0.41	0.48	0.41
BOD	mg/L	N/A	< 3	< 3	< 2	3		< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Calcium	mg/L	N/A	138	151	138	145	159	159	159	160	152	135	155	163	158	170	162
COD	mg/L	N/A	5	23	9	9	12	9	< 5	26	23	9	9	7	10	23	9
Chloride	mg/L	250	92.8	142	146	141	168	161	167	161	143	124	234	236	227	178	183
Conductivity	umhos/cm	N/A	1010	1020	1030	1060	1140	1080	1060	1170	1050	988	1420	1350	1230	1220	1170
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
DOC	mg/L	5	2.3	4.3	2.4	3.1	4.1	2.6	3.2	3.1	2.4	2.3	2.9	2	1.4	2.3	1.8
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2
Hardness	mg/L	500	472	514	471	491	536	527	532	541	515	476	540	547	540	580	550
Ion Balance	%	N/A								1.88	4.52	3.65	1.04	3.42	0.0816	3.96	2.29
Iron	mg/L	0.3	0.569	0.314	0.332	0.452	0.299	0.7	0.62	0.686	1.55	1.12	4.39	5.27	2.29	0.805	2
Magnesium	mg/L	N/A	30.8	33.1	30.7	31.2	33.6	31.4	32.8	34.3	32.8	33.5	37.1	33.9	35.2	37.9	35.3
Manganese	mg/L	0.05	0.032	0.03	0.03	0.0291	0.03	0.03	0.028	0.034	0.038	0.027	0.097	0.065	0.051	0.038	0.064
Nitrate	mg/L	10	< 0.05	< 0.05	< 0.05	< 0.05	0.19	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07	< 0.05	0.07	< 0.05
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.12	< 0.05	0.17	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.4	0.5	0.5	0.4	8.0	0.4	0.5	0.9	0.6	0.7	0.8	0.5	0.7	0.6	0.7
pH-Lab	pH unit	6.5-8.5	8.04	7.7	7.78	7.88	7.76	7.61	7.81	7.76	7.71	7.81	8.07	7.6	7.51	7.28	7.63
Phenols	mg/L	N/A	0.001	< 0.001	0.006	0.012	< 0.002	< 0.002	< 0.002	0.004	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	0.04	< 0.01	0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	4.5	4.8	4.3	4.2	5	4	4.4	5.6	4.8	4.7	4.2	3.7	4.1	4.1	4
Sodium	mg/L	200	20.1	25.3	21.5	20.7	30.8	20.6	22.2	26.3	25.4	24	44.9	42.8	40	26.3	34
Sulphate	mg/L	500	21	31	30	30	39	28	28	40	29	27	33	43	32	33	27
TDS	mg/L	500	491	574	539	544	616	574	582	619	568	527	696	725	671	637	640
TSS	mg/L	N/A	< 3	4	< 3	22		< 3	7	16	< 3	12	65	36	5	7	8
Turbidity	NTU	N/A	3.3	4.6	5.4	7.3		10	3.3	40.2	20.6	15.2	207	189	21.5	9.2	31.6
Colour	TCU	5	3	< 2	< 2	< 2	0.00	< 2	< 2	< 2	3	3	4	< 2	< 2	< 2	< 2
Aluminum	mg/L	0.1	0.06	0.07	0.07	0.07	0.08	0.07	0.09	0.08	0.08	0.05	0.09	0.05	0.07	0.05	0.08
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0006 0.284	< 0.0001 0.302	< 0.0001 0.269	< 0.0001	0.0001	< 0.0001	< 0.0001	0.0001	0.0001 0.272	< 0.0001	< 0.0001	< 0.0001	< 0.0001 0.253	< 0.0001 0.284	0.0001
Barium	mg/L	1				0.277	0.358	0.281	0.282	0.318	*	0.232	0.272	0.255			0.263
Beryllium	mg/L	N/A 5	< 0.002 0.087	< 0.002 0.099	< 0.002 0.085	< 0.002 0.086	< 0.002 0.104	< 0.002 0.091	< 0.002 0.098	< 0.002 0.115	< 0.002 0.106	< 0.002 0.113	< 0.002 0.093	< 0.002 0.098	< 0.002 0.095	< 0.002 0.107	< 0.002 0.092
Boron	mg/L	0.005	< 0.00014	< 0.000015	< 0.00015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Cadmium Chromium	mg/L mg/L	0.005	< 0.00014	< 0.00015	< 0.00015	< 0.00015	< 0.00013	< 0.00015	0.00015	< 0.00015	< 0.00015	< 0.00015	< 0.00015	< 0.00015	< 0.00015	< 0.00013	< 0.00015
Cobalt	mg/L	0.03 N/A	< 0.001	< 0.001	0.001	< 0.001	0.005	0.0002	< 0.001	< 0.001	< 0.001	0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Copper	mg/L	1	0.0005	0.0008	0.009	0.0004	0.005	0.0002	< 0.0001	< 0.0001	0.0012	0.003	0.0007	0.0001	0.0002	0.0002	0.0005
Lead	mg/L	0.01	< 0.0003	0.00007	< 0.0001	0.0004	0.0003	0.0004	< 0.0001	0.00001	0.0012	0.00003	0.0007	0.00001	< 0.0002	0.0002	< 0.0003
Mercury	mg/L	0.001	< 0.00002	< 0.00007	< 0.00002	< 0.00003	< 0.00004	< 0.00004	< 0.00004	< 0.00000	< 0.0001	< 0.00003	< 0.00004	< 0.00002	< 0.00004	< 0.00002	< 0.00004
Molybdenum	mg/L	N/A	< 0.00002	0.0001	< 0.00002	< 0.00002	0.0005	< 0.00002	< 0.00002	0.0003	0.0002	< 0.0001	0.0002	< 0.00002	< 0.00002	0.00002	0.0003
Nickel	mg/L	N/A	< 0.001	< 0.01	< 0.01	< 0.01	< 0.01	< 0.001	< 0.001	< 0.01	< 0.01	< 0.001	< 0.01	< 0.001	< 0.001	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	0.004	0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	0.001	0.002	0.002	0.002
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.0001	< 0.001	< 0.001	< 0.0001	< 0.001	< 0.001	< 0.002	< 0.002	< 0.002
Strontium	mg/L	N/A	1.12	1.26	1.1	1.18	1.4	1.17	1.18	1.31	1.16	1.17	1.25	1.19	1.19	1.22	1.2
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.00003	< 0.00003	< 0.00003	< 0.00003	0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.0001
Zinc	mg/L	5	0.0010	< 0.005	< 0.005	< 0.005	< 0.005	0.005	< 0.005	< 0.005	0.006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.005
LITIC	IIIg/L	J	0.013	` 0.003	` 0.003	~ 0.003	· 0.003	0.003	` 0.003	· 0.003	0.000	· 0.003	` 0.003	· 0.003	· 0.003	~ 0.003	0.003

General Water Qua	<u>.</u>		11-90	11-90	11-90	11-90	12-91-I	12-91-I	12-91-I	12-91-I	12-91-I	12-91-I	12-91-I	12-91-I	12-91-I	12-91-I	12-91-I
Parameters	Units	ODWQS	25-Oct-22	2-May-23	12-Jul-23	18-Oct-23	6-May-14	21-Oct-14	26-May-15	13-Oct-15	17-May-16	17-Oct-16	23-May-17	17-Oct-17	8-May-18	11-Oct-18	8-May-19
Alkalinity	mg/L	500	362	378	352	388	462	457	388	351	336	430	349	313	256	299	240
Unionized Ammonia	mg/L	N/A	< 0.01	< 0.01	< 0.01	<0.01											
Ammonia	mg/L	N/A	0.36	2.71	0.57	1.1	0.06	0.05	0.02	0.08	0.05	0.14	0.03	0.09	0.06	0.07	0.09
BOD	mg/L	N/A	< 3	< 3	< 3												
Calcium	mg/L	N/A	188	142	113	102	174	137	119	116	100	147	132	102	88.4	90.3	87.7
COD	mg/L	N/A	11	16	15	23	246	160	12	40	40	< 5	18	42	8	106	33
Chloride	mg/L	250	193	175	122	124	14	17.3	19.5	24.3	22.8	17.3	17.7	35.3	39.9	37.8	32.6
Conductivity	umhos/cm	N/A	1350	1270	1040	1060	1030	980	867	798	785	928	783	734	710	730	668
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005												
DOC	mg/L	5	0.4	2.1	< 0.2	4.5	6.2	6.3	2.8	1.8	2.6	4.3	2.9	2.8	2.5	3.4	2.7
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 1	<0.1	0.1	0.2	0.1	0.1	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	642	517	409	393	593	485	436	423	358	509	451	388	354	357	347
Ion Balance	%	N/A	6.57	5.23	6.35	8.63	5.69	3.79									
Iron	mg/L	0.3	10	8.4	6.99	1.69	< 0.005	< 0.005	< 0.005	0.022	< 0.005	0.132	< 0.005	0.026	< 0.005	0.018	< 0.005
Magnesium	mg/L	N/A	41.9	39.2	30.9	33.6	38.6	34.5	33.5	32.7	25.9	34.1	29.6	32.3	32.4	32	31.2
Manganese	mg/L	0.05	0.112	0.131	0.101	0.046	0.018	0.018	< 0.001	0.006	< 0.001	0.032	0.002	0.013	0.001	0.019	0.015
Nitrate	mg/L	10	< 0.05	< 0.05	< 0.5	<0.05	0.2	< 0.1	< 0.1	0.1	< 0.1	0.1	< 0.05	< 0.05	0.09	0.09	< 0.05
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.5	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.6	4.2	0.9	2.2	1.5	0.3	0.4	1.7	0.5	0.6	< 1	0.7	0.7	1.9	0.5
pH-Lab	pH unit	6.5-8.5	7.5	7.49	7.59	7.74	7.67	7.54	7.72	7.56	7.81	7.67	7.76	7.75	7.86	7.95	7.95
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.088	< 0.001	0.004	< 0.001	0.08	< 0.002
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.23
Potassium	mg/L	N/A	4.2	3.4	3.3	3.3	2.3	2.4	2.2	2.3	1.7	2.5	1.8	2.7	2.6	2.4	2.2
Sodium	mg/L	200	46.5	88.4	88.5	45.4	12.5	10.8	12.4	11.5	10.6	13	10.9	13.3	13.6	13.7	11.6
Sulphate	mg/L	500	44	36	27	33	71	68	62	55	56	61	45	56	59	61	49
TDS	mg/L	500	746	720	604	570	590	544	481	452	419	534	446	430	390	417	358
TSS	mg/L	N/A	30	70	8	4											
Turbidity	NTU	N/A	116	85.5	50.6	11.9											
Colour	TCU	5	< 2	< 2	< 2	<2											
Aluminum	mg/L	0.1	0.11	0.04	0.07	0.06	0.05	0.03	0.04	0.03	0.03	0.06	0.04	0.06	0.05	0.04	0.05
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.0002	< 0.0001	< 0.0001	0.0002	< 0.0001	0.0002	0.0001	0.0002	< 0.0001	0.0002	< 0.0001
Arsenic	mg/L	0.025	0.0002	< 0.0001	< 0.0001	<0.0001	0.0002	0.0002	0.0002	0.0002	< 0.0001	0.0003	0.0003	0.0003	0.0004	0.0004	0.0003
Barium	mg/L	1	0.327	0.323	0.295	0.282	0.195	0.155	0.152	0.144	0.118	0.168	0.134	0.14	0.128	0.128	0.109
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.031	0.09	0.092	0.094	0.041	0.048	0.031	0.052	0.008	0.054	0.038	0.059	0.054	0.049	0.048
Cadmium	mg/L	0.005	< 0.000012	< 0.000012	< 0.000010	<0.000015	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	<0.001	0.0008	< 0.0002	0.0031	< 0.0002	< 0.0002	0.0034	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	0.0002	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	0.012	0.01
Copper	mg/L	1	0.0002	0.0002	0.0002	0.0007	0.0026	0.0012	0.0002	0.0006	0.0003	0.0014	0.0013	0.0005	0.0016	0.0011	0.0009
Lead	mg/L	0.01	< 0.00004	< 0.00004	< 0.00002	<0.00002	0.00004	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	0.00005	0.00004	0.00004
Mercury	mg/L	0.001	< 0.00002 < 0.0001	< 0.00002 < 0.0001	< 0.00002 < 0.0001	<0.00002 <0.0001	< 0.00002 0.0003	< 0.00002 0.0002	< 0.00002 0.0002	0.00003	< 0.00002 0.0003	< 0.00002 0.0003	< 0.00002 0.0004	< 0.00002 0.0004	< 0.00002 0.0006	< 0.00002 0.0005	< 0.00002 0.0005
Molybdenum Nickel	mg/L	N/A N/A	< 0.0001	< 0.0001	< 0.0001	0.0009	< 0.01	< 0.00	< 0.00	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	0.001	< 0.01	0.001	<0.0009	< 0.001	< 0.01	< 0.01	< 0.001	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Seienium Silver	mg/L	0.01 N/A	< 0.001	< 0.001	< 0.001	<0.001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.001	< 0.001	< 0.001
Strontium	mg/L	N/A N/A	1.36	1.29	1.15	1.13	~ U.UUUU2	0.00002	0.822	0.735	0.642	0.855	0.708	0.653	0.753	0.729	0.727
	mg/L	N/A N/A	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	-	< 0.00005	< 0.00005			< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Thallium	mg/L		< 0.00005	< 0.00005	< 0.00005	<0.00005	0.0006	< 0.00005 0.0002	0.00005	0.00005	< 0.00005 0.001	< 0.00005 0.0013	0.00005	0.0005	< 0.00005	0.0001	< 0.00005
Vanadium	mg/L	N/A															
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	<0.005	0.011	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	uney		12-91-I	12-91-I	12-91-I	12-91-I	12-91-I	12-91-I	12-91-I	12-91-I	12-91-I	12-91-I	12-91-II	12-91-II	12-91-II	12-91-II	12-91-II
Parameters	Units	ODWQS	8-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21	3-May-22	3-May-22	25-Oct-22	2-May-23	18-Oct-23	6-May-14	21-Oct-14	26-May-15	13-Oct-15	17-May-16
Alkalinity	mg/L	500	228	248	239	297	314	238	301	293	294	297	351	480	411	427	402
Unionized Ammonia	mg/L	N/A															
Ammonia	mg/L	N/A	0.1	0.01	0.06	0.08	0.18	0.62	0.1	< 0.01	0.65	0.5	0.01	0.05	0.13	0.29	0.09
BOD	mg/L	N/A															
Calcium	mg/L	N/A	80.4	80.1	77.8	87.4	111	81.7	119	90.9	93.7	85.9	167	182	163	179	141
COD	mg/L	N/A	37	< 5	9	21	30	10	32	28	< 5	15	46	< 5	27	35	32
Chloride	mg/L	250	39.4	33.8	34.2	27.1	28.8	33.8	2.3	44.8	33.2	31.4	1.9	2.3	3.1	5.2	3.6
Conductivity	umhos/cm	N/A	655	675	660	697	737	673	644	738	731	717	832	941	830	935	821
Cyanide	mg/L	0.2															
DOC	mg/L	5	2.9	3.3	2.9	4.1	3.2	2.7	8.5	2.3	2.9	3.7	15.6	21.1	9.8	13.6	11.5
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	0.2	0.2	0.2	0.2	0.1
Hardness	mg/L	500	333	332	323	356	413	332	324	367	366	343	469	513	459	512	397
Ion Balance	%	N/A		2.14	1.29	0.854	4.25	2.58	1.19	3.63	0.536	2.73	6.36	0.246			
Iron	mg/L	0.3	< 0.005	< 0.005	< 0.005	0.011	0.929	< 0.005	0.106	0.28	0.016	0.047	< 0.005	0.087	0.217	0.808	0.216
Magnesium	mg/L	N/A	32.2	32.1	31.2	33.4	33	31	6.47	34.1	32.1	31.2	12.4	14.2	12.5	15.4	10.6
Manganese	mg/L	0.05	0.004	0.002	0.001	0.012	0.299	0.001	0.251	0.04	0.01	0.012	0.002	0.546	0.508	0.516	0.276
Nitrate	mg/L	10	< 0.05	0.14	0.1	< 0.05	0.14	0.08	< 0.05	0.12	0.06	0.14	6.8	0.1	0.2	0.1	0.2
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	0.08	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	0.3	< 0.1	< 0.1	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	1.1	0.2	0.3	0.5	0.8	1	1	0.4	1	8.0	1.9	1.2	0.8	1.6	1
pH-Lab	pH unit	6.5-8.5	7.9	7.82	7.92	8.1	7.84	7.77	7.5	7.72	7.79	7.31	7.81	7.43	7.5	7.3	7.62
Phenols	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	3.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	2.3	2.2	2.1	2.3	2.6	2.2	0.5	2.5	2.5	2.4	0.7	1	0.7	1.1	0.6
Sodium	mg/L	200	12.4	11.8	11.6	11.4	12.8	10.9	3.5	11.2	10.9	10.8	8.2	6.6	6.1	8.7	5.7
Sulphate	mg/L	500	57	47	52	53	54	52	20	66	54	47	48	41	43	92	46
TDS	mg/L	500	361	356	352	393	432	354	333	426	403	372	480	537	477	560	451
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5	0.05	0.00	0.05	0.05	0.07	0.05	0.00	0.07	0.00	0.00	0.04	0.04	0.04	0.04	0.04
Aluminum	mg/L	0.1	0.05	0.06	0.05	0.05	0.07	0.05	0.09	0.07	0.02	0.02	0.04	0.04	0.04	0.04	0.04
Antimony	mg/L	0.006	0.0001	0.0001	0.0001	0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.0002	0.0004	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0005	0.0005	0.0007	0.0003	0.0012	0.0004 0.125	0.0009	0.0005	0.0003 0.137	0.0004	0.0004	0.0027	0.002 0.054	0.0006 0.069	0.0008
Barium	mg/L	1	0.121 < 0.002	0.116 < 0.002	0.118 < 0.002	0.126 < 0.002	0.159 < 0.002	< 0.002	0.047 < 0.002	0.151 < 0.002	< 0.002	0.13 <0.0001	0.061 < 0.002	0.082 < 0.002	< 0.002	< 0.009	< 0.002
Beryllium Boron	mg/L	N/A 5	0.052	0.002	0.053	0.002	0.055	0.002	0.002	0.002	0.002	0.054	0.002	0.002	0.002	0.002	< 0.002
Cadmium	mg/L mg/L	0.005	< 0.00015	< 0.000015	< 0.000015	< 0.00015	< 0.00015	< 0.000015	< 0.000015	< 0.000010	< 0.00010	<0.00015	0.0004	< 0.00002	< 0.0000	< 0.00002	0.0003
Chromium	mg/L	0.003	0.000	< 0.001	< 0.00013	< 0.00013	< 0.00013	< 0.00013	< 0.00013	< 0.00010	< 0.00010	<0.001	0.00004	0.0005	0.000	< 0.0002	< 0.0003
Cobalt	mg/L	0.03 N/A	< 0.001	< 0.001	< 0.001	0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.0001	< 0.0017	< 0.005	< 0.004	< 0.0002	< 0.0002
Copper	mg/L	1	0.0006	0.0005	0.0025	0.003	0.0006	0.0008	0.003	0.0005	0.0005	0.0007	0.0063	0.0032	< 0.0001	0.0005	0.0009
Lead	mg/L	0.01	< 0.00002	0.00004	0.00005	0.00006	0.00032	0.00002	0.00013	< 0.00002	< 0.00002	<0.0007	0.00003	0.00008	< 0.00001	< 0.00002	0.00006
Mercury	mg/L	0.001	< 0.00002	< 0.00004	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00010	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	0.00003
Molybdenum	mg/L	N/A	0.0005	0.0004	0.0005	0.0004	0.0004	0.0005	0.0003	0.0005	0.0004	0.0005	0.0004	0.0003	0.0002	0.0001	0.0008
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	N/A	0.768	0.778	0.757	0.81	0.843	0.767	0.281	0.852	0.8	0.787	5.50002	0.502	0.438	0.525	0.396
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0001	0.0002	0.0001	< 0.0001	<0.0001	0.0029	0.001	0.0025	0.0012	0.0017
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	0.007	< 0.005	< 0.005	< 0.005
	0/ -		000	2.000	2.000			000		000		2.000				000	

	iity		12-91-II	12-91-II	12-91-II	12-91-II	12-91-II	12-91-II	12-91-II	12-91-II	12-91-II	12-91-II	12-91-II	12-91-II	12-91-II	12-91-II	13-19-II
Parameters	Units	ODWQS	17-Oct-16	23-May-17	17-Oct-17	8-May-18	11-Oct-18	8-May-19	8-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21	25-Oct-22	2-May-23	18-Oct-23	7-Oct-19
Alkalinity	mg/L	500	381	389	412	315	476	380	326	308	458	381	388	404	371	399	430
Unionized Ammonia	mg/L	N/A															
Ammonia	mg/L	N/A	0.12	0.09	0.12	0.05	0.16	0.12	0.23	0.05	0.19	0.06	0.2	0.15	0.31	0.44	0.07
BOD	mg/L	N/A				-											
Calcium	mg/L	N/A	184	158	190	122	209	166	160	113	199	144	153	153	130	142	277
COD	mg/L	N/A	44	36	51	20	43	37	33	23	31	30	38	18	26	29	18
Chloride	mg/L	250	3.8	3.1	3.8	4	6.3	1.2	32.2	1.4	2.3	2	11.9	14.5	0.5	13	790
Conductivity	umhos/cm	N/A	899	726	827	582	1010	798	803	631	959	725	801	840	735	882	3010
Cyanide	mg/L	0.2															
DOC	mg/L	5	17.2	11.2	11.8	9	14.4	12.3	9.7	9.6	11.5	11.6	8.9	9.4	9.3	10.9	2.3
Fluoride	mg/L	1.5	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 1
Hardness	mg/L	500	512	438	529	342	582	462	457	311	550	395	434	436	353	408	839
Ion Balance	%	N/A				1.22				1.56	5.44	0.294	1.59	1.88	3.2	5.55	
Iron	mg/L	0.3	0.027	0.15	1.25	0.02	1.27	0.839	2.69	0.162	2.22	0.416	1.14	0.434	1.09	1.14	2.5
Magnesium	mg/L	N/A	12.8	10.4	13.2	8.99	14.5	11.5	13.9	6.87	12.7	8.43	12.5	13.1	6.93	13	35.7
Manganese	mg/L	0.05	0.067	0.194	0.762	0.259	0.605	0.958	0.675	0.062	0.654	0.485	0.483	0.136	0.364	0.33	0.108
Nitrate	mg/L	10	1.6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.28	< 0.05	< 0.05	< 0.05	0.15	< 0.05	<0.05	< 0.5
Nitrite	mg/L	1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	< 0.5
Tot Kjel N	mg/L	N/A	1.5	1	1.7	0.9	1.1	0.9	1	0.9	1.1	0.6	1.3	1.1	0.8	1.3	0.5
pH-Lab	pH unit	6.5-8.5	7.75	7.68	7.45	7.7	7.61	7.62	7.55	7.58	7.36	7.71	7.54	7.47	7.46	7.19	7.45
Phenols	mg/L	N/A	< 0.001	0.002	0.005	< 0.001	0.019	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	<0.001	< 0.002
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	0.13	< 0.1	0.07	0.11	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	0.26
Potassium	mg/L	N/A	0.8	0.6	0.9	0.7	1	0.7	1	0.6	1	0.6	1	1	0.6	1	2.9
Sodium	mg/L	200	7.3	4.3	5.4	3.8	6.6	3.7	9.4	2.7	5.3	2.7	13	7	2.9	9.9	345
Sulphate	mg/L	500	106	18	53	21	76	31	51	16	47	21	46	45	15	65	< 10
TDS	mg/L	500	550	428	516	350	601	444	467	326	545	408	473	477	380	467	1719
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.05	0.05	0.09	0.07	0.08	0.09	0.08	0.07	0.1	0.08	0.06	0.09	0.04	0.06	0.12
Antimony	mg/L	0.006	0.0004	0.0001	0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001
Arsenic	mg/L	0.025	0.001	0.0007	0.001	0.0005	0.0005	0.0009	0.0006	0.0006	0.0004	0.0006	0.0008	0.0003	0.0005	0.0007	0.0007
Barium	mg/L	1	0.086	0.052	0.079	0.047	0.081	0.054	0.06	0.038	0.076	0.054	0.074	0.065	0.048	0.056	0.584
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002
Boron	mg/L	5	0.028	0.021	0.035	0.013	0.029	0.018	0.041	0.011	0.038	0.018	0.04	0.019	0.012	0.035	0.024
Cadmium	mg/L	0.005	< 0.00002	< 0.000014	< 0.000014	0.00002	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000010	<0.000015	< 0.000029
Chromium	mg/L	0.05	0.0034	0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	0.0016	< 0.005	< 0.005	< 0.005	0.0022	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0003	< 0.005
Copper	mg/L	1	0.0023	0.0009	0.0004	0.0028	0.0004	0.0011	< 0.0001	0.0028	0.0007	0.0016	0.0005	0.0012	0.0007	0.0007	0.0018
Lead	mg/L	0.01	< 0.00002	0.00003	< 0.00002	0.00235	0.00004	0.00002	< 0.00002	0.00008	0.00004	0.00005	0.00006	0.00003	0.00003	0.00006	< 0.00009
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0007	0.0003	0.0003	0.0005	< 0.0001	0.0002	0.0001	0.0003	< 0.0001	0.0002	0.0003	0.0002	0.0001	0.0003	< 0.0002
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0012	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001
Silver	mg/L	N/A	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001
Strontium	mg/L	N/A	0.523	0.395	0.413	0.305	0.492	0.397	0.412	0.271	0.484	0.35	0.467	0.439	0.29	0.399	1.34
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005
Vanadium	mg/L	N/A	0.002	0.0034	0.0013	0.0002	0.0003	0.0003	0.0003	0.0002	0.0003	0.0002	0.0002	0.0001	< 0.0001	0.0002	< 0.0004
Zinc	mg/L	5	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.005	< 0.005	<0.005	< 0.005

Alkalinity Unionized Ammonia Ammonia	Units mg/L	ODWQS	13-19-II 13-Oct-20	13-91-I													
Unionized Ammonia Ammonia	mg/L		10-001-20	7-May-14	21-Oct-14	26-May-15	13-Oct-15	11-May-16	13-Oct-16	23-May-17	16-Oct-17	7-May-18	11-Oct-18	8-May-19	7-Oct-19	5-May-20	13-Oct-20
Ammonia		500	363	194	196	198	195	196	192	193	192	192	193	182	184	185	180
	mg/L	N/A							0.02								
	mg/L	N/A	0.27	0.43	0.47	0.44	0.41	0.44	0.47	0.44	0.46	0.47	0.45	0.46	0.46	0.42	0.45
BOD	mg/L	N/A															
Calcium	mg/L	N/A	173	48.9	50.1	53.3	51.7	46.7	56.3	54.1	57.8	54.3	57.1	57.1	60.4	55.4	55.6
COD	mg/L	N/A	45	< 5	31	< 5	< 5	< 5	< 5	14	< 5	< 5	8	7	6	< 5	5
Chloride	mg/L	250	477	67.8	67.8	69.9	71.8	73.4	77.2	59.9	67.7	76.7	84.4	79.9	84.6	79.7	87.2
Conductivity un	mhos/cm	N/A	2190	613	626	627	631	627	643	617	618	696	666	653	653	657	674
Cyanide	mg/L	0.2															
DOC	mg/L	5	1.2	2	2.2	0.7	8.0	0.7	1.1	1.2	1.4	1.6	1.9	1.7	1.8	1.7	1.8
Fluoride	mg/L	1.5	< 0.1	0.3	0.3	0.3	0.3	0.3	1.4	0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	537	266	280	293	300	269	309	296	321	307	304	319	328	309	309
Ion Balance	%	N/A	1.11	2.96	0.901											4.11	2.73
	mg/L	0.3	2.4	0.18	0.236	0.207	0.251	0.189	0.292	0.221	0.332	0.213	0.262	0.235	0.318	0.216	0.296
	mg/L	N/A	25.5	34.9	37.6	38.9	41.5	37.1	41	39	43	41.7	39.3	42.8	43.1	41.5	41.4
	mg/L	0.05	0.144	0.006	0.006	0.005	0.006	0.007	0.008	0.006	0.006	0.006	0.006	0.007	0.007	0.006	0.006
	mg/L	10	< 0.05	0.1	< 0.1	0.2	< 0.1	0.1	0.1	< 0.05	< 0.05	< 0.05	0.07	< 0.05	0.21	0.17	< 0.05
	mg/L	1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	mg/L	N/A	0.9	0.7	0.5	0.5	0.5	0.6	0.6	0.9	0.6	0.5	0.6	0.5	0.7	0.5	0.6
<u>'</u>	pH unit	6.5-8.5	7.52	8	8.02	7.97	7.91	7.99	8.11	7.98	7.98	7.99	7.86	8.03	7.91	7.9	7.96
	mg/L	N/A	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.005	0.002	0.006	< 0.001	0.002	< 0.002	< 0.002	< 0.002	< 0.002
-	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.04	0.29	< 0.1	< 0.1
	mg/L	N/A	2.7	3.4	3.4	3.5	3.4	3.1	3.5	3.4	3.8	4.3	3.7	3.9	4	3.9	3.7
Sodium	mg/L	200 500	249 28	11.1 22	10.6 22	12.4 21	11.9 22	11.6 21	13.3 21	12.7 17	12.4 18	13 20	12.7 22	12.9 20	13.3 19	12.8 19	12.8 21
Sulphate TDS	mg/L mg/L	500	1175	306	310	320	320	312	330	304	319	326	335	326	336	323	330
	mg/L	N/A	11/0	306	310	320	320	312	330	304	319	320	335	320	330	323	330
Turbidity	NTU	N/A															
Colour	TCU	5															
	mg/L	0.1	0.09	0.02	0.01	0.02	0.01	< 0.01	0.04	0.01	0.04	0.04	0.03	0.03	0.04	0.04	0.03
	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.005	0.0009	0.0002	0.0001	0.0001	0.0002	0.0001	0.0002	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Barium	mg/L	1	0.365	0.0002	0.0001	0.107	0.109	0.093	0.109	0.106	0.124	0.114	0.113	0.109	0.119	0.109	0.11
	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	mg/L	5	0.032	0.094	0.097	0.082	0.108	0.06	0.101	0.097	0.113	0.105	0.094	0.108	0.108	0.104	0.102
Cadmium	mg/L	0.005	< 0.000029	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
	mg/L	0.05	< 0.001	0.0004	< 0.0002	0.0022	< 0.0002	< 0.0002	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001
	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.005
	mg/L	1	0.0011	0.0005	0.0004	< 0.0001	0.0001	< 0.0001	0.0002	0.0008	0.0002	0.0001	0.0002	0.0003	< 0.0001	0.0005	0.0015
	mg/L	0.01	0.00011	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00004	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	0.00005
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
	mg/L	N/A	< 0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	mg/L	N/A	< 0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
	mg/L	N/A	0.963		1.43	1.54	1.54	1.25	1.54	1.58	1.42	1.58	1.51	1.6	1.64	1.62	1.6
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0004	0.0008	< 0.0001	0.0012	0.0004	< 0.0001	0.0003	0.0013	0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	lanty		13-91-I	13-91-I	13-91-I	13-91-I	13-91-I	13-91-I	13-91-II	13-91-II	13-91-II	13-91-II	13-91-II	13-91-II	13-91-II	13-91-II	13-91-II
Parameters	Units	ODWQS	4-May-21	13-91-1 13-Oct-21	3-May-22	25-Oct-22	2-May-23	18-Oct-23	7-May-14	21-Oct-14	26-May-15	13-91-11 13-Oct-15	11-May-16	23-May-17	16-Oct-17	7-May-18	11-Oct-18
Alkalinity	mg/L	500	196	198	185	189	184	210	344	360	384	391	354	317	364	324	392
Unionized Ammonia	mg/L	N/A	100	100	100	100	10-1	210	011	000	001	001	001	017	001	02-1	002
Ammonia	mg/L	N/A	0.46	0.5	0.53	0.53	1.69	0.71	0.05	0.19	0.09	0.13	0.04	0.04	0.13	0.04	0.06
BOD	mg/L	N/A	00	0.0	0.00	0.00	1.00	· · · ·	0.00	0.10	0.00	00	0.0.	0.01	00	0.01	0.00
Calcium	mg/L	N/A	52.9	58.6	56.5	52.1	55	55.7	112	112	88.9	123	132	176	230	162	243
COD	mg/L	N/A	12	12	6	< 5	< 5	11	< 5	< 5	< 5	< 5	< 5	8	11	< 5	12
Chloride	mg/L	250	81.8	88.3	93.1	125	103	90.5	119	135	202	251	227	248	353	366	589
Conductivity	umhos/cm	N/A	664	674	697	690	701	706	1050	1230	1500	1580	1440	1530	2120	1510	2470
Cyanide	mg/L	0.2		0		000				.200		.000					
DOC	mg/L	5	1.5	1.3	1.4	< 0.2	1.6	2.5	2.7	3.4	0.6	0.3	0.5	0.6	0.9	1.2	2
Fluoride	mg/L	1.5	0.2	< 0.1	< 0.1	< 0.1	0.1	<0.1	0.1	0.2	0.1	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	301	320	311	306	305	308	337	333	317	417	387	510	678	470	711
Ion Balance	%	N/A	0.696	1.48	1.21	7.23	2.19	2.4	2.84	2.9	017	717	007	0.10	0.0	47.0	
Iron	mg/L	0.3	0.278	0.291	0.293	0.461	0.281	0.126	0.545	0.014	0.094	2	0.336	1.91	4.28	0.671	3.52
Magnesium	mg/L	N/A	41	42.1	41.2	42.7	40.8	41	13.8	12.7	23.1	26.4	14.1	17.3	25.1	15.7	25.1
Manganese	mg/L	0.05	0.006	0.007	0.007	0.006	0.008	0.005	0.012	< 0.001	0.013	0.041	0.01	0.04	0.093	0.032	0.098
Nitrate	mg/L	10	< 0.05	0.14	< 0.05	0.18	< 0.05	0.44	0.012	< 0.1	0.010	< 0.1	< 0.1	< 0.05	0.48	0.06	< 0.05
Nitrite	mg/L	1	< 0.05	0.17	< 0.05	< 0.05	< 0.05	0.09	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.6	0.9	0.6	0.6	1.5	0.9	0.3	0.2	0.5	0.4	0.3	0.9	0.3	0.2	0.4
pH-Lab	pH unit	6.5-8.5	8.05	7.89	7.65	7.84	7.82	7.3	7.68	7.66	7.64	7.44	7.58	7.72	7.61	7.66	7.62
Phenols	mg/L	N/A	< 0.002	< 0.001	< 0.001	< 0.001	0.017	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.007	< 0.001	0.003
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	3.7	3.9	3.8	4	3.9	4	1.5	1.3	2	2.8	1.2	1.5	2.3	1.7	2.7
Sodium	mg/L	200	13	13.4	12.7	12.6	12.6	12.8	105	95.5	142	162	108	137	167	144	274
Sulphate	mg/L	500	19	21	20	27	23	20	24	22	26	25	24	19	19	24	29
TDS	mg/L	500	330	347	340	378	349	367	583	596	715	827	719	790	1019	909	1401
TSS	mg/L	N/A	000	0	0.0	0.0	0.0		000			027					
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.03	0.03	0.04	0.04	0.02	0.02	0.03	0.03	0.08	0.03	0.03	0.05	0.09	0.08	0.09
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0002	< 0.0001
Arsenic	mg/L	0.025	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.0005	0.0028	0.0003	0.0013	0.0004	0.0012	0.0024	< 0.0005	0.0011
Barium	mg/L	1	0.109	0.123	0.114	0.121	0.12	0.118	0.176	0.12	0.14	0.315	0.174	0.252	0.436	0.237	0.462
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.101	0.104	0.099	0.091	0.1	0.106	0.017	0.014	0.02	0.036	< 0.005	0.013	0.024	0.012	0.021
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000010	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000059	< 0.000015
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	0.0008	< 0.0002	0.0046	< 0.0002	< 0.0002	0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.005	0.0005	0.01
Copper	mg/L	1	0.0006	0.0003	0.0002	0.0002	0.0006	0.0003	0.0018	0.0014	0.0003	0.0015	0.0018	0.001	0.0007	0.0017	0.0002
Lead	mg/L	0.01	0.00002	0.00002	< 0.00002	0.00003	< 0.00002	<0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00059	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.0002	< 0.0001	0.0001	0.0002	0.0003	0.0001	< 0.0001	< 0.0004	0.0002
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.0002	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.002	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0002	< 0.0001
Strontium	mg/L	N/A	1.62	1.68	1.62	1.68	1.63	1.61		0.511	0.805	0.967	0.461	0.638	0.808	0.542	0.901
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.0017	< 0.0001	0.0027	0.0008	< 0.0001	0.002	0.0009	< 0.0007	< 0.0001

General Water Qua	y		13-91-II	13-91-II	15-91-I												
Parameters	Units	ODWQS	8-May-19	5-May-20	4-May-21	13-Oct-21	3-May-22	25-Oct-22	2-May-23	18-Oct-23	7-May-14	22-Oct-14	26-May-15	13-Oct-15	19-May-16	13-Oct-16	23-May-17
Alkalinity	mg/L	500	288	232	258	393	253	396	223	428	402	575	426	451	426	417	457
Unionized Ammonia	mg/L	N/A														0.02	
Ammonia	mg/L	N/A	0.14	0.03	0.14	0.05	1.2	0.28	1.07	0.31	2.52	1.35	0.38	1.38	0.43	2.7	0.6
BOD	mg/L	N/A															
Calcium	mg/L	N/A	108	85.6	99.5	181	105	153	80.7	132	140	195	168	169	171	164	155
COD	mg/L	N/A	19	9	23	18	20	33	10	16	177	38	88	71	108	27	34
Chloride	mg/L	250	134	44.4	101	468	54.9	500	17	374	58	28.3	59.4	56.5	46.7	38.3	28.5
Conductivity	umhos/cm	N/A	956	610	821	2080	680	2460	494	2080	985	1130	1030	1050	985	983	983
Cyanide	mg/L	0.2															
DOC	mg/L	5	1.9	3.1	2.3	1.5	2.2	< 0.2	3.6	2.9	12.5	16.8	5.5	6.9	6.2	7.1	7.4
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1	< 0.1	<0.7	0.1	0.2	0.1	0.1	0.1	< 0.1	< 0.1
Hardness	mg/L	500	337	231	303	527	284	471	219	383	428	541	515	520	521	505	475
Ion Balance	%	N/A		6.67	1.34	1.35	0.975	1.1	0.227	1.58	2.92	7.91					
Iron	mg/L	0.3	< 0.005	0.008	< 0.005	1.44	0.013	1.54	0.111	0.988	0.174	52.3	0.998	3.11	1.25	1.73	0.101
Magnesium	mg/L	N/A	16.4	4.22	13.3	18.1	5.15	21.5	4.11	13	18.8	13.1	23.3	23.6	22.8	23	21.4
Manganese	mg/L	0.05	0.025	0.001	< 0.001	0.066	0.002	0.04	0.007	0.03	0.026	0.222	0.034	0.035	0.034	0.053	0.032
Nitrate	mg/L	10	< 0.05	0.12	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	<0.40	< 0.1	< 0.1	< 0.1	< 0.1	0.4	0.2	< 0.05
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	<0.40	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05
Tot Kjel N	mg/L	N/A	0.7	0.6	0.9	0.5	1.8	1.5	1.2	8.0	5.5	2	2	4.2	3.3	20.6	1.6
pH-Lab	pH unit	6.5-8.5	7.84	7.77	8.06	7.63	7.63	7.49	7.75	7.43	7.46	7.14	7.49	7.63	7.64	7.68	7.72
Phenols	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	0.007	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.01
Phosphorus	mg/L	N/A	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1	0.4	< 0.1
Potassium	mg/L	N/A	1	0.2	0.8	2.4	0.1	2.6	0.1	2.2	3	1.3	2.7	3.3	2.5	2.8	2.2
Sodium	mg/L	200	64.2	15.8	55.1	270	26.2	289	17.7	274	15.8	25.2	22.8	23.8	25.9	26.7	24.8
Sulphate	mg/L	500	11	9	12	36	7	29	9	<2	20	18	52	38	43	46	27
TDS	mg/L	500	508	298	437	1213	352	1235	263	1150	500	681	585	589	571	558	535
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.07	0.06	0.03	0.07	0.06	0.09	0.05	0.05	0.03	0.04	0.04	0.04	0.04	0.05	0.04
Antimony	mg/L	0.006	< 0.0001	< 0.0001	0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0003	0.0001
Arsenic	mg/L	0.025	0.0005	0.0001	0.0002	0.0009	0.0001	0.001	0.0002	0.0005	0.0008	0.0181	0.0006	0.0006	0.0002	0.0013	0.0003
Barium	mg/L	1	0.132	0.039	0.124	0.331	0.043	0.323	0.036	0.213	0.072	0.096	0.12	0.134	0.128	0.128	0.107
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.013	< 0.005	0.013	0.022	< 0.005	0.012	0.009	0.022	0.019	0.136	0.013	0.026	0.03	0.04	0.036
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000029	< 0.000015	< 0.000029	< 0.000010	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	0.0008	0.0147	0.0054	0.0073	< 0.0002	0.0025	0.001
Cobalt	mg/L	N/A	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0002	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0008	0.0011	0.001	0.0021	0.0006	0.0005	0.0014	0.0002	0.0004	0.0005	< 0.0001	0.0002	0.0003	0.0001	0.0001
Lead	mg/L	0.01	0.00003	0.00003	0.00004	0.00018	0.00004	< 0.00009	0.00032	<0.00004	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	0.00003	< 0.00002
Molybdenum	mg/L	N/A	0.0001	0.0001	0.0001	0.0003	0.0001	0.0006	0.0001	0.0001	0.0003	< 0.0001	0.0001	< 0.0001	0.0006	0.0003	0.0004
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0003	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	0.002	< 0.001	0.003	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	N/A	0.669	0.203	0.553	0.716	0.242	0.821	0.199	0.492		0.527	0.425	0.426	0.425	0.392	0.367
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0004	< 0.0001	< 0.0004	0.0001	<0.0001	0.0011	0.0088	0.0032	0.0028	0.001	0.001	0.0029
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	0.006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	anty		15-91-I	15-91-I	15-91-I	15-91-I	15-91-I	15-91-I	15-91-I	15-91-I	15-91-I	15-91-I	15-91-I	15-91-I	15-91-I	15-91-II	15-91-II
Parameters	Units	ODWQS	16-Oct-17	7-May-18	9-Oct-18	8-May-19	7-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21	3-May-22	25-Oct-22	2-May-23	18-Oct-23	7-May-14	22-Oct-14
Alkalinity	mg/L	500	411	403	410	183	371	381	391	422	515	496	583	548	578	549	417
Unionized Ammonia	mg/L	N/A		100	710	100	071	001	001	122	0.0	100	300	0.10	0.0	040	1
Ammonia	mg/L	N/A	1.01	0.08	3.27	1.19	1.28	0.08	1.11	1.13	1.07	1.46	8.87	5.07	3.14	0.93	0.75
BOD	mg/L	N/A	1.01	0.00	0.27	1.10	1.20	0.00	1	1.10	1.01	1.10	0.07	0.01	0.14	0.00	0.70
Calcium	mg/L	N/A	160	148	151	63	147	140	150	142	162	182	192	184	186	183	162
COD	mg/L	N/A	62	11	258	95	53	60	32	118	41	49	565	49	92	37	59
Chloride	mg/L	250	30.1	30.5	30.8	10	25.1	26	25.7	23.8	23.1	21.2	26	20.9	18.1	9.5	73.1
Conductivity	umhos/cm	N/A	897	862	951	421	851	876	898	927	1020	1110	1200	1160	1170	1030	1040
Cyanide	mg/L	0.2	007	002	001	721	001	0.0	000	027	1020	1110	1200	1100	1170	1000	1040
DOC	mg/L	5	5.7	4.2	7.6	14.3	6	6.6	5.1	6.2	4.9	6.9	8.1	6.5	9	13	11.2
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	0.2
Hardness	mg/L	500	495	460	469	190	450	433	462	442	498	564	600	572	578	504	498
Ion Balance	%	N/A	400	400	400	130	400	2.14	4.48	1.24	4.07	4.62	1	0.184	0.868	6.75	0.565
Iron	mg/L	0.3	2.29	0.04	0.317	0.039	1.85	0.036	1.71	0.705	0.142	2.66	0.33	1.14	1.76	48	4.96
Magnesium	mg/L	N/A	23	21.8	22.3	8.02	20.1	20.3	21.2	21.2	22.6	26.5	29.1	27.4	27.6	11.6	22.7
Manganese	mg/L	0.05	0.036	0.014	0.042	0.02	0.04	0.016	0.034	0.03	0.045	0.04	0.064	0.07	0.057	0.374	0.036
Nitrate	mg/L	10	< 0.05	0.07	< 0.05	0.09	1.03	0.46	< 0.05	0.03	< 0.05	0.04	1.37	< 0.05	<0.05	0.2	< 0.1
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07	< 0.05	< 0.05	< 0.05	0.08	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	2.5	1.6	13.7	2.3	3.1	2.9	2.1	4.3	2.2	2.3	32.3	7	9	1.9	1.9
pH-Lab	pH unit	6.5-8.5	7.67	7.79	7.99	7.71	7.67	7.68	7.47	7.84	7.57	7.63	7.58	7.58	7.44	6.85	7.54
Phenols	mg/L	N/A	0.004	< 0.001	0.006	0.005	< 0.002	< 0.002	< 0.002	0.003	0.001	< 0.001	0.007	< 0.001	0.004	< 0.001	< 0.001
Phosphorus	mg/L	N/A	0.004	< 0.001	0.000	1.19	0.002	< 0.002	0.1	< 0.1	0.001	0.1	1.1	0.5	0.004	< 0.001	< 0.001
Potassium	mg/L	N/A	2.3	2.3	3.2	5.7	3	2.7	2.3	2.3	2.8	2.4	10.1	5.1	3.7	1.2	2.5
Sodium	mg/L	200	24.1	24.7	23.9	8.3	21.4	21.3	23.5	22.5	23.8	28.2	28.3	27.5	26.3	12.4	18.2
Sulphate	mg/L	500	37	47	42	12	40	42	47	53	54	55	65	59	52	18	41
TDS	mg/L	500	527	516	524	218	483	481	506	520	599	618	712	653	632	615	576
TSS	mg/L	N/A	321	310	324	210	400	401	300	320	333	010	712	033	032	013	370
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.09	0.07	0.07	0.05	0.09	0.08	0.08	0.08	0.06	0.1	0.11	0.05	0.07	0.04	0.04
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	<0.001	< 0.0001	< 0.0001
Arsenic	mg/L	0.005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0043	0.002
Barium	mg/L	1	0.0002	0.0001	0.0002	0.0002	0.0002	0.0001	0.0002	0.0002	0.0001	0.0002	0.0002	0.0001	0.0001	0.0043	0.002
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002
Boron		5	0.002	0.042	0.002	0.002	0.002	0.039	0.002	0.045	0.002	0.084	0.082	0.085	0.0001	0.063	0.002
Cadmium	mg/L	0.005	< 0.00014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.00015	< 0.000015	< 0.00015	< 0.00015	< 0.00012	< 0.00012	<0.00015	< 0.0002	< 0.00002
Chromium	mg/L	0.005	< 0.00014	< 0.00015	< 0.00015	< 0.00015	0.0001	< 0.00015	< 0.00015	< 0.00015	< 0.00015	< 0.00015	< 0.00012	< 0.00012	<0.00015	0.00002	0.00002
Cobalt	mg/L	0.05 N/A	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.005	< 0.001	< 0.001	< 0.001	0.005	<0.001	< 0.005	< 0.007
	mg/L	1 1	0.0003	0.0003	0.0002	0.0012	0.0002	0.0001	0.0007	0.005	< 0.0001	0.0002	0.0004	0.003	0.0001	0.0009	0.0004
Copper	mg/L	0.01		< 0.0003	< 0.0002	0.00012	< 0.0002	0.00011	0.0007	0.0007	< 0.0001	< 0.0002		< 0.0003	<0.0002	0.0009	< 0.0004
Lead	mg/L		< 0.00002										0.00006				
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00004	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	< 0.0001	0.0005	< 0.0001	< 0.0001 < 0.01	< 0.0001 < 0.01	0.0003	< 0.0001	0.0003	0.0002	0.0001	0.0002	0.0001	<0.0001	0.001 < 0.01	0.0007
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01			< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	0.0022		< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.001	0.001	0.001	<0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002
Strontium	mg/L	N/A	0.337	0.358	0.355	0.145	0.346	0.342	0.354	0.366	0.398	0.449	0.487	0.449	0.448	. 0 00005	0.41
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0011	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.0049	0.0038
Zinc	mg/L	5	< 0.005	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.014	< 0.005	<0.005	0.005	< 0.005

General Water Qu	lality																
			15-91-II	15-91-II	15-91-II	15-91-II	15-91-II	15-91-II	15-91-II	15-91-II	15-91-II	15-91-II	15-91-II	15-91-II	15-91-II	15-91-II	16-91-1
Parameters	Units	ODWQS	29-May-15	15-Oct-15	19-May-16	23-May-17	16-Oct-17	7-May-18	9-Oct-18	8-May-19	5-May-20	13-Oct-20	4-May-21	3-May-22	2-May-23	18-Oct-23	7-May-14
Alkalinity	mg/L	500	617	606	619	639	573	566	525	537	546	502	603	550	588	567	388
Unionized Ammonia	mg/L	N/A	0.70	0.00	0.00	0.04	0.07	0.47	0.50	0.45	0.00	0.54	0.40	0.0	0.74	0.74	0.50
Ammonia	mg/L	N/A	0.73	0.82	0.66	0.61	0.67	0.47	0.59	0.45	0.38	0.51	0.42	0.6	2.71	0.74	0.58
BOD	mg/L	N/A	201	200	0.45	0.10	0.47		0.1.1		400	107	0.10	0.10		400	
Calcium	mg/L	N/A	231	222	245	218	247	216	211	220	199	197	213	219	206	196	168
COD	mg/L	N/A	36	35	49	43	58	34	32	44	30	30	42	33	42	32	107
Chloride	mg/L	250	10.6	11.2	9.1	4.6	3.5	3.8	3.8	4.1	3	2.8	3.5	3.3	2	3.4	345
Conductivity	umhos/cm	N/A	1120	1120	1120	1050	1080	1010	1010	1020	981	950	1040	1070	1070	1020	1810
Cyanide	mg/L	0.2	0.0	40.0	0.0	0.4	40.4	40	40	44.4	40.4	0.0	40.0	44.0		44.7	44.0
DOC	mg/L	5	8.6	10.6	8.9	8.4	10.1	10	12	11.1	12.4	9.3	12.3	11.2	8	11.7	11.2
Fluoride	mg/L	1.5	0.1	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	0.2
Hardness	mg/L	500	635	611	674	604	685	602	585	611	554	547	595	612	579	551	563
Ion Balance	%	N/A	00.0	05.0	05.5	50.0		47.4	0.00	50.7	2.21	5.79	0.537	6.6	12.2	10.5	3.17
Iron	mg/L	0.3	62.3	65.3	65.5	52.2	40.4	47.1	0.03	50.7	50.2	40.0	49.6	54.2	57.7	53.5	0.045
Magnesium	mg/L	N/A	14.1	13.8	14.8	14.5	16.4	15.1	13.9	14.9	13.7	13.3	15.1	15.6	15.8	14.8	34.6
Manganese	mg/L	0.05	0.333	0.18	0.364	0.326	0.26	0.248	0.11	0.288	0.296	0.132	0.241	0.281	0.279	0.191	0.031
Nitrate	mg/L	10	< 0.1	< 0.1	< 0.1	< 0.05 0.25	1.34	< 0.05	< 0.05	< 0.05	0.1	0.07	< 0.05	< 0.05	< 0.05	0.05	1.6
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.1	1.2	1.2	< 0.05	< 0.05	< 0.05 0.9	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05 3.4	<0.05 0.6	4.1
Tot Kjel N	mg/L	N/A		1.5	1.3			1 7.00	1.1		0.9	1	0.9	1.2			
pH-Lab	pH unit	6.5-8.5	6.82	6.97	6.84	7.36	7.21	7.26	7.71	7.31	7.1	6.99	7.18	7.18	7.06	6.93	7.59
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	0.01	0.004	< 0.001	0.006	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	<0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.51	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1
Potassium	mg/L	N/A	0.9	1.1	0.9	0.6	1	0.8	1	0.7	0.6	0.8	0.6	0.6	0.8	0.8	4.3
Sodium	mg/L	200	15.4	19.3	14.3	12.6	12.7 24	11.9	12.9	11.1	9.1	9.3	8.7	8.6	9.3	6.8	< 0.00002
Sulphate	mg/L	500	4 647	4 635	7 664	9 643	650	< 1 588	2 561	< 1 574	< 1 554	< 1 524	1 605	< 1 578	< 1 645	3 544	13
TDS TSS	mg/L	500 N/A	647	635	664	643	650	566	561	5/4	554	524	605	5/6	645	544	930
	mg/L NTU	N/A N/A															
Turbidity Colour	TCU	N/A 5															
		0.1	0.06	0.06	0.06	0.07	0.11	0.09	0.09	0.1	0.1	0.1	0.1	0.1	0.07	0.06	0.04
Aluminum	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	0.001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.001	<0.0001	0.004
Antimony Arsenic	mg/L	0.006	0.0083	0.0223	0.0001	0.0001	0.0037	0.0001	0.0062	0.0027	0.0023	0.0086	0.0033	0.0042	0.0039	0.0045	0.0001
	mg/L	0.025	0.0083	0.0223	0.004	0.0038	0.105	0.002	0.0062	0.0027	0.0023	0.0086	0.0033	0.0042	0.0039	0.0045	0.0025
Barium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.004	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002
Beryllium	mg/L mg/L	5 N/A	0.002	0.002	0.002	0.062	0.106	0.002	0.058	0.002	0.002	0.002	0.002	0.063	0.002	0.076	0.31
Boron Cadmium		0.005	< 0.00002	< 0.00002	< 0.00002	< 0.00014	< 0.000014	0.000022	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.00015	< 0.00015	< 0.000012	<0.00015	< 0.00002
Chromium	mg/L mg/L	0.005	0.00002	0.0194	< 0.0002	0.000	0.00014	< 0.001	< 0.00015	< 0.00015	< 0.00015	< 0.00013	< 0.00015	0.00015	< 0.00012	<0.00015	0.00002
Cobalt	mg/L	0.05 N/A	< 0.0099	0.0194	< 0.0002	< 0.002	< 0.001	0.0001	< 0.001	< 0.001	0.0003	0.005	< 0.001	0.001	< 0.001	0.0006	< 0.0011
	mg/L	1 1	< 0.0001	0.009	0.0001	0.0022	0.0002	0.0002	0.0002	0.0003	0.0005	0.003	0.0009	0.0002	0.0003	0.0008	0.0022
Copper Lead		0.01	< 0.0001	< 0.0002	< 0.0001	0.0022	0.0002	< 0.0002	0.0002	< 0.0003	0.0003	0.00018	0.0009	< 0.0002	0.0003	<0.0002	0.0022
	mg/L	0.001	0.00002	0.00003	< 0.00002	< 0.0002	< 0.00011	< 0.00002	< 0.00002	< 0.00002	< 0.00004	< 0.00008	< 0.00004	< 0.00002	< 0.00007	0.00002	< 0.00004
Mercury	mg/L		0.00003	0.0003	0.0004	0.0003	0.0002	0.0003	0.0003	0.0002	0.0002	0.0004	0.0004	0.0004	0.0004	0.00002	0.00002
Molybdenum Nickel	mg/L	N/A N/A	< 0.001	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0004	< 0.0015
Selenium	mg/L mg/L	0.01	< 0.01	0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.001	<0.0021	< 0.01
Silver	mg/L mg/L	0.01 N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	\ U.UU I
Strontium	mg/L	N/A N/A	0.577	0.589	0.576	0.52	0.499	0.519	0.495	0.522	0.47	0.48	0.52	0.515	0.521	0.47	
Thallium	mg/L	N/A N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005
Vanadium	mg/L	N/A N/A	0.00003	0.0082	0.0026	0.0065	0.0026	0.0007	0.0006	0.0007	0.0007	0.0006	0.0006	0.0009	0.0008	0.0007	0.0016
	mg/L mg/L	N/A 5	< 0.0071	< 0.0082	0.0026	0.0065	< 0.005	< 0.0007	< 0.005	< 0.0007	< 0.0007	< 0.005	< 0.005	< 0.005	< 0.005	<0.0007	0.0016
Zinc	ing/L) 5	< 0.005	< 0.005	0.006	0.006	< 0.005	~ 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	~U.UU5	0.006

General Water Qu	anty		16-91-I	16-91-I	16-91-I	16-91-I	16-91-I	16-91-I	16-91-I	16-91-I	16-91-I	16-91-I	16-91-I	16-91-I	16-91-I	16-91-I	16-91-I
Parameters	Units	ODWQS	22-Oct-14	29-May-15	15-Oct-15	17-May-16	13-Oct-16	23-May-17	17-Oct-17	8-May-18	11-Oct-18	9-May-19	8-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21
Alkalinity	mg/L	500	385	384	377	364	375	789	352	344	340	308	307	308	316	355	395
Unionized Ammonia	mg/L	N/A	000	001	011	001	< 0.01	100	002	011	010	000	007	000	010	000	000
Ammonia	mg/L	N/A	0.73	0.55	0.61	0.56	0.73	2.31	0.56	0.38	0.44	0.37	0.4	0.34	0.47	0.46	0.58
BOD	mg/L	N/A	00	0.00	0.01	0.00	00	2.01	0.00	0.00	0	0.07	0	0.01	0	5.15	0.00
Calcium	mg/L	N/A	168	190	178	153	178	258	176	163	168	161	163	145	156	148	160
COD	mg/L	N/A	80	82	76	117	74	60	76	56	67	74	56	62	59	74	90
Chloride	mg/L	250	349	342	326	288	337	78.1	223	356	296	270	292	239	258	258	318
Conductivity	umhos/cm	N/A	1810	1800	1770	1740	1760	1450	1600	1500	1560	1480	1440	1390	1410	1480	1610
Cyanide	mg/L	0.2	1010	1000	1770	1740	1700	1400	1000	1000	1000	1400	1110	1000	1410	1400	1010
DOC	mg/L	5	11.8	5.1	6.3	7.8	7.6	12.2	11.3	11.6	8.8	10.7	8.7	5.9	5.3	6.5	5.7
Fluoride	mg/L	1.5	0.2	0.1	0.2	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	565	637	597	509	599	736	587	549	557	531	540	481	514	496	525
Ion Balance	%	N/A	1.71	037	337	303	333	730	307	343	337	331	340	2.7	3.55	3.44	0.52
Iron	mg/L	0.3	7.76	1.51	7.06	1.06	2.5	29.7	0.025	0.674	0.533	0.893	6.04	3.15	3.17	2.95	3.37
Magnesium	mg/L	N/A	35.5	39.4	36.8	31	37.4	21.8	35.7	34.4	33.3	31.3	32.2	28.8	30.2	30.6	30.5
Manganese	mg/L	0.05	0.034	0.03	0.032	0.024	0.037	0.338	0.021	0.023	0.03	0.023	0.027	0.029	0.027	0.031	0.037
Nitrate	mg/L	10	0.034	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	0.023	< 0.05	0.029	< 0.05	0.031	< 0.05
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.09	< 0.05	< 0.05	0.24
Tot Kjel N	mg/L	N/A	2.2	2.6	2.6	2.5	2.4	3.1	2.3	2	1.9	1.9	1.6	1.8	2	2	1.8
pH-Lab	pH unit	6.5-8.5	7.6	7.65	7.47	7.71	7.81	7.37	7.62	7.85	7.73	7.82	7.65	7.68	7.67	7.76	7.68
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.012	0.009	< 0.001	0.014	< 0.002	< 0.002	0.002	< 0.002	0.003	< 0.001
Phosphorus		N/A	< 0.001	< 0.1	< 0.001	< 0.1	< 0.001	< 0.1	< 0.1	< 0.001	< 0.1	0.002	0.17	< 0.1	< 0.002	< 0.1	< 0.001
Potassium	mg/L mg/L	N/A	4.3	4.8	4.4	3.7	4.5	6.6	4.8	5	4.3	4.1	4.2	4	4.1	4.1	4.5
Sodium	-	200	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0002	< 0.0001	103	103	89.4	98	120	140
Sulphate	mg/L mg/L	500	9	9	8	9	6	3	7	8	9	13	6	8	10	< 1	9
TDS	mg/L	500	927	960	918	814	926	920	778	891	826	769	792	702	749	778	904
TSS	mg/L	N/A	921	300	310	014	920	920	110	031	020	769	132	102	743	776	904
Turbidity	NTU	N/A									-						
Colour	TCU	5															
Aluminum	mg/L	0.1	0.04	0.05	0.05	0.04	0.04	0.08	0.1	0.07	0.08	0.08	0.09	0.08	0.08	0.07	0.07
Antimony		0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.002	< 0.0001	< 0.0001	< 0.0002	0.0001	< 0.0001	0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001
Artimony	mg/L	0.006	0.0001	0.0023	0.0001	0.0001	0.0002	0.0019	0.0001	< 0.0002	0.0001	0.0003	0.0001	0.0001	0.0007	0.0005	0.0005
	mg/L	1	0.003	0.0023	0.0031	0.0012	0.0003	0.0019	0.0021	0.0005	0.0002	0.0003	0.0006	0.0006	0.402	0.393	0.434
Barium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Beryllium	mg/L		0.002	0.33	0.306	0.225	0.317	0.251	0.273	0.251	0.002	0.215	0.225	0.206	0.209	0.212	0.233
Boron Cadmium	mg/L	5 0.005	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	0.000014	< 0.000014	< 0.000059	< 0.000015	< 0.000015	< 0.000029	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.005	0.0059	< 0.0003	0.0067	< 0.00002	0.0003	0.000014	< 0.00014	< 0.000059	0.0001	< 0.00015	0.000	< 0.00015	< 0.00013	< 0.00013	< 0.00013
Cobalt	mg/L	0.05 N/A	< 0.0059	< 0.0002	< 0.005	< 0.0002	< 0.0023	< 0.002	< 0.001	< 0.001	0.001	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001
	mg/L		0.0012	0.0006	0.0007	0.0001	0.0007		0.0005	0.0008		0.005	0.0003	< 0.0001	0.0002		0.0002
Copper	mg/L	1					< 0.0007	0.0019 0.00019			0.0003		< 0.0003	0.00001	< 0.0002	0.0009	
Lead	mg/L	0.01	< 0.00002	0.0001	< 0.00002	< 0.00002			< 0.00002	< 0.0002	0.00004	0.00004				0.00004	< 0.00004
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0004	0.0005	0.0005	0.0006	0.0006	0.0002	0.0006	0.0012	0.0005	0.0003	0.0004	0.0004	0.0004	0.0004 < 0.01	0.0004
Nickel	mg/L	N/A	0.01	0.01	< 0.01	0.01	0.01	< 0.01	0.01	0.01	0.01	< 0.01	0.01	< 0.01			< 0.01
Selenium	mg/L	0.01	< 0.001	0.007	0.005	0.003	0.006	< 0.001	< 0.001	< 0.002	0.003	0.002	0.002	0.002	0.001	0.002	0.003
Silver	mg/L	N/A	0.007	0.000	0.070	0.500	0.054	0.050	0.000	0.010	0.500	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	0.637	0.692	0.676	0.599	0.654	0.652	0.632	0.613	0.569	0.602	0.595	0.535	0.558	0.551	0.584
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0033	0.0033	0.0027	0.0009	0.0009	0.0084	0.0008	< 0.0007	0.0002	0.0002	< 0.0004	0.0002	0.0002	0.0002	< 0.0001
Zinc	mg/L	5	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Q	uanty		16-91-I	16-91-I	16-91-I	16-91-I	16 91 I (DUD)	16-91-I (DUP)	16-91-II	16-91-II	16-91-II						
Parameters	Units	ODWQS	3-May-22	25-Oct-22	2-May-23	18-Oct-23	2-May-23	18-Oct-23	7-May-14	22-Oct-14	29-May-15	15-Oct-15	17-May-16	13-Oct-16	23-May-17	17-Oct-17	8-May-18
Alkalinity	mg/L	500	405	425	413	417	414	418	595	536	693	477	632	466	389	456	610
Unionized Ammonia	mg/L	N/A	400	120	710			410	000	000	000		302	0.78	000	100	0.0
Ammonia	mg/L	N/A	2.29	1.07	1.08	1.11	0.88	0.71	4.18	12.3	4.66	7.86	4.46	7.71	0.54	5.26	2.68
BOD	mg/L	N/A	2.20	1.07	1.00		0.00	0.7 1	4.10	12.0	4.00	7.00	1.10	7.71	0.04	0.20	2.00
Calcium	mg/L	N/A	172	173	171	186	169	181	206	171	273	202	198	199	178	195	231
COD	mg/L	N/A	105	95	84	111	91	99	69	96	57	97	68	111	73	121	56
Chloride	mg/L	250	340	461	372	334	360	332	94.9	333	89.3	394	170	437	271	316	142
Conductivity	umhos/cm	N/A	1860	1910	1850	1800	1860	1810	1340	1990	1510	2120	1560	2190	1650	2130	1490
Cyanide	mg/L	0.2	1000	1010	1000	1000	1000	1010	1010	1000	1010	2120	1000	2100	1000	2100	1400
DOC	mg/L	5	8	5.7	6.7	10	6.7	10.1	15.4	15.2	4.6	8.1	10.3	9.4	11.1	15.8	15.2
Fluoride	mg/L	1.5	< 0.1	< 1	< 0.1	<0.7	< 0.1	<0.7	0.1	0.7	0.1	0.1	0.1	0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	573	594	575	610	575	599	584	677	784	727	600	753	593	740	701
Ion Balance	%	N/A	2.03	5.32	1.66	2.77	0.466	2.85	0.248	2.23	704	121	000	700	000	140	701
Iron	mg/L	0.3	2.68	6.05	0.865	8.8	0.400	8.69	26.8	19.3	43.2	20.6	20.4	18.4	1.26	0.028	19.5
Magnesium	mg/L	N/A	34.9	39.2	36.1	35.3	37.5	35.6	16.5	60.7	24.7	53.7	25.4	62	36.2	61.5	30.1
Manganese	mg/L	0.05	0.037	0.039	0.039	0.049	0.036	0.045	0.284	0.171	0.318	0.189	0.205	0.155	0.03	0.126	0.345
Nitrate	mg/L	10	< 0.05	< 0.5	< 0.05	<0.40	< 0.05	<0.40	0.1	< 0.1	< 0.1	0.103	< 0.1	< 0.1	< 0.05	0.92	< 0.05
Nitrite	mg/L	1	< 0.05	< 0.5	< 0.05	<0.40	< 0.05	<0.40	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	4.1	3.1	2.5	3.3	2.2	2.5	6	12.8	6.3	11	5.8	12.1	2.4	7.8	4
pH-Lab	pH unit	6.5-8.5	7.84	7.45	7.58	7.31	7.83	7.51	7.01	7.14	7.19	6.98	7.01	7.84	7.79	7.26	7.41
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	0.03	0.018	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	4.7	5.4	5.1	4.8	5.2	5	5.9	22.1	9.3	18.3	8.5	17.7	4.3	17	9.8
Sodium	mg/L	200	152	159	149	138	152	142	27.2	117	45.3	127	54.3	161	128	164	72.9
Sulphate	mg/L	500	4	< 10	1	<2	1	<2	3	1	4	3	2	3	6	1	1
TDS	mg/L	500	956	1100	983	991	974	996	744	1060	912	1110	863	1190	859	1036	876
TSS	mg/L	N/A	000	1100	555	001	014	300	144	1000	0.2	1110	555	1100	000	1000	0.0
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.08	0.11	0.05	0.11	0.05	0.1	0.05	0.04	0.07	0.05	0.05	0.07	0.05	0.1	0.09
Antimony	mg/L	0.006	0.0001	< 0.0001	0.0002	0.0001	0.0002	<0.0001	0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	0.0003	0.0002	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0002	0.0004	0.0002	0.0007	0.0002	0.0006	0.0026	0.0139	0.0074	0.0036	0.0023	0.0116	0.0007	0.0033	0.0012
Barium	mg/L	1	0.504	0.644	0.548	0.594	0.546	0.6	0.146	0.52	0.209	0.437	0.212	0.557	0.414	0.489	0.266
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.285	0.319	0.304	0.308	0.314	0.315	0.209	0.349	0.242	0.343	0.208	0.396	0.294	0.382	0.28
Cadmium	mg/L	0.005	< 0.000015	< 0.000012	< 0.000012	<0.000015	< 0.000012	<0.000015	< 0.00002	< 0.00002	0.00004	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	0.000058
Chromium	mg/L	0.05	0.001	< 0.001	< 0.001	<0.001	< 0.001	<0.001	0.0015	0.0171	< 0.0002	0.0143	< 0.0002	0.0034	0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	0.007	0.0001	0.006	0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0006
Copper	mg/L	1	0.0008	0.0003	0.0001	0.0004	0.0001	0.0001	0.0003	0.001	< 0.0001	0.0008	< 0.0001	0.0008	0.0035	0.0006	0.0011
Lead	mg/L	0.01	< 0.00004	0.00005	< 0.00004	0.00034	< 0.00004	0.00024	< 0.00002	< 0.00002	0.00009	< 0.00002	< 0.00002	0.00005	0.00024	< 0.00002	0.00005
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0003	0.0002	0.0003	0.0004	0.0003	0.0003	0.0003	< 0.0001	< 0.0001	0.0002	0.0004	0.0001	0.0004	< 0.0001	< 0.0001
Nickel	mg/L	N/A	0.01	0.01	0.19	0.0122	0.01	0.0113	< 0.01	0.02	< 0.01	0.02	< 0.01	0.02	0.01	0.03	< 0.01
Selenium	mg/L	0.01	0.003	0.005	0.004	0.002	0.004	0.002	< 0.001	< 0.001	0.002	0.004	0.001	0.007	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001
Strontium	mg/L	N/A	0.647	0.724	0.668	0.668	0.683	0.683		0.82	0.733	0.864	0.624	0.897	0.664	0.884	0.671
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0002	0.0003	0.0002	0.0007	0.0002	0.0005	0.0037	0.0092	0.0106	0.0056	0.003	0.0014	0.0027	0.0015	0.0009
	mg/L	5	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	<0.005	0.006	< 0.005	0.006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qua			16-91-II	16-91-II	16-91-II	16-91-II	16-91-II	16-91-II	16-91-II	17-91-I	17-91-I						
Parameters	Units	ODWQS	11-Oct-18	9-May-19	5-May-20	13-Oct-20	4-May-21	2-May-23	18-Oct-23	7-May-14	21-Oct-14	26-May-15	13-Oct-15	19-May-16	13-Oct-16	23-May-17	16-Oct-17
Alkalinity	mg/L	500	509	625	567		674	608		309	309	305	310	300	309	302	406
Unionized Ammonia	mg/L	N/A													< 0.01		
Ammonia	mg/L	N/A	4.44	1.99	2.2		1.66	2.52		0.02	0.05	0.01	0.03	0.03	0.07	0.05	0.05
BOD	mg/L	N/A															
Calcium	mg/L	N/A	204	246	225		240	223		110	112	124	123	122	138	122	128
COD	mg/L	N/A	136	86	61		40	83		5	< 5	< 5	7	11	< 5	11	11
Chloride	mg/L	250	456	137	156		42.9	180		6.3	6.6	4.7	5.5	4.7	4.6	6	7.9
Conductivity	umhos/cm	N/A	2270	1530	1540		1300	1640		668	687	669	693	661	718	657	694
Cyanide	mg/L	0.2															
DOC	mg/L	5	14.3	17.8	10.8		11.2	8.7		3.9	3.9	1.8	1.9	1.6	2.6	1.6	2.5
Fluoride	mg/L	1.5	< 0.1	0.3	< 0.1		< 0.1	< 0.1		0.1	0.2	0.1	0.1	0.2	0.1	< 0.1	< 0.1
Hardness	mg/L	500	759	744	677		670	631		328	337	369	368	362	412	363	384
Ion Balance	%	N/A			7.99		7.04	5.27		2.53	1.78						
Iron	mg/L	0.3	20.2	16.3	26.8		35.1	24.5		1.32	1.39	0.201	1.84	0.477	2.17	0.79	1.77
Magnesium	mg/L	N/A	60.5	31.4	27.9		17	18.1		12.8	13.9	14.7	14.6	13.8	16.1	14	15.6
Manganese	mg/L	0.05	0.123	0.359	0.212		0.214	0.197		0.022	0.028	0.035	0.031	0.023	0.043	0.082	0.039
Nitrate	mg/L	10	< 0.05	0.18	0.09		0.05	< 0.05		< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05
Nitrite	mg/L	1	< 0.05	< 0.05	0.06		< 0.05	< 0.05		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.12	< 0.05
Tot Kjel N	mg/L	N/A	7.7	3.5	3.4		2.4	3.2		0.4	0.1	0.2	0.2	0.4	0.3	0.5	0.2
pH-Lab	pH unit	6.5-8.5	7.38	7.38	7.18		7.26	7.12		7.79	7.82	7.58	7.83	7.8	7.92	7.88	7.8
Phenols	mg/L	N/A	0.018	< 0.002	0.003		< 0.002	< 0.001		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	0.005	0.002
Phosphorus	mg/L	N/A	< 0.1	0.08	< 0.1		< 0.1	< 0.1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	14.4	7.8	7.1		4.6	6.2		0.8	0.9	0.9	0.8	0.8	8.0	0.7	0.9
Sodium	mg/L	200	197	85.4	77.2		33.4	118		< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Sulphate	mg/L	500	< 1	6	8	Dry	2	3	Dry	51	58	52	62	52	71	45	57
TDS	mg/L	500	1264	907	871		782	937		378	389	393	407	385	432	380	467
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.08	0.1	0.11		0.12	0.06		0.03	0.03	0.03	0.03	0.03	0.06	0.03	0.08
Antimony	mg/L	0.006	0.0002	< 0.0001	0.0001		0.0001	0.0002		< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0047	0.0009	0.001		0.0088	0.0331		0.0002	< 0.0001	0.0001	0.0002	< 0.0001	0.0002	0.0002	< 0.0001
Barium	mg/L	1	0.575	0.29	0.23		0.139	0.239		0.06	0.058	0.061	0.067	0.064	0.071	0.06	0.071
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002		< 0.002	< 0.002		< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.456	0.313	0.341		0.283	0.496		0.019	0.025	0.007	0.018	0.015	0.026	0.015	0.024
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015		< 0.000015	< 0.000012		< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014
Chromium	mg/L	0.05	0.001	< 0.001	< 0.001		< 0.001	0.001		0.0006	< 0.0002	< 0.0002	0.004	< 0.0002	0.0018	< 0.001	< 0.001
Cobalt	mg/L	N/A	0.011	< 0.005	0.0019		0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0003	0.0009	< 0.0001		0.0007	0.0002		0.0007	0.0006	0.0008	0.0001	0.0002	0.0002	0.0021	0.0003
Lead	mg/L	0.01	< 0.00002	0.00003	0.00003		0.00004	< 0.00004		0.00009	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	0.00014	0.00007
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002		< 0.00002	< 0.00002		< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0001	< 0.0001	0.0002		0.0003	0.0014		0.0005	< 0.0001	0.0003	0.0004	0.0006	0.0003	0.0005	0.0003
Nickel	mg/L	N/A	0.03	< 0.01	0.01		< 0.01	0.06		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	0.004	0.001	< 0.001		< 0.001	0.003		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001		< 0.0001	< 0.0001		< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	0.894	0.726	0.644		0.575	0.586			0.26	0.273	0.283	0.268	0.295	0.264	0.249
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005		< 0.00005	< 0.00005		< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0007	0.001	0.0008		0.0003	0.0004		0.0016	< 0.0001	0.0024	0.0016	0.0007	0.0007	0.0022	0.0009
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005		0.007	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	lanty		17-91-I	17-91-I	17-91-I	17-91-I	17-91-I	17-91-I	17-91-I	17-91-I	17-91-I	17-91-I	17-91-I	17-91-I	17-91-II	17-91-II	17-91-II
Parameters	Units	ODWQS	7-May-18	10-Oct-18	8-May-19	7-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21	3-May-22	25-Oct-22	2-May-23	18-Oct-23	7-May-14	21-Oct-14	26-May-15
Alkalinity	mg/L	500	294	302	279	304	285	286	293	294	278	279	282	301	427	411	425
Unionized Ammonia	mg/L	N/A															
Ammonia	mg/L	N/A	0.05	0.05	0.05	0.04	0.02	0.05	0.04	0.05	0.3	0.05	0.62	1.24	< 0.01	0.04	0.08
BOD	mg/L	N/A															
Calcium	mg/L	N/A	127	134	130	132	128	126	124	131	130	118	116	112	178	168	200
COD	mg/L	N/A	5	12	15	7	9	7	23	7	9	< 5	< 5	11	< 5	34	< 5
Chloride	mg/L	250	19.2	12.5	19.3	11.2	24.9	21.7	36.7	47.7	54.9	68.9	49.3	43.2	4.7	4.3	4.4
Conductivity	umhos/cm	N/A	670	747	717	744	745	753	747	752	802	766	760	766	916	889	917
Cyanide	mg/L	0.2															
DOC	mg/L	5	2.9	3.4	2.8	3.5	4	3.3	3.1	1.9	2.3	1.1	2.2	2.9	3.8	4.8	2.3
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	0.3	0.1
Hardness	mg/L	500	379	399	389	394	382	377	373	388	384	355	346	334	476	452	536
Ion Balance	%	N/A					3.69	2.23	0.0275	1.86	3.34	4.3	1.27	3.55	2.13	2.79	
Iron	mg/L	0.3	0.221	2.18	0.264	0.591	1.07	0.818	0.84	2.08	1.04	0.98	1.12	0.715	< 0.005	< 0.005	< 0.005
Magnesium	mg/L	N/A	15	15.6	15.5	15.6	15.1	15.1	15.4	14.7	14.4	14.6	13.4	13.2	7.52	7.89	8.94
Manganese	mg/L	0.05	0.038	0.041	0.047	0.017	0.06	0.022	0.014	0.036	0.028	0.02	0.044	0.022	0.015	0.031	0.021
Nitrate	mg/L	10	0.08	< 0.05	< 0.05	< 0.05	0.11	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.17	2.3	1.7	2.5
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.1	< 0.05	< 0.05	< 0.05	0.06	< 0.1	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	0.5	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.5	0.2	0.7	1.4	0.6	0.2	0.4
pH-Lab	pH unit	6.5-8.5	7.87	7.69	7.91	7.78	7.71	7.66	7.87	7.72	7.76	7.68	7.73	7.45	7.56	7.65	7.37
Phenols	mg/L	N/A	< 0.001	0.004	< 0.002	< 0.002	0.003	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	0.61	0.17	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1	1.1	1.1	0.4	0.6	0.5
Sodium	mg/L	200	< 0.0001	< 0.0001	11.4	12.9	12.3	13.5	13.7	16.7	20	20.6	20	20.5	7.5	7.8	8.7
Sulphate	mg/L	500	59	76	63	77	61	72	59	52	47	61	50	45	70	69	70
TDS	mg/L	500	409	435	408	433	414	422	427	441	436	453	420	401	534	512	559
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.08	0.06	0.08	0.09	0.07	0.07	0.08	0.06	0.07	0.08	0.04	0.04	0.04	0.04	0.05
Antimony	mg/L	0.006	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0001	0.0002	0.0001	< 0.0001	0.0001	< 0.0001	0.0003	0.0001	0.0001	0.0001	0.0001	<0.0001	0.0002	0.0002	0.0003
Barium	mg/L	1	0.065	0.069	0.063	0.067	0.063	0.065	0.06	0.073	0.069	0.072	0.067	0.063	0.05	0.049	0.055
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.016	0.022	0.02	0.018	0.019	0.022	0.017	0.019	0.015	< 0.005	0.017	0.016	0.018	0.021	< 0.005
Cadmium	mg/L	0.005	< 0.000015	< 0.00002	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000010	<0.000015	< 0.00002	< 0.00002	< 0.00002
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.0015	< 0.0002	< 0.0002
Cobalt	mg/L	N/A	0.0005	< 0.005	0.005	< 0.005	0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.0001	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0001	0.0002	0.0005	0.0002	0.0004	0.0014	0.0005	0.0006	0.0003	0.0003	0.0007	0.0004	0.0008	0.001	< 0.0001
Lead	mg/L	0.01	0.00003	< 0.00002	0.00003	< 0.00002	0.00003	0.00005	0.00007	< 0.00002	< 0.00002	0.00005	0.00003	<0.00002	< 0.00002	< 0.00002	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0005	0.0009	0.0004	0.0004	0.0002	< 0.0001	< 0.0001
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0003	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	N/A	0.272	0.28	0.282	0.288	0.284	0.284	0.292	0.299	0.292	0.296	0.273	0.263		0.307	0.342
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.0026	< 0.0001	0.0038
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005

General Water Qu	anty		17-91-II	17-91-II	17-91-II	17-91-II	17-91-II	17-91-II	17-91-II	17-91-II	17-91-II	17-91-II	17-91-II	17-91-II	17-91-II	17-91-II	17-91-II
Parameters	Units	ODWQS	13-Oct-15	19-May-16	13-Oct-16	23-May-17	16-Oct-17	7-May-18	10-Oct-18	8-May-19	7-Oct-19	5-May-20	17-91-11 13-Oct-20	4-May-21	13-Oct-21	3-May-22	25-Oct-22
Alkalinity	mg/L	500	400	441	367	403	385	386	360	367	356	345	344	345	341	357	342
Unionized Ammonia	mg/L	N/A			< 0.01	100	555	000	000	00.	555	0.10	011	0.10	011	00.	0.12
Ammonia	mg/L	N/A	0.05	0.03	0.12	0.04	0.03	0.04	0.14	0.04	0.04	0.02	0.16	0.04	0.08	0.06	0.05
BOD	mg/L	N/A	0.00	0.00	02	0.01	0.00	0.01	0	0.01	0.01	0.02	00	0.01	0.00	0.00	0.00
Calcium	mg/L	N/A	183	194	184	188	179	163	173	172	164	157	147	149	148	155	135
COD	mg/L	N/A	11	38	< 5	35	< 5	< 5	41	7	6	5	6	10	5	< 5	17
Chloride	mg/L	250	3.8	6.9	3.5	5.5	6	4.9	4.2	4.7	1.3	10.6	3.5	7.5	22.7	9.6	21.5
Conductivity	umhos/cm	N/A	853	930	810	847	837	784	830	821	798	776	774	732	746	817	767
Cyanide	mg/L	0.2	000	555	0.0	0	00.		000	02.						0	
DOC	mg/L	5	1.9	1.6	2.3	1.5	2	2.2	3.3	2.8	2.9	3.5	3.3	3.4	2.6	2.7	1.6
Fluoride	mg/L	1.5	0.1	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	492	519	499	504	483	439	466	463	443	423	398	402	399	418	369
Ion Balance	%	N/A	402	0.0	100	30-7	100	100	400	400	110	3.03	1.43	0.758	0.809	1.59	5.48
Iron	mg/L	0.3	0.033	< 0.005	0.24	< 0.005	0.011	0.055	0.02	0.019	0.011	0.005	0.012	< 0.005	0.017	0.021	< 0.005
Magnesium	mg/L	N/A	8.49	8.51	9.53	8.33	8.75	7.72	8.24	7.96	7.92	7.45	7.44	7.08	7.09	7.32	7.71
Manganese	mg/L	0.05	0.039	0.008	0.13	0.01	0.012	0.003	0.025	0.001	0.002	0.007	0.007	0.002	0.034	0.001	0.029
Nitrate	mg/L	10	1.9	2.2	1.4	1.91	2.52	1.89	1.84	1.97	2.15	1.72	0.007	2.37	1.52	1.8	1.32
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.1	0.17	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.5	0.5	0.6	0.6	0.3	0.4	0.3	0.3	0.4	0.3	0.4	0.4	< 0.1	0.4	0.3
pH-Lab	pH unit	6.5-8.5	7.63	7.5	7.72	7.7	7.72	7.71	7.49	7.74	7.66	7.65	7.68	7.91	7.64	7.57	7.57
Phenols	mg/L	N/A	< 0.001	< 0.001	0.003	0.01	0.003	< 0.001	0.008	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.44	0.85	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	0.5	0.5	0.5	0.4	0.6	0.5	0.6	0.4	0.5	0.4	0.5	0.4	0.5	0.4	0.5
Sodium	mg/L	200	9.6	8.7	9.1	7.8	8.4	6.8	8.7	6.2	8.6	6.8	8.1	5.7	7.6	6.5	8.6
Sulphate	mg/L	500	64	60	71	53	58	55	62	51	57	44	52	42	43	40	54
TDS	mg/L	500	518	553	505	505	492	470	473	463	453	434	425	419	433	433	433
TSS	mg/L	N/A	310	555	505	303	432	470	475	400	400	707	420	713	400	400	400
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.04	0.05	0.08	0.05	0.1	0.1	0.08	0.09	0.09	0.08	0.08	0.08	0.06	0.08	0.09
Antimony	mg/L	0.006	< 0.0001	< 0.0001	0.0002	< 0.0001	0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0003	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0003	< 0.0001	0.0004	0.0001	0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Barium	mg/L	1	0.055	0.057	0.055	0.051	0.058	0.049	0.052	0.047	0.05	0.044	0.045	0.041	0.047	0.044	0.048
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.014	0.013	0.021	0.013	0.017	0.015	0.013	0.014	0.014	0.013	0.013	0.014	0.014	0.008	< 0.005
Cadmium	mg/L	0.005	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015	< 0.00002	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010
Chromium	mg/L	0.05	0.0058	< 0.0002	0.0027	0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0006	0.012	0.014	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0005	0.0004	0.0006	0.0023	0.0005	0.0005	0.0007	0.0007	0.0003	0.0008	0.0017	0.0007	0.0006	0.0005	0.0005
Lead	mg/L	0.01	< 0.00002	< 0.00002	0.00004	0.00013	< 0.00002	0.00012	0.00006	0.00003	< 0.00002	0.00002	0.00005	< 0.00002	< 0.00002	0.00005	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0002	0.0001	0.0001	0.0001	0.0001	< 0.0001	0.0001	< 0.0001	0.0002	< 0.0001	0.0001	0.0001	0.0004	0.0006	0.0002
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0001	< 0.0001	< 0.001	< 0.0001	< 0.001	< 0.0001
Strontium	mg/L	N/A	0.328	0.336	0.316	0.318	0.28	0.288	0.281	0.291	0.282	0.267	0.257	0.27	0.266	0.268	0.27
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0023	0.000	0.0011	0.0036	0.0013	0.0001	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.0001
		11/ 🗥	0.0020	0.001	0.0011	0.0000	0.0010	0.0001	- 0.0001	- 0.0001	- 0.0001	. 0.0001	. 0.0001	. 0.0001	- 0.0001	1 0.0001	- 0.0001

General Water Qu	laiity		17-91-II	17-91-II	18-91	18-91	18-91	18-91	18-91	18-91	18-91	18-91	18-91	18-91	18-91	18-91	18-91
Parameters	Units	opwos	2-May-23	18-Oct-23	7-May-14	22-Oct-14	26-May-15	13-Oct-15	12-May-16	13-Oct-16	24-May-17	16-Oct-17	7-May-18	9-Oct-18	8-May-19	7-Oct-19	5-May-20
Alkalinity	mg/L	500	385	383	280	344	288	301	297	278	281	309	306	247	263	277	276
Unionized Ammonia	mg/L	N/A	000	000	200	011	200	001		< 0.01		000			200		2.0
Ammonia	mg/L	N/A	0.78	1.23	< 0.01	0.06	0.01	0.02	0.08	0.06	0.05	0.05	0.03	0.02	0.08	0.03	< 0.01
BOD	mg/L	N/A															
Calcium	mg/L	N/A	151	131	101	118	105	109	91.2	113	109	127	109	108	115	107	110
COD	mg/L	N/A	< 5	5	72	27	< 5	7	< 5	< 5	49	14	< 5	< 5	27	10	5
Chloride	mg/L	250	4.6	9.1	7.4	7.9	7.5	9.6	9.5	14.9	16.7	43.6	23.7	17.1	23.3	37.9	23.7
Conductivity	umhos/cm	N/A	795	788	612	698	617	627	624	611	626	722	613	585	643	683	646
Cyanide	mg/L	0.2															
DOC	mg/L	5	2.5	3.2	2	7.4	1.4	0.8	0.9	1	0.7	1.5	1.3	1.9	1.9	1.9	2.4
Fluoride	mg/L	1.5	< 0.1	<0.1	0.1	0.2	0.1	0.1	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	406	356	306	363	320	331	282	343	332	386	334	325	350	326	331
Ion Balance	%	N/A	2.75	8.51	0.88	1.29											3.19
Iron	mg/L	0.3	< 0.005	<0.005	0.071	0.64	0.092	0.169	0.063	0.033	0.135	0.045	0.036	0.072	0.032	0.062	0.016
Magnesium	mg/L	N/A	6.87	6.95	13.1	16.4	14	14.5	13	14.8	14.5	16.7	15	13.5	15.2	14.2	13.6
Manganese	mg/L	0.05	< 0.001	0.003	0.012	0.031	0.007	0.007	0.003	0.017	0.014	0.006	0.006	0.008	0.006	0.006	0.004
Nitrate	mg/L	10	1.27	0.72	< 0.1	< 0.1	< 0.1	0.1	0.1	0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.12
Nitrite	mg/L	1	< 0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	1.1	0.7	0.5	0.7	0.4	0.2	0.3	0.3	0.4	0.3	0.2	0.2	0.4	0.4	0.3
pH-Lab	pH unit	6.5-8.5	7.64	7.39	7.81	7.84	7.73	7.85	7.86	7.91	7.96	7.84	7.87	7.93	7.96	7.82	7.82
Phenols	mg/L	N/A	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	< 0.001	0.002	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	N/A	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	2.44	1.33	< 0.1
Potassium	mg/L	N/A	0.5	0.6	0.8	1.5	1	1.3	1	1.1	0.7	1.5	1.1	1.3	1.1	1.6	1.1
Sodium	mg/L	200	5.3	8.5	7.3	9.6	10.1	13.4	11.2	9.4	6.9	13.5	8.3	13.6	10.5	15.3	12.1
Sulphate	mg/L	500	44	45	37	34	34	24	24	22	23	25	31	24	29	22	26
TDS	mg/L	500	443	413	334	388	345	353	329	342	340	413	372	326	352	364	352
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.04	0.04	0.02	0.03	0.03	0.03	0.02	0.07	0.03	0.05	0.07	0.06	0.07	0.06	0.07
Antimony	mg/L	0.006	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	< 0.0001	<0.0001	0.0002	0.0001	< 0.0001	0.0002	0.0001	0.0002	0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Barium	mg/L	1	0.045	0.041	0.061	0.089	0.079	0.107	0.089	0.09	0.063	0.142	0.079	0.106	0.093	0.117	0.094
Beryllium	mg/L	N/A	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.013	0.011	0.007	0.006	< 0.005	0.013	< 0.005	0.014	0.006	0.014	0.009	0.012	0.012	0.013	0.008
Cadmium	mg/L	0.005	< 0.000010	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.05	< 0.001	<0.001	0.0006	0.0054	0.0035	0.0041	< 0.0002	0.0016	0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001
Cobalt	mg/L	N/A	0.006	<0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	0.007	0.01	< 0.005	< 0.0001
Copper	mg/L	1	0.0008	0.0007	0.0005	0.0005	< 0.0001	0.0002	< 0.0001	0.0005	0.0003	0.0003	0.0006	0.0004	0.0006	0.0003	0.0005
Lead	mg/L	0.01	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00014	0.00003
Mercury	mg/L	0.001	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum Nickel	mg/L	N/A N/A	0.0001 < 0.01	0.0002 0.0004	0.0004 < 0.01	< 0.0001 < 0.01	0.0002 < 0.01	0.0004 < 0.01	0.0005 < 0.01	0.0003 < 0.01	0.0003 < 0.01	0.0003 < 0.01	0.0004 < 0.01	0.0004 < 0.01	0.0003	0.0005 < 0.01	0.0003
	mg/L	0.01	< 0.001	<0.004	< 0.01	< 0.01	< 0.001	< 0.01	< 0.01	< 0.01	< 0.001	< 0.01	< 0.01	< 0.01	< 0.001	< 0.01	< 0.01
Selenium Silver	mg/L	0.01 N/A	< 0.001	<0.001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Strontium	mg/L	N/A N/A	0.0001	0.239	~ U.UUUU2	0.00002	0.239	0.253	0.193	0.239	0.00002	0.00002	0.239	0.229	0.247	0.245	0.239
Thallium	mg/L	N/A N/A	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
	mg/L	N/A N/A	< 0.00005	<0.00005	0.00005	0.0029	0.00005	0.0016	< 0.00005	0.0006	0.0018	0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A 5	< 0.0001	<0.0001	< 0.0014	< 0.0029	< 0.0021	< 0.0016	< 0.0001	< 0.005	< 0.0018	< 0.0007	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Zinc	mg/L	5	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qua			18-91	18-91	18-91	18-91	18-91	18-91	18-91	19-91	19-91	19-91	19-91	19-91	19-91	19-91	19-91
Parameters	Units	ODWQS	13-Oct-20	4-May-21	13-Oct-21	3-May-22	25-Oct-22	2-May-23	18-Oct-23	7-May-14	22-Oct-14	26-May-15	13-Oct-15	12-May-16	13-Oct-16	24-May-17	16-Oct-17
Alkalinity	mg/L	500	274	270	304	291	312	298	326	348		348	357	352	359	359	361
Unionized Ammonia	mg/L	N/A													< 0.01		
Ammonia	mg/L	N/A	0.1	0.05	0.04	0.16	0.3	2.54	0.87	< 0.01		< 0.01	0.04	0.02	0.06	0.03	0.09
BOD	mg/L	N/A															
Calcium	mg/L	N/A	110	109	105	120	114	117	110	118		124	128	111	133	129	133
COD	mg/L	N/A	5	18	< 5	8	27	< 5	9	39		< 5	5	< 5	14	6	201
Chloride	mg/L	250	32.6	55.3	42.7	64.7	72	66.6	58.2	8.1		4.5	4.9	6.3	3	5.6	3.9
Conductivity	umhos/cm	N/A	674	695	694	789	778	789	815	732		705	723	716	720	719	703
Cyanide	mg/L	0.2															
DOC	mg/L	5	2	2	1.6	1.3	0.6	1.4	2	2.5		1.5	8.0	2	1.1	0.8	1.8
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	0.1		0.1	0.1	0.1	0.1	< 0.1	< 0.1
Hardness	mg/L	500	330	332	318	357	343	349	336	365		373	394	347	410	396	407
Ion Balance	%	N/A	3.5	0.2	4.23	0.182	3.77	1.66	6.75	2.16	1.02						
Iron	mg/L	0.3	0.061	0.068	0.297	1.32	0.068	0.054	0.445	0.289		0.068	0.668	0.258	0.451	0.345	0.401
Magnesium	mg/L	N/A	13.5	14.5	13.5	13.8	14.2	14.1	14.8	16.9		15.7	17.7	16.6	18.6	17.7	18.2
Manganese	mg/L	0.05	0.009	0.01	0.01	0.009	0.017	0.011	0.01	0.042		0.026	0.032	0.025	0.092	0.056	0.036
Nitrate	mg/L	10	< 0.05	0.11	< 0.05	0.08	0.05	< 0.05	0.1	< 0.1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05
Nitrite	mg/L	1	< 0.05	< 0.05	0.08	< 0.05	< 0.05	< 0.05	<0.05	< 0.1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.2	0.4	0.8	0.3	0.7	2.6	0.6	0.5		0.3	0.1	0.1	0.2	0.3	0.5
pH-Lab	pH unit	6.5-8.5	7.78	7.96	7.82	7.76	7.67	7.79	7.43	7.79		7.63	7.76	7.75	7.79	7.83	7.81
Phenols	mg/L	N/A	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001		< 0.001	< 0.001	< 0.001	0.002	< 0.001	0.005
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	1.4	1.3	1.6	1.4	1.9	1.7	1.7	1.3		1.3	1.4	1.2	1.4	1.2	1.5
Sodium	mg/L	200	14.9	14.3	13.2	17.9	26.8	23.9	16.5	7.5		6.1	7.1	7.1	6.3	6.7	6
Sulphate	mg/L	500	20	17	15	17	22	23	20	40		30	31	34	28	26	26
TDS	mg/L	500	356	374	374	411	439	425	429	401		390	406	389	407	403	406
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.07	0.07	0.05	0.08	0.07	0.04	0.05	0.03	0.03	0.04	0.03	0.05	0.04		0.07
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0001		0.0003
Arsenic	mg/L	0.025	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	0.0002	0.0004	0.0001	0.0003	0.0002	0.0003	0.0002		0.0001
Barium	mg/L	1	0.122	0.112	0.122	0.135	0.155	0.137	0.136	0.088	0.099	0.106	0.086	0.109	0.104		0.125
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002		< 0.002
Boron	mg/L	5	0.014	0.011	0.012	0.012	< 0.005	0.012	0.015	0.011	< 0.005	0.009	< 0.005	0.013	0.009		0.016
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000010	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014		< 0.000014
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	0.0006	0.004	0.0054	< 0.0002	0.0018	0.001		< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.006	<0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		< 0.005
Copper	mg/L	1	0.0017	0.0008	0.0004	0.0004	0.0004	0.0007	0.0005	0.0004	< 0.0001	0.0002	< 0.0001	0.0003	0.003		< 0.0001
Lead	mg/L	0.01	0.00005	0.00003	< 0.00002	0.00004	< 0.00002	< 0.00002	0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00022		< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002		< 0.00002
Molybdenum	mg/L	N/A	0.0004	0.0003	0.0004	0.0004	0.0003	0.0003	0.0003	0.0004	0.0002	0.0003	0.001	0.0003	0.0003		0.0003
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0003	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002		< 0.00002
Strontium	mg/L	N/A	0.245	0.261	0.251	0.264	0.284	0.276	0.259		0.285	0.291	0.236	0.286	0.279		0.259
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005		< 0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0013	0.0023	0.0021	< 0.0001	0.0007	0.0026		0.0009
Zinc	mg/L	5	< 0.005	< 0.005	0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		< 0.005

General Water Qua	inty		19-91	19-91	19-91	19-91	19-91	19-91	19-91	19-91	19-91	19-91	19-91	19-91	19-91 (DUP)	20-91-I	20-91-I
Parameters	Units	ODWQS	8-May-18	9-Oct-18	8-May-19	8-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21	3-May-22	25-Oct-22	2-May-23	18-Oct-23	25-Oct-22	22-Oct-14	26-May-15
Alkalinity	mg/L	500	360	386	331	329	349	342	333	329	334	334	339	361	334	368	291
Unionized Ammonia	mg/L	N/A															
Ammonia	mg/L	N/A	0.08	0.03	0.05	0.02	< 0.01	0.1	0.03	0.04	0.23	0.05	1.21	0.69	0.04	2.47	1.7
BOD	mg/L	N/A															
Calcium	mg/L	N/A	136	139	136	134	130	135	127	134	142	133	131	128	129	60.3	56.1
COD	mg/L	N/A	5	5	9	8	5	9	11	5	16	24	6	12	26	14	32
Chloride	mg/L	250	7.2	5.4	13.7	17.9	11	14.6	27.1	52.5	37.4	60.5	44.4	43	60.9	66.3	69.3
Conductivity	umhos/cm	N/A	697	662	731	729	737	754	736	791	842	839	856	863	831	879	766
Cyanide	mg/L	0.2															
DOC	mg/L	5	2.2	2.3	2.3	2.6	3	2.2	2.8	2.4	2.9	1.1	2.6	3.1	8.0	6	1.6
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	0.6	0.5
Hardness	mg/L	500	419	424	412	400	393	403	378	391	424	403	395	372	392	335	304
Ion Balance	%	N/A					2.24	3.67	0.812	0.772	3.68	2.95	1.26	1.46	5.2	2.26	
Iron	mg/L	0.3	0.285	< 0.005	0.164	0.604	0.211	0.494	0.066	0.53	0.747	0.72	0.347	0.437	0.798	0.175	0.176
Magnesium	mg/L	N/A	19.2	18.5	17.6	15.7	16.6	15.9	14.6	13.7	16.8	17.1	16.8	12.7	16.8	44.8	39.9
Manganese	mg/L	0.05	0.066	0.004	0.044	0.031	0.026	0.031	0.026	0.026	0.031	0.025	0.038	0.024	0.025	0.016	0.007
Nitrate	mg/L	10	< 0.05	< 0.05	< 0.05	< 0.05	0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	< 0.05	< 0.1	< 0.1
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.12	< 0.05	< 0.05	< 0.05	<0.05	< 0.05	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	0.6	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.7	0.3	1.2	0.9	1.3	2.6	2.1
pH-Lab	pH unit	6.5-8.5	7.83	7.98	7.87	7.75	7.74	7.8	7.93	7.77	7.75	7.69	7.76	7.54	7.74	7.82	7.75
Phenols	mg/L	N/A	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	0.37	0.36	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	1.6	1.7	1.5	1.8	1.5	1.6 9	1.6	2	1.7	2	1.9	2	1.9	7.7	6.9
Sodium	mg/L	200 500	7.1 34	6.5 28	8.2 30	8.6 27	8.4 29	31	13.2 29	22.8 33	19 48	22.8 63	23.1 56	37.6 48	19.5 64	42.2 4	41.2 6
Sulphate TDS	mg/L mg/L	500	421	431	406	403	406	413	413	456	466	499	476	456	493	450	397
TSS	mg/L	N/A	421	431	400	403	400	413	413	400	400	499	470	450	493	430	397
Turbidity	NTU	N/A															
Colour	TCU	5															\vdash
Aluminum	mg/L	0.1	0.08	0.07	0.08	0.08	0.08	0.08	0.07	0.04	0.08	0.09	0.05	0.04	0.09	0.02	0.02
Antimony	mg/L	0.006	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	< 0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0004	0.0005
Barium	mg/L	1	0.111	0.119	0.117	0.125	0.112	0.13	0.12	0.0001	0.132	0.147	0.13	0.131	0.142	0.654	0.517
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.013	0.01	0.015	0.02	0.014	0.018	0.017	0.02	0.014	< 0.005	0.016	0.017	< 0.005	0.364	0.279
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	0.00001	<0.000015	< 0.000010	< 0.00002	< 0.00002
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	0.0053	0.0038
Cobalt	mg/L	N/A	0.0016	< 0.005	< 0.005	< 0.005	0.0007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.005	0.0004	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0001	0.0005	0.0005	0.0002	0.0005	0.0014	0.0008	0.0006	0.0003	0.0004	0.0008	0.0006	0.0002	0.0006	< 0.0001
Lead	mg/L	0.01	0.00003	0.00003	< 0.00002	< 0.00002	0.00002	0.00005	0.00002	0.00002	< 0.00002	< 0.00002	0.00005	<0.00002	0.00003	< 0.00002	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0003	0.0003	0.0002	0.0003	0.0002	0.0003	0.0002	0.0003	0.0004	0.0003	0.0003	0.0002	0.0003	< 0.0001	< 0.0001
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0008	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.00002	< 0.00002
Strontium	mg/L	N/A	0.293	0.299	0.301	0.307	0.294	0.298	0.314	0.322	0.323	0.337	0.321	0.292	0.32	4.54	3.72
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	0.0029	0.0023
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.005	< 0.005	<0.005	< 0.005	0.008	< 0.005
L	,																

General Water Qua	y		20-91-I	20-91-I	20-91-I	20-91-I	20-91-I	20-91-I	20-91-I	20-91-I	20-91-I	20-91-I	20-91-I	20-91-I	20-91-I	20-91-I	20-91-I (DUP)
Parameters	Units	ODWQS	13-Oct-15	24-May-16	13-Oct-16	23-May-17	16-Oct-17	7-May-18	8-May-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21	25-Oct-22	2-May-23	18-Oct-23	2-May-23
Alkalinity	mg/L	500	313	320	316	326	351	393	324	355	306	226	228	215	224	234	227
Unionized Ammonia	mg/L	N/A			0.05												
Ammonia	mg/L	N/A	2.52	2.53	3.45	1.87	3.11	1.91	4.71	1.92	5.49	2.93	1.38	2.71	7.96	6.52	4.07
BOD	mg/L	N/A															
Calcium	mg/L	N/A	56.6	58.3	52.7	60.7	61.1	63.2	52	61	49.5	42.2	53.3	44.2	46.5	28.8	47.3
COD	mg/L	N/A	20	36	10	32	45	17	23	50	67	53	9	9	17	13	21
Chloride	mg/L	250	70.9	67.9	66.6	53.4	54.3	59.7	69.4	56.9	63.3	73.2	85.3	94.8	79.8	53.7	82.5
Conductivity	umhos/cm	N/A	796	797	804	774	825	838	863	836	801	655	678	641	668	630	669
Cyanide	mg/L	0.2															
DOC	mg/L	5	1.8	2.6	2.5	2.3	3.7	4.3	4.9	5.2	3.8	1.4	1.2	0.4	0.7	3.3	1.4
Fluoride	mg/L	1.5	0.6	0.6	0.6	0.8	0.6	0.2	0.2	< 0.1	< 0.1	< 0.1	< 0.1	0.2	0.6	<0.1	0.6
Hardness	mg/L	500	307	322	296	337	339	363	290	347	265	221	275	231	247	116	249
Ion Balance	%	N/A								2.45	3.45	0.203	1.53	2.71	2.17	8.47	3.09
Iron	mg/L	0.3	0.264	0.064	0.549	0.228	0.526	0.296	0.949	0.342	0.259	0.481	0.138	0.501	0.09	0.873	0.09
Magnesium	mg/L	N/A	40.2	42.9	40	45.1	45.3	49.8	39	47.4	34.4	28.1	34.5	29.4	31.9	10.8	31.7
Manganese	mg/L	0.05	0.014	0.01	0.044	0.046	0.172	0.088	0.054	0.014	0.028	0.038	0.012	0.037	0.013	0.109	0.013
Nitrate	mg/L	10	0.1	0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	0.12	< 0.05	0.11	< 0.05	< 0.05	< 0.05	0.07	< 0.05
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.09	< 0.05	< 0.05	<0.05	< 0.05
Tot Kjel N	mg/L	N/A	3.1	2.9	3.6	2.2	3.2	2.2	5.1	2.6	6.3	3.5	1.5	2.8	9.2	6.5	3.9
pH-Lab	pH unit	6.5-8.5	7.95	7.74	8.11	8.03	7.98	8.05	8.01	7.86	7.87	8.16	7.89	7.86	7.92	7.7	8.03
Phenols	mg/L	N/A	< 0.001	< 0.001	0.003	0.003	0.003	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	0.002	< 0.001	< 0.001	<0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.36	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1
Potassium	mg/L	N/A	7.3	7.8	8.4	8.2	8.8	10.1	9.5	8.8	8.5	5.8	5.9	5.9	6	5.5	6
Sodium	mg/L	200	48.1	49.2	69.7	53.3	53.3	52.2	72.6	45.1	70	43.5	35.4	39.3	33.7	66.7	33.6
Sulphate	mg/L	500	3	5	5	3	7	6	4	6	5	7	6	4	5	12	5
TDS	mg/L	500	416	424	437	423	446	480	448	441	415	339	358	351	338	327	344
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.02	0.02	0.09	0.02	0.04	0.04	0.03	0.03	0.04	0.03	0.03	0.02	0.01	<0.01	0.01
Antimony	mg/L	0.006	< 0.0001	< 0.0001	0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0007	0.0008	0.0007	0.0002	0.0003	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001
Barium	mg/L	1	0.557	0.651	0.568	0.711	0.724	0.807	0.584	0.729	0.554	0.205	0.181	0.163	0.214	0.112	0.222
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002
Boron	mg/L	5	0.3	0.36	0.345	0.415	0.399	0.442	0.339	0.43	0.307	0.158	0.189	0.153	0.193	0.081	0.191
Cadmium	mg/L	0.005	< 0.00002	0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000010	<0.000015	< 0.000010
Chromium	mg/L	0.05	0.0044	< 0.0002	0.002	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0001	< 0.005
Copper	mg/L	1	0.0003	0.0015	0.0003	0.0003	0.0003	0.0003	0.0004	0.0001	0.0003	0.0002	< 0.0001	0.0002	0.0004	0.0004	< 0.0001
Lead	mg/L	0.01	0.00006	< 0.00002	0.00004	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00005	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	0.00025	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002
Molybdenum	mg/L	N/A	< 0.0001	0.0002	0.0001	0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	0.0003	0.0002	< 0.0001	0.0001	< 0.0001	0.0006	< 0.0001
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0005	< 0.01
Selenium	mg/L	0.01	0.002	0.003	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.002	0.002	0.002	<0.001	0.002
Silver	mg/L	N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001
Strontium	mg/L	N/A	3.71	4.3	3.69	4.61	3.79	4.82	3.64	4.88	3.38	2.11	2.49	2.08	2.39	0.889	2.37
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0015	0.0015	0.0009	0.0023	0.0009	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005

General Water Qua	anty		20-91-II	20-91-II	20-91-II	20-91-II	20-91-II	20-91-II	20-91-II								
Parameters	Units	ODWQS	7-May-14	22-Oct-14	26-May-15	13-Oct-15	24-May-16	13-Oct-16	23-May-17	16-Oct-17	7-May-18	9-Oct-18	8-May-19	7-Oct-19	5-May-20	13-Oct-20	4-May-21
Alkalinity	mg/L	500	403	398	394	400	382	382	399	399	401	397	389	391	402	376	376
Unionized Ammonia	mg/L	N/A						< 0.01									
Ammonia	mg/L	N/A	6.13	2.04	1.62	0.95	0.74	0.83	0.7	0.73	0.57	1.71	1.32	0.76	0.62	0.56	0.5
BOD	mg/L	N/A															
Calcium	mg/L	N/A	97.5	90.5	93.8	99.2	95.5	95.4	94.3	103	97	98.4	105	108	114	97.7	84.7
COD	mg/L	N/A	203	25	24	28	49	20	47	36	39	46	50	40	47	33	33
Chloride	mg/L	250	71.6	70.7	66.2	77.4	70.6	70.5	69.4	82	88.8	104	97.2	107	100	91.6	89.7
Conductivity	umhos/cm	N/A	947	939	917	955	896	919	968	998	962	1090	1030	1030	1060	992	936
Cyanide	mg/L	0.2															
DOC	mg/L	5	9.4	8.5	3	4.4	5.5	5.6	7.4	7.7	8.6	8.3	8.2	8.6	10.5	6.7	5.5
Fluoride	mg/L	1.5	0.4	0.4	0.4	0.4	0.4	0.4	0.7	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	435	420	437	454	438	442	435	484	460	470	486	493	508	454	403
Ion Balance	%	N/A	2.38	1.63											7.57	4.56	0.223
Iron	mg/L	0.3	1.74	0.809	0.779	1.07	0.557	0.973	0.677	0.691	0.749	0.423	0.573	0.665	< 0.005	0.529	0.841
Magnesium	mg/L	N/A	46.4	47.1	49.2	50.1	48.6	49.5	48.6	55	52.8	54.4	54.5	54.2	54.3	51	46.5
Manganese	mg/L	0.05	0.022	0.014	0.014	0.013	0.012	0.013	0.011	0.013	0.015	0.012	0.014	0.012	0.012	0.01	0.01
Nitrate	mg/L	10	< 0.1	< 0.1	0.1	< 0.1	0.1	0.4	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.09	< 0.05	0.1
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	6.2	2.4	2.5	1.7	1.2	1.5	2	1.7	4	2.7	2.5	1.6	1.8	1.4	1.2
pH-Lab	pH unit	6.5-8.5	7.61	7.66	7.61	7.76	7.6	8	7.94	7.8	7.75	8.13	7.85	7.7	7.71	7.88	8.08
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	0.008	0.007	< 0.001	0.007	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	N/A	0.6	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.41	0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	5.1	3.9	4	3.8	3.7	3.6	3.5	4.1	4.9	4.2	4.4	4.4	4.5	4	3.9
Sodium	mg/L	200	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	42.6	45.9	54.8	43.7	43.6
Sulphate	mg/L	500	1	2	2	1	1	35	2	2	2	2	1	< 1	2	2	2
TDS	mg/L	500	503	481	483	504	479	518	491	523	527	545	541	555	572	516	497
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.03	0.03	0.03	0.03	0.03	0.02	0.03	0.06	0.06	0.05	0.06	0.07	0.03	0.06	0.06
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0012	0.0003	0.0004	0.0007	0.0006	0.0008	0.0003	0.0003	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Barium	mg/L	1	1.96	1.75	1.96	2.06	1.94	1.91	1.86	2.15	1.98	1.86	1.89	1.93	2.12	1.94	1.73
Beryllium	mg/L	N/A 5	< 0.002 0.114	< 0.002 0.118	< 0.002 0.113	< 0.002 0.122	< 0.002 0.125	< 0.002 0.127	< 0.002 0.127	< 0.002 0.155	< 0.002 0.143	< 0.002 0.15	< 0.002 0.154	< 0.002 0.163	< 0.002 0.167	< 0.002 0.161	< 0.002 0.157
Boron Cadmium	mg/L	0.005	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	0.000021	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L mg/L	0.005	0.00002	0.0038	0.00002	0.0057	< 0.0002	0.000	0.00014	< 0.00014	< 0.001	< 0.00015	< 0.00015	0.000	< 0.00015	< 0.00013	< 0.00015
Cobalt	mg/L	0.05 N/A	< 0.005	< 0.005	< 0.0047	< 0.0057	< 0.0002	< 0.002	< 0.001	< 0.001	< 0.001	0.013	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001
Copper	mg/L	1	0.0006	0.0003	< 0.0001	0.0001	0.0007	0.0005	0.0024	0.0002	0.0005	0.0008	0.0004	0.0002	0.0001	0.0053	< 0.0001
Lead	mg/L	0.01	< 0.0000	< 0.0003	< 0.00001	< 0.0001	< 0.0007	< 0.0003	0.0024	< 0.0002	< 0.0003	< 0.00002	< 0.0004	< 0.0002	< 0.0002	0.00033	< 0.0001
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00023	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00004	< 0.00004	< 0.00004	< 0.00004
Molybdenum	mg/L	0.001 N/A	0.0003	< 0.00002	< 0.00002	0.00002	0.00002	0.0002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	0.0002	< 0.00002	0.0001
Nickel	mg/L	N/A	< 0.00	< 0.001	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.01	< 0.0001	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	0.001	0.002	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	- 0.001	3 0.001	- 0.001	0.001	0.002	0.002	- 0.001	- 0.001	- 0.001	- 0.001	< 0.001	< 0.001	0.0008	< 0.001	< 0.0001
Strontium	mg/L	N/A		2.27	2.39	2.38	2.28	2.17	2.3	2.15	2.35	2.31	2.3	2.31	2.35	2.32	2.16
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.00003	0.0022	0.0028	0.0022	0.0018	0.0008	0.0024	0.0009	0.0001	0.0001	< 0.00003	< 0.00003	0.0004	0.0001	< 0.0001
Zinc	mg/L	5	< 0.0019	0.0022	< 0.0026	< 0.0022	< 0.0016	0.0000	< 0.0024	< 0.005	0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
	6/ -	. ,	. 0.000	0.000	- 0.000	- 5.005	. 0.000	0.011	- 5.000	. 5.000	0.010	. 0.000	. 0.000	- 0.000	- 5.000	. 0.000	. 0.000

General Water Qu	ality		1						1	1							
Parameters	Units	ODWQS	20-91-II 13-Oct-21	20-91-II 3-May-22	20-91-II 25-Oct-22	20-91-II 2-May-23	20-91-II 18-Oct-23	20-91-III 7-May-14	20-91-III 22-Oct-14	20-91-III 26-May-15	20-91-III 13-Oct-15	20-91-III 24-May-16	20-91-III 13-Oct-16	20-91-III 23-May-17	20-91-III 16-Oct-17	20-91-III 7-May-18	20-91-III 9-Oct-18
Alkalinity	mg/L	500	339	284	321	292	331	414	433	390	398	383	390	390	386	386	344
Unionized Ammonia	mg/L	N/A	339	204	321	292	331	414	433	390	390	303	< 0.01	390	300	300	344
Ammonia	mg/L	N/A	0.41	0.61	0.55	1.61	0.81	0.14	0.18	0.18	0.22	0.2	0.21	0.19	0.21	0.22	0.24
BOD	mg/L	N/A	0.41	0.01	0.00	1.01	0.01	0.14	0.10	0.10	0.22	0.2	0.21	0.13	0.21	0.22	0.24
Calcium	mg/L	N/A	75.6	72.5	75.1	66.4	72.1	125	130	116	134	124	138	120	126	115	116
COD	mg/L	N/A	19	19	8	14	26	32	18	32	50	36	32	29	29	32	28
Chloride	mg/L	250	80.7	82.7	108	83.2	70.8	97.6	113	88.4	96.6	91	98.3	74.4	78.9	68.9	78.6
Conductivity	umhos/cm	N/A	832	806	834	788	819	1070	1150	1010	1030	963	1050	982	974	893	927
Cyanide	mg/L	0.2															
DOC	mg/L	5	2.9	2.8	2.1	1.7	5.2	10.4	11.2	3.5	5.6	7.3	7.3	9.1	8.1	7.9	9
Fluoride	mg/L	1.5	< 0.1	< 0.1	0.2	0.5	<0.1	0.1	0.2	0.2	0.2	0.2	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	351	337	365	321	342	430	449	402	458	427	479	420	442	410	416
Ion Balance	%	N/A	1.33	3.3	2.32	1.12	1.37	2.69	4.37	-							
Iron	mg/L	0.3	0.273	0.506	0.36	0.393	0.336	2.66	3.06	3.88	3.07	2.74	3.42	2.9	2.61	2.4	2.79
Magnesium	mg/L	N/A	39.4	38	43.1	37.8	39.4	28.4	30.3	27.1	29.9	28.4	32.8	29.2	30.9	29.8	30.6
Manganese	mg/L	0.05	0.012	0.01	0.011	0.01	0.011	0.032	0.038	0.07	0.044	0.055	0.049	0.039	0.04	0.033	0.041
Nitrate	mg/L	10	< 0.05	< 0.05	< 0.05	< 0.05	0.07	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05
Nitrite	mg/L	1	0.12	< 0.05	< 0.05	< 0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.8	0.9	1	1.9	1.4	0.9	0.8	1.3	1.2	0.8	0.9	0.8	0.7	1	0.8
pH-Lab	pH unit	6.5-8.5	7.78	7.74	7.72	7.9	7.57	7.64	7.53	7.41	7.63	7.43	7.96	7.78	7.73	7.68	8.07
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	0.013	< 0.001	< 0.001	< 0.001	< 0.001	0.002	0.015	0.01	< 0.001	< 0.002
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	3.9	3.9	4.3	4.1	4.1	2.1	2.3	2.1	2.1	2.2	2.2	2.1	2.4	2.7	2.4
Sodium	mg/L	200	38.4	35.1	36.1	33.9	33.2	40.2	39.8	40.7	43.7	45	52.4	42.4	39.4	42.5	41.6
Sulphate	mg/L	500	< 1	< 1	< 1	< 1	4	5	4	3	6	2	3	7	8	10	7
TDS	mg/L	500	442	406	460	402	431	550	583	516	554	525	565	512	520	503	486
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.04	0.06	0.06	0.02	0.02	0.03	0.03	0.03	0.04	0.03	0.04	0.04	0.07	0.07	0.06
Antimony	mg/L	0.006	0.0002	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.0007	0.0006	0.0006	0.0014	0.0009	0.001	0.0003	0.0004	< 0.0001	0.0001
Barium	mg/L	1	1.53	1.4	1.66	1.42	1.47	0.295	0.285	0.273	0.311	0.303	0.322	0.282	0.327	0.3	0.279
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.165	0.168	0.163	0.163	0.168	0.072	0.068	0.048	0.071	0.084	0.088	0.083	0.093	0.089	0.091
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000010	< 0.000010	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	0.000018	< 0.000015
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	0.0007	0.0053	0.0045	0.0058	< 0.0002	0.0026	0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	<0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	0.006
Copper	mg/L	1	0.0005	0.0002	0.0004	0.0006	0.0002	0.0007	0.0003	< 0.0001	0.0002	0.0008	0.0002	0.0018	0.0002	0.0003	0.0003
Lead	mg/L	0.01	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00016	< 0.00002	< 0.00002	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum Nickel	mg/L	N/A N/A	< 0.0001 < 0.01	< 0.0001 < 0.01	0.0001 < 0.01	< 0.0001 < 0.01	<0.0001 0.0016	< 0.0001 < 0.01	< 0.0001 < 0.01	< 0.0001 < 0.01	< 0.0001 < 0.01	0.0001 < 0.01	< 0.0001 < 0.01	< 0.0001 < 0.01	< 0.0001 0.02	< 0.0001 < 0.01	< 0.0001 < 0.01
Nickei Selenium	mg/L	0.01	0.001	0.002	0.002	0.002	<0.0016	< 0.01	< 0.01	< 0.01	0.002	0.003	0.002	< 0.01	< 0.001	< 0.01	< 0.01
Selenium Silver	mg/L	0.01 N/A	< 0.001	< 0.002	< 0.002	< 0.002	<0.001	< 0.0001	< 0.0001	< 0.0001	0.002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.001	< 0.001
	mg/L	N/A N/A	1.95	1.96	2.26	2.06	2.1	< 0.00002	0.609	0.00002	0.00007	0.00002	0.613	0.00002	0.516	0.0001	0.557
Strontium Thallium	mg/L	N/A N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
	mg/L	,	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.0005	0.00005	0.00005	0.00005	0.00005	0.0005	0.00005	0.0005	0.00005	0.00005	0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0016	< 0.0032	< 0.0027	< 0.0023	< 0.002	< 0.0009	< 0.0025	< 0.0009	< 0.0001	< 0.005
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	ianty		20-91-III	20-91-III	00.04 III (DUD)	21-91-I	21-91-I	21-91-1	21-91-I								
Parameters	Units	ODWQS	8-May-19	7-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21	3-May-22	25-Oct-22	20-91-III 2-May-23	18-Oct-23	20-91-III (DUP) 18-Oct-23	7-May-14	21-91-1 22-Oct-14	26-May-15	13-Oct-15
Alkalinity	mg/L	500	358	367	369	363	351	361	343	380	378	394	396	572	571	578	577
Unionized Ammonia	mg/L	N/A	550	307	505	000	331	301	040	300	570	004	550	0/2	371	370	377
Ammonia	mg/L	N/A	0.32	0.36	0.41	0.51	0.37	0.49	0.64	0.72	1.09	0.95	1.08	2.13	2.12	2.41	2.03
BOD	mg/L	N/A	0.52	0.30	0.41	0.01	0.57	0.49	0.04	0.72	1.09	0.93	1.00	2.10	2.12	2.41	2.03
Calcium	mg/L	N/A	118	127	116	122	108	113	117	111	111	114	114	167	168	177	181
COD	mg/L	N/A	29	28	51	36	29	32	23	23	20	27	23	98	117	82	68
Chloride	mg/L	250	81	104	86.2	95.3	77.1	76.3	76.1	126	99.2	76.3	74.8	586	504	664	486
Conductivity	umhos/cm	N/A	955	1000	963	1000	888	885	933	987	1010	965	967	2470	2480	2920	2470
		,	955	1000	903	1000	000	000	933	907	1010	900	907	2470	2400	2920	2470
Cyanide	mg/L	0.2 5	0.7	0.4	0.0	7.0	6.0	4.0		4.4		7.7	7.0	40.4	40.0	2.0	F.4
DOC	mg/L		8.7	9.4	9.2	7.9	6.3	4.8	6.2	4.1	6.6	7.7	7.8	10.1	10.9	3.6	5.1
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	<0.1	0.3	0.3	0.3	0.3
Hardness	mg/L	500	420	455	414	438	379	392	398	394	387	392	394	839	858	891	909
Ion Balance	%	N/A			2.81	6.47	1.76	1.45	5.07	3.04	1.75	2.55	2.4	8.8	3.86		
Iron	mg/L	0.3	2.5	3.55	2.46	3.4	1.82	2.04	1.98	2.43	2.44	1.85	1.8	0.388	0.561	0.933	0.536
Magnesium	mg/L	N/A	30.5	33.4	30.1	32.3	26.6	26.6	25.7	28.4	26.7	26.1	26.4	102	106	109	111
Manganese	mg/L	0.05	0.039	0.039	0.029	0.037	0.027	0.047	0.069	0.09	0.064	0.064	0.06	0.008	0.01	0.011	0.01
Nitrate	mg/L	10	< 0.05	< 0.05	0.09	< 0.05	0.11	< 0.05	< 0.05	< 0.05	< 0.05	0.06	0.06	< 0.1	< 0.1	< 0.1	< 0.1
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.08	< 0.05	< 0.05	< 0.05	<0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	8.0	1	1.1	1.2	0.9	1	1.2	1.3	1.1	1.5	1.1	4.6	3.7	4.1	3.7
pH-Lab	pH unit	6.5-8.5	7.84	7.66	7.68	7.73	8.06	7.71	7.69	7.59	7.74	7.46	7.58	7.48	7.48	7.38	7.28
Phenols	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	0.04	0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	2.6	2.9	2.7	2.8	2.6	2.7	2.7	3.2	3.1	2.8	2.9	9.5	9.6	10.4	10.3
Sodium	mg/L	200	43.9	52.6	47.5	56.6	45.9	44.8	47	57.3	50.6	40.2	40.9	146	143	178	163
Sulphate	mg/L	500	7	3	8	6	11	16	11	8	7	13	12	3	4	2	< 1
TDS	mg/L	500	501	547	515	536	484	499	488	565	527	514	515	1360	1280	1490	1300
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.07	0.08	0.07	0.08	0.07	0.05	0.07	0.07	0.06	0.04	0.04	0.04	0.04	0.05	0.05
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001	0.0043	0.0034	< 0.0001	0.0031
Barium	mg/L	1	0.287	0.335	0.285	0.332	0.264	0.28	0.285	0.35	0.315	0.272	0.273	0.857	0.814	0.846	0.926
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.107	0.125	0.122	0.144	0.121	0.127	0.119	0.136	0.122	0.109	0.111	0.467	0.472	0.475	0.505
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000010	<0.000015	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Chromium	mg/L	0.05	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.001	0.0013	0.0116	0.0111	0.0131
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.0001	<0.0001	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0004	0.0002	0.0002	0.0036	0.0006	0.0002	0.0001	0.0002	0.0007	0.0002	<0.0001	0.0013	0.0009	0.0002	0.0008
Lead	mg/L	0.01	< 0.00002	< 0.00004	0.00003	0.00003	0.00002	0.00003	< 0.00002	< 0.00002	0.0005	<0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00004	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	< 0.00002	< 0.0001	< 0.0001	< 0.00002	< 0.00002	0.0003	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001	< 0.0001	< 0.00002	< 0.00002	< 0.00002
Nickel	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	< 0.001	0.004	0.004	< 0.001	< 0.01	< 0.001	< 0.001
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.001	0.001	<0.004	<0.004	0.001	< 0.001	< 0.001	0.008
Silver	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.001	< 0.0001	< 0.0001	< 0.0001	< 0.00002
Strontium	-	N/A	0.585	0.653	0.578	0.619	0.609	0.625	0.585	0.666	0.601	0.541	0.555	· 0.00002	10.1	10.5	11.2
Thallium	mg/L	N/A N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
	mg/L																
Vanadium	mg/L	N/A	0.0001	< 0.0001	0.0001	0.0002	0.0001	< 0.0001	0.0001	0.0002	0.0002	0.0001	0.0001	0.0028	0.0061	0.0063	0.0049
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	uanty		21-91-I	21-91-I	21-91-I	21-91-I	21-91-I	21-91-I	21-91-1	21-91-I	21-91-I	21-91-I	21-91-I	21-91-I	21-91-I	21-91-1	21-91-1
Parameters	Units	ODWQS	17-May-16	12-Oct-16	21-91-1 23-May-17	17-Oct-17	8-May-18	11-Oct-18	9-May-19	8-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21	3-May-22	21-91-1 25-Oct-22	21-91-I 2-May-23
Alkalinity	mg/L	500	574	545	590	542	543	573	542	537	533	529	550	557	505	510	496
Unionized Ammonia	mg/L	N/A	0/4	343	330	042	343	373	J42	337	333	323	550	337	303	310	+30
Ammonia	mg/L	N/A	2.16	2.22	2.09	2.07	2.1	2.07	2.18	2.19	2.08	2.23	2.2	2.15	2.35	2.28	3.35
BOD	mg/L	N/A	2.10	Z.ZZ	2.00	2.07	2.1	2.07	2.10	2.10	2.00	2.20	2.2	2.10	2.00	2.20	0.00
Calcium	mg/L	N/A	155	182	178	243	173	185	179	189	173	178	172	183	178	184	161
COD	mg/L	N/A	75	71	77	72	76	82	86	74	93	106	81	71	65	79	63
Chloride	mg/L	250	449	565	366	93.7	556	498	531	520	481	495	476	535	489	598	581
Conductivity	umhos/cm	N/A	2510	4710	2450	3920	2280	2380	2670	2390	2380	2370	2420	2360	2450	2750	2530
Cyanide	mg/L	0.2	20.0		2.00	0020		2000	20.0	2000	2000	20.0	2.20	2000	2.00	2.00	2000
DOC	mg/L	5	7.2	5.6	10.2	11.6	12.2	10.3	11.4	9.4	8.5	6.1	7	5.3	6.2	3.5	5.4
Fluoride	mg/L	1.5	0.3	0.4	< 1	< 0.1	< 0.1	< 0.1	0.4	< 1	< 1	< 0.1	0.2	< 0.1	< 0.5	< 1	< 0.1
Hardness	mg/L	500	781	928	886	1220	893	927	900	953	889	905	907	918	889	881	818
Ion Balance	%	N/A		020	333	1220		V2.		- 555	1.18	1.5	2.32	0.988	1.87	0.26	2.76
Iron	mg/L	0.3	0.559	0.367	0.178	0.02	0.453	0.33	0.17	0.426	0.271	0.275	0.316	0.306	0.221	< 0.005	6.48
Magnesium	mg/L	N/A	95.6	115	107	149	112	113	110	117	111	112	116	112	108	116	101
Manganese	mg/L	0.05	0.008	0.011	0.008	0.016	0.01	0.01	0.011	0.009	0.008	0.008	0.009	0.01	0.009	0.015	0.034
Nitrate	mg/L	10	< 0.1	< 0.1	< 0.5	< 0.05	< 0.05	< 0.05	0.17	< 0.5	0.82	< 0.05	0.000	< 0.05	< 0.3	< 0.5	< 0.05
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.5	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	0.11	< 0.05	0.26	< 0.3	< 0.5	< 0.05
Tot Kjel N	mg/L	N/A	3.6	3.5	3.5	3.5	3.4	3.5	3.6	3.6	3.6	3.9	3.5	3.6	3.5	3.7	3.3
pH-Lab	pH unit	6.5-8.5	7.5	7.36	7.63	7.43	7.52	7.58	7.57	7.53	7.54	7.55	7.63	7.51	7.52	7.46	7.64
Phenols	mg/L	N/A	< 0.001	0.009	0.029	0.019	< 0.001	0.017	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.12	0.22	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	8.9	10.3	9.9	16.7	12.8	11.2	11.9	12.4	11.3	11.3	11.2	11.6	10.8	11.7	11.7
Sodium	mg/L	200	141	158	151	355	166	161	175	173	153	159	161	160	151	184	182
Sulphate	mg/L	500	1	2	< 10	< 1	1	1	3	< 10	< 10	2	< 1	2	< 5	< 10	1
TDS	mg/L	500	1200	1360	1170	1186	1350	1317	1338	1336	1252	1274	1269	1341	1243	1402	1342
TSS	mg/L	N/A					1000				.202		.200				
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.04	0.05	0.05	0.12	0.08	0.08	0.09	0.1	0.09	0.09	0.09	0.08	0.09	0.11	0.05
Antimony	mg/L	0.006	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0002	0.0002	0.0002	< 0.0001	0.0001
Arsenic	mg/L	0.025	0.0023	< 0.0001	0.001	0.0018	< 0.0005	< 0.0001	< 0.0001	< 0.0003	< 0.0003	< 0.0003	< 0.0005	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Barium	mg/L	1	0.781	0.93	0.907	0.976	0.958	0.978	0.946	1.03	0.936	0.992	0.92	1.03	0.979	0.846	0.883
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.408	0.533	0.515	0.565	0.531	0.524	0.552	0.574	0.552	0.55	0.545	0.566	0.539	0.547	0.578
Cadmium	mg/L	0.005	< 0.00002	< 0.00002	< 0.000014	< 0.000014	0.000092	< 0.000015	< 0.000015	< 0.000029	< 0.000029	< 0.000029	< 0.000059	< 0.000029	< 0.000029	< 0.000029	< 0.000029
Chromium	mg/L	0.05	< 0.0002	0.0037	0.002	< 0.001	< 0.001	0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	0.0001	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0002	0.0007	0.0008	0.0006	0.0014	0.0002	0.0013	0.0006	< 0.0002	0.0028	0.0011	< 0.0002	0.0002	0.0005	0.0003
Lead	mg/L	0.01	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0002	< 0.00002	0.00002	< 0.00009	0.00004	< 0.00009	< 0.0002	< 0.00009	< 0.00009	< 0.00009	< 0.00009
Mercury	mg/L	0.001	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0003	< 0.0001	< 0.0001	< 0.0001	< 0.0004	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0004	0.0003	< 0.0002	< 0.0002	0.0006
Nickel	mg/L	N/A	< 0.01	< 0.01	0.01	0.01	0.01	0.01	< 0.01	0.01	< 0.01	0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	0.007	0.012	< 0.001	0.002	< 0.002	0.006	0.005	0.006	0.003	0.004	0.005	0.006	<0.02	<0.02	< 0.001
Silver	mg/L	N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	9.18	10.8	10.6	15.5	10.6	10.6	11.2	11.5	11	11.1	11.2	11.7	10.9	11.7	9.81
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0016	0.0015	0.0043	0.0011	< 0.0007	0.0003	0.0002	< 0.0004	0.0003	< 0.0004	< 0.0007	< 0.0004	< 0.0004	< 0.0004	0.0004
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	laiity		21-91-1	21-91-II	21-91-II	21-91-II	21-91-II	21-91-II	21-91-II	21-91-II	21-91-II						
Parameters	Units	ODWQS	18-Oct-23	7-May-14	22-Oct-14	26-May-15	13-Oct-15	17-May-16	12-Oct-16	23-May-17	17-Oct-17	8-May-18	11-Oct-18	9-May-19	8-Oct-19	5-May-20	13-Oct-20
Alkalinity	mg/L	500	528	389	390	412	393	382	402	432	415	390	403	390	382	378	380
Unionized Ammonia	mg/L	N/A	020	000	000		000	002	.02	.02		000		000	002	0.0	
Ammonia	mg/L	N/A	2.57	1.17	1.22	1.32	0.82	1.24	1.48	1.46	1.11	1.2	1.36	1.57	1.53	1.2	1.26
BOD	mg/L	N/A	2.07				0.02								1.00		20
Calcium	mg/L	N/A	168	70.2	66.5	75.7	73.9	60.8	73.9	79.5	83	71.8	81.1	81.9	78.7	69.6	72.6
COD	mg/L	N/A	69	35	27	30	81	26	22	70	37	18	32	33	32	36	26
Chloride	mg/L	250	535	187	180	198	169	174	201	186	188	175	204	232	210	174	187
Conductivity	umhos/cm	N/A	2570	1240	1300	1390	1270	1250	1390	1450	1350	1220	1370	1410	1330	1260	1310
Cyanide	mg/L	0.2	20.0				.2.0	.200			.000	.220	10.0		.000	.200	
DOC	mg/L	5	7.2	6.3	6.5	2.4	2	3.8	4.3	6.1	5.5	5.9	6	7.3	5.9	3.6	3.8
Fluoride	mg/L	1.5	<0.7	1.6	1.8	1.6	1.7	1.7	1.8	1.9	1.8	1.4	1.1	2.2	1.1	0.8	1.2
Hardness	mg/L	500	847	379	361	413	386	328	410	416	455	396	443	446	429	386	399
Ion Balance	%	N/A	0.493	2.02	4.24	410	000	020	410	410	100	000	110	110	120	1.97	2.78
Iron	mg/L	0.3	4.39	0.477	1.55	1.29	2.56	0.131	0.474	0.313	1.27	0.02	0.961	1.26	1.23	0.092	2.32
Magnesium	mg/L	N/A	104	49.4	47.3	54.4	49	42.9	54.7	52.8	60.2	52.7	58.4	58.7	56.6	51.5	52.8
Manganese	mg/L	0.05	0.023	0.013	0.013	0.013	0.017	0.012	0.016	0.015	0.013	0.012	0.01	0.007	0.009	0.009	0.009
Nitrate	mg/L	10	<0.40	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	0.007	< 0.05	0.003	0.06
Nitrite	mg/L	1	<0.40	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07	< 0.05
Tot Kjel N	mg/L	N/A	4.4	1.9	1.7	2	1.3	1.7	1.9	2.1	1.7	1.6	2.1	2.2	2.1	1.7	1.9
pH-Lab	pH unit	6.5-8.5	7.46	7.87	7.99	7.82	7.78	7.98	7.94	7.97	7.69	7.95	7.91	7.93	7.89	7.95	7.93
Phenols	mg/L	N/A	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.02	0.025	0.011	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	N/A	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.05	0.002	< 0.1	< 0.1
Potassium	mg/L	N/A	11.6	6.6	6.3	7	6.5	5.5	6.8	6.9	7.9	8	8	8.3	8.1	7.2	7.3
Sodium	mg/L	200	176	110	101	119	111	97.8	120	126	126	123	135	141	131	116	124
Sulphate	mg/L	500	<2	1	2	1	4	< 1	< 1	3	3	< 1	< 1	1	< 1	< 1	< 1
TDS	mg/L	500	1430	661	641	707	653	614	702	734	721	668	733	763	718	648	675
TSS	mg/L	N/A	1400	001	041		000	0.14	702	104	72.	000	700	700	7.10	040	0.0
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.06	0.02	0.03	0.03	0.02	0.02	0.02	0.02	0.06	0.05	0.05	0.05	0.06	0.05	0.05
Antimony	mg/L	0.006	0.0002	0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	0.0003	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	<0.0003	0.0027	0.0024	< 0.0001	0.0026	0.0012	0.0006	0.0009	0.0014	0.0004	0.0004	0.0003	0.0005	0.0004	0.0008
Barium	mg/L	1	0.868	3.84	3.39	3.99	3.59	3.26	4.25	3.9	4.6	3.81	4.49	4.85	4.59	3.89	4.18
Beryllium	mg/L	N/A	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.601	0.488	0.477	0.492	0.494	0.405	0.53	0.525	0.581	0.513	0.527	0.552	0.572	0.526	0.54
Cadmium	mg/L	0.005	<0.000030	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	0.00002	< 0.000015	< 0.000015	< 0.000029	< 0.000015	< 0.000015
Chromium	mg/L	0.05	<0.001	0.0004	0.0055	0.0081	0.0075	< 0.0002	0.0024	0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	<0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.005	0.005	< 0.005	< 0.0001	< 0.005
Copper	mg/L	1	<0.0002	0.0013	0.0009	0.0002	0.0013	0.0001	0.0007	0.0006	0.0006	0.0008	0.0002	0.0012	0.0004	< 0.0001	0.001
Lead	mg/L	0.01	<0.00009	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00009	< 0.00002	0.00005
Mercury	mg/L	0.001	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	<0.0002	0.0005	0.0006	0.0003	0.001	0.0007	0.0004	0.0002	0.0004	0.0004	0.0004	0.0002	0.0005	0.0003	0.0003
Nickel	mg/L	N/A	0.007	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	0.005	< 0.001	< 0.001	< 0.001	0.004	0.003	0.006	< 0.001	< 0.001	< 0.001	0.003	0.003	0.003	0.002	0.002
Silver	mg/L	N/A	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0000	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	10.2	0.00002	5.49	6.37	5.64	5.14	5.7	6.07	5.8	5.58	6.2	6.86	6.31	5.64	5.9
Thallium	mg/L	N/A	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	<0.0004	0.0018	0.0028	0.0041	0.0026	0.0009	0.0009	0.0027	0.0009	< 0.0001	0.0001	0.0002	< 0.0004	< 0.00003	< 0.0001
(Valiadilliff)			-0.000T	0.0010													. 0.0001

General Water Qu	ality																
D	1114	ODWOO	21-91-11	21-91-11	21-91-11	21-91-11	21-91-11	21-91-11	21-91-111	21-91-111	21-91-111	21-91-111	21-91-111	21-91-111	21-91-111	21-91-111	21-91-III
Parameters	Units	ODWQS	4-May-21 426	13-Oct-21 425	3-May-22	25-Oct-22 413	2-May-23	18-Oct-23 455	7-May-14 554	22-Oct-14 551	26-May-15 558	13-Oct-15 565	17-May-16 572	12-Oct-16 542	23-May-17 565	17-Oct-17 570	8-May-18 544
Alkalinity Unionized Ammonia	mg/L mg/L	500 N/A	420	425	393	413	425	400	554	551	556	202	5/2	542	505	5/0	544
Ammonia		N/A N/A	1.67	1.43	1.49	1.33	2.15	1.96	1.5	1.16	1.54	1.75	1.7	1.73	1.54	1.28	1.18
BOD	mg/L mg/L	N/A N/A	1.07	1.43	1.49	1.33	2.10	1.90	1.5	1.10	1.54	1.75	1.7	1./3	1.04	1.20	1.10
Calcium	mg/L	N/A	69.8	70.7	75.5	71.1	70.4	83.4	196	68.4	201	215	187	212	210	218	217
COD	mg/L	N/A	36	37	32	19	33	51	87	67	83	102	98	73	92	90	93
Chloride	mg/L	250	207	210	209	250	250	224	368	313	360	376	379	336	313	264	459
Conductivity	umhos/cm	N/A	1390	1360	1410	1390	1500	1520	2100	2090	2130	2150	2210	2070	2120	2050	2110
Cyanide	mg/L	0.2	1000	1000	1410	1000	1000	1020	2100	2000	2100	2100	2210	2070	2120	2000	2110
DOC	mg/L	5	4.3	3.3	4.2	1.8	2.2	6.6	13.7	11.8	6.7	7.3	9.7	8.6	14	13.5	16.4
Fluoride	mg/L	1.5	< 0.1	1.2	1.4	1.3	1.6	<0.7	0.2	0.6	0.2	0.2	0.2	0.2	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	396	390	410	409	396	454	735	373	749	805	703	790	786	819	820
Ion Balance	%	N/A	1.57	0.864	1.02	3.73	6.48	1	1.67	23.5	140	000	7.00	100	700	0.10	525
Iron	mg/L	0.3	0.717	2.31	0.327	2.71	0.302	2.46	7.33	2.02	7.55	12.7	9.86	5.34	5.96	0.011	6.22
Magnesium	mg/L	N/A	53.8	51.8	53.9	56.3	53.5	59.8	59.3	49	60.3	65	57.1	63	63.7	66.7	67.5
Manganese	mg/L	0.05	0.008	0.009	0.009	0.008	0.007	0.008	0.033	0.013	0.041	0.046	0.038	0.035	0.032	0.032	0.037
Nitrate	mg/L	10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.40	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.05	0.9	< 0.05
Nitrite	mg/L	1	< 0.05	0.19	< 0.05	< 0.05	< 0.05	<0.40	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	2.5	2.5	2.2	2.3	2.4	3.3	3.5	1.5	3.2	3.8	3.6	3.1	2.7	2.9	2.8
pH-Lab	pH unit	6.5-8.5	8.04	7.81	7.97	7.73	7.87	7.7	7.43	7.42	7.35	7.19	7.38	7.5	7.57	7.38	7.54
Phenols	mg/L	N/A	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	0.024	0.013	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	7.4	7.4	7.2	7.7	7.6	8.4	5.9	6.5	5.9	6.4	5.5	6.1	6.2	7.1	7.9
Sodium	mg/L	200	131	139	129	130	129	141	125	104	132	146	128	138	143	145	159
Sulphate	mg/L	500	2	< 1	< 1	< 1	< 1	<2	< 1	1	< 1	2	< 1	< 1	< 1	< 1	< 1
TDS	mg/L	500	730	739	714	769	767	828	1100	877	1100	1160	1110	1090	1080	1045	1244
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.05	0.04	0.05	0.04	0.02	0.03	0.05	0.02	0.05	0.05	0.05	0.05	0.06	0.08	0.09
Antimony	mg/L	0.006	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0003	0.0001	< 0.0001	< 0.0002
Arsenic	mg/L	0.025	0.0006	0.001	0.0005	0.0014	0.0004	0.0004	0.0026	0.0025	< 0.0001	0.002	0.0014	0.0001	0.0007	0.0015	< 0.0005
Barium	mg/L	1	4.04	4.26	4.18	4.36	3.96	4.75	0.994	3.58	0.987	1.17	0.993	1.05	1.06	1.11	1.15
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.52	0.536	0.516	0.549	0.512	0.566	0.259	0.487	0.24	0.285	0.228	0.245	0.269	0.276	0.288
Cadmium	mg/L	0.005	< 0.000029	< 0.000015	< 0.000015	< 0.000012	< 0.000012	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	0.000111
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	0.001	<0.001	0.0008	0.0064	0.0109	0.0133	< 0.0002	0.0035	0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0001
Copper	mg/L	1	0.0013	0.0001	0.0007	0.0015	0.0001	0.0002	0.0013	0.0006	0.0002	0.0007	0.0002	0.0006	0.0007	0.0006	0.0009
Lead	mg/L	0.01	0.00117	< 0.00004	< 0.00004	0.00005	< 0.00004	<0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	< 0.0002	0.0003	0.0005	0.0004	0.0002	<0.0001	< 0.0001	0.0004	< 0.0001	0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0004
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0044	< 0.01	< 0.01	< 0.01	0.01	0.01	< 0.01	0.02	0.01	0.01
Selenium	mg/L	0.01	0.003	0.003	0.004	0.004	0.003	0.003	< 0.001	< 0.001	< 0.001	0.005	0.004	0.007	< 0.001	< 0.001	< 0.002
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0002
Strontium	mg/L	N/A	6.07	5.93	5.93	6.26	5.98	6.71	. 0 00005	5.78	2.24	2.18	2.13	2.08	2.55	2.62	2.62
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0004	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0028	0.0034	0.0064	0.0051	0.0017	0.0013	0.004	0.0013	< 0.0007
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	0.006	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.007

Parameters Unite Owner Parameters Unite Owner Parameters mg/L N/A 150	General Water Qu	iality																
Abaharlay				21-91-111	21-91-111	21-91-111	21-91-111	21-91-111	21-91-111	21-91-111	21-91-111	21-91-111	21-91-111	21-91-111	23-07 (DUP)	. ,	24-91	24-91
Visionized Ammonia mg/L N/A 1.12 1.08 1.31 1.05 1.2 1.2 1.26 1.65 1.48 1.82 1.65 1.65 0.08 0.07																	-	
Ammonia mg/L N/A 1.12 1.06 1.31 1.00 1.2 1.2 1.26 1.6 1.48 1.62 1.05 0.02 0.07 0.09 0.07				557	515	522	553	516	547	5/6	540	532	519	528	250	266	345	353
Second Mg/L N/A Z Z Z Z Z Z Z Z Z				4.40	4.00	4.04	4.05	4.0	4.0	4.00	4.0	4.40	4.00	4.05	0.00	0.70	0.00	0.07
Calcium				1.12	1.06	1.31	1.05	1.2	1.2	1.20	1.0	1.48	1.02	1.05	0.62	0.76	0.09	0.07
Company Name			•	224	240	224	04.4	245	200	240	400	400	400	407	00.0	00.0	400	400
Choride			•															
Conductivity											_							
Cyanide											-	-	-	_				
DOC	-			2200	2140	2130	2150	2150	2100	2140	2130	2140	2100	2100	596	597	740	730
Fillion Fill				12.5	12.2	11 5	10.0	0.0	9.7	0.2	0	E E	6.7	11	2.4	2.6	2.0	2.4
Northeres			_	-		-												
Inchablance Name						· ·				_				_				
Informal May				625	804	633												
Magnesium			-	7.65	6 02	6 26												
Manganese mg/L 0.05 0.038 0.036 0.034 0.035 0.037 0.035 0.042 0.035 0.039 0.047 0.01 0.024 0.02																		
NETATE mg/L 10 <0.05 0.17 <0.5 0.08 0.88 0.89 0.17 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05			· ·	1														
Nirrite mg/L 1 <0.05 <0.05 <0.05 <0.09 <0.05 <0.09 <0.05 <0.28 <0.3 <0.5 <0.05 <0.04 <0.05 <0.05 <0.04 <0.05 <0.05 <0.04 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.				1														
Ter Kjel N mg/L N/A 2.8 2.7 3 2.8 3.2 3.1 3.3 3.8 3.5 2.9 4.1 0.6 0.4 0.4 0.3 1.9 1.9 1.9 1.0 1.5 0.5 0.5 1.5 1.7 1.4 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5		-																
pH-Lab																		
Phenols																		
Phosphorus																		
Polassium			•															
Sodium mg/L 200 154 149 157 154 157 152 180 132 170 166 161 8.8 9.3 8 7.2			•															
Sulphate mg/L S00 <1 1 <10 <1 <1 <1 <1			•								_							
TDS mg/L S00 1199 1138 1197 1171 1173 1145 1267 1064 1234 1129 1190 330 310 412 409 TSS mg/L N/A TUBINITY N/TUBINITY N/TU Colour TCU 5 Aluminum mg/L 0.006 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001					ļ							_						
TSS																_		
Turbidity NTU N/A				1100	1100	1101		1110	1140	1201	1004	1204	1120	1100	000	0.10	712	100
Colour TCU 5			,															
Aluminum mg/L 0.1 0.08 0.1 0.12 0.1 0.01 0.12 0.1 0.1 0.1 0.1 0.0 0.00 0.0			•															
Antimony mg/L 0.006 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 <			_	0.08	0.1	0.12	0.1	0.1	0.1	0.08	0.08	0.12	0.06	0.06	0.03	0.03	0.03	0.03
Arsenic mg/L 0.025 < 0.0001 < 0.0001 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 < 0.0003 <						_												
Barium mg/L 1 1.06 1.04 1.26 1.05 1.12 0.916 1.02 0.819 1.08 0.959 1 0.082 0.087 0.061 0.059	-				< 0.0001					< 0.0003	< 0.0003							
Beryllium mg/L N/A <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.000			1						0.916	1.02	0.819			1		0.087	0.061	
Boron mg/L 5 0.273 0.256 0.297 0.295 0.29 0.258 0.312 0.298 0.322 0.322 0.35 0.011 0.011 0.01 <0.005			N/A	< 0.002	< 0.002	< 0.002	< 0.002		< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	<0.0001	< 0.002	< 0.002
Cadmium mg/L 0.005 < 0.000015 < 0.000029 < 0.000029 < 0.000029 < 0.000029 < 0.000029 < 0.000029 < 0.000029 < 0.000029 < 0.000029 < 0.000029 < 0.000029 < 0.000015 < 0.00010 < 0.00002 < 0.00002 Chromium mg/L 0.05 < 0.001				0.273	0.256	0.297			0.258	0.312	0.298	0.322			0.011	0.011	0.01	
Chromium mg/L 0.05 < 0.001 < 0.001 0.002 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005																		
Cobalt mg/L N/A < 0.005 < 0.005 < 0.001 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.0002 0.0003 < 0.0004 < 0.0002 < 0.0002 < 0.0004 < 0.0002 < 0.0002 < 0.0004 < 0.0003 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0009 < 0.0000 < 0.00009 < 0.00009 < 0.0000	Chromium		0.05	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	0.001	< 0.001				0.002	<0.001	0.0004	0.0041
Copper mg/L 1 0.0002 0.0012 0.0006 0.0003 < 0.0002 0.0004 0.0005 < 0.0002 0.0002 0.0004 0.0003 Lead mg/L 0.01 < 0.00002	Cobalt		N/A	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0002	0.005	0.0003	< 0.005	< 0.005
Lead mg/L 0.01 < 0.00002 < 0.00002 < 0.00009 0.00009 < 0.00009 < 0.00009 < 0.00009 < 0.00009 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002	Copper		-	0.0002	0.0012	0.0006			0.0008	< 0.0002	0.0004	0.0005	< 0.0002	0.0002	0.0003	0.0002	0.0004	0.0003
Mercury mg/L 0.001 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.0001 < 0.0002 < 0.0001 < 0.0002 < 0.0001 < 0.0001 < 0.0001			0.01	< 0.00002	< 0.00002					< 0.00009	< 0.00009					<0.00002	0.00005	
Molybdenum mg/L N/A < 0.0001 < 0.0002 0.0001 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.0001	Mercury		0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002
Selenium mg/L 0.01 0.004 0.003 0.002 0.003 0.003 0.004 0.005 0.006 0.006 0.003 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001	Molybdenum		N/A	< 0.0001	< 0.0001	< 0.0002	0.0001	< 0.0002	< 0.0004	< 0.0002	< 0.0002	< 0.0002	< 0.0002	<0.0001	0.0006	0.0009	0.0004	< 0.0001
Selenium mg/L 0.01 0.004 0.003 0.002 0.003 0.003 0.004 0.005 0.006 0.006 0.003 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001	· · · · · · · · · · · · · · · · · · ·			0.01	0.01	0.01					0.01				< 0.01	0.0008	< 0.01	< 0.01
Silver mg/L N/A < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0002 < 0.0001 < 0.0001 < 0.0000 < 0.0001 < 0.0001 < 0.0000 < 0.0000 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0000 < 0.00002 < 0.00002 Strontium mg/L N/A 2.38 2.22 2.88 2.36 2.44 1.69 1.6 1.13 1.83 1.94 1.46 0.264 0.27 0.277 Thallium mg/L N/A < 0.00005	Selenium		0.01	0.004	0.003	0.003	0.002	0.003	0.003	0.004	0.005	0.006	0.006	0.003	< 0.001	<0.001	< 0.001	< 0.001
Thallium mg/L N/A <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.	Silver		N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002
Thallium mg/L N/A <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.	Strontium	mg/L	N/A	2.38	2.22	2.88	2.36	2.44	1.69	1.6	1.13	1.83	1.94	1.46	0.264	0.27		0.277
	Thallium		N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005
Zinc mg/L 5 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 <	Vanadium	mg/L	N/A	0.0003	0.0003	< 0.0004	0.0003	< 0.0004	< 0.0007	< 0.0004	< 0.0004	< 0.0004	< 0.0004	0.0004	< 0.0001	<0.0001	0.0018	0.0022
	Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.005	< 0.005	<0.005	< 0.005	<0.005	< 0.005	< 0.005

General Water Qua	ality		04.04	04.04	04.04	04.04	04.04	04.04	04.04	04.04	04.04	04.04	05.04	05.04	05.04	05.04	05.04
Parameters	Units	ODWQS	24-91 26-May-15	24-91 13-Oct-15	24-91 24-May-16	24-91 13-Oct-16	24-91 24-May-17	24-91 16-Oct-17	24-91 7-May-18	24-91 9-Oct-18	24-91 8-May-19	24-91 8-Oct-19	25-91 7-May-14	25-91 21-Oct-14	25-91 26-May-15	25-91 13-Oct-15	25-91 11-May-16
Alkalinity	mg/L	500	357	355	351	350	356	358	354	355	336	350	324	285	372	373	309
Unionized Ammonia	mg/L	N/A	551	000	331	< 0.01	000	000	004	000	550	550	524	200	012	010	303
Ammonia	mg/L	N/A	0.03	0.05	0.05	0.06	0.04	0.05	0.04	0.06	0.06	0.04	0.01	0.06	0.08	0.11	0.05
BOD	mg/L	N/A	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.11	0.00
Calcium	mg/L	N/A	130	132	130	135	130	133	130	134	138	143	120	110	159	159	116
COD	mg/L	N/A	< 5	< 5	17	< 5	7	5	< 5	< 5	47	7	10	< 5	< 5	8	< 5
Chloride	mg/L	250	5.2	6.7	6.3	3.9	5.8	4.1	6.9	5.3	6.1	5	111	91.8	164	134	148
Conductivity	umhos/cm	N/A	742	735	721	712	719	708	702	647	726	733	961	886	1220	1130	1060
Cyanide	mg/L	0.2							-		-						
DOC	mg/L	5	1.4	1.2	1	1	0.8	1.2	1.9	2.3	2.2	2.8	4.2	5.3	1.2	1	1.5
Fluoride	mg/L	1.5	0.1	0.1	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	0.2	0.1	0.2	0.2
Hardness	mg/L	500	403	409	403	418	400	416	405	414	428	443	331	304	438	443	325
Ion Balance	%	N/A											3.339	3.26			
Iron	mg/L	0.3	1.31	1.64	1.25	1.91	1.29	1.89	1.23	< 0.005	1.08	2.1	0.158	0.02	0.307	1.2	0.232
Magnesium	mg/L	N/A	18.8	19.1	18.9	19.4	18.4	20.2	19.4	19.3	20.2	20.9	7.43	7.24	9.99	10.9	8.32
Manganese	mg/L	0.05	0.022	0.022	0.02	0.023	0.022	0.023	0.021	0.007	0.025	0.023	0.037	0.015	0.042	0.044	0.02
Nitrate	mg/L	10	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.1	< 0.1	< 0.1	0.1	< 0.1
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	0.3	0.4	0.3	0.1	< 0.1	0.2	0.1	0.3	0.2	0.3	0.6	0.3	0.5	0.6	0.4
pH-Lab	pH unit	6.5-8.5	7.6	7.86	7.53	7.85	7.91	7.84	7.8	7.92	7.88	7.81	7.85	7.92	7.56	7.79	7.79
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	0.003	0.003	0.003	< 0.001	0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.66	0.67	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	1.4	1.5	1.5	1.3	1.3	1.5	1.7	1.7	1.6	1.6	0.9	1	1.1	1.3	1.1
Sodium	mg/L	200	7.6	8.1	7.6	7.9	6.6	6.3	6.9	7.1	6.6	7.2	58.7	54.4	76.4	69.5	62.6
Sulphate	mg/L	500	37	37	38	33	28	27	35	33	33	34	10	35	12	21	14
TDS	mg/L	500	416	420	414	413	404	409	414	413	408	424	503	471	646	622	536
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.04	0.04	0.04	0.06	0.03	0.07	0.09	0.07	0.07	0.09	0.03	0.03	0.04	0.04	0.03
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0013	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0002	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0001	0.0002	0.0003	0.0008	0.0004	0.0006	0.0004
Barium	mg/L	1	0.067	0.072	0.074	0.075	0.076	0.089	0.083	0.086	0.083	0.092	0.072	0.069	0.099	0.116	0.074
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	< 0.005	0.007	0.012	0.011	0.009	0.014	0.011	0.008	0.012	0.012	0.026	0.035	0.017	0.038	< 0.005
Cadmium	mg/L	0.005	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Chromium	mg/L	0.05	0.0043	0.0047	< 0.0002	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.0005	< 0.0002	0.0049	0.0054	0.0003
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0004	0.011	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	< 0.0001	< 0.0001	0.0003	0.0002	0.0038	0.0001	0.0001	0.0022	0.0007	< 0.0001	0.0008	0.0014	0.0001	0.0004	0.0004
Lead	mg/L	0.01	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00034	0.00003	0.00008	0.0001	0.00008	0.00002	0.00003	0.00002	< 0.00002	< 0.00002	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0002	0.0003	0.0004	0.0003	0.0004	0.0003	0.0004	0.0004	0.0003	0.0004	0.0004	0.0006	0.0003	0.0005	0.0009
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	N/A	0.289	0.294	0.287	0.281	0.282	0.257	0.28	0.282	0.298	0.307		0.308	0.447	0.447	0.3
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0026	0.0018	0.0019	0.0007	< 0.0001	0.0008	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0017	< 0.0001	0.0028	0.0021	< 0.0001
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.006	< 0.005	< 0.005	< 0.005

General Water Qu	uanty		25-91	25-91	25-91	25-91	25-91	25-91	25-91	25-91	25-91	25-91	25-91	25-91	25-91	25-91	25-96
Parameters	Units	ODWQS	24-May-17	17-Oct-17	7-May-18	11-Oct-18	8-May-19	8-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21	3-May-22	25-91 25-Oct-22	25-91 2-May-23	18-Oct-23	7-May-14
Alkalinity	mg/L	500	335	370	329	319	340	342	277	278	325	315	324	330	320	372	444
Unionized Ammonia	mg/L	N/A	000	010	020	010	0.10	012	211	270	020	010	021	000	020	072	
Ammonia	mg/L	N/A	0.03	0.07	0.05	0.11	0.07	0.12	0.03	0.06	0.07	0.06	0.08	0.01	0.54	2.64	2.97
BOD	mg/L	N/A	0.00	0.01	0.00	0.11	0.01	0.12	0.00	0.00	0.01	0.00	0.00	0.01	0.01	2.01	2.07
Calcium	mg/L	N/A	133	151	133	153	141	158	119	144	130	129	143	141	126	151	23.1
COD	mg/L	N/A	18	10	5	11	18	21	12	11	22	15	11	5	8	14	< 5
Chloride	mg/L	250	113	147	152	156	133	151	131	163	168	138	174	243	159	176	174
Conductivity	umhos/cm	N/A	1070	1170	1060	1130	1030	1100	962	1110	1090	1020	1200	1230	1080	1280	1370
Cyanide	mg/L	0.2						1.00	552			.020	.200	.200		.200	
DOC	mg/L	5	3.9	2.8	2.9	2.8	3.4	3.5	3	1.7	2.6	2.5	2.2	< 0.2	1.4	3	2.4
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	2.4
Hardness	mg/L	500	367	420	369	424	389	438	329	399	361	356	394	395	349	418	141
Ion Balance	%	N/A	007	120	000	121	000	100	3.41	3.44	1.01	2.33	2.41	8.11	1.08	1.56	3.57
Iron	mg/L	0.3	0.112	0.262	0.078	1.06	0.109	1.46	0.067	0.18	0.045	0.056	0.088	0.212	0.058	0.11	0.01
Magnesium	mg/L	N/A	8.21	10.4	8.88	10.1	8.94	10.5	7.58	9.4	8.64	8.2	8.84	10.3	8.29	9.86	20.4
Manganese	mg/L	0.05	0.037	0.033	0.047	0.042	0.06	0.064	0.031	0.011	0.016	0.011	0.019	0.024	0.015	0.014	0.002
Nitrate	mg/L	10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.09	0.05	0.41	< 0.05	< 0.05	< 0.05	< 0.05	0.09	< 0.1
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07	< 0.05	< 0.05	0.13	< 0.05	< 0.05	< 0.05	<0.05	< 0.1
Tot Kjel N	mg/L	N/A	0.5	0.6	0.5	0.4	0.4	0.8	0.6	0.4	0.6	0.6	0.4	0.4	0.6	2.7	3.3
pH-Lab	pH unit	6.5-8.5	7.99	7.76	7.86	7.78	7.91	7.82	7.83	7.88	8.03	7.78	7.77	7.74	7.88	7.56	8.19
Phenols	mg/L	N/A	0.002	0.002	< 0.001	0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	0.13	0.59	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1
Potassium	mg/L	N/A	2	2.2	2.1	1.8	2.1	2.3	2.8	2.5	2.7	2.8	2.9	2.7	2.9	2.7	9.8
Sodium	mg/L	200	95.6	90.7	97.3	82.5	80.1	88.4	81.2	80.8	92.8	91.9	96.3	90.8	89.2	93.6	222
Sulphate	mg/L	500	9	24	11	35	9	12	13	30	13	23	8	27	14	23	< 1
TDS	mg/L	500	562	648	602	631	578	629	521	596	611	582	628	713	591	690	722
TSS	mg/L	N/A		0.10	302	•		920	02.	000	0	002	020			000	
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.04	0.08	0.08	0.06	0.07	0.09	0.07	0.08	0.09	0.05	0.08	0.1	0.05	0.05	< 0.01
Antimony	mg/L	0.006	0.0002	0.0002	< 0.0001	0.0001	0.0001	< 0.0001	0.0002	0.0004	0.0002	0.0003	< 0.0001	0.0001	0.0001	0.0003	0.0001
Arsenic	mg/L	0.025	0.0007	0.0009	0.0003	0.0003	0.0003	0.0008	0.0004	0.0003	0.0003	0.0003	0.0003	0.0005	0.0003	0.0004	0.0032
Barium	mg/L	1	0.095	0.137	0.091	0.117	0.081	0.116	0.079	0.109	0.089	0.092	0.089	0.113	0.088	0.103	0.211
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002
Boron	mg/L	5	0.023	0.038	0.026	0.031	0.02	0.034	0.016	0.019	0.016	0.022	0.012	< 0.005	0.015	0.021	1.25
Cadmium	mg/L	0.005	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000012	< 0.000012	<0.000015	< 0.00002
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.0007
Cobalt	mg/L	N/A	< 0.005	< 0.005	0.0002	< 0.005	0.011	< 0.005	0.0002	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.005	0.0002	< 0.005
Copper	mg/L	1	0.0019	0.0009	0.0008	0.0003	0.0005	0.0004	0.0011	0.0017	0.0009	0.0021	0.0003	0.0003	0.0007	0.0006	0.0025
Lead	mg/L	0.01	0.00008	0.00003	0.00003	0.00003	0.00003	< 0.00004	0.0001	0.0001	0.00011	0.00008	0.00012	0.00004	0.00011	0.00003	0.00003
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002
Molybdenum	mg/L	N/A	0.0007	0.0006	0.0004	0.0005	0.0003	0.0006	0.0004	0.0012	0.0004	0.0008	0.0004	0.0008	0.0004	0.0006	0.0011
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0015	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	0.001	0.001	<0.001	< 0.001
Silver	mg/L	N/A	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.001	< 0.0001	<0.0001	< 0.00002
Strontium	mg/L	N/A	0.359	0.371	0.366	0.392	0.364	0.423	0.314	0.387	0.371	0.359	0.381	0.432	0.355	0.407	
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	0.0008	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0004	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0019
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005

General Water Qu	laiity		25-96	25-96	25-96	25-96	25-96	25-96	25-96	25-96	25-96	25-96	25-96	25-96	25-96	25-96	25-96
Parameters	Units	opwos	21-Oct-14	26-May-15	13-Oct-15	11-May-16	13-Oct-16	24-May-17	16-Oct-17	7-May-18	11-Oct-18	8-May-19	7-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21
Alkalinity	mg/L	500	446	448	451	450	441	464	463	443	463	412	418	419	420	455	453
Unionized Ammonia	mg/L	N/A				100	0.11		100						120	.00	
Ammonia	mg/L	N/A	3.12	2.85	2.66	3.07	3.11	0.03	3.01	2.9	2.84	2.97	2.91	2.92	3.07	2.95	3.08
BOD	mg/L	N/A	-				****										
Calcium	mg/L	N/A	28.2	23.8	25.3	20.1	24.3	24.7	26.2	25.8	26.9	26.1	28.6	25.4	26.6	24.1	26.4
COD	mg/L	N/A	< 5	6	8	< 5	< 5	9	7	< 5	10	11	< 5	21	7	12	8
Chloride	mg/L	250	167	160	166	164	163	142	150	164	173	171	181	167	169	176	177
Conductivity	umhos/cm	N/A	1360	1350	1370	1340	1370	1350	1340	1290	1360	1340	1340	1330	1330	1350	1340
Cyanide	mg/L	0.2															
DOC	mg/L	5	2.8	0.5	< 0.2	0.4	0.6	0.7	0.7	1.4	1	1.1	1.4	1.8	0.6	2	1.3
Fluoride	mg/L	1.5	2.2	2.4	2.3	2.3	2.4	2.6	2.5	1.9	1.8	2	2.2	1.5	2.2	< 0.1	2.1
Hardness	mg/L	500	177	147	157	133	152	153	165	163	158	163	175	158	162	154	161
Ion Balance	%	N/A	2.07											3.07	3.03	0.622	1.94
Iron	mg/L	0.3	0.227	0.014	0.127	0.015	0.023	0.035	0.207	0.021	0.126	0.007	0.05	0.021	0.455	0.02	0.418
Magnesium	mg/L	N/A	25.9	21.4	22.9	20	22.1	22.1	24.2	23.9	22.1	23.8	25.2	23.1	23.3	22.8	23.2
Manganese	mg/L	0.05	0.002	0.002	0.002	0.002	0.004	0.002	0.004	0.002	0.004	0.003	0.002	0.002	0.004	0.001	0.009
Nitrate	mg/L	10	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.1	< 0.05	0.2	< 0.05
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.08	< 0.05	< 0.05	0.19
Tot Kjel N	mg/L	N/A	3.3	2.9	3	3.2	3.6	3.2	3.2	3.1	3.1	3.3	3.2	3.4	3.5	3.2	3.4
pH-Lab	pH unit	6.5-8.5	8.16	8.13	8.28	8.08	8.36	8.22	8.14	8.11	8.1	8.21	8.09	8.07	7.96	8.36	8.06
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.003	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.04	0.03	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	10.4	10.2	10.6	9	10.1	10.4	11.5	13.5	11.1	11.9	12.7	11.7	11.5	11.4	11.9
Sodium	mg/L	200	210	239	244	195	235	244	239	262	236	243	262	238	243	246	252
Sulphate	mg/L	500	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	2	< 1
TDS	mg/L	500	716	731	742	685	725	725	736	761	752	729	766	722	729	759	769
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.03	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001
Arsenic	mg/L	0.025	< 0.001	< 0.0001	0.0026	0.0002	0.0002	0.0008	0.0012	0.0001	0.0002	0.0001	< 0.0003	< 0.0001	< 0.0001	< 0.0001	0.0001
Barium	mg/L	1	0.326	0.207	0.245	0.175	0.218	0.207	0.259	0.241	0.247	0.22	0.263	0.21	0.26	0.211	0.237
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	1.36	1.29	1.34	1.09	1.31	1.36	1.48	1.45	1.29	1.41	1.52	1.4	1.4	1.36	1.41
Cadmium	mg/L	0.005	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000029	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.05	0.0003	0.005	0.0062	< 0.0002	0.0024	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.005	0.011	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0014	0.0006	0.0013	0.001	0.0012	0.0027	0.001	0.0018	0.0003	0.0005	0.0014	0.0004	0.0015	0.0007	0.0001
Lead	mg/L	0.01	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00009	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00009	0.00002	0.00006	0.00004	< 0.00004
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum Nickel	mg/L	N/A N/A	< 0.0001 < 0.01	0.0003	0.0004 < 0.01	0.001 < 0.01	0.0003	0.0005 < 0.01	0.0012 < 0.01	0.0005 < 0.01	0.001 < 0.01	0.0003 < 0.01	0.0003 < 0.01	0.0003 < 0.01	0.0002 < 0.01	0.0003	0.0003 < 0.01
	mg/L	0.01	< 0.01	< 0.001	0.007	0.006	0.009	< 0.001	< 0.001	< 0.01	0.004	0.004	0.004	0.003	0.003	0.004	0.004
Selenium Silver	mg/L	0.01 N/A	< 0.0001	< 0.0001	< 0.0007	< 0.00002	< 0.0009	< 0.0001	< 0.0001	< 0.001	< 0.004	< 0.004	0.004	< 0.003	< 0.003	< 0.004	< 0.004
Strontium	mg/L	N/A N/A	3.88	3.2	3.34	2.52	2.98	3.24	3.01	3.43	3.15	3.36	3.7	3.35	3.45	3.38	3.51
Thallium	mg/L	N/A N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00006	< 0.00005	0.00007	< 0.00005	< 0.00005
Vanadium	mg/L	N/A N/A	< 0.00005	0.0008	0.0022	< 0.00005	0.0008	< 0.00005	0.0009	< 0.00005	< 0.00005	< 0.00005	< 0.0004	< 0.00005	< 0.0001	< 0.00005	< 0.00005
Zinc	mg/L	N/A 5	< 0.0001	< 0.0028	< 0.0022	< 0.0001	< 0.005	< 0.0001	< 0.0009	< 0.0001	< 0.0001	< 0.0001	< 0.0004	< 0.0001	< 0.0001	< 0.0001	0.005
ZIIIC	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.005

General Water Qu	- L		25-96	25-96	25-96	25-96	27-93	27-93	27-93	27-93	27-93	27-93	27-93	27-93	27-93	27-93	27-93
Parameters	Units	ODWQS	3-May-22	25-0ct-22	2-May-23	18-Oct-23	7-May-14	22-Oct-14	26-May-15	13-Oct-15	12-May-16	13-Oct-16	24-May-17	16-Oct-17	7-May-18	9-Oct-18	8-May-19
Alkalinity	mg/L	500	416	428	433	457	213	209	212	210	215	209	212	213	213	197	199
Unionized Ammonia	mg/L	N/A		.20			2.0	200		2.0	2.0	< 0.01		2.0	2.0		
Ammonia	mg/L	N/A	3.11	3.14	3.03	3.63	0.09	0.16	0.09	0.1	0.11	0.18	0.09	0.11	0.11	0.12	0.13
BOD	mg/L	N/A	0	· · · ·	0.00	0.00	0.00	0.10	0.00	0	0	00	0.00	0	0	02	00
Calcium	mg/L	N/A	25.3	25	24.5	25.6	63.6	64.1	69.9	69.5	58.9	70.9	68.4	71.4	66.4	67.6	69.6
COD	mg/L	N/A	14	< 5	9	23	< 5	< 5	< 5	5	< 5	< 5	< 5	< 5	< 5	15	5
Chloride	mg/L	250	175	238	195	172	5.1	5.5	5.1	5.5	4.9	< 0.5	5.9	5.1	6.3	5.8	5.4
Conductivity	umhos/cm	N/A	1380	1370	1380	1380	479	477	480	475	481	478	478	478	460	472	473
Cyanide	mg/L	0.2	1000	1070	1000	1000	470		100	470	401	47.0	47.0	470	100	-1.2	170
DOC	mg/L	5	1.3	< 0.2	< 0.2	1.5	15.7	2.2	1.3	0.7	1	1	1	0.9	1.2	1.4	1.7
Fluoride	mg/L	1.5	2.1	2.9	2.4	1.7	0.2	0.3	0.2	0.2	0.2	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	155	161	155	158	234	234	254	253	224	258	252	264	250	252	259
Ion Balance	%	N/A	2.18	3.48	1.33	2.95	1.6	1.11	204	200	ZZT	200	202	204	200	202	200
Iron	mg/L	0.3	0.024	0.299	0.011	0.225	0.27	0.449	0.351	0.484	0.289	1.02	0.346	0.509	0.269	0.363	0.285
Magnesium	mg/L	N/A	22.4	23.9	22.8	22.9	18.2	18	19.4	19.2	18.8	19.7	19.8	20.8	20.5	20.3	20.7
Manganese	mg/L	0.05	0.004	0.004	0.003	0.004	0.008	0.01	0.009	0.011	0.008	0.022	0.009	0.012	0.009	0.009	0.009
Nitrate	mg/L	10	< 0.05	< 0.05	< 0.05	<0.40	< 0.1	< 0.1	0.003	< 0.1	0.000	< 0.1	< 0.05	< 0.05	< 0.05	0.003	< 0.05
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	<0.40	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	3.2	3.6	3.5	4.2	37.1	0.3	0.4	0.2	0.2	0.2	0.4	0.2	0.2	0.3	0.2
pH-Lab	pH unit	6.5-8.5	8.1	8.01	8.12	7.91	8.11	8.06	7.89	7.99	7.99	8.19	8.06	8.03	8.05	8.26	8.06
Phenols	mg/L	N/A	< 0.001	< 0.001	0.01	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.002	< 0.002
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.002
Potassium	mg/L	N/A	11.2	12.1	11.8	11.8	1.9	1.9	1.9	1.8	1.7	1.8	1.8	2	2.3	2	2.1
Sodium	mg/L	200	243	244	242	237	5	4.6	5.5	5.2	5.9	6.1	5.6	5.2	5.6	5.3	5.3
Sulphate	mg/L	500	< 1	< 1	< 1	29	34	35	34	34	35	35	28	30	34	35	34
TDS	mg/L	500	729	807	758	751	256	255	264	263	255	260	260	263	264	254	257
TSS	mg/L	N/A	125	007	750	751	200	200	204	200	200	200	200	200	204	204	257
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.02	0.03	< 0.01	<0.01	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.05	0.05	0.05	0.05
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0001	0.0002	0.0002	0.0002	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Barium	mg/L	1	0.218	0.26	0.236	0.238	0.079	0.075	0.085	0.083	0.07	0.088	0.083	0.094	0.086	0.081	0.082
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	1.37	1.47	1.37	1.45	0.036	0.026	0.027	0.02	< 0.005	0.033	0.036	0.043	0.042	0.036	0.041
Cadmium	mg/L	0.005	< 0.000015	< 0.000012	< 0.000012	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.05	< 0.001	< 0.001	0.001	<0.001	< 0.0002	0.0025	0.0027	0.002	< 0.0002	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	<0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	0.008	< 0.005
Copper	mg/L	1	0.0002	0.0005	0.0004	0.0003	0.0007	0.0002	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0031	0.0002	0.0002	0.0003	0.0004
Lead	mg/L	0.01	< 0.00004	0.00005	< 0.00004	<0.00004	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00021	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0002	0.0002	0.0019	0.0006	0.0003	< 0.0001	0.0003	0.0002	0.0008	0.0003	0.0003	0.0002	0.0003	0.0003	0.0002
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	0.0002	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	0.005	0.006	0.005	0.003	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	3.36	3.57	3.43	3.38	0.00002	0.447	0.46	0.478	0.389	0.453	0.496	0.426	0.491	0.449	0.497
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.0005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.0007	0.0012	0.001	0.0012	< 0.0001	0.0004	< 0.0001	0.0004	< 0.0001	< 0.0001	< 0.0001
•	mg/L	5	< 0.005	< 0.005	< 0.005	<0.005	0.007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	ality		1		1			1									
Parameters	Units	ODWQS	27-93 7-Oct-19	27-93 5-May-20	27-93 13-Oct-20	27-93 4-May-21	27-93 13-Oct-21	27-93 3-May-22	27-93 25-Oct-22	27-93 2-May-23	27-93 18-Oct-23	28-93 7-May-14	28-93 21-Oct-14	28-93 26-May-15	28-93 13-Oct-15	28-93 11-May-16	28-93 18-Oct-16
Alkalinity	mg/L	500	197	200	201	222	225	218	216	2-iviay-23	227	271	278	26-Way-15	286	287	261
Unionized Ammonia	mg/L	N/A	197	200	201	222	223	210	210	217	221	211	276	200	200	201	201
Ammonia	mg/L	N/A	0.11	0.11	0.13	0.12	0.14	1.46	0.1	1.96	0.37	4.3	3.98	1.03	3.31	3.42	2.85
BOD	mg/L	N/A	0.11	0.11	0.10	0.12	0.14	1.40	0.1	1.50	0.07	4.0	0.50	1.00	0.01	0.42	2.00
Calcium	mg/L	N/A	74.6	69	69.1	67.8	76.4	74.4	70.3	67.9	67.9	106	85.6	26.6	56.5	64.1	49.5
COD	mg/L	N/A	< 5	13	10	< 5	5	< 5	< 5	< 5	5	11	< 5	< 5	< 5	< 5	8
Chloride	mg/L	250	2.4	6.1	5.5	6.8	8	8.9	15.1	9.5	8.5	941	625	198	475	478	537
Conductivity	umhos/cm	N/A	467	468	468	485	498	509	509	515	503	3240	2640	1210	2730	2070	3340
Cyanide	mg/L	0.2															
DOC	mg/L	5	2	1.9	2.2	2.2	1.4	1.6	1	2.1	2.7	2.7	1.8	0.4	< 0.2	< 0.2	0.3
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.1	<0.1	1.9	1.6	0.6	1.4	1.3	1.5
Hardness	mg/L	500	269	255	249	253	272	267	260	253	251	653	524	137	346	405	291
Ion Balance	%	N/A		5.39	3.41	0.0218	1.94	2.29	2.24	1.03	1.9	4.08	0.169				
Iron	mg/L	0.3	0.854	0.448	0.411	0.576	0.737	0.705	0.68	0.639	0.633	0.079	5.65	0.372	2.27	2.84	0.784
Magnesium	mg/L	N/A	20.1	20	18.6	20.3	19.6	19.6	20.4	20.2	19.7	94.3	75.3	17.1	49.8	59.6	40.6
Manganese	mg/L	0.05	0.012	0.009	0.01	0.01	0.011	0.012	0.01	0.011	0.011	0.112	0.119	0.015	0.084	0.075	0.055
Nitrate	mg/L	10	< 0.05	0.06	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	< 0.1	0.1	0.2	0.2	< 0.1	0.1
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	0.2	0.2	0.2	0.2	0.2	1.4	0.2	0.5	0.5	6.3	4.4	1.4	3.9	3.7	3.2
pH-Lab	pH unit	6.5-8.5	7.96	7.91	7.93	8.14	7.99	7.82	7.85	7.96	7.45	7.89	7.93	8.07	7.71	7.91	7.86
Phenols	mg/L	N/A	< 0.002	0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	0.003	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	2.1	2	1.9	2	2.1	2	2.1	2.3	2.2	15.7	13.7	7	12.3	12.6	11
Sodium	mg/L	200	6.2	5	4.9	5.2	5.3	5	5.3	5.4	5.5	363	272	163	252	259	252
Sulphate	mg/L	500	35	32	36	36	38	37	49	43	36	< 1	2	2	4	2	3
TDS	mg/L	500	259	255	257	272	286	279	293	279	260	1690	1250	573	1020	1060	1060
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.05	0.05	0.05	0.05	0.03	0.05	0.04	0.02	0.02	0.02	0.02	< 0.01	0.02	0.02	0.02
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.0148	< 0.001	< 0.0001	< 0.0001	0.0005	0.0006
Barium	mg/L	1	0.091	0.081	0.083	0.08	0.094	0.088	0.095	0.092	0.087	1.46	1.22	0.236	0.661	0.809	0.541
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.037	0.039	0.034	0.04	0.036	0.04	0.022	0.041	0.042	0.96	0.877	0.26	0.857	0.792	0.671
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000010	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Chromium	mg/L	0.05	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	0.0006	0.0004	0.0028	< 0.0002	< 0.0002	< 0.0002
Cobalt	mg/L	N/A	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0001	0.0006	0.0015	0.0007	0.0003	0.0002	0.0003	0.0004	0.0002	0.0025	0.0017	0.0003	0.0017	0.0011	0.0012
Lead	mg/L	0.01	< 0.00002	< 0.00002	0.00005	0.00003	< 0.00002	< 0.00002	0.00002	< 0.00002	<0.00002	0.00004	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002 0.0002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum Nickel	mg/L	N/A N/A	0.0003	0.0002 < 0.01	0.0002 < 0.01	0.0002 < 0.01	< 0.01	0.0003	0.0003 < 0.01	0.0002 < 0.01	0.0002 <0.0002	0.0006 < 0.01	< 0.0001 < 0.01	0.0004 < 0.01	0.0003	0.0009 < 0.01	0.0004 < 0.01
Nickei Selenium	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.0002	< 0.01	< 0.01	< 0.01	0.006	0.01	0.014
Silver	mg/L	0.01 N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.0001	< 0.0001	< 0.0001	< 0.00002	< 0.00002	< 0.00002
	mg/L		0.463	0.48	0.0001	0.478	0.478	0.475	0.497	0.0001	0.49	< 0.00002	11.3	2.58	7.25	< 0.00002 8.3	6.1
Strontium	mg/L	N/A N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005		< 0.00005	< 0.00005	< 0.00005
Thallium	mg/L		< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	0.00005	< 0.00005	< 0.00005 0.0015	0.00005	< 0.00005	0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001		< 0.0011	< 0.0001	< 0.0015	< 0.0007	< 0.0001	< 0.0007
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qua	l		28-93	28-93	28-93	28-93	28-93	28-93	28-93	28-93	28-93	28-93	28-93	28-93	28-93	28-93	29-93
Parameters	Units	ODWQS	24-May-17	16-Oct-17	7-May-18	11-Oct-18	8-May-19	7-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21	3-May-22	25-Oct-22	2-May-23	18-Oct-23	7-May-14
Alkalinity	mg/L	500	290	294	266	288	296	303	270	277	289	279	284	270	304	305	337
Unionized Ammonia	mg/L	N/A	4.55	3.92													
Ammonia	mg/L	N/A			4.75	3.77	4.72	4.55	3.17	4.44	4.64	4.55	4.4	4.17	5.27	5.73	0.06
BOD	mg/L	N/A															
Calcium	mg/L	N/A	93	82.9	104	92.3	127	116	67.4	117	82.7	93.9	98.6	109	86.6	86.4	176
COD	mg/L	N/A	19	13	42	< 5	18	17	60	25	18	24	18	60	10	14	25
Chloride	mg/L	250	634	732	1070	945	897	866	669	854	900	925	729	845	760	762	267
Conductivity	umhos/cm	N/A	2980	3480	3740	3350	3360	3000	2560	3070	3310	3230	3040	3250	2850	2910	1550
Cyanide	mg/L	0.2															
DOC	mg/L	5	0.4	0.2	0.5	1.2	0.9	1.1	1.2	0.2	0.8	0.9	0.8	< 0.2	0.4	1.6	2.3
Fluoride	mg/L	1.5	< 1	1.6	1.2	< 1	< 1	< 1	< 1	< 1	0.6	2.1	< 1	< 1	1.7	<0.7	0.1
Hardness	mg/L	500	562	495	630	542	774	686	393	697	510	563	585	569	534	529	485
Ion Balance	%	N/A							9.06	2.6	9.49	6.46	3.21	0.189	2.67	3.46	3.45
Iron	mg/L	0.3	4.76	2.37	2.7	1.75	5.98	5.67	1.97	6.07	2.71	3.75	4.82	< 0.005	4.05	4.16	0.019
Magnesium	mg/L	N/A	80.1	70	90.1	75.7	111	96.4	54.6	98.3	73.8	79.8	82.3	98.2	77.2	76.1	10.8
Manganese	mg/L	0.05	0.107	0.087	0.099	0.099	0.141	0.113	0.062	0.111	0.072	0.078	0.085	0.098	0.079	0.072	0.359
Nitrate	mg/L	10	< 0.5	< 0.05	< 0.5	< 0.5	< 0.5	< 0.5	1.09	0.97	< 0.05	< 0.5	< 0.5	< 0.5	< 0.05	<0.40	0.1
Nitrite	mg/L	1	< 0.5	< 0.05	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.05	1.46	< 0.5	< 0.5	< 0.05	<0.40	< 0.1
Tot Kjel N	mg/L	N/A	4.9	4.1	5.2	4.3	5.1	5.1	3.7	5.5	4.9	5.3	5.1	5.4	5.3	6.5	0.7
pH-Lab	pH unit	6.5-8.5	8.02	7.91	7.79	7.85	7.92	7.91	7.81	7.85	8.19	7.79	7.82	7.71	7.94	7.63	7.78
Phenols	mg/L	N/A	0.003	0.004	< 0.001	0.003	< 0.002	< 0.002	< 0.002	< 0.002	0.019	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	0.02	0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1
Potassium	mg/L	N/A	16	15.3	19.5	16.6	19.3	19.3	12.8	17.8	16.3	18.1	16.5	16.6	17.6	17.9	1.8
Sodium	mg/L	200	365	302	370	346	384	395	271	381	338	363	352	347	341	327	99.6
Sulphate	mg/L	500	< 10	1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 10	< 10	< 10	< 1	<2	39
TDS	mg/L	500	1370	1389	1825	1655	1729	1686	1243	1640	1594	1659	1460	1583	1471	1620	798
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.03	0.05	0.06	0.04	0.07	0.07	0.04	0.07	0.05	0.04	0.06	0.08	0.03	0.03	0.04
Antimony	mg/L	0.006	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	0.0003	0.0003	0.0002	0.0002	< 0.0001	0.0002	< 0.0001
Arsenic	mg/L	0.025	0.004	0.0043	0.0007	0.0003	0.0013	0.0009	0.0006	0.0025	0.0006	0.0006	0.0009	0.0007	0.001	0.0006	0.0006
Barium	mg/L	1	1.25	1.2	1.55	1.28	1.99	1.71	0.908	1.88	1.15	1.31	1.44	1.67	1.33	1.25	0.086
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002
Boron	mg/L	5	1.07	0.983	1.01	1.02	1.1	1.15	0.636	1.03	0.966	1.12	0.998	1.03	1.09	1.23	0.044
Cadmium	mg/L	0.005	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000029	< 0.000029	< 0.000029	< 0.000059	< 0.000029	< 0.000029	< 0.000029	< 0.000029	<0.000030	< 0.00002
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	0.0004
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.0001	< 0.005
Copper	mg/L	1	0.0031	0.0012	0.0023	0.0004	0.0004	0.0022	0.0001	0.0022	0.0006	0.0002	0.0002	0.0008	0.0006	0.0002	0.0014
Lead	mg/L	0.01	0.00003	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00009	0.00004	0.00012	< 0.0002	< 0.00009	< 0.00009	< 0.00009	< 0.00009	<0.00009	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002
Molybdenum	mg/L	N/A	0.0004	0.0005	0.0006	0.0004	0.0004	0.0004	0.0006	0.0009	0.0007	0.0005	0.0006	0.0006	0.0005	0.0004	0.0005
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.0002	< 0.01
Selenium	mg/L	0.01	< 0.001	0.003	0.001	0.018	0.025	0.025	0.007	0.042	<0.02	<0.02	<0.02	<0.03	< 0.001	<0.001	< 0.001
Silver	mg/L	N/A	< 0.00002	0.00002	0.0002	< 0.0001	< 0.0001	0.0007	< 0.0001	< 0.0001	< 0.0002	0.0005	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.00002
Strontium	mg/L	N/A	13	9.33	13.7	11.3	17.6	15.3	8.7	16.2	11.9	13	13.4	15.9	12.6	12.4	
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00022	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0004	< 0.0004	< 0.0004	< 0.0007	< 0.0004	< 0.0004	< 0.0004	< 0.0004	<0.0004	0.0017
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005

General Water Qu	lality					22.22		1	22.22	22.22	20.00	22.22	20.00	20.00	20.00		
Parameters	Units	ODWQS	29-93 21-Oct-14	29-93 26-May-15	29-93 13-Oct-15	29-93 24-May-16	29-93 18-Oct-16	29-93 24-May-17	29-93 17-Oct-17	29-93 7-May-18	29-93 9-Oct-18	29-93 9-May-19	29-93 7-Oct-19	29-93 5-May-20	29-93 13-Oct-20	29-93 4-May-21	29-93 13-Oct-21
Alkalinity	mg/L	500	343	349	399	349	360	343	312	376	316	351	408	347	354	361	396
Unionized Ammonia	mg/L	N/A	343	343	399	343	300	343	312	370	310	331	400	347	334	301	390
Ammonia	mg/L	N/A	0.09	0.09	0.12	0.06	0.05	0.18	0.07	0.08	0.08	0.11	0.09	0.04	0.11	0.09	0.11
BOD	mg/L	N/A	0.00	0.03	0.12	0.00	0.00	0.10	0.01	0.00	0.00	0.11	0.03	0.04	0.11	0.03	0.11
Calcium	mg/L	N/A	162	148	158	113	126	193	165	181	204	185	186	150	176	125	134
COD	mg/L	N/A	< 5	< 5	27	15	24	47	19	7	5	55	18	21	49	27	33
Chloride	mg/L	250	185	147	129	83.4	101	305	215	331	360	307	316	321	347	169	184
Conductivity	umhos/cm	N/A	1330	1160	1240	971	1090	1900	1350	1630	1910	1760	1760	1750	1830	1270	1290
Cyanide	mg/L	0.2															
DOC	mg/L	5	3	11.1	1.1	2	2.1	1.2	1.5	1.9	2.2	2.6	2.3	2.5	1.5	2.5	2.2
Fluoride	mg/L	1.5	0.2	0.1	0.1	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	445	407	433	311	346	527	452	498	559	505	508	412	480	344	366
Ion Balance	%	N/A	1.7											5.6	0.998	0.28	0.298
Iron	mg/L	0.3	0.098	0.061	1.15	0.15	0.173	0.206	0.409	0.381	1.63	0.173	1.39	0.165	0.583	0.172	0.999
Magnesium	mg/L	N/A	9.92	8.79	9.03	6.6	7.49	10.9	9.72	11.1	11.9	10.4	10.4	9.05	9.79	7.76	7.48
Manganese	mg/L	0.05	0.331	0.236	0.364	0.269	0.235	0.572	0.193	0.377	0.416	0.364	0.331	0.189	0.388	0.214	0.49
Nitrate	mg/L	10	0.1	0.1	0.3	< 0.1	0.2	< 0.05	< 0.05	< 0.05	0.07	0.22	< 0.05	1.13	< 0.05	< 0.05	< 0.05
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	0.07	< 0.05	< 0.05	< 0.5	0.11	< 0.05	0.2
Tot Kjel N	mg/L	N/A	0.3	0.5	0.9	0.4	0.6	0.6	0.7	0.6	0.5	0.8	0.7	0.4	0.6	0.8	1
pH-Lab	pH unit	6.5-8.5	7.7	7.78	7.84	7.68	7.98	7.96	7.99	7.95	8.02	7.89	7.9	7.64	7.87	8.15	7.76
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	0.009	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001
Phosphorus	mg/L	N/A	< 0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.2	5.42	0.2	0.1	< 0.1	0.1	0.2
Potassium	mg/L	N/A	2	1.5	1.9	1.4	1.6	1.7	2	2	2.2	1.9	2.3	1.7	2.1	1.5	2.3
Sodium	mg/L	200	84.1	91.9	100	97.3	92	134	112	153	206	163	215	170	215	142	158
Sulphate	mg/L	500	46	46	60	45	59	58	42	67	74	79	40	71	87	58	62
TDS	mg/L	500	696	654	701	557	604	914	733	971	1050	957	1016	931	1050	720	787
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.03	0.04	0.04	0.03	0.05	0.07	0.09	0.09	0.09	0.09	0.1	0.08	0.09	0.07	0.07
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0001	< 0.0001	< 0.0002	0.0001	0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	0.0001
Arsenic	mg/L	0.025	0.0004	0.0004	0.001	0.0005	0.0006	0.0005	0.001	< 0.0005	0.0007	0.0004	0.0006	0.0003	0.0005	0.0004	0.0008
Barium	mg/L	1	0.087	0.072	0.098	0.059	0.075	0.103	0.105	0.102	0.141	0.105	0.133	0.087	0.126	0.071	0.1
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.07	0.033	0.069	0.047	0.065	0.052	0.062	0.044	0.073	0.036	0.072	0.048	0.07	0.038	0.062
Characteristic	mg/L	0.005	< 0.00002	< 0.00002	< 0.00002 0.0054	< 0.00002 < 0.0002	< 0.00002 < 0.0002	< 0.000014	< 0.000014	< 0.000059	< 0.000015	0.000016 < 0.001	< 0.000029	< 0.000015	< 0.000015	< 0.000015 < 0.001	< 0.00015 < 0.001
Chromium Cobalt	mg/L	0.05	0.0006 < 0.005	0.0039 < 0.005	< 0.0054	< 0.0002	< 0.0002	0.001 < 0.005	< 0.001 < 0.005	< 0.001 0.001	< 0.001 < 0.005	< 0.001	0.001 < 0.005	< 0.001 0.0004	< 0.001 < 0.005	< 0.001	< 0.001
	mg/L	N/A	0.0008	0.0001	0.0007	0.0013	0.005	0.0022	0.0006	0.001	0.0008	0.0016	0.0012	0.0004	0.0021	0.005	0.0005
Copper Lead	mg/L	0.01	0.00003	< 0.0001	< 0.0007	< 0.0013	< 0.00011	0.0022	0.00002	< 0.0012	0.0006	0.00005	< 0.00012	0.0001	0.0021	0.0013	< 0.0003
	mg/L	0.001	< 0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0002	< 0.00002	< 0.0002	< 0.00008	< 0.00003	< 0.00009	< 0.00002	< 0.00008	< 0.00007	< 0.00004
Mercury Molybdenum	mg/L mg/L	0.001 N/A	0.00002	0.0002	0.0005	0.0005	0.0005	0.0004	0.0003	< 0.00002	0.0004	0.0062	0.0005	0.0003	0.0004	0.0003	0.0004
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.01 N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0004	< 0.001	< 0.001	0.0003	< 0.001	< 0.001	< 0.001	< 0.001
Strontium	mg/L	N/A	0.475	0.461	0.453	0.355	0.38	0.638	0.458	0.0004	0.586	0.617	0.0003	0.54	0.578	0.459	0.45
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	0.0024	0.0021	0.00003	0.0009	< 0.00003	0.0005	< 0.00003	< 0.00003	< 0.00003	< 0.0004	< 0.00003	< 0.00003	< 0.00003	< 0.0001
Zinc	mg/L	5	< 0.005	< 0.0024	< 0.0021	< 0.0017	0.0009	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
LITTO	1116/ -	,	- 0.000	- 0.000	- 0.000	- 0.000	0.020	- 0.000	- 0.000	٠ 0.000	- 0.000	- 0.000	- 0.000	- 0.000	- 0.000	- 0.000	- 0.000

General Water Qu	ianty		20.00	00.00	00.00	00.00	22.22	00.00	20.00	22.22	00.00	22.22	00.00	20.00	22.22	22.22	00.00
Parameters	Units	ODWQS	29-93 3-May-22	29-93 25-Oct-22	29-93 2-May-23	29-93 18-Oct-23	30-93 6-May-14	30-93 23-Oct-14	30-93 26-May-15	30-93 13-Oct-15	30-93 25-May-16	30-93 12-Oct-16	30-93 24-May-17	30-93 18-Oct-17	30-93 7-May-18	30-93 9-Oct-18	30-93 9-May-19
Alkalinity	mg/L	500	420	377	351	366	576	558	545	537	568	532	562	526	511	460	468
Unionized Ammonia	mg/L	N/A	420	377	331	300	370	330	343	337	300	332	302	320	311	400	400
Ammonia	mg/L	N/A	0.09	0.09	0.93	0.76	6.78	7.7	5.86	7.69	8.72	11.5	9.8	9.04	8.58	7.25	7.28
BOD	mg/L	N/A	0.09	0.09	0.93	0.70	0.70	7.1	3.00	7.03	0.72	11.0	9.0	9.04	0.50	1.20	7.20
Calcium	mg/L	N/A	144	147	137	133	175	147	159	133	156	153	156	156	149	150	148
COD	mg/L	N/A	15	19	14	19	21	11	21	133	27	11	38	24	13	12	25
Chloride	mg/L	250	145	276	230	192	155	157	151	158	165	153	132	139	153	155	173
Conductivity	umhos/cm	N/A	1350	1510	1430	1360	1510	1490	1480	1470	1520	1490	1500	1430	1360	1380	1390
Cyanide	mg/L	0.2	1000	1010	1400	1000	1010	1430	1400	1470	1020	1430	1300	1400	1000	1000	1000
DOC	mg/L	5	2.4	0.2	1.7	3	8.1	7.1	2	3.5	3.9	3.4	5.2	4.7	5	5.5	5.7
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	<0.1	0.1	0.2	0.1	0.1	0.2	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	393	405	376	364	598	509	552	481	541	539	540	549	526	520	514
Ion Balance	%	N/A	2.13	4.39	3.07	1.62	7.88	0.0387	332	701	541	555	540	040	320	320	314
Iron	mg/L	0.3	0.371	0.461	0.385	0.532	16.7	14	9.66	10.6	11.3	12	11.1	10.3	9.65	0.009	8.19
Magnesium	mg/L	N/A	8.11	9.02	8.16	7.77	39	34.6	37.7	36.1	36.8	37.8	36.3	38.8	37.3	35.2	35.1
Manganese	mg/L	0.05	0.297	0.217	0.258	0.156	0.6	0.595	0.533	0.491	0.545	0.528	0.503	0.498	0.401	0.305	0.324
Nitrate	mg/L	10	< 0.05	< 0.05	< 0.05	0.11	< 0.1	0.1	0.2	0.2	0.010	0.020	0.23	0.16	< 0.05	0.17	0.24
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	<0.05	< 0.1	< 0.1	1.2	0.5	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.5	0.5	0.9	1.2	9.8	7.7	7.1	8.9	12.4	11.5	10.8	10.8	9.7	8.3	8.1
pH-Lab	pH unit	6.5-8.5	7.73	7.76	7.87	7.66	7.38	7.49	7.34	7.36	7.23	7.64	7.77	7.59	7.75	8.06	7.67
Phenols	mg/L	N/A	< 0.001	< 0.001	0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	0.002	0.003	< 0.001	0.008	< 0.002
Phosphorus	mg/L	N/A	0.1	< 0.1	0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.22
Potassium	mg/L	N/A	1.5	2	1.8	2	3.5	3.1	3.3	3.3	3.7	3.5	3.6	4.3	4.2	3.6	3.5
Sodium	mg/L	200	146	163	148	138	122	95.2	112	93.3	112	109	109	107	111	108	105
Sulphate	mg/L	500	59	64	69	54	4	6	7	7	7	8	7	7	7	9	9
TDS	mg/L	500	755	888	805	741	871	802	819	766	833	811	806	791	790	747	772
TSS	mg/L	N/A										-		-			
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.08	0.09	0.04	0.04	0.04	0.03	0.05	0.03	0.04	0.04	0.04	0.08	0.07	0.06	0.08
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0003	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0005	0.0007	0.0003	0.0005	0.0125	0.0115	0.0102	0.0062	0.0106	0.01	0.0078	0.0067	0.0068	0.0061	0.0062
Barium	mg/L	1	0.085	0.112	0.088	0.09	0.471	0.388	0.427	0.389	0.483	0.43	0.451	0.527	0.455	0.381	0.416
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.042	0.05	0.038	0.055	0.123	0.096	0.1	0.11	0.112	0.111	0.108	0.12	0.114	0.092	0.1
Cadmium	mg/L	0.005	< 0.000015	< 0.000012	< 0.000012	<0.000015	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015	0.000029	< 0.000015
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	<0.001	0.0033	0.0071	< 0.0002	< 0.0002	< 0.0002	0.0034	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	0.0006	0.008	< 0.005	0.005	0.006	0.006	0.008	< 0.005	< 0.005	0.0037	0.012	< 0.005
Copper	mg/L	1	0.0004	0.0006	0.0007	0.0003	0.0011	0.0008	0.0004	0.0005	0.0013	0.0005	0.0034	0.0007	0.0005	0.0034	0.0009
Lead	mg/L	0.01	< 0.00004	< 0.00004	0.00005	<0.00004	0.00003	< 0.00002	0.00016	< 0.00002	< 0.00002	< 0.00002	0.0002	0.00003	0.00004	0.00337	0.00003
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0006	0.0004	0.0003	0.0003	0.0004	< 0.0001	0.0003	0.0004	0.0005	0.0004	0.0004	0.0004	0.0004	< 0.0001	0.0005
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	0.0006	< 0.01	< 0.01	0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	0.004	< 0.001	0.004	0.003	< 0.001	< 0.001	< 0.001	0.001	0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	0.485	0.519	0.506	0.456		0.562	0.581	0.532	0.593	0.546	0.573	0.511	0.558	0.527	0.561
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	<0.00005	0.00007	0.00007	0.00006	0.00007	0.00007	< 0.00005	0.00007	0.0001	0.00007	0.00016	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	0.0002	< 0.0001	<0.0001	0.0056	0.0042	0.0043	0.001	0.0035	0.0013	< 0.0001	0.0008	0.0001	0.0032	0.0001
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	0.006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.012	< 0.005	< 0.005	< 0.005

General Water Qua	l		30-93	30-93	30-93	30-93	30-93	30-93	30-93	30-93	30-93	31-93	31-93	31-93	31-93	31-93	31-93
Parameters	Units	ODWQS	7-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21	3-May-22	25-Oct-22	2-May-23	18-Oct-23	6-May-14	23-Oct-14	26-May-15	13-Oct-15	25-May-16	12-Oct-16
Alkalinity	mg/L	500	452	467	465	532	535	467	478	465	459	544	558	542	537	538	536
Unionized Ammonia	mg/L	N/A															
Ammonia	mg/L	N/A	6.85	6.95	7.98	9.84	10.3	8.89	9.06	8.19	6.27	2.97	4.1	3.93	4.59	4.96	8.1
BOD	mg/L	N/A															
Calcium	mg/L	N/A	153	144	139	140	150	141	133	136	110	178	149	166	144	160	164
COD	mg/L	N/A	34	23	17	28	20	28	27	15	23	45	8	26	54	29	11
Chloride	mg/L	250	162	154	156	166	171	177	240	202	181	153	156	151	157	160	153
Conductivity	umhos/cm	N/A	1360	1360	1370	1460	1450	1470	1470	1460	1410	1450	1480	1410	1470	1440	1480
Cyanide	mg/L	0.2															
DOC	mg/L	5	4.6	4.5	3.1	4.7	3.7	3.6	1.3	3.2	4.4	7.7	7.1	1.6	3.5	3.3	3.2
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	0.1	0.2	0.1	0.1	0.1	0.1
Hardness	mg/L	500	535	505	490	495	521	489	479	482	414	599	515	563	508	550	565
Ion Balance	%	N/A		5.56	3.15	1.36	3.44	3.93	2.33	0.801	5.06	7.27	1.33				
Iron	mg/L	0.3	9.72	8.58	8.14	9.35	8.77	9.61	8.73	8.73	3	12.5	11	11.5	10.3	12.8	11.5
Magnesium	mg/L	N/A	37.1	35.2	34.6	35.3	35.5	33.2	35.7	34.7	33.7	37.6	34.4	36.2	36.2	36.3	38
Manganese	mg/L	0.05	0.336	0.296	0.301	0.311	0.343	0.297	0.288	0.266	0.144	0.684	0.579	0.587	0.536	0.574	0.578
Nitrate	mg/L	10	0.94	0.09	< 0.05	< 0.05	0.15	0.58	0.07	0.09	<0.05	< 0.1	0.8	0.2	0.3	0.2	0.1
Nitrite	mg/L	1	0.62	0.07	< 0.05	< 0.05	0.08	< 0.05	< 0.05	0.05	0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	8.6	8	9.2	11.4	11.5	11.9	10.3	7.4	8.4	3.6	4.3	4.7	6.1	7.6	9.2
pH-Lab	pH unit	6.5-8.5	7.63	7.54	7.59	7.88	7.5	7.58	7.35	7.7	7.44	7.44	7.48	7.26	7.44	7.28	7.69
Phenols	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Phosphorus	mg/L	N/A	0.98	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	3.6	3.4	3.5	3.7	4.2	3.6	3.9	3.6	3.6	3.3	3.4	3.3	3.7	3.4	3.9
Sodium	mg/L	200	105	99.9	102	108	116	108	114	109	106	110	93.6	102	89.7	101	105
Sulphate	mg/L	500	6	7	8	7	6	7	8	9	12	7	6	7	7	8	7
TDS	mg/L	500	757	742	730	801	826	772	842	783	767	832	798	808	772	807	816
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.09	0.08	0.08	0.08	0.06	0.09	0.09	0.03	0.03	0.05	0.04	0.04	0.03	0.04	0.06
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002
Arsenic	mg/L	0.025	0.0054	0.0049	0.0046	0.0053	0.0045	0.0054	0.0057	0.0044	0.0021	0.0033	0.003	0.0032	0.0026	0.0039	0.0047
Barium	mg/L	1	0.467	0.427	0.416	0.426	0.492	0.418	0.455	0.417	0.334	0.493	0.403	0.469	0.447	0.488	0.499
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.105	0.106	0.11	0.107	0.114	0.1	0.096	0.102	0.099	0.102	0.092	0.081	0.104	0.092	0.107
Cadmium	mg/L	0.005	< 0.000029	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000012	< 0.000012	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Chromium	mg/L	0.05	0.002	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	<0.001	0.0022	0.0064	< 0.0002	< 0.0002	< 0.0002	0.0033
Cobalt	mg/L	N/A	< 0.005	0.0029	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.006	0.0017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0004	< 0.0001	0.0011	0.0005	0.0003	0.0002	0.0006	0.0003	0.0004	0.0011	0.0008	0.0004	0.0006	0.0014	0.0006
Lead	mg/L	0.01	< 0.00009	0.00005	0.00005	0.00004	0.00005	< 0.00004	< 0.00004	< 0.00004	<0.00002	0.00003	< 0.00002	0.00012	< 0.00002	< 0.00002	0.00003
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0004	0.0004	0.0004	0.0004	0.0004	0.0005	0.0004	0.0005	0.0004	0.0002	< 0.0001	0.0001	0.0002	0.0003	0.0002
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0061	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	0.002	< 0.001	0.001	0.001	0.002	0.002	0.002	0.002	<0.001	< 0.001	< 0.001	0.003	< 0.001	0.004	0.003
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	N/A	0.556	0.529	0.529	0.537	0.575	0.518	0.557	0.528	0.494		0.557	0.561	0.538	0.573	0.551
Thallium	mg/L	N/A	0.00008	0.00005	< 0.00005	< 0.00005	0.00006	< 0.00005	< 0.00005	< 0.00005	<0.00005	0.00007	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0004	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	<0.0001	0.0044	0.0037	0.0045	0.001	0.0026	0.0013
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.005	< 0.005	<0.005	0.006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Q	danty		31-93	31-93	31-93	31-93	31-93	31-93	31-93	31-93	31-93	31-93	31-93	31-93	31-93	31-93	32-92-II
Parameters	Units	ODWQS	24-May-17	18-Oct-17	7-May-18	9-Oct-18	9-May-19	7-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21	3-May-22	25-Oct-22	2-May-23	18-Oct-23	2-May-23
Alkalinity	mg/L	500	530	522	539	426	489	453	452	462	490	523	473	470	455	462	264
Unionized Ammonia	mg/L	N/A															< 0.01
Ammonia	mg/L	N/A	5.71	7.16	6.53	6.43	5.65	6.32	5.51	6.88	6.56	7.97	7.61	8.04	8.16	7.55	0.23
BOD	mg/L	N/A															< 3
Calcium	mg/L	N/A	168	163	152	150	150	154	135	146	146	150	149	122	135	115	112
COD	mg/L	N/A	24	44	19	17	25	17	35	21	25	23	25	16	15	26	7
Chloride	mg/L	250	129	139	145	154	166	162	150	155	165	169	175	232	199	182	115
Conductivity	umhos/cm	N/A	1450	1410	1360	1320	1380	1360	1320	1370	1390	1430	1480	1460	1430	1420	910
Cyanide	mg/L	0.2			.000	.020		.000	.020					1.00		0	< 0.005
DOC	mg/L	5	4.6	4.6	4.7	4.8	5.2	5.1	4	3	4.4	3.3	3.5	1	2	4.2	1
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1
Hardness	mg/L	500	569	566	532	525	516	533	469	508	517	527	514	456	472	422	414
Ion Balance	%	N/A	000	000	002	020	0.0	000	2.13	4.31	3.79	3.63	4.93	4.84	1.51	5.7	2.26
Iron	mg/L	0.3	10.8	9.37	9.48	8.8	8.91	7.08	8.35	8.72	10.1	9.92	11.5	1.91	10.6	2.57	0.009
Magnesium	mg/L	N/A	36.5	38.6	37	36.6	34.2	36.1	32.1	34.8	37	37	34.5	36.7	32.9	32.7	32.9
Manganese	mg/L	0.05	0.511	0.573	0.436	0.468	0.409	0.382	0.393	0.404	0.418	0.417	0.425	0.201	0.375	0.175	0.012
Nitrate	mg/L	10	< 0.05	0.17	0.3	0.35	0.46	0.81	0.58	< 0.05	< 0.05	0.61	0.16	1.01	0.18	0.11	< 0.05
Nitrite	mg/L	1	0.42	< 0.05	0.06	0.24	< 0.05	< 0.05	0.14	< 0.05	0.5	0.41	< 0.05	< 0.05	0.09	0.66	< 0.05
Tot Kjel N	mg/L	N/A	6.6	9.4	8.3	7.5	6.7	8.2	6.3	7.9	8.4	9.7	10.9	9.4	8.3	9.6	0.4
pH-Lab	pH unit	6.5-8.5	7.81	7.6	7.62	7.94	7.67	7.64	7.54	7.54	7.88	7.56	7.57	7.37	7.68	7.43	7.9
Phenols	mg/L	N/A	< 0.001	0.003	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	0.004	< 0.001	<0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	0.29	1.19	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1
Potassium	mg/L	N/A	3.5	4.5	4.4	4.1	3.7	4.4	3.3	4	3.7	4.6	3.8	4.6	3.8	4.1	2.5
Sodium	mg/L	200	100	103	106	101	96.2	101	86.6	98.8	100	111	104	110	101	101	17.8
Sulphate	mg/L	500	8	8	8	9	10	6	8	8	8	7	7	8	11	12	50
TDS	mg/L	500	782	788	794	728	769	750	703	734	772	812	779	808	766	770	487
TSS	mg/L	N/A								-							46
Turbidity	NTU	N/A															14.2
Colour	TCU	5															< 2
Aluminum	mg/L	0.1	0.04	0.09	0.07	0.07	0.08	0.09	0.08	0.08	0.08	0.06	0.08	0.09	0.04	0.04	0.04
Antimony	mg/L	0.006	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0028	0.0031	0.0025	0.0031	0.0025	0.0022	0.0017	0.0024	0.0023	0.0027	0.0026	0.0008	0.0023	0.001	0.0001
Barium	mg/L	1	0.46	0.543	0.473	0.457	0.437	0.463	0.403	0.453	0.427	0.5	0.468	0.424	0.44	0.365	0.081
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002
Boron	mg/L	5	0.088	0.114	0.093	0.1	0.083	0.098	0.086	0.106	0.088	0.106	0.091	0.088	0.082	0.092	0.039
Cadmium	mg/L	0.005	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000029	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000012	< 0.000012	<0.000015	< 0.000010
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	0.0019	< 0.005	< 0.005	< 0.005	0.0015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0008	< 0.005
Copper	mg/L	1	0.0037	0.0008	0.0006	0.0008	0.0009	0.0005	0.0001	0.0023	0.0004	0.0004	0.0002	0.0005	0.0004	0.0005	0.0004
Lead	mg/L	0.01	0.00021	0.00003	0.00002	0.00003	0.00003	< 0.00009	< 0.00004	0.00009	0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	<0.00002	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0002	0.0002	0.0002	0.0003	0.0002	0.0002	0.0003	0.0002	0.0002	0.0003	0.0019	0.0003	0.0003	0.0003	0.0003
Nickel	mg/L	N/A	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0047	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	0.001	0.001	< 0.001	< 0.001	< 0.001	0.001	0.002	0.002	0.002	0.002	<0.001	< 0.001
Silver	mg/L	N/A	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001
Strontium	mg/L	N/A	0.568	0.509	0.555	0.519	0.534	0.536	0.477	0.526	0.543	0.589	0.531	0.552	0.51	0.478	0.789
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	0.0008	< 0.0001	< 0.0001	< 0.0001	< 0.0004	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005

Parameters	32-93-1 32-93-1	32-93-I	32-92-II			General Water Qua											
Malanilary mg/L 500 Mag/L N/A 10 10 10 10 10 10 10 1	11-Oct-18 8-May-1														ODWQS	Units	Parameters
Dinoinced Ammonia mg/L N/A Ammonia mg/L N/A Ammonia mg/L N/A Ammonia mg/L N/A N/A DOD Mg/L DOD Mg/	279 250		_					_						12 0011 20	500		
Ammonia mg/L N/A BOD mg/L N/A BOD mg/L N/A Solition Sol	< 0.01 < 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01			< 0.01	< 0.01	< 0.01		N/A		<u> </u>
Caldium	0.19 0.26	0.49	0.24	0.1	0.05	0.27	0.13	0.29	0.19	0.33	0.2	0.22	0.16	1	N/A		Ammonia
COD	4 < 3	< 2	< 3	< 3	< 3	< 3	< 3	4	4		3	5			N/A	mg/L	BOD
Phonoide	111 114	107	120	122	112	111	112	113	109	118	99.6	105	119		N/A	mg/L	Calcium
B72	< 5 310	66	22	9	8	5	< 5	421	297	176	153	378	728		N/A	mg/L	COD
Cyanide	91.1 97.1	94.3	96	78	75.6	69.2	81.8	83.1	82.8	82.4	79.9	79.5	79.8		250	mg/L	Chloride
Fluoride	883 861	865	834	870	867	859	829	851	817	855	850	860	872		N/A	umhos/cm	Conductivity
Fluoride	< 0.005 0.011	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		0.2	mg/L	Cyanide
Hardness	1.9 2.5	1.6	2	1.2	1.2	1.8	3.9	1.2	0.9	0.7	2.7	1.9	3.1		5	mg/L	DOC
Dot	< 0.1 < 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2		1.5	mg/L	Fluoride
Tron	416 428	408	448	447	410	401	416	424	429	436	381	390	437		500	mg/L	Hardness
Magnesium mg/L N/A Manganese mg/L 0.05 mg/L 0.05 mg/L 0.014 0.003 0.009 0.013 0.008 0.012 0.014 0.025 0.017 0.019 0.015 0.013 0.018 0.014 0.025 0.017 0.019 0.015 0.013 0.018 0.01											3.67	6.72	4.65		N/A	%	Ion Balance
Marganese mg/L 0.05 Nitrate mg/L 10 Nitrate mg/L 10 Nitrate mg/L 1 Tot Kjel N mg/L N/A pH-Lab pH unit 6.5-8.5 Phenols mg/L N/A Phosphorus mg/L N/A Phosphorus mg/L N/A Potassium mg/L N/A Sodium mg/L N/A Soliphate mg/L 500 mg/L 500 15 7.8	0.214 0.241	0.336	0.428	0.013	0.005	0.03	0.226	0.322	0.281	0.435	0.118	0.146			0.3	mg/L	Iron
Nitrate mg/L 10 Nitrite mg/L 10 Nitrite mg/L 1 Nitrite mg/L 1 Nitrite mg/L N/A Nitrite mg/L N/A Nitrite	33.6 34.7	34.1	36	34.6				34.7		34.1					N/A	mg/L	Magnesium
Nitrite mg/L 1	0.0115 0.011																
Tot Kjel N mg/L N/A ph+Lab ph unit 6.5-8.5 phenols mg/L N/A ph+Lab ph unit 6.5-8.5 phenols mg/L N/A Phosphorus mg/L N/A Phosphorus mg/L N/A Potassium mg/L N/A Potassium mg/L N/A Potassium mg/L Sool Solium mg/L Sool Solium mg/L Sool Tot S mg/L Sool Tot S mg/L N/A Tot S T	< 0.05 < 0.05															-	
PH-Lab	< 0.05 < 0.05																
Phenois mg/L N/A Phosphorus mg/L N/A Phosphorus mg/L N/A Phosphorus mg/L N/A N/A Potassium mg/L N/A N/A Sodium mg/L 200 Sulphate mg/L 500 TDS mg/L 500 TUS Mg/L N/A Tushidity NTU N/A Tushidity NTU N/A Tushidity Mg/L 0.01 Mg/L 0.01 Mg/L 0.006 Mg/L 0.006 Mg/L 0.006 Mg/L 0.006 Mg/L 0.006 Mg/L 0.005 Mg/L 0.0001 Mg/L 0.0	3.6 20.3													=			
Phosphorus mg/L N/A Potassium mg/L N/A N/A Potassium mg/L N/A	7.8 7.67											_		=			·
Potassium mg/L N/A mg/L 200 mg/L 200 mg/L 200 mg/L 200 mg/L 500 mg/L 500 TDS mg/L 500 TDS mg/L 500 TDS mg/L 500 TUrbidity NTU N/A TSS mg/L N/A TSS mg/L N/A TCU 5 TC	0.021 < 0.002																
Sodium mg/L 200 Sulphate mg/L 500 TDS mg/L N/A TUrbidity NTU N/A TUrbidity NTU N/A TOCOLOUR TCU 5	< 0.1 13.1																·
Sulphate mg/L 500 mg/L 500 TDS mg/L 500 TDS mg/L 500 TSS mg/L N/A 466 478 454 472 457 469 451 436 449 463 489 461 466 478 454 472 457 469 451 436 449 463 489 461 462 466 478 454 472 457 469 451 436 449 463 489 461 462 462 464 463 465	2.6 2.8													1			
TDS	16.9 17.3													D			
TSS mg/L N/A Turbidity NTU N/A Lolour TCU 5 Aluminum mg/L 0.1 Antimony mg/L 0.006 Arsenic mg/L 0.025 Barium mg/L 1 Beryllium mg/L N/A Boron mg/L 0.005 Cadmium mg/L 0.005 17400 45300 6950 16700 43500 7200 40000 54 70 74 9000 6000 15100 > 1000 15900 11100 21500 5680 10900 26.8 25 43.1 3900 3420 2 2 2 2 2 3 7 2	51 51													Dry			
Turbidity NTU N/A Colour TCU 5 Aluminum mg/L 0.1 Antimony mg/L 0.006 Arsenic mg/L 0.025 Barium mg/L 1 Beryllium mg/L N/A Boron mg/L 0.005 15100 > 1000 15900 11100 21500 5680 10900 26.8 25 43.1 3900 3420 5 7 7 2 <2	474 468 34000 25200																
Colour TCU 5 7 7 2 <2 3 7 <2 <2 2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <td>14700 25200 14700 15600</td> <td></td> <td></td> <td></td> <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td>	14700 25200 14700 15600					_								-			
Aluminum mg/L 0.1 Antimony mg/L 0.006 Arsenic mg/L 0.025 Barium mg/L 0.025 Barium mg/L 1 Beryllium mg/L N/A Boron mg/L 5 Cadmium mg/L 0.005 0.0002 0.0002 0.0003 0.0001 < 0.0001 0.0003 0.0001 0.0003 0.0001 0.0003 0.0001 0.0003 0.0001 0.0003 0.0008 0.0007 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 <	< 2 < 2																
Antimony mg/L 0.006 Arsenic mg/L 0.002 0.0003 0.0002 < 0.0001 < 0.0001 < 0.0001 0.0003 < 0.0001 0.0002 < 0.0001 0.0002 < 0.0001 0.0002 < 0.0001 0.0002 < 0.0001 0.0002 < 0.0001 0.0002 < 0.0001 0.0002 < 0.0001 0.0002 < 0.0001 0.0002 < 0.0001 0.0002 < 0.0001 0.0002 < 0.0001 0.0001 0.0003 0.0008 0.0007 0.0005 0.0001 < 0.0001 < 0.0001 0.0003 0.0008 0.0007 0.0005 0.0001 < 0.0001 < 0.0001 0.0001 0.0003 0.0008 0.0007 0.0005 0.0001 < 0.0001 0.0001 0.0003 0.0008 0.0007 0.0005 0.0001 < 0.0001 0.0001 0.0003 0.0008 0.0007 0.0008 0.0001 < 0.0001 0.001 0.0003 0.0008 0.0007 0.0008 0.0001 < 0.0001 < 0.0001	0.06 0.07													-			
Arsenic mg/L 0.025 Barium mg/L 1 Barium mg/L 1 Beryllium mg/L N/A Boron mg/L 5 Cadmium mg/L 0.005 0.007 0.001 0.001 0.0004 0.0001 0.0003 0.0008 0.0007 0.0005 0.0001 0.0001 0.0001 0.159 0.147 0.133 0.146 0.15 0.143 0.14 0.065 0.073 0.088 0.153 0.141 0.002 0.003 0.045 0.05 0.048 0.043 0.04 0.05 0.05 0.048 0.0002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002<	0.000 0.007													-			
Barium mg/L 1 0.159 0.147 0.133 0.146 0.15 0.143 0.14 0.065 0.073 0.088 0.153 0.141 Beryllium mg/L N/A <0.002	0.0001 0.0002													-			· · · · · · · · · · · · · · · · · · ·
Beryllium mg/L N/A < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 <	0.159 0.137																
Boron mg/L 5 Cadmium mg/L 0.005 0.047 0.026 0.043 0.039 0.048 0.017 0.043 0.036 0.045 0.05 0.048 0.043 Cadmium mg/L 0.0002 < 0.00002	< 0.002 < 0.002													•			
Cadmium mg/L 0.005 < 0.00002 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00001 < 0.000014 < 0.000014 < 0.000014 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.	0.043 0.076																
	< 0.000015 < 0.0000																
51501 5150505 5150505 51505 51505 51505 51505 51505 51505 51505 51505 51505 51505 51	< 0.001 < 0.001													1			
Cobalt mg/L N/A < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.00	< 0.0001 0.009																
	0.0004 0.0009																
Or Control of the Con	0.00012 0.00022																
	< 0.00002 < 0.0000	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00005	0.00005	< 0.00002	< 0.00002	< 0.00002	< 0.00002	1	0.001		Mercury
	0.0002 0.0002														N/A		· ·
	< 0.01 < 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	1			
	< 0.001 < 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	1	0.01		Selenium
	< 0.0001 < 0.000	< 0.0001	< 0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	1	N/A		Silver
Strontium mg/L N/A 0.805 0.763 0.904 0.862 0.799 0.805 0.641 0.804 0.669 0.884 0.809	0.822 0.803	0.809	0.884	0.669	0.804	0.641	0.805	0.799	0.862	0.904	0.763	0.805		1	N/A		Strontium
	< 0.00005 < 0.0000	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00006	1	N/A		Thallium
Vanadium mg/L N/A 0.0021 0.0041 0.0002 0.003 0.0012 0.0006 0.0004 0.001 0.0013 0.0007 0.0001 < 0.0001	0.0002 < 0.000	< 0.0001	0.0001	0.0007	0.0013	0.001	0.0004	0.0006	0.0012	0.003	0.0002	0.0041	0.0021	1	N/A	mg/L	Vanadium
Zinc mg/L 5 < 0.005 < 0.005 0.007 0.005	< 0.005 < 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.007	< 0.005	< 0.005	< 0.005	1	5	mg/L	Zinc

General Water Qu	lanty		32-93-I	32-93-I	32-93-I (DUP)	32-93-II	32-93-II										
Parameters	Units	ODWQS	15-Jul-19	9-Oct-19	5-May-20	13-Jul-20	13-Oct-20	4-May-21	13-Oct-21	3-May-22	25-Oct-22	2-May-23	12-Jul-23	18-Oct-23	25-Oct-22	6-May-14	29-Jul-14
Alkalinity	mg/L	500	264	256	260	266	274	259	263	258	266	264	279	282	266	254	279
Unionized Ammonia	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02	< 0.01	< 0.01	< 0.01	<0.01	< 0.01	< 0.01	< 0.01
Ammonia	mg/L	N/A	0.25	0.18	0.19	0.16	0.11	0.07	0.02	2.95	0.23	1.5	0.16	0.47	0.14	0.03	0.08
BOD	mg/L	N/A	< 3	< 3	< 3	< 3	< 3	9	< 3	< 3	< 3	< 3	< 3		< 3		<3
Calcium	mg/L	N/A	117	111	113	124	125	105	123	117	120	119	117	108	115	123	109
COD	mg/L	N/A	69	61	70	18	19	14	6	23	23	15	14	30	30	47	< 5
Chloride	mg/L	250	96.8	106	100	101	107	98.6	117	105	108	117	116	131	105	82.3	77.9
Conductivity	umhos/cm	N/A	865	864	887	884	929	880	929	925	917	922	951	935	911	875	831
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		< 0.005	< 0.005	< 0.005
DOC	mg/L	5	2.6	2	1.9	13	1	1.6	1.1	1.4	< 0.2	0.6	< 0.2	2.8	< 0.2	2.3	1.7
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	0.1	0.1
Hardness	mg/L	500	430	426	425	458	466	390	448	427	457	448	426	406	443	439	389
Ion Balance	%	N/A			1.66	4.47	3.96	2.13	1.23	2.19	3.9	1.26	2.55	7.91	2.69	6.73	1.29
Iron	mg/L	0.3	0.389	0.246	0.202	0.473	0.122	0.025	0.01	< 0.005	0.415	0.469	0.327	0.242	0.4	0.013	< 0.005
Magnesium	mg/L	N/A	33.4	36.2	34.6	36.1	37.2	31.1	34.3	32.5	38.2	36.4	32.6	33.1	37.8	31.7	28.4
Manganese	mg/L	0.05	0.013	0.008	0.012	0.013	0.005	0.009	0.004	0.016	0.013	0.018	0.01	0.012	0.012	0.061	0.028
Nitrate	mg/L	10	< 0.05	< 0.05	0.06	< 0.05	0.07	0.12	< 0.05	0.08	< 0.05	< 0.05	0.06	<0.05	< 0.05	0.1	< 0.1
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.09	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	< 0.05	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	1.1	1.7	1.2	0.5	0.9	0.7	0.5	3.5	0.7	1.7	0.4	1.5	0.7	0.3	0.1
pH-Lab	pH unit	6.5-8.5	7.58	7.84	7.91	7.73	7.84	7.99	7.87	7.6	7.76	7.66	7.73	7.59	7.85	7.98	7.72
Phenols	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	2.17	2.31	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	2.5	2.8	2.7	2.6	3.4	2.1	3.1	2.4	3	2.9	2.8	2.6	2.9	2	2.1
Sodium	mg/L	200	17.2	18.3	17.9	18.4	21.4	16.7	20.6	17.5	20.5	19.3	19.4	17.6	20.3	20.8	17.1
Sulphate	mg/L	500	49	49	49	50	51	47	55	49	50	51	52	57	49	52	49
TDS	mg/L	500	475	478	474	492	510	456	511	482	499	505	509	497	491	466	451
TSS	mg/L	N/A	15600	8400	4100	4900	72	100	90	25	1540	1170	1680	2200	3410	5380	1380
Turbidity	NTU	N/A	6440	2420	1760	1160	27.1	34.2	37.9	9.7	700	569	1260	819	1150	3490	11.4
Colour	TCU	5	< 2	< 2	< 2	< 2	< 2	3	< 2	< 2	< 2	< 2	< 2	<2	< 2	9	10
Aluminum	mg/L	0.1	0.07	0.07	0.06	0.07	0.05	0.08	0.05	0.03	0.08	0.06	0.07	0.07	0.08	0.05	0.02
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0001	0.0002	< 0.0001	< 0.0001	0.0003	0.0002	0.0002	0.0002	0.0002	< 0.0001	< 0.0001	<0.0001	0.0002	0.0007	0.0008
Barium	mg/L	1	0.139	0.152	0.14	0.16	0.09	0.07	0.09	0.083	0.17	0.155	0.166	0.147	0.164	0.073	0.068
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.044	0.047	0.045	0.046	0.052	0.038	0.056	0.041	< 0.005	0.048	0.044	0.041	< 0.005	0.037	0.029
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000010	< 0.000010	<0.000015	< 0.000010	< 0.00002	< 0.00002
Chromium	mg/L	0.05	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	0.0013	0.0037
Cobalt	mg/L	N/A	0.0002	< 0.005	< 0.0001	< 0.005	0.006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0002	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0007	< 0.0001	0.0004	0.0006	0.0018	0.0014	0.0009	0.0006	0.0003	0.0002	0.0003	0.0004	0.0002	0.0003	0.0006
Lead	mg/L	0.01	0.00008	0.00012	0.00007	0.00015	0.00007	0.00008	0.00006	0.00006	0.00009	0.00008	0.00009	0.00006	0.00008	0.00005	< 0.00002
Mercury	mg/L	0.001	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	0.00003
Molybdenum	mg/L	N/A	0.0002	0.0002	0.0001	0.0001	0.0004	0.0003	0.0004	0.0003	0.0002	0.0001	0.0002	0.0002	0.0002	0.0004	0.0004
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.0002	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.00002	< 0.00002
Strontium	mg/L	N/A	0.819	0.855	0.852	0.869	0.936	0.736	0.879	0.767	0.929	0.897	0.875	0.826	0.914	0.00000	0.646
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	0.00006	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	0.0022	0.0048
Zinc	mg/L	5	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005

General Water Qu	anty									22.22.11		22.22.11			22.22.11		22.22.11
Parameters	Units	opwos	32-93-II 21-Oct-14	32-93-II 26-May-15	32-93-II 13-Jul-15	32-93-II 13-Oct-15	32-93-II 17-May-16	32-93-II 13-Jul-16	32-93-II 24-May-17	32-93-II 19-Jul-17	32-93-II 17-Oct-17	32-93-II 8-May-18	32-93-II 24-Jul-18	32-93-II 11-Oct-18	32-93-II 8-May-19	32-93-II 5-May-20	32-93-II 13-Oct-20
Alkalinity	mg/L	500	286	20-iviay-15	274	283	277	284	274	272	274	271	263	281	225	257	265
Unionized Ammonia	mg/L	N/A	< 0.01	211	214	200	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ammonia	mg/L	N/A	0.08	0.08	0.26	0.02	0.02	0.2	0.23	0.2	0.22	0.09	0.04	0.05	0.14	0.05	0.22
BOD	mg/L	N/A	<3	< 2	0.20	< 2	< 2	< 3	< 3	< 3	< 3	< 3	< 2	3	< 3	< 3	< 3
Calcium	mg/L	N/A	110	122	125	128	116	116	110	116	117	111	111	122	86.3	111	115
COD	mg/L	N/A	< 5	< 5	7	8	7	< 5	87	120	22	14	< 5	< 5	7	6	75
Chloride	mg/L	250	78.7	79.8	83.8	84	81.6	88.1	71.1	72.3	79.7	93.1	94.2	96.6	83.5	96.2	103
Conductivity	umhos/cm	N/A	856	851	863	869	849	865	872	863	862	832	883	946	762	863	891
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
DOC	mg/L	5	2.5	0.7	0.7	0.7	1	0.9	1.9	1.4	1.5	1.7	2	2	2.1	2	0.8
Fluoride	mg/L	1.5	0.2	0.1	0.1	0.2	0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	400	435	445	473	421	430	410	428	441	405	408	441	313	411	440
Ion Balance	%	N/A	1.14													1.05	2.75
Iron	mg/L	0.3	< 0.005	0.202	0.024	0.053	0.401	0.409	0.281	0.25	0.515	< 0.005	0.023	< 0.005	< 0.005	0.038	0.361
Magnesium	mg/L	N/A	30.3	31.5	32.4	37	32.1	34.2	32.6	33.7	36.1	31	31.7	33.2	23.7	32.6	37.2
Manganese	mg/L	0.05	0.027	0.065	0.035	0.035	0.058	0.012	0.012	0.013	0.014	0.008	0.024	0.0013	0.011	0.008	0.012
Nitrate	mg/L	10	0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1	0.07	< 0.05	< 0.05	< 0.05	< 0.05	0.05	< 0.05	0.08	< 0.05
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	< 0.1	0.5	0.6	0.3	0.2	2.7	7.4	2.3	0.6	0.2	0.2	0.5	0.8	0.2	1.2
pH-Lab	pH unit	6.5-8.5	7.81	7.9	7.92	7.79	8.01	7.71	7.8	7.74	7.83	7.85	7.87	7.9	7.75	7.97	7.86
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.044	< 0.001	< 0.001	< 0.001	< 0.001	0.004	0.005	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.05	< 0.1	< 0.1
Potassium	mg/L	N/A	2.1	1.9	2.4	2.5	1.9	2.5	2.2	2.5	2.6	2	2.5	2.6	1.6	2.3	3
Sodium	mg/L	200	16.6	19.4	20	20.8	19.9	17.9	16.4	17.2	16.6	17.1	19.1	19.3	12	16.7	19.6
Sulphate	mg/L	500	50	50	52	51	51	55	42	42	43	51	49	58	42	47	49
TDS	mg/L	500	460	471	480	494	470	484	439	447	460	468	466	501	384	460	486
TSS	mg/L	N/A	3100	3280	3950	1640	272	5600	25600	7900	14000	24	50	44	110	45	12800
Turbidity	NTU	N/A	1250	1430	3100	1140	151	8600	12900	2900	910	11.8	15.3	18	74	25.6	1600
Colour	TCU	5	5	3	6	< 2	3	9	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Aluminum	mg/L	0.1	0.03	0.03	0.04	0.03	0.03	0.04	0.03	0.08	0.06	0.08	0.06	0.05	0.05	0.07	0.05
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0001	0.0001	< 0.0001	< 0.0001	0.0001	0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0005	0.0011	0.0005	0.0006	0.0005	0.0002	0.0007	0.0002	0.0004	0.0002	0.0002	0.0002	0.0001	0.0001	0.0004
Barium	mg/L	1	0.067	0.071	0.076	0.086	0.067	0.151	0.139	0.149	0.155	0.069	0.077	0.087	0.052	0.075	0.166
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.047	0.022	0.039	0.054	0.01	0.045	0.038	0.044	0.046	0.038	0.047	0.042	0.033	0.039	0.05
Cadmium	mg/L	0.005	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.05	< 0.0002	< 0.0002	< 0.0002	0.0034	< 0.0002	0.0003	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.005	< 0.0001	0.01	< 0.0001	< 0.005
Copper	mg/L	1	0.0003	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	0.001	0.001	0.0003	< 0.0001	0.0002	0.0005	0.0006	0.0009	0.0023
Lead	mg/L	0.01	0.00004	0.00005	0.00007	0.00004	< 0.00002	0.00012	0.00012	0.0002	0.00005	0.00002	0.00005	0.00007	0.00004	0.00005	0.00015
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	< 0.0001	0.0003	0.0002	0.0005	0.0004	0.0001	0.0002	0.0002	0.0001	0.0003	0.0005	0.0005	0.0002	0.0003	0.0001
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	0.629	0.744	0.747	0.8	0.725	0.878	0.794	0.878	0.749	0.701	0.732	0.775	0.532	0.757	0.931
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	0.0021	0.0036	0.0012	0.0006	< 0.0001	0.0011	0.0015	0.0005	0.0001	< 0.0001	0.0003	< 0.0001	< 0.0001	0.0001
Zinc	mg/L	5	< 0.005	< 0.005	0.008	0.014	< 0.005	< 0.005	< 0.005	< 0.005	0.006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Parameters	nity ized Ammonia onia m	mg/L				32-93-II	32-93-II	32-93-II	32-93-II	32-93-III	1 32-93-111	I 32-93-III	32-93-III	l 32-93-III	32-93-III	32-93-III	32-93-III	
Aladinity	nity ized Ammonia onia m	mg/L		4-IVIAY-2 I		12 004 24	2 May 22	26 1 22									19-Jul-17	32-93-III 17-Oct-17
Unionized Ammonia	ized Ammonia onia m			265													423	259
Ammonis	onia m de	IIIg/ L			203								312	307			< 0.01	< 0.01
SOD	m de	mg/I	<u> </u>		0.18								0.18	0.28			0.1	0.07
Calcium	de		<u> </u>						0.01	0.00				0.20			< 3	< 3
COD	de							_	111	142	_	_		175		_	147	119
The Indication The																	59	61
Conductivity			<u> </u>	101				_			_	_					146	78.8
Fluoride	ıctıvity		N/A	898	904	918	919	889	948	1030	1110	928	1030	1260	939	1130	1410	834
Fluoride	de	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Hardness mg/L 500 415 433 446 445 447 407 396 401 303 371 488 338 386 10n Balance % N/A 0.174 0.942 1.35 3.02 2.24 7.97 4.84 3.04 5.47 5.40 5.40 5.47 5.40			5	1.6	3.1	0.8	1.3	1.1	2.4	3.5	2	3.6	1	1.4	1.4	3	3.3	2.7
Inno Balance % N/A 0.174 0.942 1.35 3.02 2.24 7.97 4.84 3.04 5.47	de	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	0.1	< 0.1	0.2	0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1
Fron mg/L 0.3 0.412 0.42 0.445 0.438 0.38 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.01 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.05 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.	iess	mg/L	500	415	433	446	445	447	407	396	401	303	371	488	338	386	441	383
Magnesium mg/L N/A 34.1 34.9 35.5 35.3 35.8 31.5 9.85 10.5 8.14 10.9 12.6 11.6 14.6 Manganese mg/L 0.05 0.012 0.013 0.015 0.012 0.001 0.066 <0.001	lance	%	N/A	0.174	0.942	1.35	3.02	2.24	7.97	4.84	3.04	5.47						
Marganese mg/L 0.05 0.012 0.013 0.015 0.012 0.012 0.001 0.066 < 0.001 0.069 0.271 0.051 0.024 Nitrate mg/L 10 < 0.05		mg/L	0.3	0.412	0.42	0.445	0.438	0.38	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.006	< 0.005	0.015	0.005
Nitrate mg/L 10 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	esium	mg/L	N/A	34.1	34.9	35.5	35.3	35.8	31.5	9.85	10.5	8.14	10.9	12.6	11.6	14.6	18.1	20.8
Nitrite mg/L 1 0.06 < 0.05 0.07 < 0.05 < 0.05 < 0.05 < 0.05 < 0.01 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.05	anese	mg/L	0.05	0.012	0.013	0.015	0.012	0.012	0.001	0.066	< 0.001	0.001	0.069	0.271	0.051	0.024	0.519	0.113
Tot Kjel N	e	mg/L	10	< 0.05	< 0.05		0.07	< 0.05	0.15	0.1	0.2	0.2	0.1	0.2	0.2	0.36	0.06	0.11
PH-Lab	9	mg/L							<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05
PhenoIs	el N	mg/L	N/A														1.6	1.4
Phosphorus mg/L N/A < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 <	b													7.77			7.63	7.7
Potassium mg/L N/A 2.5 3 2.8 2.7 2.6 2.8 0.8 0.7 1 1.6 1.6 0.9 1.2 Sodium mg/L 200 17.9 21 19.5 18.5 19.4 74.6 70.4 58.7 59.5 82.5 39.8 50.8 Sulphate mg/L 500 48 51 56 50 46 55 9 17 25 25 13 19 19 TDS mg/L 500 473 508 506 489 496 504 555 609 493 540 679 489 520 TSS mg/L N/A 1090 1850 1840 1270 828 16 3050 1760 2200 20000 2260 6800 2040 Turbidity NTU N/A 504 258 121 623 288 8.9 1170 771 2470	ols	mg/L															0.003	0.001
Sodium mg/L 200 17.9 21 19.5 18.5 19.4 74.6 70.4 58.7 59.5 82.5 39.8 50.8 Sulphate mg/L 500 48 51 56 50 46 55 9 17 25 25 13 19 19 TDS mg/L 500 473 508 506 489 496 504 555 609 493 540 679 489 520 TSS mg/L N/A 1090 1850 1840 1270 828 16 3050 1760 2200 20000 2260 6800 2040 Turbidity NTU N/A 504 258 121 623 288 8.9 1170 771 2470 9200 1150 2910 1490 Colour TCU 5 <2	horus							_				_					< 0.1	< 0.1
Sulphate mg/L 500 48 51 56 50 46 55 9 17 25 25 13 19 19 TDS mg/L 500 473 508 506 489 496 504 555 609 493 540 679 489 520 TSS mg/L N/A 1090 1850 1840 1270 828 16 3050 1760 2200 20000 2260 6800 2040 Turbidity NTU N/A 504 258 121 623 288 8.9 1170 771 2470 9200 1150 2910 1490 Colour TCU 5 <2		-	<u> </u>								_						1.6	3.5
TDS mg/L 500 473 508 506 489 496 504 555 609 493 540 679 489 520 TSS mg/L N/A 1090 1850 1840 1270 828 16 3050 1760 2200 20000 2260 6800 2040 Turbidity NTU N/A 504 258 121 623 288 8.9 1170 771 2470 9200 1150 2910 1490 Colour TCU 5 <2 <2 <2 <2 <2 <2 <2 2 7 16 11 5 10 4 5 Aluminum mg/L 0.1 0.08 0.08 0.08 0.06 0.04 0.07 0.07 0.07 0.04 0.02 0.03 0.03 0.04 0.03 0.03 Antimony mg/L 0.006 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 0.0																	44	19.8
TSS mg/L N/A 1090 1850 1840 1270 828 16 3050 1760 2200 20000 2260 6800 2040 Turbidity NTU N/A 504 258 121 623 288 8.9 1170 771 2470 9200 1150 2910 1490 Colour TCU 5 <2	ate											_					18	36
Turbidity NTU N/A 504 258 121 623 288 8.9 1170 771 2470 9200 1150 2910 1490 Colour TCU 5 <2																	629	434
Colour TCU 5 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <th< td=""><td>1</td><td></td><td><u> </u></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>690</td><td>2080</td></th<>	1		<u> </u>														690	2080
Aluminum mg/L 0.1 0.08 0.08 0.06 0.04 0.07 0.07 0.04 0.02 0.03 0.03 0.04 0.03 0.03 Antimony mg/L 0.006 < 0.0001	· ·																572 7	1300
Antimony mg/L 0.006 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 0.0001 0.0001 0.0001 0.0001 < 0.0001 < 0.0001 0.0001 0.0001 0.0001 < 0.0001 0.0001 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td>_</td> <td>•</td> <td>7</td>										-	_					_	•	7
Arsenic mg/L 0.025 < 0.0001 0.0001 < 0.0001 0.0001 0.0001 0.0003 0.0002 0.0003 0.0001 0.0003 0.0007 < 0.0001 0.0007 Barium mg/L 1 0.138 0.157 0.162 0.16 0.149 0.083 0.075 0.078 0.066 0.089 0.098 0.06 0.068 Beryllium mg/L N/A < 0.002																	0.05 0.0002	0.06 0.0003
Barium mg/L 1 0.138 0.157 0.162 0.16 0.149 0.083 0.075 0.078 0.066 0.089 0.098 0.06 0.068 Beryllium mg/L N/A < 0.002	•																0.0002	0.0003
Beryllium mg/L N/A < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.005 0.02 < 0.005 0.024																	0.0006	0.0003
Boron mg/L 5 0.045 0.051 0.049 0.049 0.043 0.042 0.016 0.007 0.015 < 0.005 0.02 < 0.005 0.024																	< 0.002	< 0.002
																	0.002	0.002
Cadmium mg/L 0.005 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.00002 < 0.00002 < 0.00002 < 0.00003 < 0.00002 < 0.00002 < 0.00003		mg/L	0.005	< 0.000015	< 0.00015	< 0.000015	< 0.000015	< 0.000015	<0.00015	< 0.00002	< 0.0007	< 0.00002	0.00003	< 0.00002	< 0.00002	0.00014	0.00015	0.00016
Chromium mg/L 0.05 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 0.001 0.001 0.0015 0.0062 0.0062 0.0002																	< 0.001	< 0.001
Cobalt mg/L N/A < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.00																	< 0.005	< 0.005
Copper mg/L 1 0.0004 0.0005 0.0004 0.0005 0.0012 0.0006 0.0009 0.0013 0.0025 0.0004 0.0005 0.0016																	0.0015	0.0008
Lead mg/L 0.01 0.00013 0.00012 0.00015 0.00265 0.0001 <0.00003 <0.00002 0.00003 <0.00002 0.00002 0.00002 0.00004																	0.00006	< 0.00002
Mercury mg/L 0.001 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0	ırv																< 0.00002	< 0.00002
Molybdenum mg/L N/A 0.0002 0.0002 0.0002 0.0002 0.0002 0.0005 0.0002 0.0003 0.0001 0.0002 0.0003 0.0003																	0.0003	0.0002
Nickel mg/L N/A < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01																	< 0.01	< 0.01
Selenium mg/L 0.01 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001								< 0.001		< 0.001					< 0.001	< 0.001	< 0.001	< 0.001
Silver mg/L N/A < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002																	< 0.00002	< 0.00002
Strontium mg/L N/A 0.832 0.871 0.895 0.853 0.88 0.816 0.434 0.333 0.411 0.537 0.331 0.401	tium																0.489	0.353
Thallium mg/L N/A < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.0000			<u> </u>							0.00006							< 0.00005	< 0.00005
Vanadium mg/L N/A < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 0.0026 0.0058 0.0001 0.0019 0.0055 0.0004 0.0011	um																0.0017	0.0003
Zinc mg/L 5 < 0.005 0.008 < 0.005 < 0.005 < 0.005 0.007 < 0.005 0.006 < 0.005 0.007 < 0.005 < 0.005				< 0.005	0.008	< 0.005	< 0.005	< 0.005	<0.005	0.007	< 0.005	0.006	< 0.005	0.007	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	ianty		20.00.111	00.00.111	00.00.111	20.00.111	00.00.111	20.00.111	20.00.111	00.00.111	05.00.1	05.001	05.001	05.00.1	05.00.1	05.00.1	05.001
Parameters	Units	ODWQS	32-93-III 8-May-18	32-93-III 8-May-19	32-93-III 5-May-20	32-93-III 4-May-21	32-93-III 3-May-22	32-93-III 2-May-23	32-93-III 12-Jul-23	32-93-III 18-Oct-23	35-93-I 6-May-14	35-93-I 20-Oct-14	35-93-I 26-May-15	35-93-I 13-Oct-15	35-93-I 11-May-16	35-93-I 12-Oct-16	35-93-I 24-May-17
Alkalinity	mg/L	500	209	267	255	277	292	2-Way-23	12-541-25	16-001-23	181	195	186	183	185	180	188
Unionized Ammonia	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01				101	195	100	103	100	100	100
Ammonia	mg/L	N/A	0.41	0.27	0.08	0.34	0.35				0.05	0.1	< 0.01	0.04	0.03	0.08	0.07
BOD	mg/L	N/A	< 3	< 3	< 3	3	4				0.00	0.1	1 0.01	0.04	0.00	0.00	0.07
Calcium	mg/L	N/A	101	139	126	114	144				46.7	41.5	48.4	46.4	38	43.6	41
COD	mg/L	N/A	86	177	99	276	208				< 5	< 5	< 5	< 5	< 5	< 5	5
Chloride	mg/L	250	64.6	169	171	153	169				19	24.1	22.9	21.8	20	20.7	16.8
Conductivity	umhos/cm	N/A	633	1080	1070	1060	1160				469	471	471	449	451	443	455
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005										
DOC	mg/L	5	1.8	3	2	2.6	1.6				2.6	2.4	1	1.2	0.9	1.3	1.3
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1				0.4	0.5	0.4	0.5	0.4	0.5	0.6
Hardness	mg/L	500	339	427	394	361	451				241	225	256	259	209	231	215
Ion Balance	%	N/A			0.399	3.02	3.52				6.6	1.6					
Iron	mg/L	0.3	< 0.005	< 0.005	0.035	0.029	1.24				0.009	0.051	0.029	0.035	< 0.005	0.018	0.011
Magnesium	mg/L	N/A	21	19.3	19.1	18.4	22.3				30.2	29.4	32.9	34.7	27.9	29.7	27.5
Manganese	mg/L	0.05	0.111	0.245	0.205	0.144	0.422				0.002	0.003	< 0.001	0.002	< 0.001	0.006	0.004
Nitrate	mg/L	10	0.82	0.05	0.11	0.33	0.1				0.1	0.1	0.1	0.1	0.2	0.1	< 0.05
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	0.09	< 0.05				< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05
Tot Kjel N	mg/L	N/A	2.5	6.4	2.7	7.1	0.6				0.3	< 0.1	0.2	< 0.1	0.1	0.4	0.4
pH-Lab	pH unit	6.5-8.5	7.97	7.68	7.99	7.4	7.51				8.13	8.02	8.09	8.05	8.08	8.12	8.1
Phenols	mg/L	N/A	< 0.001	< 0.002	< 0.002	< 0.002	< 0.001				< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	0.001
Phosphorus	mg/L	N/A	< 0.1	3.12	< 0.1	< 0.1	< 0.1				< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	1.2	1.8	1.5	2.1	1.9				3.7	3.6	3.9	3.8	3.1	3.5	3
Sodium	mg/L	200	15.8	62.2	60.9	56	61.1				8.2	7	8.9	8.4	7.7	8.9	7.7
Sulphate	mg/L	500	32	16	26	21	19	Dry	Dry	Dry	21	21	25	19	23	16	17
TDS	mg/L	500	361	569	558	532	595				238	245	254	245	232	232	227
TSS	mg/L	N/A	10000	5050	1700	3850	4900										
Turbidity	NTU	N/A	2050	2870	821	1530	2250										
Colour	TCU	5	2	6	< 2	9	4										
Aluminum	mg/L	0.1	0.06	0.07	0.08	0.08	0.04				0.02	0.01	0.01	0.01	0.01	0.05	< 0.01
Antimony	mg/L	0.006	0.0001	0.0001	0.0001	0.0001	< 0.0001				< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0003	< 0.0001
Arsenic	mg/L	0.025	< 0.0001	0.0002	0.0001	0.0002	0.0004				0.0005	0.0004	0.0005	0.0005	0.0004	0.0006	0.0005
Barium	mg/L	1	0.053	0.072	0.069	0.063	0.08				0.139	0.12	0.133	0.139	0.115	0.132	0.144
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002				< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.032	0.025	0.022	0.023	0.024				0.129	0.137	0.135	0.156	0.082	0.134	0.113
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015				< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001				0.0004	< 0.0002	< 0.0002	0.0019	< 0.0002	0.0008	< 0.001
Cobalt	mg/L	N/A	0.0002 0.0001	< 0.005 0.0012	0.0002 0.0005	< 0.005 0.0016	< 0.005 0.0004				< 0.005 0.0007	< 0.005 0.0006	< 0.005 < 0.0001	< 0.005 0.0002	< 0.005 < 0.0001	< 0.005 0.0003	< 0.005 0.0033
Copper Lead	mg/L	0.01	< 0.0001	0.0012	0.0005	0.00018	0.0004				0.0007	0.00003	0.00001	< 0.0002	< 0.0001	0.0003	0.0033
	mg/L	0.001	< 0.00002	< 0.00003	< 0.00011	< 0.00008	< 0.00004				< 0.00004	< 0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00003	< 0.00002
Mercury	mg/L		0.0002	0.0002	0.0002	0.00002	0.0002				0.0005	< 0.00002	0.0002	0.0003	0.0004	0.0003	0.0005
Molybdenum Nickel	mg/L mg/L	N/A N/A	< 0.01	< 0.01	< 0.01	< 0.001	< 0.01				< 0.01	< 0.0001	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	0.001				< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001				< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.00003
Strontium	mg/L	N/A	0.39	0.483	0.504	0.477	0.548				- 0.00002	1.03	1.14	1.09	0.868	1.02	0.00003
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005				< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.00003	0.00003	0.00003	0.0003	< 0.00003				0.00003	< 0.00003	0.00003	0.0008	< 0.00003	0.0004	0.0006
Zinc	mg/L	5	< 0.005	< 0.005	< 0.0002	< 0.005	< 0.0001				0.0012	< 0.0001	< 0.0014	< 0.005	< 0.0001	< 0.0004	< 0.005
ZIIIC	IIIg/L	J	× 0.005	\ 0.003	~ 0.003	< 0.003	× 0.003	l			0.000	× 0.005	× 0.003	< 0.003	< 0.003	< 0.003	< 0.000

General Water Qua			35-93-I	35-93-I	35-93-I	35-93-I	35-93-I	35-93-I	35-93-I	35-93-I	35-93-I	35-93-I	35-93-I	35-93-I	35-93-I	35-93-I (DUP)	35-93-I (DUP)
Parameters	Units	ODWQS	16-Oct-17	7-May-18	10-Oct-18	10-May-19	9-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21	3-May-22	25-Oct-22	2-May-23	18-Oct-23	3-May-22	25-Oct-22
Alkalinity	mg/L	500	179	181	175	191	169	175	169	183	182	177	175	176	188	174	174
Unionized Ammonia	mg/L	N/A															
Ammonia	mg/L	N/A	0.06	0.1	0.15	0.11	0.07	0.13	0.12	0.11	0.26	0.11	0.21	0.2	0.32	0.06	0.2
BOD	mg/L	N/A															
Calcium	mg/L	N/A	44.4	43	44.8	41.4	44.3	42.3	41	38.4	40.2	40.2	36.9	41.5	40	40.6	37.8
COD	mg/L	N/A	< 5	< 5	< 5	5	< 5	15	6	18	7	5	< 5	< 5	16	10	< 5
Chloride	mg/L	250	23.4	22	24.4	24.8	24	22.2	21.9	19.1	20.1	21.1	26.8	24.2	21.3	21.1	27
Conductivity	umhos/cm	N/A	444	435	459	440	432	447	429	422	418	433	425	447	445	435	427
Cyanide	mg/L	0.2															
DOC	mg/L	5	1.2	1.5	2.2	2.8	2.2	2.2	2.2	2.8	1.6	1.9	1.1	1.9	2.9	1.7	1.2
Fluoride	mg/L	1.5	0.4	< 0.1	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.1	0.4	< 0.1	< 0.1	0.3	0.3	< 0.1	< 0.1
Hardness	mg/L	500	240	234	230	218	230	223	215	212	214	211	206	223	212	213	206
Ion Balance	%	N/A						2.95	4.17	1.5	1.53	1.36	1.31	1.15	1.24	2.68	1.6
Iron	mg/L	0.3	0.009	0.022	0.015	0.021	0.012	0.045	0.008	0.021	0.118	0.032	0.039	< 0.005	<0.005	0.025	0.054
Magnesium	mg/L	N/A	31.4	30.7	28.8	27.9	29.1	28.6	27.3	28.2	27.5	27	27.7	28.9	27.3	27.2	27.1
Manganese	mg/L	0.05	0.006	0.001	0.001	0.004	0.002	0.005	0.002	0.008	0.015	0.007	0.006	0.001	<0.001	0.005	0.011
Nitrate	mg/L	10	< 0.05	0.07	< 0.05	0.28	< 0.05	0.16	0.06	< 0.05	0.14	0.22	0.2	0.1	0.37	0.19	0.28
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.11	< 0.05	< 0.05	0.08	<0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.2	0.2	0.1	0.2	0.2	0.6	0.2	0.3	0.4	0.2	0.3	0.2	0.4	0.2	0.3
pH-Lab	pH unit	6.5-8.5	8.09	8.12	8.01	8.12	8.05	7.97	8.04	8.16	7.9	7.86	7.96	8.03	7.5	7.96	8.02
Phenols	mg/L	N/A	0.003	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	0.13	0.07	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	3.7	4.1	3.5	3.5	3.5	3.4	3.3	3.1	3.3	3.1	3.3	3.4	3.4	3.1	3.2
Sodium	mg/L	200	7.8	8.2	7.8	7.9	8.1	7.2	7.7	7.3	7.6	7.2	7.4	7.2	7.1	7.2	7.1
Sulphate	mg/L	500	18	23	21	22	14	22	16	15	16	17	19	25	19	16	20
TDS	mg/L	500	237	239	235	243	225	231	219	221	224	222	227	236	230	220	227
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.04	0.04	< 0.01	0.01	0.03	0.03
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0004	0.0002	0.0002	0.0002	0.0003	0.0003	0.0003	0.0002	0.0003
Barium	mg/L	1	0.164	0.147	0.134	0.139	0.169	0.14	0.163	0.169	0.207	0.188	0.199	0.181	0.18	0.188	0.202
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002
Boron	mg/L	5	0.146	0.131	0.122	0.118	0.121	0.121	0.12	0.106	0.113	0.107	0.1	0.11	0.119	0.105	0.1
Cadmium	mg/L	0.005	< 0.000014	< 0.000015	< 0.00002	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000010	<0.000015	< 0.000015	< 0.000010
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.0001	0.006	< 0.005	< 0.005	0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.0001	< 0.005	< 0.005
Copper	mg/L	1	0.0005	0.0002	0.0004	0.0008	0.0002	0.0004	0.0018	0.0006	0.0003	0.0006	0.0003	0.0003	0.0005	0.0001	0.0001
Lead	mg/L	0.01	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	0.00002	0.00006	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0003	0.0005	0.0003	0.0004	0.0004	0.0003	0.0004	0.0004	0.0004	0.0005	0.0005	0.0004	0.0004	0.0005	0.0005
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0002	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	0.93	1.06	0.958	1.02	0.969	0.972	0.939	0.931	0.983	0.939	0.963	1.01	0.974	0.949	0.927
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0004	0.0001	0.0001	0.0001	< 0.0001	0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0001	< 0.0001	< 0.0001
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005

	uality		35-93-II	35-93-II	35-93-II	35-93-II	35-93-II	35-93-II	35-93-II	35-93-II	35-93-II						
Parameters	Units	ODWQS	6-May-14	20-Oct-14	26-May-15	13-Oct-15	11-May-16	12-Oct-16	24-May-17	16-Oct-17	7-May-18	10-Oct-18	10-May-19	7-Oct-19	5-May-20	13-Oct-20	4-May-21
Alkalinity	mg/L	500	340	330	321	380	326	319	334	330	292	235	298	324	266	276	298
Unionized Ammonia	mg/L	N/A	010	000	021	000	020	010	001	000	202	200	200	021	200	270	200
Ammonia	mg/L	N/A	0.02	0.07	0.13	0.03	0.06	0.08	0.06	0.03	0.12	1.3	0.09	0.05	0.02	0.15	0.04
BOD	mg/L	N/A	0.02	0.07	00	0.00	0.00	0.00	0.00	0.00	02		0.00	0.00	0.02	0.10	0.01
Calcium	mg/L	N/A	167	139	142	179	101	191	127	130	114	81.2	136	154	129	141	109
COD	mg/L	N/A	47	< 5	5	23	58	< 5	31	15	5	7	14	34	9	36	62
Chloride	mg/L	250	40.6	65.6	19.1	45.2	11.3	95.6	28.1	28.9	17.3	25.2	51.8	63.5	105	148	74.4
Conductivity	umhos/cm	N/A	884	893	740	968	683	1010	758	749	614	606	757	874	880	1050	808
Cyanide	mg/L	0.2	001	000	740	000	000	1010	700	7-10	014	000	707	011	000	1000	000
DOC	mg/L	5	4	3	1.8	1.6	1.4	1.4	2	1.7	2.3	4.6	3.3	3	1.3	1.4	2.2
Fluoride	mg/L	1.5	0.1	0.2	0.1	0.1	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1
Hardness	mg/L	500	460	404	420	525	304	552	369	382	340	300	380	447	360	399	306
Ion Balance	%	N/A	5.74	1.31	720	020	304	332	505	302	540	300	300	777	3.36	3.55	1.15
Iron	mg/L	0.3	< 0.005	< 0.005	0.012	0.102	0.006	0.186	< 0.005	< 0.005	0.028	0.013	< 0.005	0.006	0.025	0.007	0.006
Magnesium	mg/L	N/A	10.4	13.9	15.8	18.6	12.7	17.8	12.7	13.8	13.3	23.6	9.76	15.1	9.18	11.2	8.05
Manganese	mg/L	0.05	0.001	0.01	0.017	0.008	0.008	0.017	0.002	0.009	0.003	0.019	< 0.001	0.014	0.001	< 0.001	< 0.001
Nitrate	mg/L	10	0.001	0.4	0.017	1.7	0.000	0.017	< 0.05	0.003	< 0.05	0.013	0.2	0.014	0.31	0.06	0.28
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07	< 0.05	0.24
Tot Kjel N	mg/L	N/A	0.7	0.5	0.9	1.5	0.5	1.8	1	0.3	0.5	1.6	0.4	0.9	0.5	0.4	1.7
pH-Lab	pH unit	6.5-8.5	7.73	7.66	7.67	7.51	7.63	7.69	7.95	7.87	7.9	7.77	7.88	7.79	7.76	7.72	7.87
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	0.02	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.57	2.7	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	0.8	1.3	1.1	1.4	0.9	1.2	0.9	1.2	1.6	1.9	0.8	1.4	0.7	1.1	0.7
Sodium	mg/L	200	20.7	26.5	22.3	28.7	15.5	40.6	24.6	25.3	16.6	8.3	23.8	27.6	49	67.4	50
Sulphate	mg/L	500	47	50	51	67	40	62	29	27	24	47	29	44	20	22	19
TDS	mg/L	500	495	496	445	577	377	603	423	424	362	330	430	500	473	557	440
TSS	mg/L	N/A	100	100	110	011	011	000	120	12-1	002	000	100	000	110	001	110
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.04	0.03	0.04	0.06	0.03	0.09	0.03	0.07	0.07	0.06	0.08	0.09	0.08	0.08	0.07
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0001	< 0.0001	0.0001	0.0002	< 0.0001	0.0003	0.0001	0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Barium	mg/L	1	0.091	0.096	0.101	0.127	0.069	0.122	0.08	0.109	0.086	0.236	0.078	0.121	0.074	0.1	0.061
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.011	0.018	< 0.005	0.018	< 0.005	0.02	0.014	0.025	0.011	0.043	< 0.005	0.018	0.014	0.018	0.011
Cadmium	mg/L	0.005	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015	< 0.00002	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.05	0.0008	< 0.0002	< 0.0002	0.0048	< 0.0002	0.0025	< 0.001	< 0.001	< 0.001	0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.005	< 0.005
Copper	mg/L	1	0.0008	0.0009	< 0.0001	0.0008	< 0.0001	0.0006	0.0009	0.0004	0.001	0.0007	0.0004	0.0004	0.0011	0.0028	0.0009
Lead	mg/L	0.01	0.00002	0.00004	< 0.00002	0.00019	< 0.00002	0.00031	< 0.00002	< 0.00002	0.00004	0.00013	< 0.00002	< 0.00002	0.00006	0.00009	< 0.00002
Mercury	mg/L	0.001	0.00006	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0002	< 0.0001	0.0002	0.0002	0.0003	0.0001	0.0003	0.0002	0.0002	0.0002	0.0002	0.0003	0.0002	0.0002	0.0002
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.04	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	0.00002	0.351	0.365	0.426	0.246	0.424	0.317	0.296	0.3	0.753	0.322	0.376	0.281	0.326	0.271
Thallium	mg/L	N/A	< 0.00005	< 0.0005	< 0.0005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0026	< 0.0001	0.0019	0.0017	< 0.0001	0.0011	< 0.00003	0.0008	< 0.00003	< 0.0001	< 0.0001	< 0.0001	< 0.00003	< 0.0001	< 0.0001
	mg/L	5	0.0020	0.006	< 0.0015	< 0.0017	< 0.005	< 0.005	< 0.005	< 0.005	0.009	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	l l		35-93-II	35-93-II	35-93-II	35-93-II	35-93-II	35-93-II (DUP)	36-93	36-93	36-93	36-93	36-93	36-93	36-93	36-93	36-93
Parameters	Units	ODWQS	13-Oct-21	3-May-22	25-Oct-22	2-May-23	18-Oct-23	2-May-23	6-May-14	20-Oct-14	26-May-15	13-Oct-15	11-May-16	18-Oct-16	24-May-17	16-Oct-17	7-May-18
Alkalinity	mg/L	500	319	283	302	266	325	263	221	241	238	236	236	228	241	231	232
Unionized Ammonia	mg/L	N/A															
Ammonia	mg/L	N/A	0.06	1.56	0.06	0.42	1.1	0.25	0.16	0.21	0.19	0.17	0.21	0.2	0.16	0.23	0.22
BOD	mg/L	N/A															7
Calcium	mg/L	N/A	126	140	133	84.2	110	86.1	92.6	80.5	91.6	91.3	70	82.7	78.6	86.6	81.9
COD	mg/L	N/A	61	17	27	< 5	<5	21	< 5	30	25	30	70	41	9	49	< 5
Chloride	mg/L	250	121	156	239	40.6	148	41.4	27.1	22.1	21.4	22.1	21.4	25.3	19.8	22.9	27.3
Conductivity	umhos/cm	N/A	977	1080	1240	639	1100	630	638	607	604	603	590	602	614	593	588
Cyanide	mg/L	0.2													-		
DOC	mg/L	5	1.6	1.4	< 0.2	2.1	2.8	2	3	2.9	1.6	1.6	1.4	1.8	1.8	2	2.2
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	0.2	0.2	0.2	0.2	0.2	0.2	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	360	388	384	225	312	231	340	299	339	349	268	307	292	324	313
Ion Balance	%	N/A	2.04	2.29	4.72	8.77	7.46	5.8	7.83	0.474					-		
Iron	mg/L	0.3	0.03	< 0.005	< 0.005	< 0.005	0.005	< 0.005	0.863	1.07	1.06	1.12	0.865	0.866	0.852	0.873	0.987
Magnesium	mg/L	N/A	11	9.34	12.6	3.54	9.04	3.85	26.3	23.9	26.7	29.3	22.7	24.4	23.2	26.2	26.4
Manganese	mg/L	0.05	0.002	< 0.001	< 0.001	< 0.001	0.001	< 0.001	0.023	0.021	0.022	0.022	0.02	0.021	0.02	0.022	0.021
Nitrate	mg/L	10	0.11	0.25	0.2	0.07	0.24	0.08	< 0.1	0.1	0.2	0.1	0.2	0.2	< 0.05	0.13	0.14
Nitrite	mg/L	1	0.1	< 0.05	< 0.05	< 0.05	<0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	1.4	2.5	0.7	0.8	0.9	0.5	0.5	0.3	0.9	0.2	0.7	0.6	0.3	0.4	2.2
pH-Lab	pH unit	6.5-8.5	7.9	7.74	7.72	7.9	7.49	7.93	8.11	7.86	7.91	7.85	7.83	8.07	7.89	7.98	8.01
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	< 0.001	0.003	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	1.4	0.9	1.5	0.4	1.5	0.5	1.8	1.8	1.7	1.8	1.4	1.6	1.3	1.8	1.9
Sodium	mg/L	200	81.1	71.5	104	25.4	77	29.4	9.1	7.2	9.2	8.3	8	9.5	8.3	8.2	9.4
Sulphate	mg/L	500	26	21	32	10	24	10	50	49	49	49	49	48	39	42	48
TDS	mg/L	500	558	570	703	324	589	329	340	331	345	345	316	330	316	327	335
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.06	0.08	0.09	0.04	0.03	0.02	0.03	0.02	0.03	0.02	0.02	0.04	0.02	0.05	0.05
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	0.0002	0.0002	0.0003	0.0003	0.0003	0.0002	0.0003	0.0003	0.0004
Barium	mg/L	1	0.094	0.085	0.112	0.04	0.08	0.042	0.268	0.216	0.259	0.27	0.197	0.23	0.215	0.27	0.259
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.022	0.012	0.009	0.007	0.02	0.008	0.046	0.044	0.031	0.048	0.008	0.048	0.038	0.053	0.047
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000012	< 0.000010	<0.000015	< 0.000010	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	0.0008	< 0.0002	< 0.0002	0.0027	< 0.0002	< 0.0002	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	<0.0001	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001
Copper	mg/L	1	0.0008	0.0011	0.0007	0.0009	0.0015	0.0004	0.0003	0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0028	0.0001	0.0002
Lead	mg/L	0.01	0.00006	0.00002	< 0.00004	< 0.00002	<0.00002	< 0.00002	0.00004	0.00007	< 0.00002	0.00003	< 0.00002	0.00002	0.00021	0.00004	0.00003
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0002	0.0002	0.0004	0.0002	0.0002	0.0002	0.0003	< 0.0001	0.0002	0.0003	0.0008	0.0002	0.0002	0.0002	0.0003
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	0.0003	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001
Strontium	mg/L	N/A	0.359	0.345	0.418	0.195	0.32	0.204		0.701	0.821	0.82	0.622	0.736	0.697	0.686	0.788
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	0.0019	< 0.0001	0.0016	0.0009	< 0.0001	0.0005	0.0012	0.0005	< 0.0001
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	anty		36-93	36-93	36-93	36-93	36-93	36-93	36-93	36-93	36-93	36-93	36-93	37-93-I	37-93-I	37-93-I	37-93-I
Parameters	Units	opwos	10-Oct-18	10-May-19	8-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21	3-May-22	25-Oct-22	2-May-23	18-Oct-23	8-May-14	20-Oct-14	26-May-15	13-Oct-15
Alkalinity	mg/L	500	332	216	223	227	217	230	246	233	245	239	259	232	225	238	236
Unionized Ammonia	mg/L	N/A	002	2.0				200	2.0	200	2.0	200	200	202	220	200	200
Ammonia	mg/L	N/A	0.26	0.21	0.16	0.17	0.26	0.22	0.21	0.31	0.2	0.43	1.74	0.24	0.28	0.19	0.17
BOD	mg/L	N/A															
Calcium	mg/L	N/A	139	89.2	88	83.2	82.3	79.1	87.8	86.3	79.4	78	82.4	136	103	91.6	91.3
COD	mg/L	N/A	20	47	333	21	40	23	7	9	< 5	< 5	12	< 5	< 5	25	30
Chloride	mg/L	250	30.2	32.4	29.7	27	26.8	< 0.5	26.3	30	39.4	34	26.2	197	170	21.4	22.1
Conductivity	umhos/cm	N/A	810	600	597	595	591	591	600	624	620	631	627	1200	1060	604	603
Cyanide	mg/L	0.2															
DOC	mg/L	5	2.7	3.1	2.9	2.6	2.7	2.6	1.4	2.2	1.3	1.1	3.8	1.8	1.9	1.6	1.6
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	0.2	0.3	0.2	0.2
Hardness	mg/L	500	403	327	329	311	299	300	323	320	307	299	308	572	451	339	349
Ion Balance	%	N/A				3.93	3.13	5.29	2.79	3.41	3.98	2.62	1.23	6.75	1.52		
Iron	mg/L	0.3	0.016	1.21	1.25	1.04	1.14	0.733	1.18	0.881	1.22	1.26	1.25	1.12	1.04	1.06	1.12
Magnesium	mg/L	N/A	13.6	25.2	26.5	25.1	22.8	24.8	25.3	25.4	26.5	25.2	24.8	56.6	47.2	26.7	29.3
Manganese	mg/L	0.05	0.007	0.025	0.021	0.02	0.019	0.018	0.024	0.026	0.017	0.021	0.022	0.022	0.019	0.022	0.022
Nitrate	mg/L	10	0.52	0.29	< 0.05	0.23	0.12	< 0.05	0.06	0.11	0.19	0.17	0.28	< 0.1	< 0.1	0.2	0.1
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	16.6	0.08	< 0.05	< 0.05	< 0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	0.6	0.6	4.2	0.5	0.6	0.5	0.3	0.5	0.4	0.5	1.3	0.6	0.3	0.9	0.2
pH-Lab	pH unit	6.5-8.5	7.56	8.02	7.99	7.88	7.94	8.09	7.92	7.8	7.83	7.94	7.47	8	7.82	7.91	7.85
Phenols	mg/L	N/A	0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	1.63	22.6	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	1.5	1.8	2	1.6	1.8	1.6	2	1.7	2	1.9	2	3.3	2.7	1.7	1.8
Sodium	mg/L	200	20.7	9	9.1	8.4	8.6	8.7	8.9	9	8.8	9	8.5	33.4	21.3	29.8	21.2
Sulphate	mg/L	500	38	52	48	42	46	1	45	45	57	51	43	58	52	49	49
TDS	mg/L	500	443	340	339	325	320	255	344	338	362	344	325	625	534	345	345
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.08	0.06	0.06	0.06	0.05	0.05	0.04	0.07	0.06	0.02	0.03	0.04	0.02	0.03	0.009
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	
Arsenic	mg/L	0.025	0.0002	0.0002	0.0002	0.0001	0.0002	0.0001	0.0002	0.0001	0.0002	0.0001	0.0002	0.0004	0.0002	0.0003	< 0.0002
Barium	mg/L	1	0.107	0.243	0.264	0.23	0.245	0.225	0.255	0.242	0.289	0.247	0.245	0.304	0.209	0.254	0.174
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.000007
Boron	mg/L	5	0.015	0.039	0.051	0.043	0.05	0.042	0.05	0.042	0.037	0.045	0.049	0.06	0.054	0.041	0.0596
Cadmium	mg/L	0.005	< 0.00002	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000010	<0.000015	< 0.00002	0.00002	< 0.00002	< 0.000003
Chromium	mg/L	0.05	0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.0002	< 0.0002	< 0.0002	< 0.00003
Cobalt	mg/L	N/A	0.006	< 0.005	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.0001	< 0.005	< 0.005	< 0.005	0.000004
Copper	mg/L	1	0.0004	0.0005	< 0.0001	< 0.0001	0.0061	0.0003	0.0004	0.0005	0.0002	0.0001	0.0003	0.0002	0.0007	< 0.0001	0.0002
Lead	mg/L	0.01	0.00003	0.00014	< 0.00002	0.00005	0.00006	< 0.00002	0.00011	0.00008	< 0.00002	< 0.00002	0.00002	< 0.00002	0.00005	0.00006	0.00005
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00001
Molybdenum	mg/L	N/A	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	< 0.0001	0.0002	0.00014
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01 < 0.001	< 0.01	< 0.01 < 0.001	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01 < 0.001	<0.0002	< 0.01	< 0.01 < 0.001	< 0.01 < 0.001	< 0.0001
Selenium Silver	mg/L	0.01 N/A	< 0.001 < 0.0001	< 0.001 < 0.0001	< 0.001	< 0.001 < 0.0001	< 0.001	< 0.001 < 0.0001	< 0.001 < 0.0001	< 0.001 < 0.0001	< 0.001 < 0.0001	< 0.001	<0.001 <0.0001	< 0.001 < 0.00002	< 0.0001	< 0.0001	0.000006
	mg/L	•			0.804	0.741		0.752		0.0001	0.827			< 0.00002			
Strontium	mg/L	N/A	0.36	0.806	< 0.00005	< 0.00005	0.749		0.797 < 0.00005	< 0.00005	< 0.00005	0.785	0.755	< 0.00005	1.33	1.5	1.16
Thallium	mg/L	N/A	< 0.00005	< 0.00005			< 0.00005	< 0.00005				< 0.00005	<0.00005				0.00044
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.0025	< 0.0001	0.0013	0.00011
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	0.002

General Water Qua	anty					27.00.1	27 22 1		27.00.1	27.00.1	27.00.1				27.22.1	27.00.1	
Parameters	Units	opwos	37-93-I 11-May-16	37-93-I 12-Oct-16	37-93-I 24-May-17	37-93-I 16-Oct-17	37-93-I 7-May-18	37-93-I 11-Oct-18	37-93-I 10-May-19	37-93-I 7-Oct-19	37-93-I 5-May-20	37-93-I 13-Oct-20	37-93-I 4-May-21	37-93-I 13-Oct-21	37-93-I 3-May-22	37-93-I 25-Oct-22	37-93-I 2-May-23
Alkalinity	mg/L	500	236	207	238	220	239	216	229	203	230	224	248	260	244	23-001-22	251
Unionized Ammonia	mg/L	N/A	230	207	230	220	233	< 0.01	229	203	230	224	240	200	244	201	251
Ammonia	mg/L	N/A	0.23	0.27	0.27	0.25	0.32	0.24	0.28	0.21	0.25	0.28	0.26	0.31	0.33	0.23	0.4
BOD	mg/L	N/A	0.20	0.21	0.21	0.20	0.02	9	0.20	0.21	0.20	0.20	0.20	0.01	0.00	0.20	0.4
Calcium	mg/L	N/A	94.6	72.4	103	108	111	92.6	113	75	113	113	103	115	115	96.8	108
COD	mg/L	N/A	< 5	< 5	< 5	< 5	8	< 5	8	< 5	22	< 5	9	9	10	< 5	9
Chloride	mg/L	250	185	49.5	150	140	185	116	191	59.4	170	173	168	175	173	205	215
Conductivity	umhos/cm	N/A	1110	645	1120	973	1060	876	1090	647	1070	1070	1070	1090	1140	1020	1190
Cyanide	mg/L	0.2		0.0	1.20	0.0		< 0.005		0						.020	
DOC	mg/L	5	0.6	1.4	1.3	1.3	1.5	2.4	2.3	2.3	1.4	1.4	1.5	0.7	1.2	< 0.2	1
Fluoride	mg/L	1.5	0.2	0.3	< 0.1	< 0.1	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	414	316	435	470	482	415	478	323	482	465	451	479	473	429	454
Ion Balance	%	N/A		0.10							4.04	2.02	0.0396	1.76	2.83	6.66	5.09
Iron	mg/L	0.3	0.754	0.491	0.711	0.716	0.965	4.24	0.966	0.65	1.11	1.12	0.827	1.33	1.25	0.976	1.16
Magnesium	mg/L	N/A	43.2	32.7	43.3	48.6	49.7	44.7	47.6	32.9	48.5	44.5	47	46.7	45.1	45.5	44.5
Manganese	mg/L	0.05	0.018	0.012	0.016	0.02	0.019	0.021	0.018	0.011	0.019	0.019	0.016	0.02	0.023	0.016	0.019
Nitrate	mg/L	10	0.1	< 0.1	< 0.05	< 0.05	< 0.05	0.07	0.2	< 0.05	0.09	< 0.05	0.24	< 0.05	0.07	< 0.05	0.07
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.11	< 0.05	< 0.05	0.2	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.4	0.7	0.3	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.6
pH-Lab	pH unit	6.5-8.5	7.74	8.04	7.8	8.02	7.87	7.93	7.96	8.02	7.8	7.75	8.18	7.88	7.81	7.81	7.9
Phenols	mg/L	N/A	< 0.001	0.001	0.002	0.001	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.04	0.22	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	2.3	2.3	2.4	2.8	3.3	3.2	3	2.6	2.9	2.9	2.8	3.1	2.9	3.1	3.1
Sodium	mg/L	200	27.1	16.6	28.7	28	38.2	29.5	38.2	19.1	36.3	34.8	40.6	45.9	45.7	38.1	46.7
Sulphate	mg/L	500	59	49	45	46	57	53	62	45	52	56	58	58	57	70	66
TDS	mg/L	500	554	348	516	506	588	473	594	356	562	560	569	601	587	599	635
TSS	mg/L	N/A						660									
Turbidity	NTU	N/A						219									
Colour	TCU	5						2									
Aluminum	mg/L	0.1	0.02	0.03	0.03	0.07	0.07	0.06	0.07	0.05	0.06	0.07	0.07	0.06	0.08	0.07	0.03
Antimony	mg/L	0.006	< 0.0001	0.0002	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001
Arsenic	mg/L	0.025	0.0003	0.0003	0.0008	0.0005	0.0001	0.0006	0.0001	0.0001	0.0001	0.0002	0.0002	0.0001	0.0001	0.0002	0.0002
Barium	mg/L	1	0.197	0.135	0.209	0.257	0.26	0.219	0.257	0.148	0.25	0.258	0.228	0.284	0.274	0.255	0.278
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.015	0.064	0.05	0.063	0.052	0.067	0.05	0.066	0.055	0.057	0.051	0.054	0.047	0.044	0.05
Cadmium	mg/L	0.005	< 0.00002	< 0.00002	< 0.000014	< 0.000014	0.000043	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000012
Chromium	mg/L	0.05	< 0.0002	0.0012	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.005	0.008	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.007
Copper	mg/L	1	< 0.0001	0.0001	0.0017	0.0003	0.0004	0.001	0.0006	0.0003	0.0005	0.0012	0.0005	0.0002	0.0006	0.0002	< 0.0001
Lead	mg/L	0.01	< 0.00002	< 0.00002	0.00007	< 0.00002	0.00006	0.00009	< 0.00002	< 0.00002	< 0.00004	0.00004	< 0.00002	< 0.00004	0.0001	0.00002	< 0.00004
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0002	0.0002	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Silver	mg/L	N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	1.1	0.928	1.26	1.19	1.39	1.31	1.46	0.943	1.38	1.37	1.32	1.41	1.33	1.34	1.32
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	0.0004	0.0012	0.0004	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Q	uanty		37-93-I	37-93-II	37-93-II	37-93-II	37-93-II	37-93-II	37-93-II	37-93-II	37-93-II						
Parameters	Units	ODWQS	18-Oct-23	8-May-14	20-Oct-14	26-May-15	13-Oct-15	11-May-16	12-Oct-16	24-May-17	16-Oct-17	7-May-18	10-Oct-18	10-May-19	7-Oct-19	5-May-20	13-Oct-20
Alkalinity	mg/L	500	260	291	338	305	317	304	319	316	303	338	305	301	315	302	313
Unionized Ammonia	mg/L	N/A					-										
Ammonia	mg/L	N/A	0.68	0.11	0.12	0.16	0.13	0.15	0.15	0.15	0.22	0.14	0.15	0.16	0.11	0.12	0.28
BOD	mg/L	N/A													****		
Calcium	mg/L	N/A	102	166	130	170	169	125	160	147	166	147	138	149	160	154	160
COD	mg/L	N/A	12	14	47	20	74	65	< 5	14	35	< 5	121	90	19	128	51
Chloride	mg/L	250	183	171	183	193	214	187	221	177	198	193	258	240	252	210	316
Conductivity	umhos/cm	N/A	1160	1250	1350	1310	1400	1260	1480	1360	1350	1240	1510	1350	1400	1340	1620
Cyanide	mg/L	0.2															
DOC	mg/L	5	2.2	2.3	3.5	0.7	0.8	0.6	1	1.8	1.8	1.8	1.5	2.2	2	2	1.4
Fluoride	mg/L	1.5	<0.1	< 0.1	0.2	0.1	0.1	0.2	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	430	526	407	533	537	401	500	459	521	465	419	464	501	482	492
Ion Balance	%	N/A	4.13	7.47	1.41			-						-		3.65	1.52
Iron	mg/L	0.3	1.02	2.66	0.761	2.15	2.5	1.8	0.695	0.981	1.78	1.65	0.015	0.81	2.19	1.01	1.44
Magnesium	mg/L	N/A	42.7	26.9	20.1	26	27.8	21.6	24.7	22	25.8	23.8	18.1	22.3	24.5	23.5	22.4
Manganese	mg/L	0.05	0.018	0.053	0.037	0.056	0.055	0.043	0.055	0.05	0.06	0.05	0.02	0.046	0.051	0.047	0.055
Nitrate	mg/L	10	0.06	< 0.1	0.1	0.1	< 0.1	0.1	0.1	< 0.05	< 0.05	< 0.05	< 0.05	0.2	< 0.05	0.12	< 0.05
Nitrite	mg/L	1	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.12	< 0.05
Tot Kjel N	mg/L	N/A	0.7	0.9	0.5	1.3	0.5	0.7	1.5	0.4	0.6	1.3	1.7	2.2	0.5	0.7	0.6
pH-Lab	pH unit	6.5-8.5	7.52	7.92	7.7	7.74	7.64	7.62	7.87	7.67	7.87	7.89	7.63	7.87	7.83	7.75	7.66
Phenols	mg/L	N/A	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	0.001	< 0.001	0.021	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	N/A	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	4.3	0.94	< 0.1	< 0.1
Potassium	mg/L	N/A	3.1	1.9	2.4	1.9	2.3	1.4	2.1	1.5	2.2	1.9	2.9	2	2.4	1.9	2.6
Sodium	mg/L	200	43.1	75.9	110	89.3	101	68	120	90.3	100	90.3	158	106	120	102	159
Sulphate	mg/L	500	55	69	70	70	70	69	68	53	64	62	64	70	63	57	58
TDS	mg/L	500	622	688	720	736	777	657	789	682	741	723	823	771	813	731	908
TSS	mg/L	N/A	-														
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.03	0.04	0.03	0.04	0.04	0.03	0.05	0.04	0.1	0.07	0.06	0.08	0.09	0.08	0.08
Antimony	mg/L	0.006	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0003	0.0001	0.0001	< 0.0001	0.0001	< 0.0001	0.0002	0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0002	0.0007	0.0005	0.0005	0.0007	0.0003	0.0005	0.0012	0.001	0.0003	0.0002	0.0003	0.0004	0.0002	0.0004
Barium	mg/L	1	0.252	0.358	0.268	0.355	0.384	0.26	0.351	0.287	0.392	0.318	0.302	0.298	0.372	0.308	0.386
Beryllium	mg/L	N/A	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.054	0.03	0.048	0.013	0.036	< 0.005	0.044	0.024	0.039	0.028	0.044	0.027	0.041	0.031	0.048
Cadmium	mg/L	0.005	<0.000015	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	0.000049	< 0.00002	< 0.000015	< 0.000029	< 0.000015	< 0.000015
Chromium	mg/L	0.05	<0.001	< 0.0002	< 0.0002	< 0.0002	0.0037	< 0.0002	0.0018	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	<0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0001	0.013	0.01	< 0.005	0.0002	< 0.005
Copper	mg/L	1	0.0002	0.0005	0.0014	0.0004	0.0008	0.0004	0.0008	0.0039	0.0008	0.0005	0.0015	0.0012	0.0004	0.0007	0.0017
Lead	mg/L	0.01	<0.00002	< 0.00002	0.00005	0.00008	< 0.00002	< 0.00002	0.00006	0.00022	< 0.00002	< 0.00002	0.00003	0.00003	< 0.00009	< 0.00002	0.00017
Mercury	mg/L	0.001	0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0002	0.0002	< 0.0001	0.0002	0.0003	0.0008	0.0003	0.0003	0.0002	0.0003	0.0003	0.0003	0.0003	0.0002	0.0002
Nickel	mg/L	N/A	<0.0002	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001
Strontium	mg/L	N/A	1.27		0.592	0.735	0.725	0.531	0.686	0.594	0.623	0.621	0.527	0.672	0.698	0.644	0.698
Thallium	mg/L	N/A	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00008	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	<0.0001	0.003	< 0.0001	0.0022	0.0012	< 0.0001	0.0006	0.0016	0.0006	< 0.0001	< 0.0001	< 0.0001	< 0.0004	< 0.0001	< 0.0001
Zinc	mg/L	5	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Q	<u> </u>		37-93-II	37-93-II	37-93-II	37-93-II	37-93-II	37-93-II	38-93	38-93	38-93	38-93	38-93	38-93	38-93	38-93	38-93
Parameters	Units	ODWQS	4-May-21	13-Oct-21	3-May-22	25-Oct-22	2-May-23	18-Oct-23	8-May-14	20-Oct-14	26-May-15	13-Oct-15	11-May-16	12-Oct-16	24-May-17	16-Oct-17	7-May-18
Alkalinity	mg/L	500	344	325	346	304	299	299	271	282	276	285	285	286	290	279	286
Unionized Ammonia	mg/L	N/A															
Ammonia	mg/L	N/A	0.07	0.13	1.67	0.19	2.05	0.29	0.02	0.1	0.1	0.07	0.06	0.09	0.07	0.09	0.08
BOD	mg/L	N/A								-	-						
Calcium	mg/L	N/A	129	143	176	180	166	126	122	98.6	118	111	95.6	117	98.6	115	106
COD	mg/L	N/A	26	18	29	33	62	23	7	49	8	47	77	< 5	16	< 5	< 5
Chloride	mg/L	250	186	299	271	482	329	242	12	10.9	10.4	11.1	11.4	10.4	11	12.9	13
Conductivity	umhos/cm	N/A	1230	1530	1620	1890	1660	1400	679	633	630	635	633	650	652	633	614
Cyanide	mg/L	0.2	.200	.000	.020	1000		1.00	0.0	000	555	555	000	555	552		
DOC	mg/L	5	3.1	1.3	1.5	< 0.2	1.1	2.7	2.4	3.6	1.9	2.1	1.4	2	1.9	1.7	2.4
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 1	< 0.1	<0.1	< 0.1	0.2	0.1	0.1	0.2	0.2	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	373	429	537	559	517	375	377	310	367	355	302	364	308	359	334
Ion Balance	%	N/A	0.224	2.4	1.27	8.26	2.83	1.91	8.58	1.97			002				
Iron	mg/L	0.3	0.335	0.368	0.98	1.83	1.78	0.092	0.099	0.458	0.249	0.415	0.006	0.35	5.53	0.372	0.089
Magnesium	mg/L	N/A	12.3	17.5	23.6	26.5	24.6	14.7	17.6	15.3	17.7	19	15.4	17.4	15.1	17.5	16.8
Manganese	mg/L	0.05	0.075	0.057	0.119	0.069	0.097	0.022	0.059	0.045	0.06	0.033	0.03	0.057	0.226	0.047	0.054
Nitrate	mg/L	10	0.26	< 0.05	< 0.05	< 0.5	< 0.05	0.022	< 0.1	< 0.1	0.1	0.000	< 0.1	0.1	< 0.05	< 0.05	< 0.05
Nitrite	mg/L	1	< 0.05	0.17	< 0.05	< 0.5	< 0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.7	0.6	2.3	0.8	2.2	1	0.3	0.2	0.5	0.2	0.5	0.7	0.6	0.3	0.5
pH-Lab	pH unit	6.5-8.5	8	7.8	7.71	7.59	7.83	7.55	8.07	7.81	7.82	7.82	7.77	7.9	7.82	8.04	7.9
Phenols	mg/L	N/A	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	0.002	0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.3	< 0.1	< 0.1
Potassium	mg/L	N/A	1.5	2.5	1.9	2.8	2.2	2.1	1	1	0.9	1	0.7	0.9	0.8	1	1.2
Sodium	mg/L	200	117	153	114	145	118	132	9	7.2	9.1	8.6	8.1	9.5	7.9	8.4	9.5
Sulphate	mg/L	500	20	54	45	56	59	51	45	41	43	39	42	38	32	34	39
TDS	mg/L	500	672	865	843	1077	881	758	370	344	365	362	344	366	345	356	357
TSS	mg/L	N/A	0.2	333	0.0				0.0			552	0		0.0		
Turbidity	NTU	N/A															
Colour	TCU	5															<u> </u>
Aluminum	mg/L	0.1	0.07	0.06	0.09	0.12	0.05	0.04	0.03	0.02	0.03	0.02	0.02	0.04	0.79	0.06	0.07
Antimony	mg/L	0.006	0.0002	0.0001	< 0.0001	< 0.0001	0.0002	0.0004	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0003	< 0.0001	0.0002	< 0.0001
Arsenic	mg/L	0.025	0.0003	0.0003	0.0004	0.0005	0.0003	0.0002	0.0002	0.0003	0.0002	0.0004	0.0002	0.0005	0.0023	0.0003	0.0001
Barium	mg/L	1	0.157	0.315	0.322	0.442	0.356	0.255	0.149	0.12	0.142	0.145	0.111	0.147	0.154	0.159	0.132
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.03	0.048	0.029	0.027	0.03	0.035	0.025	0.027	0.009	0.024	< 0.005	0.028	0.022	0.03	0.023
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	0.000014	< 0.000012	<0.000015	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	0.000022	< 0.000014	< 0.000015
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.0002	< 0.0002	< 0.0002	0.0034	< 0.0002	0.0017	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001
Copper	mg/L	1	0.0007	0.0004	0.0004	0.0007	0.0001	0.0012	0.0003	0.0008	0.0003	0.0002	0.0002	0.0002	0.0031	0.0002	0.0009
Lead	mg/L	0.01	< 0.00004	0.00006	< 0.00004	0.0003	< 0.00004	<0.00004	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.0041	< 0.00002	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0003	0.0002	0.0002	0.0002	0.0002	0.0003	0.0002	< 0.0001	0.0002	0.0003	0.0006	0.0002	0.0001	0.0002	0.0002
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0007	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.1	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	0.001	0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001
Strontium	mg/L	N/A	0.441	0.583	0.684	0.784	0.703	0.477		0.403	0.45	0.449	0.353	0.434	0.604	0.388	0.408
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00006	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	0.0002	0.0031	< 0.0001	0.0017	0.0011	< 0.0001	0.0007	0.0041	0.0006	< 0.0001
Zinc	mg/L	5	< 0.005	0.005	< 0.005	0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.008	< 0.005	0.011

Parameter March	General Water Qu	uality		1		I				1						I		
Albaharly	Parameters	Unite	ODWOS															
Unbelled Ammorals mg/k N/A 0.2 0.98 0.08 < 0.01 0.17 0.09 0.09 0.95 0.44 11.0 0.46 0.21 0.25 0															_			
Ammonia mg/L N/A 0.12 0.98 0.98 0.91 0.17 0.09 0.94 0.94 0.94 0.94 0.21 0.20 0.22 0.22 0.22 Galcium mg/L N/A 1.13 112 118 107 1104 110 111 92 101 98.7 133 75.1 88.8 4.6 0.7 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 8.0 4.0				200	212	204	200	212	200	304	202	291	302	320	202	243	200	244
SOO				0.12	0.08	0.08	< 0.01	0.17	0.06	0.09	0.59	0.34	11 /	0.46	0.21	0.25	0.22	0.2
Carbum				0.12	0.00	0.00	1 0.01	0.17	0.00	0.03	0.00	0.04	11.4	0.40	0.21	0.20	0.22	0.2
COD			•	113	112	118	107	104	101	110	111	92	101	98.7	03.3	75.1	88.6	84.4
Choried			•															
Conductivity Umbros/cm NyA Pask Fast Fa										_			_		-			
Consider mg/L 0.2												_	_					
DOC				040	041	040	041	020	025	040	001	001	007	003	000	173	020	707
Flaceride				3.1	3.1	3.1	3.2	2.7	3.4	1.8	23	1.5	2.5	<i>A</i> 1	1 0	2.6	0.7	0.9
Narriers mg/L 500 359 359 359 338 328			_															
Section Sect																		
Informal				330	043	303											711	411
Magnesium			-	0.687	0.125	0.513											0.914	1 13
Manganese																		
Nitrate mg/L 10			· ·	1														
Nitrie mg/L 1				1														1
Tot Kijel N																		
Phe-lab																		
Peneslos																		
Prosphorus	·																	
Potassium mg/L 0.00 0.9 1.1 0.9 0.9 0.9 0.9 0.9 0.1 1.1 0.9 1.1 1.1 2.9 2.3 2.5 2.5			•															
Sodium	· · · · · · · · · · · · · · · · · · ·		•					_						_				
Sulphate mg/L 500 37 43 37 34 37 38 37 37 45 39 33 37 36 39 38 37 35 36 36 36 355 36 36 3			•															
TIDS									_		37							
TSS												_						
Turbidity NTU N/A																		
Colour																		
Antimony mg/L 0.006 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0																		
Antimony mg/L 0.006 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0	Aluminum	mg/L	0.1	0.06	0.07	0.08	0.06	0.06	0.07	0.05	0.07	0.07	0.03	0.04	0.02	0.02	0.03	0.02
Arsenic mg/L 0.025 0.0003 0.0001 0.0003 <0.0001 0.0002 <0.0001 0.0002 0.0001 0.0001 <0.0001 0.0001 0.0004 0.0004 0.0002 0.0003 0				< 0.0001	< 0.0001				0.0001	< 0.0001	< 0.0001	< 0.0001		0.0001			< 0.0001	
Barium mg/L 1 0.148 0.134 0.154 0.126 0.138 0.12 0.151 0.134 0.135 0.134 0.132 0.265 0.197 0.241 0.223	•		0.025	0.0003	0.0001	0.0003	< 0.0001	0.0002	< 0.0001	0.0002	0.0001	0.0001	< 0.0001	0.0001	0.0004	0.0002	0.0003	0.0003
Beryllium mg/L N/A <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0002 <0.0	Barium		1	0.148	0.134	0.154	0.126	0.138	0.12	0.151	0.134	0.135	0.134	0.132	0.265	0.197	0.241	0.223
Boron mg/L 5 0.026 0.018 0.031 0.023 0.031 0.022 0.029 0.021 0.017 0.025 0.028 0.084 0.071 0.059 0.081 0			N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002
Cadmium mg/L 0.005 < 0.00002 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000010 < 0.00001 < 0.00001 < 0.00001 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 <t< td=""><td></td><td></td><td></td><td>0.026</td><td>0.018</td><td>0.031</td><td></td><td>0.031</td><td>0.022</td><td>0.029</td><td>0.021</td><td>0.017</td><td></td><td></td><td>0.084</td><td>0.071</td><td>0.059</td><td>0.081</td></t<>				0.026	0.018	0.031		0.031	0.022	0.029	0.021	0.017			0.084	0.071	0.059	0.081
Chromium mg/L 0.05 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0	Cadmium		0.005	< 0.00002	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000010	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Cobalt mg/L N/A 0.007 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.0005 < 0.005 < 0.0005 < 0.0005 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002<	Chromium		0.05	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.0002	< 0.0002	< 0.0002	0.0028
Copper mg/L 1 0.0004 0.0006 0.001 0.0005 0.0016 0.0006 0.0004 0.0006 0.0004 0.0006 0.0004 0.0006 0.0004 0.0006 0.0004 0.0006 0.0004 0.0006 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.00002 0.0001	Cobalt		N/A	0.007	0.005	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.0001	< 0.005	< 0.005	< 0.005	< 0.005
Lead mg/L 0.01 0.00002 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.0002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0001 < 0.001 < 0.001 < 0.001	Copper		1	0.0004	0.0006	0.0001	0.0005	0.0016	0.0006	0.0004	0.0007	0.0006	0.0004	0.0006	< 0.0001	0.0006	< 0.0001	0.0001
Mercury mg/L 0.001 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.0001 < 0.0001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001			0.01	0.00002	0.00002	< 0.00002	< 0.00002	0.00005	< 0.00002	< 0.00002	< 0.00002	0.00006	< 0.00002	<0.00002		0.00003	0.00004	< 0.00002
Nickel mg/L N/A < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.	Mercury		0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.02	< 0.02	< 0.02	< 0.02
Nickel mg/L N/A < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001																		
Selenium mg/L 0.01 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.00	· · · · · · · · · · · · · · · · · · ·		N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0002	< 0.01	< 0.01	< 0.01	< 0.01
Silver mg/L N/A < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002	Selenium		0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001
Thallium mg/L N/A <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.	Silver		N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Thallium mg/L N/A <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.	Strontium	mg/L	N/A	0.427	0.454	0.465	0.414	0.422	0.407	0.454	0.425	0.431	0.426	0.423		1.14	1.29	1.25
Vanadium mg/L N/A < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0	Thallium		N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
	Vanadium		N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.0026	< 0.0001	0.0015	0.001
	Zinc		5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005

Parameters Unite Owner Parameters Unite Parameters Parameters Unite Parameters	General Water Qua	inty		39-93-I	39-93-I	39-93-I	39-93-I	39-93-1	39-93-I	39-93-1	39-93-1	39-93-I	39-93-I	39-93-I	39-93-I	39-93-I	39-93-1	39-93-1
Albahaminy	Parameters	Units	ODWQS															
Ammonia mg/L N/A 0.2 0.31 0.24 0.23 0.27 0.28 0.27 0.22 0.26 0.22 0.28 0.29 0.28 0.29 0.26 0.27 0.55 0.000 mg/L N/A 77 86.4 74.6 0.8 11 64.7 64.4 91.3 0.29 77.0 86.9 16.0 18 0.27 18.6 18.4 18.4 18.4 18.4 18.4 18.4 18.4 18.4	Alkalinity	mg/L	500	262	231	254	247	251	243	239	237	242	235	262	261	243	247	
Second May N/A N	Unionized Ammonia	mg/L	N/A															
Galeborn mg/L N/A 77 88.4 74.6 88.6 81.1 64.7 84.4 91.9 82.5 79.9 84.0 88.8 89 84.3 85.4	Ammonia	mg/L	N/A	0.2	0.31	0.24	0.23	0.27	0.23	0.24	0.27	0.22	0.25	0.22	0.26	0.38	0.27	0.95
COD	BOD	mg/L	N/A															
Chloride	Calcium	mg/L	N/A	77	86.4	74.6	86.6	81.1	84.7	84.4	91.9	82.9	79.9	84.9	86.8	89	84.3	85.4
Conductivity	COD	mg/L	N/A	< 5	< 5	< 5	< 5	< 5	9	9	< 5	7	5	10	< 5	5	< 5	< 5
Cyanide	Chloride	mg/L	250	95.3	123	75	87	96.8	112	107	141	101	108	115	122	129	176	153
DOC	Conductivity	umhos/cm	N/A	842	885	828	818	788	887	828	917	844	852	891	910	947	945	983
Fluoride	Cyanide	mg/L	0.2															
Northerest Marging M	DOC	mg/L	5	0.8	0.9	1.4	1.3	1.6	1.9	2.5	1.8	1.7	1.5	1.3	1	1.3	< 0.2	1.2
Inchablance No. N/A 1/2 0.32 0.522 0.519 1.08 0.386 1.2 1.04 1.2 1.09 1.1 1.33 7.09 4.07 4.0	Fluoride	mg/L	1.5	0.2	0.3	0.4	< 0.1	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Inchest Magnesium Magnes	Hardness	mg/L	500	360	429	354	413	390	400	396	443	395	374	409	411	416	412	410
Magnesium	Ion Balance	%	N/A									3.34	0.8	0.55	0.0891	1.63	7.09	4.07
Manganese mg/L 0.05 0.014 0.016 0.013 0.016 0.013 0.016 0.014 0.016 0.014 0.016 0.014 0.016 0.016 0.019	Iron	mg/L	0.3	0.923	0.952	0.919	1.06	0.936	1.2	1.04	1.2	1.01	1.1	1.23	1.21	1.26	1.1	1.14
NETATE mg/L 10 <0.11 <0.11 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <	Magnesium	mg/L	N/A	40.7	51.7	40.7	47.8	45.6	45.7	44.9	52	45.7	42.4	47.8	47.1	47.2	48.9	48
Nicrite mg/L 1 < 0.1 < 0.1 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0	Manganese	mg/L	0.05	0.014	0.016	0.013	0.016	0.013	0.016	0.014	0.016	0.014	0.015	0.016	0.02	0.016	0.016	0.019
Tex Kjel N mg/L N/A 0.4 0.5 0.3 0.4 0.4 0.3 0.4 0.4 0.4 0.4 0.3 0.3 0.4 0.4 0.6 0.8 0.8 0.8 0.8 0.8 0.8 0.4 0.4 0.3 0.4 0.4 0.4 0.4 0.3 0.3 0.3 0.4 0.6 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8	Nitrate	mg/L	10	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	0.18	< 0.05	0.09	< 0.05	0.21	< 0.05	< 0.05	< 0.05	< 0.05
pH-Lab	Nitrite	mg/L	1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.08	< 0.05	< 0.05	0.11	< 0.05	< 0.05	< 0.05
Phenols	Tot Kjel N	mg/L	N/A	0.4	0.5	0.3	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.6	0.8
Phosphorus	pH-Lab	pH unit	6.5-8.5	7.82	7.91	7.91	8.03	7.96	7.81	8.02	7.97	7.87	7.94	8.2	7.9	7.88	7.79	7.94
Potassium	Phenols	mg/L	N/A	< 0.001	0.001	0.001	0.003	< 0.001	0.002	< 0.002	< 0.002	0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001
Sodium mg/L 200 21.6 21 20.3 22.1 22.5 25.1 24.4 24.4 23 19.3 26.2 26.7 26.8 26.6 28	Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.07	0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulphate mg/L 500 41 35 31 34 38 42 43 41 36 40 41 42 40 52 48	Potassium	mg/L	N/A	2.1	2.6	2.1	2.6	2.8	2.7	2.7	2.9	2.6	2.4	2.6	2.8	2.7	2.8	3
TDS	Sodium	mg/L	200	21.6	21	20.3	22.1	22.5	25.1	24.4	24.4	23	19.3	26.2	26.7	26.8	26.6	28
TSS	Sulphate	mg/L	500	41	35	31	34	38	42	43	41	36	40	41	42	40	52	46
Turbidity NTU N/A	TDS	mg/L	500	436	460	398	430	438	459	452	497	438	434	476	485	483	541	517
Colour TCU S D.02 D.02 D.02 D.05 D.04 D.05 D.04 D.05 D.06 D.05 D.06 D.05 D.05 D.05 D.05 D.05 D.08 D.06 D.08 D.08 D.06 D.08 D.06 D.08 D.06 D.08 D.08 D.06 D.08 D.08 D.06 D.	TSS	mg/L	N/A															
Aluminum mg/L 0.1 0.02 0.02 0.02 0.06 0.05 0.04 0.05 0.06 0.05 0.05 0.05 0.05 0.03 0.06 0.06 0.03	Turbidity	NTU	N/A															
Antimony mg/L 0.006 < 0.0001	Colour	TCU	5															
Arsenic mg/L 0.025 0.0002 0.0004 0.0004 0.0003 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001	Aluminum	mg/L	0.1	0.02	0.02	0.02	0.06	0.05	0.04	0.05	0.06	0.05	0.05	0.05	0.03	0.06	0.06	0.03
Barium mg/L 1 0.209 0.219 0.2 0.255 0.232 0.233 0.236 0.235 0.222 0.211 0.234 0.253 0.247 0.255 0.256 Beryllium mg/L M/A < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.00015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.0001	Antimony	mg/L	0.006	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Beryllium	Arsenic	mg/L	0.025	0.0002	0.0004	0.0004	0.0003	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Boron mg/L 5 0.029 0.082 0.067 0.08 0.073 0.071 0.067 0.08 0.074 0.071 0.068 0.075 0.069 0.064 0.072	Barium	mg/L	1	0.209	0.219	0.2	0.255	0.232	0.223	0.236	0.235	0.222	0.211	0.234	0.253	0.247	0.255	0.256
Cadmium mg/L 0.005 < 0.00002 < 0.000014 < 0.00015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.000015 < 0.00001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 <	Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Chromium mg/L 0.05 < 0.0002 0.0012 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.	Boron	mg/L	5	0.029	0.082	0.067	0.08	0.073	0.071	0.067	0.08	0.074	0.071	0.068	0.075	0.069	0.064	0.072
Cobalt mg/L N/A < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.0005 < 0.0004 < 0.0002 < 0.0005 < 0.0004 < 0.0002 < 0.0005 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 <	Cadmium	mg/L	0.005	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015	< 0.00002	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000010
Copper mg/L 1 < 0.0001 0.0003 0.0012 0.0001 0.0002 0.0004 0.0004 0.0002 0.0005 0.0017 0.0006 0.0002 0.0005 0.0002 0.0004 0.0004 0.0004 0.0002 0.0005 0.0007 0.0006 0.0002 0.0005 0.0002 0.0004 0.0004 0.0002 0.00002 0.00005 0.00002 0	Chromium	mg/L	0.05	< 0.0002	0.0012	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Lead mg/L 0.01 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00002 <0.00001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0.0001 <0	Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Mercury mg/L 0.001 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 <	Copper	mg/L	1	< 0.0001	0.0003	0.0012	0.0001	0.0002	0.0004	0.0004	0.0002	0.0005	0.0017	0.0006	0.0002	0.0005	0.0002	0.0004
Molybdenum mg/L N/A 0.0002 < 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0002 0.0001 0.0002 0.0001 0.001	Lead	mg/L	0.01	< 0.00002	< 0.00002	0.00005	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	0.00005	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Nickel mg/L N/A < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001	Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Selenium mg/L 0.01 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.0001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 <	Molybdenum	mg/L	N/A	0.0002	< 0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Silver mg/L N/A < 0.00002 < 0.00002 < 0.00002 < 0.00001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 <	Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Strontium mg/L N/A 1 1.47 1.19 1.18 1.24 1.33 1.37 1.55 1.31 1.26 1.32 1.41 1.37 1.43 1.42 Thallium mg/L N/A < 0.00005	Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Thallium mg/L N/A <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.00005 <0.	Silver	mg/L	N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001		< 0.0001		< 0.0001	< 0.0001		< 0.0001	< 0.0001	< 0.0001	< 0.0001
Vanadium mg/L N/A < 0.0001 0.0004 0.0009 0.0003 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001	Strontium	mg/L	N/A															
	Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Zinc mg/L 5 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005	Vanadium	mg/L	N/A	< 0.0001	0.0004	0.0009	0.0003	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
	Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Q	uanty		39-93-I	39-93-I (DUP)	30 03 I (DUD)	39-93-II	39-93-II	39-93-II	39-93-II	39-93-II	39-93-II	39-93-II	39-93-II	39-93-II	39-93-II	39-93-II	39-93-II
Parameters	Units	ODWQS	18-Oct-23	3-May-22	2-May-23	8-May-14	20-Oct-14	26-May-15	13-Oct-15	11-May-16	24-May-17	16-Oct-17	7-May-18	10-Oct-18	10-May-19	5-May-20	13-Oct-20
Alkalinity	mg/L	500	268	248	259	289	329	379	379	303	354	299	364	241	320	297	289
Unionized Ammonia	mg/L	N/A	200	210	200	200	020	010	010	000	001	200	001	2-7.1	020	201	200
Ammonia	mg/L	N/A	0.43	0.23	1.48	0.07	0.06	0.08	0.12	0.05	0.03	0.04	0.03	0.09	0.06	0.01	0.04
BOD	mg/L	N/A	55	0.20		0.01	0.00	0.00	02	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.0.
Calcium	mg/L	N/A	86.2	91.1	85	135	131	208	196	151	128	146	166	191	133	113	216
COD	mg/L	N/A	7	6	8	25	< 5	16	82	46	14	13	9	13	36	20	35
Chloride	mg/L	250	139	130	161	115	64.5	235	212	318	208	259	337	489	241	193	542
Conductivity	umhos/cm	N/A	986	956	1000	979	1080	1500	1420	1590	1470	1460	1530	2090	1320	1220	2220
Cyanide	mg/L	0.2	000	000	1000	010	1000	1000	1-120	1000	1470	1400	1000	2000	1020	1220	LLLO
DOC	mg/L	5	2.2	1.1	1.1	2.7	3.6	1.1	1	0.8	2.5	1.7	2.1	1.6	4	2.3	1.1
Fluoride	mg/L	1.5	<0.1	< 0.1	< 0.1	< 0.1	0.2	0.1	0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	0.3	< 0.1	< 0.1
Hardness	mg/L	500	414	424	408	380	373	587	559	430	358	411	468	534	373	316	608
Ion Balance	%	N/A	1.96	1.84	5.86	7.11	7	307	333	400	330	711	400	334	373	3.1	3.4
Iron	mg/L	0.3	1.29	1.3	1.14	0.009	< 0.005	0.009	1.06	< 0.005	< 0.005	0.006	0.007	0.014	0.025	0.02	< 0.005
Magnesium	mg/L	N/A	48.3	47.8	47.5	10.3	11	15.9	16.9	12.6	9.37	11.2	13	13.7	9.9	8.19	16.5
Manganese	mg/L	0.05	0.017	0.016	0.017	0.009	0.013	0.018	0.035	0.004	0.005	< 0.001	0.007	0.001	0.031	0.011	< 0.001
Nitrate	mg/L	10	0.07	< 0.05	< 0.05	0.003	0.013	0.010	< 0.1	0.004	< 0.05	< 0.05	< 0.05	< 0.05	0.001	0.11	< 0.05
Nitrite	mg/L	1	<0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	0.06	< 0.05	0.14	0.16
Tot Kjel N	mg/L	N/A	0.6	0.4	1.4	2.3	0.3	0.9	0.1	0.5	0.5	0.5	0.7	0.4	0.7	0.6	0.6
pH-Lab	pH unit	6.5-8.5	7.56	7.93	8.01	8.02	7.75	7.73	7.59	7.7	7.85	7.94	7.87	7.76	7.98	7.88	7.77
Phenols	mg/L	N/A	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	0.002	< 0.001	0.016	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	N/A	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.38	< 0.1	< 0.1
Potassium	mg/L	N/A	2.9	2.7	2.9	6.1	6.2	7.1	7.7	5.4	5.6	8.3	6.8	8	5.6	5	6.6
Sodium	mg/L	200	28.4	27.3	28.1	70.1	61.1	93.5	94	109	164	150	166	217	156	140	193
Sulphate	mg/L	500	38	40	46	15	24	22	27	22	11	28	16	33	16	18	52
TDS	mg/L	500	526	490	528	526	497	810	782	801	739	782	924	1097	753	656	1199
TSS	mg/L	N/A	020	400	020	020	407	0.0	.02	001	7.00	.02	024	1007	7.00	000	1100
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.03	0.06	0.02	0.04	0.03	0.05	0.04	0.03	0.04	0.08	0.07	0.09	0.08	0.07	0.1
Antimony	mg/L	0.006	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0001	< 0.0002	0.0001	0.0001	0.0001	0.0002
Arsenic	mg/L	0.025	<0.0001	< 0.0001	< 0.0001	0.0003	0.0003	0.0004	0.0005	0.0002	0.0012	0.0008	< 0.0005	0.0001	0.0002	0.0001	< 0.0003
Barium	mg/L	1	0.239	0.255	0.255	0.087	0.094	0.128	0.151	0.099	0.096	0.14	0.131	0.186	0.099	0.079	0.208
Beryllium	mg/L	N/A	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.075	0.07	0.07	0.037	0.046	0.031	0.063	< 0.005	0.033	0.053	0.03	0.043	0.026	0.026	0.047
Cadmium	mg/L	0.005	<0.000015	< 0.000015	< 0.000010	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000059	< 0.00002	< 0.000015	< 0.000015	< 0.000029
Chromium	mg/L	0.05	<0.001	< 0.001	< 0.001	< 0.0002	< 0.0002	< 0.0002	0.0046	< 0.0002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	0.0002	< 0.005	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.005	0.005	< 0.0001	< 0.005
Copper	mg/L	1	0.0002	0.0005	< 0.0001	0.0004	0.0012	0.0004	0.0008	0.0007	0.0026	0.0017	0.0012	0.0014	0.0018	0.0006	0.0019
Lead	mg/L	0.01	<0.00002	< 0.00002	< 0.00002	< 0.00002	0.00004	0.00013	< 0.00002	< 0.00002	0.00008	0.00003	< 0.0002	0.0001	0.00005	0.00004	< 0.00009
Mercury	mg/L	0.001	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00008	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0001	0.0002	0.0002	0.0001	< 0.0001	< 0.0001	0.0002	0.0002	0.0003	0.0002	< 0.0004	0.0002	0.0002	0.0003	0.0002
Nickel	mg/L	N/A	<0.0002	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.002	0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	<0.0001	< 0.0001	< 0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.0004	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	1.42	1.39	1.42		0.38	0.575	0.543	0.416	0.372	0.371	0.469	0.529	0.391	0.311	0.616
Thallium	mg/L	N/A	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	<0.0001	< 0.0001	< 0.0001	0.0034	0.0003	0.003	0.0017	0.0001	0.0019	0.0014	< 0.0007	0.0005	0.0002	0.0002	< 0.0004
Zinc	mg/L	5	<0.005	< 0.005	< 0.005	0.006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Q			39-93-II	39-93-II	39-93-II	39-93-II	39-93-II	39-93-II	43-93-I	43-93-I	43-93-I						
Parameters	Units	ODWQS	4-May-21	13-Oct-21	3-May-22	25-Oct-22	2-May-23	18-Oct-23	6-May-14	21-Oct-14	26-May-15	13-Oct-15	16-May-16	12-Oct-16	24-May-17	17-Oct-17	8-May-18
Alkalinity	mg/L	500	304	370	321	380	289	399	226	231	236	228	226	215	233	234	226
Unionized Ammonia	mg/L	N/A		0.0	02.		200	000	< 0.01	< 0.01	200		< 0.01	0.01	< 0.01	< 0.01	< 0.01
Ammonia	mg/L	N/A	0.07	0.04	0.69	0.03	1.53	0.31	0.25	0.23	0.23	0.19	0.31	0.23	0.21	0.21	0.16
BOD	mg/L	N/A	0.01	0.0.	0.00	0.00	1.00	0.01	9	<3	5	2	2	< 3	< 3	< 3	< 3
Calcium	mg/L	N/A	127	161	137	167	99.8	153	90.9	76.3	92.3	88.1	83.4	74	81.3	85.5	85.8
COD	mg/L	N/A	14	11	19	17	19	13	31	< 5	38	< 5	6	< 5	7	5	48
Chloride	mg/L	250	255	404	246	524	212	438	54	44	57.9	46.2	53	47.9	46.5	46	60.5
Conductivity	umhos/cm	N/A	1410	1760	1390	2040	1190	1860	719	657	686	664	689	640	704	687	680
Cyanide	mg/L	0.2			.000	20.0			< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
DOC	mg/L	5	2.2	1.7	2	< 0.2	2.2	2.7	2.2	2.5	0.8	2.8	1.3	1.4	1.6	1.4	1.7
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 1	< 0.1	<0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.3	< 0.1	< 0.1
Hardness	mg/L	500	358	451	383	476	280	430	365	318	370	376	347	305	334	360	357
Ion Balance	%	N/A	0.874	4.05	1.34	9.33	5.14	7.08	5.12	0.556	0.0	0.0	•				
Iron	mg/L	0.3	0.339	0.025	0.176	< 0.005	0.079	0.013	0.126	0.205	0.172	0.248	0.18	0.147	0.146	0.193	0.045
Magnesium	mg/L	N/A	9.93	11.7	9.78	14.2	7.51	11.6	33.4	31	33.9	37.9	33.8	29.1	31.9	35.5	34.6
Manganese	mg/L	0.05	0.047	0.005	0.057	< 0.001	0.026	0.007	0.009	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.01
Nitrate	mg/L	10	0.46	< 0.05	< 0.05	< 0.5	< 0.05	0.007	0.2	0.2	0.3	0.000	0.000	0.2	< 0.05	0.08	0.15
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.8	0.5	1.4	0.7	1.9	0.9	2.7	0.2	0.7	0.4	0.5	0.5	0.3	0.3	0.4
pH-Lab	pH unit	6.5-8.5	8.06	7.83	7.79	7.64	7.92	7.59	8.01	8.02	8.04	7.83	8.06	8.02	8.02	7.85	7.93
Phenols	mg/L	N/A	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.005	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	5.2	7	4.8	4.9	4.6	5.7	2.9	2.7	2.7	2.8	2.6	2.4	2.4	2.9	3
Sodium	mg/L	200	151	202	142	227	121	200	11.2	8.9	11.5	10.6	11	9.5	10.5	10.1	11.5
Sulphate	mg/L	500	16	34	13	56	19	45	50	50	49	51	49	49	41	41	47
TDS	mg/L	500	747	1041	747	1220	638	1020	379	353	391	374	370	343	354	361	378
TSS	mg/L	N/A						.020	6260	600	6700	222	455	750	198	670	650
Turbidity	NTU	N/A							3930	666	1040	253	701	492	225	620	715
Colour	TCU	5							2	6	< 2	< 2	< 2	16	< 2	< 2	< 2
Aluminum	mg/L	0.1	0.08	0.07	0.08	0.1	0.06	0.04	0.03	0.03	0.02	0.02	0.02	0.05	0.02	0.04	0.05
Antimony	mg/L	0.006	0.0001	0.0002	0.0001	0.0003	0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0001	0.0001	0.0002	< 0.0003	0.0001	<0.0001	0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	0.0002	0.0003	0.0001	< 0.0001
Barium	mg/L	1	0.085	0.145	0.094	0.191	0.073	0.158	0.061	0.048	0.057	0.061	0.055	0.049	0.053	0.063	0.057
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.026	0.049	0.027	0.039	0.028	0.048	0.056	0.055	0.036	0.062	0.026	0.048	0.049	0.061	0.057
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000029	< 0.000012	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	0.001	<0.001	0.001	< 0.0002	< 0.0002	0.0026	< 0.0002	0.0007	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001
Copper	mg/L	1	0.0007	0.0011	0.0005	0.0009	0.0009	0.0008	0.0002	0.0007	< 0.0001	0.0001	< 0.0001	< 0.0001	0.001	0.0002	0.0001
Lead	mg/L	0.01	< 0.00004	0.0001	< 0.00004	< 0.00009	0.00015	<0.00004	0.00002	0.00006	0.00004	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0002	0.0002	0.0001	< 0.0002	0.0002	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0003	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	0.001	0.003	0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001
Strontium	mg/L	N/A	0.382	0.495	0.384	0.545	0.296	0.466		0.846	1.01	0.962	0.881	0.835	0.86	0.831	0.959
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	0.0003	0.0001	0.0006	0.0003	0.0008	0.0018	< 0.0001	0.0015	0.0009	0.0004	0.0003	0.0009	0.0003	< 0.0001
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	0.007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	uey		43-93-I	43-93-I	43-93-I	43-93-I	43-93-I	43-93-I	43-93-I	43-93-I	43-93-I	43-93-I	43-93-I	43-93-I	43-93-I	43-93-I	43-93-I
Parameters	Units	ODWQS	11-Oct-18	8-May-19	9-Oct-19	5-May-20	13-Jul-20	13-Oct-20	4-May-21	5-Jul-21	13-Oct-21	3-May-22	26-Jul-22	25-Oct-22	2-May-23	12-Jul-23	18-Oct-23
Alkalinity	mg/L	500	243	217	229	228	239	237	228	244	229	237	250	251	246	260	273
Unionized Ammonia	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01
Ammonia	mg/L	N/A	0.21	0.27	0.21	0.2	0.2	0.23	0.19	0.24	0.23	0.82	1.77	0.3	0.31	0.23	0.34
BOD	mg/L	N/A	2	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	
Calcium	mg/L	N/A	79.7	83.6	89.8	85.8	90.2	86.9	79.8	87.2	90.5	91.8	95.5	97.4	95.9	97.4	90.5
COD	mg/L	N/A	< 5	10	< 5	< 5	15	< 5	< 5	16	5	10	< 5	12	5	8	16
Chloride	mg/L	250	52.6	57.4	56.2	54.6	57.3	58.8	59.8	67.5	74.3	70.5	70.6	76.3	82.6	87.3	95.6
Conductivity	umhos/cm	N/A	697	684	690	694	693	724	714	722	746	756	741	796	798	830	830
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	
DOC	mg/L	5	1.7	2.1	2	2.1	8.8	1.2	1.9	4.6	1.3	1.3	1.1	< 0.2	0.8	< 0.2	2.4
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	<0.1
Hardness	mg/L	500	336	348	375	363	376	381	340	363	380	384	398	417	404	394	383
Ion Balance	%	N/A				3.78	3.33	4.2	0.287	0.895	1.46	2.02	3.18	3.38	1.07	2.7	7.05
Iron	mg/L	0.3	0.219	0.127	0.279	0.165	0.224	0.259	0.182	0.246	0.31	0.252	0.311	0.38	0.301	0.339	0.556
Magnesium	mg/L	N/A	33.3	33.7	36.6	36.1	36.6	39.8	34.3	35.4	37.4	37.6	38.8	42.2	40	36.5	38.2
Manganese	mg/L	0.05	0.0071	0.007	0.008	0.008	0.009	0.007	0.01	0.008	0.01	0.008	0.009	0.01	0.014	0.009	0.01
Nitrate	mg/L	10	< 0.05	< 0.05	< 0.05	0.14	0.12	< 0.05	0.14	0.12	< 0.05	0.07	0.07	< 0.05	< 0.05	0.08	0.08
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	0.06	0.06	< 0.05	0.11	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05
Tot Kjel N	mg/L	N/A	0.3	0.3	0.4	0.4	0.6	0.4	0.4	0.5	0.4	1.1	2.2	0.4	0.7	0.4	0.5
pH-Lab	pH unit	6.5-8.5	7.91	7.8	7.9	8.02	7.81	7.92	7.97	7.79	7.72	7.46	7.8	7.81	7.78	7.77	7.47
Phenols	mg/L	N/A	0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001
Phosphorus	mg/L	N/A	< 0.1	0.16	0.12	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1
Potassium	mg/L	N/A	2.8	2.8	3	2.9	3	3.3	2.6	2.8	3.1	3	2.9	3.4	3.2	3.1	2.9
Sodium	mg/L	200	10	9.9	9.8	9.7	9.9	10.2	9.4	9.6	10	9.5	10	10.3	10	9.9	8.9
Sulphate	mg/L	500	48	47	53	53	53	53	52	54	59	56	52	56	57	58	60
TDS	mg/L	500	373	366	387	379	394	394	375	404	413	412	422	437	436	449	437
TSS	mg/L	N/A	118	215	116	404	2400	176	196	900	530	184	296	252	350	590	236
Turbidity	NTU	N/A	222	411	168	342	1240	177	113	934	159	183	128	214	234	222	382
Colour	TCU	5	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	2	< 2	< 2	< 2	< 2	<2
Aluminum	mg/L	0.1	0.05	0.05	0.07	0.05	0.05	0.03	0.05	0.06	0.05	0.02	0.06	0.07	0.03	0.06	0.06
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001
Arsenic	mg/L	0.025	< 0.0001	< 0.0001	< 0.0001 0.062	< 0.0001 0.058	< 0.0001 0.062	< 0.0001	< 0.0001	< 0.0001	< 0.0001 0.064	< 0.0001 0.066	< 0.0001 0.066	< 0.0001	< 0.0001	< 0.0001 0.073	<0.0001
Barium	mg/L	N/A	0.057 < 0.002	0.053 < 0.002	< 0.002	< 0.002	< 0.002	0.063 < 0.002	0.054 < 0.002	0.06 < 0.002	< 0.002	< 0.002	< 0.002	0.074 < 0.002	0.068	< 0.002	0.067 <0.0001
Beryllium Boron	mg/L	5 N/A	0.002	0.054	0.062	0.002	0.058	0.068	0.055	0.059	0.063	0.062	0.056	< 0.002	0.062	0.056	0.056
Cadmium	mg/L mg/L	0.005	< 0.00015	< 0.000015	< 0.00015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.00015	< 0.0002	< 0.000015	< 0.000010	< 0.0002	< 0.000010	<0.00015
Chromium	mg/L	0.005	< 0.00013	< 0.00013	0.002	< 0.00013	< 0.001	< 0.00013	< 0.00013	< 0.00013	< 0.00013	< 0.00013	< 0.00013	< 0.000	< 0.00010	< 0.00010	<0.001
Cobalt	mg/L	N/A	< 0.001	< 0.001	< 0.002	< 0.001	< 0.001	0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.0001
Copper	mg/L	1	0.0003	0.0004	< 0.0001	< 0.0001	0.0008	0.003	0.0012	0.0002	0.0004	0.0005	0.0025	0.003	0.0002	0.0002	0.0001
Lead	mg/L	0.01	0.00003	0.00004	0.00003	0.00004	0.00008	0.00007	0.00006	0.00004	0.0004	0.00003	0.00006	0.00009	0.00002	0.00003	0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00003	< 0.00002	0.00004	< 0.00002	< 0.00007	< 0.00002	< 0.00004	< 0.0001	< 0.00002	< 0.00002	< 0.00003	< 0.00002	< 0.00002	<0.00002
Molybdenum	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0008
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001
Strontium	mg/L	N/A	0.929	0.879	0.99	0.994	0.99	1.12	0.931	0.976	1.05	1.01	1.07	1.14	1.1	1.1	1.06
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	0.007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005
	6/ -		0.000	0.000	0.000	0.000	0.00.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

General Water Qu	uanty		43-93-II	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II
Parameters	Units	ODWQS	6-May-14	21-Oct-14	26-May-15	13-Oct-15	16-May-16	24-May-17	17-Oct-17	8-May-18	11-Oct-18	8-May-19	9-Oct-19	5-May-20	13-Jul-20	13-Oct-20	4-May-21
Alkalinity	mg/L	500	253	273	265	279	264	238	265	259	271	241	269	241	250	252	240
Unionized Ammonia	mg/L	N/A	< 0.01	< 0.01			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ammonia	mg/L	N/A	< 0.01	0.23	0.02	< 0.01	0.04	0.02	0.04	0.03	0.02	0.05	0.02	0.01	0.03	0.02	< 0.01
BOD	mg/L	N/A	<3	<3	< 2	< 2	< 2	< 3	< 3	< 3	< 2	< 3	< 3	< 3	< 3	< 3	< 3
Calcium	mg/L	N/A	137	121	133	142	122	110	123	114	110	109	121	101	115	107	110
COD	mg/L	N/A	8	< 5	12	< 5	13	7	9	9	< 5	< 5	< 5	9	6	< 5	5
Chloride	mg/L	250	65	65.6	54.2	58.8	45.5	31.9	33.8	31.5	28.3	20.9	22.4	22.8	28.2	24.8	54.9
Conductivity	umhos/cm	N/A	750	742	697	747	671	601	643	587	620	569	624	537	555	587	679
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
DOC	mg/L	5	2.3	2.6	0.9	1.2	1.4	1.9	1.7	1.6	2.3	2.3	2.7	2.4	4.4	1.7	2.3
Fluoride	mg/L	1.5	0.1	0.2	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	388	341	371	410	341	307	339	321	309	306	344	280	322	299	306
Ion Balance	%	N/A	5.3	2.38	0.1	110	• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •		0			• • • • • • • • • • • • • • • • • • • •	2.48	5.85	3.29	1.54
Iron	mg/L	0.3	< 0.005	< 0.005	< 0.005	0.019	< 0.005	< 0.005	0.025	< 0.005	< 0.005	< 0.005	< 0.005	0.006	< 0.005	< 0.005	0.007
Magnesium	mg/L	N/A	11	9.2	9.13	13.4	8.86	7.9	7.78	8.64	8.32	8.19	10.2	6.63	8.35	7.48	7.57
Manganese	mg/L	0.05	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	0.001	< 0.001	0.0002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Nitrate	mg/L	10	0.2	0.1	0.2	0.1	0.1	0.15	0.14	0.1	0.12	0.07	< 0.05	0.16	0.13	0.13	0.13
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.8	< 0.1	0.1	0.2	0.2	< 0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2
pH-Lab	pH unit	6.5-8.5	7.89	7.84	7.9	7.65	7.95	7.96	7.83	7.96	7.82	7.81	7.88	7.91	7.82	7.92	7.96
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	N/A	< 0.1	< 0.1	0.18	0.09	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.14	0.13	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	0.5	0.8	0.5	0.9	0.4	0.5	0.8	0.5	0.6	0.5	0.8	0.5	0.6	0.8	0.4
Sodium	mg/L	200	8.4	12.4	10.1	10.6	10	11.5	11.4	9.6	9.9	9.4	11	9.3	10.1	11.1	10.2
Sulphate	mg/L	500	19	19	16	25	15	15	14	16	18	15	25	12	15	15	20
TDS	mg/L	500	394	393	383	419	361	319	350	335	338	308	351	297	328	318	347
TSS	mg/L	N/A	640	305	470	208	300	342	146	300	670	245	410	160	820	532	230
Turbidity	NTU	N/A	897	327	372	272	315	669	156	141	635	356	171	206	950	250	116
Colour	TCU	5	12	7	2	< 2	2	< 2	5	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Aluminum	mg/L	0.1	0.04	0.03	0.03	0.03	0.03	0.03	0.06	0.06	0.06	0.06	0.08	0.06	0.06	0.04	0.08
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0001	< 0.0001	0.0002	0.0001	< 0.0001	0.0004	0.0003	0.0001	0.0001	< 0.0001	0.0001	0.0001	0.0001	0.0001	0.0002
Barium	mg/L	1	0.082	0.08	0.075	0.105	0.067	0.075	0.116	0.075	0.082	0.068	0.095	0.076	0.084	0.09	0.074
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.007	0.008	< 0.005	0.008	< 0.005	< 0.005	0.006	0.005	0.006	0.006	0.008	< 0.005	0.008	0.009	0.006
Cadmium	mg/L	0.005	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.05	0.001	< 0.0002	< 0.0002	0.0035	< 0.0002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.0001	0.013	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0004	0.0006	0.0003	0.0007	0.0002	0.0015	0.0003	0.0002	0.0002	0.0008	0.0002	0.0002	0.0014	0.0004	0.0015
Lead	mg/L	0.01	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00005	< 0.00002	< 0.00002	< 0.00002	0.00003	0.00002	0.00003	0.00005	< 0.00002	0.00011
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0002	< 0.0001	0.0001	0.0003	0.0002	0.0003	0.0005	0.0003	0.0003	0.0002	0.0004	0.0003	0.0003	0.0003	0.0002
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A		0.273	0.291	0.316	0.244	0.267	0.3	0.256	0.244	0.23	0.277	0.252	0.251	0.284	0.264
Thallium	mg/L	N/A	0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0021	< 0.0001	0.0017	0.0013	0.0006	0.0009	0.0007	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0001	< 0.0001
Zinc	mg/L	5	0.007	0.007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qua			43-93-II	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I							
Parameters	Units	ODWQS	5-Jul-21	13-Oct-21	3-May-22	26-Jul-22	25-Oct-22	2-May-23	12-Jul-23	18-Oct-23	6-May-14	29-Jul-14	21-Oct-14	26-May-15	13-Jul-15	13-Oct-15	17-May-16
Alkalinity	mg/L	500	264	256	283	328	336	460	490	513	264	253	260	252	254	263	254
Unionized Ammonia	mg/L	N/A		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	< 0.01	< 0.01	< 0.01				< 0.01
Ammonia	mg/L	N/A	0.01	0.01	0.51	0.14	0.03	2.36	0.22	0.14	0.15	0.19	0.23	0.14	0.2	0.17	0.16
BOD	mg/L	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3		<3	<3	<3	2		4	< 2
Calcium	mg/L	N/A	131	128	145	152	159	208	215	193	117	97.8	97.6	107	110	101	103
COD	mg/L	N/A	14	< 5	13	< 5	22	< 5	11	15	< 5	< 5	< 5	6	< 5	5	6
Chloride	mg/L	250	67	57.8	57.5	40.7	43.3	43.4	44.8	45.1	93.4	86	85.3	81.5	87.4	90.8	83.9
Conductivity	umhos/cm	N/A	708	698	795	765	832	1070	1110	1100	909	815	827	814	846	865	833
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
DOC	mg/L	5	2.1	1.8	1.8	3	0.9	2.5	0.3	5.8	2.8	1.8	2.5	0.8	0.6	0.7	1.3
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1	<0.1	0.2	0.1	0.2	0.2	0.1	0.2	0.2
Hardness	mg/L	500	365	350	404	419	444	581	593	538	447	379	388	419	425	410	412
Ion Balance	%	N/A	1.6	1.5	2.66	2.86	3.56	3.16	1.5	5.26	4.1	2.01	1.43				
Iron	mg/L	0.3	0.01	0.006	< 0.005	0.011	0.006	< 0.005	< 0.005	<0.005	0.51	0.491	0.603	0.588	0.49	0.733	0.521
Magnesium	mg/L	N/A	9.08	7.32	9.9	9.51	11.2	15	13.4	13.4	37.3	32.6	35	36.8	36.8	38	37.3
Manganese	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	0.001	0.014	0.005	0.013	0.013	0.013	0.013	0.013
Nitrate	mg/L	10	0.19	0.1	0.07	0.11	< 0.05	< 0.05	< 0.5	0.07	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	0.2	0.2	0.7	0.5	0.3	2.1	0.7	0.4	0.5	0.2	0.2	0.2	0.2	0.3	0.3
pH-Lab	pH unit	6.5-8.5	7.77	7.73	7.49	7.71	7.71	7.57	7.53	7.47	8.04	7.8	7.99	7.93	7.87	7.74	7.97
Phenols	mg/L	N/A	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	0.6	0.8	0.6	0.8	0.7	0.8	0.9	0.8	2.9	2.4	2.6	2.6	2.8	3	2.5
Sodium	mg/L	200 500	12.2 19	11.4 25	12.5 45	14 38	14.7 45	17.6 58	18.6 60	17.7 62	19.5 57	14 54	13.9 54	15 52	16.4 55	17.5 56	15.6 54
Sulphate TDS	mg/L	500	398	384	441	452	45	618	647	593	487	439	445	447	461	465	450
TSS	mg/L	N/A	166	368	93	93	288	120	350	130	53	152	330	92	64	190	70
Turbidity	mg/L NTU	N/A	353	182	76.5	124	271	115	188	174	40.4	139	420	40.6	43.9	147	83.5
Colour	TCU	5	< 2	< 2	< 2	< 2	< 2	< 2	< 2	<2	6	5	3	3	9	< 2	2
Aluminum	mg/L	0.1	0.09	0.05	0.04	0.08	0.09	0.06	0.09	0.12	0.03	0.01	0.02	0.03	0.03	0.02	0.03
Antimony	mg/L	0.006	< 0.0001	0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0001	0.0001	0.0001	0.0002	0.0001	< 0.0001	0.0001	0.0001	0.0001	0.0002	< 0.0001	0.0002	0.0002	0.0003	0.0001
Barium	mg/L	1	0.0001	0.101	0.0001	0.109	0.116	0.134	0.162	0.146	0.215	0.167	0.159	0.186	0.187	0.182	0.188
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.009	0.009	< 0.005	< 0.005	< 0.005	0.002	0.009	0.006	0.057	0.035	0.053	0.038	0.048	0.054	0.055
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000012	< 0.000012	<0.000015	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	0.0006	0.0042	< 0.0002	< 0.0002	< 0.0002	0.0027	0.0014
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0003	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0012	0.0008	0.0007	0.0017	0.0017	0.0004	0.0004	0.0008	0.0003	0.0007	0.0006	< 0.0001	< 0.0001	0.0002	0.0002
Lead	mg/L	0.01	0.00005	0.00004	0.00005	0.00005	0.00006	< 0.00004	< 0.00004	0.00003	0.00002	< 0.00002	0.00004	0.00006	< 0.00002	0.00008	0.00004
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0002	0.0003	0.0002	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	< 0.0001	0.0002	< 0.0001	0.0002	0.0002
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	0.002	0.001	< 0.001	< 0.001	0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	N/A	0.273	0.336	0.292	0.356	0.355	0.432	0.449	0.43		0.855	0.852	1	0.994	0.915	0.959
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0001	< 0.0001	< 0.0001	0.0001	0.0001	< 0.0001	< 0.0001	0.0001	0.002	0.0042	< 0.0001	0.0014	0.0029	0.001	0.0005
Zinc	mg/L	5	0.005	< 0.005	< 0.005	0.006	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	iality		44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I
Parameters	Units	ODWQS	13-Jul-16	12-Oct-16	24-May-17	19-Jul-17	17-Oct-17	8-May-18	24-Jul-18	11-Oct-18	8-May-19	15-Jul-19	9-Oct-19	5-May-20	13-Jul-20	13-Oct-20	44-93-1 4-May-21
Alkalinity	mg/L	500	252	247	258	249	254	244	235	261	233	238	246	240	418	250	242
Unionized Ammonia	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ammonia	mg/L	N/A	0.15	0.17	0.15	0.15	0.21	0.15	0.22	0.17	0.2	0.2	0.16	0.15	0.04	0.17	0.14
BOD	mg/L	N/A	< 3	4	< 3	6	< 3	< 3	2	7	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Calcium	mg/L	N/A	104	99.6	103	103	109	104	93	103	102	106	116	102	238	107	96.2
COD	mg/L	N/A	< 5	< 5	7	8	< 5	14	< 5	6	6	< 5	< 5	< 5	27	8	< 5
Chloride	mg/L	250	87.6	91.5	71.2	69.7	78.8	88.5	87.6	91.4	88.7	90	101	90.7	370	98.3	92.7
Conductivity	umhos/cm	N/A	831	847	851	829	844	792	812	871	815	819	860	828	1860	865	838
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
DOC	mg/L	5	0.9	1.3	1.8	1.4	1.6	1.7	1.5	2	2.2	4.6	2.1	1.8	4.4	1.4	1.5
Fluoride	mg/L	1.5	0.2	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	410	385	402	406	433	416	381	407	407	408	452	410	656	433	393
Ion Balance	%	N/A												2.78	1.76	3.41	0.0653
Iron	mg/L	0.3	0.546	0.455	0.527	0.361	0.596	0.058	0.493	0.69	0.37	0.789	0.761	0.462	< 0.005	0.636	0.541
Magnesium	mg/L	N/A	36.4	33.1	35.4	36.1	39	37.9	36.1	36.4	36.9	34.9	39.4	37.7	14.9	40.5	37
Manganese	mg/L	0.05	0.013	0.013	0.012	0.014	0.013	0.012	0.012	0.0122	0.012	0.013	0.014	0.013	0.001	0.012	0.013
Nitrate	mg/L	10	< 0.1	0.2	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05	< 0.05	0.07	3.91	< 0.05	0.06
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.05	0.06	< 0.05	< 0.05	< 0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.08
Tot Kjel N	mg/L	N/A	0.3	0.6	0.2	0.3	0.3	0.2	0.4	0.4	0.3	0.2	0.3	0.4	0.5	0.4	0.3
pH-Lab	pH unit	6.5-8.5	7.85	7.9	7.88	7.87	7.82	7.93	7.87	7.83	7.76	7.66	7.87	7.94	7.59	7.86	7.98
Phenols	mg/L	N/A	0.034	0.002	< 0.001	0.004	0.003	< 0.001	0.004	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.12	0.11	0.23	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	2.5	2.3	2.4	2.6	2.8	2.9	2.8	2.7	2.7	2.6	3	2.8	1.3	3	2.5
Sodium	mg/L	200	16.2	16.6	15.8	15.4	15.6	15.1	14.8	16.6	14.2	15.3	17.8	14.9	166	17.9	14.1
Sulphate	mg/L	500	55	57	45	44	46	55	52	56	50	51	58	52	29	55	52
TDS	mg/L	500	454	450	428	421	445	450	428	463	435	444	484	446	1070	472	441
TSS	mg/L	N/A	85	960	320	170	310	140	540	1080	216	260	1070	456	1710	595	80
Turbidity	NTU	N/A	112	947	326	150	196	169	663	57.9	202	129	1020	233	812	563	138
Colour	TCU	5	4	8	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Aluminum	mg/L	0.1	0.02	0.04	0.03	0.03	0.07	0.06	0.05	0.06	0.06	0.05	0.07	0.06	0.1	0.04	0.06
Antimony	mg/L	0.006	< 0.0001	0.0002	< 0.0001	0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	< 0.0001	0.0002	0.0004	0.0002	0.0003	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001
Barium	mg/L	1	0.183	0.166	0.172	0.182	0.198	0.18	0.165	0.185	0.171	0.163	0.198	0.179	0.14	0.19	0.169
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.027	0.046	0.05	0.055	0.06	0.061	0.053	0.053	0.059	0.054	0.059	0.059	0.015	0.062	0.056
Cadmium	mg/L	0.005	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.05	< 0.0002	0.0007	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	0.006	< 0.0001	< 0.005	0.0001	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	< 0.0001	< 0.0001	0.0008	0.001	0.0002	0.0001	0.0015	0.0003	0.0003	0.0009	< 0.0001	< 0.0001	0.0013	0.0016	0.0031
Lead	mg/L	0.01	< 0.00002	0.00003	0.00007	0.00008	0.00005	< 0.00002	0.0001	0.00008	0.00003	0.00018	0.00009	0.00005	0.00007	0.00009	0.0001
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0003	0.0002	0.0003	0.0002	0.0002	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0001	0.0002
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	0.87	0.886	0.884	0.95	0.822	0.932	0.867	0.928	0.867	0.873	0.971	0.956	0.587	1.03	0.907
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0004	0.0003	0.0008	0.0013	0.0004	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	anty																
Parameters	Units	ODWQS	44-93-I 5-Jul-21	44-93-I 13-Oct-21	44-93-I 3-May-22	44-93-I 26-Jul-22	44-93-I 25-Oct-22	44-93-I 2-May-23	44-93-I 12-Jul-23	44-93-I 18-Oct-23	44-93-II 6-May-14	44-93-II 29-Jul-14	44-93-II 21-Oct-14	44-93-II 26-May-15	44-93-II 13-Oct-15	44-93-II 17-May-16	44-93-II 13-Jul-16
Alkalinity	mg/L	500	260	234	242	256	247	246	257	262	341	402	391	373	387	367	390
Unionized Ammonia	mg/L	N/A	200	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	373	307	< 0.01	< 0.01
Ammonia	mg/L	N/A	0.14	0.15	0.17	0.23	0.19	0.41	0.18	0.95	< 0.01	0.08	0.23	0.03	0.05	0.03	0.1
BOD	mg/L	N/A	< 3	< 3	< 3	< 3	4	< 3	< 3	0.55	<3	<3	<3	< 2	< 2	< 2	< 3
Calcium	mg/L	N/A	106	105	106	107	109	106	109	96.3	157	158	154	194	159	170	203
COD	mg/L	N/A	9	8	< 5	< 5	9	< 5	13	11	82	54	11	< 5	< 5	31	< 5
Chloride	mg/L	250	102	107	97.6	98.8	102	112	112	125	129	157	146	182	164	181	219
Conductivity	umhos/cm	N/A	854	844	864	833	879	879	900	885	1120	1220	1220	1300	1270	1330	1520
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
DOC	mg/L	5	1.7	1.1	1.3	0.9	< 0.2	0.6	< 0.2	2.4	2.8	2.3	3.1	0.7	0.7	1	0.6
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	<0.1	0.1	< 0.1	0.2	0.1	0.1	0.1	0.1
Hardness	mg/L	500	421	419	420	428	441	426	417	386	478	445	434	543	450	510	574
Ion Balance	%	N/A	0.118	1.41	2.32	2.03	3.81	0.321	1.84	8.23	4.64	2.7	2.48				
Iron	mg/L	0.3	0.665	0.785	0.573	0.644	0.755	0.618	0.997	0.814	< 0.005	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005
Magnesium	mg/L	N/A	38	38	38	39.1	41.1	39.3	35.1	35.3	20.8	12.3	11.7	13.7	13	20.7	16.3
Manganese	mg/L	0.05	0.013	0.014	0.012	0.013	0.014	0.013	0.014	0.012	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Nitrate	mg/L	10	0.05	< 0.05	0.07	< 0.05	< 0.05	< 0.05	0.09	< 0.05	3.3	3.7	2.4	3	3.3	7.6	5.2
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	0.3	0.4	0.3	0.6	0.4	0.5	0.6	0.5	0.7	0.7	0.2	0.4	0.5	0.5	0.5
pH-Lab	pH unit	6.5-8.5	7.81	7.67	7.46	7.76	7.77	7.78	7.72	7.55	7.82	7.56	7.68	7.68	7.52	7.7	7.56
Phenols	mg/L	N/A	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.048
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	2.7	2.8	2.8	2.8	3	3	2.8	2.6	1.3	1.1	1.2	1	1.7	1.2	1.2
Sodium	mg/L	200	15.9	15.3	14.6	15.3	16.9	15.4	15.5	13.8	62.3	83.5	76.4	89.4	78.9	72.6	99.3
Sulphate	mg/L	500	54	57	55	51	56	56	56	57	24	25	25	21	23	25	27
TDS	mg/L	500	475	467	460	468	477	480	486	468	614	694	659	739	686	724	824
TSS	mg/L	N/A	40	112	57	97	124	64	520	276	4420	2950	1680	1200	2800	1160	1440
Turbidity	NTU	N/A	84.3	93.7	97.8	85.7	249	67.4	457	277	2470	> 1000	631	977	557	800	1060
Colour	TCU	5	< 2	< 2	< 2	< 2	< 2	< 2	< 2	<2	10	15	8	3	< 2	10	19
Aluminum	mg/L	0.1	0.07	0.05	0.03	0.06	0.07	0.03	0.06	0.06	0.04	0.02	0.03	0.04	0.04	0.05	0.04
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.0003	0.0003	0.0002	0.0003	0.0003	0.0004	0.0001
Barium	mg/L	1	0.189	0.186	0.192	0.18	0.204	0.188	0.208	0.179	0.101	0.095	0.086	0.104	0.099	0.132	0.109
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.06	0.058	0.061	0.056	< 0.005	0.06	0.055	0.049	0.02	< 0.005	0.015	< 0.005	0.015	0.016	< 0.005
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000010	< 0.000010	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	0.001	0.0088	0.0004	< 0.0002	0.0045	0.0027	< 0.0002
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0002	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0003	0.0009	0.0005	0.0005	0.0002	0.0002	0.0002	0.0004	0.0006	0.0019	0.0014	0.0008	0.0012	0.0009	0.0007
Lead	mg/L	0.01	0.00005	0.00004	0.00003	0.00003	0.00003	0.00002	0.00003	<0.00002	< 0.00002	< 0.00002	< 0.00002	0.00008	< 0.00002	< 0.00002	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002 0.0002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002
Molybdenum Nickel	mg/L	N/A N/A	0.0002 < 0.01	0.0002 < 0.01	0.0002 < 0.01	0.0002 < 0.01	< 0.01	0.0002 < 0.01	0.0002 < 0.01	0.0002 0.0009	0.0004 < 0.01	0.0003	< 0.0001 < 0.01	0.0002 < 0.01	0.0003	0.0003	0.0005 < 0.01
Selenium	mg/L	0.01	< 0.01	< 0.001	< 0.01	< 0.01	< 0.001	< 0.01	< 0.001	<0.001	< 0.01	< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.01
Silver	mg/L	0.01 N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
	mg/L	N/A N/A	0.0001	0.0001	0.923	0.0001	1.01	0.0001	0.0001	0.89	< 0.00002	0.00002	0.00002	0.00002	0.464	0.00002	0.612
Strontium	mg/L	N/A N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005		0.00006	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Thallium	mg/L		< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005 <0.0001	0.00006 0.0028	0.00005	< 0.00005	0.00005	0.00005	0.0005	0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0028	< 0.0078	< 0.0001	< 0.0027	< 0.0017	< 0.001	< 0.0007
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	uanty		44-93-II	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II
Parameters	Units	ODWQS	12-Oct-16	24-May-17	19-Jul-17	17-Oct-17	8-May-18	24-Jul-18	11-Oct-18	8-May-19	15-Jul-19	9-Oct-19	5-May-20	13-Jul-20	13-Oct-20	4-May-21	5-Jul-21
Alkalinity	mg/L	500	310	350	352	337	355	351	391	198	249	345	363	246	368	356	396
Unionized Ammonia	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	1
Ammonia	mg/L	N/A	0.03	0.04	0.03	0.15	0.05	0.22	0.06	0.11	0.08	0.03	0.04	0.16	0.03	< 0.01	0.04
BOD	mg/L	N/A	< 3	< 3	< 3	< 3	< 3	< 2	2		< 3	< 3	< 3	< 3	< 3	< 3	< 3
Calcium	mg/L	N/A	151	182	148	126	212	238	172	93.9	129	202	207	106	187	166	215
COD	mg/L	N/A	41	< 5	7	8	15	61	10	19	18	8	9	< 5	8	< 5	19
Chloride	mg/L	250	162	155	175	43.4	278	395	119	64.1	141	367	315	91.4	310	273	349
Conductivity	umhos/cm	N/A	1220	1320	1340	815	1470	1860	1180	622	964	1560	1690	821	1690	1530	1890
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	0.005	< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
DOC	mg/L	5	1	1.5	1.5	3.1	1.6	1.7	3.2	3.1	2	1.9	2	2.3	1.1	2.2	2.4
Fluoride	mg/L	1.5	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1	< 0.1
Hardness	mg/L	500	440	510	458	366	606	674	485	272	384	587	578	421	549	473	604
Ion Balance	%	N/A			100								1.39	3.29	0.513	5.06	0.375
Iron	mg/L	0.3	0.018	< 0.005	< 0.005	0.005	0.005	0.113	0.119	0.138	0.016	0.008	< 0.005	0.661	< 0.005	0.008	0.005
Magnesium	mg/L	N/A	15.3	13.5	21.6	12.4	18.4	19.2	13.4	9.04	15	19.9	14.6	37.9	19.8	14.1	16.1
Manganese	mg/L	0.05	0.002	< 0.001	0.012	0.414	0.013	0.039	0.0248	0.36	0.194	0.176	0.002	0.013	< 0.001	0.001	0.001
Nitrate	mg/L	10	2.8	4.48	3.78	0.17	2.33	2.36	1.36	0.21	1.06	1.71	3.03	< 0.05	2.03	2.03	3.85
Nitrite	mg/L	1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05
Tot Kjel N	mg/L	N/A	0.8	0.3	0.4	0.5	0.5	0.6	0.8	0.6	0.8	0.8	0.6	0.4	0.4	0.3	0.6
pH-Lab	pH unit	6.5-8.5	7.64	7.78	7.58	7.67	7.74	7.63	7.69	7.99	7.6	7.78	7.78	7.74	7.73	7.86	7.61
Phenols	mg/L	N/A	0.002	0.001	0.004	0.003	< 0.001	0.016	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.63	1.24	0.9	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	1.2	0.9	1.5	1.2	1.3	1.7	1.7	1.5	1.6	2.3	1.3	2.7	2.1	1.1	1.5
Sodium	mg/L	200	74.8	84.1	58.4	34.1	96.5	121	53.8	17.3	45	118	133	14.9	138	104	152
Sulphate	mg/L	500	28	22	20	19	27	27	41	10	17	24	25	53	29	25	27
TDS	mg/L	500	631	667	636	439	846	1012	636	316	499	940	914	454	908	797	997
TSS	mg/L	N/A	2060	544	1160	1200	3000	1550	1220		2600	1490	3200	120	1280	575	384
Turbidity	NTU	N/A	1290	476	795	435	1300	1730	1010		1140	2890	1250	216	581	214	26.3
Colour	TCU	5	6	< 2	2	4	< 2	2	5		4	8	< 2	< 2	< 2	< 2	< 2
Aluminum	mg/L	0.1	0.06	0.05	0.04	0.06	0.1	0.11	0.1	0.06	0.07	0.1	0.09	0.06	0.07	0.09	0.11
Antimony	mg/L	0.006	0.0004	0.0001	0.0001	0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0004	0.001	0.0006	0.0004	0.0001	0.0003	0.0002	0.0012	0.0009	0.0003	0.0001	< 0.0001	0.0001	0.0001	0.0002
Barium	mg/L	1	0.104	0.09	0.113	0.078	0.119	0.151	0.097	0.041	0.073	0.167	0.115	0.189	0.152	0.098	0.135
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.014	0.008	0.027	0.028	0.017	0.023	0.031	0.014	0.02	0.022	0.011	0.057	0.023	0.013	0.018
Cadmium	mg/L	0.005	0.00002	< 0.000014	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000029	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.05	0.0011	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	0.005	< 0.0001	0.005	0.0002	0.005	0.0009	< 0.005	< 0.0001	< 0.005	0.006	< 0.005	< 0.005
Copper	mg/L	1	0.0006	0.0025	0.0017	0.0012	0.0006	0.0015	0.0018	0.0006	0.001	0.0005	0.0005	0.0003	0.0006	0.0008	0.0011
Lead	mg/L	0.01	< 0.00002	0.00005	0.00008	< 0.00002	< 0.00002	0.00035	0.00025	0.00003	0.00005	< 0.00009	< 0.00004	0.00006	< 0.00004	0.00004	0.00007
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0004	0.0002	0.0007	0.0005	0.0003	0.0003	0.0003	0.0005	0.0006	0.0005	0.0003	0.0002	0.0004	0.0003	0.0003
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Silver	mg/L	N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	0.533	0.453	0.666	0.338	0.611	0.676	0.471	0.266	0.445	0.672	0.55	0.92	0.687	0.479	0.614
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0005	0.0012	0.0017	0.0008	< 0.0001	0.0003	0.0002	< 0.0001	0.0001	< 0.0004	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.005

General Water Qu	ality			1					1			1	1			l	
Daramatara	Unito	ODWQS	44-93-II 13-Oct-21	44-93-II 3-May-22	44-93-II 26-Jul-22	44-93-II 25-Oct-22	44-93-II	44-93-II 12-Jul-23	44-93-II 18-Oct-23	45-93	45-93 29-Jul-14	45-93 21-Oct-14	45-93 26-May-15	45-93 13-Jul-15	45-93 13-Oct-15	45-93 17-May-16	45-93 13-Jul-16
Parameters Alkalinity	Units mg/L	500	376	3-Way-22 349	379	391	2-May-23 363	379	404	6-May-14 320	357	366	348	339	384	362	338
Unionized Ammonia	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	< 0.01	< 0.01	< 0.01	340	339	304	< 0.01	< 0.01
Ammonia	mg/L	N/A	0.05	0.15	0.62	0.07	0.92	0.09	0.05	< 0.01	0.07	0.23	0.02	0.15	0.02	< 0.01	< 0.01
BOD	mg/L	N/A	< 3	< 3	< 3	< 3	< 3	< 3	0.03	<3	<3	<3	< 2	0.13	< 2	< 2	< 3
Calcium	mg/L	N/A	186	202	180	176	173	182	163	228	182	178	191	213	192	203	227
COD	mg/L	N/A	< 5	24	8	11	8	11	13	< 5	< 5	7	< 5	12	< 5	28	< 5
Chloride	mg/L	250	300	279	303	254	296	376	387	275	229	213	209	258	258	270	296
Conductivity	umhos/cm	N/A	1680	1670	1670	1620	1660	1790	1760	1560	1410	1410	1400	1560	1590	1620	1630
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
DOC	mg/L	5	1.3	1.3	0.4	< 0.2	0.6	< 0.2	3.1	1.8	1.8	2.3	0.4	0.3	< 0.2	0.5	0.4
Fluoride	mg/L	1.5	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 1	<0.1	0.1	< 0.1	0.2	0.1	0.2	0.1	< 0.1	< 0.1
Hardness	mg/L	500	529	573	543	502	498	531	450	630	512	511	538	599	545	571	638
Ion Balance	%	N/A	1.36	2.95	3.1	4.5	3.85	9.74	12.3	8.22	0.914	0.361					
Iron	mg/L	0.3	0.016	< 0.005	0.023	0.009	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.011	< 0.005	0.066
Magnesium	mg/L	N/A	15.5	16.3	22.7	15	15.8	18.6	10.3	14.5	13.9	16.1	14.5	16.2	15.9	15.2	16.8
Manganese	mg/L	0.05	0.002	< 0.001	0.045	0.001	0.001	0.001	<0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.006
Nitrate	mg/L	10	0.17	3.02	2.57	2.34	3.5	3.94	2.6	0.6	0.6	0.4	0.4	0.5	0.5	0.5	0.4
Nitrite	mg/L	1	0.29	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	0.4	0.4	1.3	0.4	1.2	0.5	0.3	0.4	0.3	0.2	0.1	0.6	0.2	0.3	1.2
pH-Lab	pH unit	6.5-8.5	7.53	7.52	7.6	7.59	7.6	7.61	7.49	7.64	7.59	7.74	7.59	7.59	7.52	7.6	7.55
Phenols	mg/L	N/A	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.044
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	1.6	1.3	1.8	1.5	1.4	1.6	1.2	1.2	1.3	1.7	1.3	1.7	2	1.2	1.5
Sodium	mg/L	200	149	118	113	164	120	116	148	106	82.8	79.9	93.3	101	95.5	107	113
Sulphate	mg/L	500	29	28	28	27	27	30	29	19	23	22	23	23	23	21	26
TDS	mg/L	500	907	854	876	872	851	952	963	839	749	732	744	818	819	837	885
TSS	mg/L	N/A	645	498	346	238	376	480	660	535	3450	1830	970	1850	595	1260	9000
Turbidity	NTU	N/A	350	346	167	232	201	311	417	598	> 1000	852	779	1560	450	945	5680
Colour	TCU	5	< 2	< 2	< 2	< 2	< 2	< 2	<2	12	14	22	< 2	6	7	< 2	9
Aluminum	mg/L	0.1	0.07	0.05	0.09	0.1	0.05	0.08	0.09	0.06	0.03	0.04	0.04	0.04	0.04	0.11	0.06
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	0.0002	0.0002
Arsenic	mg/L	0.025	0.0002	0.0001	0.0003	0.0002	0.0001	0.0002	0.0001	0.0002	0.0001	< 0.0001	0.0001	0.0002	0.0002	0.0003	0.0002
Barium	mg/L	1	0.133	0.123	0.133	0.132	0.109	0.138	0.106	0.106	0.083	0.082	0.088	0.097	0.099	0.114	0.092
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.021	0.01	0.019	< 0.005	0.012	0.019	0.009	0.01	< 0.005	0.011	< 0.005	< 0.005	0.009	0.01	0.017
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000012	< 0.000012	< 0.000012	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	0.0013	0.0077	0.0004	< 0.0002	< 0.0002	0.0045	0.0026	< 0.0002
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0003	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0008	0.0007	0.0027	0.0004	0.0006	0.0006	0.0009	0.0007	0.0017	0.0011	0.0006	0.0004	0.0011	0.001	0.001
Lead	mg/L	0.01	0.00006	< 0.00004	0.00008	< 0.00004	< 0.00004	< 0.00004	<0.00004	0.00002	< 0.00002	< 0.00002	0.00007	0.00002	< 0.00002	0.00014	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum Nickel	mg/L	N/A N/A	0.0004 < 0.01	0.0003 < 0.01	0.0006 < 0.01	0.0003 < 0.01	0.0003 < 0.01	0.0005 < 0.01	0.0002 0.0018	0.0002 < 0.01	0.0003 < 0.01	0.0001 < 0.01	0.0003	0.0002 < 0.01	0.0003	0.0003	0.0005 < 0.01
	mg/L	0.01	< 0.01	0.001	0.001	< 0.01	< 0.01	< 0.01	<0.0018	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium Silver	mg/L	0.01 N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
	mg/L	N/A N/A	0.592	0.541	0.677	0.549	0.52	0.618	0.439	< 0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.554
Strontium Thallium	mg/L	N/A N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	0.00006	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
	mg/L		< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	0.0006	0.0063	0.00005	0.00005	0.00005	0.00005	0.0005	0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.003	< 0.005	< 0.0001	< 0.0021	< 0.0044		< 0.001	< 0.0029
Zinc	mg/L	5	< 0.005	< 0.005	0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.016	< 0.005	< 0.005

General water Qu	uney		45-93	45-93	45-93	45-93	45-93	45-93	45-93	45-93	45-93	45-93	45-93	45-93	45-93	45-93	45-93
Parameters	Units	ODWQS	18-Oct-16	24-May-17	20-Jul-17	17-Oct-17	8-May-18	24-Jul-18	11-Oct-18	8-May-19	5-Jun-19	15-Jul-19	9-Oct-19	5-May-20	13-Jul-20	13-Oct-20	4-May-21
Alkalinity	mg/L	500	297	350	295	375	411	366	370	391		335	367	334	377	405	336
Unionized Ammonia	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ammonia	mg/L	N/A	0.25	0.03	0.02	0.32	0.02	0.25	0.04	0.06	0.1	0.05	0.05	0.03	0.03	0.03	0.03
BOD	mg/L	N/A	< 3	< 3	< 3	< 3	< 3	< 2	< 2		4	< 3	< 3	< 3	< 3	< 3	< 3
Calcium	mg/L	N/A	219	243	237	203	298	254	255	230		227	231	184	172	158	145
COD	mg/L	N/A	< 5	12	< 5	34	13	45	< 5	77		< 5	30	12	15	27	5
Chloride	mg/L	250	362	286	274	252	490	461	406	364		289	348	250	230	209	199
Conductivity	umhos/cm	N/A	1710	1810	1720	1820	2160	2070	2010	1910		1700	1750	1460	1430	1380	1300
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
DOC	mg/L	5	0.4	0.7	0.5	1	0.9	1	1.8	1.6		0.3	1.9	1.9	2.8	1	1.9
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	624	677	659	582	827	711	715	648		636	645	519	475	446	410
Ion Balance	%	N/A												6.32	3.94	1.57	2.5
Iron	mg/L	0.3	< 0.005	< 0.005	< 0.005	0.08	< 0.005	0.006	< 0.005	0.007		< 0.005	0.007	< 0.005	< 0.005	< 0.005	0.006
Magnesium	mg/L	N/A	18.5	16.9	16.5	18.2	19.9	18.6	18.8	17.7		16.6	16.5	14.4	10.9	12.3	11.6
Manganese	mg/L	0.05	0.002	< 0.001	< 0.001	0.001	< 0.001	0.001	< 0.0002	< 0.001		0.001	0.001	< 0.001	< 0.001	< 0.001	0.001
Nitrate	mg/L	10	0.5	0.65	0.69	0.61	0.85	0.72	0.55	0.59		0.45	0.43	0.51	0.54	0.49	0.6
Nitrite	mg/L	1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.17	< 0.05		< 0.05	< 0.05	< 0.05	0.05	< 0.05	0.11
Tot Kjel N	mg/L	N/A	0.8	0.4	0.2	0.3	0.2	0.6	0.3	0.4		0.2	0.9	0.3	0.2	0.3	0.3
pH-Lab	pH unit	6.5-8.5	7.71	7.54	7.61	7.56	7.67	7.55	7.58	7.81		7.41	7.76	7.73	7.73	7.82	7.86
Phenols	mg/L	N/A	0.026	0.002	< 0.001	0.003	< 0.001	0.016	0.003	< 0.002		< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.53		0.5	2.95	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	1.6	1.2	1.3	1.6	1.6	1.7	1.6	1.5		1.9	1.7	1.5	1	1.5	1.1
Sodium	mg/L	200	113	115	109	126	153	140	128	137		136	150	134	141	139	121
Sulphate	mg/L	500	26	20	18	19	23	24	27	24		28	26	25	19	23	21
TDS	mg/L	500	922	892	880	845	1231	1119	1058	1009	000	899	994	810	800	786	701
TSS	mg/L	N/A	550	1280	1560	1760	780	3350	2780		900	1030	4200	2100	1100	2520	2760
Turbidity	NTU	N/A	235	780	932 8	1370 10	665 < 2	3120	2320		1060	1330	887	405	378	828 2	586
Colour	TCU	5	8 0.05	7			0.11	< 2	< 2 0.09	0.44	< 2	< 2 0.09	< 2	< 2 0.09	< 2		< 2
Antimony	mg/L	0.1	< 0.0001	0.06 < 0.0001	0.06 0.0001	0.17 0.0002	< 0.0001	0.1	< 0.0001	0.11 < 0.0001		< 0.0001	0.12 < 0.0001	< 0.0001	0.08	0.05 < 0.0001	0.08
Antimony Arsenic	mg/L	0.006	< 0.0001	0.0016	0.0001	0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0001		0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Barium	mg/L mg/L	0.025	0.0001	0.0016	0.0008	0.0013	0.152	0.139	0.137	0.115		0.0001	0.124	0.0001	0.096	0.0001	0.0001
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002		< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	< 0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002		0.002	0.002	0.002	0.002	0.002	0.002
Cadmium	mg/L	0.005	< 0.0002	< 0.00014	< 0.000014	< 0.00014	< 0.000015	< 0.00015	< 0.000015	< 0.000015		< 0.000015	< 0.000029	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.005	< 0.0002	< 0.00014	< 0.001	0.001	< 0.000	< 0.00013	< 0.000	< 0.00013		< 0.00013	0.002	< 0.0001	0.000	< 0.0001	< 0.0001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0001	< 0.005	< 0.001	0.005		0.0004	< 0.002	< 0.001	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0007	0.0019	0.0013	0.0008	0.0003	0.0007	0.0007	0.0006		0.0026	< 0.0002	0.0007	0.0006	0.0004	0.0008
Lead	mg/L	0.01	< 0.00002	0.00004	0.00006	0.00004	< 0.00002	0.00004	0.00002	0.00002		0.00011	< 0.00009	< 0.00004	0.00006	< 0.00004	< 0.00004
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00001	< 0.00002	< 0.00001	< 0.00002	< 0.00002		< 0.00001	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00007
Molybdenum	mg/L	N/A	0.0004	0.0003	0.0003	0.0002	0.0003	0.0002	0.0002	0.0003		0.0004	0.0003	0.0004	0.0002	0.0003	0.0003
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.00002	< 0.00002	0.00003	0.00004	< 0.0001	< 0.0001	< 0.0001	< 0.0001		< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	0.464	0.545	0.598	0.582	0.67	0.608	0.588	0.545		0.526	0.54	0.449	0.375	0.404	0.363
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005		< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0008	0.0015	0.0022	0.0006	0.0001	0.0002	0.0002	0.0001		0.0002	< 0.0004	0.0002	0.0002	0.0002	0.0002
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		0.011	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
	6/ -	,	0.000	5.000	3.000	0.000	5.000	0.000	0.000	3.000		5.511	5.000	5.000	3.000	3.000	5.000

General Water Qua			45-93	45-93	45-93	45-93	45-93	45-93	45-93	45-93	45-95-I						
Parameters	Units	ODWQS	5-Jul-21	13-Oct-21	3-May-22	26-Jul-22	25-Oct-22	2-May-23	12-Jul-23	18-Oct-23	6-May-14	23-Oct-14	26-May-15	13-Oct-15	25-May-16	11-Oct-16	24-May-17
Alkalinity	mg/L	500	355	371	365	437	402	400	426	426	311	314	318	328	330	341	351
Unionized Ammonia	mg/L	N/A		< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	<0.01							
Ammonia	mg/L	N/A	0.01	0.04	0.42	0.33	< 0.01	3.63	0.43	0.13	1.38	1.29	0.62	1.28	0.61	1.81	0.88
BOD	mg/L	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3								
Calcium	mg/L	N/A	158	168	163	161	167	192	188	140	219	200	217	184	201	187	191
COD	mg/L	N/A	9	6	< 5	< 5	12	< 5	11	8	16	21	10	10	19	13	21
Chloride	mg/L	250	226	256	217	209	227	338	345	321	120	121	120	123	123	121	102
Conductivity	umhos/cm	N/A	1360	1450	1420	1440	1500	1840	1760	1620	1650	1620	1600	1600	1590	1620	1600
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005								
DOC	mg/L	5	3	1.5	1.1	1.1	< 0.2	0.5	< 0.2	3.2	6.8	6.5	2.1	4.4	4	3.8	5.4
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1	<0.1	0.1	0.2	0.1	0.2	0.1	0.1	< 0.1
Hardness	mg/L	500	444	470	458	453	475	542	521	390	715	661	716	622	668	616	635
Ion Balance	%	N/A	1.96	0.304	3.59	0.302	3.7	1.08	2.01	12.3	4.24	0.334					
Iron	mg/L	0.3	< 0.005	0.009	< 0.005	0.032	0.005	< 0.005	< 0.005	0.082	4.18	4.01	2.76	4.17	2.93	3.89	3.23
Magnesium	mg/L	N/A	11.9	12.2	12.3	12.3	14	15.5	12.4	9.76	40.7	39.1	42.1	39.3	40	36.2	38.2
Manganese	mg/L	0.05	< 0.001	0.001	< 0.001	0.003	< 0.001	< 0.001	0.001	0.002	0.244	0.214	0.074	0.229	0.072	0.333	0.109
Nitrate	mg/L	10	0.68	< 0.05	0.2	0.53	0.39	0.75	0.89	0.66	< 0.1	0.2	0.1	0.2	0.4	< 0.1	< 0.05
Nitrite	mg/L	1	< 0.05	0.25	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05
Tot Kjel N	mg/L	N/A	0.3	0.2	8.0	8.0	0.2	3.8	1	0.5	1.9	1.6	1.1	1.8	1.1	2.1	1.3
pH-Lab	pH unit	6.5-8.5	7.73	7.63	7.57	7.62	7.51	7.59	7.71	7.59	8.04	7.69	7.46	7.44	7.53	7.68	7.56
Phenols	mg/L	N/A	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.005	0.002
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	1.3	1.3	1.3	1.4	1.5	1.7	1.6	1.2	3	2.7	2.7	3	2.6	2.6	2.4
Sodium	mg/L	200	129	134	134	140	152	176	175	146	113	97.5	111	94.2	104	89.3	98
Sulphate	mg/L	500	21	23	27	22	25	26	25	27	405	384	393	369	354	359	291
TDS	mg/L	500	760	818	773	808	828	989	1003	888	1090	1040	1080	1020	1030	1010	938
TSS	mg/L	N/A	1000	440	1850	940	352	1590	4680	1060							
Turbidity	NTU	N/A	1190	242	1360	290	508	823	1160	510							
Colour	TCU	5	< 2	< 2	< 2	< 2	< 2	< 2	3	<2							
Aluminum	mg/L	0.1	0.09	0.07	0.04	0.09	0.1	0.06	0.09	0.08	0.05	0.04	0.05	0.04	0.05	0.05	0.05
Antimony	mg/L	0.006	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0004	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0007	0.0007	0.0004	0.0004	0.03	0.0005	0.0008
Barium	mg/L	1	0.085	0.098	0.092	0.09	0.106	0.116	0.117	0.09	0.041	0.033	0.033	0.033	0.034	0.031	0.028
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.011	0.012	0.006	0.007	< 0.005	0.01	0.008	<0.005	0.127	0.12	0.119	0.138	0.101	0.13	0.13
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000012	< 0.000012	< 0.000012	0.000114	0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014
Chromium	mg/L	0.05	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	0.0003	0.0038	< 0.0002	< 0.0002	0.004	< 0.0002	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0003	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0006	0.0007	0.0008	0.0018	0.001	0.0006	0.0007	0.0008	0.0012	0.0008	0.0006	0.0007	0.0006	0.0011	0.0034
Lead	mg/L	0.01	0.00005	< 0.00004	< 0.00004	0.00009	< 0.00004	< 0.00004	< 0.00004	<0.00004	0.00006	0.00002	0.00008	< 0.00002	0.00009	< 0.00002	0.00019
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0003	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0002	< 0.0001	0.0001	0.0002	0.0002	0.0003	0.0001
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0018	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	0.001	< 0.001	0.004	0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0006	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	N/A	0.391	0.408	0.377	0.394	0.426	0.479	0.439	0.336		0.58	0.622	0.558	0.555	0.592	0.556
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0025	0.0023	0.0024	0.0005	0.002	0.0018	0.0017
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qua	anty		45-95-I	45-95-I	45-95-II	45-95-II	45-95-II										
Parameters	Units	ODWQS	18-Oct-17	8-May-18	11-Oct-18	9-May-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21	3-May-22	25-Oct-22	2-May-23	18-Oct-23	6-May-14	23-Oct-14	26-May-15
Alkalinity	mg/L	500	298	358	358	331	340	333	352	363	338	337	337	351	337	375	353
Unionized Ammonia	mg/L	N/A															
Ammonia	mg/L	N/A	1.66	0.77	0.95	0.7	0.79	0.73	1.1	0.68	0.94	0.67	1.86	0.96	2.51	2.01	2.02
BOD	mg/L	N/A															
Calcium	mg/L	N/A	115	190	188	178	175	163	155	164	153	137	129	131	125	150	142
COD	mg/L	N/A	10	13	22	16	8	11	18	17	13	9	21	12	13	101	35
Chloride	mg/L	250	66.4	119	116	118	107	107	109	109	111	148	119	105	80.3	105	113
Conductivity	umhos/cm	N/A	896	1440	1450	1410	1350	1300	1290	1300	1280	1210	1180	1170	1160	1140	1140
Cyanide	mg/L	0.2															
DOC	mg/L	5	5.1	5.2	6.2	5.7	4.2	3	3.8	2.6	3.3	1.4	2.6	5	6.9	6.2	2
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	0.1	0.2	0.1
Hardness	mg/L	500	326	643	618	596	588	543	526	551	514	468	440	443	355	432	405
Ion Balance	%	N/A					4.99	2.26	0.0837	1.6	1.91	6.69	3.11	1.35	11.1	3.49	
Iron	mg/L	0.3	0.548	2.85	3.86	2.49	2.82	2.47	3.03	2.85	2.42	2.44	2.35	2.27	0.156	2.82	1.13
Magnesium	mg/L	N/A	9.36	40.8	36	36.8	36.5	33	33.8	34.2	31.9	30.6	28.4	28	10.2	13.6	12.1
Manganese	mg/L	0.05	0.696	0.069	0.169	0.069	0.127	0.105	0.141	0.069	0.054	0.069	0.076	0.046	0.3	0.536	0.444
Nitrate	mg/L	10	1.65	< 0.05	< 0.05	0.23	0.17	< 0.05	0.22	< 0.05	< 0.05	< 0.05	< 0.05	0.07	0.1	0.1	1.1
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.1	< 0.05	< 0.05	< 0.05	<0.05	< 0.1	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	2.2	1.2	1.3	1	1.2	1.2	1.5	1	1.3	1	1.8	1.4	3.1	3.2	3.2
pH-Lab	pH unit	6.5-8.5	7.71	7.76	7.74	7.79	7.71	7.65	7.97	7.71	7.74	7.62	7.82	7.54	7.98	7.56	7.37
Phenols	mg/L	N/A	0.002	< 0.001	< 0.002	< 0.002	0.003	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	0.003	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	3.2	3.1	2.9	2.7	2.6	2.7	2.6	2.9	2.5	2.7	2.8	2.7	2.3	3	3.5
Sodium	mg/L	200	43.5	103	90.2	94.5	87	83.8	81.3	86.8	79.9	74.7	74.3	72.8	46.7	50.8	69.5
Sulphate	mg/L	500	12	284	255	258	215	210	202	203	173	181	140	124	130	76	79
TDS	mg/L	500	432	958	908	890	831	802	800	822	757	780	698	628	601	630	640
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.06	0.09	0.08	0.09	0.09	0.08	0.08	0.07	0.08	0.09	0.04	0.04	0.03	0.03	0.04
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0007	0.0002	0.0004	0.0002	0.0003	0.0002	0.0004	0.0002	0.0002	0.0003	0.0003	0.0002	0.0002	0.0011	0.0008
Barium	mg/L	1	0.031	0.032	0.033	0.03	0.031	0.032	0.03	0.035	0.034	0.042	0.038	0.04	0.03	0.041	0.037
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.034	0.145	0.14	0.129	0.135	0.136	0.125	0.138	0.122	0.119	0.115	0.13	0.041	0.053	0.038
Cadmium	mg/L	0.005	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000012	< 0.000012	<0.000015	< 0.00002	< 0.00002	0.00002
Chromium	mg/L	0.05	< 0.001	0.003	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	<0.001	0.0012	0.0043	< 0.0002
Cobalt	mg/L	N/A	< 0.005	0.0002	< 0.005	0.007	0.0004	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.006	0.0001	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0024	0.0006	0.0003	0.001	< 0.0001	0.001	0.0016	0.0002	0.0004	0.0011	0.0017	0.0002	0.0015	0.0007	0.0003
Lead	mg/L	0.01	< 0.00002	0.00007	0.00006	0.00004	0.00002	0.00005	0.00007	< 0.00004	< 0.00004	0.00006	< 0.00004	<0.00002	0.00003	< 0.00002	0.00005
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0002	0.0001	0.0001	0.0002	0.0001	0.0001	0.0002	0.0002	0.0001	0.0001	0.0002	0.0001	0.0001	< 0.0001	0.0001
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.002	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.001	0.001	<0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	N/A	0.285	0.572	0.475	0.558	0.501	0.481	0.467	0.522	0.47	0.447	0.433	0.425		0.404	0.362
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0004	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.0027	0.0024	0.0028
Zinc	mg/L	5	< 0.005	< 0.005	0.012	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.007	< 0.005	<0.005	< 0.005	< 0.005	< 0.005

General Water Qua	ancy		45-95-II	45-95-II	45-95-II	45-95-II	45-95-II	45-95-II	45-95-II	45-95-II	45-95-II	45-95-II	45-95-II	45-95-II	45-95-II	45-95-II	45-95-II
Parameters	Units	ODWQS	13-Oct-15	25-May-16	11-Oct-16	24-May-17	18-Oct-17	8-May-18	11-Oct-18	9-May-19	8-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21	3-May-22	25-Oct-22
Alkalinity	mg/L	500	346	325	358	388	349	363	324	332	278	268	287	280	334	299	348
Unionized Ammonia	mg/L	N/A															
Ammonia	mg/L	N/A	2.17	2.31	4.94	5.6	1.39	5.69	3.25	3.52	0.37	0.12	2.43	1.99	0.79	3.58	1.42
BOD	mg/L	N/A															
Calcium	mg/L	N/A	124	117	133	162	185	170	131	138	118	99.9	114	104	123	111	123
COD	mg/L	N/A	23	40	14	21	11	38	49	22	15	12	21	56	6	18	23
Chloride	mg/L	250	90.3	76.6	97.3	84.5	89.1	94.9	104	96.6	103	43.3	91.2	67.9	62	78.4	109
Conductivity	umhos/cm	N/A	958	925	1110	1240	1530	1230	984	1010	864	651	867	798	808	868	928
Cyanide	mg/L	0.2															
DOC	mg/L	5	5.2	4.2	4.6	5.8	4.2	5.6	5.2	6.3	5.1	4.1	3.6	4	2.8	3.7	1.9
Fluoride	mg/L	1.5	0.1	0.2	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	366	338	398	493	613	543	371	410	334	279	325	299	346	315	349
Ion Balance	%	N/A										2.59	2.18	1.79	1.24	2.31	3.14
Iron	mg/L	0.3	1.93	1.22	3.51	0.882	4.53	7.24	1.03	1.34	0.679	0.01	0.895	0.591	0.089	0.113	0.201
Magnesium	mg/L	N/A	13.4	11.2	16.1	21.3	36.7	28.6	10.5	15.7	9.57	7.08	9.72	9.61	9.26	9.11	10.2
Manganese	mg/L	0.05	0.742	0.759	1.09	1.24	0.321	1.12	0.595	0.767	0.403	0.044	0.606	0.171	0.099	0.083	0.12
Nitrate	mg/L	10	0.2	0.6	0.3	0.43	0.1	0.47	0.18	0.68	0.72	0.35	0.46	0.07	0.19	0.31	0.87
Nitrite	mg/L	1	< 0.1	0.3	0.4	0.52	< 0.05	0.08	0.06	< 0.05	< 0.05	< 0.05	0.3	< 0.05	0.09	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	3.1	3	5.3	6.7	1.7	6.3	4.4	4.2	1	0.5	3.3	3.5	1.1	4	2.1
pH-Lab	pH unit	6.5-8.5	7.58	7.54	7.63	7.48	7.69	7.74	7.82	7.81	7.8	7.8	7.69	8.06	7.77	7.81	7.65
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	0.003	< 0.001	< 0.001	0.022	< 0.002	< 0.002	0.004	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.3	0.23	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	3.8	3	3.7	3.6	3.4	3.8	3.7	3.5	4.4	2.7	3.8	3.3	4.5	3.5	5.3
Sodium	mg/L	200	55.3	49	52.3	54.1	92	77	65	56.3	65.3	33.2	54.5	37.4	41.4	34.7	54.7
Sulphate	mg/L	500	19	52	72	109	209	165	29	59	4	6	14	31	10	16	7
TDS	mg/L	500	517	509	603	676	832	773	543	575	472	353	461	425	452	437	520
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.03	0.03	0.05	0.05	0.09	0.09	0.06	80.0	0.07	0.06	0.04	0.07	0.06	0.07	0.08
Antimony	mg/L	0.006	< 0.0001	< 0.0001	0.0003	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0008	0.0004	0.0086	0.0007	0.0011	0.001	0.0005	0.0003	0.0003	< 0.0001	0.0004	0.0003	< 0.0001	0.0001	0.0003
Barium	mg/L	1	0.038	0.031	0.043	0.048	0.04	0.067	0.038	0.043	0.036	0.02	0.036	0.027	0.034	0.03	0.041
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.067	0.043	0.059	0.094	0.145	0.12	0.044	0.071	0.048	0.02	0.067	0.037	0.051	0.03	0.041
Cadmium	mg/L	0.005	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010
Chromium	mg/L	0.05	< 0.0002	< 0.0002	0.0059	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0018	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0006	0.0007	0.0007	0.0025	0.0008	0.0008	0.0006	0.0014	0.0011	0.0009	0.0023	0.0022	0.0013	0.0015	0.0014
Lead	mg/L	0.01	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	0.00006	0.00005	< 0.00002	< 0.00002	0.00003
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0002	0.0002	0.0002	0.0003	0.0002	0.0003	0.0002	0.0002	0.0002	0.0001	0.0002	0.0002	0.0002	0.001	0.0002
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	0.007	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	0.352	0.312	0.392	0.439	0.513	0.49	0.311	0.387	0.31	0.246	0.309	0.291	0.342	0.291	0.355
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium 	mg/L	N/A	0.0007	0.0018	0.003	0.0019	0.0004	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	0.011	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	anty		45-95-II	45-95-II	45-95-II (DUP)	45 OC II (DUD)	46-95-I	46-95-I	46-95-I	46-95-I	46-95-I						
Parameters	Units	opwos	2-May-23	45-95-II 18-Oct-23	3-May-22	25-Oct-22	6-May-14	23-Oct-14	26-May-15	13-Oct-15	25-May-16	11-Oct-16	24-May-17	18-Oct-17	8-May-18	11-Oct-18	9-May-19
Alkalinity	mg/L	500	272	356	297	568	351	352	356	364	387	400	445	451	462	494	455
Unionized Ammonia	mg/L	N/A	212	330	251	300	001	332	000	304	307	700	770	701	402	707	400
Ammonia	mg/L	N/A	2.77	0.17	3.56	41.1	3.21	3.09	2.31	2.2	2.51	3.38	4.57	5.8	5.86	6.43	8.3
BOD	mg/L	N/A	2	0.17	0.00		0.21	0.00	2.01	2.2	2.01	0.00	4.07	0.0	0.00	0.10	0.0
Calcium	mg/L	N/A	93.5	128	117	139	121	105	123	111	126	118	139	143	149	158	156
COD	mg/L	N/A	17	19	17	37	11	16	11	9	20	14	19	15	22	28	25
Chloride	mg/L	250	32	89.5	74.1	274	146	150	148	156	161	164	149	131	183	189	203
Conductivity	umhos/cm	N/A	644	958	862	1740	1120	1110	1120	1160	1220	1280	1370	1390	1350	1450	1450
Cyanide	mg/L	0.2															
DOC	mg/L	5	4.1	5	3.5	2	5.7	5.6	1.8	3.5	3.5	3.1	4.8	4.1	5.4	5.2	6.2
Fluoride	mg/L	1.5	< 0.1	<0.1	< 0.1	< 0.1	0.1	0.2	0.1	0.2	0.2	0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.3
Hardness	mg/L	500	262	358	340	482	404	353	412	378	421	397	464	478	501	522	520
Ion Balance	%	N/A	3.3	2.07	3.53	1.68	5.82	2.19									
Iron	mg/L	0.3	< 0.005	<0.005	0.474	10.6	5.53	4.9	5.09	4.79	5.44	5.32	6.66	7.49	7.57	8.92	7.66
Magnesium	mg/L	N/A	6.85	9.2	11.5	32.7	24.5	22.2	25.2	24.7	25.7	24.7	28	29.3	31.3	31	31.6
Manganese	mg/L	0.05	0.003	0.013	0.217	0.074	0.067	0.06	0.066	0.058	0.066	0.063	0.073	0.078	0.076	0.085	0.078
Nitrate	mg/L	10	2.18	0.36	0.33	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	0.21
Nitrite	mg/L	1	< 0.05	<0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	2.6	0.8	4.2	41	3.6	3.2	2.5	2.8	2.9	3.7	6.3	6.9	6.8	7.9	9.6
pH-Lab	pH unit	6.5-8.5	7.93	7.52	7.8	7.42	8.04	7.71	7.5	7.55	7.54	7.67	7.57	7.69	7.74	7.7	7.74
Phenols	mg/L	N/A	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	0.004	< 0.001	< 0.001	0.008	< 0.002
Phosphorus	mg/L	N/A	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.02
Potassium	mg/L	N/A	3	5.6	3.6	9.3	2.6	2.3	2.5	2.4	2.6	2.6	3.1	3.9	4.4	4	4.7
Sodium	mg/L	200	21.7	50.6	42	118	88.5	73.6	91.7	76.8	93.7	90.2	104	103	113	109	113
Sulphate	mg/L	500	9	10	15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TDS	mg/L	500	329	510	447	977	603	573	614	594	648	650	703	696	774	805	800
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.02	0.04	0.08	0.09	0.03	0.03	0.04	0.03	0.03	0.03	0.04	0.07	0.07	0.07	0.08
Antimony	mg/L	0.006	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	< 0.0001	0.0001	0.0002	0.0001	0.0003	0.0003	0.0004	0.0002	0.0004	0.0021	0.0008	0.0007	< 0.0001	< 0.0001	< 0.0001
Barium	mg/L	1	0.02	0.036	0.034	1.12	0.416	0.333	0.413	0.385	0.459	0.433	0.53	0.64	0.652	0.651	0.72
Beryllium	mg/L	N/A	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.018	0.046	0.048	0.1	0.097	0.076	0.085	0.095	0.096	0.063	0.1	0.109	0.112	0.109	0.108
Cadmium	mg/L	0.005	< 0.000010	<0.000015	< 0.000015	< 0.000012	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.05	< 0.001	<0.001	< 0.001	< 0.001	0.0015	0.0038	< 0.0002	< 0.0002	< 0.0002	0.0085	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0002	< 0.005	< 0.005
Copper	mg/L	1	0.0013	0.0015	0.0007	< 0.0001	0.0008	0.0006	0.0002	0.0004	0.0008	0.0004	0.0009	0.0008	0.0008	< 0.0001	0.001
Lead	mg/L	0.01	< 0.00002	<0.00002	< 0.00002	< 0.00004	< 0.00002	< 0.00002	0.00006	< 0.00002	< 0.00002	0.00033	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Mercury	mg/L	0.001	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0001	0.0001	0.0002	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel	mg/L	N/A	< 0.01	0.0008	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	<0.001	< 0.001	0.002	< 0.001	< 0.001	0.001	< 0.001	0.002	0.003	< 0.001	< 0.001	0.002	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	0.247	0.339	0.313	0.647		0.419	0.481	0.444	0.496	0.49	0.512	0.555	0.577	0.554	0.629
Thallium	mg/L	N/A	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	<0.0001	< 0.0001	0.0003	0.0028	0.0023	0.0024	0.0007	0.0018	0.0036	0.002	0.0008	0.0002	0.0002	0.0002
Zinc	mg/L	5	< 0.005	<0.005	< 0.005	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	lality		1														
Parameters	Units	ODWQS	46-95-I 8-Oct-19	46-95-I 5-May-20	46-95-I 13-Oct-20	46-95-I 4-May-21	46-95-I 13-Oct-21	46-95-I 3-May-22	46-95-I 25-Oct-22	46-95-I 2-May-23	46-95-I 18-Oct-23	46-95-II 6-May-14	46-95-II 23-Oct-14	46-95-II 26-May-15	46-95-II 13-Oct-15	46-95-II 25-May-16	46-95-II 11-Oct-16
Alkalinity	mg/L	500	466	480	474	487	541	537	564	586	616	355	358	361	370	400	411
Unionized Ammonia	mg/L	N/A	400	400	4/4	407	341	337	304	300	010	333	330	301	370	400	411
Ammonia	mg/L	N/A	10.6	9.89	9.47	14.5	20.6	25.4	31.8	29.2	32.1	3.49	3.35	2.63	2.47	2.96	4.21
BOD	mg/L	N/A	10.0	3.03	5.41	14.0	20.0	25.4	01.0	25.2	02.1	0.40	0.00	2.00	2.71	2.50	7.21
Calcium	mg/L	N/A	164	157	159	142	150	159	142	150	161	124	107	127	113	130	121
COD	mg/L	N/A	21	30	21	24	25	32	23	36	44	26	14	24	23	26	14
Chloride	mg/L	250	204	186	195	197	199	216	258	247	21.5	147	149	149	156	164	167
Conductivity	umhos/cm	N/A	1460	1480	1500	1480	1560	1730	1730	1800	1820	1130	1120	1140	1180	1250	1300
Cyanide	mg/L	0.2															
DOC	mg/L	5	5.6	5	3.1	4.5	3.8	4.7	1.8	5	7.8	6.2	5.7	1.5	3.4	3.3	3.3
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	0.1	0.2	0.1	0.1	0.2	0.2
Hardness	mg/L	500	549	526	527	494	518	536	496	518	547	410	360	421	384	431	403
Ion Balance	%	N/A		5.34	3.82	3.39	3.44	5.14	0.66	5.45	14.7	6.13	1.66				
Iron	mg/L	0.3	9.06	8.71	9.14	8.36	9.15	10.7	10	11.8	13.3	6.57	5.95	6.36	5.56	6.78	6.31
Magnesium	mg/L	N/A	33.8	32.5	31.4	33.7	34.8	33.7	34.3	34.5	35.2	24.6	22.2	25.4	24.9	26	24.7
Manganese	mg/L	0.05	0.086	0.079	0.08	0.072	0.077	0.081	0.075	0.083	0.088	0.074	0.066	0.072	0.063	0.072	0.068
Nitrate	mg/L	10	< 0.05	0.13	< 0.05	0.21	< 0.05	0.07	< 0.05	0.05	<0.05	0.1	0.1	0.1	< 0.1	< 0.1	0.1
Nitrite	mg/L	1	< 0.05	0.14	< 0.05	< 0.05	0.14	< 0.05	< 0.05	< 0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	12	11.1	11.6	16.4	22.4	31.7	36.8	32.4	26.3	4.7	3.5	3.1	3.1	3.8	5.8
pH-Lab	pH unit	6.5-8.5	7.72	7.61	7.59	7.76	7.59	7.71	7.47	7.68	7.5	7.98	7.7	7.46	7.52	7.45	7.63
Phenols	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.008
Phosphorus	mg/L	N/A	0.06	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	5.3	4.9	4.9	5.6	6.7	7.9	9.2	9.3	9	2.7	2.4	2.5	2.5	2.7	2.7
Sodium	mg/L	200	113	109	116	113	118	124	124	127	125	88.9	74.1	92.2	77.1	95.5	91.1
Sulphate	mg/L	500	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	<1	< 1	2	1	1	< 1	< 1
TDS	mg/L	500	822	799	800	811	868	907	957	931	997	612	582	624	602	666	666
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.09	0.08	0.08	0.07	0.05	0.08	0.09	0.04	0.06	0.03	0.03	0.04	0.02	0.03	0.04
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0005
Arsenic	mg/L	0.025	< 0.0003	< 0.0001	< 0.0001	< 0.0003	< 0.0001	0.0001	0.0001	0.0001	0.0001	0.0004	0.0003	0.0004	0.0003	0.0005	0.0023
Barium	mg/L	1	0.776	0.728	0.767	0.723	0.885	1.02	1.1	1.08	1.1	0.435	0.348	0.432	0.4	0.493	0.463
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.112	0.113	0.117	0.104	0.106	0.108	0.103	0.115	0.116	0.098	0.078	0.087	0.097	0.099	0.065
Cadmium	mg/L	0.005	< 0.000029	< 0.000015	< 0.000015	< 0.000029	< 0.000015	< 0.000015	< 0.000012	< 0.000012	<0.000015	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	0.00003
Chromium	mg/L	0.05	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	0.0009	0.0041	< 0.0002	< 0.0002	< 0.0002	0.0041
Cobalt	mg/L	N/A	< 0.005	0.0003	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0003	< 0.0001	0.0011	0.0015	0.0001	0.0003	0.0003	0.0004	0.0003	0.0008	0.001	0.0002	0.0004	0.0008	0.0011
Lead	mg/L	0.01	< 0.00009	0.00004	0.00006	< 0.00009	< 0.00004	< 0.00004	< 0.00004	< 0.00004	<0.00002	< 0.00002	< 0.00002	0.00011	< 0.00002	< 0.00002	0.00013
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	< 0.0002	< 0.0001	< 0.0001	< 0.0002	0.0001	0.0001	< 0.0001	0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0018
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0023	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.002	0.002	0.002	<0.001	< 0.001	< 0.001	0.001	< 0.001	0.002	0.005
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	N/A	0.642	0.611	0.624	0.605	0.666	0.661	0.681	0.688	0.704	. 0 0000-	0.427	0.488	0.454	0.513	0.505
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00007
Vanadium	mg/L	N/A	< 0.0004	0.0002	0.0002	< 0.0004	< 0.0001	0.0003	0.0003	0.0003	0.0004	0.0029	0.0023	0.0028	0.0007	0.0022	0.002
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	0.006	< 0.005	< 0.005	< 0.005	< 0.005

Name		46-95-II 13-Oct-21 548 25.5 146 43 196 1560 3.8 <0.1 509 3.08 9.97 35 0.077 0.23 0.13 28.5	46-95-II 3-May-22 545 35.5 152 45 217 1750 4.9 < 0.1 516 5.77 11.3 33.2 0.082 < 0.05 < 0.05	46-95-II 25-Oct-22 556 40.7 141 30 262 1750 1.8 < 0.1 491 0.808 11 33.7 0.076 < 0.05	46-95-II 2-May-23 570 32.4 144 28 244 1770 3.8 < 0.1 497 6.66 11.4 33.6 0.08	46-95-II 18-Oct-23 625 39.4 151 43 216 1830 7 <0.7 518 5.37 0.006 34.3	47-96-I 6-May-14 328 0.19 117 17 91.7 965 3.7 0.3 440 8.8 1.03 35.8
Unionized Ammonia	13.2 21.8 160 137 27 31 197 194 1530 1480 3.4 4.8 <0.1 < 0.1 525 481 3.38 4.32 10.4 9.05 30.4 33.7 0.086 0.072 <0.05 0.22 <0.05 0.05 13.8 20.2	25.5 146 43 196 1560 3.8 < 0.1 509 3.08 9.97 35 0.077 0.23 0.13	35.5 152 45 217 1750 4.9 < 0.1 516 5.77 11.3 33.2 0.082 < 0.05	40.7 141 30 262 1750 1.8 <>0.1 491 0.808 11 33.7 0.076	32.4 144 28 244 1770 3.8 <0.1 497 6.66 11.4 33.6	39.4 151 43 216 1830 7 <0.7 518 5.37 0.006 34.3	0.19 117 17 91.7 965 3.7 0.3 440 8.8 1.03
Ammonia mg/L N/A 6.11 7.4 7.93 8.13 10.9 14.2 12.6 13 BOD mg/L N/A 140 144 147 162 157 158 157 16 COD mg/L N/A 26 22 24 43 29 36 21 2 Chloride mg/L 250 151 133 184 191 207 201 187 15 Conductivity umhos/cm N/A 1420 1440 1370 1480 1470 1480 1500 15 Cyanide mg/L 0.2 0.2 0.0 <th>160 137 27 31 197 194 1530 1480 3.4 4.8 < 0.1 < 0.1 525 481 3.38 4.32 10.4 9.05 30.4 33.7 0.086 0.072 < 0.05 0.22 < 0.05 < 0.05 13.8 20.2</th> <th>146 43 196 1560 3.8 < 0.1 509 3.08 9.97 35 0.077 0.23 0.13</th> <th>152 45 217 1750 4.9 < 0.1 516 5.77 11.3 33.2 0.082 < 0.05</th> <th>141 30 262 1750 1.8 < 0.1 491 0.808 11 33.7 0.076</th> <th>144 28 244 1770 3.8 < 0.1 497 6.66 11.4 33.6</th> <th>151 43 216 1830 7 <0.7 518 5.37 0.006 34.3</th> <th>117 17 91.7 965 3.7 0.3 440 8.8 1.03</th>	160 137 27 31 197 194 1530 1480 3.4 4.8 < 0.1 < 0.1 525 481 3.38 4.32 10.4 9.05 30.4 33.7 0.086 0.072 < 0.05 0.22 < 0.05 < 0.05 13.8 20.2	146 43 196 1560 3.8 < 0.1 509 3.08 9.97 35 0.077 0.23 0.13	152 45 217 1750 4.9 < 0.1 516 5.77 11.3 33.2 0.082 < 0.05	141 30 262 1750 1.8 < 0.1 491 0.808 11 33.7 0.076	144 28 244 1770 3.8 < 0.1 497 6.66 11.4 33.6	151 43 216 1830 7 <0.7 518 5.37 0.006 34.3	117 17 91.7 965 3.7 0.3 440 8.8 1.03
BOD mg/L N/A 140 144 147 162 157 158 157 16 COD mg/L N/A 26 22 24 43 29 36 21 2 Chloride mg/L 250 151 133 184 191 207 201 187 15 Conductivity umhos/cm N/A 1420 1440 1370 1480 1470 1480 1500 15 Cyanide mg/L 0.2 0.2 0.0	160 137 27 31 197 194 1530 1480 3.4 4.8 < 0.1 < 0.1 525 481 3.38 4.32 10.4 9.05 30.4 33.7 0.086 0.072 < 0.05 0.22 < 0.05 < 0.05 13.8 20.2	146 43 196 1560 3.8 < 0.1 509 3.08 9.97 35 0.077 0.23 0.13	152 45 217 1750 4.9 < 0.1 516 5.77 11.3 33.2 0.082 < 0.05	141 30 262 1750 1.8 < 0.1 491 0.808 11 33.7 0.076	144 28 244 1770 3.8 < 0.1 497 6.66 11.4 33.6	151 43 216 1830 7 <0.7 518 5.37 0.006 34.3	117 17 91.7 965 3.7 0.3 440 8.8 1.03
Calcium mg/L N/A 140 144 147 162 157 158 157 168 COD mg/L N/A 26 22 24 43 29 36 21 2 Chloride mg/L 250 151 133 184 191 207 201 187 15 Conductivity umhos/cm N/A 1420 1440 1370 1480 1470 1480 1500 15 Cyanide mg/L 0.2 0.2 0.0 0.0 0.0 15 0.0 0.0 15 0.0 0.0 0.0 15 0.0 0.0 15 0.0 0.0 0.0 15 0.0 0.0 15 0.0 0.0 15 0.0 0.0 15 0.0 0.0 15 0.0 0.0 15 0.0 0.0 15 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 <td< td=""><td>27 31 197 194 1530 1480 3.4 4.8 < 0.1 < 0.1 525 481 3.38 4.32 10.4 9.05 30.4 33.7 0.086 0.072 < 0.05 0.22 < 0.05 < 0.05 13.8 20.2</td><td>43 196 1560 3.8 < 0.1 509 3.08 9.97 35 0.077 0.23 0.13</td><td>45 217 1750 4.9 < 0.1 516 5.77 11.3 33.2 0.082 < 0.05</td><td>30 262 1750 1.8 < 0.1 491 0.808 11 33.7 0.076</td><td>28 244 1770 3.8 < 0.1 497 6.66 11.4 33.6</td><td>43 216 1830 7 <0.7 518 5.37 0.006 34.3</td><td>17 91.7 965 3.7 0.3 440 8.8 1.03</td></td<>	27 31 197 194 1530 1480 3.4 4.8 < 0.1 < 0.1 525 481 3.38 4.32 10.4 9.05 30.4 33.7 0.086 0.072 < 0.05 0.22 < 0.05 < 0.05 13.8 20.2	43 196 1560 3.8 < 0.1 509 3.08 9.97 35 0.077 0.23 0.13	45 217 1750 4.9 < 0.1 516 5.77 11.3 33.2 0.082 < 0.05	30 262 1750 1.8 < 0.1 491 0.808 11 33.7 0.076	28 244 1770 3.8 < 0.1 497 6.66 11.4 33.6	43 216 1830 7 <0.7 518 5.37 0.006 34.3	17 91.7 965 3.7 0.3 440 8.8 1.03
COD mg/L N/A 26 22 24 43 29 36 21 2 Chloride mg/L 250 151 133 184 191 207 201 187 15 Conductivity umhos/cm N/A 1420 1440 1370 1480 1470 1480 1500 15 Cyanide mg/L 0.2 0.2 0.0	27 31 197 194 1530 1480 3.4 4.8 < 0.1 < 0.1 525 481 3.38 4.32 10.4 9.05 30.4 33.7 0.086 0.072 < 0.05 0.22 < 0.05 < 0.05 13.8 20.2	43 196 1560 3.8 < 0.1 509 3.08 9.97 35 0.077 0.23 0.13	45 217 1750 4.9 < 0.1 516 5.77 11.3 33.2 0.082 < 0.05	30 262 1750 1.8 < 0.1 491 0.808 11 33.7 0.076	28 244 1770 3.8 < 0.1 497 6.66 11.4 33.6	43 216 1830 7 <0.7 518 5.37 0.006 34.3	17 91.7 965 3.7 0.3 440 8.8 1.03
Chloride mg/L 250 151 133 184 191 207 201 187 152 Conductivity umhos/cm N/A 1420 1440 1370 1480 1470 1480 1500 15 Cyanide mg/L 0.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	197 194 1530 1480 3.4 4.8 < 0.1 < 0.1 525 481 3.38 4.32 10.4 9.05 30.4 33.7 0.086 0.072 < 0.05 0.22 < 0.05 < 0.05 13.8 20.2	196 1560 3.8 < 0.1 509 3.08 9.97 35 0.077 0.23 0.13	217 1750 4.9 < 0.1 516 5.77 11.3 33.2 0.082 < 0.05	262 1750 1.8 < 0.1 491 0.808 11 33.7 0.076	244 1770 3.8 < 0.1 497 6.66 11.4 33.6	216 1830 7 <0.7 518 5.37 0.006 34.3	91.7 965 3.7 0.3 440 8.8 1.03
Conductivity umhos/cm N/A 1420 1440 1370 1480 1470 1480 1500 15 Cyanide mg/L 0.2 </td <td>3.4 4.8 < 0.1 < 0.1 525 481 3.38 4.32 10.4 9.05 30.4 33.7 0.086 0.072 < 0.05 0.22 < 0.05 0.22</td> <td>3.8 < 0.1 509 3.08 9.97 35 0.077 0.23 0.13</td> <td>1750 4.9 < 0.1 516 5.77 11.3 33.2 0.082 < 0.05</td> <td>1750 1.8 < 0.1 491 0.808 11 33.7 0.076</td> <td>3.8 < 0.1 497 6.66 11.4 33.6</td> <td>7 <0.7 518 5.37 0.006 34.3</td> <td>965 3.7 0.3 440 8.8 1.03</td>	3.4 4.8 < 0.1 < 0.1 525 481 3.38 4.32 10.4 9.05 30.4 33.7 0.086 0.072 < 0.05 0.22 < 0.05 0.22	3.8 < 0.1 509 3.08 9.97 35 0.077 0.23 0.13	1750 4.9 < 0.1 516 5.77 11.3 33.2 0.082 < 0.05	1750 1.8 < 0.1 491 0.808 11 33.7 0.076	3.8 < 0.1 497 6.66 11.4 33.6	7 <0.7 518 5.37 0.006 34.3	965 3.7 0.3 440 8.8 1.03
Cyanide mg/L 0.2 0.3 0.2 0.2 0.3 0.1 0.2 0.1 0.0 0.1 0.0 0.1 0.0 0.	3.4 4.8 < 0.1 < 0.1 525 481	3.8 < 0.1 509 3.08 9.97 35 0.077 0.23 0.13	4.9 < 0.1 516 5.77 11.3 33.2 0.082 < 0.05	1.8 < 0.1 491 0.808 11 33.7 0.076	3.8 < 0.1 497 6.66 11.4 33.6	7 <0.7 518 5.37 0.006 34.3	3.7 0.3 440 8.8 1.03
DOC mg/L 5 5.3 4.2 5.5 6 6.5 5.7 5.2 3.3 Fluoride mg/L 1.5 < 0.1	< 0.1	<0.1 509 3.08 9.97 35 0.077 0.23 0.13	< 0.1 516 5.77 11.3 33.2 0.082 < 0.05	< 0.1 491 0.808 11 33.7 0.076	< 0.1 497 6.66 11.4 33.6	<0.7 518 5.37 0.006 34.3	0.3 440 8.8 1.03
Fluoride mg/L 1.5 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 <th< td=""><td>< 0.1</td> < 0.1</th<>	< 0.1	<0.1 509 3.08 9.97 35 0.077 0.23 0.13	< 0.1 516 5.77 11.3 33.2 0.082 < 0.05	< 0.1 491 0.808 11 33.7 0.076	< 0.1 497 6.66 11.4 33.6	<0.7 518 5.37 0.006 34.3	0.3 440 8.8 1.03
Hardness mg/L 500 465 481 497 533 521 529 528 52 Ion Balance % N/A 5.76 3.3 Iron mg/L 0.3 8.01 8.46 8.24 10.3 8.78 10.3 10 10 10 Magnesium mg/L N/A 27.8 29.5 31.5 31.2 31.2 32.6 33 30 Manganese mg/L 0.05 0.079 0.082 0.079 0.092 0.083 0.085 0.082 0.0 Nitrate mg/L 10 < 0.05	525 481 3.38 4.32 10.4 9.05 30.4 33.7 0.086 0.072 < 0.05	3.08 9.97 35 0.077 0.23 0.13	516 5.77 11.3 33.2 0.082 < 0.05	491 0.808 11 33.7 0.076	497 6.66 11.4 33.6	518 5.37 0.006 34.3	440 8.8 1.03
Ion Balance % N/A 8.46 8.24 10.3 8.78 10.3 10 10 Magnesium mg/L N/A 27.8 29.5 31.5 31.2 31.2 32.6 33 30 Manganese mg/L 0.05 0.079 0.082 0.079 0.092 0.083 0.085 0.082 0.0 Nitrate mg/L 10 < 0.05	3.38 4.32 10.4 9.05 30.4 33.7 0.086 0.072 < 0.05 0.22 < 0.05 < 0.05 13.8 20.2	3.08 9.97 35 0.077 0.23 0.13	5.77 11.3 33.2 0.082 < 0.05	0.808 11 33.7 0.076	6.66 11.4 33.6	5.37 0.006 34.3	8.8 1.03
Iron mg/L 0.3 8.01 8.46 8.24 10.3 8.78 10.3 10 10 Magnesium mg/L N/A 27.8 29.5 31.5 31.2 31.2 32.6 33 30 Manganese mg/L 0.05 0.079 0.082 0.079 0.092 0.083 0.085 0.082 0.0 Nitrate mg/L 10 < 0.05	10.4 9.05 30.4 33.7 0.086 0.072 < 0.05	9.97 35 0.077 0.23 0.13	11.3 33.2 0.082 < 0.05	33.7 0.076	11.4 33.6	0.006 34.3	1.03
Magnesium mg/L N/A 27.8 29.5 31.5 31.2 31.2 32.6 33 30 Manganese mg/L 0.05 0.079 0.082 0.079 0.092 0.083 0.085 0.082 0.0 Nitrate mg/L 10 < 0.05	30.4 33.7 0.086 0.072 < 0.05 0.22 < 0.05 < 0.05 13.8 20.2	35 0.077 0.23 0.13	33.2 0.082 < 0.05	33.7 0.076	33.6	34.3	
Manganese mg/L 0.05 0.079 0.082 0.079 0.092 0.083 0.085 0.082 0.08 Nitrate mg/L 10 < 0.05	0.086 0.072 < 0.05	0.077 0.23 0.13	0.082 < 0.05	0.076			35.8
Nitrate mg/L 10 < 0.05 < 0.05 < 0.05 < 0.05 0.19 < 0.05 0.11 < 0 Nitrite mg/L 1 < 0.05	< 0.05 0.22 < 0.05 < 0.05 13.8 20.2	0.23 0.13	< 0.05		0.08		
Nitrite mg/L 1 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	< 0.05 < 0.05 13.8 20.2	0.13		< 0.05		0.083	0.02
Tot Kjel N mg/L N/A 7.4 9.5 9.2 10.2 12.4 15.8 14.2 13 pH-Lab pH unit 6.5-8.5 7.48 7.67 7.74 7.69 7.71 7.69 7.61 7.4	13.8 20.2		< 0.05		< 0.05	<0.40	< 0.1
pH-Lab pH unit 6.5-8.5 7.48 7.67 7.74 7.69 7.71 7.69 7.61 7.4		28.5		< 0.05	< 0.05	<0.40	< 0.1
	7.49 7.67		46	43.4	32.6	41.5	0.5
Phenols mg/L N/A 0.006 0.002 < 0.001 0.01 < 0.002 0.013 < 0.002 < 0.		7.63	7.69	7.44	7.67	7.55	8.1
5 '	< 0.002 < 0.002	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001
	< 0.1 < 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1
	5.5 6.1	7.4	9	9.6	9	10	2.3
	118 111	116 7	125 < 1	122	120 1	122 <2	53.1 12
	812 812	880	920	966	905	1000	511
TSS mg/L N/A	012 012	000	920	300	905	1000	511
Turbidity NTU N/A							1
Colour TCU 5							1
	0.08 0.08	0.06	0.08	0.09	0.04	0.05	0.03
	0.0001 < 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001
	0.0001 < 0.0001	< 0.0001	0.0001	0.0002	< 0.0001	0.0001	0.0003
	0.835 0.757	0.928	1.08	1.14	1.03	1.06	0.915
5	0.002 < 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002
	0.12 0.102	0.105	0.109	0.104	0.107	0.093	0.078
6,	0.000015 < 0.000029	< 0.000015	< 0.000015	< 0.000012	< 0.000012	<0.000015	< 0.00002
C, C	0.001 < 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	0.0012
5	0.005 < 0.005	< 0.005	< 0.005	< 0.005	0.006	0.0005	< 0.005
	0.0008 0.0016	0.0001	0.0018	0.0003	0.0003	0.0002	0.0005
	.00004 < 0.00009	0.00004	< 0.00004	< 0.00004	< 0.00004	<0.00002	< 0.00002
Mercury mg/L 0.001 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002	0.00002 < 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002
, <u> </u>	0.0001 < 0.0002	0.0001	0.0001	0.0001	0.0001	<0.0001	< 0.0001
	< 0.01 < 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0021	< 0.01
	0.001 < 0.001	0.001	0.002	0.002	0.002	<0.001	< 0.001
	0.0001 < 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002
	0.637 0.608	0.664	0.662	0.67	0.662	0.685	
Thallium mg/L N/A < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005	0.00005 < 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005
Vanadium mg/L N/A 0.0024 0.0009 0.0002 0.0002 0.0002 < 0.0004 0.0002 0.00	0.0002 < 0.0004	< 0.0001	0.0003	0.0002	0.0003	0.0003	0.0026
Zinc mg/L 5 < 0.005 0.017 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005	0.005 < 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005

General Water Qua	, .		47-96-I	47-96-I	47-96-I	47-96-I	47-96-I	47-96-I	47-96-I	47-96-I	47-96-I	47-96-I	47-96-I	47-96-I	47-96-I	47-96-I	47-96-I
Parameters	Units	ODWQS	23-Oct-14	26-May-15	13-Oct-15	25-May-16	11-Oct-16	24-May-17	18-Oct-17	8-May-18	11-Oct-18	9-May-19	8-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21
Alkalinity	mg/L	500	356	329	340	388	335	341	385	355	369	289	318	337	381	430	416
Unionized Ammonia	mg/L	N/A															
Ammonia	mg/L	N/A	0.35	0.21	0.17	0.18	0.16	0.46	0.19	0.23	0.24	0.24	0.41	0.47	0.18	1.99	2.91
BOD	mg/L	N/A															
Calcium	mg/L	N/A	82.2	114	105	128	112	68.9	122	106	120	74.5	113	118	136	140	136
COD	mg/L	N/A	5	8	< 5	13	< 5	30	< 5	< 5	18	13	18	22	15	21	20
Chloride	mg/L	250	91.7	93.3	107	100	110	88.9	81.5	95.3	105	83.2	107	104	117	184	206
Conductivity	umhos/cm	N/A	955	902	934	1060	915	923	1090	900	984	804	927	979	1100	1330	1360
Cyanide	mg/L	0.2															
DOC	mg/L	5	3.9	1	1.3	1.4	1.4	2.1	1.6	2.7	3.5	3.8	3.3	1.9	1.7	3.3	2.3
Fluoride	mg/L	1.5	0.4	0.3	0.3	0.3	0.2	0.4	< 0.1	< 0.1	< 0.1	8.0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	345	438	412	485	426	320	466	415	450	340	434	446	498	519	484
Ion Balance	%	N/A	9.31											6.19	3.81	2.45	2.03
Iron	mg/L	0.3	0.631	1.04	1.13	1.48	1.31	0.155	1.36	1.01	1.25	< 0.005	1.02	1.12	1.56	1.65	1.59
Magnesium	mg/L	N/A	33.9	37.1	36.4	40.3	35.3	35.8	39.1	36.6	36.4	37.5	36.8	36.7	38.5	41	35
Manganese	mg/L	0.05	0.013	0.02	0.02	0.027	0.027	0.006	0.029	0.022	0.027	0.007	0.021	0.024	0.033	0.101	0.184
Nitrate	mg/L	10	< 0.1	< 0.1	< 0.1	0.3	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	0.18	< 0.05	0.09	< 0.05	0.16	< 0.05
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.09	< 0.05	< 0.05	0.11
Tot Kjel N	mg/L	N/A	0.4	0.2	0.3	0.4	0.4	0.7	0.2	1.1	0.4	0.6	8.0	0.7	0.4	2.5	3.3
pH-Lab	pH unit	6.5-8.5	7.8	7.62	7.63	7.6	7.85	7.65	7.71	7.9	7.86	7.95	7.87	7.82	7.67	7.96	7.7
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	0.005	0.003	0.001	< 0.001	0.003	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.01	80.0	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	2.9	2.4	2.3	2.2	1.8	3.3	2.3	2.6	2.2	3.6	2.5	2.4	2.3	2.8	3.1
Sodium	mg/L	200	29.3	51.5	40.9	41	42.6	31.7	43.4	50.5	51.4	39.3	52.6	51.1	47.1	88	113
Sulphate	mg/L	500	13	13	15	13	16	13	11	13	14	10	11	14	16	< 1	11
TDS	mg/L	500	468	511	512	560	520	448	532	519	553	422	515	530	587	718	759
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.02	0.03	0.02	0.04	0.03	0.02	0.06	0.07	0.06	0.04	0.07	0.07	0.08	0.07	0.06
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0004	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0003	0.0003	0.0002	0.0005	0.0032	0.0002	0.0004	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001
Barium	mg/L	1	1.59	1.07	0.886	0.996	0.72	2.2	0.923	0.918	0.78	1.92	0.972	0.836	0.93	0.507	0.497
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.138	0.083	0.086	0.084	0.037	0.193	0.086	0.091	0.079	0.179	0.093	0.083	0.081	0.073	0.083
Cadmium	mg/L	0.005	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.05	0.0036	< 0.0002	< 0.0002	< 0.0002	0.0025	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	0.008	< 0.005	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0003	< 0.0001	0.0002	0.0001	0.0003	0.0002	0.0003	0.0003	0.0003	0.0005	0.0003	< 0.0001	0.0014	0.0016	0.0002
Lead	mg/L	0.01	< 0.00002	0.00005	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00004	0.00007	< 0.00004
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0011	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0002
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	0.001	< 0.001	0.002	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	1.62	1.06	0.898	1.02	0.854	2.06	0.908	0.932	0.791	1.91	0.976	0.865	0.937	0.586	0.549
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0023	0.0025	0.0008	0.0021	0.0013	0.0014	0.0004	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Parameters Units ODWCS May 22 25 Cele 22 May 23 15 Cele 25 64 May 14 25 Cele 25 25 May 14 13 Cele 15 25 May 14 13 0 80 14 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	General Water Q	uanty		47-96-I	47-96-I	47-96-I	47-96-1	47-96-I (DUP)	47-96-II	47-96-II	47-96-II	47-96-II	47-96-II	47-96-II	47-96-II	47-96-II	47-96-II	47-96-II
Alaelmetry	Parameters	Units	opwos					. ,										11-Oct-18
Unionized Ammonis											•							442
Second	,		N/A															
Second mg/L N/A 148		-		2.11	2.78	3.05	1.53	2.9	0.19	0.35	3.28	3.15	1.71	2.38	2.19	2.02	1.93	2.32
Calcium		-																
COD				148	129	133	129	127	117	82.2	155	132	136	127	140	138	149	155
Chloride		-																66
Candiscrivity		-		_						_				_		_	_	152
Carelide		-			_						_	_		_	_			1290
DOC	,		,												1=10			
Fluoride	,			2.8	0.7	2.5	4.1	0.7	3.7	3.9	6.5	2.2	1.7	1.8	2.7	2.7	3	4.3
Hardness mg/L 500 \$33 476 470 475 472 440 345 525 458 467 471 473 472 873 180																		< 0.1
Installance				_							_	-		_		_		522
Iron											020	.00					0.0	
Magnesium			-								16	14	8.79	12.2	10.9	11.3	12.3	14.1
Manganese								1										32.7
Nitrate																		0.321
Nitrite mg/L 1 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 <																		< 0.05
Tot Igin mg/L N/A 2.3 4.3 2.8 1.9 3.6 0.5 0.4 4 3.8 2.4 3.1 2.9 3.7 3.3									-									< 0.05
DH-Lab																		3.6
Phenois	•																	7.69
Phosphorus	•																	0.018
Potassium																		< 0.1
Soliman	<u>'</u>				_													1.6
Sulphate mg/L 500 6 5 5 6 5 5 6 5 12 13 12 12 19 19 15 15 15 15 15 15																		82.7
TOS																		13
TSS mg/L N/A N/A	•						_											719
Turbidity NTU N/A 0.01 0.08 0.09 0.04 0.04 0.08 0.04 0.03 0.04 0.07 0.04 0.06 0.07 Aluminum mg/L 0.1 0.08 0.09 0.04 0.04 0.08 0.04 0.03 0.04 0.07 0.04 0.06 0.07 Arsenic mg/L 0.25 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 Barium mg/L 1 0.453 0.525 0.486 0.429 0.483 0.13 0.096 0.088 0.08 0.078 0.063 0.065 0.077 0.076 Beryllium mg/L N/A 0.002 0.002 0.002 0.0001 0.0001 0.0001 0.0001 0.0002 0.00002		-		700	700	101	700	0.0	011	100	7.10	000	007	020	004	001	7.00	7.10
Colour TCU 5																		
Aluminum mg/L 0.1 0.08 0.09 0.04 0.04 0.08 0.04 0.03 0.04 0.03 0.04 0.07 0.04 0.06 0.07 0.07 0.04 0.07	,																	
Antimony				0.08	0.09	0.04	0.04	0.08	0.04	0.03	0.04	0.03	0.04	0.07	0.04	0.06	0.07	0.07
Arsenic mg/L 0.025 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.00		-																< 0.0001
Barium mg/L 1 0.453 0.525 0.486 0.429 0.483 0.13 0.096 0.088 0.08 0.078 0.063 0.065 0.077 0.076	·																	0.0041
Beryllium																		0.075
Boron mg/L 5 0.08 0.072 0.073 0.074 0.068 0.094 0.062 0.063 0.079 0.065 0.033 0.061 0.072 0.078 0.061 0.072 0.078 0.062 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00001 0.0001																		< 0.002
Cadmium mg/L 0.005 < 0.000015 < 0.000012 < 0.000012 < 0.000015 < 0.000012 < 0.000012 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.000014 < 0.00014 < 0.00014 < 0.00015 < 0.00015 < 0.00014 < 0.00015 < 0.00015 < 0.00015 < 0.00014 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00014 < 0.00015 < 0.00014 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.0001	•																	0.087
Chromium mg/L 0.05 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0003 < 0.005 < 0.005 < 0.005 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.0005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.0005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005																		< 0.000015
Cobalt mg/L N/A < 0.005 < 0.005 0.006 < 0.001 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.001 < 0.0009 < 0.0004 < 0.0002 < 0.00004 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.0																		< 0.001
Copper mg/L 1 0.0003 0.0004 0.0002 0.0003 0.0009 0.0006 0.0002 0.0004 0.0005 0.0008 0.0025 0.0009 0.0015 0.0004 0.0005 0.0008 0.0025 0.0009 0.0015 0.0000 0.00005 0.0000 0.00005 0.0000 0.00005 0.0000 0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000																		< 0.005
Lead mg/L 0.01 < 0.00004 < 0.00004 < 0.00002 < 0.00002 0.00002 0.00002 < 0.00002 0.00003 < 0.00002 < 0.00002 < 0.00002 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.0001 < 0.001 <																		0.0004
Mercury mg/L 0.001 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00003 0.0004 0.0005 0.0006 0.0003 0.0006 0.0003 0.0006 0.0003 0.0006 0.0003 0.0006 0.0003 0.0006 0.0003 0.0006 0.0007 0.0007 0.0006 0.0006 0.0001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.0																	1	0.00003
Molybdenum mg/L N/A 0.0001 0.0002 0.0001 0.0002 0.0001 0.0002 0.0001 0.0002 0.0006 0.0003 0.0006 0.0003 0.0007 0.0007 0.0007 0.0006 0.0006 0.0003 0.0006 0.0003 0.0006 0.0003 0.0006 0.0003 0.0007 0.0007 0.0007 0.0006 0.0007 0.0006 0.0007 0.0006 0.0007 0.0006 0.0007 0.0007 0.0007 0.0006 0.0007 0.0007 0.0007 0.0006 0.001 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001																		< 0.00003
Nickel mg/L N/A < 0.01 < 0.01 0.02 0.0021 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.0002 < 0.00002 < 0.0002 < 0.00002 < 0.00002																		0.0006
Selenium mg/L 0.01 0.002 0.001 0.001 0.002 < 0.001 0.002 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.00	•																	< 0.01
Silver mg/L N/A < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005																		< 0.001
Strontium mg/L N/A 0.541 0.547 0.535 0.537 0.501 0.424 0.483 0.443 0.438 0.421 0.405 0.419 0.442 Thallium mg/L N/A < 0.00005																		< 0.001
Thallium mg/L N/A < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.0000									- 0.00002									0.428
Vanadium mg/L N/A < 0.0001 < 0.0001 < 0.0001 < 0.0001 0.0001 0.0004 0.0003 0.0003 0.0009 0.0019 0.0028 0.002 0.0004 < 0.0001 <									< 0.00005								_	< 0.00005
																		< 0.00005
Zinc mg/L 5 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005		mg/L	5 5	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	0.0044	< 0.005	< 0.005	< 0.0009	< 0.0019	< 0.0028	0.002	0.0004	< 0.0001	< 0.0001

General Water Qu	lanty		47-96-II	47-96-II	47-96-II	47-96-II	47-96-II	47-96-II	47-96-II	47-96-II	47-96-II	47-96-II	48-95-II (DUP)	48-96-I	48-96-I	48-96-I	48-96-I
Parameters	Units	ODWQS	9-May-19	8-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21	3-May-22	25-Oct-22	2-May-23	18-Oct-23	3-May-22	6-May-14	23-Oct-14	26-May-15	13-Oct-15
Alkalinity	mg/L	500	435	463	456	417	404	392	361	389	460	516	420	289	287	284	288
Unionized Ammonia	mg/L	N/A	.00					002		000		0.0			20.	20.	200
Ammonia	mg/L	N/A	4.54	9.84	3.18	1.88	10.9	14	8.33	13.3	30.3	48	0.73	0.17	0.14	< 0.01	0.09
BOD	mg/L	N/A															
Calcium	mg/L	N/A	158	157	168	159	136	116	117	117	122	114	150	75.2	60.8	77.4	62.2
COD	mg/L	N/A	80	78	72	36	78	73	25	45	31	99	74	< 5	6	< 5	< 5
Chloride	mg/L	250	193	204	187	149	243	237	229	312	278	252	116	43.8	43.1	50.3	45.1
Conductivity	umhos/cm	N/A	1370	1460	1430	1270	1480	1420	1430	1530	1730	1810	1180	697	669	694	676
Cyanide	mg/L	0.2		1.00	1.00	.2.0		20	1.00	.000			1.00	00.	000		0.0
DOC	mg/L	5	5.2	4.9	3.6	1.9	4.3	1.6	3	1	1.2	6.6	3.8	3.2	3.1	0.9	0.7
Fluoride	mg/L	1.5	0.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.7	< 0.1	0.4	0.5	0.4	0.4
Hardness	mg/L	500	528	529	566	524	482	394	401	401	412	383	530	346	292	348	308
Ion Balance	%	N/A	020	020	7.67	6.31	5.35	3.14	4.37	2.09	2.88	5.38	5.09	5.41	3.03	0.0	000
Iron	mg/L	0.3	14.6	17.9	19.8	17.7	12.5	9.6	10.2	10.5	13	14.9	5.71	0.022	0.027	< 0.005	0.026
Magnesium	mg/L	N/A	32.3	33.1	35.5	30.9	34.5	25.2	26.4	26.4	25.7	23.9	37.7	38.3	34.1	37.5	37.1
Manganese	mg/L	0.05	0.312	0.263	0.331	0.415	0.202	0.199	0.24	0.257	0.376	0.286	0.092	0.009	0.008	< 0.001	0.009
Nitrate	mg/L	10	0.19	< 0.05	0.09	< 0.05	0.16	< 0.05	< 0.05	< 0.05	< 0.05	<0.40	< 0.05	0.1	0.1	0.3	0.1
Nitrite	mg/L	1	< 0.05	< 0.05	0.14	< 0.05	< 0.05	0.16	< 0.05	< 0.05	< 0.05	<0.40	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	6.3	12.5	4.5	2.8	13.1	15.8	11.2	15.7	27.4	59.4	1.2	0.4	0.2	0.2	0.3
pH-Lab	pH unit	6.5-8.5	7.73	7.64	7.64	7.57	7.88	7.7	7.84	7.65	7.8	7.67	7.74	8.25	8.04	7.9	7.9
Phenols	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	14.4	6.78	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	2.3	3.8	1.8	1.5	3.6	4.7	3.2	4.6	9.2	14.9	2.9	3.3	2.9	3.1	2.8
Sodium	mg/L	200	104	118	96.9	71.9	134	141	132	145	160	157	47.5	21.2	16.9	25.6	18.9
Sulphate	mg/L	500	4	< 1	3	16	16	7	2	3	2	<2	7	4	4	8	5
TDS	mg/L	500	776	825	790	697	836	793	748	869	887	995	620	360	336	374	344
TSS	mg/L	N/A		323			300		1.0	333	30.		323		000		
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.08	0.09	0.08	0.08	0.1	0.05	0.07	0.09	0.06	0.05	0.09	0.02	0.02	0.02	0.01
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001
Arsenic	mg/L	0.025	0.0041	0.0054	0.004	0.0043	0.0033	0.0041	0.0037	0.005	0.0039	0.0052	0.0001	0.0004	0.0004	0.0004	0.0004
Barium	mg/L	1	0.09	0.114	0.088	0.078	0.087	0.087	0.073	0.094	0.137	0.169	0.677	1.03	0.814	0.916	0.873
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.1	0.129	0.097	0.089	0.097	0.124	0.088	0.105	0.131	0.148	0.068	0.124	0.098	0.108	0.118
Cadmium	mg/L	0.005	< 0.000015	< 0.000029	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000012	< 0.000012	<0.000015	< 0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Chromium	mg/L	0.05	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	0.0008	0.0024	< 0.0002	< 0.0002
Cobalt	mg/L	N/A	< 0.005	< 0.005	0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0012	0.0005	< 0.0001	0.001	0.0013	0.0004	0.0004	0.0007	0.0004	0.0002	0.0004	0.0004	0.0007	< 0.0001	0.0002
Lead	mg/L	0.01	0.00003	< 0.00009	0.00003	0.00006	0.00023	< 0.00004	< 0.00004	0.00012	0.00012	0.00005	< 0.00004	0.00003	< 0.00002	0.00004	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0005	0.0006	0.0005	0.0005	0.0004	0.0006	0.0006	0.0004	0.0005	0.0006	< 0.0001	0.0001	< 0.0001	0.0002	0.0001
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0018	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.001	0.001	<0.001	0.002	< 0.001	< 0.001	0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.001	< 0.001	< 0.0001	<0.0001	< 0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	N/A	0.5	0.524	0.499	0.468	0.475	0.43	0.394	0.429	0.535	0.463	0.858	0.00002	1.09	1.18	1.1
		,	0.0	0.02.	000												
	mg/I	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00008	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	0 00007	< 0.00005	< 0.00005	< 0 00005
Thallium Vanadium	mg/L mg/L	N/A N/A	< 0.00005 < 0.0001	< 0.00005 < 0.0004	< 0.00005 0.0002	< 0.00005 < 0.0001	0.00008	< 0.00005 < 0.0001	< 0.00005 < 0.0001	< 0.00005 0.0002	< 0.00005 0.0002	<0.00005 0.0002	< 0.00005 < 0.0001	0.00007 0.0021	< 0.00005 0.0015	< 0.00005 0.0026	< 0.00005 0.0006

General Water Qua			48-96-I	48-96-I	48-96-I	48-96-I	48-96-I	48-96-I	48-96-I	48-96-I	48-96-I	48-96-I	48-96-I	48-96-I	48-96-I	48-96-I	48-96-I
Parameters	Units	ODWQS	25-May-16	12-Oct-16	23-May-17	18-Oct-17	8-May-18	11-Oct-18	8-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21	3-May-22	25-Oct-22	2-May-23	18-Oct-23
Alkalinity	mg/L	500	287	289	287	293	294	294	284	285	278	280	294	283	283	288	309
Unionized Ammonia	mg/L	N/A															
Ammonia	mg/L	N/A	< 0.01	0.16	< 0.01	0.1	0.03	0.06	0.17	0.15	0.01	0.04	0.18	0.57	0.24	1.75	0.5
BOD	mg/L	N/A															
Calcium	mg/L	N/A	70.4	71.8	69.7	66.5	70.1	71.3	73.5	73.1	70.4	64.9	71	71.6	66.1	69.2	67
COD	mg/L	N/A	6	< 5	8	< 5	< 5	15	8	< 5	71	12	9	9	< 5	12	23
Chloride	mg/L	250	48.9	43	37.1	32.9	44.6	47.2	53.8	47.4	47.4	45.6	58.2	66.2	94.6	76.9	64.6
Conductivity	umhos/cm	N/A	680	685	656	695	668	697	695	682	674	645	720	776	770	783	790
Cyanide	mg/L	0.2															
DOC	mg/L	5	1.1	1.6	1.2	1.6	1.7	3	3	2.8	2	2.8	1.8	2.1	0.9	1.2	2.8
Fluoride	mg/L	1.5	0.4	0.4	0.3	0.3	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	0.4	<0.1
Hardness	mg/L	500	330	341	326	323	336	336	347	346	320	323	336	338	328	340	325
Ion Balance	%	N/A								5.32	2.83	4.28	2.02	2.47	4.51	0.0556	1.68
Iron	mg/L	0.3	< 0.005	0.033	< 0.005	0.033	0.012	< 0.005	0.061	0.014	0.007	0.005	0.006	0.006	0.071	< 0.005	0.008
Magnesium	mg/L	N/A	37.5	39.3	36.9	38.1	39	38.4	39.7	39.7	35	39.1	38.6	38.6	39.7	40.7	38.4
Manganese	mg/L	0.05	< 0.001	0.013	< 0.001	0.015	< 0.001	0.008	0.018	0.005	0.003	< 0.001	0.001	< 0.001	0.012	< 0.001	0.002
Nitrate	mg/L	10	0.3	0.1	0.17	< 0.05	0.16	< 0.05	< 0.05	0.17	0.09	< 0.05	0.08	0.13	0.08	0.22	0.1
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07	< 0.05	< 0.05	< 0.05	<0.05
Tot Kjel N	mg/L	N/A	0.2	0.3	0.1	0.3	0.3	0.2	0.3	0.4	0.1	0.2	0.2	0.6	0.4	1.4	0.8
pH-Lab	pH unit	6.5-8.5	7.96	8.08	8.08	7.99	8.12	7.9	7.95	7.88	7.97	8.19	7.97	8.05	7.94	8.12	7.72
Phenols	mg/L	N/A	< 0.001	0.003	0.002	0.002	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.03	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1
Potassium	mg/L	N/A	3	2.8	2.8	3.6	3.5	3.2	3.6	3.3	3.2	3.2	3.5	3.4	3.5	3.7	3.6
Sodium	mg/L	200	21	21.7	20.9	20.8	22.6	21.4	22.9	20.8	21.2	24.5	33.1	33.8	32.7	35.1	34.4
Sulphate	mg/L	500	7	5	5	3	6	4	< 1	4	4	5	19	20	25	23	19
TDS	mg/L	500	361	358	345	342	362	362	364	359	348	350	400	404	432	421	415
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.02	0.01	0.02	0.04	0.05	0.05	0.05	0.03	0.05	0.05	0.04	0.05	0.04	0.02	0.02
Antimony	mg/L	0.006	0.0001	0.0004	0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002
Arsenic	mg/L	0.025	0.0005	0.0006	0.0003	0.0004	0.0002	0.0002	0.0002	< 0.0001	0.0002	0.0002	< 0.0001	0.0002	0.0002	0.0002	0.0002
Barium	mg/L	1	0.942	0.949	0.898	0.988	0.964	0.968	1.03	0.976	0.995	0.881	1.05	1.04	1.13	1.1	1.07
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001
Boron	mg/L	5	0.117	0.119	0.12	0.125	0.13	0.117	0.128	0.122	0.123	0.139	0.134	0.142	0.134	0.144	0.147
Cadmium	mg/L	0.005	< 0.00002	< 0.00002	< 0.000014	0.000018	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000010	<0.000015
Chromium	mg/L	0.05	< 0.0002	0.0016	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	<0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	0.007	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.0001
Copper	mg/L	1	0.0002	0.0002	0.0003	0.0007	0.0003	0.0006	0.0003	0.0002	0.0016	0.0018	0.0004	0.0007	0.0011	0.0006	0.0004
Lead	mg/L	0.01	< 0.00002	0.00006	< 0.00002	< 0.00002	0.00004	0.00005	0.00005	0.00003	0.00007	0.00011	0.00003	0.00005	0.00015	0.00004	<0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002
Molybdenum	mg/L	N/A	0.0003	0.0001	0.0002	0.0001	0.0003	0.0001	0.0001	< 0.0001	0.0001	0.0002	0.0001	0.0002	0.0002	0.0002	0.0002
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0017
Selenium	mg/L	0.01	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001
Silver	mg/L	N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001
Strontium	mg/L	N/A	1.19	1.14	1.22	1.16	1.15	1.13	1.22	1.22	1.19	1.2	1.27	1.28	1.31	1.34	1.28
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005
Vanadium	mg/L	N/A	0.0017	0.0009	0.0017	0.0003	0.0005	0.0002	< 0.0001	0.0003	0.0003	0.0004	0.0002	0.0003	< 0.0001	0.0003	0.0002

General Water Qu	laiity		48-96-I (DUP)	48-96-II	48-96-II	48-96-II	48-96-II	48-96-II	48-96-II	48-96-II	48-96-II	48-96-II	48-96-II	48-96-II	48-96-II	48-96-II	48-96-II
Parameters	Units	ODWQS	18-Oct-23	6-May-14	23-Oct-14	26-May-15	13-Oct-15	25-May-16	12-Oct-16	23-May-17	18-Oct-17	8-May-18	9-May-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21
Alkalinity	mg/L	500	309	399	411	421	422	287	428	455	428	430	278	417	399	388	431
Unionized Ammonia	mg/L	N/A	000	000	711	121	122	201	120	400	120	100	270	417	000	000	101
Ammonia	mg/L	N/A	0.08	0.16	0.21	0.2	0.15	< 0.01	0.17	0.18	0.17	0.19	0.05	0.12	0.13	0.5	0.51
BOD	mg/L	N/A	0.00	0.10	0.21	0.2	0.10	0.0.	0	0.10	0	00	0.00	02	0.10	0.0	0.01
Calcium	mg/L	N/A	67.4	156	132	151	128	70.4	147	146	140	141	70.9	142	143	135	146
COD	mg/L	N/A	17	81	52	6	8	6	< 5	75	208	9	7	490	141	78	23
Chloride	mg/L	250	65.8	136	133	128	130	48.9	123	100	87	117	51.6	116	117	113	116
Conductivity	umhos/cm	N/A	783	1190	1150	1160	1170	680	1180	1140	1160	1110	682	1140	1120	1060	1110
Cyanide	mg/L	0.2	700	1100	1100	1100	1170	000	1100	1110	1100	1110	002	1140	1120	1000	1110
DOC	mg/L	5	4.2	5.6	5.3	1.3	2.9	1.1	2.8	3.7	3.3	4.1	2.5	4	2.5	4.7	2.9
Fluoride	mg/L	1.5	<0.1	0.2	0.2	0.2	0.2	0.4	< 0.1	0.2	< 0.1	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	328	556	478	545	479	330	523	534	509	520	333	510	515	498	519
Ion Balance	%	N/A	1.68	7.49	2.02	343	473	330	323	334	303	320	333	3.81	5.28	5.17	3.16
Iron	mg/L	0.3	0.006	3.09	2.81	2.6	2.75	< 0.005	2.83	3.04	2.98	2.85	0.019	2.91	3.06	5.8	4.81
Magnesium	mg/L	N/A	38.7	40.5	36.2	40.8	38.9	37.5	38.3	40.8	38.8	40.7	37.8	37.8	38.2	39	37.5
Manganese	mg/L	0.05	0.001	0.039	0.035	0.039	0.035	< 0.001	0.038	0.04	0.036	0.035	< 0.001	0.091	0.08	0.096	0.086
Nitrate	mg/L	10	0.001	< 0.1	0.033	< 0.1	< 0.1	0.3	< 0.05	< 0.1	< 0.05	< 0.05	0.32	0.08	< 0.05	0.056	< 0.05
Nitrite	mg/L	10	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.05	< 0.05	< 0.05	0.06	< 0.05	< 0.05	0.09
Tot Kjel N	mg/L	N/A	0.2	1.3	0.7	0.5	0.5	0.2	0.8	0.6	0.6	0.03	1.1	2.9	1.6	1.6	1.5
pH-Lab	pH unit	6.5-8.5	7.82	7.88	7.72	7.4	7.49	7.96	7.67	7.77	7.58	7.76	8.07	7.58	7.51	8.02	7.65
Phenols	mg/L	N/A	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	0.002	0.002	< 0.001	< 0.002	0.004	< 0.002	< 0.002	< 0.001
Phosphorus		N/A	<0.1	< 0.001	< 0.001	< 0.1	< 0.001	< 0.001	< 0.1	< 0.1	< 0.1	< 0.1	0.06	< 0.1	< 0.002	< 0.002	< 0.001
Potassium	mg/L mg/L	N/A	3.6	3	2.6	2.7	2.6	3	2.6	2.6	3.1	3.2	3.3	3	2.9	2.8	3
Sodium	_	200	34.6	57.2	42	55.2	43.7	21	57.7	57.2	54.3	57.8	22.4	54.1	50.2	51.2	48.1
Sulphate	mg/L mg/L	500	20	4	5	6	5	7	57.7	57.2	4	6	7	12	7	19	8
TDS	mg/L	500	411	640	600	639	604	361	626	636	588	627	360	618	601	600	622
TSS	mg/L	N/A	411	040	600	639	004	301	020	636	300	627	300	010	001	600	622
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.02	0.04	0.03	0.04	0.03	0.04		0.05	0.06	0.07	0.05	0.08	0.07	0.08	0.06
Antimony	-	0.006	0.002	< 0.001	< 0.0001	< 0.0001	< 0.0001	< 0.0001		< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001
Artimony	mg/L	0.006	0.0001	0.0006	0.0005	0.0006	0.0003	0.0008		0.0006	0.0005	0.0001	0.0001	0.0001	0.0003	0.0001	0.0001
	mg/L	0.025	1.08	0.0006	0.0005	0.664	0.603	0.643		0.0006	0.662	0.666	0.0002	0.0016	0.636	0.0002	0.686
Barium	mg/L	N/A	<0.0001	< 0.002	< 0.002	< 0.002	< 0.003	< 0.002		< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Beryllium Boron	mg/L	5	0.146	0.002	0.054	0.058	0.002	0.068		0.002	0.002	0.076	0.127	0.002	0.002	0.002	0.002
Cadmium	mg/L	0.005	<0.000015	< 0.00002	< 0.0002	< 0.00002	< 0.00002	< 0.00002		< 0.000014	< 0.00014	< 0.000015	< 0.000015	< 0.00015	< 0.00015	< 0.000015	< 0.000015
Chromium	mg/L	0.005	<0.00015	0.00002	0.0036	< 0.00002	< 0.0002	< 0.00002		< 0.00014	< 0.00014	< 0.00015	< 0.00013	< 0.00015	< 0.00013	< 0.00013	< 0.00013
Cobalt	mg/L	0.05 N/A	<0.001	< 0.0017	< 0.005	< 0.0002	< 0.0002	< 0.0002		< 0.001	< 0.001	< 0.001	0.009	< 0.001	< 0.001	0.005	< 0.001
	mg/L	1 1	0.0001	0.0006	0.0007	< 0.0001	0.0002	0.0003		0.0005	0.0006	0.0004	0.009	0.0003	0.003	0.003	0.0002
Copper	mg/L	0.01	0.0002	< 0.00002	< 0.0007	0.00001	< 0.0002	< 0.0003		< 0.0003	0.00002	0.0004	0.0007	0.0003	0.00013	0.0018	< 0.0002
Lead	mg/L				< 0.00002	< 0.00008	< 0.00002				< 0.00002	< 0.00006	< 0.00003			< 0.0001	< 0.00004
Mercury	mg/L	0.001	<0.00002	< 0.00002				< 0.00002		< 0.00002				< 0.00002	< 0.00002		
Molybdenum Nickel	mg/L	N/A N/A	0.0002	< 0.0001 < 0.01		< 0.0001 < 0.01	< 0.0001 < 0.01	< 0.0001 < 0.01	0.0002 < 0.01	0.0002 < 0.01	< 0.0001 < 0.01	< 0.0001 < 0.01	< 0.0001 < 0.01				
Selenium	mg/L	0.01	0.0016 <0.001	< 0.001	< 0.01	0.002	< 0.001	0.003		< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.01	< 0.01	0.001
	mg/L		<0.001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.00002		< 0.0001	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A		< 0.00002	0.00002					0.00002							
Strontium	mg/L	N/A	1.29	4 0 00005		0.847	0.775	0.822			0.773	0.794	1.23	0.774	0.779	0.877	0.882
Thallium	mg/L	N/A	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005		< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0002	0.0032	0.002	0.0034	0.0007	0.0021		0.0021	0.0006	< 0.0001	0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Zinc	mg/L	5	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		< 0.005	0.019	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu			48-96-II	48-96-II	48-96-II	48-96-II	48-96-II (DUP)	49-96-I	49-96-I	49-96-I	49-96-I	49-96-I	49-96-l	49-96-I	49-96-I	49-96-I	49-96-I
Parameters	Units	ODWQS	3-May-22	25-Oct-22	2-May-23	18-Oct-23	2-May-23	7-May-14	21-Oct-14	26-May-15	13-Oct-15	18-May-16	12-Oct-16	24-May-17	17-Oct-17	7-May-18	11-Oct-18
Alkalinity	mg/L	500	422	452	464	450	476	289	317	281	318	295	330	302	289	287	330
Unionized Ammonia	mg/L	N/A															
Ammonia	mg/L	N/A	0.8	0.72	2.17	0.61	1.12	2.07	2.08	1.11	1.91	1.48	1.99	2.09	2.15	2	2.14
BOD	mg/L	N/A															
Calcium	mg/L	N/A	150	148	152	138	145	15.5	7.11	16.6	13.8	16.6	15.4	18.6	22.2	22.1	14.9
COD	mg/L	N/A	37	36	52	44	55	< 5	< 5	< 5	< 5	8	< 5	5	6	< 5	12
Chloride	mg/L	250	116	165	139	115	139	97.1	155	97	114	100	136	85.6	89	96	134
Conductivity	umhos/cm	N/A	1170	1220	1240	1180	1240	915	1080	913	978	935	1060	967	899	873	1060
Cyanide	mg/L	0.2															
DOC	mg/L	5	3.1	1.6	2.4	5.7	2.5	2.4	2.8	0.5	0.3	8.0	0.7	1.2	1	1.1	1.9
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	1.6	2.1	1.5	1.6	1.5	2.2	1.7	1.9	1.2	0.3
Hardness	mg/L	500	531	535	543	504	518	95	45	96	84	93	89	106	129	125	85
Ion Balance	%	N/A	5.09	1.63	1.32	0.107	1.49	4.02	0.412								
Iron	mg/L	0.3	5.81	5.67	6.01	3.67	5.64	< 0.005	< 0.005	< 0.005	0.037	< 0.005	0.044	0.023	0.035	0.046	0.019
Magnesium	mg/L	N/A	38	40.2	39.5	38.8	37.8	13.8	6.52	13.4	12.1	12.5	12.4	14.5	18	16.9	11.5
Manganese	mg/L	0.05	0.093	0.091	0.101	0.064	0.097	< 0.001	< 0.001	< 0.001	0.001	0.002	0.004	0.001	0.002	0.001	0.002
Nitrate	mg/L	10	< 0.05	< 0.05	< 0.05	<0.05	< 0.05	0.1	< 0.1	0.9	< 0.1	0.5	0.1	< 0.05	< 0.05	0.08	< 0.05
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	1.3	1.5	2.3	2.1	1.8	2.8	2.1	1.1	2.2	1.7	2.1	4.1	2.2	2.1	2.3
pH-Lab	pH unit	6.5-8.5	7.72	7.54	7.67	7.44	7.76	8.26	8.3	8.2	8.17	8.13	8.24	8.2	8.16	8.24	8.14
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	0.002	0.002	< 0.001	< 0.002
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	2.9	3	3.2	3.1	3.2	7.2	6.7	6.9	6.5	7.4	6.8	6.9	8.1	9.1	7.5
Sodium	mg/L	200	47.5	52	56.1	49.9	55.8	147	225	162	169	183	189	159	151	169	214
Sulphate	mg/L	500	7	8	7	13	7	35	13	32	20	27	11	22	22	31	12
TDS	mg/L	500	622	693	682	635	679	494	608	504	528	529	573	492	489	520	595
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.08	0.09	0.06	0.04	0.05	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	0.03	0.02	0.02
Antimony	mg/L	0.006	0.0001	0.0002	< 0.0001	<0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0003	0.0001	0.0003	0.0002	0.0006	0.001	0.0003	0.0002	0.0003	0.0001	0.0008	0.0004	0.0004	< 0.0001	< 0.0001
Barium	mg/L	1	0.676	0.79	0.78	0.739	0.794	0.011	0.006	0.018	0.016	0.021	0.018	0.018	0.023	0.02	0.016
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.069	0.074	0.078	0.077	0.078	0.582	0.801	0.623	0.705	0.698	0.71	0.632	0.636	0.67	0.667
Cadmium	mg/L	0.005	< 0.000015	< 0.000012	< 0.000012	<0.000015	< 0.000012	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015	< 0.000015
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	0.0005	< 0.0002	0.0028	< 0.0002	< 0.0002	0.0019	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	<0.0001	0.008	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.005
Copper	mg/L	1	< 0.0001	0.0004	0.0003	0.0002	< 0.0001	0.0022	0.0012	0.0004	0.0015	0.0006	0.0008	0.0019	0.0008	0.0009	< 0.0001
Lead	mg/L	0.01	< 0.00004	< 0.00004	0.00007	<0.00002	< 0.00004	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	0.0024	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	0.002	0.002	0.002	<0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	0.001	0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001
Strontium	mg/L	N/A	0.862	0.934	0.95	0.894	0.936		0.683	1.39	1.2	1.32	1.19	1.39	1.54	1.62	1.17
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	0.0002	<0.0001	0.0002	0.0018	< 0.0001	0.0019	0.0007	0.0005	0.0007	0.0013	0.0003	< 0.0001	< 0.0001
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	laiity		49-96-1	49-96-I	49-96-I	49-96-I	49-96-1	49-96-I	49-96-I	49-96-I	49-96-I	49-96-I	49-96-II	49-96-II	49-96-II	49-96-II	49-96-II
Parameters	Units	ODWQS	8-May-19	7-Oct-19	5-May-20	13-Oct-20	4-May-21	13-Oct-21	3-May-22	25-Oct-22	2-May-23	18-Oct-23	7-May-14	21-Oct-14	26-May-15	13-Oct-15	18-May-16
Alkalinity	mg/L	500	275	306	265	289	291	312	264	294	282	295	265	264	272	268	274
Unionized Ammonia	mg/L	N/A	2.0	555	200	200	20.	0.2		20.	202	200	200	20.		200	
Ammonia	mg/L	N/A	2.05	2.43	1.57	2.16	2.08	2.33	2.12	2.08	2.45	3.56	0.04	0.03	0.06	0.04	0.02
BOD	mg/L	N/A	2.00	20		2.10	2.00	2.00		2.00	20	0.00	0.01	0.00	0.00	0.01	0.02
Calcium	mg/L	N/A	23.9	26.1	30.8	23.8	25.6	25.9	26.2	25.3	33.1	25.4	108	109	116	113	121
COD	mg/L	N/A	10	5	10	< 5	13	12	8	< 5	8	11	5	< 5	< 5	< 5	11
Chloride	mg/L	250	102	134	104	121	111	120	109	166	136	108	109	107	106	106	108
Conductivity	umhos/cm	N/A	913	1010	889	979	928	966	933	1000	984	937	944	946	955	939	959
Cyanide	mg/L	0.2	0.0		555	0.0	020	555	000				0	0.0	000	000	
DOC	mg/L	5	1.7	1.6	1.6	1.1	1.8	1	1.3	< 0.2	1.1	2.4	2.8	2.7	0.8	0.7	1
Fluoride	mg/L	1.5	1.2	0.8	0.6	1	< 0.1	1	0.6	1.4	1.1	1	0.2	0.2	0.1	0.2	0.2
Hardness	mg/L	500	126	146	157	133	142	145	142	146	159	146	400	415	431	436	442
Ion Balance	%	N/A	.20		1.6	0.0152	1.62	0.889	3.13	8.17	1.49	0.267	4.1	3.22			
Iron	mg/L	0.3	0.009	0.05	0.03	0.033	0.016	0.049	0.015	0.02	< 0.005	0.058	0.016	< 0.005	0.465	0.111	0.09
Magnesium	mg/L	N/A	16.1	19.7	19.5	17.9	19	19.6	18.6	20.2	18.5	20	31.6	34.8	34.3	37.4	34.1
Manganese	mg/L	0.05	0.002	0.003	0.001	0.004	0.001	0.004	0.002	0.002	< 0.001	0.006	0.022	0.005	0.061	0.019	0.006
Nitrate	mg/L	10	< 0.05	< 0.05	0.58	< 0.05	0.13	< 0.05	0.46	< 0.05	0.71	0.08	0.022	0.1	0.1	0.1	0.1
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.1	< 0.05	< 0.05	< 0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	2.1	2.5	1.8	2.4	2.3	2.6	2.3	2.3	2.3	3.7	0.5	< 0.1	0.4	0.2	0.3
pH-Lab	pH unit	6.5-8.5	8.24	8.09	8.07	8.14	8.38	8.11	8.13	8.09	8.18	7.2	8	7.94	7.9	7.8	7.77
Phenols	mg/L	N/A	< 0.002	0.004	0.004	< 0.002	< 0.002	< 0.001	< 0.001	0.001	< 0.001	<0.001	0.011	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	0.04	0.04	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	8.1	8.8	8	7.9	8.1	8.4	8	8.4	8.1	8.6	1.9	2.1	1.9	2.1	2.1
Sodium	mg/L	200	163	156	132	154	153	153	149	143	150	146	25.3	20.1	27.9	23.7	37.9
Sulphate	mg/L	500	26	11	30	16	27	21	32	28	30	27	74	73	73	72	70
TDS	mg/L	500	507	544	485	515	522	539	505	571	547	498	509	505	524	516	538
TSS	mg/L	N/A	30.	•		0.0		333			•				<u> </u>	0.0	
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.02	0.02	0.02	0.02	0.03	0.01	0.03	0.03	0.01	<0.01	0.03	0.03	0.03	0.03	0.03
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.0003	0.0003	0.0002	0.0002	< 0.0001
Barium	mg/L	1	0.02	0.023	0.023	0.021	0.021	0.024	0.025	0.024	0.025	0.022	0.119	0.109	0.119	0.122	0.134
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.635	0.594	0.503	0.561	0.515	0.564	0.523	0.544	0.521	0.574	1.39	1.39	1.33	1.31	1.41
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000010	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Chromium	mg/L	0.05	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.0002	< 0.0002	0.0024	< 0.0002	< 0.0002
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0003	0.0008	< 0.0001	0.0005	0.0002	0.0003	0.0003	0.0002	0.0002	0.0002	0.0007	0.0007	< 0.0001	0.0004	0.0005
Lead	mg/L	0.01	< 0.00002	< 0.00004	0.00003	0.00005	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	<0.0001	0.0019	0.0012	0.001	0.0014	0.0017
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.0002	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	N/A	1.58	1.9	1.81	1.75	1.83	1.95	1.83	1.95	1.77	1.95		0.777	0.813	0.797	0.814
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	0.0005	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	<0.0001	0.001	< 0.0001	0.0015	0.0006	0.0005
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Martin M	i-II 49-96-II 49-96-II
Mallentry	
Uniformed Armmonia	
Amenonia mg/L N/A 0.08 0.03 0.03 0.05 0.06 0.06 0.05 0.05 0.05 0.06 0.07 0.02 0.11 2.02	
BOD	1 2.02 0.45
Calcium	2.02 0.10
Conditional	112 113
Catoride	
Conductivity	
Consider mg/L 0.2	
DOC	1000
Fluoride	1.1 2.7
Hardness mg/L 500 430 421 449 435 446 454 438 392 429 434 428 429 400 421	
Installance	
Inco mg/L 0.3 0.799 0.46 0.012 0.059 0.68 0.011 0.069 0.03 0.285 0.353 0.2 0.579 0.318 Magnesium mg/L 0.05 0.033 0.011 0.006 0.004 0.033 0.017 0.021 0.006 0.014 0.001 0.	
Magnesium	
Manganee	
Nitrate	
Nitrite mg/L	
Tot Sigla N	
DH-Lish	
Phenols	
Phosphorus	
Potassium	
Soliphate mg/L 200 37.3 34.2 34.2 35.3 33.5 31.5 38.2 31.2 28.6 32.6 38.5 36.2 38.6 33	
Sulphate	
TOS	
TSS	
Turbidity NTU N/A NTU	333 340
Colour	
Aluminum	
Antimony mg/L 0.006 0.0003 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.000	3 0.03 0.04
Arsenic mg/L 0.025 0.0004 0.0005 0.0004 0.0001 0.0003 0.0001 0.0001 0.0001 0.0001 0.0002 0.00002 0	
Barium mg/L 1 0.126 0.115 0.144 0.13 0.129 0.121 0.128 0.066 0.121 0.113 0.125 0.12 0.125 0.124	
Beryllium mg/L N/A < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015 < 0.00015	
Boron mg/L 5 1.3 1.22 1.29 1.11 1.06 1.14 1.12 0.086 1.02 0.895 0.848 0.801 0.781 0.773	
Cadmium	
Chromium	
Cobalt mg/L N/A < 0.005 < 0.005 < 0.001 0.008 0.008 < 0.005 < 0.0001 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.0002 < 0.0002 < 0.00002 < 0.00002 < 0.00002 <	
Copper mg/L 1 0.0002 0.0009 0.0003 0.0026 0.0006 0.0005 0.001 0.0003 0.0007 0.0003 0.0007 0.0003 Lead mg/L 0.01 <0.00002	
Lead mg/L 0.01 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 <td></td>	
Mercury mg/L 0.001 < 0.00002 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.00002 < 0.0001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 <	
Molybdenum mg/L N/A 0.0013 0.0015 0.0012 0.0014 0.0012 0.0014 0.0004 0.0014 0.0012 0.0014 0.0009 Nickel mg/L N/A < 0.01	
Nickel mg/L N/A < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001	
Selenium mg/L 0.01 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0	
Silver mg/L N/A < 0.00002 0.00006 < 0.00001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0	
Strontium mg/L N/A 0.742 0.72 0.697 0.75 0.775 0.814 0.789 0.4 0.779 0.825 0.798 0.766 0.767 0.819 Thallium mg/L N/A < 0.00005	
Thallium mg/L N/A < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.0000	
Tranadium Ting/E Ting/E 0.0000 0.0001 0.0000 50.0001	
Zinc mg/L 5 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005	

General Water Qu	anty		49-96-III	49-96-III	49-96-III	49-96-III	49-96-III	49-96-III	49-96-III	49-96-III	49-96-III	49-96-III	49-96-III	49-96-III	49-96-III	49-96-III	49-96-III
Parameters	Units	ODWQS	7-May-14	21-Oct-14	26-May-15	13-Oct-15	18-May-16	12-Oct-16	24-May-17	17-Oct-17	7-May-18	11-Oct-18	8-May-19	7-Oct-19	5-May-20	13-Oct-20	49-90-III 4-May-21
Alkalinity	mg/L	500	279	268	286	292	283	278	274	334	311	302	281	292	243	265	287
Unionized Ammonia	mg/L	N/A	210	200	200	202	200	270		001	011	002	201	202	210	200	201
Ammonia	mg/L	N/A	< 0.01	0.05	0.03	0.05	0.04	0.13	0.04	0.04	0.02	0.05	0.06	0.03	1.34	0.04	0.04
BOD	mg/L	N/A	0.0.	0.00	0.00	0.00	0.0.	0.10	0.0.	0.01	0.02	0.00	0.00	0.00		0.01	0.0.
Calcium	mg/L	N/A	148	162	154	151	144	158	128	154	144	167	142	159	69.7	147	130
COD	mg/L	N/A	5	< 5	7	18	43	< 5	11	5	< 5	203	6	18	22	6	12
Chloride	mg/L	250	141	168	135	143	115	131	66.8	93.7	86.7	110	88.8	113	167	100	82.9
Conductivity	umhos/cm	N/A	1020	1110	1030	1060	949	1040	826	929	871	987	884	960	1050	927	841
Cyanide	mg/L	0.2	1020	1110	1000	1000	0.10	10-10	020	020	071	007	001	000	1000	021	041
DOC	mg/L	5	2.8	2.5	0.8	0.9	1.2	1.1	2.3	2.2	2.3	2.8	2.7	2.7	1.4	1.6	2.5
Fluoride	mg/L	1.5	0.1	0.2	0.0	0.1	0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	421	463	443	439	407	466	365	434	408	479	404	464	357	429	373
Ion Balance	// // // // // // // // // // // // //	N/A	3.29	1.69	443	439	407	400	303	434	400	473	404	404	3.06	2.47	1.09
Iron	mg/L	0.3	< 0.005	< 0.005	< 0.005	0.009	< 0.005	0.065	< 0.005	< 0.005	< 0.005	0.211	0.02	< 0.005	0.431	< 0.005	< 0.005
Magnesium	mg/L	N/A	12.2	14.1	14	14.7	11.7	17.5	10.7	12	11.6	15	12	16.2	44.5	14.9	11.7
Manganese	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	< 0.001	< 0.001	< 0.001	0.012	0.001	< 0.001	0.009	< 0.001	< 0.001
Nitrate	mg/L	10	0.001	0.3	0.001	0.001	0.001	< 0.1	0.001	0.15	0.001	0.012	0.001	< 0.001	0.009	0.14	0.001
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.08	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.5	0.2	0.6	0.3	0.4	0.7	0.03	0.4	0.03	0.03	0.03	0.03	1.6	0.03	0.4
pH-Lab	pH unit	6.5-8.5	7.88	7.87	7.8	7.61	7.71	7.8	7.79	7.81	7.97	7.83	7.96	7.8	7.9	7.79	7.93
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	0.001	0.003	< 0.001	0.006	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus		N/A	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001	< 0.1	< 0.1	< 0.1	< 0.001	< 0.1	0.14	1.11	< 0.002	< 0.002	< 0.002
Potassium	mg/L mg/L	N/A	1	1.5	1	1.5	0.9	1.3	0.8	1.1	0.9	1.3	0.14	1.4	6.4	1.2	0.8
Sodium	_	200	29.1	33.4	33.9	32.7	35.9	37.6	33.6	37.6	35.1	35.3	35	37.4	79	28.2	37.3
Sulphate	mg/L mg/L	500	36	47	41	42	34	58	29	30	29	49	35	56	31	59	39
TDS	mg/L	500	537	588	552	561	513	570	434	529	494	559	482	558	545	509	474
TSS	mg/L	N/A	531	300	332	361	313	570	434	525	494	555	402	556	343	509	4/4
Turbidity	NTU	N/A					-		+			+				-	
Colour	TCU	5															
Aluminum	mg/L	0.1	0.04	0.04	0.04	0.04	0.04	0.1	0.04	0.08	0.07	0.11	0.08	0.09	0.04	0.07	0.07
Antimony		0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0003	0.002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.004	< 0.001	< 0.0001
Artimony	mg/L	0.006	< 0.0001	0.0001	0.0001	< 0.0001	< 0.0001	0.0003	0.0002	0.0003	< 0.0001	0.0001	0.0001	< 0.0001	0.0004	< 0.0001	0.0001
	mg/L	1	0.0001	0.0001	0.0002	0.0001	0.0001	0.0003	0.0005	0.0003	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001
Barium	mg/L	N/A	< 0.076	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.007	< 0.002	< 0.002	< 0.002	< 0.009	< 0.002	< 0.002	< 0.002	< 0.002
Beryllium	mg/L		0.126	0.191	0.172	0.196	0.002	0.002	0.002	0.111	0.069	0.002	0.002	0.306	0.335	0.267	0.066
Boron Cadmium	mg/L	5 0.005	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
	mg/L	0.005	0.0002	0.00002	0.00002	< 0.0002	< 0.0002	0.00002	< 0.00014	< 0.00014	< 0.00013	< 0.00013	< 0.00015	0.0001	< 0.00013	< 0.00015	< 0.00013
Chromium	mg/L		< 0.005	< 0.005	< 0.005			< 0.0019	< 0.001	< 0.001		< 0.001		< 0.001	0.0001		
Cobalt	mg/L	N/A				< 0.005	< 0.005 0.0008				< 0.0001		0.006			< 0.005	0.005
Copper	mg/L	1	0.001	0.001	0.0007 < 0.00002	0.0008	< 0.0008	0.0006 0.00014	0.0019	0.0008	0.0007	0.001 0.00033	0.0008	0.0006	0.0003	0.002 0.00005	0.0012
Lead	mg/L	0.01	< 0.00002	< 0.00002					0.00004	< 0.00002	< 0.00002		0.00006		0.00002		0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0005	0.0002	0.0004	0.0005	0.0007	0.0004	0.0007	0.0005	0.0005	0.0005	0.0004	0.0005	0.0002	0.0005	0.0005
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00004	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	. 0 00005	0.532	0.502	0.534	0.455	0.545	0.409	0.403	0.41	0.494	0.421	0.53	3.35	0.484	0.421
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0013	< 0.0001	0.002	0.0005	0.0006	0.0008	0.0012	0.0005	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qua			49-96-III	49-96-III	49-96-III	49-96-III	49-96-III	49-96-III (DUP)	53-98	53-98	53-98	53-98	53-98	53-98	53-98	53-98	53-98
Parameters	Units	ODWQS	13-Oct-21	3-May-22	25-Oct-22	2-May-23	18-Oct-23	3-May-22	8-May-14	29-Jul-14	23-Oct-14	26-May-15	13-Jul-15	13-Oct-15	17-May-16	13-Jul-16	12-Oct-16
Alkalinity	mg/L	500	306	295	295	296	330	284	474	435	433	452	442	433	439	422	397
Unionized Ammonia	mg/L	N/A							< 0.01	< 0.01	< 0.01				< 0.01	< 0.01	< 0.01
Ammonia	mg/L	N/A	< 0.01	< 0.01	0.01	2.93	0.17	0.21	0.47	0.14	0.25	0.16	0.19	0.09	0.17	0.18	0.19
BOD	mg/L	N/A							<3	5	<3	5		4	2	< 3	< 3
Calcium	mg/L	N/A	146	140	139	122	121	141	201	203	196	216	237	234	224	236	227
COD	mg/L	N/A	< 5	8	15	< 5	9	< 5	7	< 5	< 5	6	< 5	12	6	< 5	< 5
Chloride	mg/L	250	88.2	86.9	132	94.6	93	88.2	225	255	282	266	291	297	312	345	347
Conductivity	umhos/cm	N/A	877	911	938	889	954	891	1620	1640	1710	1730	1790	1790	1850	1900	1910
Cyanide	mg/L	0.2							< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
DOC	mg/L	5	1.8	1.8	0.3	1.9	3.7	1.8	3	2.7	3.3	8.0	0.7	0.7	0.9	0.7	1
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	0.2	0.2	0.2	0.1	< 0.1	0.2	0.1	0.2	0.2
Hardness	mg/L	500	413	398	398	353	348	401	653	650	634	694	760	766	722	755	730
Ion Balance	%	N/A	3.04	2.61	5.84	4	7.07	3.82	1.03	0.941	3.53						
Iron	mg/L	0.3	0.095	< 0.005	0.072	< 0.005	<0.005	< 0.005	0.591	0.64	1.57	0.862	0.807	0.702	1.29	1.12	0.687
Magnesium	mg/L	N/A	11.7	11.8	12.3	11.4	11	11.8	36.4	34.5	35.2	37.3	40.6	43.8	39.4	39.9	39.8
Manganese	mg/L	0.05	0.006	< 0.001	0.004	< 0.001	<0.001	< 0.001	0.073	0.081	0.087	0.091	0.088	0.066	0.105	0.093	0.085
Nitrate	mg/L	10	0.14	0.13	0.18	0.1	0.16	0.14	< 0.1	0.1	0.1	0.1	< 0.1	0.2	0.1	< 0.1	< 0.1
Nitrite	mg/L	1	0.08	< 0.05	< 0.05	< 0.05	<0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	0.4	0.3	0.3	3.3	0.4	0.4	0.6	0.3	0.4	0.3	0.4	0.5	0.5	8.0	0.4
pH-Lab	pH unit	6.5-8.5	7.91	7.85	7.68	7.9	7.53	7.81	7.28	7.59	7.69	7.59	7.53	7.4	7.68	7.44	7.83
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.047	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	1.2	0.9	1.2	1	1	0.9	2.4	2.4	2.6	2.5	2.8	3	2.6	2.6	2.6
Sodium	mg/L	200	41.3	37.4	37.5	39	39.9	36.9	64.9	72.5	74.9	83	92.5	96	94.7	103	101
Sulphate	mg/L	500	42	37	57	43	40	37	30	31	31	29	30	30	28	30	31
TDS	mg/L	500	514	491	556	490	508	486	846	861	884	907	960	965	966	1010	988
TSS	mg/L	N/A							14	31	76	40	16	36	50	14	44
Turbidity	NTU	N/A							12.2	15.1	58.4	63.3	11.8	31.2	52	22.6	18.6
Colour	TCU	5							2	7	6	4	3	3	14	14	2
Aluminum	mg/L	0.1	0.08	0.07	0.11	0.04	0.04	0.08	0.05	0.03	0.05	0.05	0.05	0.04	0.05	0.05	0.05
Antimony	mg/L	0.006	< 0.0001	< 0.0001	0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0004
Arsenic	mg/L	0.025	0.0001	< 0.0001	0.0001	< 0.0001	0.0001	< 0.0001	0.0004	0.0003	0.0003	0.0002	0.0003	0.0003	0.0003	0.0002	0.0004
Barium	mg/L	1	0.087	0.071	0.088	0.068	0.068	0.071	0.758	0.719	0.718	0.785	0.86	0.874	0.914	0.81	0.864
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.101	0.073	0.099	0.066	0.066	0.075	0.047	0.031	0.043	0.032	0.041	0.058	0.047	0.022	0.047
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000010	< 0.000010	<0.000015	< 0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.0002	0.0067	0.0051	0.0057	< 0.0002	0.0083	0.0031	< 0.0002	0.0011
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	<0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.001	0.0005	0.001	0.0005	0.0008	0.0005	0.0005	0.0007	0.0005	< 0.0001	< 0.0001	0.0009	0.0005	0.0004	0.0005
Lead	mg/L	0.01	0.00014	< 0.00002	0.00014	0.00024	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0004	0.0005	0.0004	0.0005	0.0004	0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	0.0004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	N/A	0.458	0.425	0.449	0.404	0.398	0.422		1.46	1.43	1.52	1.74	1.59	1.7	1.43	1.54
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	0.0002	< 0.0001	<0.0001	< 0.0001	0.0068	0.0093	0.0026	0.0032	0.006	0.0027	0.0011	0.0008	0.0005
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.035	< 0.005	< 0.005	< 0.005

General Water Qua	<u>-</u>		53-98	53-98	53-98	53-98	53-98	53-98	53-98	53-98	53-98	53-98	53-98	53-98	53-98	53-98	53-98
Parameters	Units	ODWQS	25-May-17	19-Jul-17	18-Oct-17	8-May-18	24-Jul-18	11-Oct-18	15-Jul-19	7-Oct-19	5-May-20	13-Jul-20	13-Oct-20	4-May-21	5-Jul-21	5-Jul-21	13-Oct-21
Alkalinity	mg/L	500	436	425	416	397	383	412	364	369	365	370	369	364	384	383	354
Unionized Ammonia	mg/L	N/A	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01			< 0.01
Ammonia	mg/L	N/A	0.18	0.17	0.19	0.18	0.12	0.12	0.21	0.17	0.18	0.19	0.17	0.18	0.2	0.21	0.17
BOD	mg/L	N/A	< 3	5	< 3	< 3	3	4	< 3	< 3	3	< 3	< 3	6	< 3	< 3	< 3
Calcium	mg/L	N/A	229	236	231	237	222	225	245	263	230	261	248	236	258	261	268
COD	mg/L	N/A	9	11	< 5	17	7	8	< 5	< 5	< 5	12	8	< 5	14	18	10
Chloride	mg/L	250	286	284	281	357	403	403	412	480	413	466	513	427	451	460	560
Conductivity	umhos/cm	N/A	1940	1990	1980	1820	1940	2010	1990	2020	1980	2120	2230	2030	2240	2240	2320
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
DOC	mg/L	5	1.4	1.3	2.1	1.9	1.4	2.5	2.2	2.1	1.5	4.8	1	2.2	1.9	2.4	1.4
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	728	744	741	761	706	719	770	826	738	825	796	748	819	828	843
Ion Balance	%	N/A									1.15	2.73	0.566	1.95	4	4.12	0.251
Iron	mg/L	0.3	1.22	0.895	1.3	0.991	1.69	0.601	1.25	1.44	0.947	1.42	0.591	1.1	1.59	1.62	1.3
Magnesium	mg/L	N/A	38	37.3	39.7	40.9	36.7	38	38.3	41.1	39.7	41.9	43	38.5	42.3	42.8	42.2
Manganese	mg/L	0.05	0.094	0.099	0.094	0.113	0.093	0.0837	0.103	0.108	0.097	0.104	0.094	0.113	0.109	0.111	0.113
Nitrate	mg/L	10	< 0.05	< 0.05	< 0.05	0.16	< 0.05	< 0.05	< 0.05	< 0.5	0.12	0.5	< 0.05	< 0.5	< 0.05	< 0.05	< 0.05
Nitrite	mg/L	1	< 0.05	0.07	< 0.05	< 0.05	< 0.05	0.17	< 0.05	< 0.5	< 0.05	0.07	< 0.05	< 0.5	< 0.05	< 0.05	0.53
Tot Kjel N	mg/L	N/A	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
pH-Lab	pH unit	6.5-8.5	7.55	7.54	7.75	7.65	7.62	7.81	7.4	7.73	7.72	7.54	7.67	7.82	7.56	7.59	7.47
Phenols	mg/L	N/A	0.003	0.005	< 0.001	< 0.001	0.011	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.02	0.07	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	2.5	2.7	3.3	3.1	3	2.8	3	3.4	3.2	3.2	3.6	3.1	3.3	3.5	3.5
Sodium	mg/L	200	106	115	115	121	124	117	116	137	117	132	142	127	143	146	148
Sulphate	mg/L	500	24	23	20	29	29	31	29	< 10	28	30	30	25	29	29	33
TDS	mg/L	500	949	955	941	1027	1049	1065	1064	1148	1051	1158	1202	1076	1159	1175	1268
TSS	mg/L	N/A	40	44	10	48	40	28	16	140	84	16	32	28	24	16	10
Turbidity	NTU	N/A	65.9	47.8	12.7	245	41.9	28.9	25.2	30.4	96.3	25.5	31.3	24.7	25.1	30.3	20.6
Colour	TCU	5	2	< 2	3	< 2	< 2	< 2	< 2	< 2	< 2	3	3	< 2	< 2	< 2	< 2
Aluminum	mg/L	0.1	0.06	0.06	0.1	0.1	0.09	0.09	0.1	0.13	0.11	0.11	0.09	0.11	0.13	0.12	0.09
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0016	0.0008	0.0015	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0003	< 0.0001	< 0.0003	< 0.0003	< 0.0001	< 0.0003	< 0.0003	< 0.0003
Barium	mg/L	1	0.856	0.857	0.961	0.874	0.832	0.873	0.919	1	0.895	1.06	1	0.876	1.06	1.07	1.09
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.042	0.043	0.046	0.059	0.043	0.044	0.048	0.051	0.054	0.053	0.055	0.053	0.054	0.055	0.053
Cadmium	mg/L	0.005	< 0.000014	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000029	< 0.000015	< 0.000029	< 0.000029	< 0.000015	< 0.000029	< 0.000029	< 0.000029
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.005	< 0.0001	0.0004	< 0.005	< 0.0001	< 0.005	0.007	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0021	0.0014	0.001	0.0014	0.0001	< 0.0001	0.0011	< 0.0002	< 0.0001	0.0005	0.0015	0.0012	0.0003	0.0004	0.0004
Lead	mg/L	0.01	0.00005	0.00008	< 0.00002	0.00005	< 0.00002	< 0.00002	0.00006	< 0.00009	< 0.00004	0.00015	< 0.00009	0.00006	0.00012	0.00013	< 0.00009
Mercury	mg/L	0.001	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0003	< 0.0001	< 0.0002	0.0001	< 0.0002	< 0.0002	0.0002	< 0.0002	< 0.0002	< 0.0002
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	0.003	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	0.003	0.002
Silver	mg/L	N/A	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	1.47	1.57	1.48	1.59	1.33	1.49	1.5	1.58	1.58	1.62	1.7	1.51	1.72	1.73	1.71
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.003	0.0025	0.0024	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0004	< 0.0001	< 0.0004	< 0.0004	< 0.0001	< 0.0004	< 0.0004	< 0.0004
Zinc	mg/L	5	< 0.005	< 0.005	0.016	< 0.005	0.005	< 0.005	0.011	< 0.005	< 0.005	0.007	< 0.005	< 0.005	< 0.005	0.008	< 0.005

General Water Qu	lanty		53-98	53-98	53-98	53-98	53-98	53-98	53-98 (DUP)	54-98	54-98	54-98	54-98	54-98	54-98	54-98	54-98
Parameters	Units	ODWQS	3-May-22	26-Jul-22	25-Oct-22	2-May-23	12-Jul-23	18-Oct-23	25-Oct-22	8-May-14	20-Oct-14	26-May-15	13-Oct-15	11-May-16	18-Oct-16	24-May-17	16-Oct-17
Alkalinity	mg/L	500	347	375	365	365	369	380	366	230	234	235	238	239	239	245	242
Unionized Ammonia	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	< 0.01	200	201	200	200	200	200	210	2-12
Ammonia	mg/L	N/A	0.39	0.25	0.22	1.41	0.21	0.32	0.28	0.02	0.06	0.05	0.04	0.05	0.04	0.06	0.04
BOD	mg/L	N/A	< 3	< 3	< 3	< 3	< 3	0.02	< 3	0.02	0.00	0.00	0.0.	0.00	0.0 .	0.00	0.01
Calcium	mg/L	N/A	254	275	294	258	286	297	292	136	112	131	119	105	121	122	125
COD	mg/L	N/A	12	10	20	7	17	17	7	< 5	< 5	< 5	< 5	< 5	< 5	5	< 5
Chloride	mg/L	250	450	518	537	497	742	834	629	33.4	33.5	32.4	33.3	32.7	33.2	26.8	32.4
Conductivity	umhos/cm	N/A	2160	2370	2520	2160	2670	2800	2550	785	724	715	719	711	729	733	715
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2000	< 0.005	700	72-1	7.10	7 10	7.11	720	700	7.10
DOC	mg/L	5	1.4	1.1	< 0.2	0.5	< 0.2	2.9	< 0.2	1.9	3	1.2	1.2	1	1.5	1.4	1.4
Fluoride	mg/L	1.5	< 0.5	< 0.5	< 1	< 0.1	< 1	<0.1	< 0.1	< 0.1	0.2	0.1	0.1	0.2	0.1	< 0.1	< 0.1
Hardness	mg/L	500	811	867	938	833	885	922	932	423	353	410	372	333	378	378	393
Ion Balance	%	N/A	3.71	2.35	6.85	1.01	8.72	11.2	8.97	7.7	1.51	710	012	555	370	370	333
Iron	mg/L	0.3	1.21	0.747	1.79	1.28	1.55	1.69	1.78	1.19	1.24	1.13	1.25	0.985	1.01	1.12	1.12
Magnesium	mg/L	N/A	43	43.7	49.4	45.8	41.4	43.6	49.2	20.1	17.6	19.9	17.9	17	18.2	17.9	19.7
Manganese	mg/L	0.05	0.112	0.13	0.128	0.118	0.138	0.141	0.128	0.03	0.028	0.033	0.028	0.024	0.028	0.027	0.028
Nitrate	mg/L	10	0.112	< 0.3	< 0.5	< 0.05	< 0.5	<0.05	< 0.05	0.03	< 0.1	< 0.1	< 0.1	0.024	< 0.1	< 0.05	< 0.05
Nitrite	mg/L	1	< 0.3	< 0.3	< 0.5	< 0.05	< 0.5	<0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.6	0.8	0.5	1.6	0.4	0.5	0.5	0.4	< 0.1	0.2	0.2	0.2	1.7	0.2	0.1
pH-Lab	pH unit	6.5-8.5	7.49	7.51	7.46	7.54	7.53	7.34	7.61	8.07	7.83	7.84	7.83	7.79	8.04	7.86	8.01
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	0.001	0.002
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	3.3	3.4	4	3.6	3.7	3.6	3.9	1.4	1.2	1.3	1.1	1	1	1	1.2
Sodium	mg/L	200	124	145	170	128	148	156	168	8.2	6.2	8.1	7.3	7.1	7.6	7.4	7.1
Sulphate	mg/L	500	25	28	25	30	32	35	30	100	97	97	96	96	94	7.4	7.1
TDS	mg/L	500	1109	1239	1301	1183	1476	1560	1664	439	410	432	419	404	419	398	410
TSS	mg/L	N/A	23	17	11	50	26	28	22	400	410	702	413	707	415	330	410
Turbidity	NTU	N/A	84.8	46.4	24.4	43.9	40.4	20.9	23.5								
Colour	TCU	5	< 2	< 2	2	< 2	< 2	<2	< 2								
Aluminum	mg/L	0.1	0.06	0.11	0.15	0.07	0.12	0.14	0.15	0.03	0.03	0.03	0.03	0.04	0.02	0.03	0.06
Antimony	mg/L	0.006	0.0003	< 0.0001	0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	<0.0001	< 0.0003	0.0003	0.0001	0.0001	0.0003	0.0002	0.0002	0.0003	0.0002
Barium	mg/L	1	1.05	1.05	1.32	1.08	1.21	1.23	1.31	0.159	0.121	0.148	0.138	0.131	0.115	0.131	0.152
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.062	0.052	< 0.002	0.063	0.056	0.044	< 0.002	0.022	0.019	0.002	0.013	0.018	< 0.002	0.016	0.002
Cadmium	mg/L	0.005	< 0.00029	< 0.00029	< 0.00029	< 0.000029	< 0.000029	<0.00015	< 0.00029	< 0.00002	< 0.00002	< 0.0000	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.000	< 0.000	< 0.001	<0.0001	< 0.001	< 0.0002	< 0.00002	< 0.0002	0.0034	< 0.0002	< 0.0002	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0005	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0005	0.0007	< 0.0002	0.0018	0.0003	0.0003	< 0.0002	< 0.0001	0.0004	< 0.0001	0.0002	< 0.0001	< 0.0001	0.0013	0.0001
Lead	mg/L	0.01	< 0.00009	< 0.00009	< 0.00002	0.0010	< 0.00009	<0.0004	< 0.00002	< 0.00001	< 0.00002	< 0.00001	< 0.0002	< 0.00001	< 0.00001	0.00004	< 0.00002
Mercury	mg/L	0.001	< 0.00003	< 0.00003	< 0.00003	< 0.0001	< 0.00003	<0.00004	< 0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00004	< 0.00002
Molybdenum	mg/L	N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.0002	0.0004	< 0.00002	0.0003	0.0004	0.0003	0.00002	0.0004	0.0003
Nickel	mg/L	N/A	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.002	<0.0001	< 0.0002	< 0.01	< 0.0001	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.00
Selenium	mg/L	0.01	0.003	0.002	< 0.01	< 0.001	0.002	<0.0002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.002	< 0.001	< 0.001	< 0.002	<0.001	< 0.001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	1.7	1.76	1.93	1.84	1.81	1.75	1.9	· 0.00002	0.402	0.452	0.407	0.418	0.341	0.412	0.377
Thallium		N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L mg/L	N/A	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	<0.00005	< 0.0004	0.0025	< 0.0001	0.0005	0.0003	0.0006	< 0.00005	0.0008	0.0005
Zinc	mg/L	5	< 0.005	0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	anty			1	T. 00	74.00		1 :	·					AA I			
Parameters	Units	ODWQS	54-98 7-May-18	54-98 11-Oct-18	54-98 10-May-19	54-98 7-Oct-19	55-98-I 7-May-14	55-98-I 29-Jul-14	55-98-I 21-Oct-14	55-98-I 26-May-15	55-98-I 13-Jul-15	55-98-I 13-Oct-15	55-98-I 17-May-16	55-98-I 13-Jul-16	55-98-I 12-Oct-16	55-98-I 24-May-17	55-98-I 19-Jul-17
Alkalinity	mg/L	500	247	214	233	239	254	232	240	2 6-IVIAY-15	241	237	235	240	229	24-May-17	238
Unionized Ammonia	mg/L	N/A	241	214	255	200	0.01	< 0.01	< 0.01	251	241	231	< 0.01	< 0.01	0.01	< 0.01	< 0.01
Ammonia	mg/L	N/A	0.05	0.05	0.08	0.04	0.33	0.23	0.23	0.15	0.22	0.18	0.12	0.18	0.01	0.19	0.18
BOD	mg/L	N/A	0.00	0.00	0.00	0.04	4	<3	<3	5	0.22	4	< 2	< 3	4	< 3	6
Calcium	mg/L	N/A	122	127	123	128	68.2	71.4	72.6	74.9	81.3	71.9	76.6	79	70.1	77.5	79.7
COD	mg/L	N/A	5	7	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	9	< 5	< 5	7	18
Chloride	mg/L	250	34.8	35.7	39.4	39.8	83.3	80.2	80.1	85.9	81.8	86.2	83.6	84.7	88.8	70.8	68.3
Conductivity	umhos/cm	N/A	698	733	717	721	756	734	755	769	779	774	773	768	770	798	768
Cyanide	mg/L	0.2					< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
DOC	mg/L	5	1.8	2.5	2.7	2.3	4.2	1.7	2.3	0.8	0.6	0.4	1	0.8	1	1.5	1.2
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.1
Hardness	mg/L	500	383	394	384	400	338	351	362	370	396	375	389	386	346	377	388
Ion Balance	%	N/A					5.61	1.29	0.544								
Iron	mg/L	0.3	1.05	1.33	1.1	1.35	0.058	0.477	0.667	0.497	0.657	0.73	0.425	0.736	0.489	0.695	0.571
Magnesium	mg/L	N/A	19	18.5	18.5	19.4	40.8	42	44.1	44.4	47	47.6	48	45.9	41.6	44.7	45.8
Manganese	mg/L	0.05	0.025	0.029	0.027	0.029	0.012	0.003	0.014	0.014	0.014	0.013	0.011	0.014	0.013	0.015	0.016
Nitrate	mg/L	10	< 0.05	< 0.05	0.19	< 0.05	0.2	< 0.1	< 0.1	0.1	< 0.1	0.1	0.1	0.2	< 0.1	0.1	0.06
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.3	< 0.1	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.2	0.1	0.2	0.2	0.9	0.2	0.1	0.3	0.5	0.3	0.2	0.4	0.6	< 0.1	0.3
pH-Lab	pH unit	6.5-8.5	7.93	7.88	7.99	7.91	7.75	7.9	8	8.08	8.01	7.76	8.05	7.85	8.13	8	8.01
Phenols	mg/L	N/A	< 0.001	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.01	0.003	0.002	0.003
Phosphorus	mg/L	N/A	< 0.1	< 0.1	0.06	0.04	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	1.4	1.2	1.3	1.3	2.9	2.5	2.7	2.6	3.1	3	2.7	2.8	2.5	2.6	2.8
Sodium	mg/L	200	7.7	7.3	7.5	7.6	12.4	8.7	9.2	11	11.7	10.4	11.6	11.3	12.7	10.7	11
Sulphate	mg/L	500	88	90	95	90	40	37	38	42	37	40	41	38	39	33	31
TDS	mg/L	500	422	409	426	431	401	382	391	404	407	404	406	409	393	388	383
TSS	mg/L	N/A					80	119	90	360	70	380	58	168	230	310	37
Turbidity	NTU	N/A					73.6	53.4	64.1	418	43.3	197	30.4	122	96	69	30.3
Colour	TCU	5					29	3	5	4	5	< 2	< 2	3	6	< 2	< 2
Aluminum	mg/L	0.1	0.07	0.05	0.07	0.08	0.02	< 0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.04
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0001	0.0001	0.0002	0.0001	0.0003	0.0002	0.0001	0.0002	0.0001	0.0002	< 0.0001	0.0002	0.0003	0.0007	0.0002
Barium	mg/L	1	0.146	0.14	0.14	0.147	0.231	0.248	0.237	0.236	0.275	0.248	0.241	0.282	0.226	0.251	0.272
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.02	0.018	0.014	0.023	0.093	0.066	0.085	0.073	0.092	0.098	0.066	0.098	0.085	0.086	0.095
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.000014	< 0.000014
Chromium	mg/L	0.05	0.006	< 0.001	< 0.001	0.001	0.0023	0.0037	< 0.0002	0.0031	< 0.0002	0.0029	< 0.0002	0.0011	0.0005	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.0001	0.008	0.006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0002	0.0003	0.0004 < 0.00002	< 0.0001 0.00017	0.0008 0.00004	0.0008	0.0005	< 0.0001	< 0.0001 < 0.00002	0.0003	0.0001	< 0.0001	0.0001	0.001	0.0009
Lead	mg/L	0.01	< 0.00002						< 0.00002	< 0.00002		< 0.00002		< 0.00002	< 0.00002	0.00007	0.00006
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum Nickel	mg/L	N/A N/A	0.0004 < 0.01	0.0003	0.0003 < 0.01	0.0003 < 0.01	0.0004 < 0.01	0.0002 < 0.01	< 0.0001 < 0.01	0.0002 < 0.01	< 0.0001 < 0.01	0.0003 < 0.01	0.0004 < 0.01	0.0002 < 0.01	0.0002 < 0.01	0.0003 < 0.01	0.0002 < 0.01
	mg/L	,	< 0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01		< 0.001	< 0.01
Selenium Silver	mg/L	0.01 N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.001	< 0.0001	< 0.0001
	mg/L	,	0.422	0.396	0.439	0.438	< 0.00002	1.31	1.29	1.33	1.5	1.35	1.29		< 0.00002	1.32	
Strontium Thallium	mg/L	N/A N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	1.46	1.27	< 0.00005	1.44
	mg/L	,	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00005	0.00005	< 0.00005	0.00005	0.0006	0.00005	0.0003	0.0005	< 0.00005	0.0005	0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0015	< 0.0034	< 0.0001	< 0.0016	< 0.0026	< 0.0011	< 0.005	< 0.005	0.0003	< 0.005	< 0.0012
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General water Qua			55-98-I	55-98-I	55-98-I	55-98-I	55-98-I	55-98-I	55-98-I								
Parameters	Units	ODWQS	17-Oct-17	7-May-18	24-Jul-18	11-Oct-18	8-May-19	15-Jul-19	7-Oct-19	5-May-20	13-Jul-20	13-Oct-20	4-May-21	5-Jul-21	13-Oct-21	3-May-22	26-Jul-22
Alkalinity	mg/L	500	240	238	228	235	222	226	223	230	233	268	234	263	254	231	255
Unionized Ammonia	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		0.02	< 0.01	< 0.01
Ammonia	mg/L	N/A	0.34	0.21	0.16	0.19	0.2	0.19	0.15	0.18	0.17	1.47	0.21	1.53	1.06	0.85	1.22
BOD	mg/L	N/A	< 3	< 3	< 2	3	< 3	< 3	< 3	< 3	< 3	4	< 3	9	3	4	< 3
Calcium	mg/L	N/A	79.1	84.9	73.6	75.7	80.7	82.2	86.1	78.4	82.6	62.2	74.5	72.7	77	72.9	71.6
COD	mg/L	N/A	< 5	11	6	< 5	10	< 5	< 5	13	9	< 5	< 5	25	12	< 5	7
Chloride	mg/L	250	77.8	91.1	86.9	88.9	93.5	90	105	95	93.7	146	94.4	184	154	109	120
Conductivity	umhos/cm	N/A	779	756	771	792	777	779	788	794	781	990	810	1120	979	860	893
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
DOC	mg/L	5	1.3	1.7	1.4	1.7	2	3.7	1.6	1.6	37.1	0.8	1.9	1.3	1.3	1.1	0.7
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1	0.4	0.3	< 0.1	0.2
Hardness	mg/L	500	397	415	373	379	399	391	416	389	401	321	377	362	363	363	355
Ion Balance	%	N/A								1.76	3.25	4.34	0.306	1.82	0.189	2.45	2.74
Iron	mg/L	0.3	0.582	0.573	0.659	0.748	0.487	0.664	0.709	0.654	0.816	0.105	0.712	0.128	0.273	0.81	0.234
Magnesium	mg/L	N/A	48.5	49.4	46.1	46.1	47.9	45.2	48.9	47	47.4	40.2	46.3	43.9	41.6	43.9	42.8
Manganese	mg/L	0.05	0.014	0.016	0.013	0.0132	0.016	0.015	0.014	0.015	0.015	0.01	0.014	0.013	0.015	0.012	0.012
Nitrate	mg/L	10	< 0.05	0.08	0.09	< 0.05	< 0.05	< 0.05	< 0.05	0.09	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.08	< 0.05	0.1	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.5	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	1.6	0.3	1.7	1.4	1.1	1.6
pH-Lab	pH unit	6.5-8.5	7.93	7.96	7.94	7.95	7.85	7.77	8.05	7.99	7.83	8	7.94	7.97	7.83	7.84	7.86
Phenols	mg/L	N/A	0.003	< 0.001	0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	0.02	0.02	0.04	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	3.2	3.3	3	2.9	3	3.2	3.3	3	3	7.7	2.9	6.3	5.9	4.7	6
Sodium	mg/L	200	15.5	13.3	11.3	11.4	10.8	13.9	13	10.7	11.2	96.5	10.6	74.2	63.3	34.6	54.6
Sulphate	mg/L	500	32	41	37	39	38	36	42	38	39	20	39	32	41	42	34
TDS	mg/L	500	401	426	396	406	408	407	432	411	417	534	409	574	537	447	484
TSS	mg/L	N/A	72	400	45	70	14	18	44	37	42	32	9	116	25	33	135
Turbidity	NTU	N/A	27.5	412	66	22	21.7	23.8	34.8	25	37.1	21	13.5	43.6	9.3	9.6	143
Colour	TCU	5	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Aluminum	mg/L	0.1	0.05	0.05	0.04	0.05	0.05	0.05	0.06	0.05	0.06	0.02	0.05	0.06	0.04	0.02	0.05
Antimony	mg/L	0.006	0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0003	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0004	0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Barium	mg/L	1	0.273	0.278	0.256	0.262	0.249	0.257	0.267	0.247	0.276	0.199	0.235	0.284	0.184	0.159	0.177
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.104	0.1	0.088	0.084	0.09	0.094	0.11	0.087	0.101	0.384	0.084	0.329	0.343	0.137	0.198
Cadmium	mg/L	0.005	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	0.0001	< 0.005	< 0.0001	< 0.005	0.0002	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0002	< 0.0001	0.0001	0.0004	0.0004	0.0018	< 0.0001	< 0.0001	0.0002	0.0017	0.0015	0.0003	0.0005	0.0004	0.0004
Lead	mg/L	0.01	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	0.00009	< 0.00002	< 0.00002	0.00004	0.00004	0.00005	0.00005	< 0.00002	< 0.00002	0.00003
Mercury	mg/L	0.001	< 0.00002 0.0002	< 0.00002 0.0003	< 0.00002 0.0002	< 0.00002 0.0003	< 0.00002 0.0002	< 0.00002 0.0002	< 0.00002 0.0009	< 0.00002 0.0002	< 0.00002 0.0002	< 0.00002	< 0.00002 0.0002	< 0.00002 0.0002	< 0.00002 0.0002	< 0.00002	< 0.00002 0.0001
Molybdenum Nickel	mg/L	N/A N/A	< 0.002	< 0.00	< 0.002	< 0.01	< 0.01	< 0.002	< 0.00	< 0.01	< 0.002	0.0001 < 0.01	< 0.002	< 0.002	< 0.01	0.0002 < 0.01	< 0.001
Selenium	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.001	< 0.01	< 0.01	< 0.001	< 0.01	0.001	< 0.01	0.002	0.001	< 0.01	0.001
Silver	mg/L	0.01 N/A	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001
Strontium	mg/L	N/A N/A	1.26	1.48	1.3	1.4	1.38	1.41	1.46	1.42	1.41	2.61	1.38	3.02	2.3	1.98	2.24
Thallium	mg/L mg/L	N/A N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00007	< 0.00005	< 0.00005	< 0.00005
Vanadium		N/A N/A	0.0003	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.0001	< 0.00005	< 0.00005	< 0.00005
Zinc	mg/L mg/L	N/A 5	< 0.005	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
ZIIIC	IIIg/L	3	< 0.005	\ 0.005	< 0.005	< U.UUD	< 0.005	0.01	< U.UU5	< U.UU5	< U.UU5	< U.UUD	< U.UU5	< U.UU5	< 0.005	< U.UU5	< 0.005

General Water Qua	anty		55-98-I	55-98-I	55-98-I	55-98-II	55-98-II	55-98-II									
Parameters	Units	ODWQS	2-May-23	12-Jul-23	18-Oct-23	7-May-14	29-Jul-14	21-Oct-14	26-May-15	13-Jul-15	13-Oct-15	17-May-16	13-Jul-16	12-Oct-16	24-May-17	19-Jul-17	17-Oct-17
Alkalinity	mg/L	500	242	247	263	300	271	281	299	280	289	267	274	290	283	282	251
Unionized Ammonia	mg/L	N/A	0.01	< 0.01	0.11	0.09	0.04	6				0.01	1.49	0.08	0.04	0.15	< 0.01
Ammonia	mg/L	N/A	1.34	0.82	1.37	3.95	4.76	4.45	3.59	4.76	4.03	2.67	3.43	4.22	2.29	3.27	1.14
BOD	mg/L	N/A	< 3	5		14	5	6	< 2		7	5	< 3	4	12	4	15
Calcium	mg/L	N/A	73.9	71.4	62.9	71.6	97.5	108	71.3	123	85.9	76.7	95.8	79.9	61.4	71.7	71.8
COD	mg/L	N/A	10	16	25	< 5	8	< 5	< 5	24	7	12	< 5	< 5	< 5	17	6
Chloride	mg/L	250	171	121	157	743	812	733	606	853	723	457	778	618	288	549	278
Conductivity	umhos/cm	N/A	1020	875	952	2720	2810	2880	2420	3070	2710	1970	2580	2570	1650	2680	1280
Cyanide	mg/L	0.2	< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
DOC	mg/L	5	0.9	< 0.2	1.7	1.7	1.2	1.8	0.5	< 0.2	< 0.2	0.3	< 0.2	0.6	1	0.2	1.5
Fluoride	mg/L	1.5	0.4	< 0.1	<0.1	1.6	1.6	1.7	1.5	1.7	1.6	1.1	1.8	1.9	1.1	1.7	1.3
Hardness	mg/L	500	369	339	317	421	587	670	428	733	535	447	540	479	322	410	410
Ion Balance	%	N/A	7.54	2.7	8.72	11.1	7.15	1.6									
Iron	mg/L	0.3	0.317	0.269	0.148	0.022	0.026	0.036	0.373	0.065	0.164	0.117	0.262	0.014	0.175	0.117	0.046
Magnesium	mg/L	N/A	44.8	39	38.8	58.9	83.5	97	60.7	103	77.9	62.1	73.1	68	41	56.2	56
Manganese	mg/L	0.05	0.014	0.012	0.012	0.005	< 0.001	0.008	0.007	0.005	0.007	0.008	0.011	0.006	0.01	0.009	0.004
Nitrate	mg/L	10	< 0.05	0.06	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.5	< 0.05
Nitrite	mg/L	1	< 0.05	< 0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.5	< 0.05
Tot Kjel N	mg/L	N/A	1.7	1.1	1.7	5.3	3.5	5.1	3.9	5	4.4	3	3.5	4.2	2.5	3.7	1.4
pH-Lab	pH unit	6.5-8.5	7.91	7.94	7.55	7.6	7.85	7.92	8.02	7.87	7.73	8.12	7.72	8.18	8.04	7.86	7.9
Phenols	mg/L	N/A	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.104	0.014	0.002	0.005	0.003
Phosphorus	mg/L	N/A	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	4.5	5.3	5.6	12.6	15.1	15.7	13	17.9	15	10.3	12.4	14.1	7.4	11.5	10.4
Sodium	mg/L	200	33.3	40.4	51.4	295	292	308	300	383	288	213	256	308	162	251	157
Sulphate	mg/L	500	36	42	36	12	13	12	9	11	12	24	13	10	17	15	21
TDS	mg/L	500	509	468	506	1380	1480	1450	1250	1660	1380	1010	1390	1280	752	1130	748
TSS	mg/L	N/A	178	64	11	23	34	7	18	24	26	64	210	23	16	24	12
Turbidity	NTU	N/A	45.9	48.1	7.6	5.4	14.6	1	5.5	8.8	13.4	23.7	23.7	4.7	7.2	3.7	2.2
Colour	TCU	5	< 2	< 2	<2	4	8	3	< 2	4	< 2	9	< 2	3	< 2	< 2	3
Aluminum	mg/L	0.1	0.02	0.04	0.04	0.02	0.01	0.03	0.02	0.03	0.02	0.02	0.03	0.03	0.02	0.03	0.05
Antimony	mg/L	0.006	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0003	< 0.0001	0.0005	0.0002	0.0002	0.0002	0.0001
Arsenic	mg/L	0.025	< 0.0001	< 0.0001	<0.0001	0.0109	0.013	0.014	< 0.0001	0.0106	0.0002	< 0.0005	0.0003	0.0002	0.0009	0.0029	0.0004
Barium	mg/L	1	0.127	0.148	0.17	1.39	2.17	2.28	1.55	2.73	1.81	1.18	1.7	1.58	0.609	1.29	0.28
Beryllium	mg/L	N/A	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.123	0.168	0.193	0.967	1.06	1.07	0.939	1.13	1.16	0.696	0.949	1.02	0.533	0.834	0.102
Cadmium	mg/L	0.005	< 0.000012	0.000073	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000014
Chromium	mg/L	0.05	< 0.001	< 0.001	<0.001	0.0014	0.0063	0.0005	0.0047	< 0.0002	0.0036	< 0.0002	0.0021	0.0009	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0001	0.0002	0.0006	0.0023	0.0024	0.0016	0.0006	0.0017	0.002	0.0007	0.0014	0.0012	0.0023	0.0014	0.0001
Lead	mg/L	0.01	< 0.00004	0.00008	<0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00005	0.00005	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0001	0.0002	<0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0002	0.0003	< 0.0001	0.0002	< 0.0001	0.0002
Nickel	mg/L	N/A	< 0.01	< 0.01	0.0005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	<0.001	< 0.001	0.031	< 0.001	< 0.001	< 0.001	< 0.001	0.019	0.009	0.022	0.004	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	N/A	1.94	1.91	2.09		14.8	15.9	10.1	18.6	11.7	8.11	11.1	10.8	4.48	8.74	1.26
L	mg/L	N/A	< 0.00005	0.00009	<0.00005	0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Thallium	IIIg/L	, ,															
Vanadium	mg/L	N/A	< 0.0001	0.0001	<0.0001	0.0012	0.0051	< 0.0001	0.0022	0.0034	0.0013	0.0002	0.0007	0.0003	0.0009	0.0015	0.0002

General Water Qu	lality																
B	1116.	0011100	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II
Parameters	Units	ODWQS	7-May-18 249	24-Jul-18 258	11-Oct-18 272	8-May-19 246	5-Jun-19	15-Jul-19 249	7-Oct-19 254	5-May-20	13-Jul-20	13-Oct-20 227	4-May-21	5-Jul-21	13-Oct-21 226	3-May-22	26-Jul-22 243
Alkalinity Unionized Ammonia	mg/L mg/L	500 N/A	0.02	0.04	0.02	240	< 0.01	0.03	0.06	264 < 0.01	Dry	< 0.01	244 0.01	242	< 0.01	233 < 0.01	< 0.01
Ammonia	mg/L	N/A	0.02	1.85	2.28	1	1.19	1.08	1.24	0.03		0.26	1.14	0.17	0.01	0.3	0.19
BOD	mg/L	N/A	5	6	8		4	< 3	3	< 3		< 3	5	< 3	< 3	< 3	< 3
Calcium	mg/L	N/A	63.6	64.9	50	87.1	4	64.3	76.9	118		79.7	60.2	77.6	84.7	84.5	80.8
COD	mg/L	N/A	10	7	< 5	7		18	< 5	< 5		< 5	< 5	11	< 5	< 5	< 5
Chloride	mg/L	250	199	474	325	101		264	180	109		95.4	168	102	113	101	94.9
Conductivity	umhos/cm	N/A	1090	1980	1610	884		1340	1040	935		782	1060	796	822	835	785
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	004	< 0.005	< 0.005	< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
DOC	mg/L	5	1.6	1	1.5	1.9	1 0.000	1.3	1.6	1.9		1.1	1.7	1.5	0.9	1.1	0.9
Fluoride	mg/L	1.5	0.3	1	0.9	< 0.1	< 0.1	0.5	< 0.1	< 0.1		< 0.1	0.2	0.2	< 0.1	< 0.1	0.1
Hardness	mg/L	500	316	394	284	384	- 0.1	358	372	440		408	317	385	408	405	398
Ion Balance	%	N/A	0.0		20.			000	0.2	3.06		4.31	5.64	1.31	0.957	1.95	1.61
Iron	mg/L	0.3	0.131	0.056	0.056	0.684		< 0.005	0.185	0.057		0.745	0.057	0.835	0.903	0.887	0.758
Magnesium	mg/L	N/A	38.1	56.5	38.7	40.5		48	43.8	35.4		50.7	40.5	46.4	47.7	47.2	47.8
Manganese	mg/L	0.05	0.013	0.004	0.0098	0.026		0.005	0.013	0.012		0.013	0.013	0.014	0.016	0.015	0.014
Nitrate	mg/L	10	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05	< 0.05	0.09		< 0.05	< 0.05	0.06	< 0.05	0.07	< 0.05
Nitrite	mg/L	1	< 0.05	< 0.05	0.05	< 0.05		< 0.05	< 0.05	< 0.05		< 0.05	0.09	< 0.05	0.07	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.9	2.2	2.6	1		1.2	1.3	0.2		0.3	1.4	0.3	0.3	0.4	0.4
pH-Lab	pH unit	6.5-8.5	7.98	7.92	8.01	8.03		7.76	7.99	7.97		7.94	8.05	7.91	7.79	7.73	7.89
Phenols	mg/L	N/A	< 0.001	0.023	< 0.002	< 0.002		< 0.002	< 0.002	< 0.002		< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	0.08		0.11	0.05	< 0.1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	4.5	13.3	9.7	4.4		8.3	7.2	2.7		3.3	5.5	3	3.1	3	3
Sodium	mg/L	200	66.6	243	180	40.7		115	74.3	34.6		11.7	60.6	11	11.5	11.1	11.3
Sulphate	mg/L	500	34	13	18	51		30	22	68		40	31	39	45	43	37
TDS	mg/L	500	557	1023	788	475		681	559	526		418	515	425	441	430	422
TSS	mg/L	N/A	7	7	7		1920	255	90	260		12	58	7	19	90	10
Turbidity	NTU	N/A	1.9	1.4	5.3		1730	38.9	31	247		18.3	8.4	9.9	12.9	47.6	15.2
Colour	TCU	5	< 2	< 2	< 2		< 2	4	< 2	< 2		< 2	< 2	< 2	< 2	< 2	< 2
Aluminum	mg/L	0.1	0.04	0.05	0.02	0.05		0.05	0.06	0.07		0.03	0.04	0.05	0.04	0.02	0.06
Antimony	mg/L	0.006	0.0003	0.0004	0.0001	< 0.0001		< 0.0001	0.0004	< 0.0001		< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0001	0.0003	0.0002	0.0001		< 0.0001	< 0.0001	0.0002		< 0.0001	< 0.0001	0.0001	< 0.0001	0.0001	0.0001
Barium	mg/L	1	0.203	1.17	0.643	0.098		0.507	0.231	0.128		0.26	0.17	0.261	0.276	0.275	0.247
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002		< 0.002	< 0.002	< 0.002		< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.237	0.762	0.552	0.363		0.639	0.35	1.05		0.095	0.187	0.094	0.099	0.1	0.083
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000015		< 0.000015	< 0.000015	< 0.000015		< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	0.002	< 0.001		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.0001	< 0.005	< 0.0001	< 0.005		0.0006	< 0.005	< 0.0001		0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	< 0.0001	0.0002	0.0011	0.0004		0.0006	< 0.0001	0.0004		0.0045	0.0003	0.0002	< 0.0001	0.0005	0.0019
Lead	mg/L	0.01	< 0.00002	0.00003	< 0.00002	0.00003		0.00005	0.00012	0.00002		0.00004	< 0.00002	0.00003	< 0.00002	0.00003	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002		< 0.00002	< 0.00002	< 0.00002		< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0003	0.0003	0.0002	0.0004		0.0002	0.0001	0.0012		0.0002	0.0002	0.0002	0.0002	0.0003	0.0003
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	0.013	0.005	< 0.001		0.001	0.001	< 0.001		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001		< 0.0001	< 0.0001	< 0.0001		< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	1.8	8.5	5.16	1.85		5.39	2.71	0.833		1.55	2.47	1.42	1.48	1.39	1.45
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005		< 0.00005	< 0.00005	< 0.00005		< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001		< 0.0001	< 0.0001	< 0.0001		< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	l	< 0.005	< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	lancy		55-98-II	55-98-II	55-98-II	55-98-II	55-98-II (DUP)	56-02-I	56-02-I	56-02-I	56-02-I						
Parameters	Units	ODWQS	25-Oct-22	2-May-23	12-Jul-23	18-Oct-23	2-May-23	8-May-14	20-Oct-14	26-May-15	13-Oct-15	11-May-16	18-Oct-16	24-May-17	16-Oct-17	7-May-18	11-Oct-18
Alkalinity	mg/L	500	232	235	242	258	232	265	211	267	233	260	206	234	226	257	216
Unionized Ammonia	mg/L	N/A	< 0.01	0.02	< 0.01	<0.01	0.01									-	
Ammonia	mg/L	N/A	0.15	1.74	0.23	0.49	1.16	0.56	0.38	0.37	0.32	0.38	0.38	0.37	0.37	0.4	0.43
BOD	mg/L	N/A	< 3	< 3	< 3		< 3						0.00				
Calcium	mg/L	N/A	83.7	82.7	85.2	76.4	82.8	109	74.8	99.1	83.3	85.1	83.3	89.8	86.6	94.9	86.8
COD	mg/L	N/A	7	< 5	11	14	< 5	18	< 5	< 5	11	< 5	25	< 5	5	< 5	66
Chloride	mg/L	250	101	110	114	124	112	98.6	117	108	98	112	137	94.9	97	110	125
Conductivity	umhos/cm	N/A	825	834	845	837	829	935	783	917	780	888	836	814	785	855	822
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005		< 0.005										
DOC	mg/L	5	< 0.2	0.6	< 0.2	2.2	0.9	2.3	2.2	0.9	0.7	0.9	0.8	1.1	1.1	1.9	1.5
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	0.3	0.3	0.2	0.2	0.2	0.2	0.3	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	420	408	393	372	406	476	339	432	366	387	374	400	395	432	383
Ion Balance	%	N/A	4.36	0.536	2.69	8.95	0.204	7.37	1.84								
Iron	mg/L	0.3	0.861	0.801	0.911	0.775	0.83	0.655	0.505	0.491	0.606	0.551	0.47	0.509	0.506	0.557	0.573
Magnesium	mg/L	N/A	51.3	49	43.8	44	48.5	49.2	36.9	44.9	38.4	42.4	40.4	42.6	43.4	47.3	40.5
Manganese	mg/L	0.05	0.016	0.019	0.016	0.014	0.016	0.016	0.012	0.016	0.013	0.013	0.013	0.013	0.013	0.014	0.014
Nitrate	mg/L	10	< 0.05	< 0.05	0.07	<0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	<0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.3	1.6	0.3	0.6	1.3	0.7	0.4	0.5	0.5	0.5	0.5	0.4	0.5	0.6	1.1
pH-Lab	pH unit	6.5-8.5	7.9	7.91	7.89	7.53	7.95	8.05	7.92	7.82	7.89	7.78	8.13	7.92	8.03	7.93	7.92
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.003	< 0.001	< 0.002
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	3.3	3.3	3.2	2.9	3.3	4.5	3.4	3.7	3.5	3.4	3.5	3.6	3.9	4.7	3.7
Sodium	mg/L	200	12	11.2	11.5	10.1	11.1	19.3	12.9	17.5	15.3	16.1	16.1	16.6	15.1	18.2	15.5
Sulphate	mg/L	500	39	43	44	45	43	48	10	48	25	44	8	24	20	40	14
TDS	mg/L	500	431	440	448	441	441	490	383	482	404	460	413	413	402	470	417
TSS	mg/L	N/A	11	4	41	10	5										
Turbidity	NTU	N/A	20.5	10.9	32	5.1	10.3										
Colour	TCU	5	< 2	< 2	< 2	<2	< 2										
Aluminum	mg/L	0.1	0.07	0.03	0.06	0.06	0.03	0.03	0.02	0.03	0.02	0.02	0.05	0.03	0.05	0.05	0.19
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	< 0.0001	0.0001	< 0.0001	<0.0001	0.0001	0.0002	0.0002	0.0001	0.0002	0.0001	0.0001	0.0004	0.0003	< 0.0001	< 0.0001
Barium	mg/L	1	0.289	0.261	0.288	0.248	0.262	0.179	0.125	0.165	0.136	0.136	0.148	0.187	0.19	0.195	0.162
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.016	0.094	0.087	0.083	0.094	0.103	0.089	0.071	0.083	0.053	0.094	0.094	0.102	0.097	0.09
Cadmium	mg/L	0.005	< 0.000010	< 0.000010	< 0.000010	<0.000015	< 0.000010	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015	< 0.000015
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.0002	0.0002	0.0022	0.0034	< 0.0002	< 0.0002	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	0.0002	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0013	< 0.005
Copper	mg/L	1	0.0003	< 0.0001	0.0002	0.0003	0.0002	0.0002	0.0006	< 0.0001	0.0003	< 0.0001	< 0.0001	0.0009	0.0004	0.0002	0.0006
Lead	mg/L	0.01	< 0.00002	< 0.00002	0.00003	<0.00002	< 0.00002	< 0.00002	0.00004	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	0.00003	0.00004
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0002	0.0002	0.0002	0.0002	0.0002	< 0.0001	< 0.0001	0.0001	< 0.0001	0.0003	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	0.0007	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001
Strontium	mg/L	N/A	1.54	1.48	1.45	1.36	1.45		1.34	1.69	1.44	1.39	1.48	1.62	1.4	1.73	1.46
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	0.0024	< 0.0001	0.0013	0.0013	< 0.0001	0.0005	0.0017	0.0003	< 0.0001	< 0.0001
	mg/L	5	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qua	<u>-</u>		56-02-I	56-02-I	56-02-I	56-02-I	56-02-I	56-02-I	56-02-l	56-02-I	56-02-I	56-02-I	56-02-l	56-02-I	56-02-I	56-02-I	56-02-I (DUP)
Parameters	Units	ODWQS	10-May-19	8-Oct-19	5-May-20	13-Jul-20	13-Oct-20	4-May-21	5-Jul-21	13-Oct-21	3-May-22	26-Jul-22	25-Oct-22	2-May-23	12-Jul-23	18-Oct-23	12-Jul-23
Alkalinity	mg/L	500	232	204	229	258	210	236	254	215	245	259	227	250	255	240	253
Unionized Ammonia	mg/L	N/A			< 0.01	0.01	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	0.02	< 0.01	<0.01	< 0.01
Ammonia	mg/L	N/A	0.44	0.4	0.38	0.35	0.4	0.38	0.37	0.38	0.61	0.47	0.36	2.11	0.41	0.55	0.39
BOD	mg/L	N/A			< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3		< 3
Calcium	mg/L	N/A	97.1	87.8	90.2	91.7	85.2	86.4	85.7	85.5	100	98.9	97.1	107	100	87.7	99.8
COD	mg/L	N/A	8	< 5	< 5	8	5	5	9	< 5	< 5	< 5	6	< 5	14	13	11
Chloride	mg/L	250	129	135	118	108	128	121	125	135	126	122	134	161	147	158	146
Conductivity	umhos/cm	N/A	882	815	856	835	823	878	878	825	944	900	904	995	950	881	949
Cyanide	mg/L	0.2			< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		< 0.005
DOC	mg/L	5	2.4	1.6	1.5	10.4	0.9	1.6	1.3	0.9	1.1	0.9	< 0.2	0.5	0.8	2.2	< 0.2
Fluoride	mg/L	1.5	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	<0.1	< 0.1
Hardness	mg/L	500	430	396	408	407	396	398	392	387	443	441	442	475	424	383	423
Ion Balance	%	N/A			2.71	0.651	3.86	0.0892	3.37	0.0178	2.47	1.77	4.71	0.51	3.67	7.21	3.21
Iron	mg/L	0.3	0.564	0.578	0.509	0.64	0.547	0.56	0.608	0.558	0.698	0.702	0.665	0.766	0.728	0.675	0.69
Magnesium	mg/L	N/A	45.6	42.9	44.3	43.3	44.5	44.3	43.3	42.2	46.9	47.2	48.4	50.7	42.3	39.9	42.3
Manganese	mg/L	0.05	0.013	0.013	0.013	0.013	0.012	0.013	0.013	0.013	0.014	0.016	0.015	0.017	0.015	0.017	0.016
Nitrate	mg/L	10	0.21	< 0.05	0.08	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.1	0.1	0.07
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.09	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.6	0.6	0.6	0.5	0.5	0.6	0.5	0.5	0.7	0.7	0.5	2.3	0.6	0.7	0.6
pH-Lab	pH unit	6.5-8.5	8.03	7.95	7.99	7.86	7.89	8.06	7.87	7.74	7.59	7.82	7.86	7.89	7.84	7.48	7.85
Phenols	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001
Phosphorus	mg/L	N/A	0.23	0.21	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1
Potassium	mg/L	N/A	4.1	4.1	4.1	3.8	4.2	3.9	3.9	3.9	4.1	4.1	4.4	4.5	4.3	3.8	4.3
Sodium	mg/L	200	17.5	16.1	16.3	15.7	16.5	16.1	16.6	15.6	17.3	18.3	17.5	19.4	18.2	14.5	18.2
Sulphate	mg/L	500	41	11	30	31	15	32	35	22	41	39	28	41	43	25	43
TDS	mg/L	500	475	420	441	450	420	446	463	435	485	487	466	534	510	466	506
TSS	mg/L	N/A			400	58	162	422	118	288	50	250	211	368	660	174	670
Turbidity	NTU	N/A			213	53.3	126	192	21.4	96.4	57.7	119	88.6	241	297	147	317
Colour	TCU	5			< 2	< 2	16	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	<2	< 2
Aluminum	mg/L	0.1	0.05	0.06	0.05	0.05	0.04	0.06	0.05	0.04	0.02	0.06	0.07	0.04	0.05	0.08	0.05
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001
Arsenic	mg/L	0.025	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001
Barium	mg/L	1	0.19	0.171	0.179	0.185	0.176	0.174	0.173	0.173	0.2	0.185	0.2	0.208	0.199	0.164	0.198
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002
Boron	mg/L	5	0.093	0.1	0.096	0.096	0.102	0.093	0.097	0.097	0.1	0.091	0.025	0.097	0.089	0.087	0.091
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000010	< 0.000010	<0.000015	< 0.000010
Chromium	mg/L	0.05	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001
Cobalt	mg/L	N/A 1	< 0.005 0.0005	< 0.005 < 0.0001	0.0009	< 0.005 0.0003	0.005 0.0013	< 0.005 0.0001	< 0.005 0.0002	< 0.005 0.0005	< 0.005 0.0006	0.005 0.0005	< 0.005 0.0002	< 0.005 0.0005	< 0.005 0.0002	0.0011 0.0004	< 0.005 0.0001
Copper	mg/L	0.01	0.0005	< 0.0001					0.0002					0.0005	0.0002		
Lead	mg/L				0.00004	0.00005	0.00007	0.00003		0.00003	0.00003	0.00002	< 0.00002			0.00015	0.00003
Mercury	mg/L	0.001	< 0.00002 < 0.0001	< 0.00002 < 0.0001	< 0.00002 0.0003	< 0.00002 < 0.0001	<0.00002 <0.0001	< 0.00002 < 0.0001									
Molybdenum Nickel	mg/L mg/L	N/A N/A	< 0.0001	< 0.0001	< 0.01	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0008	< 0.0001
Selenium	mg/L mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.001	< 0.01	< 0.001	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.001	< 0.01
Silver	mg/L mg/L	0.01 N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001
Strontium		N/A N/A	1.78	1.61	1.69	1.62	1.74	1.7	1.67	1.64	1.75	1.79	1.79	1.91	1.73	1.55	1.73
Thallium	mg/L mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.00003	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00003	< 0.00005	< 0.00005	< 0.00005	0.00003	< 0.00003
Zinc	mg/L	5 N/A	< 0.0001	< 0.005	< 0.005	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.005	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.005	< 0.0001
LIIIC	IIIg/L	<u> </u>	× 0.005	~ 0.005	< 0.005	< 0.005	~ 0.005	< 0.005	< 0.005	\ 0.005	~ 0.005	< 0.005	~ 0.005	< 0.005	~ 0.005	<u>~0.005</u>	<u> </u>

General Water Qu	lanty		56-02-II	56-02-II	56-02-II	56-02-II	57-02-I	57-02-I	57-02-I								
Parameters	Units	ODWQS	8-May-14	20-Oct-14	26-May-15	13-Oct-15	11-May-16	18-Oct-16	24-May-17	16-Oct-17	7-May-18	11-Oct-18	10-May-19	8-Oct-19	8-May-14	29-Jul-14	20-Oct-14
Alkalinity	mg/L	500	264	274	270	273	267	260	262	351	325	324	273	285	326	296	299
Unionized Ammonia	mg/L	N/A	201	2.14	210	210	207	200	202	001	020	021	2.10	200	< 0.01	< 0.01	< 0.01
Ammonia	mg/L	N/A	0.33	0.13	0.09	0.1	0.12	0.1	0.08	0.16	0.13	0.14	0.17	0.05	0.46	0.46	0.46
BOD	mg/L	N/A	0.00	00	0.00	0.1	02	0	0.00	00	0.10	0	· · · ·	0.00	<3	<3	<3
Calcium	mg/L	N/A	110	93.2	93.7	96.5	81.6	92.1	106	116	104	106	107	110	162	174	171
COD	mg/L	N/A	9	79	< 5	11	106	49	9	14	< 5	42	50	13	6	< 5	< 5
Chloride	mg/L	250	117	118	114	118	117	118	98.1	103	124	125	158	145	284	352	374
Conductivity	umhos/cm	N/A	1140	1070	1060	1060	1050	1040	1140	1040	1080	1120	1090	1070	1580	1730	1760
Cyanide	mg/L	0.2	1110	1070	1000	1000	1000	1010	1140	1010	1000	1120	1000	1070	< 0.005	< 0.005	< 0.005
DOC	mg/L	5	2.3	3.2	0.9	0.9	0.9	1.3	1.7	3	3	3.1	3.7	3	2	1.6	2.5
Fluoride	mg/L	1.5	0.3	0.2	0.3	0.2	0.2	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	0.2	0.3
Hardness	mg/L	500	562	479	475	489	438	482	526	474	456	465	426	459	555	606	606
Ion Balance	%	N/A	7.26	2.5	473	700	400	702	020	7/7	400	400	720	400	1.09	1.47	2.22
Iron	mg/L	0.3	0.11	0.108	0.007	0.075	0.018	0.061	0.057	0.528	0.064	0.049	0.051	< 0.005	0.345	0.345	0.405
Magnesium	mg/L	N/A	69.9	59.9	58.7	60.3	56.9	61.2	63.8	44.8	47.6	48.7	38.6	44.8	36.7	41.6	43.6
Manganese	mg/L	0.05	0.018	0.018	0.014	0.016	0.018	0.012	0.03	0.027	0.017	0.014	0.013	0.005	0.036	0.031	0.043
Nitrate	mg/L	10	0.010	0.010	0.014	0.010	0.010	0.012	< 0.05	0.027	< 0.05	< 0.05	0.013	< 0.05	< 0.1	< 0.1	< 0.1
Nitrite	mg/L	10	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	0.8	0.5	0.6	0.6	0.9	0.6	< 1	0.8	0.9	0.7	1.2	0.6	0.7	0.5	0.4
pH-Lab	pH unit	6.5-8.5	8.16	7.94	7.92	7.91	7.87	8.08	7.98	7.82	8.02	7.88	8.02	7.91	7.38	7.61	7.64
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	< 0.001	0.008	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.001	< 0.001	< 0.1	< 0.1	< 0.001	< 0.001	< 0.1	< 0.1	< 0.1	< 0.1	2.42	0.69	< 0.001	< 0.001	< 0.001
Potassium	mg/L	N/A	4.3	3.7	3.3	3.7	3	3.5	3.7	18.8	13.3	10.8	16.3	15.2	3.6	3.7	4
Sodium	mg/L	200	40.1	29.7	35.1	35	31.5	33.4	59.4	68.6	67.6	60.7	63.3	61.1	71	91.6	105
Sulphate	mg/L	500	133	131	126	123	124	118	163	67	75	79	76	69	48	46	51
TDS	mg/L	500	633	601	594	602	575	583	651	630	626	624	624	616	801	887	929
TSS	mg/L	N/A	000	001	004	002	373	303	001	000	020	024	024	0.0	79	440	108
Turbidity	NTU	N/A													58.4	225	83.1
Colour	TCU	5													5	3	6
Aluminum	mg/L	0.1	0.03	0.02	0.03	0.03	0.02	0.06	0.03	0.06	0.06	0.06	0.07	0.07	0.04	0.02	0.04
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0009	0.0006	0.0004	0.0001	0.0004	0.0002	0.0009	0.0012	0.0005	0.0003	0.0001	0.0001	0.0008	0.0007	0.0007
Barium	mg/L	1	0.069	0.053	0.0004	0.058	0.0004	0.059	0.065	0.0012	0.0003	0.0003	0.0003	0.0002	0.857	0.926	0.85
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.002	0.076	0.051	0.002	0.034	0.078	0.066	0.082	0.069	0.069	0.002	0.066	0.002	0.062	0.002
Cadmium	mg/L	0.005	< 0.0002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.000017	< 0.00014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.00002	< 0.0002	< 0.00002
Chromium	mg/L	0.005	< 0.0002	0.00002	0.00002	0.0041	< 0.00002	< 0.00002	< 0.001	< 0.00014	< 0.00013	< 0.00013	< 0.00013	0.002	< 0.0002	0.00002	0.0004
Cobalt	mg/L	N/A	< 0.0002	< 0.005	< 0.005	< 0.005	< 0.0002	< 0.005	< 0.001	< 0.001	0.0006	0.011	0.012	< 0.002	< 0.0002	< 0.0077	< 0.005
Copper	mg/L	1	0.0004	0.0003	< 0.0001	0.0005	0.0002	0.0003	0.0018	0.0004	0.0008	0.0008	0.0012	0.0008	0.0004	0.0008	0.0008
Lead	mg/L	0.01	< 0.0004	< 0.0003	< 0.00001	< 0.0003	< 0.0002	0.0003	0.00005	< 0.00002	0.00005	0.00003	0.00012	< 0.00004	< 0.0004	< 0.0000	< 0.0000
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00003	< 0.00003	< 0.00002	< 0.00003	< 0.00003	< 0.00002	< 0.00004	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0036	0.0028	0.0002	0.0038	0.00002	0.00002	0.0039	0.00002	0.0028	0.0024	0.00002	0.0004	0.00002	< 0.00002	< 0.00002
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.002	< 0.01	< 0.0031	< 0.0031	< 0.0039	< 0.0021	< 0.01	< 0.01	< 0.0019	< 0.01	< 0.01	< 0.0001	< 0.0001
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001
Silver	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0001	< 0.0002	< 0.0001
Strontium	mg/L	N/A	× 0.0001	1.76	1.69	1.8	1.45	1.79	1.89	1.21	1.43	1.46	1.31	1.46	- 0.00002	3.61	3.48
Thallium		N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
	mg/L		0.00005	< 0.00005	0.0005	0.0016	< 0.00005	0.0007	0.00005	0.0008	0.0002	0.0001	< 0.00005	< 0.00005	0.00005	0.0056	< 0.00005
Vanadium	mg/L	N/A															
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	iality			I == aa :	== 00 1	aa i		I == aa :	== 00 1	aa i	I == aa :		I == aa :	== 00 1		I == aa :	
Parameters	Units	ODWQS	57-02-I 26-May-15	57-02-I 13-Jul-15	57-02-I 13-Oct-15	57-02-I 17-May-16	57-02-I 13-Jul-16	57-02-I 12-Oct-16	57-02-I 25-May-17	57-02-l 20-Jul-17	57-02-I 18-Oct-17	57-02-I 8-May-18	57-02-l 24-Jul-18	57-02-I 11-Oct-18	57-02-I 15-Jul-19	57-02-I 9-Oct-19	57-02-l 2-May-23
Alkalinity	mg/L	500	301	315	282	302	287	274	315	322	304	320	292	286	291	283	Z-IVIAY-23
Unionized Ammonia	mg/L	N/A	301	313	202	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	1
Ammonia	mg/L	N/A	0.39	0.44	0.38	0.38	0.35	0.34	0.31	0.28	0.36	0.31	0.38	0.42	0.39	0.46	1
BOD	mg/L	N/A	4	0.11	5	< 2	< 3	< 3	< 3	< 3	< 3	< 3	2	< 2	< 3	< 3	1
Calcium	mg/L	N/A	172	178	147	154	144	120	147	139	159	150	158	172	173	191	•
COD	mg/L	N/A	7	< 5	12	16	< 5	< 5	10	10	< 5	18	5	< 5	< 5	< 5	1
Chloride	mg/L	250	358	320	312	274	279	195	195	157	226	212	380	456	348	502	1
Conductivity	umhos/cm	N/A	1820	1710	1670	1640	1550	1270	1400	1300	1630	1260	1720	2060	1700	1960	1
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1
DOC	mg/L	5	0.6	0.6	0.4	0.8	0.7	1	1.4	1.6	1.7	2.1	1.3	1.8	1.3	1.6	
Fluoride	mg/L	1.5	0.2	0.2	0.3	0.2	0.3	0.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
Hardness	mg/L	500	602	621	532	549	497	411	500	472	553	516	557	596	587	669	1 1
Ion Balance	%	N/A															
Iron	mg/L	0.3	0.403	0.32	0.395	0.507	0.443	0.205	0.449	0.361	0.481	0.382	0.43	0.517	0.476	0.579	1 1
Magnesium	mg/L	N/A	42	42.8	40.3	39.6	33.3	27.2	32.3	30.2	37.9	34.4	39.4	40.4	37.7	46.7	
Manganese	mg/L	0.05	0.041	0.039	0.038	0.039	0.034	0.031	0.035	0.032	0.039	0.035	0.036	0.0374	0.041	0.043	
Nitrate	mg/L	10	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.21	< 0.05	< 0.5	
Tot Kjel N	mg/L	N/A	0.6	0.8	8.0	0.7	0.6	0.5	0.4	0.5	0.5	0.5	0.6	0.6	0.5	0.6	
pH-Lab	pH unit	6.5-8.5	7.7	7.7	7.61	7.98	7.61	8.05	7.77	7.7	7.96	7.73	7.73	7.78	7.53	7.79	
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	0.073	< 0.001	0.001	0.003	< 0.001	< 0.001	0.007	0.018	< 0.002	< 0.002	
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.01	0.05	
Potassium	mg/L	N/A	3.6	4.1	3.9	3.4	3.3	3	3.1	3.2	4.3	3.8	4.1	4.2	3.8	4.9	
Sodium	mg/L	200	112	114	156	108	124	97.3	85.3	80.7	110	88.3	134	167	122	175	-
Sulphate	mg/L	500	51	50	71	52	64	67	40	38	31	41	44	53	40	< 10	Destroyed
TDS	mg/L	500	920	899	899	814	821	674	692	642	752	723	936	1065	901	1091	4
TSS	mg/L	N/A	920	40	374	310	81	16	30	16	88	160	47	14	11	64	4
Turbidity	NTU	N/A	860	27.1	279	193	41.4	9.2	18.5	10.2	48.9	108	44.1	16.4	11.5	28.2	4
Colour	TCU	5	6	5	2	2	5	3	< 2	< 2	2	< 2	< 2	< 2	< 2	< 2	
Aluminum	mg/L	0.1	0.05	0.04	0.03	0.04	0.04	0.03	0.04	0.04	0.08	0.08	0.07	0.08	0.08	0.11	4
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	4
Arsenic	mg/L	0.025	0.0005	0.0006	0.0003	0.0004	0.0003	0.0003	0.0009	0.0005	0.0013	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0003	4
Barium	mg/L	1	0.888	0.914	0.69	0.709	0.802	0.546 < 0.002	0.691	0.668	0.839	0.743	0.813	0.857	0.818	0.924	4
Beryllium	mg/L	N/A	< 0.002		< 0.002 0.074	< 0.002 0.066	< 0.002 0.05	0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002 0.068	< 0.002	< 0.002	4
Boron	mg/L	5 0.005	0.061 < 0.00002	0.079	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.073	0.071	0.086	0.081	0.074	< 0.000015	0.076 < 0.000015	0.089	4
Cadmium Chromium	mg/L	0.005	0.00002	< 0.0002	0.00002	0.00002	< 0.00002	0.0007	< 0.000014	< 0.000014	< 0.00014 < 0.001	< 0.000015 < 0.001	< 0.00015 < 0.001	< 0.00015	< 0.00015	0.00029	-
Cobalt	mg/L mg/L	0.03 N/A	< 0.0043	< 0.0002	< 0.0044	< 0.0018	< 0.0002	< 0.0007	< 0.001	< 0.001	< 0.001	0.0002	0.001	0.0001	0.0004	< 0.002	1
	mg/L	1	< 0.0001	0.0001	0.005	0.0006	0.0003	0.0003	0.0015	0.0012	0.005	< 0.0002	0.013	0.0001	0.0004	< 0.0002	1
Copper Lead	mg/L	0.01	< 0.0001	< 0.0001	< 0.0001	< 0.0000	< 0.0003	< 0.0003	0.00003	0.00012	< 0.00002	< 0.0001	0.0001	< 0.0002	0.0007	< 0.0002	1
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00003	< 0.00002	< 0.00002	< 0.00003	< 0.00002	< 0.00007	< 0.00003	1
Molybdenum	mg/L	0.001 N/A	< 0.00002	< 0.00002	0.0001	0.00002	0.0002	0.00002	0.00003	0.0002	0.00002	0.00002	< 0.00002	0.00002	0.00002	< 0.0002	1
Nickel	mg/L	N/A	< 0.001	< 0.0001	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.0001	< 0.01	< 0.01	< 0.0002	1
Selenium	mg/L	0.01	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	< 0.001	< 0.001	< 0.001	1
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.00002	< 0.0001	< 0.00002	< 0.0001	< 0.0001	< 0.001	< 0.004	< 0.001	< 0.001	< 0.001	1
Strontium	mg/L	N/A	3.49	3.76	3.01	2.84	2.93	2.12	2.45	2.48	2.88	2.76	3.03	3.32	3.1	3.83	
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	
Vanadium	mg/L	N/A	0.0023	0.0038	0.0014	0.0006	0.0005	0.0003	0.0015	0.000	0.0016	< 0.00003	0.00003	< 0.00003	< 0.00003	< 0.0004	
Zinc	mg/L	5	< 0.005	< 0.005	< 0.0014	< 0.005	< 0.005	< 0.005	< 0.0015	< 0.002	0.0010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0004	1
ZIIIC	IIIg/L	J	× 0.005	· 0.003	` 0.003	₹ 0.003	× 0.005	· 0.003	` 0.003	· 0.003	0.014	₹ 0.003	· 0.003	` 0.003	· 0.003	× 0.003	

General Water Qua	liity		57-02-I	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II							
Parameters	Units	opwos	18-Oct-23	8-May-14	29-Jul-14	20-Oct-14	26-May-15	13-Jul-15	13-Oct-15	17-May-16	13-Jul-16	12-Oct-16	25-May-17	20-Jul-17	18-Oct-17	8-May-18	24-Jul-18
Alkalinity	mg/L	500		300	271	305	330	302	340	244	256	286	220	277	332	253	258
Unionized Ammonia	mg/L	N/A	1	<3	< 0.01	< 0.01				< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ammonia	mg/L	N/A	1	174	0.05	0.05	0.02	0.09	0.02	0.02	0.04	0.02	0.03	0.01	0.01	0.02	0.02
BOD	mg/L	N/A		<3	<3	<3	< 2		3	2	< 3	< 3	< 3	< 3	< 3	< 3	< 2
Calcium	mg/L	N/A		352	208	0.05	146	180	102	163	177	106	225	153	98.9	169	190
COD	mg/L	N/A	1	1730	< 5	<3	< 5	< 5	9	28	< 5	< 5	16	13	7	22	7
Chloride	mg/L	250		606	602	521	293	387	151	399	396	178	495	320	148	645	557
Conductivity	umhos/cm	N/A		1600	2390	2300	1730	1990	1240	1870	1880	1240	2540	2010	1460	2580	2450
Cyanide	mg/L	0.2		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
DOC	mg/L	5		0.2	1.5	2.6	0.7	0.6	1.1	0.7	0.6	1.4	0.9	1.3	2.3	1.5	1
Fluoride	mg/L	1.5		1.47	0.1	0.2	0.1	0.2	0.2	0.1	0.2	0.2	< 0.5	< 0.1	< 0.1	< 0.1	< 1
Hardness	mg/L	500		560	596	606	421	518	293	471	508	303	640	435	282	482	548
Ion Balance	%	N/A		1.1	9.26	3.38											
Iron	mg/L	0.3		< 0.005	< 0.005	0.01	< 0.005	< 0.005	0.011	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.007	0.005	0.007
Magnesium	mg/L	N/A		17	18.7	18.9	13.5	16.4	9.15	15.4	16	9.42	18.9	12.8	8.39	14.5	17.8
Manganese	mg/L	0.05		0.003	< 0.001	0.035	0.004	0.006	< 0.001	0.001	0.004	0.004	< 0.001	< 0.001	0.001	0.001	0.001
Nitrate	mg/L	10		0.4	0.5	0.6	0.8	0.5	0.7	1	0.6	0.4	1.32	1.39	0.95	0.78	0.71
Nitrite	mg/L	1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.3	< 0.05	< 0.05	< 0.05	< 0.5
Tot Kjel N	mg/L	N/A		0.5	0.1	0.2	0.3	0.6	0.5	0.5	0.5	0.3	0.5	0.4	0.4	0.3	0.3
pH-Lab	pH unit	6.5-8.5	4	7.54	7.65	7.71	7.82	7.85	7.75	7.99	7.81	7.99	7.9	7.89	8.08	7.81	7.83
Phenols	mg/L	N/A		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.073	< 0.001	0.002	0.004	< 0.001	< 0.001	0.015
Phosphorus	mg/L	N/A	4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	4	1.1	1.3	1.6	1	1.5	1.3	1	1.3	1	1.1	1.1	1.4	1.2	1.7
Sodium	mg/L	200	D	178	184	203	197	222	172	168	198	154	235	228	206	276	288
Sulphate	mg/L	500	Destroyed	78	74	79	90	86	80	79	83	85	75	77	64	86	74
TDS	mg/L	500		1120	1250	1220	942	1080	724	976	1030 540	707	1180	957	725	1344	1283
TSS	mg/L	N/A	4	35 15.5	17 11.1	68 36.4	225 209	520 575	370 292	430 304	473	78 57.6	350 603	154 60.7	112 81.5	360 90.3	24 40.5
Turbidity	NTU TCU	N/A	4	2		6	6	7		2	20		3		2	90.3 < 2	
Colour		5 0.1	4	0.04	6 0.03	0.04	0.04	0.04	0.02	0.04	0.04	0.03	0.06	< 2 0.04	0.06	0.07	< 2 0.09
Antimony	mg/L	0.006	4	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.004	< 0.0001	0.003	0.0001	0.004	0.0002	< 0.0001	0.0001
Antimony Arsenic	mg/L	0.006	1	0.0001	0.0001	< 0.0001	0.0001	0.0001	0.0001	0.0001	< 0.0001	0.0003	0.0001	0.0001	0.0002	0.0001	0.0001
Barium	mg/L mg/L	1	1	0.0002	0.0002	0.252	0.0002	0.0002	0.0002	0.0002	0.204	0.0003	0.003	0.0009	0.0009	0.0001	0.205
Beryllium	mg/L	N/A	1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5		0.044	0.034	0.064	0.002	0.049	0.002	0.053	0.002	0.058	0.002	0.053	0.061	0.052	0.053
Cadmium	mg/L	0.005	1	< 0.00002	< 0.00002	0.0004	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.000014	< 0.000014	< 0.00014	< 0.00015	< 0.000015
Chromium	mg/L	0.003	-	< 0.0002	0.0076	0.0004	0.0007	< 0.0002	0.0046	0.0016	< 0.0002	0.00002	< 0.00014	< 0.00014	< 0.001	< 0.000	< 0.0001
Cobalt	mg/L	N/A	1	< 0.005	< 0.007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.005
Copper	mg/L	1	1	0.0015	0.0025	0.0021	0.0005	0.0014	0.0016	0.0015	0.0011	0.0011	0.003	0.0026	0.0023	0.0005	0.0007
Lead	mg/L	0.01	1	< 0.00002	0.00005	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0000	0.00009	< 0.0002	< 0.00002	0.00003
Mercury	mg/L	0.001	1	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A		0.0002	0.0003	< 0.0001	0.0002	0.0002	0.0003	0.0003	0.0005	0.0004	0.0004	0.0002	0.0004	0.0003	0.0006
Nickel	mg/L	N/A	1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Silver	mg/L	N/A	1	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001
Strontium	mg/L	N/A	1		0.537	0.531	0.374	0.494	0.249	0.482	0.393	0.268	0.582	0.405	0.255	0.445	0.494
Thallium	mg/L	N/A	1	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	1	0.0038	0.0052	< 0.0001	0.0025	0.0039	0.0016	0.0005	0.0004	0.0004	0.0012	0.0017	0.002	< 0.0001	0.0002
Zinc	mg/L	5	1	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.019	< 0.005	< 0.005
	,		l.														

General Water Qua	y		57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II
Parameters	Units	ODWQS	11-Oct-18	15-Jul-19	9-Oct-19	5-May-20	13-Jul-20	13-Oct-20	4-May-21	5-Jul-21	13-Oct-21	3-May-22	26-Jul-22	25-Oct-22	2-May-23	12-Jul-23	18-Oct-23
Alkalinity	mg/L	500	307	300	314	255	277	326	256	280	300	236	289	339	253	290	326
Unionized Ammonia	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01
Ammonia	mg/L	N/A	0.03	0.04	0.01	0.02	0.02	0.02	< 0.01	< 0.01	0.03	< 0.01	0.11	0.09	0.91	0.26	0.26
BOD	mg/L	N/A	< 2	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	
Calcium	mg/L	N/A	177	146	153	124	180	165	245	258	238	281	251	165	160	133	120
COD	mg/L	N/A	7	10	6	< 5	11	6	9	13	12	9	108	9	5	14	38
Chloride	mg/L	250	547	414	431	412	526	502	735	751	761	635	625	456	503	439	431
Conductivity	umhos/cm	N/A	2450	1980	1890	2260	2160	2160	2600	2920	2820	2780	2760	2280	2140	1880	1820
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	
DOC	mg/L	5	1.7	1.3	1.9	1.4	7.3	0.9	1.6	1.2	0.6	1	8.0	< 0.2	1	< 0.2	2.6
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 1	< 0.5	< 1	< 0.1	< 1	<0.1
Hardness	mg/L	500	504	415	439	357	515	479	707	742	684	802	714	472	452	371	339
Ion Balance	%	N/A				5.6	0.329	0.981	2.71	1.04	2.41	4.1	5.76	3.49	4.14	5.22	12.4
Iron	mg/L	0.3	< 0.005	0.016	< 0.005	0.005	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	0.021	0.063	< 0.005	0.099	0.16
Magnesium	mg/L	N/A	14.9	12.1	13.8	11.5	15.9	16.1	22.9	23.7	21.6	23.9	21	14.4	12.7	9.38	9.59
Manganese	mg/L	0.05	0.0027	0.002	0.002	0.026	0.001	0.001	0.001	0.001	0.002	< 0.001	0.002	0.005	< 0.001	0.003	0.003
Nitrate	mg/L	10	0.42	0.54	< 0.5	0.63	0.38	0.27	0.65	0.31	0.08	1.46	0.46	< 0.5	0.62	< 0.5	0.42
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.5	0.06	< 0.05	< 0.05	< 0.5	< 0.05	0.53	< 0.5	< 0.3	< 0.5	< 0.05	< 0.5	<0.05
Tot Kjel N	mg/L	N/A	0.4	0.2	0.4	0.3	0.4	0.3	0.3	0.2	0.3	0.4	0.6	0.5	1.1	0.6	0.6
pH-Lab	pH unit	6.5-8.5	7.88	7.67	7.95	7.9	7.77	7.8	7.72	7.75	7.6	7.48	7.6	7.74	7.79	7.87	7.57
Phenols	mg/L	N/A	0.018	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001
Phosphorus	mg/L	N/A	< 0.1	0.11	0.17	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1
Potassium	mg/L	N/A	1.5	1.4	1.5	5.5	1.7	1.7	1.6	2.2	2.1	1.9	2.1	2.1	2	1.9	1.6
Sodium	mg/L	200	297	266	282	303	270	299	285	309	336	246	317	312	236	238	209
Sulphate	mg/L	500	85	81	47	73	74	72	102	101	107	91	76	89	84	78	83
TDS	mg/L	500	1306	1101	1116	1082	1233	1252	1545	1613	1645	1421	1467	1242	1149	1073	997
TSS	mg/L	N/A	164	245	255	215	1550	440	260	60	180	86	114	80	41	92	66
Turbidity	NTU	N/A	96.8	126	197	115	260	200	178	78.9	175	2	95.9	66.8	25.2	53.1	38.5
Colour	TCU	5	< 2	< 2	2	< 2	< 2	3	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	2
Aluminum	mg/L	0.1	0.08	0.07	0.09	0.07	0.09	0.06	0.11	0.13	0.09	0.07	0.1	0.1	0.05	0.08	0.08
Antimony	mg/L	0.006	< 0.0001	< 0.0001	0.0001	0.0001	0.0004	0.0001	0.0002	0.0002	0.0002	0.0001	0.0003	0.0002	0.0002	< 0.0001	0.0002
Arsenic	mg/L	0.025	0.0001	0.0001	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0001	0.0002
Barium	mg/L	1	0.205	0.176	0.209	0.13	0.212	0.213	0.266	0.312	0.314	0.29	0.276	0.209	0.161	0.153	0.149
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001
Boron	mg/L	5	0.064	0.056	0.066	0.039	0.06	0.075	0.063	0.075	0.093	0.08	0.09	0.044	0.07	0.073	0.081
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000029	< 0.000029	< 0.000029	< 0.000029	< 0.000029	< 0.000029	< 0.000029	< 0.000029	< 0.000029	< 0.000029	< 0.000029	< 0.000012	<0.000015
Chromium	mg/L	0.05	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	0.006	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001
Cobalt	mg/L	N/A	< 0.0001	0.0003	< 0.005	< 0.0001	< 0.005	0.007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0005
Copper																	
- ' '	mg/L	1	0.0007	0.0032	0.0003	0.0014	0.0016	0.0017	0.002	0.001	0.0011	0.0007	0.001	0.0011	0.0022	0.0008	0.0016
Lead	mg/L mg/L	1 0.01	0.0007 < 0.00002	0.0032 0.00009	0.0003 < 0.00009	0.00009	0.00022	< 0.00009	< 0.00009	0.00013	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	0.00023	<0.00004
Lead Mercury	mg/L mg/L mg/L	0.01 0.001	0.0007 < 0.00002 < 0.00002	0.0032 0.00009 < 0.00002	0.0003 < 0.00009 < 0.00002	0.00009 < 0.00002	0.00022 < 0.00002	< 0.00009 < 0.00002	< 0.00009 < 0.00002	0.00013 < 0.00002	< 0.00009 < 0.00002	< 0.00009 < 0.00002	< 0.00009 < 0.00002	< 0.00009 < 0.00002	< 0.00009 < 0.00002	0.00023 < 0.00002	<0.00004 <0.00002
Lead Mercury Molybdenum	mg/L mg/L mg/L mg/L	1 0.01 0.001 N/A	0.0007 < 0.00002 < 0.00002 0.0004	0.0032 0.00009 < 0.00002 0.0004	0.0003 < 0.00009 < 0.00002 0.0005	0.00009 < 0.00002 0.0004	0.00022 < 0.00002 0.0005	< 0.00009 < 0.00002 0.0004	< 0.00009 < 0.00002 0.0005	0.00013 < 0.00002 < 0.0002	< 0.00009 < 0.00002 0.0003	< 0.00009 < 0.00002 < 0.0002	< 0.00009 < 0.00002 0.0003	< 0.00009 < 0.00002 < 0.0002	< 0.00009 < 0.00002 < 0.0002	0.00023 < 0.00002 0.0002	<0.00004 <0.00002 0.0005
Lead Mercury Molybdenum Nickel	mg/L mg/L mg/L mg/L mg/L	1 0.01 0.001 N/A N/A	0.0007 < 0.00002 < 0.00002 0.0004 < 0.01	0.0032 0.00009 < 0.00002 0.0004 < 0.01	0.0003 < 0.00009 < 0.00002 0.0005 < 0.01	0.00009 < 0.00002 0.0004 < 0.01	0.00022 < 0.00002 0.0005 < 0.01	< 0.00009 < 0.00002 0.0004 < 0.01	< 0.00009 < 0.00002 0.0005 < 0.01	0.00013 < 0.00002 < 0.0002 < 0.01	< 0.00009 < 0.00002 0.0003 < 0.01	< 0.00009 < 0.00002 < 0.0002 < 0.01	< 0.00009 < 0.00002 0.0003 < 0.01	< 0.00009 < 0.00002 < 0.0002 < 0.01	< 0.00009 < 0.00002 < 0.0002 < 0.01	0.00023 < 0.00002 0.0002 < 0.01	<0.00004 <0.00002 0.0005 0.001
Lead Mercury Molybdenum Nickel Selenium	mg/L mg/L mg/L mg/L mg/L mg/L	1 0.01 0.001 N/A N/A 0.01	0.0007 < 0.00002 < 0.00002 0.0004 < 0.01 < 0.001	0.0032 0.00009 < 0.00002 0.0004 < 0.01 < 0.001	0.0003 < 0.00009 < 0.00002 0.0005 < 0.01 < 0.001	0.00009 < 0.00002 0.0004 < 0.01 < 0.001	0.00022 < 0.00002 0.0005 < 0.01 < 0.001	< 0.00009 < 0.00002 0.0004 < 0.01 < 0.001	< 0.00009 < 0.00002 0.0005 < 0.01 0.003	0.00013 < 0.00002 < 0.0002 < 0.01 0.004	< 0.00009 < 0.00002 0.0003 < 0.01 <0.02	< 0.00009 < 0.00002 < 0.0002 < 0.01 0.004	< 0.00009 < 0.00002 0.0003 < 0.01 0.005	< 0.00009 < 0.00002 < 0.0002 < 0.01 0.002	< 0.00009 < 0.00002 < 0.0002 < 0.01 < 0.001	0.00023 < 0.00002 0.0002 < 0.01 0.002	<0.00004 <0.00002 0.0005 0.001 <0.001
Lead Mercury Molybdenum Nickel Selenium Silver	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	1 0.01 0.001 N/A N/A 0.01 N/A	0.0007 < 0.00002 < 0.00002 0.0004 < 0.01 < 0.001	0.0032 0.00009 < 0.00002 0.0004 < 0.01 < 0.001 < 0.0001	0.0003 < 0.00009 < 0.00002 0.0005 < 0.01 < 0.001 < 0.0001	0.00009 < 0.00002 0.0004 < 0.01 < 0.001 < 0.0001	0.00022 < 0.00002 0.0005 < 0.01 < 0.001 0.0001	< 0.00009 < 0.00002 0.0004 < 0.01 < 0.001 < 0.0001	< 0.00009 < 0.00002 0.0005 < 0.01 0.003 < 0.0001	0.00013 < 0.00002 < 0.0002 < 0.01 0.004 < 0.0001	< 0.00009 < 0.00002 0.0003 < 0.01 <0.02 < 0.0001	< 0.00009 < 0.00002 < 0.0002 < 0.01 0.004 < 0.0001	< 0.00009 < 0.00002 0.0003 < 0.01 0.005 < 0.0001	< 0.00009 < 0.00002 < 0.0002 < 0.01 0.002 < 0.0001	< 0.00009 < 0.00002 < 0.0002 < 0.01 < 0.001 < 0.0001	0.00023 < 0.00002 0.0002 < 0.01 0.002 < 0.0001	<0.00004 <0.00002 0.0005 0.001 <0.001 <0.0001
Lead Mercury Molybdenum Nickel Selenium Silver Strontium	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	1 0.01 0.001 N/A N/A 0.01 N/A N/A	0.0007 < 0.00002 < 0.00002 0.0004 < 0.01 < 0.001 < 0.0001 0.468	0.0032 0.00009 < 0.00002 0.0004 < 0.01 < 0.001 < 0.0001 0.38	0.0003 < 0.00009 < 0.00002 0.0005 < 0.01 < 0.001 < 0.0001 0.402	0.00009 < 0.00002 0.0004 < 0.01 < 0.001 < 0.0001 0.353	0.00022 < 0.00002 0.0005 < 0.01 < 0.001 0.0001 0.488	<0.00009 <0.00002 0.0004 <0.01 <0.001 <0.0001 0.516	< 0.00009 < 0.00002 0.0005 < 0.01 0.003 < 0.0001 0.761	0.00013 < 0.00002 < 0.0002 < 0.01 0.004 < 0.0001 0.812	< 0.00009 < 0.00002 0.0003 < 0.01 <0.02 < 0.0001 0.764	< 0.00009 < 0.00002 < 0.0002 < 0.01 0.004 < 0.0001 0.859	< 0.00009 < 0.00002 0.0003 < 0.01 0.005 < 0.0001 0.829	< 0.00009 < 0.00002 < 0.0002 < 0.01 0.002 < 0.001 0.606	< 0.00009 < 0.00002 < 0.0002 < 0.01 < 0.001 < 0.0001 0.6	0.00023 < 0.00002 0.0002 < 0.01 0.002 < 0.0001 0.48	<0.00004 <0.00002 0.0005 0.001 <0.001 <0.0001 0.427
Lead Mercury Molybdenum Nickel Selenium Silver Strontium Thallium	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	1 0.01 0.001 N/A N/A 0.01 N/A N/A N/A	0.0007 < 0.00002 < 0.00002 0.0004 < 0.01 < 0.001 < 0.0001 0.468 < 0.00005	0.0032 0.00009 < 0.00002 0.0004 < 0.01 < 0.001 < 0.0001 0.38 < 0.00005	0.0003 < 0.00009 < 0.00002 0.0005 < 0.01 < 0.001 < 0.0001 0.402 < 0.00005	0.00009 < 0.00002 0.0004 < 0.01 < 0.001 < 0.0001 0.353 < 0.00005	0.00022 < 0.00002 0.0005 < 0.01 < 0.001 0.0001 0.488 0.00012	<0.00009 <0.00002 0.0004 <0.01 <0.001 <0.0001 0.516 <0.00005	< 0.00009 < 0.00002 0.0005 < 0.01 0.003 < 0.0001 0.761 < 0.00005	0.00013 < 0.00002 < 0.0002 < 0.01 0.004 < 0.0001 0.812 < 0.00005	< 0.00009 < 0.00002 0.0003 < 0.01 <0.02 < 0.0001 0.764 < 0.00005	< 0.00009 < 0.00002 < 0.0002 < 0.01 0.004 < 0.0001 0.859 < 0.00005	< 0.00009 < 0.00002 0.0003 < 0.01 0.005 < 0.0001 0.829 < 0.00005	< 0.00009 < 0.00002 < 0.0002 < 0.01 0.002 < 0.0001 0.606 < 0.00005	< 0.00009 < 0.00002 < 0.0002 < 0.01 < 0.001 < 0.0001 0.6 < 0.00005	0.00023 < 0.00002 0.0002 < 0.01 0.002 < 0.0001 0.48 < 0.00005	<0.00004 <0.00002 0.0005 0.001 <0.001 <0.0001 0.427 <0.00005
Lead Mercury Molybdenum Nickel Selenium Silver Strontium	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	1 0.01 0.001 N/A N/A 0.01 N/A N/A	0.0007 < 0.00002 < 0.00002 0.0004 < 0.01 < 0.001 < 0.0001 0.468	0.0032 0.00009 < 0.00002 0.0004 < 0.01 < 0.001 < 0.0001 0.38	0.0003 < 0.00009 < 0.00002 0.0005 < 0.01 < 0.001 < 0.0001 0.402	0.00009 < 0.00002 0.0004 < 0.01 < 0.001 < 0.0001 0.353	0.00022 < 0.00002 0.0005 < 0.01 < 0.001 0.0001 0.488	<0.00009 <0.00002 0.0004 <0.01 <0.001 <0.0001 0.516	< 0.00009 < 0.00002 0.0005 < 0.01 0.003 < 0.0001 0.761	0.00013 < 0.00002 < 0.0002 < 0.01 0.004 < 0.0001 0.812	< 0.00009 < 0.00002 0.0003 < 0.01 <0.02 < 0.0001 0.764	< 0.00009 < 0.00002 < 0.0002 < 0.01 0.004 < 0.0001 0.859	< 0.00009 < 0.00002 0.0003 < 0.01 0.005 < 0.0001 0.829	< 0.00009 < 0.00002 < 0.0002 < 0.01 0.002 < 0.001 0.606	< 0.00009 < 0.00002 < 0.0002 < 0.01 < 0.001 < 0.0001 0.6	0.00023 < 0.00002 0.0002 < 0.01 0.002 < 0.0001 0.48	<0.00004 <0.00002 0.0005 0.001 <0.001 <0.0001 0.427

General Water Qu	iality				70.00 I	70.00 l	50.00 I	T	TO 00 1	TO 00 1	70.00 I		T	50.00 I	TO 00 I	50.00 l	
Parameters	Units	ODWQS	58-02-I 8-May-14	58-02-I 29-Jul-14	58-02-I 20-Oct-14	58-02-I 26-May-15	58-02-I 13-Jul-15	58-02-I 13-Oct-15	58-02-I 25-May-17	58-02-l 20-Jul-17	58-02-I 18-Oct-17	58-02-I 8-May-18	58-02-l 24-Jul-18	58-02-I 11-Oct-18	58-02-I 16-Jul-19	58-02-I 9-Oct-19	58-02-I 5-May-20
Alkalinity	mg/L	500	320	316	379	354	324	348	382	356	333	444	326	391	363	349	5-Way-20 538
Unionized Ammonia	mg/L	N/A	< 0.01	310	< 0.01	334	324	340	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ammonia	mg/L	N/A	0.05	0.15	0.05	0.04	0.04	0.02	0.03	0.03	0.03	0.03	0.03	0.04	0.05	0.03	0.03
BOD	mg/L	N/A	<3	0.15	<3	< 2	0.04	2	4	< 3	< 3	< 3	< 2	< 2	< 3	< 3	< 3
Calcium	mg/L	N/A	99.1	107	119	122	113	117	130	121	107	163	109	111	144	130	240
COD	mg/L	N/A	< 5	< 5	< 5	< 5	< 5	< 5	7	< 5	< 5	22	7	6	< 5	< 5	30
Chloride	mg/L	250	15	16.5	18.5	18.2	19.3	20.7	< 0.1	25.1	24.7	41.3	42.6	49.1	54.1	71.6	97.7
Conductivity	umhos/cm	N/A	672	704	833	781	730	775	849	829	795	993	814	959	937	916	1360
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	20	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
DOC	mg/L	5	2.3	2.2	4	1.9	1.5	1.6	2	2	3	5.8	2.5	4.9	4.2	3.5	9.8
Fluoride	mg/L	1.5	0.2	0.1	0.2	0.1	0.1	0.2	< 0.005	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	354	375	417	432	412	441	470	441	405	551	418	413	523	490	771
Ion Balance	%	N/A	1.01	1.63	2.61									7.99			6.04
Iron	mg/L	0.3	0.13	0.341	0.243	0.402	0.256	0.732	0.618	0.945	0.749	0.388	0.98	0.425	0.194	1.82	0.372
Magnesium	mg/L	N/A	25.9	26.3	29	30.9	31.4	36	35.1	33.6	33.4	35	35.3	33	39.6	40.2	41.5
Manganese	mg/L	0.05	0.064	0.018	0.017	0.023	0.028	0.023	0.029	0.029	0.025	0.025	0.028	0.0319	0.036	0.034	0.03
Nitrate	mg/L	10	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	0.05	< 0.05	0.06	< 0.05	< 0.05	< 0.05	< 0.05
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.3	0.1	0.2	0.3	0.2	0.2	< 0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.6
pH-Lab	pH unit	6.5-8.5	7.72	7.83	7.75	7.77	7.88	7.64	7.76	7.81	8.07	7.65	7.87	7.88	7.51	7.82	7.55
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.05	0.04	0.05	< 0.1
Potassium	mg/L	N/A	1.7	1.7	2.1	1.7	2.1	2.1	1.8	2	2.5	2.1	2.2	2.5	2.5	2.5	2.5
Sodium	mg/L	200	5.4	5.1	7.5	6.6	6.1	6.3	7.1	8.2	7.7	16.5	7.6	8.9	12.1	9.3	30
Sulphate	mg/L	500	31	37	52	49	35	40	40	38	29	64	42	51	49	47	66
TDS	mg/L	500	370	383	457	441	402	432	464	442	405	588	435	490	520	512	801
TSS	mg/L	N/A	115	206	80	720	84	364	92	37	58	90	156	54	20	580	72
Turbidity	NTU	N/A	80.5	43	30.5	205	52.9	59.7	33.4	29.6	25.4	32	142	25.9	17.9	38.4	21
Colour	TCU	5	2	4	5	9	< 2	< 2	< 2	3	2	< 2	< 2	2	< 2	< 2	< 2
Aluminum	mg/L	0.1	0.03	0.01	0.03	0.03	0.03	0.03	0.04	0.04	0.06	0.08	0.06	0.06	0.07	0.08	0.1
Antimony	mg/L	0.006	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0011	0.0015	0.001	0.001	0.0022	0.0019	0.0015	0.0014	0.0019	0.0007	0.0015	0.0009	0.0006	0.0017	0.0006
Barium	mg/L	1	0.199	0.207	0.214	0.208	0.224	0.251	0.225	0.258	0.275	0.219	0.264	0.259	0.279	0.328	0.283
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.018	0.009	0.026	0.006	0.018	0.03	0.022	0.028	0.038	0.034	0.032	0.043	0.036	0.047	0.05
Cadmium	mg/L	0.005	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.05	< 0.0002	0.0073	0.0003	0.0045	< 0.0002	0.0039	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0003	0.014	0.0002	0.0004	< 0.005	0.0005
Copper	mg/L	1	0.0003	0.0003	0.0007	< 0.0001	< 0.0001	0.0001	0.0009	0.0009	0.0006	0.0014	0.0004	0.0005	0.0008	0.0001	0.0004
Lead	mg/L	0.01	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	0.00007	< 0.00002	0.00005	0.00003	0.00002	< 0.00002	0.00003	< 0.00004
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0005	0.0004	< 0.0001	0.0003	0.0002 < 0.01	0.0005	0.0004	0.0005	0.0005	0.0004	0.0004	0.0004	0.0008	0.0003	0.0002
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001 < 0.00002	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002		< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	< 0.00005	0.643	0.681	0.743	0.762	0.756	0.793	0.805	0.737	0.772	0.772	0.75	0.901	0.9	1.07
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0037	0.006	0.0002	0.0027	0.0037	0.0013	0.0024	0.0018	0.0019	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.012	< 0.005	< 0.005	< 0.005	0.005	< 0.005	< 0.005

General Water Qu	ianty		58-02-I	58-02-I	58-02-I	58-02-l	58-02-I	58-02-I	58-02-I	58-02-I	58-02-I	58-02-I	58-02-I	58-I (DUP)	59-05	59-05	59-05
Parameters	Units	ODWQS	13-Jul-20	13-Oct-20	4-May-21	5-02-1 5-Jul-21	13-Oct-21	3-May-22	26-Jul-22	25-Oct-22	2-May-23	12-Jul-23	18-Oct-23	18-Oct-23	6-May-14	23-Oct-14	26-May-15
Alkalinity	mg/L	500	487	471	593	628	581	542	621	593	562	547	556	560	352	350	359
Unionized Ammonia	mg/L	N/A	< 0.01	< 0.01	< 0.01	020	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	<0.01	002	000	000
Ammonia	mg/L	N/A	0.03	0.04	0.04	0.02	0.05	< 0.01	0.19	< 0.01	3.74	0.07	0.16	<0.05	3.24	3.15	2.46
BOD	mg/L	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	00	0.00	0.2.	0.10	20
Calcium	mg/L	N/A	197	150	312	250	236	373	265	244	311	232	203	209	122	105	124
COD	mg/L	N/A	28	21	26	29	28	18	33	31	15	25	20	20	12	5	18
Chloride	mg/L	250	79.1	84.6	344	197	194	411	209	148	278	170	159	159	145	146	147
Conductivity	umhos/cm	N/A	1200	1210	2040	1730	1690	2440	1750	1620	2100	1660	1570	1560	1120	1100	1130
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	.0.0	.000	20		
DOC	mg/L	5	13.9	4.8	5.2	6.7	4.3	3.1	4.9	2.7	1.7	1	6.4	5.7	5.8	5.3	1.4
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	< 1	<0.1	<0.1	0.2	0.2	0.1
Hardness	mg/L	500	705	582	991	854	770	1160	891	792	961	700	621	636	410	355	417
Ion Balance	%	N/A	5.26	3.33	2.2	1.24	1.98	2.2	2.26	4.05	1.42	4.77	9.04	8.07	5.85	1.63	
Iron	mg/L	0.3	1.5	0.997	0.129	1.61	0.093	0.364	1.74	1.08	0.24	0.035	0.126	0.121	4.64	4.39	4.24
Magnesium	mg/L	N/A	51.6	50.5	51.4	55.6	43.7	55.5	55.5	44.3	44.7	29.2	27.5	27.5	25.4	22.8	25.7
Manganese	mg/L	0.05	0.047	0.03	0.034	0.053	0.02	0.046	0.06	0.041	0.041	0.017	0.024	0.025	0.053	0.05	0.053
Nitrate	mg/L	10	0.54	0.08	< 0.5	0.05	< 0.05	0.36	0.07	< 0.05	< 0.05	< 0.5	<0.05	<0.05	< 0.1	0.1	< 0.1
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.5	< 0.05	< 0.05	< 0.3	< 0.05	< 0.05	< 0.05	< 0.5	<0.05	<0.05	< 0.1	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	0.4	0.5	0.8	0.6	0.7	0.5	1.1	0.7	4.3	0.5	0.5	0.4	3.7	3.1	3
pH-Lab	pH unit	6.5-8.5	7.53	7.67	7.35	7.44	7.42	7.28	7.24	7.22	7.4	7.52	7.5	7.51	8.07	7.87	7.75
Phenols	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	2.7	2.9	2.7	3.5	3.8	3	4.3	3.6	2.9	2.8	2.7	2.7	2.9	2.6	2.7
Sodium	mg/L	200	14	10.9	55.6	41.5	54.1	72.1	59.6	68	78.2	73.4	71.5	72.8	86.9	72.5	87.6
Sulphate	mg/L	500	65	61	84	68	70	136	65	69	204	156	149	149	< 1	< 1	< 1
TDS	mg/L	500	703	643	1206	994	951	1376	1034	933	1257	992	856	851	603	568	608
TSS	mg/L	N/A	108	55	38	68	110	40	197	36	15	64	22	11			
Turbidity	NTU	N/A	59.8	57.2	32.8	126	86.3	33.5	43.9	59.4	32.7	53.3	5.3	14.5			
Colour	TCU	5	2	3	3	2	4	< 2	3	4	< 2	3	3	3			
Aluminum	mg/L	0.1	0.09	0.06	0.12	0.13	0.08	0.09	0.12	0.12	0.08	0.12	0.11	0.11	0.03	0.03	0.03
Antimony	mg/L	0.006	< 0.0001	< 0.0001	0.0001	< 0.0001	0.0002	< 0.0001	0.0001	0.0002	0.0001	< 0.0001	0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0013	0.001	0.0005	0.0007	0.0004	< 0.0003	0.0009	0.0009	0.0005	0.0003	0.0005	0.0005	0.0003	0.0003	0.0006
Barium	mg/L	1	0.352	0.343	0.371	0.339	0.314	0.325	0.289	0.286	0.209	0.155	0.133	0.135	0.57	0.45	0.591
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	<0.0001	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.043	0.049	0.069	0.065	0.1	0.091	0.087	0.054	0.101	0.108	0.128	0.13	0.093	0.073	0.072
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000029	< 0.000015	< 0.000012	< 0.000029	< 0.000012	<0.000015	<0.000015	< 0.00002	< 0.00002	< 0.00002
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.001	0.0014	0.003	< 0.0002
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.006	< 0.005	< 0.005	0.007	< 0.005	0.0007	0.0008	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0006	0.0016	0.0017	0.0007	0.0009	0.0009	0.0013	0.0006	0.0007	0.002	0.0014	0.0005	0.0008	0.0004	0.0001
Lead	mg/L	0.01	0.00009	0.00005	0.0123	0.00008	< 0.00004	< 0.00009	< 0.00004	< 0.00004	< 0.00009	< 0.00004	0.00004	<0.00002	< 0.00002	< 0.00002	0.00007
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0003	0.0002	0.0001	0.0002	0.0003	< 0.0002	0.0003	0.0003	0.0003	0.0004	0.0003	0.0003	< 0.0001	< 0.0001	< 0.0001
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0019	0.0038	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	0.005	0.003	0.002	<0.02	0.004	0.002	0.003	0.002	<0.001	<0.001	< 0.001	< 0.001	0.001
Silver	mg/L	N/A	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	1.15	1.15	1.37	1.38	1.15	1.47	1.37	1.16	1.24	0.91	0.801	0.803		0.441	0.531
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0004	< 0.0001	< 0.0001	< 0.0004	< 0.0001	<0.0001	<0.0001	0.0026	0.0019	0.0029
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	0.011	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	anty		59-05	59-05	59-05	59-05	59-05	59-05	59-05	59-05	F0.05	59-05	59-05	50.05	50.05	F0.05	59-05
Parameters	Units	ODWQS	13-Oct-15	25-May-16	12-Oct-16	23-May-17	18-Oct-17	7-May-18	11-Oct-18	9-May-19	59-05 8-Oct-19	59-05 5-May-20	13-Oct-20	59-05 4-May-21	59-05 13-Oct-21	59-05 3-May-22	25-Oct-22
Alkalinity	mg/L	500	368	388	401	424	444	461	471	450	460	471	463	500	540	543	560
Unionized Ammonia	mg/L	N/A	300	300	701	727	777	701	771	430	400	7/1	400	300	040	040	300
Ammonia	mg/L	N/A	2.47	2.44	3.3	3.91	5.09	4.61	4.99	5.94	7.47	6.84	7.2	9.6	14.6	1.84	21.5
BOD	mg/L	N/A	2.17	2.11	0.0	0.01	0.00	4.01	1.00	0.01	7.47	0.01	7.2	0.0	14.0	1.01	21.0
Calcium	mg/L	N/A	110	126	134	142	146	148	158	161	166	156	158	147	155	162	155
COD	mg/L	N/A	31	38	9	50	95	19	33	23	23	25	28	29	19	34	23
Chloride	mg/L	250	155	159	162	141	155	175	186	198	194	182	190	195	196	209	262
Conductivity	umhos/cm	N/A	1160	1210	1270	1290	1330	1350	1430	1440	1420	1440	1470	1470	1530	1710	1700
Cyanide	mg/L	0.2			1-17												
DOC	mg/L	5	3.3	2.9	3	4.3	5	5.1	5.2	6.1	5.2	4.5	3.1	4.5	3.2	4.3	1.7
Fluoride	mg/L	1.5	0.2	0.2	0.2	< 0.1	< 0.1	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	380	423	449	472	494	500	526	534	558	525	528	508	531	548	535
Ion Balance	%	N/A										4.94	1.67	2.65	3.36	1.28	1.11
Iron	mg/L	0.3	4.25	4.92	5.38	5.86	6.81	6.59	8.04	7.48	8.74	8.2	8.44	8.52	9.25	10.5	10.4
Magnesium	mg/L	N/A	25.7	26.3	27.8	28.8	31.5	31.6	31.9	31.9	34.7	32.8	32.3	34.2	34.9	34.8	35.8
Manganese	mg/L	0.05	0.049	0.056	0.063	0.066	0.07	0.065	0.076	0.072	0.075	0.07	0.072	0.068	0.071	0.074	0.071
Nitrate	mg/L	10	< 0.1	< 0.1	< 0.1	< 0.05	0.61	< 0.05	< 0.05	0.18	< 0.05	0.07	< 0.05	0.16	< 0.05	< 0.05	< 0.05
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.17	< 0.05	< 0.05	0.11	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	4	3	4.1	3.8	6.1	5.4	5.9	7.1	8.9	7.8	8.5	11.5	17.4	24.3	24.3
pH-Lab	pH unit	6.5-8.5	7.56	7.61	7.61	7.66	7.64	7.72	7.7	7.74	7.57	7.54	7.45	7.76	7.55	7.67	7.4
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	0.002	0.005	< 0.001	0.01	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.35	0.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	2.7	2.6	2.8	3.1	4.1	4.2	4	4.3	5	4.5	4.4	5.2	6.5	7.3	7.9
Sodium	mg/L	200	75.8	91.4	97.1	101	102	107	109	109	111	105	91.7	113	119	123	120
Sulphate	mg/L	500	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TDS	mg/L	500	594	644	674	681	719	755	785	790	806	780	763	815	864	875	955
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.03	0.03	0.07	0.04	0.08	0.07	0.07	0.08	0.09	0.08	0.07	0.08	0.06	0.09	0.09
Antimony	mg/L	0.006	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0003	0.0005	0.0005	0.0008	0.0006	0.0001	< 0.0001	< 0.0001	< 0.0003	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Barium	mg/L	1	0.525	0.565	0.573	0.654	0.785	0.788	0.774	0.833	0.909	0.821	0.872	0.867	1.04	1.13	1.26
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.092	0.094	0.099	0.099	0.114	0.106	0.108	0.105	0.11	0.11	0.116	0.103	0.105	0.108	0.103
Cadmium	mg/L	0.005	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	0.000199	< 0.000015	< 0.000015	< 0.000029	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000012
Chromium	mg/L	0.05	< 0.0002	< 0.0002	0.0021	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0002	< 0.005	< 0.005	< 0.005	0.0002	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0005	0.0006	0.0004	0.0008	0.0006	0.0007	0.0002	0.001	0.0004	0.0026	0.0013	0.0012	0.0003	< 0.0001	0.0006
Lead	mg/L	0.01	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	0.00004	0.00003	< 0.00009	0.00015	0.00005	0.00005	< 0.00004	< 0.00004	< 0.00004
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0001	0.0001	0.0001	< 0.0001	0.0001
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	0.002	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.002	0.002	0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	0.455	0.51	0.502	0.56	0.519	0.586	0.587	0.646	0.662	0.629	0.628	0.64	0.685	0.691	0.705
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0008	0.0021	0.0009	0.0025	0.0007	0.0002	0.0002	0.0002	< 0.0004	0.0003	0.0002	0.0003	0.0002	0.0004	0.0004
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	0.014	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General water Qu	анту		59-05	59-05	60-05	60-05	60-05	60-05	60-05	60-05	60-05	60-05	60-05	CO 05	CO 05	CO 05	60-05
Parameters	Units	ODWQS	2-May-23	18-Oct-23	7-May-14	23-Oct-14	26-May-15	13-Oct-15	25-May-16	12-Oct-16	23-May-17	18-Oct-17	11-Oct-18	60-05 9-May-19	60-05 8-Oct-19	60-05 5-May-20	13-Oct-20
Alkalinity	mg/L	500	591	624	305	303	310	307	299	303	296	303	306	291	291	295	286
Unionized Ammonia	mg/L	N/A	331	024	303	303	310	307	233	303	290	303	300	231	231	290	200
Ammonia	mg/L	N/A	18.5	24.3	0.13	0.13	0.09	0.18	0.12	0.13	0.09	0.1	0.1	0.11	0.09	0.06	0.11
BOD	mg/L	N/A	10.5	24.0	0.10	0.10	0.03	0.10	0.12	0.10	0.00	0.1	0.1	0.11	0.00	0.00	0.11
Calcium	mg/L	N/A	159	164	105	103	115	104	114	119	117	118	118	115	105	114	104
COD	mg/L	N/A	33	39	5	45	17	38	72	< 5	68	42	21	18	100	< 5	10
Chloride	mg/L	250	240	211	127	124	122	128	125	127	103	111	129	139	136	123	124
Conductivity	umhos/cm	N/A	1770	1780	984	979	991	992	972	994	956	960	981	988	974	969	966
Cyanide	mg/L	0.2				0.0		552	0.2			000		000	<u> </u>	000	
DOC	mg/L	5	3.6	6.9	3.5	3.2	0.8	1	1.1	1.3	1.6	2.4	2.9	3	2.4	2	1.5
Fluoride	mg/L	1.5	< 0.1	<0.1	0.1	0.2	0.1	0.1	0.2	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	549	560	413	409	446	424	448	467	454	469	461	449	431	448	419
Ion Balance	%	N/A	3.42	2.99	2.95	2.91										4.54	0.513
Iron	mg/L	0.3	11.7	12.6	1.22	1.14	1.29	0.944	0.714	1.38	0.467	1.17	0.966	0.772	0.937	1.83	0.404
Magnesium	mg/L	N/A	36.6	36.6	36.5	37	38.9	39.7	39.3	41.1	39.3	42.4	40.3	39.4	41.1	39.7	38.6
Manganese	mg/L	0.05	0.077	0.078	0.04	0.031	0.03	0.032	0.039	0.037	0.048	0.037	0.034	0.041	0.014	0.053	0.012
Nitrate	mg/L	10	< 0.05	<0.05	0.2	0.2	0.1	0.1	0.1	0.1	0.1	< 0.05	< 0.05	0.21	< 0.05	0.09	< 0.05
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.13	< 0.05
Tot Kjel N	mg/L	N/A	24.1	27.6	1.3	0.4	0.4	1.5	1.1	0.6	0.6	0.6	0.4	0.5	0.3	0.3	0.3
pH-Lab	pH unit	6.5-8.5	7.64	7.47	8.02	7.98	7.79	7.77	7.75	7.9	8.04	7.93	7.91	8.02	7.86	7.79	7.79
Phenols	mg/L	N/A	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	0.002	0.003	0.004	< 0.002	< 0.002	< 0.002	0.002
Phosphorus	mg/L	N/A	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.72	0.25	< 0.1	< 0.1
Potassium	mg/L	N/A	8.4	8.3	2.4	2.8	2.6	2.9	2.6	2.8	2.4	3.5	3	2.7	3	2.7	2.7
Sodium	mg/L	200	128	122	27	25.9	31.1	28.6	32.6	35	33.6	34.7	35.8	35.9	36	35.7	29.5
Sulphate	mg/L	500	< 1	3	22	20	20	21	21	20	18	17	21	24	18	18	20
TDS	mg/L	500	938	977	505	497	517	511	517	529	492	510	531	531	515	512	491
TSS	mg/L	N/A															
Turbidity	NTU	N/A															
Colour	TCU	5															
Aluminum	mg/L	0.1	0.04	0.06	0.03	0.03	0.03	0.02	0.03	0.06	0.04	0.07	0.06	0.07	0.07	0.08	0.06
Antimony	mg/L	0.006	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0002	<0.0001	0.0004	0.0003	0.0003	0.0004	0.0003	0.0006	0.0006	0.0005	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Barium	mg/L	1	1.26	1.23	0.198	0.193	0.221	0.212	0.216	0.226	0.205	0.242	0.219	0.208	0.213	0.211	0.208
Beryllium	mg/L	N/A	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.11	0.113	0.018	0.013	< 0.005	0.024	0.019	0.025	0.019	0.026	0.022	0.015	0.023	0.02	0.023
Cadmium	mg/L	0.005	< 0.000012	<0.000015	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.05	< 0.001	<0.001	0.0004	0.0022	< 0.0002	< 0.0002	< 0.0002	0.0013	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	0.0004	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.012	0.008	< 0.005	0.0008	< 0.005
Copper	mg/L	1	0.0006	0.0002	0.0014	0.0009	0.0002	0.0003	0.0003	0.0003	0.0042	0.0008	0.0004	0.0008	0.0004	0.0002	0.002
Lead	mg/L	0.01	< 0.00004	<0.00004	0.00004	< 0.00002	0.00005	< 0.00002	< 0.00002	0.00003	0.00023	0.00005	0.00002	0.00002	< 0.00002	0.00007	0.00007
Mercury	mg/L	0.001	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	0.00006	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001
Nickel	mg/L	N/A	< 0.01	0.002	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	0.003	0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	0.751	0.732		0.562	0.599	0.56	0.566	0.565	0.566	0.515	0.536	0.574	0.553	0.548	0.528
Thallium	mg/L	N/A	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0009	0.0005	0.001	0.0014	0.0015	0.0005	0.0013	0.0005	0.0015	0.0003	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Zinc	mg/L	5	< 0.005	<0.005	0.006	< 0.005	< 0.005	< 0.005	< 0.005	0.007	< 0.005	0.022	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qua	<u>,</u>		60-05	60-05	60-05	60-05	60-05	60-05	61-10-l	61-10-I	61-10-I	61-10-I	61-10-l	61-10-I	61-10-l	61-10-I	61-10-l
Parameters	Units	ODWQS	4-May-21	13-Oct-21	3-May-22	25-Oct-22	2-May-23	18-Oct-23	8-May-14	29-Jul-14	23-Oct-14	26-May-15	13-Jul-15	13-Oct-15	25-May-16	13-Jul-16	17-Oct-16
Alkalinity	mg/L	500	284	310	289	302	301	321	391	384	392	397	394	398	385	389	401
Unionized Ammonia	mg/L	N/A								0.01						< 0.01	
Ammonia	mg/L	N/A	0.09	0.1	0.08	0.17	2.04	0.96	0.58	0.42	0.42	0.37	0.39	0.35	0.37	0.39	0.4
BOD	mg/L	N/A								>3				5		< 3	
Calcium	mg/L	N/A	106	99.3	107	97.6	101	100	133	106	107	112	121	125	112	113	115
COD	mg/L	N/A	16	10	13	10	19	15	19	10	16	18	17	11	16	10	13
Chloride	mg/L	250	129	129	127	172	144	126	95.8	90.1	96.2	85.1	82.3	83.6	77.2	79	85.4
Conductivity	umhos/cm	N/A	942	965	993	998	1010	1020	1080	988	1010	1010	1020	994	947	987	1020
Cyanide	mg/L	0.2								< 0.005			< 0.005	< 0.005		< 0.005	
DOC	mg/L	5	2.2	1.5	1.6	0.6	2.2	2.8	5.8	6.1	7.4	2.9	2.7	3.7	4.6	4.7	5.2
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Hardness	mg/L	500	435	411	419	403	412	406	548	436	450	467	498	536	464	472	480
Ion Balance	%	N/A	3.29	1.52	1.5	7.8	2.55	2.32	8.12	2.99	2.8						
Iron	mg/L	0.3	0.23	0.094	0.272	0.237	0.61	0.671	0.098	0.069	0.039	0.073	0.064	0.145	0.073	0.069	0.068
Magnesium	mg/L	N/A	41.3	39.6	36.8	38.8	38.6	38	52.3	41.7	44.5	45.6	47.6	54.3	44.7	46.2	46.9
Manganese	mg/L	0.05	0.022	0.005	0.027	0.009	0.03	0.013	0.013	0.003	0.012	0.011	0.012	0.013	0.011	0.012	0.014
Nitrate	mg/L	10	0.19	< 0.05	< 0.05	< 0.05	< 0.05	0.13	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	0.5	0.4	0.4	0.4	2	0.9	1.1	0.6	0.7	0.8	1	0.8	0.7	8.0	1.5
pH-Lab	pH unit	6.5-8.5	7.96	7.81	7.89	7.81	7.96	7.73	7.94	7.68	7.78	7.74	7.73	7.85	7.5	7.58	7.76
Phenols	mg/L	N/A	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.01	0.004
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	2.8	2.8	2.6	2.9	2.9	3	4.5	3.4	3.5	3.5	3.9	3.8	3.5	3.6	3.6
Sodium	mg/L	200	38.5	38.1	36.9	36.9	39	38.5	38.1	26	27.2	33	34.3	33	31.8	32.8	34
Sulphate	mg/L	500	22	20	20	25	23	19	16	15	15	18	20	17	21	18	15
TDS	mg/L	500	510	515	504	555	530	542	575	513	530	536	546	555	521	526	541
TSS	mg/L	N/A								18			4	12		6	
Turbidity	NTU	N/A								17.9			1	4		3	
Colour	TCU	5								7			3	2		18	
Aluminum	mg/L	0.1	0.07	0.05	0.06	0.08	0.04	0.05	0.03	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.04
Antimony	mg/L	0.006	< 0.0001	0.0002	< 0.0001	0.0002	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.0007	0.0007	0.0006	0.0004	0.0005	0.0006	0.0006	0.0007	0.0004
Barium	mg/L	1	0.193	0.208	0.201	0.219	0.207	0.206	0.545	0.403	0.393	0.443	0.461	0.494	0.455	0.442	0.43
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.022	0.022	0.017	0.013	0.022	0.022	0.116	0.079	0.085	0.082	0.096	0.117	0.103	0.097	0.106
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000010	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.0002	0.0076	0.0037	0.0034	< 0.0002	0.0051	0.0024	< 0.0002	< 0.0002
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	0.007	0.0004	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0004	0.0015	0.0003	0.0009	0.0009	0.0004	0.0002	0.0003	0.0004	< 0.0001	< 0.0001	0.0002	0.0002	0.0004	0.0003
Lead	mg/L	0.01	< 0.00002	< 0.00002	< 0.00002	0.00004	0.00003	0.00012	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00004
Mercury	mg/L	0.001	< 0.00002 < 0.0001	< 0.00002 < 0.0001	< 0.00002 0.0004	< 0.00002 < 0.0001	< 0.00002 0.0001	<0.00002 <0.0001	< 0.00002 < 0.0001	< 0.00002	< 0.00002	< 0.00002 < 0.0001	< 0.00002 < 0.0001	< 0.00002 < 0.0001	< 0.00002 < 0.0001	< 0.00002	< 0.00002 < 0.0001
Molybdenum Nickel	mg/L	N/A N/A	< 0.0001	< 0.0001	< 0.01	< 0.0001	< 0.001	0.0001	< 0.0001	< 0.0001 < 0.01	< 0.0001 < 0.01	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001 < 0.01	< 0.0001
Selenium	mg/L	0.01	< 0.01	< 0.01	< 0.01	0.001	< 0.001	<0.001	< 0.01	0.002	< 0.01	< 0.001	< 0.01	0.002	< 0.01	0.003	0.002
Silver	mg/L	0.01 N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.0001	< 0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
Strontium	mg/L	N/A N/A	0.564	0.555	0.525	0.536	0.543	0.534	< 0.0000Z	1.36	1.38	1.41	1.58	1.5	1.53	1.37	1.41
Thallium	mg/L mg/L	N/A N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium		N/A N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	0.0046	0.0069	0.0026	0.0024	0.0043	0.00005	0.00005	0.000	0.000
Zinc	mg/L mg/L	5 N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0046	< 0.005	< 0.0026	< 0.0024	< 0.0043	< 0.0019	< 0.0011	< 0.002	< 0.001
ZIIIC	IIIg/L	3	< U.UU5	< 0.005	< U.UU5	< 0.005	< 0.005	<u.005< td=""><td>< U.UU5</td><td>< U.UU5</td><td>< 0.005</td><td>< 0.005</td><td>< U.UU5</td><td>< U.UU5</td><td>< 0.005</td><td>\ U.UU5</td><td>< U.UU5</td></u.005<>	< U.UU5	< U.UU5	< 0.005	< 0.005	< U.UU5	< U.UU5	< 0.005	\ U.UU 5	< U.UU5

General water Qua	iiicy		61-10-I	61-10-I	61-10-I	61-10-l	61-10-I	61-10-I	61-10-l	61-10-I	61-10-I	61-10-I	61-10-l	61-10-l	61-10-I	61-10-l	61-10-I
Parameters	Units	ODWQS	25-May-17	20-Jul-17	18-Oct-17	8-May-18	24-Jul-18	11-Oct-18	9-May-19	16-Jul-19	9-Oct-19	5-May-20	13-Jul-20	13-Oct-20	4-May-21	5-Jul-21	13-Oct-21
Alkalinity	mg/L	500	400	390	408	353	364	387	340	358	384	356	380	416	330	350	318
Unionized Ammonia	mg/L	N/A		< 0.01			< 0.01			< 0.01		< 0.01	< 0.01	< 0.01	< 0.01		< 0.01
Ammonia	mg/L	N/A	0.38	0.36	0.42	0.31	0.28	0.39	0.32	0.39	0.38	0.34	0.35	0.41	0.39	0.37	0.4
BOD	mg/L	N/A		< 3			< 2			< 3		< 3	< 3	< 3	< 6	< 3	< 3
Calcium	mg/L	N/A	114	111	116	108	104	119	110	112	120	114	121	128	101	99.3	103
COD	mg/L	N/A	20	20	18	19	14	34	16	35	19	9	15	25	14	17	10
Chloride	mg/L	250	68.9	67.4	68.8	63.5	84.6	86.1	77.3	83.3	100	75.3	87.5	117	92.3	103	111
Conductivity	umhos/cm	N/A	1000	999	1080	874	986	1010	931	951	1020	942	1010	1150	944	963	942
Cyanide	mg/L	0.2		< 0.005			< 0.005			< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
DOC	mg/L	5	5.9	5.6	5.8	5	5.6	6.9	5.5	5.6	6.4	5.4	8.7	5.4	3.7	3.5	2.2
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.4	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	471	466	492	455	449	496	455	470	512	476	506	558	442	439	449
Ion Balance	%	N/A										5.1	6.08	5.38	2.04	0.581	1.04
Iron	mg/L	0.3	0.086	0.08	0.117	0.177	0.156	0.14	0.421	0.04	0.17	< 0.005	0.2	0.17	0.224	0.084	0.12
Magnesium	mg/L	N/A	45.4	46	49.1	45.1	45.9	48.2	43.9	46.3	51.6	46.4	49.5	58.3	46.2	46.5	46.7
Manganese	mg/L	0.05	0.012	0.012	0.013	0.012	0.012	0.014	0.016	0.011	0.014	0.015	0.014	0.014	0.014	0.01	0.012
Nitrate	mg/L	10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.18	< 0.05	< 0.05	< 0.05	0.43	< 0.05	< 0.05	0.06	< 0.05
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	1	0.7	0.8	0.7	0.7	0.8	0.6	0.6	0.8	0.7	0.7	1	0.7	0.6	0.7
pH-Lab	pH unit	6.5-8.5	7.78	7.7	7.79	7.87	7.79	7.88	7.91	7.57	7.79	7.72	7.69	7.7	7.94	7.8	7.86
Phenols	mg/L	N/A	0.005	0.006	0.002	< 0.001	0.011	0.003	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.04	0.02	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	3.5	3.6	4.2	4	3.8	3.9	3.6	4.3	4.5	4.3	4.9	5	4	5	4.4
Sodium	mg/L	200	36.1	34.8	39.6	30.4	33.3	36.7	26.7	35	38.7	31	40	49.7	24.7	30.9	26.1
Sulphate	mg/L	500	15	16	12	39	19	23	40	15	20	32	26	22	22	25	27
TDS	mg/L	500	523	513	535	503	509	550	506	512	565	518	557	630	489	520	510
TSS	mg/L	N/A		5			72			40		144	17	48	154	31	118
Turbidity	NTU TCU	N/A		1.1			82.6 < 2			35 < 2		135	21.5	25.6	23.8	10.8	30.7
Colour		5 0.1	0.03	0.04	0.06	0.06	0.06	0.06	0.07	0.06	0.08	0.04	< 2 0.07	3 0.06	< 2 0.07	< 2 0.04	< 2 0.05
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Antimony	mg/L	0.006	0.0003	0.0003	0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001
Arsenic Barium	mg/L mg/L	0.025	0.0003	0.0003	0.0005	0.427	0.433	0.458	0.382	0.463	0.494	0.0002	0.503	0.578	0.0001	0.502	0.525
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.002	0.002	0.109	0.101	0.104	0.108	0.088	0.125	0.13	0.11	0.121	0.142	0.118	0.139	0.129
Cadmium	mg/L	0.005	< 0.000014	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.00015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.003	< 0.00014	< 0.00014	< 0.00014	< 0.0001	< 0.001	< 0.001	< 0.001	0.001	0.002	0.001	< 0.00013	< 0.0001	< 0.000	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.001	< 0.005	< 0.005	0.009	< 0.005	< 0.001	< 0.001	0.0001	< 0.002	0.0001	< 0.005	0.007	< 0.005	< 0.001	< 0.005
Copper	mg/L	1	0.0006	0.0007	0.0004	< 0.0001	< 0.0001	0.0002	0.0005	0.0005	0.0001	< 0.0001	0.0004	0.0025	0.001	0.0004	0.0004
Lead	mg/L	0.01	< 0.00002	0.00006	< 0.00002	< 0.00002	< 0.00001	< 0.0002	< 0.00002	0.00002	< 0.00004	0.00034	0.00004	< 0.00004	0.00009	0.00003	< 0.00002
Mercury	mg/L	0.001	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00001	< 0.00001	< 0.00002	< 0.00004	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0011	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	0.005	0.006	< 0.001	< 0.001	0.001	0.001	< 0.001	0.001	0.001	< 0.001	0.001	0.001
Silver	mg/L	N/A	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.001	< 0.001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.001	< 0.0001
Strontium	mg/L	N/A	1.43	1.47	1.48	1.34	1.43	1.42	1.37	1.59	1.7	1.5	1.6	1.96	1.71	1.9	1.89
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0021	0.0022	0.0006	0.0002	0.0002	0.0002	0.0002	0.0002	< 0.0001	0.0015	0.0003	0.0002	< 0.0001	< 0.0001	< 0.0001
Zinc	mg/L	5	< 0.005	< 0.005	0.007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.008	< 0.005	< 0.005	0.005	< 0.005
	6/ -	, ,	0.000	5.000	3.307	5.000	0.000	0.000	0.000	0.000	0.000	0.000	3.300	5.000	0.000	0.500	3.000

General Water Qua			61-10-l	61-10-I	61-10-I	61-10-l	61-10-l	61-10-l	61-10-I (DUP)	61-10-I (DUP)	61-10-I (DUP)	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II
Parameters	Units	ODWQS	3-May-22	26-Jul-22	25-Oct-22	2-May-23	12-Jul-23	18-Oct-23	26-Jul-22	12-Jul-23	18-Oct-23	8-May-14	29-Jul-14	23-Oct-14	26-May-15	13-Jul-15	13-Oct-15
Alkalinity	mg/L	500	343	383	369	405	436	489	386	440	494	294	293	287	297	292	283
Unionized Ammonia	mg/L	N/A	0.1	< 0.01	< 0.01	0.02	< 0.01	<0.01	< 0.01	< 0.01	<0.01		< 0.01				
Ammonia	mg/L	N/A	0.34	0.41	0.36	4.68	0.38	0.39	0.42	0.35	0.85	0.24	0.1	0.09	0.06	0.06	0.06
BOD	mg/L	N/A	< 3	< 3	< 3	< 3	< 3		< 3	< 3			7				< 2
Calcium	mg/L	N/A	119	116	118	129	151	147	110	150	147	129	104	103	111	120	117
COD	mg/L	N/A	12	16	18	18	30	31	14	29	43	12	127	67	22	10	21
Chloride	mg/L	250	92.2	89.3	102	135	183	228	85.4	189	233	18.5	18.9	19.5	18.8	19.1	22.4
Conductivity	umhos/cm	N/A	989	986	1060	1200	1350	1480	966	1360	1500	852	754	760	780	771	741
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		< 0.005	< 0.005			< 0.005		-	< 0.005	< 0.005
DOC	mg/L	5	3.1	3.6	1.7	4.4	1.3	8.9	3.8	1.5	8.7	2.8	2.7	4.1	2.1	2.1	3.7
Fluoride	mg/L	1.5	< 0.1	0.2	< 0.1	< 0.1	< 1	<0.1	0.2	< 1	<0.1	0.2	0.1	0.2	0.2	0.1	0.2
Hardness	mg/L	500	497	493	514	550	592	601	477	590	599	461	376	375	404	433	438
Ion Balance	%	N/A	6.35	2.6	4.32	0.91	1.28	7.01	1.94	2.42	7.76	8.75	2.44	1.7			
Iron	mg/L	0.3	0.439	0.207	0.269	0.249	0.438	0.505	0.025	0.508	0.425	0.27	0.485	0.64	0.415	0.773	1.07
Magnesium	mg/L	N/A	48.8	49.5	53.2	55.1	52.3	56.7	49.2	52.3	56.4	33.7	28.6	28.4	30.6	32.6	35.3
Manganese	mg/L	0.05	0.016	0.013	0.015	0.016	0.02	0.066	0.01	0.02	0.019	0.1	0.035	0.043	0.052	0.023	0.029
Nitrate	mg/L	10	0.08	< 0.05	< 0.05	< 0.05	< 0.5	<0.05	< 0.05	< 0.5	< 0.05	0.1	0.1	0.1	0.1	< 0.1	< 0.1
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	<0.05	< 0.05	< 0.5	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tot Kjel N	mg/L	N/A	0.6	0.9	0.7	4.9	0.8	1.1	0.8	0.8	1.4	0.8	< 0.1	0.3	0.7	0.5	0.5
pH-Lab	pH unit	6.5-8.5	7.76	7.63	7.74	7.7	7.71	7.56	7.69	7.72	7.6	8.01	7.79	7.97	7.87	7.9	7.71
Phenols	mg/L	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	4.3	4.4	4.8	5	5	4.8	4.6	4.9	4.8	2.3	1.7	2	1.8	1.8	1.9
Sodium	mg/L	200	29.7	31.7	35.3	43.7	58.1	60	32.3	56.3	59.1	19.5	9.2	11.9	13.4	10	11
Sulphate	mg/L	500	28	31	34	43	50	40	26	49	38	101	95	100	100	98	86
TDS	mg/L	500	528	552	570	654	762	806	540	766	815	482	434	439	455	458	444
TSS	mg/L	N/A	31	63	72	61	70	11	10	27	4		23500			250	4800
Turbidity	NTU	N/A	21.7	84.1	76.5	10.7	24.7	1.2	72.5	12.2	0.6		> 1000			156	1340
Colour	TCU	5	< 2	< 2	< 2	< 2	< 2	3	< 2	< 2	4		5			< 2	6
Aluminum	mg/L	0.1	0.04	0.07	0.08	0.04	0.07	0.09	0.07	0.09	0.1	0.03	0.01	0.03	0.03	0.03	0.03
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	0.0002	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	0.0001	0.0004	0.0005	0.0004	0.0003	0.0004	0.0005
Barium	mg/L	1	0.503	0.535	0.592	0.613	0.624	0.649	0.557	0.587	0.633	0.182	0.149	0.147	0.147	0.179	0.18
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.128	0.127	0.06	0.142	0.137	0.139	0.136	0.133	0.138	0.033	0.018	0.023	0.015	0.039	0.027
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000010	< 0.000012	< 0.000012	<0.000015	< 0.000015	< 0.000012	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	<0.001	< 0.0002	0.0049	0.0024	0.0024	0.0036	< 0.0002
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0003	< 0.005	< 0.005	0.0003	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.0003	0.0008	< 0.0001	0.0001	0.0001	0.0007	0.0002	< 0.0001	0.0006	0.0002	0.0009	0.0004	< 0.0001	0.0003	< 0.0001
Lead	mg/L	0.01	< 0.00002	< 0.00002	< 0.00002	< 0.00004	< 0.00004	<0.00002	0.00002	< 0.00004	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	<0.0001	0.0005	0.0002	< 0.0001	0.0002	0.0001	< 0.0001
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0062	< 0.01	< 0.01	0.0062	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	0.002	0.001	< 0.001	0.001	0.002	<0.001	0.001	0.002	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	N/A	1.64	1.82	1.85	1.89	1.8	1.84	1.91	1.77	1.82		0.645	0.634	0.649	0.713	0.764
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0001	0.0001	0.0002	0.0002	0.0004	0.0004	0.0001	0.0003	0.0004	0.0035	0.005	0.0017	0.0017	0.0013	0.0033

General Water Qu	lanty		61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II
Parameters	Units	ODWQS	25-May-16	13-Jul-16	17-Oct-16	25-May-17	20-Jul-17	18-Oct-17	8-May-18	24-Jul-18	11-Oct-18	9-May-19	16-Jul-19	9-Oct-19	5-May-20	13-Jul-20	13-Oct-20
Alkalinity	mg/L	500	300	301	293	308	311	306	313	319	354	367	357	343	370	377	370
Unionized Ammonia	mg/L	N/A		< 0.01			< 0.01			< 0.01			< 0.01		< 0.01	< 0.01	< 0.01
Ammonia	mg/L	N/A	0.2	0.06	0.08	0.05	0.07	0.06	0.07	0.2	0.14	0.14	0.1	0.06	0.06	0.08	0.06
BOD	mg/L	N/A		< 3			< 3			2			< 3	0.00	< 3	8	< 3
Calcium	mg/L	N/A	116	116	110	119	114	115	118	121	123	135	140	129	155	151	141
COD	mg/L	N/A	63	< 5	78	11	39	10	< 5	179	99	45	15	8	6	540	7
Chloride	mg/L	250	18.3	19.7	26.1	18.6	17.3	16.3	21.6	27.4	26.7	32.2	31.6	30.7	39.1	40.6	42.4
Conductivity	umhos/cm	N/A	782	780	762	781	815	803	816	872	866	942	909	935	977	943	966
Cyanide	mg/L	0.2		< 0.005			< 0.005			< 0.005			< 0.005		< 0.005	< 0.005	< 0.005
DOC	mg/L	5	1.8	1.7	2.4	2	2.2	2.1	2.5	2.7	3	3.8	4.3	3.1	4.1	4.2	2.4
Fluoride	mg/L	1.5	0.2	0.2	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	416	424	400	429	417	420	430	450	443	485	494	459	548	532	508
Ion Balance	%	N/A													6.07	3.46	5.72
Iron	mg/L	0.3	0.185	0.843	0.674	0.399	0.646	0.702	0.049	0.192	0.12	0.147	0.347	0.092	< 0.005	0.641	0.033
Magnesium	mg/L	N/A	30.4	32.4	30.4	31.8	31.8	32.3	32.8	35.9	33	36	35.1	33.1	38.9	37.6	38.3
Manganese	mg/L	0.05	0.096	0.027	0.031	0.062	0.043	0.044	0.04	0.06	0.077	0.081	0.075	0.089	0.095	0.075	0.092
Nitrate	mg/L	10	0.1	< 0.1	0.1	< 0.05	< 0.05	< 0.05	< 0.05	0.06	< 0.05	0.2	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrite	mg/L	1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.6	0.3	0.7	0.3	0.3	0.3	1.7	2.6	1.4	0.6	0.4	0.5	0.3	0.9	0.3
pH-Lab	pH unit	6.5-8.5	7.65	7.79	7.95	7.9	7.79	7.96	7.93	7.85	7.86	7.95	7.55	7.86	7.74	7.75	7.75
Phenols	mg/L	N/A	< 0.001	0.043	0.007	0.003	0.006	0.002	< 0.001	< 0.1	0.014	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	2.36	1.18	0.88	< 0.1	< 0.1	< 0.1
Potassium	mg/L	N/A	2	1.7	1.7	1.8	1.7	2.5	2.6	2.3	2.6	2.3	2.1	3	2.5	2.2	3.1
Sodium	mg/L	200	16.6	10	11.7	14.4	11.7	15.1	23.2	13.5	27.4	26	19.8	55	25.4	18.7	38.7
Sulphate	mg/L	500	106	98	77	78	81	68	115	103	103	131	103	125	108	101	98
TDS	mg/L	500	471	460	434	450	445	433	502	495	529	583	546	581	591	578	583
TSS	mg/L	N/A		1840			8200			23600			2600		860	49000	2100
Turbidity	NTU	N/A		735			933			29500			1320		647	20800	799
Colour	TCU	5		2			3			< 2			< 2		< 2	< 2	< 2
Aluminum	mg/L	0.1	0.03	0.03	0.06	0.03	0.04	0.06	0.07	0.06	0.06	0.07	0.07	0.08	0.05	0.08	0.05
Antimony	mg/L	0.006	< 0.0001	0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0004	0.0003	0.0004	0.0003	0.0002	0.0003	0.0006	0.0006	0.0005	0.0006	0.0006	0.0003	0.0012	0.0008	0.0003
Barium	mg/L	1	0.138	0.18	0.16	0.138	0.158	0.16	0.12	0.117	0.122	0.109	0.107	0.123	0.127	0.128	0.136
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.028	0.035	0.039	0.028	0.031	0.036	0.028	0.031	0.03	0.024	0.029	0.03	0.025	0.031	0.032
Cadmium	mg/L	0.005	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	0.000027	< 0.000015	< 0.000015
Chromium	mg/L	0.05	< 0.0002	0.0015	< 0.0002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.002	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0007	0.012	< 0.005	< 0.005	0.0012	< 0.005	0.0034	< 0.005	0.006
Copper	mg/L	1	0.0002	< 0.0001	0.0002	0.0008	0.0009	0.0009	0.0024	0.0016	0.0008	0.0008	0.0015	0.0005	0.003	0.0006	0.0019
Lead	mg/L	0.01	< 0.00002	< 0.00002	0.00006	0.00003	0.00008	0.00005	0.0001	0.00008	0.00004	0.00003	0.00006	0.00002	0.00273	0.00007	0.00006
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0006	< 0.0001	0.0001	0.0004	0.0002	0.0003	0.0018	0.0006	0.0012	0.0009	0.0005	0.0014	0.0004	0.0004	0.0009
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	0.608	0.773	0.664	0.645	0.718	0.654	0.613	0.709	0.638	0.719	0.694	0.646	0.716	0.711	0.743
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0016	0.0007	0.0008	0.0018	0.0017	0.0005	0.0002	0.0001	0.0002	0.0002	0.0002	0.0002	0.0018	0.0002	0.0003
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.018	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qu	anty		61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-III	61-17-I	61-17-I	61-17-I	61-17-I	61-17-I
Parameters	Units	ODWQS	4-May-21	5-Jul-21	13-Oct-21	3-May-22	26-Jul-22	25-Oct-22	2-May-23	12-Jul-23	18-Oct-23	8-May-18	61-17-1 12-Jul-23	11-Oct-18	9-May-19	9-Oct-19	5-May-20
Alkalinity	mg/L	500	384	396	367	376	405	374	377	384	398	375	469	389	342	383	367
Unionized Ammonia	mg/L	N/A	< 0.01	330	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	010	< 0.01	303	542	505	< 0.01
Ammonia	mg/L	N/A	0.04	0.05	0.09	0.05	0.04	0.08	0.29	0.03	0.07	0.39	0.44	0.36	0.41	0.36	0.38
BOD	mg/L	N/A	3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	0.07	0.00	< 3	0.00	0.41	0.50	< 3
Calcium	mg/L	N/A	138	141	147	159	160	176	212	200	182	113	148	117	108	141	109
COD	mg/L	N/A	19	18	11	21	12	20	7	18	16	16	54	260	105	41	13
Chloride	mg/L	250	55.1	60.6	80	82.1	92.6	131	226	260	285	79.6	171	88	76.1	107	82.2
Conductivity	umhos/cm	N/A	1040	1020	1090	1110	1120	1230	1480	1550	1530	926	1370	1010	933	1060	956
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		525	< 0.005		000		< 0.005
DOC	mg/L	5	2.8	3.6	1.9	2	1.7	0.2	1.2	< 0.2	2.9	5.3	2.3	6.5	6.2	6.2	5.4
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1	< 0.1	< 1	<0.1	< 0.1	< 1	< 0.1	0.4	< 0.1	0.1
Hardness	mg/L	500	499	497	516	537	540	609	702	656	614	474	587	490	457	574	464
Ion Balance	%	N/A	0.569	1.89	0.334	3.13	0.499	4.44	1.03	5.07	11.7		1.79			. .	3.68
Iron	mg/L	0.3	0.017	0.197	0.112	0.147	0.157	0.554	0.544	0.111	0.311	0.121	0.325	0.181	0.178	0.534	0.136
Magnesium	mg/L	N/A	37.4	35.2	36.2	33.8	34.1	41	42.2	38	38.7	46.7	52.8	48	45.5	53.8	46.6
Manganese	mg/L	0.05	0.052	0.07	0.066	0.072	0.061	0.069	0.083	0.095	0.094	0.012	0.018	0.014	0.013	0.028	0.012
Nitrate	mg/L	10	0.05	0.07	0.05	0.07	0.07	< 0.05	< 0.05	< 0.5	<0.05	< 0.05	< 0.5	< 0.05	0.19	< 0.05	< 0.05
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	<0.05	< 0.05	< 0.5	< 0.05	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	0.5	0.3	0.3	0.3	0.4	0.4	1	0.4	0.3	1.5	1.1	2.8	1.1	0.9	0.7
pH-Lab	pH unit	6.5-8.5	7.91	7.74	7.79	7.72	7.61	7.65	7.7	7.58	7.66	7.77	7.65	7.84	7.86	7.79	7.79
Phenols	mg/L	N/A	0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	0.018	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	2.91	0.71	< 0.1
Potassium	mg/L	N/A	2	2.5	2.5	2.1	2.1	2.6	2.4	2.5	2.5	4.1	5.1	4	3.9	4.5	4.2
Sodium	mg/L	200	35.2	28.1	33.8	34.3	36.2	38.2	42.4	46.6	43.4	32.5	58.2	36.5	31.5	40.5	33
Sulphate	mg/L	500	105	98	105	83	76	75	84	88	98	23	37	27	49	22	20
TDS	mg/L	500	603	603	625	620	645	689	835	865	834	524	754	554	521	600	516
TSS	mg/L	N/A	3550	818	1870	1740	1520	1120	1870	1910	1890		522				66
Turbidity	NTU	N/A	2100	82.2	765	666	259	75.7	923	960	979		231				67.1
Colour	TCU	5	< 2	< 2	2	< 2	< 2	< 2	< 2	< 2	<2		2				< 2
Aluminum	mg/L	0.1	0.08	0.09	0.07	0.05	0.08	0.1	0.06	0.1	0.11	0.07	0.07		0.07	0.13	0.06
Antimony	mg/L	0.006	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	0.06	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0002	0.0004	0.0003	0.0002	0.0002	0.0004	0.0001	0.0001	0.0003	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Barium	mg/L	1	0.102	0.114	0.128	0.136	0.134	0.172	0.178	0.168	0.159	0.452	0.665	0.0001	0.416	0.511	0.442
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	0.46	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.02	0.028	0.029	0.019	0.018	< 0.005	0.022	0.019	0.02	0.106	0.141	< 0.002	0.105	0.131	0.118
Cadmium	mg/L	0.005	< 0.000015	0.000017	< 0.000015	< 0.000015	< 0.000015	< 0.000012	< 0.000012	0.000015	<0.000015	< 0.000015	< 0.000012	0.107	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.000015	< 0.001	0.002	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0021	< 0.0001	< 0.005	< 0.001	0.006	< 0.005	< 0.0001
Copper	mg/L	1	0.0008	0.0008	0.0009	0.0007	0.0009	0.0002	0.0003	0.0004	0.0009	0.0005	0.0001	< 0.005	0.0006	0.0001	< 0.0001
Lead	mg/L	0.01	0.00003	0.00008	0.0002	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	<0.00002	0.00005	< 0.00004	0.0009	< 0.00002	0.00022	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.0015	0.0007	0.001	0.0007	0.0011	0.0007	0.0009	0.0009	0.0008	< 0.0001	< 0.0001	< 0.00002	< 0.0001	< 0.0001	0.0005
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0027	< 0.01	< 0.01	< 0.0001	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	< 0.001	< 0.001	0.001	0.001	0.001	0.001	0.002	0.003	<0.001	< 0.001	0.002	< 0.01	< 0.001	0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	0.001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	0.643	0.648	0.677	0.604	0.629	0.744	0.788	0.779	0.76	1.34	1.85	< 0.0001	1.48	1.7	1.55
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	1.42	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	< 0.0001	0.0002	0.0003	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	0.0001	0.0002	0.0004	< 0.00005	0.0002	0.0006	0.0002
Zinc	mg/L	5	< 0.005	0.006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	0.0003	< 0.005	< 0.005	< 0.005

General Water Qu	lanty		61-17-I	61-17-I	61-17-I (DUP)	61-17-II	62-17-I	62-17-I	62-17-I								
Parameters	Units	ODWQS	13-Jul-20	13-Oct-20	4-May-21	5-Jul-21	13-Oct-21	3-May-22	26-Jul-22	25-Oct-22	2-May-23	18-Oct-23	26-Jul-22	5-Jul-21	8-May-18	11-Oct-18	9-May-19
Alkalinity	mg/L	500	392	435	324	351	331	336	388	384	410	517	383	457	413	672	600
Unionized Ammonia	mg/L	N/A	0.01	< 0.01	< 0.01	001	< 0.01	< 0.01	< 0.01	< 0.01	0.01	<0.01	< 0.01	101	410	0,2	000
Ammonia	mg/L	N/A	0.38	0.42	0.38	0.41	0.45	0.43	0.45	0.42	2.51	0.53	0.54	0.54	0.94	0.76	0.75
BOD	mg/L	N/A	< 3	< 3	< 6	< 3	< 3	< 3	< 3	< 3	< 3	0.00	< 3	< 3	0.01	00	00
Calcium	mg/L	N/A	119	129	97.3	97.4	105	112	115	123	126	142	116	129	103	89.3	57.4
COD	mg/L	N/A	21	25	19	50	20	45	53	56	21	49	82	83	439	458	324
Chloride	mg/L	250	89.7	132	90.7	102	109	91.6	83.6	91.8	121	232	84.1	133	159	233	198
Conductivity	umhos/cm	N/A	1010	1220	932	950	971	981	991	1030	1160	1510	974	1220	1980	3450	2640
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		< 0.005	< 0.005		0.00	2010
DOC	mg/L	5	7.6	5.4	3.7	4.2	2.1	3.4	3.4	2.1	4.7	9.4	3.6	6.6	79.1	18.8	86.7
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1	< 0.1	<0.1	0.2	< 0.1	< 0.1	< 1	< 1
Hardness	mg/L	500	504	568	432	431	456	475	495	536	543	596	496	533	450	388	269
Ion Balance	%	N/A	4.06	3.95	1.1	2.25	0.92	4.49	3.55	7.07	2.4	8.6	3.92	0.813		000	200
Iron	mg/L	0.3	0.114	0.154	0.124	0.087	0.088	0.181	0.105	0.246	0.134	0.173	0.11	0.321	0.154	0.014	< 0.005
Magnesium	mg/L	N/A	50.2	59.8	46	45.7	47.1	47.5	50.5	55.6	55.8	58.6	50.1	51.1	46.8	40.1	30.6
Manganese	mg/L	0.05	0.012	0.013	0.012	0.01	0.013	0.013	0.013	0.015	0.015	0.016	0.013	0.02	0.023	0.014	0.005
Nitrate	mg/L	10	0.43	< 0.05	< 0.05	< 0.05	< 0.05	0.07	< 0.05	< 0.05	< 0.05	<0.05	< 0.05	< 0.05	< 0.05	< 0.5	1.62
Nitrite	mg/L	1	< 0.05	< 0.05	0.05	< 0.05	0.06	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5
Tot Kjel N	mg/L	N/A	0.9	1	0.7	1.1	0.7	0.9	1.2	1.1	2.8	1.5	1.3	1.1	2.8	1.7	1.6
pH-Lab	pH unit	6.5-8.5	7.68	7.67	7.88	7.77	7.83	7.72	7.7	7.75	7.78	7.47	7.8	7.54	8.01	816	8.11
Phenols	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.002	< 0.001	0.026	0.025
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.48
Potassium	mg/L	N/A	4.2	5.1	4.1	4.3	4.5	4.4	4.5	5.1	5.1	5.1	4.5	4.5	9.8	9.8	7.8
Sodium	mg/L	200	37	53.3	25	26.9	26.6	28.1	32.7	39	45.4	62.3	32.8	58.7	335	704	536
Sulphate	mg/L	500	24	17	29	24	26	30	27	31	37	35	29	34	524	805	531
TDS	mg/L	500	560	657	487	512	517	516	547	577	635	822	547	685	1427	2285	1722
TSS	mg/L	N/A	220	235	430	1940	730	360	1420	1000	902	73	740	1040			
Turbidity	NTU	N/A	374	461	70.8	217	675	456	269	940	144	78.4	367	884			
Colour	TCU	5	< 2	3	< 2	< 2	< 2	< 2	< 2	< 2	< 2	4	< 2	3			
Aluminum	mg/L	0.1	0.07	0.05	0.07	0.06	0.05	0.04	0.07	0.09	0.04	0.1	0.08	0.09	0.05		0.04
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0002	0.05	< 0.0001
Arsenic	mg/L	0.025	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	0.0001	0.01	0.0001	0.0031
Barium	mg/L	1	0.506	0.59	0.458	0.495	0.545	0.539	0.551	0.619	0.63	0.72	0.561	0.533	0.121	0.0093	0.069
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	0.069	< 0.002
Boron	mg/L	5	0.123	0.149	0.123	0.138	0.133	0.133	0.134	0.069	0.147	0.152	0.132	0.148	0.304	< 0.002	0.432
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000012	<0.000015	< 0.000015	< 0.000015	0.00013	0.459	< 0.000029
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.000015	< 0.001
Cobalt	mg/L	N/A	< 0.005	0.008	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0003	< 0.005	< 0.005	< 0.0001	< 0.001	< 0.005
Copper	mg/L	1	< 0.0001	0.0006	0.0007	0.0002	0.0004	0.0004	< 0.0001	0.0001	0.0001	0.0007	0.0005	0.0002	0.0019	< 0.005	0.0035
Lead	mg/L	0.01	0.00002	< 0.00004	0.00004	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00004	<0.00002	< 0.00002	< 0.00004	< 0.0002	< 0.0001	< 0.00009
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	0.0044	< 0.00002	< 0.0002
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0067	< 0.01	< 0.01	< 0.01	0.0005	< 0.01
Selenium	mg/L	0.01	< 0.001	0.001	< 0.001	0.001	0.001	0.001	0.002	0.001	0.001	<0.001	0.001	0.002	0.004	< 0.01	0.003
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0002	0.004	< 0.0001
Strontium	mg/L	N/A	1.65	2.04	1.71	1.81	1.9	1.73	1.87	1.91	1.97	1.98	1.86	1.68	3.34	< 0.0001	3.67
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	4.5	< 0.00005
Vanadium	mg/L	N/A	0.0002	0.0002	< 0.0001	0.0001	< 0.0001	0.0001	0.0002	0.0002	0.0003	0.0004	0.0001	0.0001	0.0023	< 0.00005	0.0023
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	0.0044	< 0.005

General Water Qu	lanty		62-17-I	62-17-I	62-17-I	62-17-I	62-17-I	62-17-I	62-17-I	62-17-I	62-17-I	62-17-II	62-17-II	62-17-II	62-17-II	62-17-II	62-17-II
Parameters	Units	ODWQS	13-Oct-20	62-17-1 4-May-21	13-Oct-21	62-17-1 3-May-22	62-17-1 26-Jul-22	62-17-1 25-Oct-22	62-17-1 2-May-23	62-17-1 12-Jul-23	18-Oct-23	8-May-18	11-Oct-18	9-May-19	9-Oct-19	5-May-20	13-Jul-20
Alkalinity	mg/L	500	574	667	653	372	443	536	483	569	505	517	495	395	467	420	473
Unionized Ammonia	mg/L	N/A	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	0.01	0.01	<0.01	017	433	000	407	< 0.01	< 0.01
Ammonia	mg/L	N/A	0.65	0.72	0.65	0.06	0.61	0.36	2.01	0.65	0.23	0.5	0.53	0.43	0.52	0.51	0.47
BOD	mg/L	N/A	15	6	13	< 3	6	16	3	11	0.20	0.0	0.00	0.10	0.02	< 3	< 3
Calcium	mg/L	N/A	64.2	43	41.9	182	113	73.5	104	94	93.1	159	165	142	165	135	158
COD	mg/L	N/A	114	104	95	13	128	72	29	116	29	38	44	29	46	37	40
Chloride	mg/L	250	123	151	151	56.9	91	109	105	164	158	152	171	103	184	111	142
Conductivity	umhos/cm	N/A	1700	1800	1730	1020	1130	1380	1230	1520	1360	1360	1490	1160	1440	1190	1310
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1000	1000	1400	1100	1110	< 0.005	< 0.005
DOC	mg/L	5	19.1	15.6	7.7	4	5.7	7.4	6.3	3.7	9.3	12.1	12.1	10.1	9.8	7.1	13.6
Fluoride	mg/L	1.5	0.6	0.6	< 0.1	< 0.1	0.3	0.3	< 0.1	< 1	<0.1	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	308	219	201	497	421	265	308	289	291	626	643	545	658	534	614
Ion Balance	%	N/A	6.88	1.93	4.33	4.78	0.71	4.02	1.34	10.9	13.6	020	0.0	0.0		1.67	3.44
Iron	mg/L	0.3	1.21	0.203	0.96	0.012	0.14	0.301	0.006	0.186	0.122	0.412	0.46	0.415	0.246	0.273	0.282
Magnesium	mg/L	N/A	35.9	27.1	23.4	10.5	33.6	19.8	11.6	13.1	14.2	55.7	56.1	46.3	59.8	47.7	53.3
Manganese	mg/L	0.05	0.01	0.009	0.011	< 0.001	0.027	0.023	< 0.001	0.025	0.027	0.025	0.03	0.024	0.023	0.022	0.024
Nitrate	mg/L	10	< 0.05	< 0.05	0.08	2.53	0.09	0.15	0.2	< 0.5	0.42	< 0.05	< 0.05	0.19	< 0.05	< 0.05	0.5
Nitrite	mg/L	1	< 0.05	0.13	0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	<0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	1.2	1.6	1.3	0.4	2.3	1.1	2.3	1.6	0.8	1.3	1.3	0.9	1.4	1.2	1.3
pH-Lab	pH unit	6.5-8.5	8.01	8.15	8.11	7.68	8.08	7.91	7.95	8	7.8	7.61	7.68	7.75	7.69	7.66	7.56
Phenols	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	0.013	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	0.11	0.21	< 0.1	< 0.1
Potassium	mg/L	N/A	6.4	5.5	5.1	1.2	3.5	4	2.3	2.9	3	4.5	4.4	3.8	4.8	4	4.2
Sodium	mg/L	200	334	359	360	42.6	88.9	235	155	168	130	70.2	77.4	49	77.1	50.2	67.5
Sulphate	mg/L	500	156	87	45	72	38	31	32	21	32	52	51	77	26	50	41
TDS	mg/L	500	1065	1074	1019	588	635	795	701	806	737	805	823	659	797	651	751
TSS	mg/L	N/A	112	194	164	46	322	80	42	1150	64					240	106
Turbidity	NTU	N/A	46.5	48.4	63.8	23.8	243	102	238	386	210					43.5	42.3
Colour	TCU	5	46	6	6	< 2	2	4	3	4	7					< 2	3
Aluminum	mg/L	0.1	0.02	0.03	0.03	0.06	0.1	0.04	0.03	0.06	0.06	0.07		0.08	0.09	0.07	0.08
Antimony	mg/L	0.006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0003	0.0001	< 0.0001	0.0001	< 0.0001	0.08	< 0.0001	0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.0029	0.002	0.002	0.0002	0.0009	0.0013	0.0002	0.0004	0.0005	0.0002	< 0.0001	< 0.0001	< 0.0003	< 0.0001	< 0.0001
Barium	mg/L	1	0.144	0.203	0.316	0.101	0.376	0.349	0.235	0.394	0.335	0.651	< 0.0001	0.385	0.64	0.421	0.549
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.0001	< 0.002	0.608	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.407	0.371	0.354	0.028	0.123	0.147	0.134	0.145	0.122	0.133	< 0.002	0.102	0.16	0.116	0.144
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000012	< 0.000012	< 0.000012	<0.000015	0.000057	0.135	< 0.000015	< 0.000029	< 0.000015	< 0.000015
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.000015	< 0.001	0.002	< 0.001	< 0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0004	0.0001	0.001	< 0.005	< 0.005	< 0.0001	< 0.005
Copper	mg/L	1	0.002	0.001	0.0004	0.003	0.0019	0.0005	0.0008	0.0003	0.0006	0.0012	< 0.005	0.0005	< 0.0002	< 0.0001	0.0002
Lead	mg/L	0.01	0.00009	0.00007	< 0.00004	< 0.00002	0.00037	< 0.00004	< 0.00004	< 0.00004	<0.00002	0.00005	0.0002	< 0.00002	< 0.00009	< 0.00004	0.00006
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	0.00012	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	N/A	0.002	0.0003	0.0001	0.0003	0.0011	0.001	0.0002	0.0003	0.0004	0.0003	< 0.00002	< 0.0001	< 0.0002	0.0001	< 0.0001
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0035	< 0.01	< 0.0001	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	0.001	0.002	0.002	< 0.001	0.001	0.001	< 0.001	0.002	<0.001	< 0.001	< 0.01	< 0.001	0.002	< 0.001	0.002
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001
Strontium	mg/L	N/A	3.53	2.72	2.4	0.433	1.85	2.01	1.08	1.53	1.45	1.52	< 0.0001	1.36	1.86	1.41	1.6
Thallium	mg/L	N/A	< 0.00005	< 0.00005	0.00007	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	< 0.00005	1.57	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0005	0.0009	0.001	0.0002	0.0006	0.001	0.0004	0.0006	0.0007	0.0004	< 0.00005	0.0002	< 0.0004	0.0003	0.0003
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	0.007	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	0.0004	< 0.005	< 0.005	< 0.005	< 0.005

General Water Qua			62-17-II	62-17-II	62-17-II (DUP)	62-17-III	62-17-III	62-17-III	62-17-III	62-17-III							
Parameters	Units	ODWQS	13-Oct-20	4-May-21	13-Oct-21	3-May-22	26-Jul-22	25-Oct-22	2-May-23	12-Jul-23	18-Oct-23	18-Oct-23	8-May-18	24-Jul-18	11-Oct-18	16-Jul-19	9-Oct-19
Alkalinity	mg/L	500	492	439	409	421	462	460	454	437	480	485	259	291	344	380	367
Unionized Ammonia	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	<0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01
Ammonia	mg/L	N/A	0.53	0.09	0.61	0.53	0.51	0.49	1.88	0.43	0.77	0.98	0.05	0.43	0.09	0.21	0.02
BOD	mg/L	N/A	< 3	3	< 3	< 3	< 3	< 3	< 3	< 3			< 3	8	4	5	< 3
Calcium	mg/L	N/A	156	60.6	137	142	148	150	154	154	145	147	61.7	52.1	51	54.7	64.8
COD	mg/L	N/A	42	14	75	25	29	41	23	31	37	35	43	118	< 5	84	< 5
Chloride	mg/L	250	167	40.2	138	112	120	138	149	123	172	179	19.3	19.5	20.3	25.2	27.8
Conductivity	umhos/cm	N/A	1430	1070	1220	1230	1240	1320	1330	1230	1360	1370	713	745	787	860	882
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005			< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
DOC	mg/L	5	6.8	4.2	3.8	5.3	6.1	3.7	6.3	1.9	7.6	8.9	3.3	3.7	4.1	5.2	3
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	500	637	263	551	558	585	612	607	559	552	561	267	233	225	234	279
Ion Balance	%	N/A	3.09	1.94	2.94	3.56	3	4.88	1.47	0.704	7.58	7.65					
Iron	mg/L	0.3	0.27	0.037	0.377	0.516	0.515	0.443	0.64	0.685	0.621	0.623	0.067	0.135	0.152	0.53	0.006
Magnesium	mg/L	N/A	60.1	27.2	50.8	49.1	52.3	57.7	53.7	42.4	46.1	47.2	27.4	24.9	23.7	23.6	28.4
Manganese	mg/L	0.05	0.023	0.012	0.022	0.023	0.024	0.024	0.028	0.029	0.026	0.026	0.016	0.013	0.0117	0.01	0.001
Nitrate	mg/L	10	< 0.05	0.24	< 0.05	0.07	< 0.05	< 0.05	< 0.05	< 0.5	<0.05	<0.05	< 0.05	< 0.05	0.06	< 0.05	< 0.05
Nitrite	mg/L	1	< 0.05	< 0.05	0.07	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	<0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	N/A	1.4	0.6	1.2	1.1	1.2	1.3	2	0.8	1.5	1.2	0.7	2.3	0.9	1.7	0.3
pH-Lab	pH unit	6.5-8.5	7.62	8.07	7.72	7.69	7.55	7.56	7.65	7.7	7.61	7.67	8.1	8.07	8.03	7.87	8.04
Phenols	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.001	< 0.001	< 0.1	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	N/A	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	4.14	0.09
Potassium	mg/L	N/A	4.9	4.2	4.5	4.2	4.3	5	4.5	3.8	3.7	3.8	4.5	3.5	3.4	3.4	4
Sodium	mg/L	200	81	156	57.3	50.4	56.6	66.7	58.8	48.6	51.4	52.4	77.8	83.8	95.3	127	122
Sulphate	mg/L	500	43	85	40	49	41	39	53	69	57	56	104	66	51	59	72
TDS	mg/L	500	807	637	674	660	701	733	747	704	739	745	450	426	452	522	539
TSS	mg/L	N/A	172	240	2800	772	151	272	276	77	64	64	2200	7600	2150	6550	128
Turbidity	NTU	N/A	14.3	1740	834	321	71.6	96.4	113	45.8	36.2	47.5	2440	9080	1120	12700	408
Colour	TCU	5	5	< 2	3	< 2	2	3	< 2	< 2	3	3	< 2	< 2	< 2	< 2	< 2
Aluminum	mg/L	0.1	0.06	0.05	0.06	0.05	0.08	0.1	0.1	0.09	0.09	0.1	0.05	0.03	0.03	0.03	0.05
Antimony	mg/L	0.006	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001	0.0007	0.0003	0.0003	0.0004	0.0007
Arsenic	mg/L	0.025	< 0.0001	0.0011	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001	0.0066	0.0097	0.0049	0.005	0.0017
Barium	mg/L	1	0.581	0.168	0.54	0.491	0.499	0.6	0.511	0.383	0.419	0.425	0.126	0.144	0.151	0.162	0.184
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	0.163	0.057	0.139	0.128	0.127	0.071	0.129	0.093	0.103	0.106	0.05	0.053	0.059	0.064	0.062
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000012	< 0.000012	< 0.000012	<0.000015	<0.000015	0.000022	0.000055	0.000056	0.000039	0.00007
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Cobalt	mg/L	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0003	0.0003	0.0002	< 0.005	< 0.0001	0.0001	< 0.005
Copper	mg/L	1	0.0007	0.0017	0.0006	0.0002	0.0003	0.0002	0.0001	0.0001	0.0006	0.0005	0.0014	0.0003	< 0.0001	0.001	0.0002
Lead	mg/L	0.01	0.00004	0.00043	0.00005	< 0.00004	< 0.00004	< 0.00004	0.00012	< 0.00004	<0.00002	<0.00002	0.00005	0.00007	< 0.00002	0.00005	< 0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	0.00005	< 0.00002
Molybdenum	mg/L	N/A	< 0.0001	0.0049	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001	0.087	0.0302	0.0363	0.0163	0.0492
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0047	0.0047	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	0.002	< 0.001	0.002	0.002	0.002	0.001	0.001	0.002	<0.001	<0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	N/A	1.89	0.489	1.64	1.45	1.58	1.76	1.56	1.22	1.3	1.32	0.466	0.423	0.413	0.415	0.455
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	N/A	0.0003	0.0008	0.0002	0.0002	0.0002	0.0002	0.0003	0.0002	0.0003	0.0003	0.0004	0.0013	0.001	0.0015	0.0032
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	<0.005	< 0.005	< 0.005	< 0.005	0.008	< 0.005

General Water Q	aunty		62-17-III	62-17-III	62-17-III	62-17-III	62-17-III	62-17-III	62-17-III	62-17-III	62-17-III	62-17-III
Parameters	Units	ODWQS	5-May-20	13-Oct-20	4-May-21	13-Oct-21	3-May-22	26-Jul-22	25-Oct-22	2-May-23	12-Jul-23	18-Oct-23
Alkalinity	mg/L	500	421	397	420	379	400	426	408	446	466	468
Unionized Ammonia	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01
Ammonia	mg/L	N/A	0.16	0.05	0.57	0.2	0.09	0.15	0.16	0.31	0.19	0.09
BOD	mg/L	N/A	< 3	< 3	< 3	4	< 3	8	4	< 3	< 3	0.00
Calcium	mg/L	N/A	41.7	62.8	122	78.6	78.7	89.8	99.3	116	122	102
COD	mg/L	N/A	64	35	130	17	11	12	20	< 5	16	19
Chloride	mg/L	250	28.1	29.2	111	52.9	44.9	42.7	52.2	89.4	91	79.7
Conductivity	umhos/cm	N/A	1010	968	1170	991	1020	964	1010	1170	1170	1120
Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1120
DOC	mg/L	5	4.5	1.9	6.1	4.3	2.5	2.5	1.4	1.6	1.2	2.7
Fluoride	mg/L	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 1	<0.1
Hardness	mg/L	500	191	281	506	329	323	370	427	449	452	405
Ion Balance	// // // // // // // // // // // // //	N/A	3.92	6.26	1.09	3.3	4	2.7	6.3	1.53	1.07	5.95
Iron	mg/L	0.3	< 0.005	< 0.005	0.317	0.015	0.01	0.007	0.3	0.045	0.014	<0.005
Magnesium	mg/L	N/A	21.2	30.1	48.9	32.2	30.7	35.3	43.5	38.9	35.8	36.6
Manganese	mg/L	0.05	0.006	< 0.001	0.02	0.006	0.004	0.006	0.035	0.013	0.012	0.003
Nitrate	mg/L	10	0.000	0.13	< 0.02	< 0.05	0.004	0.000	0.033	0.013	< 0.5	0.003
Nitrite	mg/L	10	< 0.05	< 0.05	0.12	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	<0.05
Tot Kjel N	mg/L	N/A	1.1	0.03	1.2	0.05	0.05	0.6	0.6	1	0.3	0.03
pH-Lab	pH unit	6.5-8.5	8.16	8.1	7.83	8.04	7.98	7.87	7.87	7.87	7.83	7.75
Phenols	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001
			< 0.002	< 0.10	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.1	<0.001
Phosphorus	mg/L	N/A						4.2				
Potassium	mg/L	N/A	3.8	4.3	4.4	4.6	4.5		4.7	4.8	4.6	4.3
Sodium	mg/L	200	177	142	53.9	113	120	95.7	84.8	93.7	85.9	74.1
Sulphate	mg/L	500	74	84	39	87	78	63	61	64	62	61
TDS	mg/L	500	598	590	633	596	597	587	591	673	682	604
TSS	mg/L	N/A	2600	825	6600	8700	970	54100	1760	444	3240	562
Turbidity	NTU	N/A	1510	68.4	2200	855	1220	343	626	392	736	577
Colour	TCU	5	< 2	< 2	2	< 2	< 2	< 2	< 2	< 2	< 2	<2
Aluminum	mg/L	0.1	0.03	0.02	0.08	0.04	0.02	0.05	0.08	0.04	0.08	0.07
Antimony	mg/L	0.006	0.0006	0.0004	< 0.0001	0.0002	0.0001	0.0001	0.0001	< 0.0001	< 0.0001	0.0002
Arsenic	mg/L	0.025	0.0021	0.0011	0.0004	0.001	0.0007	0.0008	0.0013	0.0003	0.0003	0.0004
Barium	mg/L	1	0.141	0.187	0.471	0.187	0.191	0.192	0.255	0.244	0.257	0.225
Beryllium	mg/L	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001
Boron	mg/L	5	0.072	0.065	0.127	0.046	0.048	0.038	< 0.005	0.038	0.033	0.036
Cadmium	mg/L	0.005	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015		< 0.000010	< 0.000012	< 0.000012	<0.000015
Chromium	mg/L	0.05	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001
Cobalt	mg/L	N/A	0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0002
Copper	mg/L	1	< 0.0001	0.0004	0.0011	0.0008	0.0008	0.001	0.0006	0.0006	0.0006	0.0007
Lead	mg/L	0.01	< 0.00004	< 0.00002	0.00008	< 0.00002	< 0.00002	0.00003	0.00006	< 0.00004	< 0.00004	<0.00002
Mercury	mg/L	0.001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002
Molybdenum	mg/L	N/A	0.0112	0.0094	0.001	0.0043	0.0054	0.0035	0.0018	0.0023	0.0017	0.0016
Nickel	mg/L	N/A	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0006
Selenium	mg/L	0.01	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001
Silver	mg/L	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001
Strontium	mg/L	N/A	0.393	0.506	1.55	0.542	0.553	0.603	0.698	0.737	0.711	0.667
Thallium	mg/L	N/A	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005
Vanadium	mg/L	N/A	0.0013	0.0027	0.0002	0.0009	0.0005	0.0006	0.0003	0.0003	0.0002	0.0002
Zinc	mg/L	5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.005

V 00			6-90-II	6-90-II	6-90-II	6-90-II	6-90-II	7-90-II	7-90-II	7-90-II	7-90-II	7-90-II	7-90-II	7-90-II
Parameters	Units	ODWQS	7-May-14	23-Oct-14	16-May-16	23-May-17	12-Nov-19	7-May-14	18-May-16	18-Oct-16	8-May-18	8-May-19	8-Oct-19	5-May-20
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 0.5	< 0.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethane	μg/L	N/A	< 0.5	0.9	< 0.5	< 0.5	< 0.5	1.4	1.1	1.8	1.1	2.2	2.3	< 0.5
1,1-Dichloroethylene	μg/L	14		< 0.1		< 0.5	< 0.5				< 0.5	< 0.5	< 0.5	< 0.5
Ethylene Dibromide	μg/L	N/A	< 0.2	< 0.1	10.6	< 0.2	< 0.2	< 0.2	18.6	53.8	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	μg/L	3	< 0.5	0.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	17.6	< 0.5
1,2-Dichloroethane	μg/L	5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	μg/L	1	1.9	2	1.6	1.9	1.5	4.9	3.3	4.6	< 0.5	4.7	5.2	5.3
Methyl Ethyl Ketone	μg/L	N/A			< 20	< 20	< 20		< 20	< 20	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	μg/L	N/A			< 20	< 20	< 20		< 20	< 20	< 20	< 20	< 20	< 20
Acetone	μg/L	N/A	< 30	8	< 30	< 30	40	< 30	< 30	< 30	< 30	< 30	< 30	< 30
Benzene	μg/L	5	3.6	8.2	5.1	4.7	9.6	2.2	2.3	3.6	5.3	4.1	4.7	6.4
Bromodichloromethane	μg/L	N/A	< 2	< 0.1	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Bromoform	μg/L	N/A	< 5	< 0.1	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromomethane	μg/L	N/A	< 0.5	< 0.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	μg/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chlorobenzene	μg/L	80	< 0.5	0.6	0.6		10.4	< 0.5	1.3	2.6	< 0.5	3.5	5.5	6.7
Chloroform	μg/L	N/A	< 1	< 0.3	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
cis 1,2-Dichloroethene	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis 1,3-Dichloroethene	μg/L	N/A	< 0.5	< 0.1		< 0.5	< 0.5	< 0.5			< 0.5	< 0.5	< 0.5	< 0.5
Dibromochloromethane	μg/L	N/A	< 2	< 0.1	< 0.5	< 2	< 2	< 2	< 0.5	< 0.5	< 2	< 2	< 2	< 2
Dichlorodifluoromethane	μg/L	N/A	87.7		< 2		< 5	86.3	< 2	< 2		< 5		
Ethylbenzene	μg/L	2.4	43.7	52.3		< 0.5	28.5	43.3			54.1	62.7	77.5	28.9
m & p-Xylene	μg/L	N/A	59.8	< 0.4	58.6	83.2	111	116	50.4	140	120	153	204	92.6
o-Xylene	μg/L	N/A	33.8	54.9	37.3	49.9	32.1	43.7	22.7	47.3	120	48.3	66.2	71
Toluene	μg/L	N/A	0.8	0.9	1	< 0.5	6.6	3.5	4.2	5.7	57.4	4.2	5.3	6.2
Methyl tert-Butyl Ether	μg/L	N/A	< 2	2	< 2	< 2	2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Methylene Chloride	μg/L	N/A	< 5	< 0.3	< 5			< 5	< 5	< 5	< 5		< 5	< 5
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5			_									
Xylene, m,p,o-	μg/L	300												

VOC			7-90-II	7-90-II	7-90-II	7-90-II	7-90-II	11-90	11-90	11-90	11-90	11-90	11-90	11-90
Parameters	Units	ODWQS	13-Oct-20	3-May-21	14-Oct-21	25-Oct-22	18-Oct-23	8-May-14	29-Jul-14	20-Oct-14	29-May-15	13-Jul-15	13-Oct-15	13-Jul-16
1,1,1,2-Tetrachloroethane	μg/L	N/A	5.2	< 0.5					< 0.5			< 0.5		< 0.5
1,1,1-Trichloroethane	μg/L	N/A	34.1	< 0.5					< 0.5			< 0.5		< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A	66.6	< 0.5					< 0.5			< 0.5		< 0.5
1,1,2-Trichloroethane	μg/L	N/A	36.9	< 0.5					< 0.5			< 0.5		< 0.5
1,1-Dichloroethane	μg/L	N/A	104	< 0.5					< 0.5			< 0.5		< 0.5
1,1-Dichloroethylene	μg/L	14		< 0.5										
Ethylene Dibromide	μg/L	N/A		< 0.2					< 0.2			< 0.2		< 0.5
1,2-Dichlorobenzene	μg/L	3		< 0.5					< 0.5			< 0.5		< 0.5
1,2-Dichloroethane	μg/L	5		< 0.5					< 0.5			< 0.5		< 0.5
1,2-Dichloropropane	μg/L	N/A		< 0.5					< 0.5			< 0.5		< 0.5
1,3-Dichlorobenzene	μg/L	N/A		< 0.5					< 0.5			< 0.5		< 0.5
1,4-Dichlorobenzene	μg/L	1		7.8					< 0.5			< 0.5		< 0.5
Methyl Ethyl Ketone	μg/L	N/A		< 20										< 20
Methyl Isobutyl Ketone	μg/L	N/A		< 20										< 20
Acetone	μg/L	N/A		60					< 30			< 30		< 30
Benzene	μg/L	5	4.3	5.3	4.7	4.1	5.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A		< 2					< 2			< 2		< 2
Bromoform	μg/L	N/A		< 5					< 5			< 5		< 5
Bromomethane	μg/L	N/A		< 0.5					< 0.5					< 0.5
Carbon Tetrachloride	μg/L	5		< 0.2					< 0.2			< 0.2		< 0.2
Chlorobenzene	μg/L	80		7					< 0.5			< 0.5		< 0.5
Chloroform	μg/L	N/A		< 1					< 1			< 1		< 1
cis 1,2-Dichloroethene	μg/L	N/A		< 0.5					< 0.5			< 0.5		< 0.5
cis 1,3-Dichloroethene	μg/L	N/A		< 0.5					< 0.5			< 0.5		İ
Dibromochloromethane	μg/L	N/A		< 2					< 2			< 2		< 0.5
Dichlorodifluoromethane	μg/L	N/A						93.7	82.9					< 2
Ethylbenzene	μg/L	2.4	34.1	45.7	9.6	17.8	1.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
m & p-Xylene	μg/L	N/A	66.6	91.3	< 1.0	66.6	1	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 0.4	< 1.0
o-Xylene	μg/L	N/A	36.9	43.8	53.3	29.2	48.8	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.1	< 0.5
Toluene	μg/L	N/A	5.2	2.5	1.2	< 2	1.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A		2					< 2			< 2		< 2
Methylene Chloride	μg/L	N/A		< 5					< 5			< 5		< 5
Vinyl Chloride	μg/L	2		< 0.2										
Trichloroethylene	μg/L	5		< 0.5										
Xylene, m,p,o-	μg/L	300		135	53.3	95.8	50.2							

VOC			11-90	11-90	11-90	11-90	11-90	11-90	11-90	11-90	11-90	11-90	11-90	11-90
Parameters	Units	ODWQS	25-May-17	20-Jul-17	18-Oct-17	8-May-18	24-Jul-18	11-Oct-18	9-May-19	16-Jul-19	9-Oct-19	5-May-20	13-Jul-20	13-Oct-20
1,1,1,2-Tetrachloroethane	μg/L	N/A		< 0.5			< 0.1			< 0.5		< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	μg/L	N/A		< 0.5			< 0.1			< 0.5		< 0.5	< 0.5	< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A		< 0.5			< 0.4			< 0.5		< 0.5	< 0.5	< 1.0
1,1,2-Trichloroethane	μg/L	N/A		< 0.5			< 0.1			< 0.5		< 0.5	< 0.5	< 0.5
1,1-Dichloroethane	μg/L	N/A		< 0.5			< 0.1			< 0.5		< 0.5	< 0.5	< 1.1
1,1-Dichloroethylene	μg/L	14		< 0.5			< 0.1			< 0.5		< 0.5	< 0.5	
Ethylene Dibromide	μg/L	N/A		< 0.2			< 0.1			< 0.2		< 0.2	< 0.2	
1,2-Dichlorobenzene	μg/L	3		< 0.5			< 0.1			< 0.5		< 0.5	< 0.5	
1,2-Dichloroethane	μg/L	5		< 0.5			< 0.1			< 0.5		< 0.5	< 0.5	
1,2-Dichloropropane	μg/L	N/A		< 0.5			< 0.1			< 0.5		< 0.5	< 0.5	
1,3-Dichlorobenzene	μg/L	N/A		< 0.5			< 0.1			< 0.5		< 0.5	< 0.5	
1,4-Dichlorobenzene	μg/L	1		< 0.5			< 0.2			< 0.5		< 0.5	< 0.5	
Methyl Ethyl Ketone	μg/L	N/A		< 20			< 1			< 20		< 20	< 20	
Methyl Isobutyl Ketone	μg/L	N/A		< 20			< 1			< 20		< 20	< 20	
Acetone	μg/L	N/A		< 30			< 2			< 30		< 30	< 30	
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A		< 2			< 0.1			< 2		< 2	< 2	
Bromoform	μg/L	N/A		< 5			< 0.1			< 5		< 5	< 5	
Bromomethane	μg/L	N/A		< 0.5			< 0.3			< 0.5		< 0.5	< 0.5	
Carbon Tetrachloride	μg/L	5		< 0.2			< 0.2			< 0.2		< 0.2	< 0.2	
Chlorobenzene	μg/L	80					< 0.2			< 0.5		< 0.5	< 0.5	
Chloroform	μg/L	N/A		< 1			< 0.3			< 1		< 1	< 1	
cis 1,2-Dichloroethene	μg/L	N/A		< 0.5			< 0.1			< 0.5		< 0.5	< 0.5	
cis 1,3-Dichloroethene	μg/L	N/A		< 0.5			< 0.1			< 0.5		< 0.5	< 0.5	
Dibromochloromethane	μg/L	N/A		< 2			< 0.1			< 2		< 2	< 2	
Dichlorodifluoromethane	μg/L	N/A								< 5				
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 1.0	< 0.4	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A		< 2			< 1			< 2		< 2	< 2	
Methylene Chloride	μg/L	N/A					< 0.3					< 5	< 5	
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300												

VOC			11-90	11-90	11-90	11-90	11-90	11-90	11-90	11-90	12-91-1	12-91-2	12-91-I	12-91-I
Parameters	Units	ODWQS	3-May-21	5-Jul-21	14-Oct-21	3-May-22	28-Jul-22	25-Oct-22	12-Jul-23	18-Oct-23	3-May-22	3-May-22	6-May-14	21-Oct-14
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5	< 0.5			< 0.5		< 0.5					
1,1,1-Trichloroethane	μg/L	N/A	< 0.5	< 0.5			< 0.5		< 0.5					
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 0.5	< 0.5			< 0.5		< 0.5					
1,1,2-Trichloroethane	μg/L	N/A	< 0.5	< 0.5			< 0.5		< 0.5					
1,1-Dichloroethane	μg/L	N/A	< 0.5	< 0.5			< 0.5		< 0.5					
1,1-Dichloroethylene	μg/L	14	< 0.5	< 0.5			< 0.5		< 0.5					
Ethylene Dibromide	μg/L	N/A	< 0.2	< 0.2			< 0.2		< 0.2					
1,2-Dichlorobenzene	μg/L	3	< 0.5	< 0.5			< 0.5		< 0.5					
1,2-Dichloroethane	μg/L	5	< 0.5	< 0.5			< 0.5		< 0.5					
1,2-Dichloropropane	μg/L	N/A	< 0.5	< 0.5			< 0.5		< 0.5					
1,3-Dichlorobenzene	μg/L	N/A	< 0.5	< 0.5			< 0.5		< 0.5					
1,4-Dichlorobenzene	μg/L	1	< 0.5	< 0.5			< 0.5		< 0.5					
Methyl Ethyl Ketone	μg/L	N/A	< 20	< 20			< 20		< 20					
Methyl Isobutyl Ketone	μg/L	N/A	< 20	< 20			< 20		< 20					
Acetone	μg/L	N/A	< 30	< 30			< 30		< 30					
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A	< 2	< 2			< 2		< 2					
Bromoform	μg/L	N/A	< 5	< 5			< 5		< 5					
Bromomethane	μg/L	N/A	< 0.5	< 0.5			< 0.5		< 0.5					
Carbon Tetrachloride	μg/L	5	< 0.2	< 0.2			< 0.2		< 0.2					
Chlorobenzene	μg/L	80	< 0.5	< 0.5			< 0.5		< 0.5					
Chloroform	μg/L	N/A	< 1	< 1			< 1		< 1					
cis 1,2-Dichloroethene	μg/L	N/A	< 0.5	< 0.5			< 0.5		< 0.5					
cis 1,3-Dichloroethene	μg/L	N/A	< 0.5	< 0.5			< 0.5		< 0.5					
Dibromochloromethane	μg/L	N/A	< 2	< 2			< 2		< 2					
Dichlorodifluoromethane	μg/L	N/A											99.3	
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A	< 2	< 2			< 2		< 2					
Methylene Chloride	μg/L	N/A	< 5	< 5			< 5		< 5					
Vinyl Chloride	μg/L	2	< 0.2	< 0.2			< 0.2		< 0.2					
Trichloroethylene	μg/L	5	< 0.5	< 0.5			< 0.5		< 0.5					
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1	< 1.1	< 1.1		

VOC			12-91-I	12-91-I	12-91-I	12-91-I	12-91-I	12-91-I	12-91-I	12-91-I	12-91-I	12-91-I	12-91-I	12-91-I
Parameters	Units	ODWQS	28-May-15		23-May-17	17-Oct-17	8-May-18	11-Oct-18	8-May-19	8-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21
1,1,1,2-Tetrachloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1,1-Trichloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1,2,2 Tetrachloroethane	μg/L	N/A									< 1.0	< 1.0		
1,1,2-Trichloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1-Dichloroethane	μg/L	N/A									< 1.1	< 1.1		
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.1	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300											< 1.1	< 1.1

VOC			12-91-I	12-91-I	12-91-I	12-91-II	12-91-II	12-91-II	12-91-II	12-91-II	12-91-II	12-91-II	12-91-II	12-91-II
Parameters	Units	ODWQS	25-Oct-22	3-May-23	18-Oct-23	6-May-14	21-Oct-14	28-May-15		23-May-17	17-Oct-17	8-May-18	11-Oct-18	8-May-19
1,1,1,2-Tetrachloroethane	μg/L	N/A				,								
1,1,1-Trichloroethane	μg/L	N/A												
1,1,2,2 Tetrachloroethane	μg/L	N/A												
1,1,2-Trichloroethane	μg/L	N/A												
1,1-Dichloroethane	μg/L	N/A												
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A				98.5								
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	<1.1									

VOC			12-91-II	12-91-II	12-91-II	12-91-II	12-91-II	12-91-II	12-91-II	12-91-II	13-19-II	13-91-I	13-91-I	13-91-I
Parameters	Units	ODWQS	8-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	25-Oct-22	3-May-23	18-Oct-23	7-Oct-19	7-May-14	21-Oct-14	28-May-15
1,1,1,2-Tetrachloroethane	μg/L	N/A		< 0.5	< 0.5									
1,1,1-Trichloroethane	μg/L	N/A		< 0.5	< 0.5									
1,1,2,2 Tetrachloroethane	μg/L	N/A		< 1.0	< 1.0									
1,1,2-Trichloroethane	μg/L	N/A		< 0.5	< 0.5									
1,1-Dichloroethane	μg/L	N/A		< 1.1	< 1.1									
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A										89.7		
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 1.0	< 0.4
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.1
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300				< 1.1	< 1.1	< 1.1	< 1.1	<1.1				

VOC			13-91-I	13-91-I	13-91-I	13-91-I	13-91-I	13-91-I	13-91-I	13-91-I	13-91-I	13-91-I	13-91-I	13-91-I
Parameters	Units	ODWQS	19-Oct-15	23-May-17	16-Oct-17	8-May-18	11-Oct-18	8-May-19	7-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22
1,1,1,2-Tetrachloroethane	μg/L	N/A								< 0.5	< 0.5			
1,1,1-Trichloroethane	μg/L	N/A								< 0.5	< 0.5			
1,1,2,2 Tetrachloroethane	μg/L	N/A								< 1.0	< 1.0			
1,1,2-Trichloroethane	μg/L	N/A								< 0.5	< 0.5			
1,1-Dichloroethane	μg/L	N/A								< 1.1	< 1.1			
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5		< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300										< 1.1	< 1.1	< 1.1

VOC			13-91-I	13-91-I	13-91-I	13-91-II	13-91-II	13-91-II	13-91-II	13-91-II	13-91-II	13-91-II	13-91-II	13-91-II
Parameters	Units	ODWQS	25-Oct-22	3-May-23	18-Oct-23	7-May-14	21-Oct-14	28-May-15	19-Oct-15	23-May-17	16-Oct-17	11-Oct-18	8-May-19	5-May-20
1,1,1,2-Tetrachloroethane	μg/L	N/A												< 0.5
1,1,1-Trichloroethane	μg/L	N/A												< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A												< 1.0
1,1,2-Trichloroethane	μg/L	N/A												< 0.5
1,1-Dichloroethane	μg/L	N/A												< 1.1
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A				92.9								
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	<1.1									

VOC			13-91-II	13-91-II	13-91-II	13-91-II	13-91-II	13-91-II	13-91-II	14-07	14-07	14-07	14-07	14-07
Parameters	Units	ODWQS	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23	8-May-14	21-Oct-14	26-May-15		
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5											
1,1,1-Trichloroethane	μg/L	N/A	< 0.5											
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 1.0											
1,1,2-Trichloroethane	μg/L	N/A	< 0.5											
1,1-Dichloroethane	μg/L	N/A	< 1.1											
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A								84.2				
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 1.0	< 0.4	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300		< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1					

VOC			14-07	14-07	14-07	14-07	14-07	14-07	14-07	14-07	14-07	14-07	14-07	14-07
Parameters	Units	ODWQS	16-Oct-17	8-May-18	11-Oct-18	8-May-19	8-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23
1,1,1,2-Tetrachloroethane	μg/L	N/A						< 0.5	< 0.5					
1,1,1-Trichloroethane	μg/L	N/A						< 0.5	< 0.5					
1,1,2,2 Tetrachloroethane	μg/L	N/A						< 1.0	< 1.0					
1,1,2-Trichloroethane	μg/L	N/A						< 0.5	< 0.5					
1,1-Dichloroethane	μg/L	N/A						< 1.1	< 1.1					
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												1
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												1
Xylene, m,p,o-	μg/L	300								< 1.1	< 1.1	< 1.1	< 1.1	< 1.1

VOC			14-07	15-91-I	15-91-I	15-91-I	15-91-I	15-91-I	15-91-I	15-91-I	15-91-I	15-91-I	15-91-I	15-91-I
Parameters	Units	ODWQS	18-Oct-23	7-May-14	22-Oct-14	28-May-15		23-May-17	16-Oct-17	8-May-18	11-Oct-18	8-May-19	7-Oct-19	5-May-20
1,1,1,2-Tetrachloroethane	μg/L	N/A												< 0.5
1,1,1-Trichloroethane	μg/L	N/A												< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A												< 1.0
1,1,2-Trichloroethane	μg/L	N/A												< 0.5
1,1-Dichloroethane	μg/L	N/A												< 1.1
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	<0.5	< 0.5	0.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A		90.4										
Ethylbenzene	μg/L	2.4	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	<1	< 1.0	< 0.4	< 0.4	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	<0.5	< 0.5	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	<0.5	1.7	< 0.5	< 0.5	< 0.5	6.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	<1.1											

VOC			15-91-I	15-91-I	15-91-I	15-91-I	15-91-I	15-91-I	15-91-I	15-91-II	15-91-II	15-91-II	15-91-II	15-91-II
Parameters	Units	ODWQS	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23	7-May-14	22-Oct-14	28-May-15		23-May-17
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5											
1,1,1-Trichloroethane	μg/L	N/A	< 0.5											
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 1.0											
1,1,2-Trichloroethane	μg/L	N/A	< 0.5											
1,1-Dichloroethane	μg/L	N/A	< 1.1											
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	0.6	0.7	0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A								93.3				
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 0.4	< 0.4	< 0.4	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.1	< 0.1	< 0.1	< 0.5
Toluene	μg/L	N/A	< 0.5	0.9	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300		< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1					

VOC			15-91-II	15-91-II	15-91-II	15-91-II	15-91-II	15-91-II	15-91-II	15-91-II	15-91-II	15-91-II	15-91-II	16-91-I
Parameters	Units	ODWQS	16-Oct-17	8-May-18	11-Oct-18	8-May-19	7-Oct-19	5-May-20	13-Oct-20	3-May-21	3-May-22	3-May-23	18-Oct-23	7-May-14
1,1,1,2-Tetrachloroethane	μg/L	N/A						< 0.5	< 0.5					
1,1,1-Trichloroethane	μg/L	N/A						< 0.5	< 0.5					
1,1,2,2 Tetrachloroethane	μg/L	N/A						< 1.0	< 1.0					
1,1,2-Trichloroethane	μg/L	N/A						< 0.5	< 0.5					
1,1-Dichloroethane	μg/L	N/A						< 1.1	< 1.1					
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.6	< 0.5	0.7	0.7	< 0.5	0.6	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												91.4
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300								< 1.1	< 1.1	< 1.1	<1.1	

VOC			16-91-I	16-91-I	16-91-I	16-91-I	16-91-I	16-91-I	16-91-I	16-91-I	16-91-I	16-91-I	16-91-I	16-91-I
Parameters	Units	ODWQS	22-Oct-14	27-May-15	15-Oct-15	23-May-17	17-Oct-17	8-May-18	11-Oct-18	9-May-19	8-Oct-19	5-May-20	13-Oct-20	3-May-21
1,1,1,2-Tetrachloroethane	μg/L	N/A										< 0.5	< 0.5	
1,1,1-Trichloroethane	μg/L	N/A										< 0.5	< 0.5	
1,1,2,2 Tetrachloroethane	μg/L	N/A										< 1.0	< 1.0	
1,1,2-Trichloroethane	μg/L	N/A										< 0.5	< 0.5	
1,1-Dichloroethane	μg/L	N/A										< 1.1	< 1.1	
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 0.4	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.1	< 0.5	< 0.1	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300												< 1.1

VOC			16-91-I	16-91-I	16-91-I	16-91-I	16-91-I (DUP)	16-91-I	16-91-I (DUP)	16-91-II	16-91-II	16-91-II	16-91-II	16-91-II
Parameters	Units	ODWQS	14-Oct-21	3-May-22	25-Oct-22	3-May-23	3-May-23	18-Oct-23	18-Oct-23	7-May-14	22-Oct-14	27-May-15	15-Oct-15	23-May-17
1,1,1,2-Tetrachloroethane	μg/L	N/A												
1,1,1-Trichloroethane	μg/L	N/A												
1,1,2,2 Tetrachloroethane	μg/L	N/A												
1,1,2-Trichloroethane	μg/L	N/A												
1,1-Dichloroethane	μg/L	N/A												
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	1.5	1.7	1.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A								93.4				
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	< 1.0	0.5	< 1.0	0.8	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.1	< 0.5	< 0.1	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	1.7	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	0.7	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1	<1.1					

VOC			16-91-II	16-91-II	16-91-II	16-91-II	16-91-II	16-91-II	16-91-II	17-91-I	17-91-I	17-91-I	17-91-I	17-91-I
Parameters	Units	ODWQS	17-Oct-17	8-May-18	11-Oct-18	9-May-19	5-May-20	3-May-21	3-May-23	7-May-14	21-Oct-14	26-May-15	15-Oct-15	23-May-17
1,1,1,2-Tetrachloroethane	μg/L	N/A					< 0.5					_		
1,1,1-Trichloroethane	μg/L	N/A					< 0.5							
1,1,2,2 Tetrachloroethane	μg/L	N/A					< 1.0							
1,1,2-Trichloroethane	μg/L	N/A					< 0.5							
1,1-Dichloroethane	μg/L	N/A					< 1.1							
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	3.4	1.5	< 0.5	< 0.5	1.4	1.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A								94.3				
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.4	< 1.0
o-Xylene	μg/L	N/A	< 0.5		< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.5
Toluene	μg/L	N/A	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300						< 1.1	< 1.1					

VOC			17-91-I	17-91-I	17-91-I	17-91-I	17-91-I	17-91-I	17-91-I	17-91-I	17-91-I	17-91-I	17-91-I	17-91-I
Parameters	Units	ODWQS	16-Oct-17	8-May-18	10-Oct-18	8-May-19	7-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23
1,1,1,2-Tetrachloroethane	μg/L	N/A						< 0.5	< 0.5					
1,1,1-Trichloroethane	μg/L	N/A						< 0.5	< 0.5					
1,1,2,2 Tetrachloroethane	μg/L	N/A						< 1.0	< 1.0					
1,1,2-Trichloroethane	μg/L	N/A						< 0.5	< 0.5					
1,1-Dichloroethane	μg/L	N/A						< 1.1	< 1.1					
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300								< 1.1	< 1.1	< 1.1	< 1.1	< 1.1

VOC			17-91-I	17-91-II	17-91-II	17-91-II	17-91-II	17-91-II	17-91-II	17-91-II	17-91-II	17-91-II	17-91-II	17-91-II
Parameters	Units	ODWQS	18-Oct-23	7-May-14	21-Oct-14	26-May-15		23-May-17	16-Oct-17	8-May-18	10-Oct-18	8-May-19	7-Oct-19	5-May-20
1,1,1,2-Tetrachloroethane	μg/L	N/A												< 0.5
1,1,1-Trichloroethane	μg/L	N/A												< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A												< 1.0
1,1,2-Trichloroethane	μg/L	N/A												< 0.5
1,1-Dichloroethane	μg/L	N/A												< 1.1
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A		91.9										
Ethylbenzene	μg/L	2.4	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	<1	< 1.0	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	<0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	<1.1											

VOC			17-91-II	17-91-II	17-91-II	17-91-II	17-91-II	17-91-II	17-91-II	18-91	18-91	18-91	18-91	18-91
Parameters	Units	ODWQS	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23	7-May-14	22-Oct-14	28-May-15		
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5			,				,				
1,1,1-Trichloroethane	μg/L	N/A	< 0.5											
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 1.0											
1,1,2-Trichloroethane	μg/L	N/A	< 0.5											
1,1-Dichloroethane	μg/L	N/A	< 1.1											
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A								92				
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 0.4	< 0.4	< 0.4	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.1	< 0.1	< 0.1	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300		< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1					

VOC			18-91	18-91	18-91	18-91	18-91	18-91	18-91	18-91	18-91	18-91	18-91	18-91
Parameters	Units	ODWQS	16-Oct-17	8-May-18	11-Oct-18	8-May-19	7-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23
1,1,1,2-Tetrachloroethane	μg/L	N/A				_		< 0.5	< 0.5					
1,1,1-Trichloroethane	μg/L	N/A						< 0.5	< 0.5					
1,1,2,2 Tetrachloroethane	μg/L	N/A						< 1.0	< 1.0					
1,1,2-Trichloroethane	μg/L	N/A						< 0.5	< 0.5					
1,1-Dichloroethane	μg/L	N/A						< 1.1	< 1.1					
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.6
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												1
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300								< 1.1	< 1.1	< 1.1	< 1.1	< 1.1

VOC			18-91	19-91	19-91	19-91	19-91	19-91	19-91	19-91	19-91	19-91	19-91	19-91
Parameters	Units	ODWQS	18-Oct-23	7-May-14	28-May-15	15-Oct-15		16-Oct-17	8-May-18	11-Oct-18	8-May-19	8-Oct-19	5-May-20	13-Oct-20
1,1,1,2-Tetrachloroethane	μg/L	N/A			_								< 0.5	< 0.5
1,1,1-Trichloroethane	μg/L	N/A											< 0.5	< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A											< 1.0	< 1.0
1,1,2-Trichloroethane	μg/L	N/A											< 0.5	< 0.5
1,1-Dichloroethane	μg/L	N/A											< 1.1	< 1.1
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A		94.1										
Ethylbenzene	μg/L	2.4	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	<1	< 1.0	< 0.4	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	<0.5	< 0.5	< 0.1	< 0.1	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	<1.1											

V 00			19-91	19-91	19-91	19-91	19-91	19-91	20-91-I	20-91-I	20-91-I	20-91-I	20-91-I	20-91-I
Parameters	Units	ODWQS	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23	22-Oct-14	28-May-15	15-Oct-15	23-May-17	16-Oct-17	8-May-18
1,1,1,2-Tetrachloroethane	μg/L	N/A												
1,1,1-Trichloroethane	μg/L	N/A												
1,1,2,2 Tetrachloroethane	μg/L	N/A												
1,1,2-Trichloroethane	μg/L	N/A												
1,1-Dichloroethane	μg/L	N/A												
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 0.4	< 0.4	< 0.4	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 1.0
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	1.1	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1						

VOC			20-91-I	20-91-I	20-91-I	20-91-I	20-91-I	20-91-I	20-91-I	20-91-I	20-91-I (DUP)	20-91-II	20-91-II	20-91-II
Parameters	Units	ODWQS	8-May-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	25-Oct-22	3-May-23	18-Oct-23	3-May-23	7-May-14	22-Oct-14	28-May-15
1,1,1,2-Tetrachloroethane	μg/L	N/A		< 0.5	< 0.5									
1,1,1-Trichloroethane	μg/L	N/A		< 0.5	< 0.5									
1,1,2,2 Tetrachloroethane	μg/L	N/A		< 1.0	< 1.0									
1,1,2-Trichloroethane	μg/L	N/A		< 0.5	< 0.5									
1,1-Dichloroethane	μg/L	N/A		< 1.1	< 1.1									
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	1.7	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A										93.7		
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 0.4	< 0.4
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.1	< 0.1
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300				< 1.1	< 1.1	< 1.1	< 1.1	<1.1	< 1.1			

VOC			20-91-II	20-91-II	20-91-II	20-91-II	20-91-II	20-91-II	20-91-II	20-91-II	20-91-II	20-91-II	20-91-II	20-91-II
Parameters	Units	ODWQS	15-Oct-15	23-May-17	16-Oct-17	8-May-18	11-Oct-18	8-May-19	7-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22
1,1,1,2-Tetrachloroethane	μg/L	N/A				_		<u>-</u>		< 0.5	< 0.5	_		
1,1,1-Trichloroethane	μg/L	N/A								< 0.5	< 0.5			
1,1,2,2 Tetrachloroethane	μg/L	N/A								< 1.0	< 1.0			
1,1,2-Trichloroethane	μg/L	N/A								< 0.5	< 0.5			
1,1-Dichloroethane	μg/L	N/A								< 1.1	< 1.1			
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.1	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300										< 1.1	< 1.1	< 1.1

VOC			20-91-II	20-91-II	20-91-II	20-91-III								
Parameters	Units	ODWQS	25-Oct-22	3-May-23	18-Oct-23	7-May-14	22-Oct-14	28-May-15		23-May-17	16-Oct-17	8-May-18	11-Oct-18	8-May-19
1,1,1,2-Tetrachloroethane	μg/L	N/A		_				•						
1,1,1-Trichloroethane	μg/L	N/A												
1,1,2,2 Tetrachloroethane	μg/L	N/A												
1,1,2-Trichloroethane	μg/L	N/A												
1,1-Dichloroethane	μg/L	N/A												
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A				95.1								
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	<1	< 1.0	< 0.4	< 0.4	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	<0.5	< 0.5	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	<0.5	1.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	<1.1									

VOC			20-91-III (DUP)	21-91-I	21-91-I									
Parameters	Units	ODWQS	7-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23	18-Oct-23	7-May-14	22-Oct-14
1,1,1,2-Tetrachloroethane	μg/L	N/A		< 0.5	< 0.5									
1,1,1-Trichloroethane	μg/L	N/A		< 0.5	< 0.5									
1,1,2,2 Tetrachloroethane	μg/L	N/A		< 1.0	< 1.0									
1,1,2-Trichloroethane	μg/L	N/A		< 0.5	< 0.5									
1,1-Dichloroethane	μg/L	N/A		< 1.1	< 1.1									
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A											93.7	
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	< 1.0	< 0.4
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.1
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300				< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1	<1.1		

VOC			21-91-I	21-91-I	21-91-I	21-91-I	21-91-I	21-91-I	21-91-I	21-91-I	21-91-I	21-91-I	21-91-I	21-91-I
Parameters	Units	ODWQS	29-May-15		23-May-17	17-Oct-17	8-May-18	11-Oct-18	9-May-19	8-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21
1,1,1,2-Tetrachloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1,1-Trichloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1,2,2 Tetrachloroethane	μg/L	N/A									< 1.0	< 1.0		
1,1,2-Trichloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1-Dichloroethane	μg/L	N/A									< 1.1	< 1.1		
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300											< 1.1	< 1.1

VOC			21-91-I	21-91-I	21-91-I	21-91-I	21-91-II	21-91-II	21-91-II	21-91-II	21-91-II	21-91-II	21-91-II	21-91-II
Parameters	Units	ODWQS	3-May-22	25-Oct-22	3-May-23	18-Oct-23	7-May-14	22-Oct-14	29-May-15	15-Oct-15	23-May-17	17-Oct-17	8-May-18	11-Oct-18
1,1,1,2-Tetrachloroethane	μg/L	N/A			,		,							
1,1,1-Trichloroethane	μg/L	N/A												
1,1,2,2 Tetrachloroethane	μg/L	N/A												
1,1,2-Trichloroethane	μg/L	N/A												
1,1-Dichloroethane	μg/L	N/A												
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A					95.6							
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 0.4	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.1	< 0.5	< 0.1	< 0.5	< 0.5	< 1.0	
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	< 1.1	<1.1								

V 00			21-91-II	21-91-II	21-91-II	21-91-II	21-91-II	21-91-II	21-91-II	21-91-II	21-91-II	21-91-II	21-91-III	21-91-III
Parameters	Units	ODWQS	9-May-19	8-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23	7-May-14	22-Oct-14
1,1,1,2-Tetrachloroethane	μg/L	N/A			< 0.5	< 0.5								
1,1,1-Trichloroethane	μg/L	N/A			< 0.5	< 0.5								
1,1,2,2 Tetrachloroethane	μg/L	N/A			< 1.0	< 1.0								
1,1,2-Trichloroethane	μg/L	N/A			< 0.5	< 0.5								
1,1-Dichloroethane	μg/L	N/A			< 1.1	< 1.1								
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A											93.7	
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	0.6	< 0.5	< 0.5	< 0.5	< 0.5	0.7	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 0.4
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	1.2	< 0.5	< 0.5	< 0.5	< 0.5	0.7	< 0.5	< 0.1
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300					1.2	< 1.1	< 1.1	< 1.1	< 1.1	<1.1		

V00			21-91-III											
Parameters	Units	ODWQS	29-May-15	15-Oct-15	23-May-17	17-Oct-17	8-May-18	11-Oct-18	9-May-19	8-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21
1,1,1,2-Tetrachloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1,1-Trichloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1,2,2 Tetrachloroethane	μg/L	N/A									< 1.0	< 1.0		
1,1,2-Trichloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1-Dichloroethane	μg/L	N/A									< 1.1	< 1.1		
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	0.9	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300											< 1.1	< 1.1

V 00			21-91-III	21-91-III	21-91-III	21-91-III	23-07	23-07	23-07	23-07	23-07	23-07	23-07	23-07
Parameters	Units	ODWQS	3-May-22	25-Oct-22	3-May-23	18-Oct-23	7-May-14	21-Oct-14	28-May-15	15-Oct-15	24-May-17	16-Oct-17	8-May-18	11-Oct-18
1,1,1,2-Tetrachloroethane	μg/L	N/A	_						_		_			
1,1,1-Trichloroethane	μg/L	N/A												
1,1,2,2 Tetrachloroethane	μg/L	N/A												
1,1,2-Trichloroethane	μg/L	N/A												
1,1-Dichloroethane	μg/L	N/A												
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	0.5	0.5	< 0.5	0.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A					94.7							
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 0.4	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.1	< 0.1	< 0.5	< 0.5	< 1.0	< 1.0
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	< 1.1	<1.1								

VOC			23-07	23-07	23-07	23-07	23-07	23-07	23-07	23-07	23-07	23-07 (DUP)	23-07	23-07 (DUP)
Parameters	Units	ODWQS	8-May-19	8-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	3-May-23	18-Oct-23	18-Oct-23
1,1,1,2-Tetrachloroethane	μg/L	N/A			< 0.5	< 0.5	,				,			
1,1,1-Trichloroethane	μg/L	N/A			< 0.5	< 0.5								
1,1,2,2 Tetrachloroethane	μg/L	N/A			< 1.0	< 1.0								
1,1,2-Trichloroethane	μg/L	N/A			< 0.5	< 0.5								
1,1-Dichloroethane	μg/L	N/A			< 1.1	< 1.1								
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												1
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												1
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300					< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1	<1.1

VOC			24-91	24-91	24-91	24-91	24-91	24-91	24-91	24-91	24-91	24-91	25-91	25-91
Parameters	Units	ODWQS	7-May-14	22-Oct-14	28-May-15	15-Oct-15		16-Oct-17	8-May-18	11-Oct-18	8-May-19	8-Oct-19	7-May-14	21-Oct-14
1,1,1,2-Tetrachloroethane	μg/L	N/A												
1,1,1-Trichloroethane	μg/L	N/A												
1,1,2,2 Tetrachloroethane	μg/L	N/A												
1,1,2-Trichloroethane	μg/L	N/A												
1,1-Dichloroethane	μg/L	N/A												
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A	94.1										105	
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 0.4	< 0.4	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300												

V 00			25-91	25-91	25-91	25-91	25-91	25-91	25-91	25-91	25-91	25-91	25-91	25-91
Parameters	Units	ODWQS	28-May-15	15-Oct-15	24-May-17	17-Oct-17	8-May-18	11-Oct-18	8-May-19	8-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21
1,1,1,2-Tetrachloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1,1-Trichloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1,2,2 Tetrachloroethane	μg/L	N/A									< 1.0	< 1.0		
1,1,2-Trichloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1-Dichloroethane	μg/L	N/A									< 1.1	< 1.1		
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 0.4	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.1	< 0.1	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300											< 1.1	< 1.1

VOC			25-91	25-91	25-91	25-91	25-96	25-96	25-96	25-96	25-96	25-96	25-96	25-96
Parameters	Units	ODWQS	3-May-22	25-Oct-22	3-May-23	18-Oct-23	7-May-14	21-Oct-14	28-May-15	15-Oct-15	24-May-17	16-Oct-17	8-May-18	11-Oct-18
1,1,1,2-Tetrachloroethane	μg/L	N/A									_			
1,1,1-Trichloroethane	μg/L	N/A												
1,1,2,2 Tetrachloroethane	μg/L	N/A												
1,1,2-Trichloroethane	μg/L	N/A												
1,1-Dichloroethane	μg/L	N/A												
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A					101							
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 0.4	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.1	< 0.1	< 0.5	< 0.5	< 1.0	< 1.0
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	< 1.1	<1.1								

VOC			25-96	25-96	25-96	25-96	25-96	25-96	25-96	25-96	25-96	25-96	27-93	27-93
Parameters	Units	ODWQS	8-May-19	7-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23	7-May-14	22-Oct-14
1,1,1,2-Tetrachloroethane	μg/L	N/A			< 0.5	< 0.5								
1,1,1-Trichloroethane	μg/L	N/A			< 0.5	< 0.5								
1,1,2,2 Tetrachloroethane	μg/L	N/A			< 1.0	< 1.0								
1,1,2-Trichloroethane	μg/L	N/A			< 0.5	< 0.5								
1,1-Dichloroethane	μg/L	N/A			< 1.1	< 1.1								
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A											84.9	
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 0.4
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.1
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300					< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1		

VOC			27-93	27-93	27-93	27-93	27-93	27-93	27-93	27-93	27-93	27-93	27-93	27-93
Parameters	Units	ODWQS	28-May-15		24-May-17	16-Oct-17	8-May-18	11-Oct-18	8-May-19	7-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21
1,1,1,2-Tetrachloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1,1-Trichloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1,2,2 Tetrachloroethane	μg/L	N/A									< 1.0	< 1.0		
1,1,2-Trichloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1-Dichloroethane	μg/L	N/A									< 1.1	< 1.1		
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 0.4	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.1	< 0.1	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300											< 1.1	< 1.1

VOC			27-93	27-93	27-93	27-93	28-93	28-93	28-93	28-93	28-93	28-93	28-93	28-93
Parameters	Units	ODWQS	3-May-22	25-Oct-22	3-May-23	18-Oct-23	7-May-14	21-Oct-14	28-May-15	19-Oct-15	24-May-17	16-Oct-17	8-May-18	11-Oct-18
1,1,1,2-Tetrachloroethane	μg/L	N/A												
1,1,1-Trichloroethane	μg/L	N/A												
1,1,2,2 Tetrachloroethane	μg/L	N/A												
1,1,2-Trichloroethane	μg/L	N/A												
1,1-Dichloroethane	μg/L	N/A												
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A					85.5							
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	0.8	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	0.9	<0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	< 1.1	<1.1								

VOC			28-93	28-93	28-93	28-93	28-93	28-93	28-93	28-93	28-93	28-93	29-93	29-93
Parameters	Units	ODWQS	8-May-19	7-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23	7-May-14	21-Oct-14
1,1,1,2-Tetrachloroethane	μg/L	N/A			< 0.5	< 0.5								
1,1,1-Trichloroethane	μg/L	N/A			< 0.5	< 0.5								
1,1,2,2 Tetrachloroethane	μg/L	N/A			< 1.0	< 1.0								
1,1,2-Trichloroethane	μg/L	N/A			< 0.5	< 0.5								
1,1-Dichloroethane	μg/L	N/A			< 1.1	< 1.1								
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A											84.3	
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300					< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1		

VOC			29-93	29-93	29-93	29-93	29-93	29-93	29-93	29-93	29-93	29-93	29-93	29-93
Parameters	Units	ODWQS	28-May-15		24-May-17	17-Oct-17	8-May-18	11-Oct-18	9-May-19	7-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21
1,1,1,2-Tetrachloroethane	μg/L	N/A	_		_						< 0.5	< 0.5		
1,1,1-Trichloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1,2,2 Tetrachloroethane	μg/L	N/A									< 1.0	< 1.0		
1,1,2-Trichloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1-Dichloroethane	μg/L	N/A									< 1.1	< 1.1		
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 0.4	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.1	< 0.1	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300											< 1.1	< 1.1

VOC			29-93	29-93	29-93	29-93	30-93	30-93	30-93	30-93	30-93	30-93	30-93	30-93
Parameters	Units	ODWQS	3-May-22	25-Oct-22	3-May-23	18-Oct-23	6-May-14	23-Oct-14	26-May-15	20-Oct-15	24-May-17	18-Oct-17	8-May-18	11-Oct-18
1,1,1,2-Tetrachloroethane	μg/L	N/A												
1,1,1-Trichloroethane	μg/L	N/A												
1,1,2,2 Tetrachloroethane	μg/L	N/A												
1,1,2-Trichloroethane	μg/L	N/A												
1,1-Dichloroethane	μg/L	N/A												
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A					97.5							
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	< 1.1	<1.1								

VOC			30-93	30-93	30-93	30-93	30-93	30-93	30-93	30-93	30-93	30-93	31-93	31-93
Parameters	Units	ODWQS	9-May-19	7-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23	6-May-14	23-Oct-14
1,1,1,2-Tetrachloroethane	μg/L	N/A			< 0.5	< 0.5								
1,1,1-Trichloroethane	μg/L	N/A			< 0.5	< 0.5								
1,1,2,2 Tetrachloroethane	μg/L	N/A			< 1.0	< 1.0								
1,1,2-Trichloroethane	μg/L	N/A			< 0.5	< 0.5								
1,1-Dichloroethane	μg/L	N/A			< 1.1	< 1.1								
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A											89.9	
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 0.4
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.1
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300					< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1		

VOC			31-93	31-93	31-93	31-93	31-93	31-93	31-93	31-93	31-93	31-93	31-93	31-93
Parameters	Units	ODWQS	26-May-15		24-May-17	18-Oct-17	8-May-18	11-Oct-18	9-May-19	7-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21
1,1,1,2-Tetrachloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1,1-Trichloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1,2,2 Tetrachloroethane	μg/L	N/A									< 1.0	< 1.0		
1,1,2-Trichloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1-Dichloroethane	μg/L	N/A									< 1.1	< 1.1		
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300											< 1.1	< 1.1

VOC			31-93	31-93	31-93	31-93	32-93-I	32-93-I	32-93-I	32-93-I	32-93-I	32-93-I	32-93-I	32-93-I
Parameters	Units	ODWQS	3-May-22	25-Oct-22	3-May-23	18-Oct-23	24-May-17	19-Jul-17	17-Oct-17	8-May-18	24-Jul-18	11-Oct-18	8-May-19	15-Jul-19
1,1,1,2-Tetrachloroethane	μg/L	N/A						< 0.5			< 0.1			< 0.5
1,1,1-Trichloroethane	μg/L	N/A						< 0.5			< 0.1			< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A						< 0.5			< 0.4			< 0.5
1,1,2-Trichloroethane	μg/L	N/A						< 0.5			< 0.1			< 0.5
1,1-Dichloroethane	μg/L	N/A						< 0.5			< 0.1			< 0.5
1,1-Dichloroethylene	μg/L	14						< 0.5			< 0.1			< 0.5
Ethylene Dibromide	μg/L	N/A						< 0.2			< 0.1			< 0.2
1,2-Dichlorobenzene	μg/L	3						< 0.5			< 0.1			< 0.5
1,2-Dichloroethane	μg/L	5						< 0.5			< 0.1			< 0.5
1,2-Dichloropropane	μg/L	N/A						< 0.5			< 0.1			< 0.5
1,3-Dichlorobenzene	μg/L	N/A						< 0.5			< 0.1			< 0.5
1,4-Dichlorobenzene	μg/L	1						< 0.5			< 0.2			< 0.5
Methyl Ethyl Ketone	μg/L	N/A						< 20			< 1			< 20
Methyl Isobutyl Ketone	μg/L	N/A						< 20	< 1.0		< 1			< 20
Acetone	μg/L	N/A						< 30			< 2			< 30
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A						< 2			< 0.1			< 2
Bromoform	μg/L	N/A						< 5			< 0.1			< 5
Bromomethane	μg/L	N/A						< 0.5			< 0.3			< 0.5
Carbon Tetrachloride	μg/L	5						< 0.2			< 0.2			< 0.2
Chlorobenzene	μg/L	80									< 0.2			< 0.5
Chloroform	μg/L	N/A						< 1			< 0.3			< 1
cis 1,2-Dichloroethene	μg/L	N/A						< 0.5			< 0.1			< 0.5
cis 1,3-Dichloroethene	μg/L	N/A						< 0.5			< 0.1			< 0.5
Dibromochloromethane	μg/L	N/A						< 2			< 0.1			< 2
Dichlorodifluoromethane	μg/L	N/A												< 5
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 0.5	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 1.1	< 1.0	< 0.4	< 1.0	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A						< 2			< 1			< 2
Methylene Chloride	μg/L	N/A									< 0.3			1
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	< 1.1	<1.1								

VOC			32-93-I	32-93-I	32-93-I	32-93-I	32-93-I	32-93-I	32-93-I	32-93-I	32-93-I	32-93-II	32-93-II	32-93-II
Parameters	Units	ODWQS	9-Oct-19	5-May-20	13-Jul-20	13-Oct-20	3-May-21	14-Oct-21	25-Oct-22	12-Jul-23	18-Oct-23	6-May-14	29-Jul-14	21-Oct-14
1,1,1,2-Tetrachloroethane	μg/L	N/A		< 0.5	< 0.5	< 0.5				< 0.5			< 0.5	
1,1,1-Trichloroethane	μg/L	N/A		< 0.5	< 0.5	< 0.5				< 0.5			< 0.5	
1,1,2,2 Tetrachloroethane	μg/L	N/A		< 1.0	< 0.5	< 1.0				< 0.5			< 0.5	
1,1,2-Trichloroethane	μg/L	N/A		< 0.5	< 0.5	< 0.5				< 0.5			< 0.5	
1,1-Dichloroethane	μg/L	N/A		< 1.1	< 0.5	< 1.1				< 0.5			< 0.5	
1,1-Dichloroethylene	μg/L	14			< 0.5					< 0.5				
Ethylene Dibromide	μg/L	N/A			< 0.2					< 0.2			< 0.2	
1,2-Dichlorobenzene	μg/L	3			< 0.5					< 0.5			< 0.5	
1,2-Dichloroethane	μg/L	5			< 0.5					< 0.5			< 0.5	
1,2-Dichloropropane	μg/L	N/A			< 0.5					< 0.5			< 0.5	
1,3-Dichlorobenzene	μg/L	N/A			< 0.5					< 0.5			< 0.5	
1,4-Dichlorobenzene	μg/L	1			< 0.5					< 0.5			< 0.5	
Methyl Ethyl Ketone	μg/L	N/A			< 20					< 20				
Methyl Isobutyl Ketone	μg/L	N/A			< 20					< 20				
Acetone	μg/L	N/A			< 30					< 30			< 30	
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A			< 2					< 2			< 2	
Bromoform	μg/L	N/A			< 5					< 5			< 5	
Bromomethane	μg/L	N/A			< 0.5					< 0.5			< 0.5	
Carbon Tetrachloride	μg/L	5			< 0.2					< 0.2			< 0.2	
Chlorobenzene	μg/L	80			< 0.5					< 0.5			< 0.5	
Chloroform	μg/L	N/A			< 1					< 1			< 1	
cis 1,2-Dichloroethene	μg/L	N/A			< 0.5					< 0.5			< 0.5	
cis 1,3-Dichloroethene	μg/L	N/A			< 0.5					< 0.5			< 0.5	
Dibromochloromethane	μg/L	N/A			< 2					< 2			< 2	
Dichlorodifluoromethane	μg/L	N/A										89.5	81.8	
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 0.4
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.1
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A			< 2					< 2			< 2	
Methylene Chloride	μg/L	N/A			< 5					< 5				
Vinyl Chloride	μg/L	2								< 0.2				
Trichloroethylene	μg/L	5								< 0.5				
Xylene, m,p,o-	μg/L	300					< 1.1	< 1.1	< 1.1	< 1.1	<1.1			

VOC			32-93-II 32-93-II	32-93-II	32-93-II	32-93-II								
Parameters	Units	ODWQS	27-May-15	14-Jul-15	13-Oct-15	13-Jul-16	24-May-17	19-Jul-17	17-Oct-17	8-May-18	24-Jul-18	11-Oct-18	8-May-19	5-May-20
1,1,1,2-Tetrachloroethane	μg/L	N/A		< 0.5		< 0.5		< 0.5			< 0.1		_	< 0.5
1,1,1-Trichloroethane	μg/L	N/A		< 0.5		< 0.5		< 0.5			< 0.1			< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A		< 0.5		< 0.5		< 0.5			< 0.4			< 1.0
1,1,2-Trichloroethane	μg/L	N/A		< 0.5		< 0.5		< 0.5			< 0.1			< 0.5
1,1-Dichloroethane	μg/L	N/A		< 0.5		< 0.5		< 0.5			< 0.1			< 1.1
1,1-Dichloroethylene	μg/L	14						< 0.5			< 0.1			
Ethylene Dibromide	μg/L	N/A		< 0.2		< 0.5		< 0.2			< 0.1			
1,2-Dichlorobenzene	μg/L	3		< 0.5		< 0.5		< 0.5			< 0.1			
1,2-Dichloroethane	μg/L	5		< 0.5		< 0.5		< 0.5			< 0.1			
1,2-Dichloropropane	μg/L	N/A		< 0.5		< 0.5		< 0.5			< 0.1			
1,3-Dichlorobenzene	μg/L	N/A		< 0.5		< 0.5		< 0.5			< 0.1			
1,4-Dichlorobenzene	μg/L	1		< 0.5		< 0.5		< 0.5			< 0.2			
Methyl Ethyl Ketone	μg/L	N/A				< 20		< 20			< 1			
Methyl Isobutyl Ketone	μg/L	N/A				< 20		< 20	< 1.0		< 1			
Acetone	μg/L	N/A		< 30		< 30		< 30			< 2			
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A		< 2		< 2		< 2			< 0.1			
Bromoform	μg/L	N/A		< 5		< 5		< 5			< 0.1			
Bromomethane	μg/L	N/A				< 0.5		< 0.5			< 0.3			
Carbon Tetrachloride	μg/L	5		< 0.2		< 0.2		< 0.2			< 0.2			
Chlorobenzene	μg/L	80		< 0.5		< 0.5					< 0.2			
Chloroform	μg/L	N/A		< 1		< 1		< 1			< 0.3			
cis 1,2-Dichloroethene	μg/L	N/A		< 0.5		< 0.5		< 0.5			< 0.1			
cis 1,3-Dichloroethene	μg/L	N/A		< 0.5				< 0.5			< 0.1			1
Dibromochloromethane	μg/L	N/A		< 2		< 0.5		< 2			< 0.1			
Dichlorodifluoromethane	μg/L	N/A				< 2								
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 0.5	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 1.1	< 1.0	< 0.4	< 1.0	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A		< 2		< 2		< 2			< 1			
Methylene Chloride	μg/L	N/A	< 5								< 0.3			1
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300												

VOC			32-93-II	32-93-II	32-93-II	32-93-II	32-93-II	32-93-II	32-93-II	32-93-III	32-93-III	32-93-III	32-93-III	32-93-III
Parameters	Units	opwas	13-Oct-20	3-May-21	5-Jul-21	14-Oct-21	3-May-22	28-Jul-22	18-Oct-23	6-May-14	29-Jul-14	21-Oct-14	27-May-15	14-Jul-15
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5	,	< 0.5		< 0.5	< 0.5	70 000 =0	,	< 0.5			< 0.5
1,1,1-Trichloroethane	μg/L	N/A	< 0.5		< 0.5		< 0.5	< 0.5			< 0.5			< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 1.0		< 0.5		< 0.5	< 0.5			< 0.5			< 0.5
1,1,2-Trichloroethane	μg/L	N/A	< 0.5		< 0.5		< 0.5	< 0.5			< 0.5			< 0.5
1,1-Dichloroethane	μg/L	N/A	< 1.1		< 0.5		< 0.5	< 0.5			< 0.5			< 0.5
1,1-Dichloroethylene	μg/L	14			< 0.5		< 0.5	< 0.5						
Ethylene Dibromide	μg/L	N/A			< 0.2		< 0.2	< 0.2			< 0.2			< 0.2
1,2-Dichlorobenzene	μg/L	3			< 0.5		< 0.5	< 0.5			< 0.5			< 0.5
1,2-Dichloroethane	μg/L	5			< 0.5		< 0.5	< 0.5			< 0.5			< 0.5
1,2-Dichloropropane	μg/L	N/A			< 0.5		< 0.5	< 0.5			< 0.5			< 0.5
1,3-Dichlorobenzene	μg/L	N/A			< 0.5		< 0.5	< 0.5			< 0.5			< 0.5
1,4-Dichlorobenzene	μg/L	1			< 0.5		< 0.5	< 0.5			< 0.5			< 0.5
Methyl Ethyl Ketone	μg/L	N/A			< 20		< 20	< 20						
Methyl Isobutyl Ketone	μg/L	N/A			< 20		< 20	< 20						
Acetone	μg/L	N/A			< 30		< 30	< 30			< 30			< 30
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A			< 2		< 2	< 2			< 2			< 2
Bromoform	μg/L	N/A			< 5		< 5	< 5			< 5			< 5
Bromomethane	μg/L	N/A			< 0.5		< 0.5	< 0.5			< 0.5			
Carbon Tetrachloride	μg/L	5			< 0.2		< 0.2	< 0.2			< 0.2			< 0.2
Chlorobenzene	μg/L	80			< 0.5		< 0.5	< 0.5			< 0.5			< 0.5
Chloroform	μg/L	N/A			< 1		< 1	< 1			< 1			< 1
cis 1,2-Dichloroethene	μg/L	N/A			< 0.5		< 0.5	< 0.5			< 0.5			< 0.5
cis 1,3-Dichloroethene	μg/L	N/A			< 0.5		< 0.5	< 0.5			< 0.5			< 0.5
Dibromochloromethane	μg/L	N/A			< 2		< 2	< 2			< 2			< 2
Dichlorodifluoromethane	μg/L	N/A								86.2	114			
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A			< 2		< 2	< 2			< 2			< 2
Methylene Chloride	μg/L	N/A			< 5		< 5	< 5				< 5		
Vinyl Chloride	μg/L	2			< 0.2		< 0.2	< 0.2						
Trichloroethylene	μg/L	5			< 0.5		< 0.5	< 0.5						
Xylene, m,p,o-	μg/L	300		< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1					

VOC			32-93-III	35-93-I	35-93-I	35-93-I	35-93-I							
Parameters	Units	ODWQS	24-May-17	19-Jul-17	17-Oct-17	8-May-18	8-May-19	5-May-20	3-May-21	3-May-22	6-May-14	20-Oct-14	26-May-15	
1,1,1,2-Tetrachloroethane	μg/L	N/A		< 0.5				< 0.5		< 0.5				
1,1,1-Trichloroethane	μg/L	N/A		< 0.5				< 0.5		< 0.5				
1,1,2,2 Tetrachloroethane	μg/L	N/A		< 0.5				< 1.0		< 0.5				
1,1,2-Trichloroethane	μg/L	N/A		< 0.5				< 0.5		< 0.5				
1,1-Dichloroethane	μg/L	N/A		< 0.5				< 1.1		< 0.5				
1,1-Dichloroethylene	μg/L	14		< 0.5						< 0.5				
Ethylene Dibromide	μg/L	N/A		< 0.2						< 0.2				
1,2-Dichlorobenzene	μg/L	3		< 0.5						< 0.5				
1,2-Dichloroethane	μg/L	5		< 0.5						< 0.5				
1,2-Dichloropropane	μg/L	N/A		< 0.5						< 0.5				
1,3-Dichlorobenzene	μg/L	N/A		< 0.5						< 0.5				
1,4-Dichlorobenzene	μg/L	1		< 0.5						< 0.5				
Methyl Ethyl Ketone	μg/L	N/A		< 20						< 20				
Methyl Isobutyl Ketone	μg/L	N/A		< 20						< 20				
Acetone	μg/L	N/A		< 30						< 30				
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A		< 2						< 2				
Bromoform	μg/L	N/A		< 5						< 5				
Bromomethane	μg/L	N/A		< 0.5						< 0.5				
Carbon Tetrachloride	μg/L	5		< 0.2						< 0.2				
Chlorobenzene	μg/L	80								< 0.5				
Chloroform	μg/L	N/A		< 1						< 1				
cis 1,2-Dichloroethene	μg/L	N/A		< 0.5						< 0.5				
cis 1,3-Dichloroethene	μg/L	N/A		< 0.5						< 0.5				
Dibromochloromethane	μg/L	N/A		< 2						< 2				
Dichlorodifluoromethane	μg/L	N/A									93.6			
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.4
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A		< 2						< 2				
Methylene Chloride	μg/L	N/A								< 5				
Vinyl Chloride	μg/L	2								< 0.2				
Trichloroethylene	μg/L	5								< 0.5				
Xylene, m,p,o-	μg/L	300							< 1.1	< 1.1				

VOC			35-93-I	35-93-I	35-93-I	35-93-I	35-93-I	35-93-I	35-93-I	35-93-I	35-93-I	35-93-I	35-93-I	35-93-I
Parameters	Units	ODWQS	24-May-17	16-Oct-17	8-May-18	11-Oct-18	10-May-19	9-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22
1,1,1,2-Tetrachloroethane	μg/L	N/A							< 0.5	< 0.5				
1,1,1-Trichloroethane	μg/L	N/A							< 0.5	< 0.5				
1,1,2,2 Tetrachloroethane	μg/L	N/A							< 1.0	< 1.0				
1,1,2-Trichloroethane	μg/L	N/A							< 0.5	< 0.5				
1,1-Dichloroethane	μg/L	N/A							< 1.1	< 1.1				
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300									< 1.1	< 1.1	< 1.1	< 1.1

VOC			35-93-I	35-93-I	35-93-II	35-93-II	35-93-II	35-93-II	35-93-II	35-93-II	35-93-II	35-93-II	35-93-II	35-93-II
Parameters	Units	ODWQS	3-May-23	18-Oct-23	6-May-14	20-Oct-14		14-Oct-15	24-May-17	16-Oct-17	8-May-18	11-Oct-18	10-May-19	7-Oct-19
1,1,1,2-Tetrachloroethane	μg/L	N/A			,						,			
1,1,1-Trichloroethane	μg/L	N/A												
1,1,2,2 Tetrachloroethane	μg/L	N/A												
1,1,2-Trichloroethane	μg/L	N/A												
1,1-Dichloroethane	μg/L	N/A												
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												<u> </u>
Chloroform	μg/L	N/A												<u> </u>
cis 1,2-Dichloroethene	μg/L	N/A												<u> </u>
cis 1,3-Dichloroethene	μg/L	N/A												l
Dibromochloromethane	μg/L	N/A												<u> </u>
Dichlorodifluoromethane	μg/L	N/A			91.5									<u> </u>
Ethylbenzene	μg/L	2.4	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	<1	< 1.0	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												<u> </u>
Vinyl Chloride	μg/L	2												<u> </u>
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	< 1.1	<1.1										

V 00			35-93-II	35-93-II	35-93-II	35-93-II	35-93-II	35-93-II	35-93-II	35-93-II (DUP)	35-93-II	36-93	36-93	36-93
Parameters	Units	ODWQS	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	3-May-23	18-Oct-23	6-May-14	20-Oct-14	26-May-15
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5	< 0.5										
1,1,1-Trichloroethane	μg/L	N/A	< 0.5	< 0.5										
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 1.0	< 1.0										
1,1,2-Trichloroethane	μg/L	N/A	< 0.5	< 0.5										
1,1-Dichloroethane	μg/L	N/A	< 1.1	< 1.1										
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A										118		
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	0.6	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300			< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1			

VOC			36-93	36-93	36-93	36-93	36-93	36-93	36-93	36-93	36-93	36-93	36-93	36-93
Parameters	Units	ODWQS		24-May-17	16-Oct-17	8-May-18	11-Oct-18	10-May-19	8-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22
1,1,1,2-Tetrachloroethane	μg/L	N/A								< 0.5	< 0.5	_		
1,1,1-Trichloroethane	μg/L	N/A								< 0.5	< 0.5			
1,1,2,2 Tetrachloroethane	μg/L	N/A								< 1.0	< 1.0			
1,1,2-Trichloroethane	μg/L	N/A								< 0.5	< 0.5			
1,1-Dichloroethane	μg/L	N/A								< 1.1	< 1.1			
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.1	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												1
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300										< 1.1	< 1.1	< 1.1

VOC			36-93	36-93	36-93	37-93-I	37-93-I	37-93-I	37-93-I	37-93-I	37-93-I	37-93-I	37-93-I	37-93-I
Parameters	Units	ODWQS	25-Oct-22	3-May-23	18-Oct-23	8-May-14	20-Oct-14	26-May-15		11-May-16	24-May-17	16-Oct-17	8-May-18	10-Oct-18
1,1,1,2-Tetrachloroethane	μg/L	N/A						_		-	_			
1,1,1-Trichloroethane	μg/L	N/A												
1,1,2,2 Tetrachloroethane	μg/L	N/A												
1,1,2-Trichloroethane	μg/L	N/A												
1,1-Dichloroethane	μg/L	N/A												
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	0.6	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A				83.6								
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 1.0	< 0.4		< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0
Toluene	μg/L	N/A	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												1
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	<1.1									

VOC			37-93-I	37-93-I	37-93-I	37-93-I	37-93-I	37-93-I	37-93-I	37-93-I	37-93-I	37-93-I	37-93-II	37-93-II
Parameters	Units	ODWQS	10-May-19	7-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23	8-May-14	20-Oct-14
1,1,1,2-Tetrachloroethane	μg/L	N/A			< 0.5	< 0.5								
1,1,1-Trichloroethane	μg/L	N/A			< 0.5	< 0.5								
1,1,2,2 Tetrachloroethane	μg/L	N/A			< 1.0	< 1.0								
1,1,2-Trichloroethane	μg/L	N/A			< 0.5	< 0.5								
1,1-Dichloroethane	μg/L	N/A			< 1.1	< 1.1								
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A											90.2	
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	1.1	<0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300					< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1		

V 00			37-93-II	37-93-II	37-93-II	37-93-II	37-93-II	37-93-II	37-93-II	37-93-II	37-93-II	37-93-II	37-93-II	37-93-II
Parameters	Units	ODWQS	26-May-15		24-May-17	16-Oct-17	10-Oct-18	10-May-19	7-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22
1,1,1,2-Tetrachloroethane	μg/L	N/A	_		_					< 0.5	< 0.5			
1,1,1-Trichloroethane	μg/L	N/A								< 0.5	< 0.5			
1,1,2,2 Tetrachloroethane	μg/L	N/A								< 1.0	< 1.0			
1,1,2-Trichloroethane	μg/L	N/A								< 0.5	< 0.5			
1,1-Dichloroethane	μg/L	N/A								< 1.1	< 1.1			
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300										< 1.1	< 1.1	< 1.1

VOC			37-93-II	37-93-II	37-93-II	38-93	38-93	38-93	38-93	38-93	38-93	38-93	38-93	38-93
Parameters	Units	ODWQS	25-Oct-22	3-May-23	18-Oct-23	8-May-14	20-Oct-14	26-May-15		24-May-17	16-Oct-17	10-Oct-18	10-May-19	7-Oct-19
1,1,1,2-Tetrachloroethane	μg/L	N/A		_				_						
1,1,1-Trichloroethane	μg/L	N/A												
1,1,2,2 Tetrachloroethane	μg/L	N/A												
1,1,2-Trichloroethane	μg/L	N/A												
1,1-Dichloroethane	μg/L	N/A												
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												<u> </u>
1,4-Dichlorobenzene	μg/L	1												<u> </u>
Methyl Ethyl Ketone	μg/L	N/A												<u> </u>
Methyl Isobutyl Ketone	μg/L	N/A												<u> </u>
Acetone	μg/L	N/A												l
Benzene	μg/L	5	< 0.5	1.7	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												<u> </u>
Bromomethane	μg/L	N/A												<u> </u>
Carbon Tetrachloride	μg/L	5												<u> </u>
Chlorobenzene	μg/L	80												<u> </u>
Chloroform	μg/L	N/A												<u> </u>
cis 1,2-Dichloroethene	μg/L	N/A												<u> </u>
cis 1,3-Dichloroethene	μg/L	N/A												l
Dibromochloromethane	μg/L	N/A												<u> </u>
Dichlorodifluoromethane	μg/L	N/A				87								<u> </u>
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												<u> </u>
Vinyl Chloride	μg/L	2												<u> </u>
Trichloroethylene	μg/L	5												<u> </u>
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	<1.1									<u> </u>

V 00			38-93	38-93	38-93	38-93	38-93	38-93	38-93	38-93	39-93-I	39-93-I	39-93-I	39-93-I
Parameters	Units	ODWQS	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23	8-May-14	20-Oct-14	26-May-15	
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5	< 0.5										
1,1,1-Trichloroethane	μg/L	N/A	< 0.5	< 0.5										
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 1.0	< 1.0										
1,1,2-Trichloroethane	μg/L	N/A	< 0.5	< 0.5										
1,1-Dichloroethane	μg/L	N/A	< 1.1	< 1.1										
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A									92.6			
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 1.0	< 0.4
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.1
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300			< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1				

VOC			39-93-I	39-93-I	39-93-I	39-93-I	39-93-I	39-93-I	39-93-1	39-93-I	39-93-I	39-93-I	39-93-I	39-93-I
Parameters	Units	ODWQS	24-May-17	16-Oct-17	16-Oct-17	10-Oct-18		7-Oct-19	5-May-20	13-Oct-20	14-Oct-21	3-May-22	25-Oct-22	3-May-23
1,1,1,2-Tetrachloroethane	μg/L	N/A							< 0.5	< 0.5				
1,1,1-Trichloroethane	μg/L	N/A							< 0.5	< 0.5				
1,1,2,2 Tetrachloroethane	μg/L	N/A							< 1.0	< 1.0				
1,1,2-Trichloroethane	μg/L	N/A							< 0.5	< 0.5				
1,1-Dichloroethane	μg/L	N/A							< 1.1	< 1.1				
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300									< 1.1	< 1.1	< 1.1	< 1.1

VOC			39-93-I (DUP)	39-93-I	39-93-II	39-93-II	39-93-II	39-93-II	39-93-II	39-93-II	39-93-II	39-93-II	39-93-II	39-93-II
Parameters	Units	ODWQS	3-May-23	18-Oct-23	8-May-14	20-Oct-14		14-Oct-15	24-May-17	16-Oct-17	10-Oct-18	10-May-19	5-May-20	13-Oct-20
1,1,1,2-Tetrachloroethane	μg/L	N/A											< 0.5	< 0.5
1,1,1-Trichloroethane	μg/L	N/A											< 0.5	< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A											< 1.0	< 1.0
1,1,2-Trichloroethane	μg/L	N/A											< 0.5	< 0.5
1,1-Dichloroethane	μg/L	N/A											< 1.1	< 1.1
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A			83.5									
Ethylbenzene	μg/L	2.4	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	<1	< 1.0	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	< 1.1	<1.1										

VOC			39-93-II	39-93-II	39-93-II	39-93-II	39-93-II	39-93-II	43-93-I	43-93-I	43-93-I	43-93-I	43-93-I	43-93-I
Parameters	Units	ODWQS	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23	6-May-14	21-Oct-14	23-Oct-14	27-May-15	13-Oct-15	
1,1,1,2-Tetrachloroethane	μg/L	N/A	_											
1,1,1-Trichloroethane	μg/L	N/A												
1,1,2,2 Tetrachloroethane	μg/L	N/A												
1,1,2-Trichloroethane	μg/L	N/A												
1,1-Dichloroethane	μg/L	N/A												
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5									101			
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A							94					
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 0.4	<1.0	< 1.0	< 0.4	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.1	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1						

VOC			43-93-I	43-93-I	43-93-I	43-93-I	43-93-I	43-93-I	43-93-I	43-93-I	43-93-I	43-93-I	43-93-I	43-93-I
Parameters	Units	ODWQS	17-Oct-17	8-May-18	11-Oct-18	8-May-19	9-Oct-19	5-May-20	13-Jul-20	13-Oct-20	3-May-21	5-Jul-21	14-Oct-21	3-May-22
1,1,1,2-Tetrachloroethane	μg/L	N/A						< 0.5	< 0.5	< 0.5		< 0.5		
1,1,1-Trichloroethane	μg/L	N/A						< 0.5	< 0.5	< 0.5		< 0.5		
1,1,2,2 Tetrachloroethane	μg/L	N/A						< 1.0	< 0.5	< 1.0		< 0.5		
1,1,2-Trichloroethane	μg/L	N/A						< 0.5	< 0.5	< 0.5		< 0.5		
1,1-Dichloroethane	μg/L	N/A						< 1.1	< 0.5	< 1.1		< 0.5		
1,1-Dichloroethylene	μg/L	14							< 0.5			< 0.5		
Ethylene Dibromide	μg/L	N/A							< 0.2			< 0.2		
1,2-Dichlorobenzene	μg/L	3							< 0.5			< 0.5		
1,2-Dichloroethane	μg/L	5							< 0.5			< 0.5		
1,2-Dichloropropane	μg/L	N/A							< 0.5			< 0.5		
1,3-Dichlorobenzene	μg/L	N/A							< 0.5			< 0.5		
1,4-Dichlorobenzene	μg/L	1							< 0.5			< 0.5		
Methyl Ethyl Ketone	μg/L	N/A							< 20			< 20		
Methyl Isobutyl Ketone	μg/L	N/A	< 1.0						< 20			< 20		
Acetone	μg/L	N/A							< 30			< 30		
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A							< 2			< 2		
Bromoform	μg/L	N/A							< 5			< 5		
Bromomethane	μg/L	N/A							< 0.5			< 0.5		
Carbon Tetrachloride	μg/L	5							< 0.2			< 0.2		
Chlorobenzene	μg/L	80							< 0.5			< 0.5		
Chloroform	μg/L	N/A							< 1			< 1		
cis 1,2-Dichloroethene	μg/L	N/A							< 0.5			< 0.5		
cis 1,3-Dichloroethene	μg/L	N/A							< 0.5			< 0.5		
Dibromochloromethane	μg/L	N/A							< 2			< 2		
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 1.1	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A							< 2			< 2		
Methylene Chloride	μg/L	N/A							< 5			< 5		
Vinyl Chloride	μg/L	2										< 0.2		
Trichloroethylene	μg/L	5										< 0.5		
Xylene, m,p,o-	μg/L	300									< 1.1	< 1.1	< 1.1	< 1.1

VOC			43-93-I	43-93-I	43-93-I	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II
Parameters	Units	ODWQS	28-Jul-22	12-Jul-23	18-Oct-23	6-May-14	21-Oct-14	27-May-15	13-Oct-15	24-May-17	17-Oct-17	8-May-18	11-Oct-18	8-May-19
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5	< 0.5										
1,1,1-Trichloroethane	μg/L	N/A	< 0.5	< 0.5										
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 0.5	< 0.5										
1,1,2-Trichloroethane	μg/L	N/A	< 0.5	< 0.5										
1,1-Dichloroethane	μg/L	N/A	< 0.5	< 0.5										
1,1-Dichloroethylene	μg/L	14	< 0.5	< 0.5										
Ethylene Dibromide	μg/L	N/A	< 0.2	< 0.2										
1,2-Dichlorobenzene	μg/L	3	< 0.5	< 0.5										
1,2-Dichloroethane	μg/L	5	< 0.5	< 0.5										
1,2-Dichloropropane	μg/L	N/A	< 0.5	< 0.5										
1,3-Dichlorobenzene	μg/L	N/A	< 0.5	< 0.5										
1,4-Dichlorobenzene	μg/L	1	< 0.5	< 0.5										
Methyl Ethyl Ketone	μg/L	N/A	< 20	< 20										
Methyl Isobutyl Ketone	μg/L	N/A	< 20	< 20							< 1.0			
Acetone	μg/L	N/A	< 30	< 30										
Benzene	μg/L	5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A	< 2	< 2										
Bromoform	μg/L	N/A	< 5	< 5										
Bromomethane	μg/L	N/A	< 0.5	< 0.5										
Carbon Tetrachloride	μg/L	5	< 0.2	< 0.2										
Chlorobenzene	μg/L	80	< 0.5	< 0.5										
Chloroform	μg/L	N/A	< 1	< 1										
cis 1,2-Dichloroethene	μg/L	N/A	< 0.5	< 0.5										
cis 1,3-Dichloroethene	μg/L	N/A	< 0.5	< 0.5										
Dibromochloromethane	μg/L	N/A	< 2	< 2										
Dichlorodifluoromethane	μg/L	N/A				95.9								
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	<1	< 1.0	< 0.4	< 1.0	< 0.4	< 1.0	< 0.5	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	<0.5	< 0.5	< 0.1	< 0.5	< 0.1	< 0.5	< 1.1	< 1.0	< 1.0	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A	< 2	< 2										
Methylene Chloride	μg/L	N/A	< 5	< 5					<5					
Vinyl Chloride	μg/L	2	< 0.2	< 0.2										
Trichloroethylene	μg/L	5	< 0.5	< 0.5										
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	<1.1									

VOC			43-93-II	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II	43-93-II
Parameters	Units	ODWQS	9-Oct-19	5-May-20	13-Jul-20	13-Oct-20	3-May-21	5-Jul-21	14-Oct-21	3-May-22	28-Jul-22	25-Oct-22	25-Oct-22	12-Jul-23
1,1,1,2-Tetrachloroethane	μg/L	N/A		< 0.5	< 0.5	< 0.5	_	< 0.5			< 0.5			< 0.5
1,1,1-Trichloroethane	μg/L	N/A		< 0.5	< 0.5	< 0.5		< 0.5			< 0.5			< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A		< 1.0	< 0.5	< 1.0		< 0.5			< 0.5			< 0.5
1,1,2-Trichloroethane	μg/L	N/A		< 0.5	< 0.5	< 0.5		< 0.5			< 0.5			< 0.5
1,1-Dichloroethane	μg/L	N/A		< 1.1	< 0.5	< 1.1		< 0.5			< 0.5			< 0.5
1,1-Dichloroethylene	μg/L	14			< 0.5			< 0.5			< 0.5			< 0.5
Ethylene Dibromide	μg/L	N/A			< 0.2			< 0.2			< 0.2			< 0.2
1,2-Dichlorobenzene	μg/L	3			< 0.5			< 0.5			< 0.5			< 0.5
1,2-Dichloroethane	μg/L	5			< 0.5			< 0.5			< 0.5			< 0.5
1,2-Dichloropropane	μg/L	N/A			< 0.5			< 0.5			< 0.5			< 0.5
1,3-Dichlorobenzene	μg/L	N/A			< 0.5			< 0.5			< 0.5			< 0.5
1,4-Dichlorobenzene	μg/L	1			< 0.5			< 0.5			< 0.5			< 0.5
Methyl Ethyl Ketone	μg/L	N/A			< 20			< 20			< 20			< 20
Methyl Isobutyl Ketone	μg/L	N/A			< 20			< 20			< 20			< 20
Acetone	μg/L	N/A			< 30			< 30			< 30			< 30
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A			< 2			< 2			< 2			< 2
Bromoform	μg/L	N/A			< 5			< 5			< 5			< 5
Bromomethane	μg/L	N/A			< 0.5			< 0.5			< 0.5			< 0.5
Carbon Tetrachloride	μg/L	5			< 0.2			< 0.2			< 0.2			< 0.2
Chlorobenzene	μg/L	80			< 0.5			< 0.5			< 0.5			< 0.5
Chloroform	μg/L	N/A			< 1			< 1			< 1			< 1
cis 1,2-Dichloroethene	μg/L	N/A			< 0.5			< 0.5			< 0.5			< 0.5
cis 1,3-Dichloroethene	μg/L	N/A			< 0.5			< 0.5			< 0.5			< 0.5
Dibromochloromethane	μg/L	N/A			< 2			< 2			< 2			< 2
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5	0.8
Methyl tert-Butyl Ether	μg/L	N/A			< 2			< 2			< 2			< 2
Methylene Chloride	μg/L	N/A			< 5			< 5			< 5			< 5
Vinyl Chloride	μg/L	2						< 0.2			< 0.2			< 0.2
Trichloroethylene	μg/L	5						< 0.5			< 0.5			< 0.5
Xylene, m,p,o-	μg/L	300					< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1

VOC			43-93-II	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I
Parameters	Units	ODWQS	18-Oct-23	6-May-14	29-Jul-14		27-May-15	14-Jul-15	20-Oct-15	13-Jul-16	24-May-17	19-Jul-17	17-Oct-17	8-May-18
1,1,1,2-Tetrachloroethane	μg/L	N/A		,	< 0.5			< 0.5		< 0.5		< 0.5		
1,1,1-Trichloroethane	μg/L	N/A			< 0.5			< 0.5		< 0.5		< 0.5		
1,1,2,2 Tetrachloroethane	μg/L	N/A			< 0.5			< 0.5		< 0.5		< 0.5		
1,1,2-Trichloroethane	μg/L	N/A			< 0.5			< 0.5		< 0.5		< 0.5		
1,1-Dichloroethane	μg/L	N/A			< 0.5			< 0.5		< 0.5		< 0.5		
1,1-Dichloroethylene	μg/L	14										< 0.5		
Ethylene Dibromide	μg/L	N/A			< 0.2			< 0.2		< 0.5		< 0.2		
1,2-Dichlorobenzene	μg/L	3			< 0.5			< 0.5		< 0.5		< 0.5		
1,2-Dichloroethane	μg/L	5			< 0.5			< 0.5		< 0.5		< 0.5		
1,2-Dichloropropane	μg/L	N/A			< 0.5			< 0.5		< 0.5		< 0.5		
1,3-Dichlorobenzene	μg/L	N/A			< 0.5			< 0.5		< 0.5		< 0.5		
1,4-Dichlorobenzene	μg/L	1			< 0.5			< 0.5		< 0.5		< 0.5		
Methyl Ethyl Ketone	μg/L	N/A								< 20		< 20		
Methyl Isobutyl Ketone	μg/L	N/A								< 20		< 20	< 1.0	
Acetone	μg/L	N/A			< 30			< 30		< 30		< 30		
Benzene	μg/L	5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A			< 2			< 2		< 2		< 2		
Bromoform	μg/L	N/A			< 5			< 5		< 5		< 5		
Bromomethane	μg/L	N/A			< 0.5					< 0.5		< 0.5		
Carbon Tetrachloride	μg/L	5			< 0.2			< 0.2		< 0.2		< 0.2		
Chlorobenzene	μg/L	80			< 0.5			< 0.5		< 0.5				
Chloroform	μg/L	N/A			< 1			< 1		< 1		< 1		
cis 1,2-Dichloroethene	μg/L	N/A			< 0.5			< 0.5		< 0.5		< 0.5		
cis 1,3-Dichloroethene	μg/L	N/A			< 0.5			< 0.5				< 0.5		ĺ
Dibromochloromethane	μg/L	N/A			< 2			< 2		< 0.5		< 2		
Dichlorodifluoromethane	μg/L	N/A		97.3	84.4					< 2				
Ethylbenzene	μg/L	2.4	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	<1	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.5	< 1.0
o-Xylene	μg/L	N/A	<0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.1	< 1.0
Toluene	μg/L	N/A	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A		< 2			< 2		< 2			< 2		
Methylene Chloride	μg/L	N/A			< 5		< 5			<5				
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	<1.1											

VOC			44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I	44-93-I
Parameters	Units	ODWQS	24-Jul-18	11-Oct-18	8-May-19	15-Jul-19	5-May-20	13-Jul-20	13-Oct-20	3-May-21	5-Jul-21	14-Oct-21	3-May-22	28-Jul-22
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.1		,	< 0.5	< 0.5	< 0.5	< 0.5		< 0.5			< 0.5
1,1,1-Trichloroethane	μg/L	N/A	< 0.1			< 0.5	< 0.5	< 0.5	< 0.5		< 0.5			< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 0.4			< 0.5	< 1.0	< 0.5	< 1.0		< 0.5			< 0.5
1,1,2-Trichloroethane	μg/L	N/A	< 0.1			< 0.5	< 0.5	< 0.5	< 0.5		< 0.5			< 0.5
1,1-Dichloroethane	μg/L	N/A	< 0.1			< 0.5	< 1.1	< 0.5	< 1.1		< 0.5			< 0.5
1,1-Dichloroethylene	μg/L	14	< 0.1			< 0.5		< 0.5			< 0.5			< 0.5
Ethylene Dibromide	μg/L	N/A	< 0.1			< 0.2		< 0.2			< 0.2			< 0.2
1,2-Dichlorobenzene	μg/L	3	< 0.1			< 0.5		< 0.5			< 0.5			< 0.5
1,2-Dichloroethane	μg/L	5	< 0.1			< 0.5		< 0.5			< 0.5			< 0.5
1,2-Dichloropropane	μg/L	N/A	< 0.1			< 0.5		< 0.5			< 0.5			< 0.5
1,3-Dichlorobenzene	μg/L	N/A	< 0.1			< 0.5		< 0.5			< 0.5			< 0.5
1,4-Dichlorobenzene	μg/L	1	< 0.2			< 0.5		< 0.5			< 0.5			< 0.5
Methyl Ethyl Ketone	μg/L	N/A	< 1			< 20		< 20			< 20			< 20
Methyl Isobutyl Ketone	μg/L	N/A	< 1			< 20		< 20			< 20			< 20
Acetone	μg/L	N/A	< 2			< 30		< 30			< 30			< 30
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A	< 0.1			< 2		< 2			< 2			< 2
Bromoform	μg/L	N/A	< 0.1			< 5		< 5			< 5			< 5
Bromomethane	μg/L	N/A	< 0.3			< 0.5		< 0.5			< 0.5			< 0.5
Carbon Tetrachloride	μg/L	5	< 0.2			< 0.2		< 0.2			< 0.2			< 0.2
Chlorobenzene	μg/L	80	< 0.2			< 0.5		< 0.5			< 0.5			< 0.5
Chloroform	μg/L	N/A	< 0.3			< 1		< 1			< 1			< 1
cis 1,2-Dichloroethene	μg/L	N/A	< 0.1			< 0.5		< 0.5			< 0.5			< 0.5
cis 1,3-Dichloroethene	μg/L	N/A	< 0.1			< 0.5		< 0.5			< 0.5			< 0.5
Dibromochloromethane	μg/L	N/A	< 0.1			< 2		< 2			< 2			< 2
Dichlorodifluoromethane	μg/L	N/A				< 5								
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.4	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A	< 1			< 2		< 2			< 2			< 2
Methylene Chloride	μg/L	N/A	< 0.3					< 5			< 5			< 5
Vinyl Chloride	μg/L	2									< 0.2			< 0.2
Trichloroethylene	μg/L	5									< 0.5			< 0.5
Xylene, m,p,o-	μg/L	300								< 1.1	< 1.1	< 1.1	< 1.1	< 1.1

VOC			44-93-I	44-93-I	44-93-I	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II
Parameters	Units	ODWQS	25-Oct-22	12-Jul-23	18-Oct-23	6-May-14	29-Jul-14	21-Oct-14	27-May-15	20-Oct-15	13-Jul-16	24-May-17	19-Jul-17	17-Oct-17
1,1,1,2-Tetrachloroethane	μg/L	N/A		< 0.5			< 0.5				< 0.5		< 0.5	
1,1,1-Trichloroethane	μg/L	N/A		< 0.5			< 0.5				< 0.5		< 0.5	
1,1,2,2 Tetrachloroethane	μg/L	N/A		< 0.5			< 0.5				< 0.5		< 0.5	
1,1,2-Trichloroethane	μg/L	N/A		< 0.5			< 0.5				< 0.5		< 0.5	
1,1-Dichloroethane	μg/L	N/A		< 0.5			< 0.5				< 0.5		< 0.5	
1,1-Dichloroethylene	μg/L	14		< 0.5									< 0.5	
Ethylene Dibromide	μg/L	N/A		< 0.2			< 0.2				< 0.5		< 0.2	
1,2-Dichlorobenzene	μg/L	3		< 0.5			< 0.5				< 0.5		< 0.5	
1,2-Dichloroethane	μg/L	5		< 0.5			< 0.5				< 0.5		< 0.5	
1,2-Dichloropropane	μg/L	N/A		< 0.5			< 0.5				< 0.5		< 0.5	
1,3-Dichlorobenzene	μg/L	N/A		< 0.5			< 0.5				< 0.5		< 0.5	
1,4-Dichlorobenzene	μg/L	1		< 0.5			< 0.5				< 0.5		< 0.5	
Methyl Ethyl Ketone	μg/L	N/A		< 20							< 20		< 20	
Methyl Isobutyl Ketone	μg/L	N/A		< 20							< 20		< 20	< 1.0
Acetone	μg/L	N/A		< 30			< 30				< 30		< 30	
Benzene	μg/L	5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A		< 2			< 2				< 2		< 2	
Bromoform	μg/L	N/A		< 5			< 5				< 5		< 5	
Bromomethane	μg/L	N/A		< 0.5			< 0.5				< 0.5		< 0.5	
Carbon Tetrachloride	μg/L	5		< 0.2			< 0.2				< 0.2		< 0.2	
Chlorobenzene	μg/L	80		< 0.5			< 0.5				< 0.5			
Chloroform	μg/L	N/A		< 1			< 1				< 1		< 1	
cis 1,2-Dichloroethene	μg/L	N/A		< 0.5			< 0.5				< 0.5		< 0.5	
cis 1,3-Dichloroethene	μg/L	N/A		< 0.5			< 0.5						< 0.5	
Dibromochloromethane	μg/L	N/A		< 2			< 2				< 0.5		< 2	
Dichlorodifluoromethane	μg/L	N/A				100	116				< 2			
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.5
o-Xylene	μg/L	N/A	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5		< 0.5	< 0.5	< 1.1
Toluene	μg/L	N/A	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.8		< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A		< 2		< 2				< 2			< 2	
Methylene Chloride	μg/L	N/A		< 5				< 5			<5			
Vinyl Chloride	μg/L	2		< 0.2										
Trichloroethylene	μg/L	5		< 0.5										
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	<1.1									

VOC			44-93-II	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II	44-93-II
Parameters	Units	ODWQS	8-May-18	11-Oct-18	8-May-19	15-Jul-19	9-Oct-19	5-May-20	13-Jul-20	13-Oct-20	3-May-21	5-Jul-21	14-Oct-21	3-May-22
1,1,1,2-Tetrachloroethane	μg/L	N/A				< 0.5		< 0.5	< 0.5	< 0.5		< 0.5		
1,1,1-Trichloroethane	μg/L	N/A				< 0.5		< 0.5	< 0.5	< 0.5		< 0.5		
1,1,2,2 Tetrachloroethane	μg/L	N/A				< 0.5		< 1.0	< 0.5	< 1.0		< 0.5		
1,1,2-Trichloroethane	μg/L	N/A				< 0.5		< 0.5	< 0.5	< 0.5		< 0.5		
1,1-Dichloroethane	μg/L	N/A				< 0.5		< 1.1	< 0.5	< 1.1		< 0.5		
1,1-Dichloroethylene	μg/L	14				< 0.5			< 0.5			< 0.5		
Ethylene Dibromide	μg/L	N/A				< 0.2			< 0.2			< 0.2		
1,2-Dichlorobenzene	μg/L	3				< 0.5			< 0.5			< 0.5		
1,2-Dichloroethane	μg/L	5				< 0.5			< 0.5			< 0.5		
1,2-Dichloropropane	μg/L	N/A				< 0.5			< 0.5			< 0.5		
1,3-Dichlorobenzene	μg/L	N/A				< 0.5			< 0.5			< 0.5		
1,4-Dichlorobenzene	μg/L	1				< 0.5			< 0.5			< 0.5		
Methyl Ethyl Ketone	μg/L	N/A				< 20			< 20			< 20		
Methyl Isobutyl Ketone	μg/L	N/A				< 20			< 20			< 20		
Acetone	μg/L	N/A				< 30			< 30			< 30		
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A				< 2			< 2			< 2		
Bromoform	μg/L	N/A				< 5			< 5			< 5		
Bromomethane	μg/L	N/A				< 0.5			< 0.5			< 0.5		
Carbon Tetrachloride	μg/L	5				< 0.2			< 0.2			< 0.2		
Chlorobenzene	μg/L	80				< 0.5			< 0.5			< 0.5		
Chloroform	μg/L	N/A				< 1			< 1			< 1		
cis 1,2-Dichloroethene	μg/L	N/A				< 0.5			< 0.5			< 0.5		
cis 1,3-Dichloroethene	μg/L	N/A				< 0.5			< 0.5			< 0.5		1
Dibromochloromethane	μg/L	N/A				< 2			< 2			< 2		
Dichlorodifluoromethane	μg/L	N/A				< 5								
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A				< 2			< 2			< 2		
Methylene Chloride	μg/L	N/A							< 5			< 5		1
Vinyl Chloride	μg/L	2										< 0.2		
Trichloroethylene	μg/L	5										< 0.5		
Xylene, m,p,o-	μg/L	300									< 1.1	< 1.1	< 1.1	< 1.1

VOC			44-93-II	44-93-II	44-93-II	44-93-II	45-93	45-93	45-93	45-93	45-93	45-93	45-93	45-93
Parameters	Units	ODWQS	28-Jul-22	25-Oct-22	12-Jul-23	18-Oct-23	6-May-14	29-Jul-14	21-Oct-14	27-May-15	14-Jul-15	20-Oct-15	13-Jul-16	24-May-17
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5		< 0.5			< 0.5		_	< 0.5		< 0.5	
1,1,1-Trichloroethane	μg/L	N/A	< 0.5		< 0.5			< 0.5			< 0.5		< 0.5	
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 0.5		< 0.5			< 0.5			< 0.5		< 0.5	
1,1,2-Trichloroethane	μg/L	N/A	< 0.5		< 0.5			< 0.5			< 0.5		< 0.5	
1,1-Dichloroethane	μg/L	N/A	< 0.5		< 0.5			< 0.5			< 0.5		< 0.5	
1,1-Dichloroethylene	μg/L	14	< 0.5		< 0.5									
Ethylene Dibromide	μg/L	N/A	< 0.2		< 0.2			< 0.2			< 0.2		< 0.5	
1,2-Dichlorobenzene	μg/L	3	< 0.5		< 0.5			< 0.5			< 0.5		< 0.5	
1,2-Dichloroethane	μg/L	5	< 0.5		< 0.5			< 0.5			< 0.5		< 0.5	
1,2-Dichloropropane	μg/L	N/A	< 0.5		< 0.5			< 0.5			< 0.5		< 0.5	
1,3-Dichlorobenzene	μg/L	N/A	< 0.5		< 0.5			< 0.5			< 0.5		< 0.5	
1,4-Dichlorobenzene	μg/L	1	< 0.5		< 0.5			< 0.5			< 0.5		< 0.5	
Methyl Ethyl Ketone	μg/L	N/A	< 20		< 20								< 20	
Methyl Isobutyl Ketone	μg/L	N/A	< 20		< 20								< 20	
Acetone	μg/L	N/A	< 30		< 30			< 30			< 30		< 30	
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A	< 2		< 2			< 2			< 2		< 2	
Bromoform	μg/L	N/A	< 5		< 5			< 5			< 5		< 5	
Bromomethane	μg/L	N/A	< 0.5		< 0.5			< 0.5					< 0.5	
Carbon Tetrachloride	μg/L	5	< 0.2		< 0.2			< 0.2			< 0.2		< 0.2	
Chlorobenzene	μg/L	80	< 0.5		< 0.5			< 0.5			< 0.5		< 0.5	
Chloroform	μg/L	N/A	< 1		< 1			< 1			< 1		< 1	
cis 1,2-Dichloroethene	μg/L	N/A	< 0.5		< 0.5			< 0.5			< 0.5		< 0.5	
cis 1,3-Dichloroethene	μg/L	N/A	< 0.5		< 0.5			< 0.5			< 0.5			
Dibromochloromethane	μg/L	N/A	< 2		< 2			< 2			< 2		< 0.5	
Dichlorodifluoromethane	μg/L	N/A					90.2	81.6					< 2	
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A	< 2		< 2		< 2			< 2		< 2		
Methylene Chloride	μg/L	N/A	< 5		< 5			< 5		< 5				
Vinyl Chloride	μg/L	2	< 0.2		< 0.2									
Trichloroethylene	μg/L	5	< 0.5		< 0.5									
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	< 1.1	<1.1								

VOC			45-93	45-93	45-93	45-93	45-93	45-93	45-93	45-93	45-93	45-93	45-93	45-93
Parameters	Units	ODWQS	20-Jul-17	17-Oct-17	8-May-18	24-Jul-18	11-Oct-18	8-May-19	15-Jul-19	9-Oct-19	5-May-20	13-Jul-20	13-Oct-20	3-May-21
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5			< 0.1			< 0.5		< 0.5	< 0.5	< 0.5	
1,1,1-Trichloroethane	μg/L	N/A	< 0.5			< 0.1			< 0.5		< 0.5	< 0.5	< 0.5	
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 0.5			< 0.4			< 0.5		< 1.0	< 0.5	< 1.0	
1,1,2-Trichloroethane	μg/L	N/A	< 0.5			< 0.1			< 0.5		< 0.5	< 0.5	< 0.5	
1,1-Dichloroethane	μg/L	N/A	< 0.5			< 0.1			< 0.5		< 1.1	< 0.5	< 1.1	
1,1-Dichloroethylene	μg/L	14	< 0.5			< 0.1			< 0.5			< 0.5		
Ethylene Dibromide	μg/L	N/A	< 0.2			< 0.1			< 0.2			< 0.2		
1,2-Dichlorobenzene	μg/L	3	< 0.5			< 0.1			< 0.5			< 0.5		
1,2-Dichloroethane	μg/L	5	< 0.5			< 0.1			< 0.5			< 0.5		
1,2-Dichloropropane	μg/L	N/A	< 0.5			< 0.1			< 0.5			< 0.5		
1,3-Dichlorobenzene	μg/L	N/A	< 0.5			< 0.1			< 0.5			< 0.5		
1,4-Dichlorobenzene	μg/L	1	< 0.5			< 0.2			< 0.5			< 0.5		
Methyl Ethyl Ketone	μg/L	N/A	< 20			< 1			< 20			< 20		
Methyl Isobutyl Ketone	μg/L	N/A	< 20			< 1			< 20			< 20		
Acetone	μg/L	N/A	< 30			< 2			< 30			< 30		
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A	< 2			< 0.1			< 2			< 2		
Bromoform	μg/L	N/A	< 5			< 0.1			< 5			< 5		
Bromomethane	μg/L	N/A	< 0.5			< 0.3			< 0.5			< 0.5		
Carbon Tetrachloride	μg/L	5	< 0.2			< 0.2			< 0.2			< 0.2		
Chlorobenzene	μg/L	80				< 0.2			< 0.5			< 0.5		
Chloroform	μg/L	N/A	< 1			< 0.3			< 1			< 1		
cis 1,2-Dichloroethene	μg/L	N/A	< 0.5			< 0.1			< 0.5			< 0.5		
cis 1,3-Dichloroethene	μg/L	N/A	< 0.5			< 0.1			< 0.5			< 0.5		
Dibromochloromethane	μg/L	N/A	< 2			< 0.1			< 2			< 2		
Dichlorodifluoromethane	μg/L	N/A							< 5					
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 1.0	< 0.4	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A	< 2			< 1			< 2			< 2		
Methylene Chloride	μg/L	N/A				< 0.3						< 5		
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300												< 1.1

VOC			45-93	45-93	45-93	45-93	45-93	45-93	45-93	45-93-II	45-93-II	45-93-II	45-93-II	45-93-II
Parameters	Units	ODWQS	5-Jul-21	14-Oct-21	3-May-22	28-Jul-22	25-Oct-22	12-Jul-23	18-Oct-23	6-May-14	23-Oct-14	26-May-15		24-May-17
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5			< 0.5		< 0.5				_		
1,1,1-Trichloroethane	μg/L	N/A	< 0.5			< 0.5		< 0.5						
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 0.5			< 0.5		< 0.5						
1,1,2-Trichloroethane	μg/L	N/A	< 0.5			< 0.5		< 0.5						
1,1-Dichloroethane	μg/L	N/A	< 0.5			< 0.5		< 0.5						
1,1-Dichloroethylene	μg/L	14	< 0.5			< 0.5		< 0.5						
Ethylene Dibromide	μg/L	N/A	< 0.2			< 0.2		< 0.2						
1,2-Dichlorobenzene	μg/L	3	< 0.5			< 0.5		< 0.5						
1,2-Dichloroethane	μg/L	5	< 0.5			< 0.5		< 0.5						
1,2-Dichloropropane	μg/L	N/A	< 0.5			< 0.5		< 0.5						
1,3-Dichlorobenzene	μg/L	N/A	< 0.5			< 0.5		< 0.5						
1,4-Dichlorobenzene	μg/L	1	< 0.5			< 0.5		< 0.5						
Methyl Ethyl Ketone	μg/L	N/A	< 20			< 20		< 20						
Methyl Isobutyl Ketone	μg/L	N/A	< 20			< 20		< 20						
Acetone	μg/L	N/A	< 30			< 30		< 30						
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	0.6	0.8	0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A	< 2			< 2		< 2						
Bromoform	μg/L	N/A	< 5			< 5		< 5						
Bromomethane	μg/L	N/A	< 0.5			< 0.5		< 0.5						
Carbon Tetrachloride	μg/L	5	< 0.2			< 0.2		< 0.2						
Chlorobenzene	μg/L	80	< 0.5			< 0.5		< 0.5						
Chloroform	μg/L	N/A	< 1			< 1		< 1						
cis 1,2-Dichloroethene	μg/L	N/A	< 0.5			< 0.5		< 0.5						
cis 1,3-Dichloroethene	μg/L	N/A	< 0.5			< 0.5		< 0.5						
Dibromochloromethane	μg/L	N/A	< 2			< 2		< 2						
Dichlorodifluoromethane	μg/L	N/A								92.6				
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A	< 2			< 2		< 2						
Methylene Chloride	μg/L	N/A	< 5			< 5		< 5						
Vinyl Chloride	μg/L	2	< 0.2			< 0.2		< 0.2						
Trichloroethylene	μg/L	5	< 0.5			< 0.5		< 0.5						
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1					

VOC			45-93-II	45-93-II	45-93-II	45-95-I	45-95-I	45-95-I	45-95-I	45-95-I	45-95-I	45-95-I	45-95-I	45-95-I
Parameters	Units	ODWQS	18-Oct-17	8-May-18	11-Oct-18	6-May-14	23-Oct-14	26-May-15		24-May-17	18-Oct-17	8-May-18	24-Jul-18	11-Oct-18
1,1,1,2-Tetrachloroethane	μg/L	N/A				_		_				_	< 0.1	
1,1,1-Trichloroethane	μg/L	N/A											< 0.1	
1,1,2,2 Tetrachloroethane	μg/L	N/A											< 0.4	
1,1,2-Trichloroethane	μg/L	N/A											< 0.1	
1,1-Dichloroethane	μg/L	N/A											< 0.1	
1,1-Dichloroethylene	μg/L	14											< 0.1	
Ethylene Dibromide	μg/L	N/A											< 0.1	
1,2-Dichlorobenzene	μg/L	3											< 0.1	
1,2-Dichloroethane	μg/L	5											< 0.1	
1,2-Dichloropropane	μg/L	N/A											< 0.1	
1,3-Dichlorobenzene	μg/L	N/A											< 0.1	
1,4-Dichlorobenzene	μg/L	1											< 0.2	
Methyl Ethyl Ketone	μg/L	N/A											< 1	
Methyl Isobutyl Ketone	μg/L	N/A											< 1	
Acetone	μg/L	N/A											< 2	
Benzene	μg/L	5	< 0.5	1.9	< 0.5	< 0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A											< 0.1	
Bromoform	μg/L	N/A											< 0.1	
Bromomethane	μg/L	N/A											< 0.3	
Carbon Tetrachloride	μg/L	5											< 0.2	
Chlorobenzene	μg/L	80											< 0.2	
Chloroform	μg/L	N/A											< 0.3	
cis 1,2-Dichloroethene	μg/L	N/A											< 0.1	
cis 1,3-Dichloroethene	μg/L	N/A											< 0.1	
Dibromochloromethane	μg/L	N/A											< 0.1	
Dichlorodifluoromethane	μg/L	N/A				105								
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.4	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 1.0	< 1.0	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0		< 1.0
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		< 0.5
Methyl tert-Butyl Ether	μg/L	N/A											< 1	
Methylene Chloride	μg/L	N/A											< 0.3	
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300												

VOC			45-95-I	45-95-I	45-95-I	45-95-I	45-95-I	45-95-I	45-95-I	45-95-I	45-95-I	45-95-I	45-95-II	45-95-II
Parameters	Units	ODWQS	9-May-19	8-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23	9-May-19	8-Oct-19
1,1,1,2-Tetrachloroethane	μg/L	N/A			< 0.5	< 0.5	,						,	
1,1,1-Trichloroethane	μg/L	N/A			< 0.5	< 0.5								
1,1,2,2 Tetrachloroethane	μg/L	N/A			< 1.0	< 1.0								
1,1,2-Trichloroethane	μg/L	N/A			< 0.5	< 0.5								
1,1-Dichloroethane	μg/L	N/A			< 1.1	< 1.1								
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300					< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1		

VOC			45-95-II	45-95-II	45-95-II	45-95-II	45-95-II	45-95-II	45-95-II	45-95-II	46-95-I	46-95-I	46-95-I	46-95-I
Parameters	Units	ODWQS	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23	6-May-14	23-Oct-14	26-May-15	
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5	< 0.5							,			
1,1,1-Trichloroethane	μg/L	N/A	< 0.5	< 0.5										
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 1.0	< 1.0										
1,1,2-Trichloroethane	μg/L	N/A	< 0.5	< 0.5										
1,1-Dichloroethane	μg/L	N/A	< 1.1	< 1.1										
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	1.1	0.6	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												1
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A									92.8			
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 0.4	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.1	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300			< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1				

VOC			46-95-I	46-95-I	46-95-I	46-95-I	46-95-I	46-95-I	46-95-I	46-95-I	46-95-I	46-95-I	46-95-I	46-95-I
Parameters	Units	ODWQS	24-May-17	18-Oct-17	8-May-18	11-Oct-18	9-May-19	8-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22
1,1,1,2-Tetrachloroethane	μg/L	N/A							< 0.5	< 0.5				
1,1,1-Trichloroethane	μg/L	N/A							< 0.5	< 0.5				
1,1,2,2 Tetrachloroethane	μg/L	N/A							< 1.0	< 1.0				
1,1,2-Trichloroethane	μg/L	N/A							< 0.5	< 0.5				
1,1-Dichloroethane	μg/L	N/A							< 1.1	< 1.1				
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	0.6	0.8	< 0.5	0.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300									< 1.1	< 1.1	< 1.1	< 1.1

VOC			46-95-I	46-95-I	46-95-II	46-95-II	46-95-II	46-95-II	46-95-II	46-95-II	46-95-II	46-95-II	46-95-II	46-95-II
Parameters	Units	ODWQS	3-May-23	18-Oct-23	6-May-14	23-Oct-14		20-Oct-15	24-May-17	18-Oct-17	8-May-18	11-Oct-18	9-May-19	8-Oct-19
1,1,1,2-Tetrachloroethane	μg/L	N/A			,						,			
1,1,1-Trichloroethane	μg/L	N/A												
1,1,2,2 Tetrachloroethane	μg/L	N/A												
1,1,2-Trichloroethane	μg/L	N/A												
1,1-Dichloroethane	μg/L	N/A												
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	<0.5	< 0.5	0.7	< 0.5	< 0.5	1	0.6	0.9	< 0.5	0.9	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A			87.6									
Ethylbenzene	μg/L	2.4	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	<1	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	<0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												1
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	< 1.1	<1.1										

VOC			46-95-II	46-95-II	46-95-II	46-95-II	46-95-II	46-95-II	46-95-II	46-95-II	47-96-I	47-96-I	47-96-I	47-96-I
Parameters	Units	ODWQS	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23	6-May-14	23-Oct-14	26-May-15	
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5	< 0.5										
1,1,1-Trichloroethane	μg/L	N/A	< 0.5	< 0.5										
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 1.0	< 1.0										
1,1,2-Trichloroethane	μg/L	N/A	< 0.5	< 0.5										
1,1-Dichloroethane	μg/L	N/A	< 1.1	< 1.1										
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	0.6	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1			< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300			< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1				

VOC			47-96-I	47-96-I	47-96-I	47-96-I	47-96-I	47-96-I	47-96-I	47-96-I	47-96-I	47-96-I	47-96-I	47-96-I
Parameters	Units	ODWQS	8-May-18	11-Oct-18	9-May-19	8-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23
1,1,1,2-Tetrachloroethane	μg/L	N/A					< 0.5	< 0.5						
1,1,1-Trichloroethane	μg/L	N/A					< 0.5	< 0.5						
1,1,2,2 Tetrachloroethane	μg/L	N/A					< 1.0	< 1.0						
1,1,2-Trichloroethane	μg/L	N/A					< 0.5	< 0.5						
1,1-Dichloroethane	μg/L	N/A					< 1.1	< 1.1						
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1
o-Xylene	μg/L	N/A	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300							< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1

VOC			47-96-II	47-96-II	47-96-II	47-96-II	47-96-II	47-96-II	47-96-II	47-96-II	47-96-II	47-96-II	47-96-II	47-96-II
Parameters	Units	ODWQS	6-May-14	23-Oct-14	26-May-15	20-Oct-15	24-May-17	18-Oct-17	8-May-18	11-Oct-18	9-May-19	8-Oct-19	5-May-20	13-Oct-20
1,1,1,2-Tetrachloroethane	μg/L	N/A											< 0.5	< 0.5
1,1,1-Trichloroethane	μg/L	N/A											< 0.5	< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A											< 1.0	< 1.0
1,1,2-Trichloroethane	μg/L	N/A											< 0.5	< 0.5
1,1-Dichloroethane	μg/L	N/A											< 1.1	< 1.1
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A	93.9											
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300												

VOC			47-96-II	47-96-II	47-96-II	47-96-II	47-96-II	47-96-II	48-96-I	48-96-I	48-96-I	48-96-I	48-96-I	48-96-I
Parameters	Units	ODWQS	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23	6-May-14	23-Oct-14	26-May-15	20-Oct-15	23-May-17	18-Oct-17
1,1,1,2-Tetrachloroethane	μg/L	N/A											_	
1,1,1-Trichloroethane	μg/L	N/A												
1,1,2,2 Tetrachloroethane	μg/L	N/A												
1,1,2-Trichloroethane	μg/L	N/A												
1,1-Dichloroethane	μg/L	N/A												
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												1
1,3-Dichlorobenzene	μg/L	N/A												1
1,4-Dichlorobenzene	μg/L	1												1
Methyl Ethyl Ketone	μg/L	N/A												1
Methyl Isobutyl Ketone	μg/L	N/A												1
Acetone	μg/L	N/A												1
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												1
Bromoform	μg/L	N/A												1
Bromomethane	μg/L	N/A												1
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												1
cis 1,2-Dichloroethene	μg/L	N/A												1
cis 1,3-Dichloroethene	μg/L	N/A												1
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A							87.7					1
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	0.8	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	0.9	<0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	1.3	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1						

VOC			48-96-I	48-96-I	48-96-I	48-96-I	48-96-I	48-96-I	48-96-I	48-96-I	48-96-I	48-96-I	48-96-I	48-96-I (DUP)
Parameters	Units	ODWQS	8-May-18	11-Oct-18	8-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23	18-Oct-23
1,1,1,2-Tetrachloroethane	μg/L	N/A				< 0.5	< 0.5							
1,1,1-Trichloroethane	μg/L	N/A				< 0.5	< 0.5							
1,1,2,2 Tetrachloroethane	μg/L	N/A				< 1.0	< 1.0							
1,1,2-Trichloroethane	μg/L	N/A				< 0.5	< 0.5							
1,1-Dichloroethane	μg/L	N/A				< 1.1	< 1.1							
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5	<0.5	<0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1
o-Xylene	μg/L	N/A	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300						< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1	<1.1

VOC			48-96-II	48-96-II	48-96-II	48-96-II	48-96-II	48-96-II	48-96-II	48-96-II	48-96-II	48-96-II	48-96-II	48-96-II
Parameters	Units	ODWQS	6-May-14	23-Oct-14	26-May-15	20-Oct-15		18-Oct-17	8-May-18	9-May-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21
1,1,1,2-Tetrachloroethane	μg/L	N/A	_		_					_	< 0.5	< 0.5		
1,1,1-Trichloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1,2,2 Tetrachloroethane	μg/L	N/A									< 1.0	< 1.0		
1,1,2-Trichloroethane	μg/L	N/A									< 0.5	< 0.5		
1,1-Dichloroethane	μg/L	N/A									< 1.1	< 1.1		
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A	88.7											
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300											< 1.1	< 1.1

VOC			48-96-II	48-96-II	48-96-II	48-96-II (DUP)	48-96-II	49-96-I	49-96-I	49-96-I	49-96-I	49-96-I	49-96-I	49-96-I
Parameters	Units	ODWQS	3-May-22	25-Oct-22	3-May-23	3-May-23	18-Oct-23	7-May-14	21-Oct-14	28-May-15	19-Oct-15	24-May-17	17-Oct-17	8-May-18
1,1,1,2-Tetrachloroethane	μg/L	N/A	_		_							_		
1,1,1-Trichloroethane	μg/L	N/A												
1,1,2,2 Tetrachloroethane	μg/L	N/A												
1,1,2-Trichloroethane	μg/L	N/A												
1,1-Dichloroethane	μg/L	N/A												
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A						83.7						
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 1.0
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	< 1.1	< 1.1	<1.1							

VOC			49-96-I	49-96-I	49-96-I	49-96-I	49-96-I	49-96-I	49-96-I	49-96-I	49-96-I	49-96-I	49-96-I	49-96-II
Parameters	Units	ODWQS	11-Oct-18	8-May-19	7-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23	7-May-14
1,1,1,2-Tetrachloroethane	μg/L	N/A				< 0.5	< 0.5							
1,1,1-Trichloroethane	μg/L	N/A				< 0.5	< 0.5							
1,1,2,2 Tetrachloroethane	μg/L	N/A				< 1.0	< 1.0							
1,1,2-Trichloroethane	μg/L	N/A				< 0.5	< 0.5							
1,1-Dichloroethane	μg/L	N/A				< 1.1	< 1.1							
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												82.2
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0
o-Xylene	μg/L	N/A	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300						< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1	

VOC			49-96-II	49-96-II	49-96-II	49-96-II	49-96-II	49-96-II	49-96-II	49-96-II	49-96-II	49-96-II	49-96-II	49-96-II
Parameters	Units	ODWQS	21-Oct-14	28-May-15	19-Oct-15	24-May-17		8-May-18	11-Oct-18	8-May-19	7-Oct-19	5-May-20	13-Oct-20	3-May-21
1,1,1,2-Tetrachloroethane	μg/L	N/A										< 0.5	< 0.5	
1,1,1-Trichloroethane	μg/L	N/A										< 0.5	< 0.5	
1,1,2,2 Tetrachloroethane	μg/L	N/A										< 1.0	< 1.0	
1,1,2-Trichloroethane	μg/L	N/A										< 0.5	< 0.5	
1,1-Dichloroethane	μg/L	N/A										< 1.1	< 1.1	
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												1
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300												< 1.1

VOC			49-96-II	49-96-II	49-96-II	49-96-II	49-96-II	49-96-III						
Parameters	Units	ODWQS	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23	7-May-14	21-Oct-14	28-May-15	19-Oct-15	24-May-17	17-Oct-17	8-May-18
1,1,1,2-Tetrachloroethane	μg/L	N/A												
1,1,1-Trichloroethane	μg/L	N/A												
1,1,2,2 Tetrachloroethane	μg/L	N/A												
1,1,2-Trichloroethane	μg/L	N/A												
1,1-Dichloroethane	μg/L	N/A												
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A						87						
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 1.0
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A									<5			
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	< 1.1	< 1.1	<1.1							

VOC			49-96-III	53-98										
Parameters	Units	ODWQS	11-Oct-18	8-May-19	7-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23	8-May-14
1,1,1,2-Tetrachloroethane	μg/L	N/A				< 0.5	< 0.5							
1,1,1-Trichloroethane	μg/L	N/A				< 0.5	< 0.5							
1,1,2,2 Tetrachloroethane	μg/L	N/A				< 1.0	< 1.0							
1,1,2-Trichloroethane	μg/L	N/A				< 0.5	< 0.5							
1,1-Dichloroethane	μg/L	N/A				< 1.1	< 1.1							
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												94.1
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0
o-Xylene	μg/L	N/A	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												< 2
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300						< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1	

VOC			53-98	53-98	53-98	53-98	53-98	53-98	53-98	53-98	53-98	53-98	53-98	53-98
Parameters	Units	ODWQS	29-Jul-14	23-Oct-14	29-May-15	13-Jul-15	13-Oct-15	13-Jul-16	25-May-17	19-Jul-17	18-Oct-17	8-May-18	24-Jul-18	11-Oct-18
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5	< 0.1		< 0.5		< 0.5		< 0.5			< 0.1	
1,1,1-Trichloroethane	μg/L	N/A	< 0.5	< 0.1		< 0.5		< 0.5		< 0.5			< 0.1	
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 0.5	< 0.4		< 0.5		< 0.5		< 0.5			< 0.4	
1,1,2-Trichloroethane	μg/L	N/A	< 0.5	< 0.1		< 0.5		< 0.5		< 0.5			< 0.1	
1,1-Dichloroethane	μg/L	N/A	< 0.5	< 0.1		< 0.5		< 0.5		-			< 0.1	
1,1-Dichloroethylene	μg/L	14		< 0.1						< 0.5			< 0.1	
Ethylene Dibromide	μg/L	N/A	< 0.2	< 0.1		< 0.2		< 0.5		< 0.2			< 0.1	
1,2-Dichlorobenzene	μg/L	3	< 0.5	< 0.1		< 0.5		< 0.5		< 0.5			< 0.1	
1,2-Dichloroethane	μg/L	5	< 0.5	< 0.1		< 0.5		< 0.5		< 0.5			< 0.1	
1,2-Dichloropropane	μg/L	N/A	< 0.5	< 0.1		< 0.5		< 0.5		< 0.5			< 0.1	
1,3-Dichlorobenzene	μg/L	N/A	< 0.5	< 0.1		< 0.5		< 0.5		< 0.5			< 0.1	
1,4-Dichlorobenzene	μg/L	1	< 0.5	< 0.2		< 0.5		< 0.5		< 0.5			< 0.2	
Methyl Ethyl Ketone	μg/L	N/A						< 20		< 20			< 1	
Methyl Isobutyl Ketone	μg/L	N/A						< 20					< 1	
Acetone	μg/L	N/A	< 30	< 2		< 30		< 30		< 0.5			< 2	
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A	< 2	< 0.1		< 2		< 2		< 30			< 0.1	
Bromoform	μg/L	N/A	< 5	< 0.1		< 5		< 5		< 0.5			< 0.1	
Bromomethane	μg/L	N/A	< 0.5	< 0.3				< 0.5		< 2			< 0.3	
Carbon Tetrachloride	μg/L	5	< 0.2	< 0.2		< 0.2		< 0.2		< 0.2			< 0.2	
Chlorobenzene	μg/L	80	< 0.5	< 0.2		< 0.5		< 0.5					< 0.2	
Chloroform	μg/L	N/A	< 1	< 0.3		< 1		< 1		< 1			< 0.3	
cis 1,2-Dichloroethene	μg/L	N/A	< 0.5	< 0.1		< 0.5		< 0.5		< 0.5			< 0.1	
cis 1,3-Dichloroethene	μg/L	N/A	< 0.5	< 0.1		< 0.5				< 0.5			< 0.1	
Dibromochloromethane	μg/L	N/A	< 2	< 0.1		< 2		< 0.5		< 2			< 0.1	
Dichlorodifluoromethane	μg/L	N/A	116					< 2						
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 0.4	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.4	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.5	< 0.1		< 0.5	< 0.5	< 0.5	< 1.0	< 0.4	< 1.0
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A	< 1		< 2		< 2			< 2			< 1	
Methylene Chloride	μg/L	N/A	< 5		< 5								< 0.3	
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300												

VOC			53-98	53-98	53-98	53-98	53-98	53-98	53-98	53-98	53-98	53-98	53-98	53-98
Parameters	Units	ODWQS	15-Jul-19	7-Oct-19	5-May-20	13-Jul-20	13-Oct-20	3-May-21	5-Jul-21	14-Oct-21	3-May-22	28-Jul-22	25-Oct-22	12-Jul-23
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5		< 0.5	< 0.5	< 0.5		< 0.5			< 0.5		< 0.5
1,1,1-Trichloroethane	μg/L	N/A	< 0.5		< 0.5	< 0.5	< 0.5		< 0.5			< 0.5		< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 0.5		< 1.0	< 0.5	< 1.0		< 0.5			< 0.5		< 0.5
1,1,2-Trichloroethane	μg/L	N/A	< 0.5		< 0.5	< 0.5	< 0.5		< 0.5			< 0.5		< 0.5
1,1-Dichloroethane	μg/L	N/A	< 0.5		< 1.1	< 0.5	< 1.1		< 0.5			< 0.5		< 0.5
1,1-Dichloroethylene	μg/L	14	< 0.5			< 0.5			< 0.5			< 0.5		< 0.5
Ethylene Dibromide	μg/L	N/A	< 0.2			< 0.2			< 0.2			< 0.2		< 0.2
1,2-Dichlorobenzene	μg/L	3	< 0.5			< 0.5			< 0.5			< 0.5		< 0.5
1,2-Dichloroethane	μg/L	5	< 0.5			< 0.5			< 0.5			< 0.5		< 0.5
1,2-Dichloropropane	μg/L	N/A	< 0.5			< 0.5			< 0.5			< 0.5		< 0.5
1,3-Dichlorobenzene	μg/L	N/A	< 0.5			< 0.5			< 0.5			< 0.5		< 0.5
1,4-Dichlorobenzene	μg/L	1	< 0.5			< 0.5			< 0.5			< 0.5		< 0.5
Methyl Ethyl Ketone	μg/L	N/A	< 20			< 20			< 20			< 20		< 20
Methyl Isobutyl Ketone	μg/L	N/A	< 20			< 20			< 20			< 20		< 20
Acetone	μg/L	N/A	< 30			< 30			< 30			< 30		< 30
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A	< 2			< 2			< 2			< 2		< 2
Bromoform	μg/L	N/A	< 5			< 5			< 5			< 5		< 5
Bromomethane	μg/L	N/A	< 0.5			< 0.5			< 0.5			< 0.5		< 0.5
Carbon Tetrachloride	μg/L	5	< 0.2			< 0.2			< 0.2			< 0.2		< 0.2
Chlorobenzene	μg/L	80	< 0.5			< 0.5			< 0.5			< 0.5		< 0.5
Chloroform	μg/L	N/A	< 1			< 1			< 1			< 1		< 1
cis 1,2-Dichloroethene	μg/L	N/A	< 0.5			< 0.5			< 0.5			< 0.5		< 0.5
cis 1,3-Dichloroethene	μg/L	N/A	< 0.5			< 0.5			< 0.5			< 0.5		< 0.5
Dibromochloromethane	μg/L	N/A	< 2			< 2			< 2			< 2		< 2
Dichlorodifluoromethane	μg/L	N/A	< 5											
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A	< 2			< 2			< 2			< 2		< 2
Methylene Chloride	μg/L	N/A				< 5			< 5			< 5		< 5
Vinyl Chloride	μg/L	2							< 0.2			< 0.2		< 0.2
Trichloroethylene	μg/L	5							< 0.5			< 0.5		< 0.5
Xylene, m,p,o-	μg/L	300						< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1

VOC			53-98	54-98	54-98	54-98	54-98	54-98	54-98	54-98	54-98	54-98	54-98	55-98-I
Parameters	Units	ODWQS	18-Oct-23	8-May-14	20-Oct-14	26-May-15		24-May-17	16-Oct-17	8-May-18	11-Oct-18	10-May-19	7-Oct-19	7-May-14
1,1,1,2-Tetrachloroethane	μg/L	N/A												< 0.5
1,1,1-Trichloroethane	μg/L	N/A												< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A												< 0.5
1,1,2-Trichloroethane	μg/L	N/A												< 0.5
1,1-Dichloroethane	μg/L	N/A												< 0.5
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												< 0.2
1,2-Dichlorobenzene	μg/L	3												< 0.5
1,2-Dichloroethane	μg/L	5												< 0.5
1,2-Dichloropropane	μg/L	N/A												< 0.5
1,3-Dichlorobenzene	μg/L	N/A												< 0.5
1,4-Dichlorobenzene	μg/L	1												< 0.5
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												< 30
Benzene	μg/L	5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												< 2
Bromoform	μg/L	N/A												< 5
Bromomethane	μg/L	N/A												< 0.5
Carbon Tetrachloride	μg/L	5												< 0.2
Chlorobenzene	μg/L	80												< 0.5
Chloroform	μg/L	N/A												< 1
cis 1,2-Dichloroethene	μg/L	N/A												< 0.5
cis 1,3-Dichloroethene	μg/L	N/A												< 0.5
Dibromochloromethane	μg/L	N/A												< 2
Dichlorodifluoromethane	μg/L	N/A		85.5										87.2
Ethylbenzene	μg/L	2.4	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	<1	< 1.0	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	<0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												< 2
Methylene Chloride	μg/L	N/A					<5							
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	<1.1											

VOC			55-98-I 55-98-I	55-98-I										
Parameters	Units	ODWQS	29-Jul-14	21-Oct-14	29-May-15	14-Jul-15	19-Oct-15	13-Jul-16	24-May-17	19-Jul-17	17-Oct-17	8-May-18	24-Jul-18	11-Oct-18
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5		_	< 0.5		< 0.5		< 0.5			< 0.1	
1,1,1-Trichloroethane	μg/L	N/A	< 0.5			< 0.5		< 0.5		< 0.5			< 0.1	
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 0.5			< 0.5		< 0.5		< 0.5			< 0.4	
1,1,2-Trichloroethane	μg/L	N/A	< 0.5			< 0.5		< 0.5		< 0.5			< 0.1	
1,1-Dichloroethane	μg/L	N/A	< 0.5			< 0.5		< 0.5		-			< 0.1	
1,1-Dichloroethylene	μg/L	14								< 0.5			< 0.1	
Ethylene Dibromide	μg/L	N/A	< 0.2			< 0.2		< 0.5		< 0.2			< 0.1	
1,2-Dichlorobenzene	μg/L	3	< 0.5			< 0.5		< 0.5		< 0.5			< 0.1	
1,2-Dichloroethane	μg/L	5	< 0.5			< 0.5		< 0.5		< 0.5			< 0.1	
1,2-Dichloropropane	μg/L	N/A	< 0.5			< 0.5		< 0.5		< 0.5			< 0.1	
1,3-Dichlorobenzene	μg/L	N/A	< 0.5			< 0.5		< 0.5		< 0.5			< 0.1	
1,4-Dichlorobenzene	μg/L	1	< 0.5			< 0.5		< 0.5		< 0.5			< 0.2	
Methyl Ethyl Ketone	μg/L	N/A						< 20		< 20			< 1	
Methyl Isobutyl Ketone	μg/L	N/A						< 20		< 20	< 1.0		< 1	
Acetone	μg/L	N/A	< 30			< 30		< 30		< 0.5			< 2	
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A	< 2			< 2		< 2		< 30			< 0.1	
Bromoform	μg/L	N/A	< 5			< 5		< 5		< 0.5			< 0.1	
Bromomethane	μg/L	N/A	< 0.5					< 0.5		< 2			< 0.3	
Carbon Tetrachloride	μg/L	5	< 0.2			< 0.2		< 0.2		< 0.2			< 0.2	
Chlorobenzene	μg/L	80	< 0.5			< 0.5		< 0.5					< 0.2	
Chloroform	μg/L	N/A	< 1			< 1		< 1		< 1			< 0.3	
cis 1,2-Dichloroethene	μg/L	N/A	< 0.5			< 0.5		< 0.5		< 0.5			< 0.1	
cis 1,3-Dichloroethene	μg/L	N/A	< 0.5			< 0.5				< 0.5			< 0.1	
Dibromochloromethane	μg/L	N/A	< 2			< 2		< 0.5		< 2			< 0.1	
Dichlorodifluoromethane	μg/L	N/A	81.2					< 2						
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.5	< 1.0	< 0.4	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5		< 0.5	< 0.5	< 1.1	< 1.0		< 1.0
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5		< 0.5
Methyl tert-Butyl Ether	μg/L	N/A			< 2		< 2			< 2			< 1	
Methylene Chloride	μg/L	N/A	< 5		< 5			<5					< 0.3	1
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300												

VOC			55-98-I	55-98-I	55-98-I	55-98-I	55-98-I	55-98-I	55-98-I	55-98-I	55-98-I	55-98-I	55-98-I	55-98-I
Parameters	Units	ODWQS	8-May-19	15-Jul-19	7-Oct-19	5-May-20	13-Jul-20	13-Oct-20	3-May-21	5-Jul-21	14-Oct-21	3-May-22	28-Jul-22	12-Jul-23
1,1,1,2-Tetrachloroethane	μg/L	N/A		< 0.5		< 0.5	< 0.5	< 0.5		< 0.5			< 0.5	< 0.5
1,1,1-Trichloroethane	μg/L	N/A		< 0.5		< 0.5	< 0.5	< 0.5		< 0.5			< 0.5	< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A		< 0.5		< 1.0	< 0.5	< 1.0		< 0.5			< 0.5	< 0.5
1,1,2-Trichloroethane	μg/L	N/A		< 0.5		< 0.5	< 0.5	< 0.5		< 0.5			< 0.5	< 0.5
1,1-Dichloroethane	μg/L	N/A		< 0.5		< 1.1	< 0.5	< 1.1		< 0.5			< 0.5	< 0.5
1,1-Dichloroethylene	μg/L	14		< 0.5			< 0.5			< 0.5			< 0.5	< 0.5
Ethylene Dibromide	μg/L	N/A		< 0.2			< 0.2			< 0.2			< 0.2	< 0.2
1,2-Dichlorobenzene	μg/L	3		< 0.5			< 0.5			< 0.5			< 0.5	< 0.5
1,2-Dichloroethane	μg/L	5		< 0.5			< 0.5			< 0.5			< 0.5	< 0.5
1,2-Dichloropropane	μg/L	N/A		< 0.5			< 0.5			< 0.5			< 0.5	< 0.5
1,3-Dichlorobenzene	μg/L	N/A		< 0.5			< 0.5			< 0.5			< 0.5	< 0.5
1,4-Dichlorobenzene	μg/L	1		< 0.5			< 0.5			< 0.5			< 0.5	< 0.5
Methyl Ethyl Ketone	μg/L	N/A		< 20			< 20			< 20			< 20	< 20
Methyl Isobutyl Ketone	μg/L	N/A		< 20			< 20			< 20			< 20	< 20
Acetone	μg/L	N/A		< 30			< 30			< 30			< 30	< 30
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A		< 2			< 2			< 2			< 2	< 2
Bromoform	μg/L	N/A		< 5			< 5			< 5			< 5	< 5
Bromomethane	μg/L	N/A		< 0.5			< 0.5			< 0.5			< 0.5	< 0.5
Carbon Tetrachloride	μg/L	5		< 0.2			< 0.2			< 0.2			< 0.2	< 0.2
Chlorobenzene	μg/L	80		< 0.5			< 0.5			< 0.5			< 0.5	< 0.5
Chloroform	μg/L	N/A		< 1			< 1			< 1			< 1	< 1
cis 1,2-Dichloroethene	μg/L	N/A		< 0.5			< 0.5			< 0.5			< 0.5	< 0.5
cis 1,3-Dichloroethene	μg/L	N/A		< 0.5			< 0.5			< 0.5			< 0.5	< 0.5
Dibromochloromethane	μg/L	N/A		< 2			< 2			< 2			< 2	< 2
Dichlorodifluoromethane	μg/L	N/A		< 5										
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A		< 2			< 2			< 2			< 2	< 2
Methylene Chloride	μg/L	N/A					< 5			< 5			< 5	< 5
Vinyl Chloride	μg/L	2								< 0.2			< 0.2	< 0.2
Trichloroethylene	μg/L	5								< 0.5			< 0.5	< 0.5
Xylene, m,p,o-	μg/L	300							< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1

VOC			55-98-I	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II
Parameters	Units	ODWQS	18-Oct-23	7-May-14	29-Jul-14	21-Oct-14		14-Jul-15	19-Oct-15	13-Jul-16	24-May-17	19-Jul-17	17-Oct-17	24-Jul-18
1,1,1,2-Tetrachloroethane	μg/L	N/A		< 0.5	< 0.5			< 0.5		< 0.5		< 0.5		< 0.1
1,1,1-Trichloroethane	μg/L	N/A		< 0.5	< 0.5			< 0.5		< 0.5		< 0.5		< 0.1
1,1,2,2 Tetrachloroethane	μg/L	N/A		< 0.5	< 0.5			< 0.5		< 0.5		< 0.5		< 0.4
1,1,2-Trichloroethane	μg/L	N/A		< 0.5	< 0.5			< 0.5		< 0.5		< 0.5		< 0.1
1,1-Dichloroethane	μg/L	N/A		< 0.5	< 0.5			< 0.5		< 0.5		-		< 0.1
1,1-Dichloroethylene	μg/L	14										< 0.5		< 0.1
Ethylene Dibromide	μg/L	N/A		< 0.2	< 0.2			< 0.2		< 0.5		< 0.2		< 0.1
1,2-Dichlorobenzene	μg/L	3		< 0.5	< 0.5			< 0.5		< 0.5		< 0.5		< 0.1
1,2-Dichloroethane	μg/L	5		< 0.5	< 0.5			< 0.5		< 0.5		< 0.5		< 0.1
1,2-Dichloropropane	μg/L	N/A		< 0.5	< 0.5			< 0.5		< 0.5		< 0.5		< 0.1
1,3-Dichlorobenzene	μg/L	N/A		< 0.5	< 0.5			< 0.5		< 0.5		< 0.5		< 0.1
1,4-Dichlorobenzene	μg/L	1		< 0.5	< 0.5			< 0.5		< 0.5		< 0.5		< 0.2
Methyl Ethyl Ketone	μg/L	N/A								< 20		< 20		< 1
Methyl Isobutyl Ketone	μg/L	N/A								< 20		< 20		< 1
Acetone	μg/L	N/A		< 30	< 30			< 30		< 30		< 0.5		< 2
Benzene	μg/L	5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.6	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A		< 2	< 2			< 2		< 2		< 30		< 0.1
Bromoform	μg/L	N/A		< 5	< 5			< 5		< 5		< 0.5		< 0.1
Bromomethane	μg/L	N/A		< 0.5	< 0.5					< 0.5		< 2		< 0.3
Carbon Tetrachloride	μg/L	5		< 0.2	< 0.2			< 0.2		< 0.2		< 0.2		< 0.2
Chlorobenzene	μg/L	80		< 0.5	< 0.5			< 0.5		< 0.5				< 0.2
Chloroform	μg/L	N/A		< 1	< 1			< 1		< 1		< 1		< 0.3
cis 1,2-Dichloroethene	μg/L	N/A		< 0.5	< 0.5			< 0.5		< 0.5		< 0.5		< 0.1
cis 1,3-Dichloroethene	μg/L	N/A		< 0.5	< 0.5			< 0.5				< 0.5		< 0.1
Dibromochloromethane	μg/L	N/A		< 2	< 2			< 2		< 0.5		< 2		< 0.1
Dichlorodifluoromethane	μg/L	N/A		90.8	81.1					< 2				
Ethylbenzene	μg/L	2.4	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	<1	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.4
o-Xylene	μg/L	N/A	<0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5		< 0.5	< 0.5	< 0.5	< 0.4
Toluene	μg/L	N/A	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		< 0.5	< 0.5	< 0.5	< 0.1
Methyl tert-Butyl Ether	μg/L	N/A		< 2			< 2		< 2			< 2		< 1
Methylene Chloride	μg/L	N/A			< 5		< 5							< 0.3
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	<1.1											

VOC			55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II	55-98-II
Parameters	Units	ODWQS	11-Oct-18	8-May-19	15-Jul-19	7-Oct-19	5-May-20	13-Oct-20	3-May-21	5-Jul-21	14-Oct-21	3-May-22	28-Jul-22	25-Oct-22
1,1,1,2-Tetrachloroethane	μg/L	N/A			< 0.5		< 0.5	< 0.5		< 0.5		_	< 0.5	
1,1,1-Trichloroethane	μg/L	N/A			< 0.5		< 0.5	< 0.5		< 0.5			< 0.5	
1,1,2,2 Tetrachloroethane	μg/L	N/A			< 0.5		< 1.0	< 1.0		< 0.5			< 0.5	
1,1,2-Trichloroethane	μg/L	N/A			< 0.5		< 0.5	< 0.5		< 0.5			< 0.5	
1,1-Dichloroethane	μg/L	N/A			< 0.5		< 1.1	< 1.1		< 0.5			< 0.5	
1,1-Dichloroethylene	μg/L	14			< 0.5					< 0.5			< 0.5	
Ethylene Dibromide	μg/L	N/A			< 0.2					< 0.2			< 0.2	
1,2-Dichlorobenzene	μg/L	3			< 0.5					< 0.5			< 0.5	
1,2-Dichloroethane	μg/L	5			< 0.5					< 0.5			< 0.5	
1,2-Dichloropropane	μg/L	N/A			< 0.5					< 0.5			< 0.5	
1,3-Dichlorobenzene	μg/L	N/A			< 0.5					< 0.5			< 0.5	
1,4-Dichlorobenzene	μg/L	1			< 0.5					< 0.5			< 0.5	
Methyl Ethyl Ketone	μg/L	N/A			< 20					< 20			< 20	
Methyl Isobutyl Ketone	μg/L	N/A			< 20					< 20			< 20	
Acetone	μg/L	N/A			< 30					< 30			< 30	
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A			< 2					< 2			< 2	
Bromoform	μg/L	N/A			< 5					< 5			< 5	
Bromomethane	μg/L	N/A			< 0.5					< 0.5			< 0.5	
Carbon Tetrachloride	μg/L	5			< 0.2					< 0.2			< 0.2	
Chlorobenzene	μg/L	80			< 0.5					< 0.5			< 0.5	
Chloroform	μg/L	N/A			< 1					< 1			< 1	
cis 1,2-Dichloroethene	μg/L	N/A			< 0.5					< 0.5			< 0.5	
cis 1,3-Dichloroethene	μg/L	N/A			< 0.5					< 0.5			< 0.5	
Dibromochloromethane	μg/L	N/A			< 2					< 2			< 2	
Dichlorodifluoromethane	μg/L	N/A			< 5									
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A			< 2					< 2			< 2	
Methylene Chloride	μg/L	N/A								< 5			< 5	
Vinyl Chloride	μg/L	2								< 0.2			< 0.2	
Trichloroethylene	μg/L	5								< 0.5			< 0.5	
Xylene, m,p,o-	μg/L	300							< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1

VOC			55-98-II	55-98-II	56-02-I	56-02-I	56-02-I	56-02-I	56-02-I	56-02-I	56-02-I	56-02-I	56-02-I	56-02-I
Parameters	Units	ODWQS	12-Jul-23	18-Oct-23	8-May-14	20-Oct-14		15-Oct-15	24-May-17	16-Oct-17	8-May-18	11-Oct-18	10-May-19	8-Oct-19
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5										_	
1,1,1-Trichloroethane	μg/L	N/A	< 0.5											
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 0.5											
1,1,2-Trichloroethane	μg/L	N/A	< 0.5											
1,1-Dichloroethane	μg/L	N/A	< 0.5											
1,1-Dichloroethylene	μg/L	14	< 0.5											
Ethylene Dibromide	μg/L	N/A	< 0.2											
1,2-Dichlorobenzene	μg/L	3	< 0.5											
1,2-Dichloroethane	μg/L	5	< 0.5											
1,2-Dichloropropane	μg/L	N/A	< 0.5											
1,3-Dichlorobenzene	μg/L	N/A	< 0.5											
1,4-Dichlorobenzene	μg/L	1	< 0.5											
Methyl Ethyl Ketone	μg/L	N/A	< 20											
Methyl Isobutyl Ketone	μg/L	N/A	< 20											
Acetone	μg/L	N/A	< 30											
Benzene	μg/L	5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A	< 2											
Bromoform	μg/L	N/A	< 5											
Bromomethane	μg/L	N/A	< 0.5											
Carbon Tetrachloride	μg/L	5	< 0.2											
Chlorobenzene	μg/L	80	< 0.5											
Chloroform	μg/L	N/A	< 1											
cis 1,2-Dichloroethene	μg/L	N/A	< 0.5											
cis 1,3-Dichloroethene	μg/L	N/A	< 0.5											
Dibromochloromethane	μg/L	N/A	< 2											
Dichlorodifluoromethane	μg/L	N/A			85.2									
Ethylbenzene	μg/L	2.4	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	<1	< 1.0	< 1.0	< 0.4	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	<0.5	< 0.5	< 0.5	< 0.1	< 0.1	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A	< 2											<u> </u>
Methylene Chloride	μg/L	N/A	< 5											<u></u>
Vinyl Chloride	μg/L	2	< 0.2											
Trichloroethylene	μg/L	5	< 0.5											
Xylene, m,p,o-	μg/L	300	< 1.1	<1.1										

V 00			56-02-I	56-02-I	56-02-I	56-02-I	56-02-I	56-02-I	56-02-I	56-02-I	56-02-I	56-02-I (DUP)	56-02-I	56-02-II
Parameters	Units	ODWQS	5-May-20	13-Jul-20	13-Oct-20	3-May-21	5-Jul-21	14-Oct-21	3-May-22	28-Jul-22	12-Jul-23	12-Jul-23	18-Oct-23	8-May-14
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5	< 0.5	< 0.5		< 0.5			< 0.5	< 0.5	< 0.5		
1,1,1-Trichloroethane	μg/L	N/A	< 0.5	< 0.5	< 0.5		< 0.5			< 0.5	< 0.5	< 0.5		
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 1.0	< 0.5	< 1.0		< 0.5			< 0.5	< 0.5	< 0.5		
1,1,2-Trichloroethane	μg/L	N/A	< 0.5	< 0.5	< 0.5		< 0.5			< 0.5	< 0.5	< 0.5		
1,1-Dichloroethane	μg/L	N/A	< 1.1	< 0.5	< 1.1		< 0.5			< 0.5	< 0.5	< 0.5		
1,1-Dichloroethylene	μg/L	14		< 0.5			< 0.5			< 0.5	< 0.5	< 0.5		
Ethylene Dibromide	μg/L	N/A		< 0.2			< 0.2			< 0.2	< 0.2	< 0.2		
1,2-Dichlorobenzene	μg/L	3		< 0.5			< 0.5			< 0.5	< 0.5	< 0.5		
1,2-Dichloroethane	μg/L	5		< 0.5			< 0.5			< 0.5	< 0.5	< 0.5		
1,2-Dichloropropane	μg/L	N/A		< 0.5			< 0.5			< 0.5	< 0.5	< 0.5		
1,3-Dichlorobenzene	μg/L	N/A		< 0.5			< 0.5			< 0.5	< 0.5	< 0.5		
1,4-Dichlorobenzene	μg/L	1		< 0.5			< 0.5			< 0.5	< 0.5	< 0.5		
Methyl Ethyl Ketone	μg/L	N/A		< 20			< 20			< 20	< 20	< 20		
Methyl Isobutyl Ketone	μg/L	N/A		< 20			< 20			< 20	< 20	< 20		
Acetone	μg/L	N/A		< 30			< 30			< 30	< 30	< 30		
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5
Bromodichloromethane	μg/L	N/A		< 2			< 2			< 2	< 2	< 2		
Bromoform	μg/L	N/A		< 5			< 5			< 5	< 5	< 5		
Bromomethane	μg/L	N/A		< 0.5			< 0.5			< 0.5	< 0.5	< 0.5		
Carbon Tetrachloride	μg/L	5		< 0.2			< 0.2			< 0.2	< 0.2	< 0.2		
Chlorobenzene	μg/L	80		< 0.5			< 0.5			< 0.5	< 0.5	< 0.5		
Chloroform	μg/L	N/A		< 1			< 1			< 1	< 1	< 1		
cis 1,2-Dichloroethene	μg/L	N/A		< 0.5			< 0.5			< 0.5	< 0.5	< 0.5		
cis 1,3-Dichloroethene	μg/L	N/A		< 0.5			< 0.5			< 0.5	< 0.5	< 0.5		
Dibromochloromethane	μg/L	N/A		< 2			< 2			< 2	< 2	< 2		
Dichlorodifluoromethane	μg/L	N/A												86.2
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A		< 2			< 2			< 2	< 2	< 2		
Methylene Chloride	μg/L	N/A		< 5			< 5			< 5	< 5	< 5		
Vinyl Chloride	μg/L	2					< 0.2			< 0.2	< 0.2	< 0.2		
Trichloroethylene	μg/L	5					< 0.5			< 0.5	< 0.5	< 0.5		
Xylene, m,p,o-	μg/L	300				< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1	

VOC			56-02-II 56-02-II	56-02-II	56-02-II	56-02-II	56-02-II							
Parameters	Units	ODWQS	20-Oct-14	28-May-15	15-Oct-15	16-Oct-16	24-May-17	16-Oct-17	8-May-18	11-Oct-18	10-May-19	8-Oct-19	13-Oct-20	25-Oct-22
1,1,1,2-Tetrachloroethane	μg/L	N/A											< 0.5	
1,1,1-Trichloroethane	μg/L	N/A											< 0.5	
1,1,2,2 Tetrachloroethane	μg/L	N/A											< 1.0	
1,1,2-Trichloroethane	μg/L	N/A											< 0.5	
1,1-Dichloroethane	μg/L	N/A											< 1.1	
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 0.4	< 0.4		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A				<5								
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300												< 1.1

VOC			57-02-I	57-02-I	57-02-I	57-02-I	57-02-I	57-02-I	57-02-I	57-02-I	57-02-I	57-02-I	57-02-I	57-02-I
Parameters	Units	ODWQS	8-May-14	29-Jul-14	20-Oct-14	29-May-15		13-Oct-15	13-Jul-16	25-May-17	20-Jul-17	18-Oct-17	8-May-18	24-Jul-18
1,1,1,2-Tetrachloroethane	μg/L	N/A		< 0.5			< 0.5		< 0.5		< 0.5		_	< 0.1
1,1,1-Trichloroethane	μg/L	N/A		< 0.5			< 0.5		< 0.5		< 0.5			< 0.1
1,1,2,2 Tetrachloroethane	μg/L	N/A		< 0.5			< 0.5		< 0.5		< 0.5			< 0.4
1,1,2-Trichloroethane	μg/L	N/A		< 0.5			< 0.5		< 0.5		< 0.5			< 0.1
1,1-Dichloroethane	μg/L	N/A		< 0.5			< 0.5		< 0.5		-			< 0.1
1,1-Dichloroethylene	μg/L	14									< 0.5			< 0.1
Ethylene Dibromide	μg/L	N/A		< 0.2			< 0.2		< 0.5		< 0.2			< 0.1
1,2-Dichlorobenzene	μg/L	3		< 0.5			< 0.5		< 0.5		< 0.5			< 0.1
1,2-Dichloroethane	μg/L	5		< 0.5			< 0.5		< 0.5		< 0.5			< 0.1
1,2-Dichloropropane	μg/L	N/A		< 0.5			< 0.5		< 0.5		< 0.5			< 0.1
1,3-Dichlorobenzene	μg/L	N/A		< 0.5			< 0.5		< 0.5		< 0.5			< 0.1
1,4-Dichlorobenzene	μg/L	1		< 0.5			< 0.5		< 0.5		< 0.5			< 0.2
Methyl Ethyl Ketone	μg/L	N/A							< 20		< 20			< 1
Methyl Isobutyl Ketone	μg/L	N/A							< 20					< 1
Acetone	μg/L	N/A		< 30			< 30		< 30		< 0.5			< 2
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A		< 2			< 2		< 2		< 30			< 0.1
Bromoform	μg/L	N/A		< 5			< 5		< 5		< 5			< 0.1
Bromomethane	μg/L	N/A		< 0.5					< 0.5		< 0.5			< 0.3
Carbon Tetrachloride	μg/L	5		< 0.2			< 0.2		< 0.2		< 0.2			< 0.2
Chlorobenzene	μg/L	80		< 0.5			< 0.5		< 0.5					< 0.2
Chloroform	μg/L	N/A		< 1			< 1		< 1		< 1			< 0.3
cis 1,2-Dichloroethene	μg/L	N/A		< 0.5			< 0.5		< 0.5		< 0.5			< 0.1
cis 1,3-Dichloroethene	μg/L	N/A		< 0.5			< 0.5				< 0.5			< 0.1
Dibromochloromethane	μg/L	N/A		< 2			< 2		< 0.5		< 2			< 0.1
Dichlorodifluoromethane	μg/L	N/A	93.4	82.3					< 2					
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.4
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.1		< 0.5	< 0.5	< 0.5	< 1.0	< 0.4
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.1
Methyl tert-Butyl Ether	μg/L	N/A	< 2			< 2		< 2			< 2			< 1
Methylene Chloride	μg/L	N/A		< 5		< 5			<5					< 0.3
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300												

VOC			57-02-I	57-02-I	57-02-l	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II
Parameters	Units	ODWQS	11-Oct-18	15-Jul-19	9-Oct-19	8-May-14	29-Jul-14	20-Oct-14	29-May-15	13-Jul-15	13-Oct-15	13-Jul-16	25-May-17	20-Jul-17
1,1,1,2-Tetrachloroethane	μg/L	N/A		< 0.5			< 0.5			< 0.5		< 0.5		< 0.5
1,1,1-Trichloroethane	μg/L	N/A		< 0.5			< 0.5			< 0.5		< 0.5		< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A		< 0.5			< 0.5			< 0.5		< 0.5		< 0.5
1,1,2-Trichloroethane	μg/L	N/A		< 0.5			< 0.5			< 0.5		< 0.5		< 0.5
1,1-Dichloroethane	μg/L	N/A		< 0.5			< 0.5			< 0.5		< 0.5		-
1,1-Dichloroethylene	μg/L	14		< 0.5										< 0.5
Ethylene Dibromide	μg/L	N/A		< 0.2			< 0.2			< 0.2		< 0.5		< 0.2
1,2-Dichlorobenzene	μg/L	3		< 0.5			< 0.5			< 0.5		< 0.5		< 0.5
1,2-Dichloroethane	μg/L	5		< 0.5			< 0.5			< 0.5		< 0.5		< 0.5
1,2-Dichloropropane	μg/L	N/A		< 0.5			< 0.5			< 0.5		< 0.5		< 0.5
1,3-Dichlorobenzene	μg/L	N/A		< 0.5			< 0.5			< 0.5		< 0.5		< 0.5
1,4-Dichlorobenzene	μg/L	1		< 0.5			< 0.5			< 0.5		< 0.5		< 0.5
Methyl Ethyl Ketone	μg/L	N/A		< 20								< 20		< 20
Methyl Isobutyl Ketone	μg/L	N/A		< 20								< 20		
Acetone	μg/L	N/A		< 30			< 30			< 30		< 30		< 0.5
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A		< 2			< 2			< 2		< 2		< 30
Bromoform	μg/L	N/A		< 5			< 5			< 5		< 5		< 5
Bromomethane	μg/L	N/A		< 0.5			< 0.5					< 0.5		< 0.5
Carbon Tetrachloride	μg/L	5		< 0.2			< 0.2			< 0.2		< 0.2		< 0.2
Chlorobenzene	μg/L	80		< 0.5			< 0.5			< 0.5		< 0.5		
Chloroform	μg/L	N/A		< 1			< 1			< 1		6		< 1
cis 1,2-Dichloroethene	μg/L	N/A		< 0.5			< 0.5			< 0.5		< 0.5		< 0.5
cis 1,3-Dichloroethene	μg/L	N/A		< 0.5			< 0.5			< 0.5				< 0.5
Dibromochloromethane	μg/L	N/A		< 2			< 2			< 2		< 0.5		< 2
Dichlorodifluoromethane	μg/L	N/A		< 5		91	84					< 2		
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.1		< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A		< 2		< 2			< 2		< 2			< 2
Methylene Chloride	μg/L	N/A					< 5		< 5			<5		
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300												

VOC			57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II	57-02-II
Parameters	Units	ODWQS	18-Oct-17	8-May-18	24-Jul-18	11-Oct-18	15-Jul-19	9-Oct-19	5-May-20	13-Jul-20	3-May-21	5-Jul-21	14-Oct-21	3-May-22
1,1,1,2-Tetrachloroethane	μg/L	N/A			< 0.1		< 0.5		< 0.5	< 0.5		< 0.5		
1,1,1-Trichloroethane	μg/L	N/A			< 0.1		< 0.5		< 0.5	< 0.5		< 0.5		
1,1,2,2 Tetrachloroethane	μg/L	N/A			< 0.4		< 0.5		< 1.0	< 0.5		< 0.5		
1,1,2-Trichloroethane	μg/L	N/A			< 0.1		< 0.5		< 0.5	< 0.5		< 0.5		
1,1-Dichloroethane	μg/L	N/A			< 0.1		< 0.5		< 1.1	< 0.5		< 0.5		
1,1-Dichloroethylene	μg/L	14			< 0.1		< 0.5			< 0.5		< 0.5		
Ethylene Dibromide	μg/L	N/A			< 0.1		< 0.2			< 0.2		< 0.2		
1,2-Dichlorobenzene	μg/L	3			< 0.1		< 0.5			< 0.5		< 0.5		
1,2-Dichloroethane	μg/L	5			< 0.1		< 0.5			< 0.5		< 0.5		
1,2-Dichloropropane	μg/L	N/A			< 0.1		< 0.5			< 0.5		< 0.5		
1,3-Dichlorobenzene	μg/L	N/A			< 0.1		< 0.5			< 0.5		< 0.5		
1,4-Dichlorobenzene	μg/L	1			< 0.2		< 0.5			< 0.5		< 0.5		
Methyl Ethyl Ketone	μg/L	N/A			< 1		< 20			< 20		< 20		
Methyl Isobutyl Ketone	μg/L	N/A			< 1		< 20			< 20		< 20		
Acetone	μg/L	N/A			< 2		< 30			< 30		< 30		
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A			< 0.1		< 2			< 2		< 2		
Bromoform	μg/L	N/A			< 0.1		< 5			< 5		< 5		
Bromomethane	μg/L	N/A			< 0.3		< 0.5			< 0.5		< 0.5		
Carbon Tetrachloride	μg/L	5			< 0.2		< 0.2			< 0.2		< 0.2		
Chlorobenzene	μg/L	80			< 0.2		< 0.5			< 0.5		< 0.5		
Chloroform	μg/L	N/A			< 0.3		< 1			< 1		< 1		
cis 1,2-Dichloroethene	μg/L	N/A			< 0.1		< 0.5			< 0.5		< 0.5		
cis 1,3-Dichloroethene	μg/L	N/A			< 0.1		< 0.5			< 0.5		< 0.5		
Dibromochloromethane	μg/L	N/A			< 0.1		< 2			< 2		< 2		
Dichlorodifluoromethane	μg/L	N/A					< 5							
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 1.0	< 0.4	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A			< 1		< 2			< 2		< 2		
Methylene Chloride	μg/L	N/A			< 0.3					< 5		< 5		
Vinyl Chloride	μg/L	2										< 0.2		
Trichloroethylene	μg/L	5										< 0.5		
Xylene, m,p,o-	μg/L	300									< 1.1	< 1.1	< 1.1	< 1.1

VOC			57-02-II	57-02-II	57-02-II	57-02-II	58-I	58-I	58-I (DUP)	58-02	58-02	58-02	58-02	58-02
Parameters	Units	ODWQS	28-Jul-22	25-Oct-22	12-Jul-23	18-Oct-23	12-Jul-23	18-Oct-23	18-Oct-23	8-May-14	29-Jul-14	20-Oct-14	29-May-15	13-Jul-15
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5		< 0.5		< 0.5				< 0.5			< 0.5
1,1,1-Trichloroethane	μg/L	N/A	< 0.5		< 0.5		< 0.5				< 0.5			< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 0.5		< 0.5		< 0.5				< 0.5			< 0.5
1,1,2-Trichloroethane	μg/L	N/A	< 0.5		< 0.5		< 0.5				< 0.5			< 0.5
1,1-Dichloroethane	μg/L	N/A	< 0.5		< 0.5		< 0.5				< 0.5			< 0.5
1,1-Dichloroethylene	μg/L	14	< 0.5		< 0.5		< 0.5							·
Ethylene Dibromide	μg/L	N/A	< 0.2		< 0.2		< 0.2				< 0.2			< 0.2
1,2-Dichlorobenzene	μg/L	3	< 0.5		< 0.5		< 0.5				< 0.5			< 0.5
1,2-Dichloroethane	μg/L	5	< 0.5		< 0.5		< 0.5				< 0.5			< 0.5
1,2-Dichloropropane	μg/L	N/A	< 0.5		< 0.5		< 0.5				< 0.5			< 0.5
1,3-Dichlorobenzene	μg/L	N/A	< 0.5		< 0.5		< 0.5				< 0.5			< 0.5
1,4-Dichlorobenzene	μg/L	1	< 0.5		< 0.5		< 0.5				< 0.5			< 0.5
Methyl Ethyl Ketone	μg/L	N/A	< 20		< 20		< 20							
Methyl Isobutyl Ketone	μg/L	N/A	< 20		< 20		< 20							
Acetone	μg/L	N/A	< 30		< 30		< 30				< 30			< 30
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A	< 2		< 2		< 2				< 2			< 2
Bromoform	μg/L	N/A	< 5		< 5		< 5				< 5			< 5
Bromomethane	μg/L	N/A	< 0.5		< 0.5		< 0.5				< 0.5			
Carbon Tetrachloride	μg/L	5	< 0.2		< 0.2		< 0.2				< 0.2			< 0.2
Chlorobenzene	μg/L	80	< 0.5		< 0.5		< 0.5				< 0.5			< 0.5
Chloroform	μg/L	N/A	< 1		< 1		< 1				< 1			< 1
cis 1,2-Dichloroethene	μg/L	N/A	< 0.5		< 0.5		< 0.5				< 0.5			< 0.5
cis 1,3-Dichloroethene	μg/L	N/A	< 0.5		< 0.5		< 0.5				< 0.5			< 0.5
Dibromochloromethane	μg/L	N/A	< 2		< 2		< 2				< 2			< 2
Dichlorodifluoromethane	μg/L	N/A								87	82.9			I
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	<1	< 1.0	<1	<1	< 1.0	< 1.0	< 0.4	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A	< 2		< 2		< 2			< 2			< 2	<u> </u>
Methylene Chloride	μg/L	N/A	< 5		< 5		< 5				< 5			<u> </u>
Vinyl Chloride	μg/L	2	< 0.2		< 0.2		< 0.2							<u> </u>
Trichloroethylene	μg/L	5	< 0.5		< 0.5		< 0.5							<u> </u>
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	< 1.1	<1.1	< 1.1	<1.1	<1.1					<u></u>

VOC			58-02	58-02	58-02	58-02	58-02	58-02	58-02	58-02	58-02	58-02	58-02	58-02
Parameters	Units	ODWQS		25-May-17	20-Jul-17	18-Oct-17	8-May-18	24-Jul-18	11-Oct-18	16-Jul-19	9-Oct-19	5-May-20	13-Jul-20	13-Oct-20
1,1,1,2-Tetrachloroethane	μg/L	N/A		_	< 0.5					< 0.5		< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	μg/L	N/A			< 0.5					< 0.5		< 0.5	< 0.5	< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A			< 0.5					< 0.5		< 1.0	< 0.5	< 1.0
1,1,2-Trichloroethane	μg/L	N/A			< 0.5					< 0.5		< 0.5	< 0.5	< 0.5
1,1-Dichloroethane	μg/L	N/A			-					< 0.5		< 1.1	< 0.5	< 1.1
1,1-Dichloroethylene	μg/L	14			< 0.5					< 0.5			< 0.5	
Ethylene Dibromide	μg/L	N/A			< 0.2					< 0.2			< 0.2	
1,2-Dichlorobenzene	μg/L	3			< 0.5					< 0.5			< 0.5	
1,2-Dichloroethane	μg/L	5			< 0.5					< 0.5			< 0.5	
1,2-Dichloropropane	μg/L	N/A			< 0.5					< 0.5			< 0.5	
1,3-Dichlorobenzene	μg/L	N/A			< 0.5					< 0.5			< 0.5	
1,4-Dichlorobenzene	μg/L	1			< 0.5					< 0.5			< 0.5	
Methyl Ethyl Ketone	μg/L	N/A			< 20					< 20			< 20	
Methyl Isobutyl Ketone	μg/L	N/A								< 20			< 20	
Acetone	μg/L	N/A			< 0.5					< 30			< 30	
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5			< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A			< 30					< 2			< 2	
Bromoform	μg/L	N/A			< 5					< 5			< 5	
Bromomethane	μg/L	N/A			< 0.5					< 0.5			< 0.5	
Carbon Tetrachloride	μg/L	5			< 0.2					< 0.2			< 0.2	
Chlorobenzene	μg/L	80								< 0.5			< 0.5	
Chloroform	μg/L	N/A			< 1					< 1			< 1	
cis 1,2-Dichloroethene	μg/L	N/A			< 0.5					< 0.5			< 0.5	
cis 1,3-Dichloroethene	μg/L	N/A			< 0.5					< 0.5			< 0.5	1
Dibromochloromethane	μg/L	N/A			< 2					< 2			< 2	
Dichlorodifluoromethane	μg/L	N/A								< 5				
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 0.4	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A			< 2					< 2			< 2	
Methylene Chloride	μg/L	N/A											< 5	
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300												

VOC			58-02	58-02	58-02	58-02	58-02	58-02	58-02	58-02	59-05	59-05	59-05	59-05
Parameters	Units	ODWQS	3-May-21	5-Jul-21	14-Oct-21	3-May-22	28-Jul-22	25-Oct-22	12-Jul-23	18-Oct-23	6-May-14	23-Oct-14	27-May-15	
1,1,1,2-Tetrachloroethane	μg/L	N/A		< 0.5			< 0.5		< 0.5					
1,1,1-Trichloroethane	μg/L	N/A		< 0.5			< 0.5		< 0.5					
1,1,2,2 Tetrachloroethane	μg/L	N/A		< 0.5			< 0.5		< 0.5					
1,1,2-Trichloroethane	μg/L	N/A		< 0.5			< 0.5		< 0.5					
1,1-Dichloroethane	μg/L	N/A		< 0.5			< 0.5		< 0.5					
1,1-Dichloroethylene	μg/L	14		< 0.5			< 0.5		< 0.5					
Ethylene Dibromide	μg/L	N/A		< 0.2			< 0.2		< 0.2					
1,2-Dichlorobenzene	μg/L	3		< 0.5			< 0.5		< 0.5					
1,2-Dichloroethane	μg/L	5		< 0.5			< 0.5		< 0.5					
1,2-Dichloropropane	μg/L	N/A		< 0.5			< 0.5		< 0.5					
1,3-Dichlorobenzene	μg/L	N/A		< 0.5			< 0.5		< 0.5					
1,4-Dichlorobenzene	μg/L	1		< 0.5			< 0.5		< 0.5					
Methyl Ethyl Ketone	μg/L	N/A		< 20			< 20		< 20					
Methyl Isobutyl Ketone	μg/L	N/A		< 20			< 20		< 20					
Acetone	μg/L	N/A		< 30			< 30		< 30					
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A		< 2			< 2		< 2					
Bromoform	μg/L	N/A		< 5			< 5		< 5					
Bromomethane	μg/L	N/A		< 0.5			< 0.5		< 0.5					
Carbon Tetrachloride	μg/L	5		< 0.2			< 0.2		< 0.2					
Chlorobenzene	μg/L	80		< 0.5			< 0.5		< 0.5					
Chloroform	μg/L	N/A		< 1			< 1		< 1					
cis 1,2-Dichloroethene	μg/L	N/A		< 0.5			< 0.5		< 0.5					
cis 1,3-Dichloroethene	μg/L	N/A		< 0.5			< 0.5		< 0.5					1
Dibromochloromethane	μg/L	N/A		< 2			< 2		< 2					
Dichlorodifluoromethane	μg/L	N/A									86.8			
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 0.4	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.1	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A		< 2			< 2		< 2					
Methylene Chloride	μg/L	N/A		< 5			< 5		< 5					1
Vinyl Chloride	μg/L	2		< 0.2			< 0.2		< 0.2					
Trichloroethylene	μg/L	5		< 0.5			< 0.5		< 0.5					
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1				

VOC			59-05	59-05	59-05	59-05	59-05	59-05	59-05	59-05	59-05	59-05	59-05	59-05
Parameters	Units	ODWQS	23-May-17	18-Oct-17	8-May-18	11-Oct-18	9-May-19	8-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22
1,1,1,2-Tetrachloroethane	μg/L	N/A							< 0.5	< 0.5				
1,1,1-Trichloroethane	μg/L	N/A							< 0.5	< 0.5				
1,1,2,2 Tetrachloroethane	μg/L	N/A							< 1.0	< 1.0				
1,1,2-Trichloroethane	μg/L	N/A							< 0.5	< 0.5				
1,1-Dichloroethane	μg/L	N/A							< 1.1	< 1.1				
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A												
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300									< 1.1	< 1.1	< 1.1	< 1.1

VOC			59-05	59-05	60-05	60-05	60-05	60-05	60-05	60-05	60-05	60-05	60-05	60-05
Parameters	Units	ODWQS	3-May-23	18-Oct-23	7-May-14	23-Oct-14		20-Oct-15	23-May-17	18-Oct-17	11-Oct-18	9-May-19	8-Oct-19	5-May-20
1,1,1,2-Tetrachloroethane	μg/L	N/A												< 0.5
1,1,1-Trichloroethane	μg/L	N/A												< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A												< 1.0
1,1,2-Trichloroethane	μg/L	N/A												< 0.5
1,1-Dichloroethane	μg/L	N/A												< 1.1
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A												
1,2-Dichlorobenzene	μg/L	3												
1,2-Dichloroethane	μg/L	5												
1,2-Dichloropropane	μg/L	N/A												
1,3-Dichlorobenzene	μg/L	N/A												
1,4-Dichlorobenzene	μg/L	1												
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A												
Benzene	μg/L	5	< 0.5	<0.5	< 0.5	0.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A												
Bromoform	μg/L	N/A												
Bromomethane	μg/L	N/A												
Carbon Tetrachloride	μg/L	5												
Chlorobenzene	μg/L	80												
Chloroform	μg/L	N/A												
cis 1,2-Dichloroethene	μg/L	N/A												
cis 1,3-Dichloroethene	μg/L	N/A												
Dibromochloromethane	μg/L	N/A												
Dichlorodifluoromethane	μg/L	N/A			82.1									
Ethylbenzene	μg/L	2.4	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	<1	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	<0.5	< 0.5	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A												
Methylene Chloride	μg/L	N/A						< 5						
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	< 1.1	<1.1										

VOC			60-05	60-05	60-05	60-05	60-05	60-05	60-05	61-10-l	61-10-l	61-10-l	61-10-l	61-10-l
Parameters	Units	ODWQS	13-Oct-20	3-May-21	14-Oct-21	3-May-22	25-Oct-22	3-May-23	18-Oct-23	8-May-14	29-Jul-14	23-Oct-14	29-May-15	13-Jul-15
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5								< 0.5			< 0.5
1,1,1-Trichloroethane	μg/L	N/A	< 0.5								< 0.5			< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 1.0								< 0.5			< 0.5
1,1,2-Trichloroethane	μg/L	N/A	< 0.5								< 0.5			< 0.5
1,1-Dichloroethane	μg/L	N/A	< 1.1								< 0.5			< 0.5
1,1-Dichloroethylene	μg/L	14												
Ethylene Dibromide	μg/L	N/A									< 0.2			< 0.2
1,2-Dichlorobenzene	μg/L	3									< 0.5			< 0.5
1,2-Dichloroethane	μg/L	5									< 0.5			< 0.5
1,2-Dichloropropane	μg/L	N/A									< 0.5			< 0.5
1,3-Dichlorobenzene	μg/L	N/A									< 0.5			< 0.5
1,4-Dichlorobenzene	μg/L	1									< 0.5			< 0.5
Methyl Ethyl Ketone	μg/L	N/A												
Methyl Isobutyl Ketone	μg/L	N/A												
Acetone	μg/L	N/A									< 30			< 30
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A									< 2			< 2
Bromoform	μg/L	N/A									< 5			< 5
Bromomethane	μg/L	N/A									< 0.5			
Carbon Tetrachloride	μg/L	5									< 0.2			< 0.2
Chlorobenzene	μg/L	80									< 0.5			< 0.5
Chloroform	μg/L	N/A									< 1			< 1
cis 1,2-Dichloroethene	μg/L	N/A									< 0.5			< 0.5
cis 1,3-Dichloroethene	μg/L	N/A									< 0.5			< 0.5
Dibromochloromethane	μg/L	N/A									< 2			< 2
Dichlorodifluoromethane	μg/L	N/A								82.7	82.4			
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 0.4	< 0.4	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.1	< 0.1	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A								< 2			< 2	
Methylene Chloride	μg/L	N/A									< 5		< 5	
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300		< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1					

VOC			61-10-l	61-10-l	61-10-l	61-10-l	61-10-I	61-10-l	61-10-l	61-10-l	61-10-l	61-10-l	61-10-l	61-10-l
Parameters	Units	ODWQS	13-Oct-15	13-Jul-16	25-May-17	20-Jul-17	18-Oct-17	8-May-18	24-Jul-18	24-Jul-18	24-Jul-18	11-Oct-18	9-May-19	16-Jul-19
1,1,1,2-Tetrachloroethane	μg/L	N/A		< 0.5	_	< 0.5			< 0.1	< 0.1				< 0.5
1,1,1-Trichloroethane	μg/L	N/A		< 0.5		< 0.5			< 0.1	< 0.1				< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A		< 0.5		< 0.5			< 0.4	< 0.4				< 0.5
1,1,2-Trichloroethane	μg/L	N/A		< 0.5		< 0.5			< 0.1	< 0.1				< 0.5
1,1-Dichloroethane	μg/L	N/A		< 0.5		< 0.5			< 0.1	< 0.1				< 0.5
1,1-Dichloroethylene	μg/L	14				< 0.5			< 0.1	< 0.1				< 0.5
Ethylene Dibromide	μg/L	N/A		< 0.5		< 0.2			< 0.1	< 0.1				< 0.2
1,2-Dichlorobenzene	μg/L	3		< 0.5		< 0.5			< 0.1	< 0.1				< 0.5
1,2-Dichloroethane	μg/L	5		< 0.5		< 0.5			< 0.1	< 0.1				< 0.5
1,2-Dichloropropane	μg/L	N/A		< 0.5		< 0.5			< 0.1	< 0.1				< 0.5
1,3-Dichlorobenzene	μg/L	N/A		< 0.5		< 0.5			< 0.1	< 0.1				< 0.5
1,4-Dichlorobenzene	μg/L	1		< 0.5		< 0.5			< 0.2	< 0.2				< 0.5
Methyl Ethyl Ketone	μg/L	N/A		< 20		< 20			< 1	< 1				< 20
Methyl Isobutyl Ketone	μg/L	N/A		< 20		< 20			< 1	< 1				< 20
Acetone	μg/L	N/A		< 30		< 30			< 2	< 2				< 30
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A		< 2		< 2			< 0.1	< 0.1				< 2
Bromoform	μg/L	N/A		< 5		< 5			< 0.1	< 0.1				< 5
Bromomethane	μg/L	N/A		< 0.5		< 0.5			< 0.3	< 0.3				< 0.5
Carbon Tetrachloride	μg/L	5		< 0.2		< 0.2			< 0.2	< 0.2				< 0.2
Chlorobenzene	μg/L	80		< 0.5					< 0.2	< 0.2				< 0.5
Chloroform	μg/L	N/A		< 1		< 1			< 0.3	< 0.3				< 1
cis 1,2-Dichloroethene	μg/L	N/A		< 0.5		< 0.5			< 0.1	< 0.1				< 0.5
cis 1,3-Dichloroethene	μg/L	N/A				< 0.5			< 0.1	< 0.1				< 0.5
Dibromochloromethane	μg/L	N/A		< 0.5		< 2			< 0.1	< 0.1				< 2
Dichlorodifluoromethane	μg/L	N/A		< 2										< 5
Ethylbenzene	μg/L	2.4	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.4	< 0.4	< 0.4	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.4	< 0.1	< 1.0	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		< 0.5	< 0.1		< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A	< 2			< 2			< 1	< 1				< 2
Methylene Chloride	μg/L	N/A		< 5					< 0.3	< 0.3				
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300												

V 00			61-10-l	61-10-I	61-10-I	61-10-I	61-10-I	61-10-l	61-10-I	61-10-l	61-10-I	61-10-I	61-10-l	61-10-I (DUP)
Parameters	Units	ODWQS	9-Oct-19	5-May-20	13-Jul-20	13-Oct-20	3-May-21	5-Jul-21	14-Oct-21	3-May-22	28-Jul-22	25-Oct-22	12-Jul-23	12-Jul-23
1,1,1,2-Tetrachloroethane	μg/L	N/A		< 0.5	< 0.5	< 0.5		< 0.5			< 0.5		< 0.5	< 0.5
1,1,1-Trichloroethane	μg/L	N/A		< 0.5	< 0.5	< 0.5		< 0.5			< 0.5		< 0.5	< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A		< 1.0	< 0.5	< 1.0		< 0.5			< 0.5		< 0.5	< 0.5
1,1,2-Trichloroethane	μg/L	N/A		< 0.5	< 0.5	< 0.5		< 0.5			< 0.5		< 0.5	< 0.5
1,1-Dichloroethane	μg/L	N/A		< 1.1	< 0.5	< 1.1		< 0.5			< 0.5		< 0.5	< 0.5
1,1-Dichloroethylene	μg/L	14			< 0.5			< 0.5			< 0.5		< 0.5	< 0.5
Ethylene Dibromide	μg/L	N/A			< 0.2			< 0.2			< 0.2		< 0.2	< 0.2
1,2-Dichlorobenzene	μg/L	3			< 0.5			< 0.5			< 0.5		< 0.5	< 0.5
1,2-Dichloroethane	μg/L	5			< 0.5			< 0.5			< 0.5		< 0.5	< 0.5
1,2-Dichloropropane	μg/L	N/A			< 0.5			< 0.5			< 0.5		< 0.5	< 0.5
1,3-Dichlorobenzene	μg/L	N/A			< 0.5			< 0.5			< 0.5		< 0.5	< 0.5
1,4-Dichlorobenzene	μg/L	1			< 0.5			< 0.5			< 0.5		< 0.5	< 0.5
Methyl Ethyl Ketone	μg/L	N/A			< 20			< 20			< 20		< 20	< 20
Methyl Isobutyl Ketone	μg/L	N/A			< 20			< 20			< 20		< 20	< 20
Acetone	μg/L	N/A			< 30			< 30			< 30		< 30	< 30
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A			< 2			< 2			< 2		< 2	< 2
Bromoform	μg/L	N/A			< 5			< 5			< 5		< 5	< 5
Bromomethane	μg/L	N/A			< 0.5			< 0.5			< 0.5		< 0.5	< 0.5
Carbon Tetrachloride	μg/L	5			< 0.2			< 0.2			< 0.2		< 0.2	< 0.2
Chlorobenzene	μg/L	80			< 0.5			< 0.5			< 0.5		< 0.5	< 0.5
Chloroform	μg/L	N/A			< 1			< 1			< 1		< 1	< 1
cis 1,2-Dichloroethene	μg/L	N/A			< 0.5			< 0.5			< 0.5		< 0.5	< 0.5
cis 1,3-Dichloroethene	μg/L	N/A			< 0.5			< 0.5			< 0.5		< 0.5	< 0.5
Dibromochloromethane	μg/L	N/A			< 2			< 2			< 2		< 2	< 2
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A			< 2			< 2			< 2		< 2	< 2
Methylene Chloride	μg/L	N/A			< 5			< 5			< 5		< 5	< 5
Vinyl Chloride	μg/L	2						< 0.2			< 0.2		< 0.2	< 0.2
Trichloroethylene	μg/L	5						< 0.5			< 0.5		< 0.5	< 0.5
Xylene, m,p,o-	μg/L	300					< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1

V 00			61-10-I	61-10-I (DUP)	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II
Parameters	Units	ODWQS	18-Oct-23	18-Oct-23	8-May-14	29-Jul-14	23-Oct-14	29-May-15	13-Jul-15	13-Oct-15	13-Jul-16	25-May-17	20-Jul-17	18-Oct-17
1,1,1,2-Tetrachloroethane	μg/L	N/A				< 0.5			< 0.5		< 0.5		< 0.5	
1,1,1-Trichloroethane	μg/L	N/A				< 0.5			< 0.5		< 0.5		< 0.5	
1,1,2,2 Tetrachloroethane	μg/L	N/A				< 0.5			< 0.5		< 0.5		< 0.5	
1,1,2-Trichloroethane	μg/L	N/A				< 0.5			< 0.5		< 0.5		< 0.5	
1,1-Dichloroethane	μg/L	N/A				< 0.5			< 0.5		< 0.5		< 0.5	
1,1-Dichloroethylene	μg/L	14											< 0.5	
Ethylene Dibromide	μg/L	N/A				< 0.2			< 0.2		< 0.5		< 0.2	
1,2-Dichlorobenzene	μg/L	3				< 0.5			< 0.5		< 0.5		< 0.5	
1,2-Dichloroethane	μg/L	5				< 0.5			< 0.5		< 0.5		< 0.5	
1,2-Dichloropropane	μg/L	N/A				< 0.5			< 0.5		< 0.5		< 0.5	
1,3-Dichlorobenzene	μg/L	N/A				< 0.5			< 0.5		< 0.5		< 0.5	
1,4-Dichlorobenzene	μg/L	1				< 0.5			< 0.5		< 0.5		< 0.5	
Methyl Ethyl Ketone	μg/L	N/A									< 20		< 20	
Methyl Isobutyl Ketone	μg/L	N/A									< 20		< 20	
Acetone	μg/L	N/A				< 30			< 30		< 30		< 30	
Benzene	μg/L	5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A				< 2			< 2		< 2		< 2	
Bromoform	μg/L	N/A				< 5			< 5		< 5		< 5	
Bromomethane	μg/L	N/A				< 0.5					< 0.5		< 0.5	
Carbon Tetrachloride	μg/L	5				< 0.2			< 0.2		< 0.2		< 0.2	
Chlorobenzene	μg/L	80				< 0.5			< 0.5		< 0.5			
Chloroform	μg/L	N/A				< 1			< 1		< 1		< 1	
cis 1,2-Dichloroethene	μg/L	N/A				< 0.5			< 0.5		< 0.5		< 0.5	
cis 1,3-Dichloroethene	μg/L	N/A				< 0.5			< 0.5				< 0.5	
Dibromochloromethane	μg/L	N/A				< 2			< 2		< 0.5		< 2	
Dichlorodifluoromethane	μg/L	N/A			81.5	84.1					< 2			
Ethylbenzene	μg/L	2.4	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	<1	<1	< 1.0	< 1.0	< 0.4	< 0.4	< 1.0	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	<0.5	<0.5	< 0.5	< 0.5	< 0.1	< 0.1	< 0.5	< 0.1		< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5		< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A			< 2			< 2		< 2			< 2	
Methylene Chloride	μg/L	N/A				< 5		< 5						
Vinyl Chloride	μg/L	2												
Trichloroethylene	μg/L	5												
Xylene, m,p,o-	μg/L	300	<1.1	<1.1										

V 00			61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II
Parameters	Units	ODWQS	8-May-18	24-Jul-18	24-Jul-18	11-Oct-18	9-May-19	16-Jul-19	9-Oct-19	5-May-20	13-Jul-20	13-Oct-20	3-May-21	5-Jul-21
1,1,1,2-Tetrachloroethane	μg/L	N/A	_	< 0.1				< 0.5		< 0.5	< 0.5	< 0.5		< 0.5
1,1,1-Trichloroethane	μg/L	N/A		< 0.1				< 0.5		< 0.5	< 0.5	< 0.5		< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A		< 0.4				< 0.5		< 1.0	< 0.5	< 1.0		< 0.5
1,1,2-Trichloroethane	μg/L	N/A		< 0.1				< 0.5		< 0.5	< 0.5	< 0.5		< 0.5
1,1-Dichloroethane	μg/L	N/A		< 0.1				< 0.5		< 1.1	< 0.5	< 1.1		< 0.5
1,1-Dichloroethylene	μg/L	14		< 0.1				< 0.5			< 0.5			< 0.5
Ethylene Dibromide	μg/L	N/A		< 0.1				< 0.2			< 0.2			< 0.2
1,2-Dichlorobenzene	μg/L	3		< 0.1				< 0.5			< 0.5			< 0.5
1,2-Dichloroethane	μg/L	5		< 0.1				< 0.5			< 0.5			< 0.5
1,2-Dichloropropane	μg/L	N/A		< 0.1				< 0.5			< 0.5			< 0.5
1,3-Dichlorobenzene	μg/L	N/A		< 0.1				< 0.5			< 0.5			< 0.5
1,4-Dichlorobenzene	μg/L	1		< 0.2				< 0.5			< 0.5			< 0.5
Methyl Ethyl Ketone	μg/L	N/A		< 1				< 20			< 20			< 20
Methyl Isobutyl Ketone	μg/L	N/A		< 1				< 20			< 20			< 20
Acetone	μg/L	N/A		< 2				< 30			< 30			< 30
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A		< 0.1				< 2			< 2			< 2
Bromoform	μg/L	N/A		< 0.1				< 5			< 5			< 5
Bromomethane	μg/L	N/A		< 0.3				< 0.5			< 0.5			< 0.5
Carbon Tetrachloride	μg/L	5		< 0.2				< 0.2			< 0.2			< 0.2
Chlorobenzene	μg/L	80		< 0.2				< 0.5			< 0.5			< 0.5
Chloroform	μg/L	N/A		< 0.3				< 1			< 1			< 1
cis 1,2-Dichloroethene	μg/L	N/A		< 0.1				< 0.5			< 0.5			< 0.5
cis 1,3-Dichloroethene	μg/L	N/A		< 0.1				< 0.5			< 0.5			< 0.5
Dibromochloromethane	μg/L	N/A		< 0.1				< 2			< 2			< 2
Dichlorodifluoromethane	μg/L	N/A						< 5						
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 0.4	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.4	< 0.1	< 1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A		< 0.1		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A		< 1				< 2			< 2			< 2
Methylene Chloride	μg/L	N/A		< 0.3							< 5			< 5
Vinyl Chloride	μg/L	2												< 0.2
Trichloroethylene	μg/L	5												< 0.5
Xylene, m,p,o-	μg/L	300											< 1.1	< 1.1

VOC			61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-10-II	61-17-I	61-17-I	61-17-I	61-17-I	61-17-I	61-17-I
Parameters	Units	ODWQS	14-Oct-21	3-May-22	28-Jul-22	25-Oct-22	12-Jul-23	18-Oct-23	8-May-18	11-Oct-18	11-Oct-18	9-May-19	9-May-19	9-Oct-19
1,1,1,2-Tetrachloroethane	μg/L	N/A			< 0.5		< 0.5							
1,1,1-Trichloroethane	μg/L	N/A			< 0.5		< 0.5							
1,1,2,2 Tetrachloroethane	μg/L	N/A			< 0.5		< 0.5							
1,1,2-Trichloroethane	μg/L	N/A			< 0.5		< 0.5							
1,1-Dichloroethane	μg/L	N/A			< 0.5		< 0.5							
1,1-Dichloroethylene	μg/L	14			< 0.5		< 0.5							
Ethylene Dibromide	μg/L	N/A			< 0.2		< 0.2							
1,2-Dichlorobenzene	μg/L	3			< 0.5		< 0.5							
1,2-Dichloroethane	μg/L	5			< 0.5		< 0.5							
1,2-Dichloropropane	μg/L	N/A			< 0.5		< 0.5							
1,3-Dichlorobenzene	μg/L	N/A			< 0.5		< 0.5							
1,4-Dichlorobenzene	μg/L	1			< 0.5		< 0.5							
Methyl Ethyl Ketone	μg/L	N/A			< 20		< 20							
Methyl Isobutyl Ketone	μg/L	N/A			< 20		< 20							
Acetone	μg/L	N/A			< 30		< 30							
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	0.7	< 0.5	< 0.5	< 0.5	0.5	< 0.5
Bromodichloromethane	μg/L	N/A			< 2		< 2							
Bromoform	μg/L	N/A			< 5		< 5							
Bromomethane	μg/L	N/A			< 0.5		< 0.5							
Carbon Tetrachloride	μg/L	5			< 0.2		< 0.2							
Chlorobenzene	μg/L	80			< 0.5		< 0.5							
Chloroform	μg/L	N/A			< 1		< 1							
cis 1,2-Dichloroethene	μg/L	N/A			< 0.5		< 0.5							
cis 1,3-Dichloroethene	μg/L	N/A			< 0.5		< 0.5							
Dibromochloromethane	μg/L	N/A			< 2		< 2							
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5				< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A			< 2		< 2							
Methylene Chloride	μg/L	N/A			< 5		< 5							
Vinyl Chloride	μg/L	2			< 0.2		< 0.2							
Trichloroethylene	μg/L	5			< 0.5		< 0.5							
Xylene, m,p,o-	μg/L	300	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1						

VOC			61-17-I	61-17-I	61-17-I	61-17-I	61-17-I	61-17-I	61-17-I	61-17-I	61-17-I	61-17-I	61-17-I	61-17-II
Parameters	Units	ODWQS	5-May-20	13-Jul-20	13-Oct-20	3-May-21	5-Jul-21	14-Oct-21	3-May-22	28-Jul-22	25-Oct-22	12-Jul-23	18-Oct-23	5-Jul-21
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5	< 0.5	< 0.5		< 0.5			< 0.5		< 0.5		< 0.5
1,1,1-Trichloroethane	μg/L	N/A	< 0.5	< 0.5	< 0.5		< 0.5			< 0.5		< 0.5		< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 1.0	< 0.5	< 1.0		< 0.5			< 0.5		< 0.5		< 0.5
1,1,2-Trichloroethane	μg/L	N/A	< 0.5	< 0.5	< 0.5		< 0.5			< 0.5		< 0.5		< 0.5
1,1-Dichloroethane	μg/L	N/A	< 1.1	< 0.5	< 1.1		< 0.5			< 0.5		< 0.5		< 0.5
1,1-Dichloroethylene	μg/L	14		< 0.5			< 0.5			< 0.5		< 0.5		< 0.5
Ethylene Dibromide	μg/L	N/A		< 0.2			< 0.2			< 0.2		< 0.2		< 0.2
1,2-Dichlorobenzene	μg/L	3		< 0.5			< 0.5			< 0.5		< 0.5		< 0.5
1,2-Dichloroethane	μg/L	5		< 0.5			< 0.5			< 0.5		< 0.5		< 0.5
1,2-Dichloropropane	μg/L	N/A		< 0.5			< 0.5			< 0.5		< 0.5		< 0.5
1,3-Dichlorobenzene	μg/L	N/A		< 0.5			< 0.5			< 0.5		< 0.5		< 0.5
1,4-Dichlorobenzene	μg/L	1		< 0.5			< 0.5			< 0.5		< 0.5		< 0.5
Methyl Ethyl Ketone	μg/L	N/A		< 20			< 20			< 20		< 20		< 20
Methyl Isobutyl Ketone	μg/L	N/A		< 20			< 20			< 20		< 20		< 20
Acetone	μg/L	N/A		< 30			< 30			< 30		< 30		< 30
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5
Bromodichloromethane	μg/L	N/A		< 2			< 2			< 2		< 2		< 2
Bromoform	μg/L	N/A		< 5			< 5			< 5		< 5		< 5
Bromomethane	μg/L	N/A		< 0.5			< 0.5			< 0.5		< 0.5		< 0.5
Carbon Tetrachloride	μg/L	5		< 0.2			< 0.2			< 0.2		< 0.2		< 0.2
Chlorobenzene	μg/L	80		< 0.5			< 0.5			< 0.5		< 0.5		< 0.5
Chloroform	μg/L	N/A		< 1			< 1			< 1		< 1		< 1
cis 1,2-Dichloroethene	μg/L	N/A		< 0.5			< 0.5			< 0.5		< 0.5		< 0.5
cis 1,3-Dichloroethene	μg/L	N/A		< 0.5			< 0.5			< 0.5		< 0.5		< 0.5
Dibromochloromethane	μg/L	N/A		< 2			< 2			< 2		< 2		< 2
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A		< 2			< 2			< 2		< 2		< 2
Methylene Chloride	μg/L	N/A		< 5			< 5			< 5		< 5		< 5
Vinyl Chloride	μg/L	2					< 0.2			< 0.2		< 0.2		< 0.2
Trichloroethylene	μg/L	5					< 0.5			< 0.5		< 0.5		< 0.5
Xylene, m,p,o-	μg/L	300				< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1	< 1.1

VOC			62-17-I	62-17-I	62-17-I	62-17-I	62-17-I	62-17-I	62-17-I	62-17-I	62-17-II	62-17-II	62-17-II	62-17-II
Parameters	Units	ODWQS	13-Oct-20	3-May-21	14-Oct-21	3-May-22	28-Jul-22	25-Oct-22	12-Jul-23	18-Oct-23	8-May-18	11-Oct-18	9-May-19	9-Oct-19
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5				< 0.5		< 0.5					
1,1,1-Trichloroethane	μg/L	N/A	< 0.5				< 0.5		< 0.5					
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 1.0				< 0.5		< 0.5					
1,1,2-Trichloroethane	μg/L	N/A	< 0.5				< 0.5		< 0.5					
1,1-Dichloroethane	μg/L	N/A	< 1.1				< 0.5		< 0.5					
1,1-Dichloroethylene	μg/L	14					< 0.5		< 0.5					
Ethylene Dibromide	μg/L	N/A					< 0.2		< 0.2					
1,2-Dichlorobenzene	μg/L	3					< 0.5		< 0.5					
1,2-Dichloroethane	μg/L	5					< 0.5		< 0.5					
1,2-Dichloropropane	μg/L	N/A					< 0.5		< 0.5					
1,3-Dichlorobenzene	μg/L	N/A					< 0.5		< 0.5					
1,4-Dichlorobenzene	μg/L	1					< 0.5		< 0.5					
Methyl Ethyl Ketone	μg/L	N/A					< 20		< 20					
Methyl Isobutyl Ketone	μg/L	N/A					< 20		< 20					
Acetone	μg/L	N/A					< 30		< 30					
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	N/A					< 2		< 2					
Bromoform	μg/L	N/A					< 5		< 5					
Bromomethane	μg/L	N/A					< 0.5		< 0.5					
Carbon Tetrachloride	μg/L	5					< 0.2		< 0.2					
Chlorobenzene	μg/L	80					< 0.5		< 0.5					
Chloroform	μg/L	N/A					< 1		< 1					
cis 1,2-Dichloroethene	μg/L	N/A					< 0.5		< 0.5					
cis 1,3-Dichloroethene	μg/L	N/A					< 0.5		< 0.5					
Dibromochloromethane	μg/L	N/A					< 2		< 2					
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5			< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A					< 2		< 2					
Methylene Chloride	μg/L	N/A					< 5		< 5					
Vinyl Chloride	μg/L	2					< 0.2		< 0.2					
Trichloroethylene	μg/L	5					< 0.5		< 0.5					
Xylene, m,p,o-	μg/L	300		< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1				

VOC			62-17-II	62-17-II	62-17-II	62-17-II	62-17-II	62-17-II	62-17-II	62-17-II	62-17-II	62-17-II	62-17-II (DUP)	62-17-III
Parameters	Units	ODWQS	5-May-20	13-Jul-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	28-Jul-22	25-Oct-22	12-Jul-23	18-Oct-23	18-Oct-23	8-May-18
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5	< 0.5	< 0.5				< 0.5		< 0.5			
1,1,1-Trichloroethane	μg/L	N/A	< 0.5	< 0.5	< 0.5				< 0.5		< 0.5			
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 1.0	< 0.5	< 1.0				< 0.5		< 0.5			
1,1,2-Trichloroethane	μg/L	N/A	< 0.5	< 0.5	< 0.5				< 0.5		< 0.5			
1,1-Dichloroethane	μg/L	N/A	< 1.1	< 0.5	< 1.1				< 0.5		< 0.5			
1,1-Dichloroethylene	μg/L	14		< 0.5					< 0.5		< 0.5			
Ethylene Dibromide	μg/L	N/A		< 0.2					< 0.2		< 0.2			
1,2-Dichlorobenzene	μg/L	3		< 0.5					< 0.5		< 0.5			
1,2-Dichloroethane	μg/L	5		< 0.5					< 0.5		< 0.5			
1,2-Dichloropropane	μg/L	N/A		< 0.5					< 0.5		< 0.5			
1,3-Dichlorobenzene	μg/L	N/A		< 0.5					< 0.5		< 0.5			
1,4-Dichlorobenzene	μg/L	1		< 0.5					< 0.5		< 0.5			
Methyl Ethyl Ketone	μg/L	N/A		< 20					< 20		< 20			
Methyl Isobutyl Ketone	μg/L	N/A		< 20					< 20		< 20			
Acetone	μg/L	N/A		< 30					< 30		< 30			
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5
Bromodichloromethane	μg/L	N/A		< 2					< 2		< 2			
Bromoform	μg/L	N/A		< 5					< 5		< 5			
Bromomethane	μg/L	N/A		< 0.5					< 0.5		< 0.5			
Carbon Tetrachloride	μg/L	5		< 0.2					< 0.2		< 0.2			
Chlorobenzene	μg/L	80		< 0.5					< 0.5		< 0.5			
Chloroform	μg/L	N/A		< 1					< 1		< 1			<u> </u>
cis 1,2-Dichloroethene	μg/L	N/A		< 0.5					< 0.5		< 0.5			<u> </u>
cis 1,3-Dichloroethene	μg/L	N/A		< 0.5					< 0.5		< 0.5			İ
Dibromochloromethane	μg/L	N/A		< 2					< 2		< 2			<u> </u>
Dichlorodifluoromethane	μg/L	N/A												<u> </u>
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	< 1.0
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	<u> </u>
Methyl tert-Butyl Ether	μg/L	N/A		< 2					< 2		< 2			
Methylene Chloride	μg/L	N/A		< 5					< 5		< 5			
Vinyl Chloride	μg/L	2							< 0.2		< 0.2			
Trichloroethylene	μg/L	5							< 0.5		< 0.5			
Xylene, m,p,o-	μg/L	300				< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1	<1.1	

VOC			62-17-III	62-17-III	62-17-III	62-17-III	62-17-III	62-17-III	62-17-III	62-17-III	62-17-III	62-17-III	62-17-III	62-17-III
Parameters	Units	ODWQS	11-Oct-18	16-Jul-19	9-Oct-19	5-May-20	13-Oct-20	3-May-21	14-Oct-21	3-May-22	28-Jul-22	25-Oct-22	12-Jul-23	18-Oct-23
1,1,1,2-Tetrachloroethane	μg/L	N/A				< 0.5	< 0.5				< 0.5		< 0.5	
1,1,1-Trichloroethane	μg/L	N/A				< 0.5	< 0.5				< 0.5		< 0.5	
1,1,2,2 Tetrachloroethane	μg/L	N/A				< 1.0	< 1.0				< 0.5		< 0.5	
1,1,2-Trichloroethane	μg/L	N/A				< 0.5	< 0.5				< 0.5		< 0.5	
1,1-Dichloroethane	μg/L	N/A				< 1.1	< 1.1				< 0.5		< 0.5	
1,1-Dichloroethylene	μg/L	14									< 0.5		< 0.5	
Ethylene Dibromide	μg/L	N/A									< 0.2		< 0.2	
1,2-Dichlorobenzene	μg/L	3									< 0.5		< 0.5	
1,2-Dichloroethane	μg/L	5									< 0.5		< 0.5	
1,2-Dichloropropane	μg/L	N/A									< 0.5		< 0.5	
1,3-Dichlorobenzene	μg/L	N/A									< 0.5		< 0.5	
1,4-Dichlorobenzene	μg/L	1									< 0.5		< 0.5	
Methyl Ethyl Ketone	μg/L	N/A									< 20		< 20	
Methyl Isobutyl Ketone	μg/L	N/A									< 20		< 20	
Acetone	μg/L	N/A									< 30		< 30	
Benzene	μg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Bromodichloromethane	μg/L	N/A									< 2		< 2	
Bromoform	μg/L	N/A									< 5		< 5	
Bromomethane	μg/L	N/A									< 0.5		< 0.5	
Carbon Tetrachloride	μg/L	5									< 0.2		< 0.2	
Chlorobenzene	μg/L	80									< 0.5		< 0.5	
Chloroform	μg/L	N/A									< 1		< 1	
cis 1,2-Dichloroethene	μg/L	N/A									< 0.5		< 0.5	
cis 1,3-Dichloroethene	μg/L	N/A									< 0.5		< 0.5	
Dibromochloromethane	μg/L	N/A									< 2		< 2	
Dichlorodifluoromethane	μg/L	N/A												
Ethylbenzene	μg/L	2.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
m & p-Xylene	μg/L	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1
o-Xylene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Toluene	μg/L	N/A		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Methyl tert-Butyl Ether	μg/L	N/A									< 2		< 2	
Methylene Chloride	μg/L	N/A									< 5		< 5	
Vinyl Chloride	μg/L	2									< 0.2		< 0.2	
Trichloroethylene	μg/L	5									< 0.5		< 0.5	
Xylene, m,p,o-	μg/L	300						< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1

er- Polychlorinated Biphenyls

Ground Wate	er- Polych
	PCB
Units ODWQS	μg/L
MW 6-90-II	3
12-May-06	0.20
26-Oct-06	< 0.04
25-Oct-07	< 0.001
17-Apr-08	0.50
22-Oct-08	< 0.001
6-May-09	0.05
29-Oct-09	0.05
6-May-10	0.17
28-Oct-10	0.32
5-May-11	0.05
27-Oct-11	0.03
17-May-12	0.06
25-Oct-12	
24-Oct-12	0.05
7-May-14	< 0.05
23-Oct-14	< 0.05
16-May-16	< 0.05
23-May-17	0.48
12-Nov-19	0.51
MW 7-90-II	. 0 004
26-Apr-07	< 0.001
17-Apr-08	0.45
22-Oct-08	< 0.001
6-May-09	0.05
29-Oct-09	0.11
6-May-10	0.85
28-Oct-10	0.13
5-May-11	< 0.002
27-Oct-11	< 0.02
17-May-12	0.03
25-Oct-12	< 0.03
24-Oct-13	< 0.2
7-May-14	< 0.05
16-May-16	< 0.05
18-Oct-16	< 0.05
8-May-18	< 0.05
8-May-19	< 0.06
8-Oct-19	< 0.05
MW 11-90	
5-Jul-10	< 0.001
27-Jul-11	< 0.001
23-Jul-12	< 0.001
30-Jul-13	< 0.05
29-Jul-14	< 0.05
13-Jul-15	< 0.05
13-Jul-16	< 0.05
20-Jul-17	< 0.05
24-Jul-18	< 0.05
16-Jul-19	< 0.05
26-Jul-22	< 0.05
12-Jul-23	< 0.05

rinated Bipher	nyls
Units ODWQS	PCB μg/L 3
MW 16-91-I	
5-May-10	< 0.001
26-Oct-10	< 0.001
3-May-11	0.001
25-Oct-11	< 0.001
14-May-12	< 0.001
23-Oct-12	< 0.001
29-May-13	< 0.05
22-Oct-13	< 0.4
7-May-14	< 0.05
22-Oct-14	< 0.05
27-May-15	< 0.05
15-Oct-15	< 0.2
17-May-16	< 0.05
13-Oct-16	< 0.05
23-May-17	< 0.05
31-Oct-17	< 0.05
8-May-18	< 0.05
11-Oct-18	< 0.05
9-May-19	< 0.05
8-Oct-19	< 0.05
MW 16-91-II	L.
5-May-10	< 0.001
26-Oct-10	< 0.001
3-May-11	< 0.001
25-Oct-11	< 0.001
14-May-12	< 0.001
23-Oct-12	< 0.001
29-May-13	< 0.05
22-Oct-13	< 0.4
7-May-14	< 0.05
22-Oct-14	< 0.05
27-May-15	< 0.05
15-Oct-15	< 0.2
17-May-16	< 0.05
13-Oct-16	< 0.05
23-May-17	< 0.05
17-Oct-17	< 0.05
11-Oct-18	< 0.05
9-May-19	< 0.06
· ·	

Units	PCB μg/L	Units	PCB μg/L
ODWQS	3	ODWQS	4
MW 21-91-I		MW 21-91-III	
5-May-10	< 0.001	5-May-10	< 0.001
26-Oct-10	< 0.001	26-Oct-10	< 0.001
3-May-11	< 0.001	3-May-11	< 0.01
25-Oct-11	< 0.001	25-Oct-11	< 0.001
14-May-12	< 0.001	14-May-12	< 0.001
23-Oct-12	< 0.001	23-Oct-12	< 0.001
29-May-13	< 0.05	29-May-13	< 0.05
22-Oct-13	< 0.05	7-May-14	< 0.05
7-May-14	< 0.05	22-Oct-14	< 0.05
22-Oct-14	< 0.05	29-May-15	< 0.05
29-May-15	< 0.05	15-Oct-15	< 0.2
15-Oct-15	< 0.2	17-May-16	< 0.05
17-May-16	< 0.05	12-Oct-16	< 0.05
12-Oct-16	< 0.05	23-May-17	< 0.05
23-May-17	< 0.05	17-Oct-17	< 0.05
23-May-17	< 0.05	8-May-18	< 0.05
17-Oct-17	< 0.05	11-Oct-18	< 0.05
8-May-18	< 0.05	9-May-19	< 0.05
11-Oct-18	< 0.05	8-Oct-19	< 0.05
9-May-19	< 0.05	MW 32-93-I	
8-Oct-19	< 0.05	29-Jul-08	< 0.001
MW 21-91-II		29-Jul-14	< 0.05
5-May-10	< 0.001	14-Jul-15	< 0.05
26-Oct-10	< 0.001	19-Jul-17	< 0.05
3-May-11	< 0.01	24-Jul-18	< 0.05
26-Oct-11	< 0.001	15-Jul-19	< 0.05
14-May-12	< 0.002	13-Jul-20	< 0.05
23-Oct-12	< 0.001	12-Jul-23	< 0.05
29-May-13	< 0.05	MW 32-93-II	
7-May-14	< 0.05	26-Jul-07	0.05
22-Oct-14	< 0.05	5-Jul-10	< 0.001
29-May-15	< 0.05	29-Jul-14	< 0.05
15-Oct-15	< 0.2	14-Jul-15	< 0.05
17-May-16	< 0.05	19-Jul-17	< 0.05
12-Oct-16	< 0.05	24-Jul-18	< 0.05
23-May-17	< 0.05	28-Jul-22	<0.05
17-Oct-17	< 0.05	MW 32-93-III	
8-May-18	< 0.05	19-Jul-17	< 0.05
11-Oct-18	< 0.05	MW 43-93-I	
9-May-19	< 0.05	13-Jul-20	< 0.05
8-Oct-19	< 0.05	5-Jul-21	<0.05
		28-Jul-22	<0.05
		12-Jul-23	< 0.05
		MW 43-93-II	1
		13-Jul-20	< 0.05
		5-Jul-21	<0.05
		28-Jul-22	< 0.05

Ground Water- Polychlorinated Biphenyls

Ground Wate	er- Polych
	PCB
Units	μg/L
ODWQS	3
MW 44-93-I	0.02
26-Jul-07	0.02
29-Jul-08	< 0.001
15-Jul-09	< 0.001
12-Jul-10	< 0.001
28-Jul-11	< 0.001
24-Jul-12	< 0.001
29-Jul-14	< 0.05
14-Jul-15	< 0.05
13-Jul-16	< 0.05
19-Jul-17	< 0.05
24-Jul-18	< 0.05
15-Jul-19	< 0.05
13-Jul-20	< 0.05
5-Jul-21	<0.05
28-Jul-22	<0.05
12-Jul-23	< 0.05
MW 44-93-II	
26-Jul-07	0.02
29-Jul-08	< 0.001
15-Jul-09	< 0.001
12-Jul-10	< 0.001
28-Jul-11	< 0.001
24-Jul-12	< 0.001
30-Jul-13	< 0.05
29-Jul-14	< 0.05
13-Jul-16	< 0.05
19-Jul-17	< 0.05
24-Jul-18	< 0.05
15-Jul-19	< 0.05
13-Jul-20	< 0.05
5-Jul-21	< 0.05
28-Jul-22	<0.05
12-Jul-23	< 0.05
MW 45-93	0.01
26-Jul-07	0.01
14-Jul-08	< 0.001
15-Jul-09	< 0.001
12-Jul-10	< 0.001
27-Jul-11	0.001
24-Jul-12	< 0.001
30-Jul-13	< 0.05
29-Jul-14	< 0.05
14-Jul-15	< 0.05
13-Jul-16	< 0.05
20-Jul-17	< 0.05
24-Jul-18	< 0.05
15-Jul-19	< 0.05
13-Jul-20	< 0.05
5-Jul-21	<0.05
28-Jul-22	< 0.05
12-Jul-23	< 0.05

Lluita	PCB	
Units ODWQS	μg/L 3	
MW 53-98		
30-Jul-07	< 0.001	
14-Jul-08	< 0.001	
15-Jul-09	< 0.001	
12-Jul-10	< 0.001	
27-Jul-11	< 0.001	
28-Jul-11	< 0.001	
23-Jul-12	< 0.001	
29-Jul-14	< 0.05	
13-Jul-15	< 0.05	
19-Jul-17	1.04	
24-Jul-18	< 0.05	
15-Jul-19	< 0.05	
13-Jul-20	< 0.05	
5-Jul-21	<0.05	
28-Jul-22	<0.05	
12-Jul-23	< 0.05	
MW 55-98-I		
26-Jul-07	0.02	
14-Jul-08	< 0.001	
15-Jul-09	< 0.001	
5-Jul-10	< 0.001	
27-Jul-11	< 0.001	
24-Jul-12	< 0.001	
24-Jul-13	< 0.05	
29-Jul-14	< 0.05	
14-Jul-15	< 0.05	
13-Jul-16	< 0.05	
19-Jul-17	0.84	
24-Jul-18 15-Jul-19	< 0.05 < 0.05	
13-Jul-20	< 0.05	
5-Jul-21	<0.05	
28-Jul-22	<0.05	
12-Jul-23	< 0.05	
MW 55-98-II		
26-Jul-07	0.02]
14-Jul-08	< 0.001]
15-Jul-09	< 0.001	
5-Jul-10	< 0.001	
28-Jul-11	< 0.001	
24-Jul-12	< 0.001	
29-Jul-14	< 0.05	
14-Jul-15	< 0.05	
13-Jul-16	< 0.05	
19-Jul-17	0.65	
24-Jul-18	< 0.05	
5-Jul-21	<0.05	
28-Jul-22	<0.05	
12-Jul-23	< 0.05	1
MW 56-02-I	-0.05	
13-Jul-20	<0.05	
5-Jul-21	<0.05	D
28-Jul-22	<0.05	DU
28-Jul-22	<0.05	
MW 56-02-II		

Units ODWQS	PCB μg/L 3
MW 57-02-I	
31-Jul-07	< 0.001
14-Jul-08	< 0.001
15-Jul-09	< 0.001
5-Jul-10	< 0.001
26-Jul-11	< 0.001
23-Jul-12	< 0.001
23-Jul-13	< 0.05
29-Jul-14	< 0.05
13-Jul-15	< 0.05
	< 0.05
13-Jul-16	0.88
20-Jul-17 24-Jul-18	< 0.05
15-Jul-19	< 0.05
13-Jul-20	<0.05
5-Jul-21	<0.05
MW 57-02-II	
30-Jul-07	< 0.001
14-Jul-08	< 0.001
15-Jul-09	< 0.001
5-Jul-10	< 0.001
27-Jul-11	< 0.001
24-Jul-12	< 0.001
23-Jul-13	< 0.05
29-Jul-14	< 0.05
13-Jul-15	< 0.05
13-Jul-16	< 0.05
20-Jul-17	1.01
24-Jul-18	< 0.05
15-Jul-19	< 0.05
13-Jul-20	<0.05
5-Jul-21	<0.05
28-Jul-22	<0.05
12-Jul-23	< 0.05
MW 58-02	0.01
30-Jul-07	0.01
14-Jul-08	< 0.001
15-Jul-09	< 0.001
12-Jul-10	< 0.001
27-Jul-11	< 0.001
23-Jul-12	< 0.001
23-Jul-13	< 0.05
29-Jul-14	< 0.05
13-Jul-15	< 0.05
13-Jul-16	< 0.05
20-Jul-17	0.98
16-Jul-19	< 0.05
13-Jul-20	<0.05
5-Jul-21	<0.05
28-Jul-22	<0.05
12-Jul-23	< 0.05
MW 59-05	
4-May-09	0.01
26-Oct-09	< 0.001
10-Feb-10	< 0.001
	< 0.001
4-May-10	< 0.001
4-May-10 26-Oct-10	. 0.001
	< 0.001
26-Oct-10	
26-Oct-10 2-May-11	< 0.001
26-Oct-10 2-May-11 14-May-12 27-May-13	< 0.001 < 0.001 < 0.05
26-Oct-10 2-May-11 14-May-12 27-May-13 6-May-14	< 0.001 < 0.001 < 0.05 < 0.05
26-Oct-10 2-May-11 14-May-12 27-May-13 6-May-14 27-May-15	<0.001 <0.001 <0.05 <0.05 <0.05
26-Oct-10 2-May-11 14-May-12 27-May-13 6-May-14 27-May-15 25-May-16	<0.001 <0.001 <0.05 <0.05 <0.05 <0.05
26-Oct-10 2-May-11 14-May-12 27-May-13 6-May-14 27-May-15	<0.001 <0.001 <0.05 <0.05 <0.05

Units ODWQS	PCB μg/L 4
MW 60-05	
4-May-09	0.01
26-Oct-09	0.01
10-Feb-10	< 0.001
4-May-10	< 0.001
26-Oct-10	< 0.001
2-May-11	< 0.002
14-May-12	< 0.001
27-May-13	< 0.001
	< 0.2
7-May-14	
27-May-15	< 0.05
25-May-16	< 0.05
23-May-17	< 0.05
9-May-19	< 0.05
MW 61-10-I	
5-Jul-10	< 0.001
3-Aug-10	< 0.001
26-Jul-11	< 0.001
23-Jul-12	< 0.001
23-Jul-13	< 0.05
29-Jul-14	< 0.05
13-Jul-15	< 0.05
13-Jul-16	< 0.05
20-Jul-17	< 0.05
24-Jul-18	< 0.05
16-Jul-19	< 0.05
13-Jul-20	<0.05
5-Jul-21	<0.05
28-Jul-22	<0.05
12-Jul-23	< 0.05
12-Jul-23	< 0.05
MW 61-10-II	
5-Jul-10	< 0.001
3-Aug-10	< 0.001
26-Jul-11	< 0.001
23-Jul-12	< 0.001
23-Jul-13	< 0.05
29-Jul-14	< 0.05
13-Jul-15	< 0.05
13-Jul-16	< 0.05
20-Jul-17	< 0.05
24-Jul-18	< 0.05
16-Jul-19	< 0.05
13-Jul-20	<0.05
5-Jul-21	<0.05
28-Jul-22	<0.05
12-Jul-23	< 0.05
MW 61-17-I	. 0.00
13-Jul-20	<0.05
5-Jul-21	<0.05
28-Jul-22	<0.05
12-Jul-23	< 0.05
MW 62-17-II	
13-Jul-20	<0.05
5-Jul-21	<0.05
28-Jul-22	<0.05
12-Jul-23	< 0.05
MW 62-17-III	
28-Jul-22	<0.05
	< 0.05
12-Jul-23	

Summary - General	Water Q	uality														
		LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1
Parameters	Units	21-Apr-14	27-May-14	25-Jun-14	21-Jul-14	20-Aug-14	29-Sep-14	29-Oct-14	22-Dec-14	21-Jan-15	16-Mar-15	20-Apr-15	27-May-15	22-Jun-15	13-Jul-15	5-Aug-15
Alkalinity	mg/L	641	652	696	721	727	673	572	627	667	385	452	704	636	674	709
Unionized Ammonia	mg/L	< 0.01	0.08	0.01	0.02	0.01	0.02	< 0.01	< 0.01							
Ammonia	mg/L	13.6	17.5	19	19.7	21.2	17	8.7	15.3	15.7	6.08	5.21	17.6	15.5	18.1	27.4
BOD	mg/L	5	6	12	25	6	< 3	5	6	7			8			
Calcium	mg/L	202	218	212	191	194	197	152	183	195	109	146	213	199	175	189
COD	mg/L	44	43	69	77	69	48	41	47	56	42	30	66	44	55	56
Chloride	mg/L	85.6	122	164	173	189	166	124	128	150	102	69.6	156	23.6	142	174
Conductivity	μs/cm	1540	1640	1840	1940	1970	1820	1460	1550	1720	1080	1080	1810	1630	1720	1850
Cyanide	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005			< 0.005			
DOC	mg/L	16.3	14.8	14.9	24.4	38.7	11.4	12.3	14.7	16	17.1	15.2	6.5	5.3	6.5	6.5
Fluoride	mg/L	< 0.1	0.5	< 0.1	< 0.1	0.1	< 0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	< 0.1
Hardness	mg/L	622	687	701	656	657	651	489	576	628	336	431	695	627	574	629
Iron	mg/L	21.7	26.1	22	47.8	38.1	4.8	18.7	34	20.8	7.76	12.1	40.5	23.8	5.81	20.7
Magnesium	mg/L	28.6	34.6	41.8	43.6	42.1	38.4	26.7	55.6	34.5	15.6	15.9	39.6	31.3	33	38.1
Manganese	mg/L	0.696	0.756	0.607	0.592	0.504	0.606	0.578	0.547	0.655	0.251	0.275	0.689	0.727	0.462	0.572
Mercury	mg/L	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Nitrate	mg/L	1.1	0.2	0.2	0.1	1.2	0.1	0.2	0.2	0.2	0.7	0.5	0.1	< 0.1	0.2	0.1
Nitrite	mg/L	1.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tot Kjel N	mg/L	14.1	17.6	6.5	26.3	23.8	19.1	12.3	17.9	17.1	6.8	6.7	21	17.8	18.1	36.5
pH - lab	pH unit	6.91	7.07	6.94	7.08	7.02	7.02	6.97	7.02	7.1	7.1	7.3	7.1	6.96	7.02	6.99
Phenols	mg/L	< 0.001	< 0.001	0.003	0.003	0.002	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004
Phosphorus	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	14.4	19.1	21.8	22.7	22.3	20.4	11.4	23.1	17.8	9	6.9	20.4	16.3	18.9	20
Sodium	mg/L	81.6	114	139	134	143	131	74.8	101	116	59.1	43.9	131	99.2	115	126
Sulphate	mg/L	46	41	35	30	26	35	51	40	39	26	28	34	8	35	31
Total Dissolved Solids	mg/L	891	968	1080	1070	1100	1020	815	906	995	571	597	1060	804	930	1020
TSS	mg/L	235	75	149	78	300	140	68	46	48			130			
Turbidity	NTU	195	187	339	160	351	271	156	209	173			167			
Colour	TCU	29	23	13	17	16	12	13	12	13			13			
Aluminum	mg/L	0.06	0.06	0.06	0.071	0.06	0.1	0.06	0.06	0.05	0.08	0.09	0.06	0.06	0.04	0.06
Antimony	mg/L	< 0.0001	< 0.0005	< 0.0005	0.0001	0.0002	0.0015	< 0.0005	0.0002	0.0002	< 0.0001	0.0002	0.0001	0.0001	0.0002	< 0.0001
Arsenic	mg/L	0.0019	0.0025	0.0031	0.0054	0.0061	0.0018	0.0027	0.0034	0.0024	0.0009	0.0011	0.005	0.004	0.0027	0.0046
Barium	mg/L	0.19	0.286	0.332	0.437	0.411	0.275	0.191	0.243	0.292	0.132	0.131	0.383	0.253	0.165	0.321
Beryllium	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	μg/L	0.268	0.351	0.445	0.499	0.477	0.39	0.254	0.287	0.349	0.161	0.146	0.368	0.295	0.341	0.391
Cadmium	μg/L	< 0.00002	< 0.0001	< 0.0001	< 0.000016	< 0.00002	< 0.0001	< 0.0001	< 0.00002	0.00003	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002
Chromium	mg/L	< 0.0002	< 0.001	< 0.001	< 0.0002	0.0291	< 0.001	< 0.001	0.0143	0.0015	< 0.0002	< 0.0002	< 0.0002	0.0084	< 0.0002	< 0.0002
Cobalt	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.0008	0.0025	0.0017	0.0016	0.0019	< 0.0005	0.0012	0.0008	0.001	0.0021	0.0015	0.0008	0.0007	0.0003	0.0013
Lead	mg/L	0.00004	< 0.0001	0.0002	0.00026	0.00015	< 0.0001	0.0003	0.00007	0.00007	0.00013	0.0002	0.00016	0.00024	0.00006	0.00013
Molybdenum	mg/L	0.0001	< 0.0005	< 0.0005	< 0.0001	< 0.0001	< 0.0005	< 0.0005	0.0001	0.0002	0.0004	0.0001	< 0.0001	0.0002	0.0003	< 0.0001
Nickel	mg/L	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.002	< 0.005	< 0.005	0.002	0.004	< 0.005	< 0.005	< 0.001	0.003	< 0.001	< 0.001	0.003	0.003	< 0.001	0.001
Silver	mg/L	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.00002	< 0.0001	< 0.0001	< 0.0002	0.00002	< 0.00002	0.00032	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L		0.786	0.782	0.826	0.798	0.757	0.54	0.673	0.71	0.357	0.479	0.81	0.698	0.675	0.733
Thallium	mg/L	0.00026	< 0.0003	< 0.0003	< 0.00005	< 0.00005	< 0.0003	< 0.0003	< 0.00005	< 0.00005	0.00009	0.00008	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	0.00020	0.0009	0.001	0.0214	0.0208	< 0.0005	0.0028	0.0081	0.0004	0.0004	0.0004	0.0111	0.0082	0.0152	0.0133
Zinc	mg/L	< 0.005	0.0003	0.001	0.008	< 0.005	0.006	0.0028	< 0.005	0.000	0.011	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Line	1116/ L	\ 0.003	0.017	0.01	0.000	\ 0.003	0.000	0.003	` 0.003	0.01	0.011	` 0.003	\ 0.003	\ 0.003	` 0.003	10.003

Summary - Genera	I Water Q	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1
Parameters	Units	21-Apr-14	30-Sep-15	20-Oct-15	18-Nov-15	16-Dec-15	27-Jan-16	4-Feb-16	30-Mar-16	12-Apr-16	21-Apr-16	24-May-16	14-Jun-16	14-Jul-16	2-Aug-16	29-Sep-16
Alkalinity	mg/L	641	682	716	605	623	607	478	543	518	638	665	709	734	750	771
Unionized Ammonia	mg/L	< 0.01	082	710	003	023	007	478	< 0.01	0.09	0.18	0.01	0.05	0.23	730	//1
Ammonia	mg/L	13.6	23.2	19.8	14.2	14.6	11.7	7.1	9.57	9.13	15.5	18.1	21.3	21.8	22	39.5
BOD	mg/L	5	23.2	4	4	7	3	7.1	4	< 3	6	9	6	9	4	6
Calcium	mg/L	202	184	167	172	160	172	146	160	137	195	177	188	179	183	159
COD	mg/L	44	62	43	33	55	40	46	34	29	53	55	50	55	82	86
Chloride	mg/L	85.6	180	201	148	124	119	84.3	95.4	84.7	133	143	170	196	206	229
Conductivity	μs/cm	1540	1870	1970	1630	1680	1530	1200	1330	1270	1610	1750	1870	2010	2070	2230
Cyanide	mg/L	< 0.005	1870	< 0.005	1030	1000	1550	1200	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2070	2230
DOC	mg/L	16.3	7.1	13.2	11.7	13.9	11.4	8.7	9.7	11.1	12.6	12.1	12.9	19.2	12.7	12.7
Fluoride	mg/L	< 0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.3
Hardness	mg/L	622	608	597	547	510	536	438	490	420	624	583	630	617	653	591
Iron	mg/L	21.7	22.3	8.58	12.5	9.5	11.5	16.2	14.6	9.4	30.5	11	21.1	14.9	9.7	6.27
Magnesium	mg/L	28.6	35.7	43.7	28.6	27	25.8	17.5	21.9	18.8	33.4	34.1	38.9	41.4	47.4	47.1
Manganese	mg/L	0.696	0.559	0.448	0.625	0.519	0.525	0.336	0.439	0.306	0.62	0.545	0.463	0.418	0.382	0.278
Mercury	mg/L	< 0.02	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Nitrate	mg/L	1.1	< 0.1	0.00002	0.00002	0.2	0.00002	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.00002
Nitrite	mg/L	1.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tot Kiel N	mg/L	14.1	23.2	26.7	16.8	14.6	14.2	9.2	11.6	10.8	15.7	26.3	24.1	36.1	28.5	39.5
pH - lab	pH unit	6.91	7.1	7.46	7.07	7.21	7.13	7.27	7.17	7.23	7.32	7.39	7.15	7.22	7.2	7.32
Phenols	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	0.014	0.051	0.004	0.07
Phosphorus	mg/L	< 0.001	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	14.4	18.4	20.7	14.6	14.1	12.9	7.3	10.1	8.8	17.4	18.7	21.7	23.1	26.5	25.8
Sodium	mg/L	81.6	126	134	98.5	93.6	83.1	56.2	66.2	53.8	105	116	136	149	165	164
Sulphate		46	37	28	53	45	40	40	42	38	45	44	40	38	38	39
Total Dissolved Solids	mg/L	891	1040	1030	909	867	830	665	737			945	1040	1110	1130	1190
TSS	mg/L	235	1040	24	909	867	830	005	105	675 32	963 46	42	70	45	1130	1190
	mg/L NTU	195		100					134	119	159	80.9	140	169		
Turbidity Colour	TCU	29		12					10	9		12	46	27		
		0.06	0.1	0.05	0.07	0.07	0.05	0.1	0.05	0.04	10 0.09	0.08	0.06	0.06	0.08	0.05
Aluminum	mg/L	< 0.0001	0.0003	0.0002	0.0001	0.0002	< 0.0005	0.0002	0.0001	< 0.0001	< 0.0001	< 0.0005	< 0.0005	0.0002	< 0.0005	< 0.0005
Antimony Arsenic	mg/L mg/L	0.0001	0.0003	0.0002	0.0001	0.0002	0.0033	0.0002	0.0001	0.0001	0.0001	0.0003	0.0003	0.0002	0.0003	0.0008
Barium	mg/L	0.0019			0.0022					0.0012		0.0017	0.0021	0.0011	0.0022	0.377
		< 0.002	0.293 < 0.002	0.323 < 0.002	< 0.002	0.207 < 0.002	0.185 < 0.002	0.146 < 0.002	0.155 < 0.002	< 0.002	0.254 < 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Beryllium Boron	mg/L	0.268	0.378	0.479	0.297	0.277	0.002	0.16	0.002	0.182	0.332	0.361	0.435	0.478	0.534	0.556
Cadmium	μg/L μg/L	< 0.00002	< 0.00002	0.479	< 0.00002	< 0.00002	< 0.0001	0.00007	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.00002	< 0.0001	< 0.0001
Chromium		< 0.0002	0.00002	< 0.0002	0.0003	0.0004	< 0.0001	0.0007	< 0.0002	0.0002	0.0008	< 0.0001	0.0001	0.00002	0.0001	< 0.0001
Cobalt	mg/L mg/L	< 0.0002	< 0.0277	< 0.0002	< 0.005	< 0.005	< 0.001	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001
	mg/L	0.0008	0.0014	0.0009	0.0011	0.0011	0.0009	0.009	0.0009	0.0005	0.0009	0.0014	0.0014	0.0012	0.002	< 0.005
Copper Lead		0.0008	0.0014	< 0.0009	0.00011	0.00011	< 0.0009	0.009	0.0009	< 0.0003	0.0009	< 0.0014	< 0.0014	0.0012	0.002	< 0.0003
	mg/L															
Molybdenum	mg/L	0.0001	0.0003	0.0002	0.0002	0.0002	< 0.0005	0.0004	0.0002	0.0002	0.0001	< 0.0005	< 0.0005	0.0003	< 0.0005	< 0.0005
Nickel	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	0.01
Selenium	mg/L	0.002	0.002	< 0.001	0.001	0.001	< 0.005	0.001	0.002	< 0.001	< 0.001	< 0.005	< 0.005	0.002	0.007	< 0.005
Silver	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	0.00007	0.00002	< 0.00002 0.445	< 0.00002	< 0.0001 0.637	< 0.0001	0.0001 0.749	< 0.0001 0.729	< 0.0001 0.722
Strontium	mg/L	0.00036	0.717 < 0.00005	0.7 < 0.00005	0.652 < 0.00005	0.608	0.573	0.427 < 0.00005	0.526 < 0.00005	< 0.00005	0.706 < 0.00005	< 0.0003	0.753	< 0.00005	< 0.0003	< 0.0003
Thallium	mg/L	0.00026				0.00019	< 0.0003									
Vanadium	mg/L	0.0009 < 0.005	0.0097 < 0.005	0.0023 < 0.005	0.0004 0.007	0.0004 < 0.005	0.0007 0.024	0.0006 < 0.005	0.0023 < 0.005	0.0003 < 0.005	0.0008 < 0.005	< 0.0005 < 0.005	0.001 < 0.005	0.0008 < 0.005	0.001 < 0.005	< 0.0005 < 0.005
Zinc	mg/L	< 0.005	< 0.003	< 0.003	0.007	< 0.003	0.024	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.005

Summary - General		LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1							
Parameters	Units	21-Apr-14	17-Oct-16	21-Nov-16	21-Dec-16	23-Jan-17	23-Feb-17	29-Mar-17	24-Apr-17	25-May-17	20-Jul-17	24-Aug-17	21-Sep-17	17-Oct-17	13-Nov-17	7-Dec-17
Alkalinity	mg/L	641	731	734	694	422	393	573	617	657	645	666	725	656	624	632
Unionized Ammonia	mg/L	< 0.01	0.04	-						0.03			_	0.02	-	
Ammonia	mg/L	13.6	26	35.4	22.8	5.72	4.38	12.3	14.3	16.6	15.9	17.9	22.4	18.6	16.2	15.6
BOD	mg/L	5	10	7	4	5	< 3	12	2	8	8	6	8	4	4	9
Calcium	mg/L	202	172	149	172	166	131	176	170	188	156	190	183	180	175	184
COD	mg/L	44	114	89	76	34	23	42	89	61	53	67	75	61	71	70
Chloride	mg/L	85.6	231	223	221	78.6	76.4	128	126	116	121	155	176	114	144	141
Conductivity	μs/cm	1540	2160	2160	2060	1290	1050	1540	1630	1720	1720	1840	2040	1880	1760	1730
Cyanide	mg/L	< 0.005	< 0.005							< 0.005				< 5		
DOC	mg/L	16.3	11.4	11.9	11.8	9.8	9.4	13.6	10.9	12	12	12.2	16.1	11.8	13.2	12.7
Fluoride	mg/L	< 0.1	0.1	0.2	0.2	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1	< 0.1
Hardness	mg/L	622	628	560	620	487	402	572	539	604	553	638	646	605	580	601
Iron	mg/L	21.7	11.3	6.59	7.42	10.3	7.14	12.2	12.5	37.1	16.5	110	7.76	11	0.42	20.8
Magnesium	mg/L	28.6	48.2	45.3	46.2	17.7	14.8	27.5	27.5	32.5	28.2	35.2	45.9	37.7	34.7	34.3
Manganese	mg/L	0.696	0.255	0.263	0.279	0.331	0.18	0.423	0.446	0.51	0.458	0.544	0.408	0.459	0.426	0.476
Mercury	mg/L	< 0.02	< 0.02	< 0.02	< 0.02	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.02	< 0.00002	< 0.00002
Nitrate	mg/L	1.1	0.2	0.2	0.2	0.5	0.5	0.2	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	0.21	0.05	0.11
Nitrite	mg/L	1.2	< 0.1	< 0.1	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	14.1	28.8	38.4	28.5	7.8	5.8	14.3	17.1	16.7	19.8	21.9	26.4	30.1	20.6	20.1
pH - lab	pH unit	6.91	7.56	7.47	7.01	7.09	6.93	7.33	7.14	7.37	7.05	6.95	7.1	7.12	7.5	7.15
Phenols	mg/L	< 0.001	0.01	< 0.001	< 0.001	< 0.001	< 0.001	0.009	< 0.001	0.007	0.018	0.012	0.016	0.016	0.003	< 0.001
Phosphorus	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	14.4	26.9	23.9	25.4	8.6	6.3	13.7	13.1	16.9	15.3	18.9	27.5	21.9	20.2	20.3
Sodium	mg/L	81.6	179	152	167	54.3	51.1	91.4	87.2	108	93.8	116	162	138	128	125
Sulphate	mg/L	46	39	43	32	146	52	60	62	46	34	35	32	34	34	32
Total Dissolved Solids	mg/L	891	1180	1130	1120	738	582	873	888	961	852	1083	1098	956	932	957
TSS	mg/L	235	28							98				26		
Turbidity	NTU	195	101							164				84		
Colour	TCU	29	24							5				16		
Aluminum	mg/L	0.06	0.09	0.11	0.06	0.06	0.04	0.09		0.09	0.05	0.1	0.1	0.1	0.09	0.21
Antimony	mg/L	< 0.0001	< 0.0005	0.0001	< 0.0005	< 0.0005	0.0001	< 0.0001	< 0.0001	0.0001	0.0002	0.0004	< 0.0001	< 0.0005	< 0.0001	0.0001
Arsenic	mg/L	0.0019	0.0048	0.002	0.0018	0.0032	0.0011	0.0013	0.0016	0.003	0.0029	0.0049	0.0022	0.002	0.0013	0.003
Barium	mg/L	0.19	0.411	0.338	0.385	0.128	0.124	0.215	0.182	0.258	0.201	0.536	0.339	0.336	0.246	0.306
Beryllium	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	μg/L	0.268	0.56	0.503	0.533	0.117	0.129	0.269	0.264	0.337	0.29	0.45	0.543	0.435	0.363	0.383
Cadmium	μg/L	< 0.00002	< 0.0001	< 0.00002	< 0.0001	< 0.0001	0.00006	< 0.00002	< 0.000014	< 0.000014	0.00002	0.000101	< 0.000014	< 0.00007	< 0.000014	0.000014
Chromium	mg/L	< 0.0002	0.001	0.0007	< 0.001	< 0.001	0.0004	0.0111	0.008	0.002	< 0.001	0.006	< 0.001	< 0.001	0.001	0.026
Cobalt	mg/L	< 0.005	< 0.005	0.0009	0.0011	0.0008	0.0006	< 0.0001	0.0006	< 0.005	0.0013	0.0019	< 0.005	0.005	< 0.005	< 0.005
Copper	mg/L	0.0008	< 0.0005	0.0008	0.0007	0.0018	0.0035	0.0013	0.0008	0.0015	0.0018	0.005	0.0008	0.0087	0.0009	0.0022
Lead	mg/L	0.00004	< 0.0001	0.00032	< 0.0001	0.0001	0.00071	0.00007	< 0.00002	0.00064	0.00135	0.00307	< 0.00002	0.0004	0.00004	0.00066
Molybdenum	mg/L	0.0001	< 0.0005	0.0002	< 0.0005	< 0.0005	0.0004	0.0003	0.0002	0.0002	0.0003	0.0005	0.0002	< 0.0005	0.0002	0.0002
Nickel	mg/L	< 0.01	0.01	0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	0.01	0.01
Selenium	mg/L	0.002	0.011	0.004	< 0.005	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.005	< 0.001	< 0.001
Silver	mg/L	< 0.00002	< 0.0001	0.00006	< 0.0001	< 0.0001	0.00005	< 0.00002	0.00022	< 0.00002	0.00005	0.00002	< 0.00002	< 0.0001	< 0.00002	< 0.00002
Strontium	mg/L		0.764	0.627	0.713	0.469	0.413	0.546	0.551	0.657	0.589	0.746	0.785	0.588	0.647	0.675
Thallium	mg/L	0.00026	< 0.0003	< 0.00005	< 0.0003	< 0.0003	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.0003	< 0.00005	< 0.00005
Vanadium	mg/L	0.0009	0.0008	0.0007	0.0011	< 0.0005	0.0003	0.0005	0.0004	0.0004	0.0015	0.0029	0.0054	< 0.0005	0.0013	0.003
Zinc	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.006	< 0.005	< 0.005	0.006	0.01	0.053	< 0.005	< 0.005	< 0.005	0.014

Summary - Genera	Trator Q	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1
Parameters	Units	21-Apr-14	15-Jan-18	15-Feb-18	14-Mar-18	25-Apr-18	8-May-18	4-Jun-18	25-Jul-18	22-Aug-18	24-Sep-18	9-Oct-18	10-Oct-18	6-Nov-18	19-Dec-18	29-Jan-19
Alkalinity	mg/L	641	556	659	619	569	590	618	203	734	660	1160	598	580	591	609
Unionized Ammonia	mg/L	< 0.01	330	039	019	309	0.01	018	0.22	734	000	0.13	0.61	380	391	009
Ammonia	mg/L	13.6	12.8	18.3	16.4	12.6	15	16.6	8.88	23.3	42.7	35.7	17.8	12.7	15	17.6
BOD	mg/L	5	5	< 3	6	< 3	5	5	14	65	> 21	39	8	10	17	< 3
Calcium	mg/L	202	329	193	177	557	190	182	69.2	252	180	221	176	176	164	179
COD	mg/L	44	83	77	56	400	38	89	29	1100	399	120	63	59	97	73
Chloride	mg/L	85.6	118	142	136	111	137	156	186	230	238	159	217	166	151	176
Conductivity	μs/cm	1540	1490	1790	1670	1430	1540	1630	1140	1990	2050	2520	1890	1670	1690	1750
Cyanide	mg/L	< 0.005	1430	1730	1070	1430	< 0.005	1030	< 0.005	1330	2030	< 0.005	< 0.005	1070	1030	1730
DOC	mg/L	16.3	13	10.6	13.4	30.7	18.6	13.8	6.7	27.1	16.9	8.6	14.1	10.4	29	13.1
Fluoride	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.1	0.2
Hardness	mg/L	622	985	616	574	1530	602	595	224	800	639	898	599	572	534	593
Iron	mg/L	21.7	123	118	25.8	1730	49.1	52.4	0.088	314	218	103	8.32	13.1	20	27.7
Magnesium	mg/L	28.6	39.6	32.4	31.9	32.5	30.9	34	12.4	41.4	46	84.1	38.8	32.2	30.1	35.3
Manganese	mg/L	0.696	1.63	0.532	0.47	1.75	0.526	0.481	0.059	0.579	0.3	0.46	0.337	0.426	0.447	0.45
Mercury	mg/L	< 0.02	< 0.00002	< 0.00002	< 0.00002	0.00028	< 0.00002	< 0.00002	< 0.00002	0.00041	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Nitrate	mg/L	1.1	0.14	0.07	0.12	0.13	0.14	0.15	0.2	< 0.05	< 0.05	< 0.05	< 0.05	0.37	0.09	0.08
Nitrite	mg/L	1.2	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.13	< 0.05	0.13	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tot Kiel N	mg/L	14.1	14.4	21.7	19.6	20.9	16.3	21.8	10.4	34.6	53.7	40.1	20.1	15.9	17.2	19.7
pH - lab	pH unit	6.91	7.59	7.34	7.46	7.39	7.58	7.33	7.89	7.49	7.4	7.41	7.45	7.3	7.37	7.34
Phenols	mg/L	< 0.001	0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	0.023	0.141	0.016	0.012	0.003	0.017	0.012
Phosphorus	mg/L	< 0.1	< 0.01	0.83	0.11	3.65	0.04	0.42	0.14	14.2	1.15	0.99	0.06	0.07	0.05	0.05
Potassium	mg/L	14.4	19	17.1	17	14.6	16.3	19.7	11.1	24.3	34.3	33	22.5	15.4	15.2	18.1
Sodium	mg/L	81.6	136	115	114	84.3	101	119	126	148	189	162	156	110	104	121
Sulphate	mg/L	46	54	34	51	43	43	42	70	40	21	10	28	49	39	45
Total Dissolved Solids	mg/L	891	1170	1071	945	778	941	998	608	1521	1379	1518	1029	926	898	991
TSS	mg/L	235					60		4			15000	350	<u> </u>		
Turbidity	NTU	195					323		2.9			9530	48.9			
Colour	TCU	29					9		18			33	13			
Aluminum	mg/L	0.06	47.9	0.74	0.79	9.91	0.23	0.2	0.36	4.1	1.7	0.1	0.08	0.12	0.12	0.27
Antimony	mg/L	< 0.0001	0.0063	< 0.0005	< 0.0005	0.0008	< 0.0001	< 0.0005	< 0.0005	0.0007	0.0005	< 0.0005	< 0.0005	< 0.0005	0.0001	< 0.0005
Arsenic	mg/L	0.0019	0.0123	0.008	0.0031	0.0305	0.0007	0.0038	< 0.0005	0.0171	0.0157	0.0068	0.0013	0.0015	0.002	0.0024
Barium	mg/L	0.19	0.138	0.605	0.258	5.76	0.319	0.343	0.044	1.43	1.3	0.986	0.339	0.281	0.249	0.331
Beryllium	mg/L	< 0.002	0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.2	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	μg/L	0.268	0.362	0.378	0.339	1.24	0.325	0.408	0.136	0.754	1.3	1.11	0.416	0.293	0.339	0.382
Cadmium	μg/L	< 0.00002	0.000197	< 0.00007	< 0.00007	0.00073	< 0.000015	< 0.00007	< 0.00007	0.000332	0.000166	< 0.00007	< 0.00007	< 0.00007	0.000028	< 0.00007
Chromium	mg/L	< 0.0002	2.21	0.358	0.1	0.372	0.007	0.005	0.001	0.032	0.1	0.005	0.002	0.009	0.006	0.017
Cobalt	mg/L	< 0.005	0.038	0.0013	0.0008	0.0192	0.0002	0.0013	< 0.0005	0.0105	0.0082	0.0032	< 0.005	0.001	0.0013	0.0013
Copper	mg/L	0.0008	0.0037	0.0039	< 0.0005	0.0543	0.0008	0.0092	0.0007	0.0206	0.015	0.0133	< 0.0005	0.0072	0.0021	0.0042
Lead	mg/L	0.00004	0.00095	0.0019	0.0001	0.0512	0.00021	0.0015	0.00024	0.0143	0.0073	0.0011	0.0001	0.0003	0.00034	0.0025
Molybdenum	mg/L	0.0001	0.0009	0.0007	< 0.0005	0.002	< 0.0001	< 0.0005	0.0018	0.001	0.0009	< 0.0005	< 0.0005	< 0.0005	0.0002	< 0.0005
Nickel	mg/L	< 0.01	1.95	0.01	0.03	0.05	< 0.01	< 0.01	< 0.01	0.02	< 1	0.02	0.01	< 0.01	< 0.01	0.01
Selenium	mg/L	0.002	< 0.001	< 0.005	< 0.005	< 0.005	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.001	< 0.005
Silver	mg/L	< 0.00002	< 0.00002	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001
Strontium	mg/L		0.953	0.722	0.639	1.59	0.655	0.672	0.255	0.982	1	0.952	0.641	0.65	0.591	0.64
Thallium	mg/L	0.00026	< 0.00005	< 0.0003	< 0.0003	< 0.0003	< 0.00005	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.00005	< 0.0003
Vanadium	mg/L	0.0009	< 0.0001	0.0121	0.0015	0.0475	0.0003	0.0019	< 0.0005	0.0178	0.0193	0.0032	0.0008	0.001	0.0013	0.0018
Zinc	mg/L	< 0.005	0.579	0.065	0.019	0.283	0.045	0.02	0.024	0.103	< 0.5	0.024	0.012	0.018	0.019	0.023

Summary - General	Trater &	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1
Parameters	Units	21-Apr-14	14-Feb-19	11-Mar-19	9-May-19	15-May-19	11-Jun-19	15-Jul-19	14-Aug-19	30-Sep-19	9-Oct-19	12-Nov-19	18-Dec-19	21-Jan-20	5-Feb-20	18-Mar-20
Alkalinity	mg/L	641	599	601	482	528	531	693	773	759	731	610	543	579	560	529
Unionized Ammonia	mg/L	< 0.01				0.03					0.45					
Ammonia	mg/L	13.6	17.6	16.9	14.1	9.71	10.5	20.9	26.6	28.4	27.9	17.4	11.8	13.6	12.8	10.6
BOD	mg/L	5	19	8	7	4	3	5	4		< 3	5	5	5	5	< 3
Calcium	mg/L	202	175	160	211	184	154	184	186	180	182	184	185	192	196	182
COD	mg/L	44	62	63	56	40	38	76	78	112	87	59	50	44	51	35
Chloride	mg/L	85.6	199	198	127	107	106	138	202	307	278	201	146	135	162	116
Conductivity	μs/cm	1540	1780	1790	1590	1370	1350	1860	2000	2160	2110	1750	1540	1590	1590	1430
Cyanide	mg/L	< 0.005				< 0.005					< 0.005					
DOC	mg/L	16.3	13.4	13.5	12.9	14.8	12.1	16.1	18.5	1.3	11.4	10	8.2	11.1	12.9	10.9
Fluoride	mg/L	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.4	< 0.1
Hardness	mg/L	622	596	544	653	557	475	628	649	664	666	610	580	609	616	556
Iron	mg/L	21.7	11	5.64	21	20.9	10.8	45.5	14.4	15.1	11.8	13.9	13	33.6	26	21.3
Magnesium	mg/L	28.6	38.6	35.1	30.6	23.6	21.9	40.9	44.8	52	51.3	36.6	28.5	31.4	30.7	24.5
Manganese	mg/L	0.696	0.363	0.355	0.618	0.439	0.35	0.447	0.379	0.299	0.272	0.404	0.416	0.487	0.44	0.424
Mercury	mg/L	< 0.02	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Nitrate	mg/L	1.1	0.15	0.18	0.16	0.42	0.32	< 0.05	< 0.05	< 0.05	< 0.05	0.21	0.49	0.11	0.18	0.36
Nitrite	mg/L	1.2	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	14.1	20.5	20.8	17.6	10.9	10.5	25.2	30.7	35.8	35.3	18	14.9	15.8	15.8	13.2
pH - lab	pH unit	6.91	7.68	7.6	7.34	7.13	7.35	6.95	7.4	7.28	7.66	7.6	7.37	7.27	7.6	7.29
Phenols	mg/L	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	< 0.1	0.03	0.03	0.1	0.05	0.02	< 0.1	0.03	0.03	0.06	0.02	0.04	< 0.1	< 0.1	< 0.1
Potassium	mg/L	14.4	21.3	19.1	14.5	11.7	10.8	24	27.4	28.9	31.5	19	12.8	14.6	15.2	11.8
Sodium	mg/L	81.6	136	123	97.6	81.6	73	136	149	168	179	124	91.6	95.8	100	75.4
Sulphate	mg/L	46	42	48	139	38	34	33	22	15	17	49	50	46	44	42
Total Dissolved Solids	mg/L	891	1005	972	928	796	743	1045	1144	1258	1226	1017	868	896	927	791
TSS	mg/L	235				98					30					
Turbidity	NTU	195				206					97					
Colour	TCU	29				9					18					
Aluminum	mg/L	0.06	0.12	0.12	0.68	0.1	0.08	0.15	0.1	0.07	0.1	0.11	0.11	0.18	0.06	0.09
Antimony	mg/L	< 0.0001	< 0.0001	< 0.0005	0.0006	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Arsenic	mg/L	0.0019	0.0013	0.0008	0.0013	0.0013	0.0009	0.0026	0.0012	0.0014	0.0013	0.0015	0.0012	0.0022	0.0016	0.0014
Barium	mg/L	0.19	0.297	0.253	0.245	0.211	0.159	0.394	0.382	0.471	0.462	0.313	0.226	0.299	0.27	0.213
Beryllium	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	μg/L	0.268	0.426	0.37	0.299	0.281	0.278	0.509	0.54	0.632	0.605	0.411	0.3	0.336	0.327	0.258
Cadmium	μg/L	< 0.00002	< 0.000015	< 0.00007	< 0.00007	< 0.00007	< 0.00007	< 0.00007	< 0.00007	< 0.00007	< 0.00007	< 0.00007	< 0.00007	< 0.000070	< 0.000070	< 0.000070
Chromium	mg/L	< 0.0002	0.011	0.012	0.161	0.004	0.001	0.013	< 0.001	0.004	0.003	0.01	0.004	0.023	0.048	0.001
Cobalt	mg/L	< 0.005	0.007	0.0013	0.0025	0.0009	0.0011	0.0015	0.001	0.0011	0.0013	0.001	0.0008	0.0008	0.0009	0.001
Copper	mg/L	0.0008	0.0011	0.0011	0.0062	0.001	0.0015	0.0021	< 0.0005	< 0.0005	< 0.0005	0.0006	0.0011	0.0021	0.0006	0.0036
Lead	mg/L	0.00004	0.00012	0.0002	0.0016	0.0004	0.0001	0.0005	< 0.0001	< 0.0001	0.0002	0.0005	0.0002	0.0005	0.0004	0.0002
Molybdenum	mg/L	0.0001	0.0002	< 0.0005	0.0022	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0007	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Nickel	mg/L	< 0.01	0.01	0.01	0.07	< 0.01	< 0.01	0.01	< 0.01	0.01	0.01	0.01	< 0.01	< 0.01	0.01	< 0.01
Selenium	mg/L	0.002	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Silver	mg/L	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L		0.715	0.622	0.678	0.572	0.515	0.774	0.732	0.794	0.828	0.679	0.6	0.664	0.641	0.54
Thallium	mg/L	0.00026	< 0.00005	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Vanadium	mg/L	0.0009	0.0009	0.0008	0.0025	0.0009	0.0005	0.0018	0.0007	0.001	0.001	0.001	0.0007	0.0015	0.0007	0.0008
Zinc	mg/L	< 0.005	0.009	0.03	0.035	0.009	< 0.005	0.006	< 0.005	0.005	< 0.005	0.018	< 0.005	0.006	0.006	0.007

Summary - General	Trater &	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1
Parameters	Units	21-Apr-14	30-Apr-20	11-May-20	24-Jun-20	13-Jul-20	11-Aug-20	9-Sep-20	13-Oct-20	25-Nov-20	16-Dec-20	18-Jan-21	3-Mar-21	29-Mar-21	4-May-21	31-May-21
Alkalinity	mg/L	641	603	626	697	710	719	688	700	556	585	578	518	420	536	621
Unionized Ammonia	mg/L	< 0.01		0.01		-			0.24							0.02
Ammonia	mg/L	13.6	16.6	16.2	21.2	25.4	29.6	21.6	26.8	14.7	12.2	14.2	10.1	4.91	6.8	15.7
BOD	mg/L	5	4	3	5	5	7	6	< 30	< 10	< 3	6	< 10	3	< 3	< 3
Calcium	mg/L	202	179	188	194	202	192	183	177	175	183	192	179	185	191	204
COD	mg/L	44	73	54	63	80	88	63	78	47	38	42	25	135	33	35
Chloride	mg/L	85.6	136	142	185	215	241	199	229	185	141	155	147	79.6	92.2	107
Conductivity	μs/cm	1540	1600	1650	1840	2010	2080	1870	2010	1700	1560	1640	1540	1140	1330	1540
Cyanide	mg/L	< 0.005		< 0.005					< 0.005							< 0.005
DOC	mg/L	16.3	10.6	12.4	11.6	15.8	17.5	12.5	19.6	9.5	12	13.7	8.8	19.3	8.8	9
Fluoride	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hardness	mg/L	622	574	602	654	694	684	620	596	571	568	612	563	537	571	640
Iron	mg/L	21.7	15.3	14.8	16.4	15.3	14.1	15.8	0.036	7.47	26.3	19.4	8.86	319	15.5	30.9
Magnesium	mg/L	28.6	30.9	32.1	41.2	45.9	49.6	39.5	47	32.5	27	32.2	28.1	18.4	22.8	31.7
Manganese	mg/L	0.696	0.431	0.463	0.408	0.361	0.29	0.322	0.247	0.416	0.598	0.517	0.461	0.439	0.468	0.545
Mercury	mg/L	< 0.02	< 0.00002	0.00013	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Nitrate	mg/L	1.1	0.16	0.15	0.09	0.91	0.99	0.18	0.16	0.09	0.06	0.27	0.64	0.98	0.46	< 0.05
Nitrite	mg/L	1.2	< 0.05	0.06	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	0.09	< 0.05	0.12
Tot Kjel N	mg/L	14.1	18	19.1	27.8	33.3	38.2	25.1	32.7	19.6	14.7	18	14.4	9.4	8.2	17.4
pH - lab	pH unit	6.91	8	7.53	7.31	7.36	7.5	7.34	7.65	7.36	7.5	7.29	7.35	7.53	7.68	7.43
Phenols	mg/L	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.3	< 0.1	0.01
Potassium	mg/L	14.4	16.3	16.9	22.4	27.5	31.5	22.7	32.2	17.1	12.6	16.3	11.5	7.5	9.5	15.6
Sodium	mg/L	81.6	99.5	107	137	155	161	138	151	121	91.8	112	98.5	59.2	70.9	82
Sulphate	mg/L	46	45	39	34	29	19	21	19	34	36	34	44	35	37	27
Total Dissolved Solids	mg/L	891	906	936	1076	1148	1178	1059	1110	925	885	927	841	963	770	244
TSS	mg/L	235		25					48							80
Turbidity	NTU	195		115					146							7
Colour	TCU	29		12					17							899
Aluminum	mg/L	0.06	0.09	0.08	0.02	0.09	0.11	0.1	0.09	0.09	0.09	0.1	0.08	0.55	0.1	0.11
Antimony	mg/L	< 0.0001	< 0.0005	< 0.0005	0.0012	< 0.0005	< 0.0005	< 0.0005	0.0001	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0001	0.0006
Arsenic	mg/L	0.0019	0.0012	0.001	0.0055	0.0012	0.0014	0.001	0.0018	0.0011	0.0018	0.0013	0.0005	0.0128	0.0008	0.0014
Barium	mg/L	0.19	0.23	0.255	0.353	0.427	0.489	0.396	0.361	0.271	0.285	0.286	0.241	1.03	0.2	0.33
Beryllium	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	μg/L	0.268	0.334	0.324	0.519	0.559	0.668	0.484	0.554	0.344	0.281	0.336	0.273	0.361	0.226	0.299
Cadmium	μg/L	< 0.00002	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.00010	< 0.000015	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000015	< 0.000070
Chromium	mg/L	< 0.0002	0.004	0.001	0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.003	< 0.001	0.009	< 0.001	0.001
Cobalt	mg/L	< 0.005	0.0009	0.0008	0.0046	0.0012	0.0012	0.0013	< 0.005	0.001	0.0009	0.0008	0.0007	0.0027	< 0.005	0.001
Copper	mg/L	0.0008	< 0.0005	< 0.0005	0.0022	0.0006	0.0015	< 0.0005	0.0003	< 0.0005	0.0007	< 0.0005	0.0005	0.0033	0.0006	< 0.0005
Lead	mg/L	0.00004	< 0.0001	< 0.0001	0.0006	0.0001	0.0003	0.0002	0.00018	0.0001	0.0002	0.0002	0.0001	0.0034	0.0001	< 0.0001
Molybdenum	mg/L	0.0001	< 0.0005	< 0.0005	0.0009	< 0.0005	< 0.0005	< 0.0005	0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0012	0.0001	0.0009
Nickel	mg/L	< 0.01	< 0.01	< 0.01	0.01	0.01	< 0.01	0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.002	< 0.005	< 0.005	0.006	< 0.005	< 0.005	< 0.001	0.002	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.005
Silver	mg/L	< 0.00002	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L		0.6	0.644	0.73	0.734	0.78	0.695	0.717	0.637	0.618	0.679	0.657	0.623	0.62	0.709
Thallium	mg/L	0.00026	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0001	< 0.005	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.00005	< 0.005
Vanadium	mg/L	0.0009	0.0006	0.0006	0.0036	0.0008	0.0011	0.0011	0.0014	< 0.0005	0.0009	0.0006	< 0.0005	0.0067	0.0004	0.0008
Zinc	mg/L	< 0.005	< 0.005	< 0.005	0.013	< 0.005	0.016	0.011	< 0.005	0.008	0.006	< 0.005	0.013	0.107	0.005	0.014

Summary - Genera	I Water Q	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1
Parameters	Units	21-Apr-14	22-Jun-21	26-Jul-21	16-Aug-21	28-Sep-21	13-Oct-21	29-Nov-21	13-Dec-21	25-Jan-22	22-Feb-22	21-Mar-22	4-May-22	19-May-22	21-Jun-22	27-Jul-22
Alkalinity	mg/L	641	740	646	742	644	624	563	525	657	584	477	563	662	622	749
Unionized Ammonia	mg/L	< 0.01	740	040	742	044	0.03	303	323	037	364	4//	303	0.02	022	749
Ammonia	mg/L	13.6	19.2	11.8	17.2	11	13.7	8.48	5.4	12.1	9.98	6.19	10.7	14	14.4	21.6
BOD	mg/L	5	5	4	< 3	< 3	< 3	< 3	< 3	< 3	4	< 3	< 3	< 3	5	< 3
Calcium		202	215	191	207	203	202	197	151	180	178	170	197	182	196	187
COD	mg/L	44	51	59	48	33	39	43	19	40	35	22	35	38	37	59
Chloride	mg/L mg/L	85.6	124	115	134	120	140	124	80.1	150	117	103	109	130	125	143
Conductivity	μs/cm	1540	1680	1500	1630	1500	1600	1490	1220	1610	1470	1290	1477	1580	1650	1800
		< 0.005	1000	1500	1030	1500	< 0.005	1490	1220	1010	1470	1290	14//	< 0.005	1050	1800
Cyanide DOC	mg/L	16.3	9.7	7.5	11.8	10.4	9.1	6.4	4.7	6.2	6.7	4.9	7.4	9	8.4	12
	mg/L								< 0.1			< 0.1	< 0.1	< 0.1		
Fluoride	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1		<1	< 0.1				< 0.1	< 0.1
Hardness	mg/L	622	692	588	667	620	637	596	449	568	542	501	595	576	620	617
Iron	mg/L	21.7	16.7 37.5	48.3	13.8	16.6	51.1 32.2	127 25.3	7.02	19.3	14	39.2	89.6	15.3	31	9.9
Magnesium	mg/L	28.6		27	36.3	27.3	_		17.2	29	23.6	18.6	25	29.3	31.5	36.4
Manganese	mg/L	0.696	0.485	0.615	0.522	0.561	0.563	0.564	0.329	0.488	0.454	0.345	0.548	0.499	0.552	0.39
Mercury	mg/L	< 0.02	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Nitrate	mg/L	1.1	< 0.05	0.76	< 0.05	< 0.05	0.09	< 0.05	0.12	0.63	0.14	< 0.05	0.77	0.07	< 0.05	< 0.05
Nitrite	mg/L	1.2	< 0.05	< 0.05	< 0.05	< 0.05	0.06	< 0.05	< 0.05	< 0.5	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tot Kjel N	mg/L	14.1	20.6	13	19.5	11.2	16	11.3	6.1	14.5	12.2	8.4	13.8	15.8	18.8	25
pH - lab	pH unit	6.91	7.58	7.34	7.47	7.38	7.63	7.82	7.46	7.69	7.26	7.28	7.45	7.77	7.38	7.48
Phenols	mg/L	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	14.4	19.8	11.4	18.9	12.4	15.5	9.9	6.8	13.9	10.2	8	11.1	13.4	15	21
Sodium	mg/L	81.6	102	75.6	94.4	82.4	94	76.5	50.6	84.5	73.2	68.7	77.1	89.6	92.3	115
Sulphate	mg/L	46	20	35	24	28	29	39	37	46	40	39	39	39	34	22
Total Dissolved Solids	mg/L	891	1004	907	996	890	956	947	673	932	820	734	900	915	917	1011
TSS	mg/L	235					67							34		.
Turbidity	NTU	195					253							204		
Colour	TCU	29					8							8		
Aluminum	mg/L	0.06	0.11	0.12	0.08	0.11	0.12	0.7	0.05	0.08	0.1	0.08	0.18	0.06	0.09	0.11
Antimony	mg/L	< 0.0001	0.0006	< 0.0005	< 0.0005	0.0006	< 0.0005	< 0.0005	0.0005	< 0.0005	0.0006	0.0005	< 0.0005	< 0.0005	0.0006	< 0.0005
Arsenic	mg/L	0.0019	0.0009	0.0029	0.0006	0.0009	0.0024	0.0066	0.0008	0.0012	0.0011	0.0019	0.0032	0.0009	0.0016	0.0008
Barium	mg/L	0.19	0.351	0.309	0.313	0.283	0.405	0.52	0.141	0.278	0.22	0.235	0.394	0.231	0.305	0.324
Beryllium	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	μg/L	0.268	0.374	0.241	0.373	0.261	0.31	0.274	0.155	0.269	0.208	0.185	0.28	0.287	0.318	0.419
Cadmium	μg/L	< 0.00002	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070
Chromium	mg/L	< 0.0002	0.006	0.009	0.001	0.001	0.009	0.003	< 0.001	0.004	0.01	0.007	0.002	< 0.001	< 0.001	0.001
Cobalt	mg/L	< 0.005	0.0008	0.001	0.001	0.001	0.001	0.0015	0.001	0.001	0.0007	0.0009	0.0011	0.0008	0.0011	0.0007
Copper	mg/L	0.0008	< 0.0005	0.0008	< 0.0005	< 0.0005	0.0009	0.0041	0.0106	0.0005	0.0005	0.0016	0.0026	< 0.0005	0.0007	< 0.0005
Lead	mg/L	0.00004	0.0002	0.0005	< 0.0001	0.0001	0.0006	0.004	< 0.0001	< 0.0001	0.0002	0.0004	0.0013	< 0.0001	0.0002	< 0.0001
Molybdenum	mg/L	0.0001	< 0.0005	0.0006	< 0.0005	< 0.0005	0.001	0.0006	< 0.0005	0.0016	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0005	< 0.0005
Nickel	mg/L	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.002	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Silver	mg/L	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L		0.78	0.687	0.752	0.675	0.744	0.67	0.458	0.632	0.554	0.5	0.651	0.615	0.698	0.7
Thallium	mg/L	0.00026	< 0.0003	< 0.0003	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Vanadium	mg/L	0.0009	0.0006	0.0022	< 0.0005	< 0.0005	0.0017	0.0045	< 0.0005	0.0007	0.0007	0.0014	0.0021	0.0006	0.001	< 0.0005
Zinc	mg/L	< 0.005	0.011	0.006	0.015	0.013	0.022	0.01	0.031	< 0.005	0.036	0.01	0.014	< 0.005	< 0.005	0.006

Summary - Genera	II Water Q	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1
Parameters	Units	21-Apr-14	24-Aug-22	13-Sep-22	26-Oct-22	17-Nov-22	7-Dec-22	18-Jan-23	10-Feb-23	1-Mar-23	24-Apr-23	25-May-23	14-Jun-23	6-Jul-23	15-Aug-23	18-Sep-23
Alkalinity	mg/L	641	754	793	802	770	632	632	443	617	598	682	673	751	702	801
Unionized Ammonia	mg/L	< 0.01	734	793	0.07	0.45	032	032	443	017	336	0.23	073	/31	702	801
Ammonia	mg/L	13.6	24.2	26	31.3	29.3	16.5	13.9	4.9	13.5	11.9	14.9	16.3	20.2	20.3	28.3
BOD	mg/L	5	7	4	6	5	7	6	5	7	10	8	8	3	4	12
Calcium		202	173	175	171	161	191	211	165	212	183	178	187	191	191	171
COD	mg/L	44	74	77	80	82	52	43	51	51	29	55	69	70	67	110
Chloride	mg/L mg/L	85.6	176	188	177	178	154	140	85.8	148	98.5	127	137	146	158	238
Conductivity	μs/cm	1540	1960	1940	2020	1990	1710	1610	1150	1640	1510	1630	1700	1780	1780	1960
	-	< 0.005	1960	1940	< 0.005	< 0.005	1/10	1010	1150	1040	1510	< 0.005	1700	1/80	1780	1960
Cyanide DOC	mg/L	16.3	13.3	4.8	8.6	10.4	6.9	6.4	12.6	6.4	6.4	6	6.3	49.7	7.8	7.1
	mg/L														<0.7	
Fluoride	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 1	< 1	<1		<0.7
Hardness	mg/L	622	603	619	617	569	621	660	492	700	564	571	605	622	600	600
Iron	mg/L	21.7	15 41.3	13 43.9	6.87	5.83	11.2 35	33.9 32	88.1 17.2	19.2 30.9	16.2 26.1	15.9 30.9	16.5 33.5	5.08 35.1	23.3 34.9	20.7
Magnesium	mg/L	28.6			46.2	40.5							0.442			42.6
Manganese	mg/L	0.696	0.292	0.269	0.312	0.331	0.447	0.493	0.284	0.517	0.455	0.455		0.437	0.491	0.351
Mercury	mg/L	< 0.02	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	<0.00002
Nitrate	mg/L	1.1	0.05	< 0.05	0.12	0.16	0.25	0.07	0.81	0.09	0.08	< 0.5	< 0.5	< 0.5	<0.40	<0.40
Nitrite	mg/L	1.2	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	< 0.05	< 0.5	< 0.5	< 0.5	<0.40	<0.40
Tot Kjel N	mg/L	14.1	40.4	33.9	35.1	32.3	19.3	14.7	6.7	16.4	14.9	17.2	19.5	21.4	24	34.5
pH - lab	pH unit	6.91	7.31	7.73	7.54	7.44	7.37	7.54	7.64	7.11	7.22	7.45	6.81	7.35	7.11	7.54
Phenols	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.001
Phosphorus	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	<0.01	< 0.1	< 0.1	< 0.1	< 0.1	0.04	0.07
Potassium	mg/L	14.4	24.6	27.3	29.6	25.1	16.2	14.7	6.8	14.4	12.5	15.5	17.9	20.3	20.9	27.5
Sodium	mg/L	81.6	130	144	138	126	104	97.1	56.6	92.6	79.5	93.4	101	107	112	131
Sulphate	mg/L	46	17	16	29	21	68	48	43	39	35	40	42	18	23	14
Total Dissolved Solids	mg/L	891	1061	1083	1119	1057	959	974	647	899	810	929	960	973	985	1130
TSS	mg/L	235			26	40						240				
Turbidity	NTU	195			93.2	189						279				
Colour	TCU	29			15	16						14				
Aluminum	mg/L	0.06	0.08	0.07	0.1	0.09	0.27	0.25	0.86	0.118	0.05	0.06	0.06	0.07	0.1	0.19
Antimony	mg/L	< 0.0001	< 0.0005	0.0005	0.0005	< 0.0005	< 0.0005	0.0008	0.0006	<0.0005	< 0.0005	< 0.0005	0.0008	< 0.0005	<0.0005	<0.0005
Arsenic	mg/L	0.0019	0.001	0.001	0.0012	0.0011	0.0014	0.0021	0.0052	0.0011	0.0009	0.0008	0.0087	0.0006	0.0015	0.0017
Barium	mg/L	0.19	0.39	0.419	0.396	0.35	0.326	0.325	0.335	0.275	0.222	0.249	0.287	0.3	0.358	0.425
Beryllium	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.001	< 0.002	< 0.002	< 0.002	< 0.002	<0.001	<0.001
Boron	μg/L	0.268	0.516	0.573	0.604	0.516	0.36	0.336	0.262	0.309	0.266	0.303	0.385	0.392	0.412	0.581
Cadmium	μg/L	< 0.00002	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	< 0.000070	0.000113	<0.005	< 0.000070	< 0.000070	< 0.000070	< 0.000070	<0.005	<0.005
Chromium	mg/L	< 0.0002	0.002	< 0.001	0.017	0.013	0.066	0.005	0.024	0.004	0.001	0.001	< 0.001	0.001	<0.002	<0.002
Cobalt	mg/L	< 0.005	0.0011	0.0009	0.0012	< 0.005	0.0017	0.0012	0.0025	<0.005	0.0008	0.0006	0.0026	0.0009	<0.005	<0.005
Copper	mg/L	0.0008	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.004	0.0016	0.0073	<0.002	< 0.0005	< 0.0005	0.0021	< 0.0005	<0.002	<0.002
Lead	mg/L	0.00004	0.0002	0.0001	0.0002	< 0.0001	0.001	0.0009	0.0043	<0.02	0.0002	< 0.0001	0.0014	< 0.0001	<0.02	<0.02
Molybdenum	mg/L	0.0001	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0058	0.0006	0.0018	<0.01	< 0.0005	< 0.0005	0.0014	< 0.0005	<0.01	<0.01
Nickel	mg/L	< 0.01	0.01	0.01	0.02	0.01	0.04	< 0.01	< 0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	0.01
Selenium	mg/L	0.002	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	<0.005
Silver	mg/L	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.005	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.005	<0.005
Strontium	mg/L		0.733	0.756	0.764	0.684	0.722	0.734	0.446	0.676	0.622	0.686	0.716	0.693	0.7	0.751
Thallium	mg/L	0.00026	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	<0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	<0.0003	<0.0003
Vanadium	mg/L	0.0009	0.0011	0.0009	0.001	0.001	0.0018	0.0016	0.0049	<0.005	< 0.0005	< 0.0005	0.006	< 0.0005	<0.005	<0.005
Zinc	mg/L	< 0.005	< 0.005	0.006	0.006	< 0.005	0.01	0.013	0.045	0.018	0.009	< 0.005	< 0.005	0.008	0.005	<0.005

Summary - General		LPC-1	LPC-1	LPC-1	LPC-1	LPC-2										
Parameters	Units	21-Apr-14	18-Oct-23	2-Nov-23	18-Dec-23	26-Feb-14	27-May-14	21-Jul-14	29-Oct-14	29-May-15	13-Jul-15	20-Oct-15	21-Apr-16	14-Jul-16	17-Oct-16	24-Apr-17
Alkalinity	mg/L	641	715	685	663	1550	2150	2460	1520	2190	2410	2770	1930	2850	2140	1300
Unionized Ammonia	mg/L	< 0.01	0.05			3.8	3.7	1.47	0.48		-	-	4.25	1.1	2.43	
Ammonia	mg/L	13.6	23.8	22.3	16.6	120	160	265	123	207	236	326	168	369	212	99.4
BOD	mg/L	5	6	6	4	71	331	133	48	28	284	72	11	49	22	19
Calcium	mg/L	202	162	172	192	198	358	230	157	201	258	170	245	171	162	183
COD	mg/L	44	28	66	48	348	629	489	244	417	795	503	362	593	445	201
Chloride	mg/L	85.6	160	166	183	675	631	153	462	773	129	1010	513	981	842	314
Conductivity	μs/cm	1540	1790	1780	1780	5160	5720	6640	4200	6260	6170	8150	5020	7910	6570	3370
Cyanide	mg/L	< 0.005	<0.005			< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.006	< 0.005	
DOC	mg/L	16.3	15.5	12.2	23.4	108	230	103	89.3	36.3	87.9	98.6	52.7	186	21.2	22.2
Fluoride	mg/L	< 0.1	<0.7	<0.1	<0.1	0.2	11.5	< 0.1	0.2	0.2	< 0.1	0.6	0.2	< 3	<1	< 0.1
Hardness	mg/L	622	500	600	600	821	1470	1010	664	950	1040	972	975	913	827	660
Iron	mg/L	21.7	12.6	0.024	16.7	1.51	12.4	9.47	5.39	8.96	11.5	5.33	12.6	14	6.78	8.93
Magnesium	mg/L	28.6	33.6	32.8	36.2	79.4	117	107	66.3	109	97	133	88.1	119	103	49.1
Manganese	mg/L	0.696	0.385	0.42	0.53	0.406	1.23	0.606	0.506	0.309	0.613	0.217	0.595	0.292	0.267	0.421
Mercury	mg/L	< 0.02	<0.00002	<0.00002	<0.00002	0.03	< 0.02	< 0.02	< 0.02	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Nitrate	mg/L	1.1	<0.40	<0.05	0.14	< 0.1	0.5	< 0.1	< 0.1	1	< 0.1	1.3	0.3	2.8	6.7	2.3
Nitrite	mg/L	1.2	<0.40	<0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	2.9	< 0.1	< 3	2.8	0.7
Tot Kjel N	mg/L	14.1	26.4	29.3	19.8	143	179	265	156	232	251	3730	200	369	270	111
pH - lab	pH unit	6.91	7.49	7.59	7.34	7.76	7.62	7.45	7.61	7.58	7.49	7.87	7.66	7.74	7.85	7.5
Phenols	mg/L	< 0.001	<0.001	<0.001	< 0.001	0.059	0.133	0.132	0.032	0.01	0.104	0.004	< 0.001	0.201	0.007	0.018
Phosphorus	mg/L	< 0.1	0.09	0.02	0.04	0.1	0.4	0.7	0.4	0.7	0.9	0.9	0.5	1.3	0.7	0.3
Potassium	mg/L	14.4	21.3	20.8	20	155	224	190	113	233	205	298	184	276	247	103
Sodium	mg/L	81.6	104	106	125	537	626	557	346	708	636	807	523	834	705	279
Sulphate	mg/L	46	42	25	36	122	60	6	60	118	5	148	81	49	174	70
Total Dissolved Solids	mg/L	891	966	934	1010	2690	3330	2730	2280	3730	2790	4670	3030	4640	3830	1930
TSS	mg/L	235	52			34	55	65	140	70	60	680	360	100	68	
Turbidity	NTU	195	1000			14.2	29.7	72.8	51.7	105	20	228	154	114	55.7	
Colour	TCU	29	14			190	490	340	190	330	780	394	453	510	280	1250
Aluminum	mg/L	0.06	0.09	0.09	0.06	0.09	0.17	0.171	0.24	0.1	0.1	0.12	0.14	0.12	0.11	
Antimony	mg/L	< 0.0001	<0.0005	<0.0005	<0.0005	0.0015	0.0028	0.0035	0.0018	0.0015	0.0022	0.0032	0.001	0.0017	0.002	0.0014
Arsenic	mg/L	0.0019	0.0015	0.001	0.0014	0.0234	0.0118	0.0479	0.0178	0.0179	0.0412	0.025	< 0.005	0.0213	0.0195	0.0065
Barium	mg/L	0.19	0.316	0.264	0.325	0.354	0.641	0.522	0.302	0.455	0.443	0.521	0.418	0.591	0.444	0.261
Beryllium	mg/L	< 0.002	<0.001	<0.001	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	μg/L	0.268	0.389	0.402	0.422	5.01	6.82	7.01	3.92	8.33	7.01	11.7	6.45	10.4	9.02	3.53
Cadmium	μg/L	< 0.00002	<0.005	<0.005	< 0.005	0.00002	< 0.0001	0.000021	0.00007	0.00005	0.00005	0.00008	0.00004	0.00005	0.00008	0.000041
Chromium	mg/L	< 0.0002	<0.002	<0.002	< 0.002	0.0447	0.018	< 0.0002	0.0096	0.0215	< 0.0002	0.0701	0.0093	0.0177	0.0136	0.006
Cobalt	mg/L	< 0.005	<0.005	<0.005	<0.005	0.008	0.009	< 0.005	< 0.005	0.012	0.009	0.014	0.01	0.011	0.0123	0.0048
Copper	mg/L	0.0008	<0.002	<0.002	<0.002	0.0022	0.0066	0.005	0.0049	0.0066	0.0039	0.0079	0.0051	0.0077	0.0116	0.0061
Lead	mg/L	0.00004	<0.02	<0.02	< 0.02	0.00025	0.0005	0.00024	0.00074	0.00033	0.00022	0.0002	0.00024	0.00017	0.00067	0.00025
Molybdenum	mg/L	0.0001	<0.01	< 0.01	<0.01	0.001	0.0009	0.0011	0.0011	0.0019	0.001	0.0033	0.0009	0.0021	0.0036	0.0012
Nickel	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.05	0.05	0.07	0.05	0.07	0.05	0.09	0.05	0.07	0.09	0.02
Selenium	mg/L	0.002	<0.005	<0.005	<0.005	0.008	< 0.005	0.007	0.021	0.002	0.003	< 0.001	< 0.005	0.009	0.022	< 0.001
Silver	mg/L	< 0.00002	<0.005	<0.005	<0.005	0.00006	< 0.0001	0.00009	0.00017	0.00072	0.00007	0.00017	0.00005	0.00122	0.00016	0.00029
Strontium	mg/L		0.637	0.636	0.76			1.99	1.06	1.8	2	1.88	1.74	1.98	1.62	1.19
Thallium	mg/L	0.00026	<0.0003	<0.0003	<0.0003	< 0.00005	< 0.0003	< 0.00005	0.00008	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	0.0009	<0.005	<0.005	<0.005	0.0301	0.0107	0.0652	0.008	0.0147	0.0506	0.0416	0.0085	0.0207	0.0127	0.0053
Zinc	mg/L	< 0.005	0.007	<0.005	<0.005	0.016	0.051	0.024	0.106	0.006	0.03	0.06	0.018	0.024	0.052	0.071

Summary - General	Trate: Q	LPC-1	LPC-2	LPC-2	LPC-2	LPC-2	LPC-2	LPC-2	LPC-2	LPC-2						
Parameters	Units	21-Apr-14	17-Oct-17	25-Apr-18	31-Jul-18	10-Oct-18	10-May-19	9-Oct-19	30-Apr-20	13-Oct-20	4-May-21	13-Oct-21	4-May-22	24-Aug-22	26-Oct-22	24-Apr-23
Alkalinity	mg/L	641	1660	1370	660	2210	1270	2380	442	1910	1390	1840	1100	1430	1910	1380
Unionized Ammonia	mg/L	< 0.01	2.52			2.3	1.41	0.23	0.01	1.56	1.49	2.7	0.15	0.03	5.42	0.05
Ammonia	mg/L	13.6	141	92.6	19.3	220	10	350	0.31	250	112	289	124	36.7	278	110
BOD	mg/L	5	16		9	320	262	62	4	80	198	44	20	7	25	17
Calcium	mg/L	202	217	282	234	311	273	267	83.3	239	252	231	228	486	176	203
COD	mg/L	44	348	744	58	780	644	692	104	548	620	602	232	1490	419	251
Chloride	mg/L	85.6	300	280	191	617	27.5	887	274	705	431	881	413	156	786	443
Conductivity	μs/cm	1540	4200	3540	1890	5990	3490	7050	2010	5620	4130	6090	4060	3000	6140	3990
Cyanide	mg/L	< 0.005	< 5			0.01	0.01	0.009	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.005	< 0.005
DOC	mg/L	16.3	80.4	108	12	156	207	130	34.4	67.5	122	82.4	53.9	77.6	40.8	44.2
Fluoride	mg/L	< 0.1	0.1	< 0.1	< 0.1	9.4	0.8	< 3	< 0.1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Hardness	mg/L	622	803	941	751	1200	925	1090	370	875	952	982	824	1550	823	742
Iron	mg/L	21.7	7.3	12.6	340	16.8	7.96	59.6	0.226	36.1	8.2	24.4	4.84	3520	3.34	7.57
Magnesium	mg/L	28.6	63.3	57.5	40.4	102	59.1	104	39.4	86.7	78.3	98.4	61.8	81.7	93.3	57.1
Manganese	mg/L	0.696	0.526	1.33	0.583	1.48	0.63	0.837	0.026	0.519	0.48	0.36	0.379	1.39	0.176	0.392
Mercury	mg/L	< 0.02	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002
Nitrate	mg/L	1.1	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 1	8.54	0.61	< 0.5	< 0.5	9.61	0.97	< 0.5	0.87
Nitrite	mg/L	1.2	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 1	0.07	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tot Kjel N	mg/L	14.1	167	102	25.8	231	104	364	4.1	309	135	330	157	63.7	280	137
pH - lab	pH unit	6.91	7.49	7.59	7.44	7.27	7.74	7.87	8.54	7.8	7.84	7.72	7.73	7.09	7.88	7.76
Phenols	mg/L	< 0.001	0.046	0.279	0.02	0.364	0.14	< 0.002	< 0.002	0.036	0.274	0.044	< 0.001	< 0.01	0.004	0.013
Phosphorus	mg/L	< 0.1	0.8	0.53	1.3	0.9	0.3	3.21	< 0.1	1.1	0.3	1.1	0.2	21.3	0.7	0.4
Potassium	mg/L	14.4	139	122	23	222	139	260	94.4	210	153	218	142	33.7	219	135
Sodium	mg/L	81.6	370	280	141	534	257	740	244	496	398	615	373	157	624	335
Sulphate	mg/L	46	53	124	32	23	10	121	94	58	124	56	139	18	89	80
Total Dissolved Solids	mg/L	891	2329	1984	1423	3446	1550	4318	1095	3296	2423	3673	2179	1837	3495	2089
TSS	mg/L	235	70			100	100	1000	10	360	16	114	42	35700	25	400
Turbidity	NTU	195	39.2			21	57	237	4.7	119	18.8	122	27.7	20.6	24.8	1010
Colour	TCU	29	180			350	148	367	89	256	531	301	185	242	253	131
Aluminum	mg/L	0.06	0.14	0.16	0.2	0.22	0.13	0.62	0.07	0.29	0.13	0.25	0.12	0.84	0.09	0.08
Antimony	mg/L	< 0.0001	0.021	0.0021	0.0032	0.0032	0.0022	0.002	0.0009	0.0021	0.0042	0.0034	0.0026	0.0008	0.0024	0.0026
Arsenic	mg/L	0.0019	0.0111	0.0077	0.0157	0.0162	0.0107	0.0189	0.0018	0.0171	0.0094	0.0208	0.0059	0.001	0.0115	0.0081
Barium	mg/L	0.19	0.505	0.34	0.635	0.645	0.362	0.82	0.076	0.649	0.35	0.692	0.336	28.8	0.589	0.36
Beryllium	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	μg/L	0.268	4.95	3.24	5.99	6.06	2.95	9.68	2.74	6.5	4.22	6.85	4.3	3.33	7.13	3.6
Cadmium	μg/L	< 0.00002	< 0.00007	< 0.00007	0.00002	0.00003	< 0.00007	< 0.00007	< 0.000070	< 0.000059	< 0.000059	< 0.000070	< 0.000070	0.000377	< 0.000070	< 0.000070
Chromium	mg/L	< 0.0002	0.013	0.016	0.037	0.038	0.013	0.037	0.004	0.025	0.023	0.03	0.012	0.043	0.02	0.013
Cobalt	mg/L	< 0.005	0.0045	0.0069	0.009	0.008	0.0052	0.0159	0.0039	0.013	0.009	0.0109	0.0071	0.0845	0.0107	0.008
Copper	mg/L	0.0008	0.0075	0.0055	0.0028	0.003	0.011	0.008	0.0055	0.0009	0.0049	0.0081	0.0056	0.0431	0.003	0.0061
Lead	mg/L	0.00004	0.0005	0.0004	0.00061	0.00066	0.0016	0.0013	0.0002	0.00031	0.00042	0.0012	0.0001	0.0408	0.0002	0.0008
Molybdenum	mg/L	0.0001	0.001	0.0008	0.0013	0.0014	0.0009	0.0021	0.0017	0.0029	0.0021	0.0019	0.0021	< 0.0005	0.002	0.0014
Nickel	mg/L	< 0.01	0.04	0.03	0.06	0.06	0.03	0.09	0.03	0.06	0.04	0.06	0.04	0.04	0.06	0.03
Selenium	mg/L	0.002	< 0.005	< 0.005	0.006	0.006	< 0.005	0.012	< 0.005	0.005	0.004	0.012	0.005	0.009	0.007	< 0.005
Silver	mg/L	< 0.00002	< 0.0001	< 0.0001	0.0009	0.0006	< 0.0001	< 0.0001	0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L		1.42	1.24	1.72	1.76	1.35	2.73	0.671	2.39	1.84	2.56	1.59	4.11	2.37	1.66
Thallium	mg/L	0.00026	< 0.0003	< 0.0003	< 0.00005	< 0.00005	< 0.0003	< 0.0003	< 0.0003	0.04	0.021	0	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Vanadium	mg/L	0.0009	0.0108	0.0079	0.0177	0.0181	0.0074	0.0239	0.0017	0.0155	0.0084	0.0182	0.0057	0.0874	0.0148	0.0071
Zinc	mg/L	< 0.005	0.589	0.12	0.049	0.048	0.034	0.185	0.363	0.194	0.069	0.32	0.028	0.324	0.044	0.041

Summary - General	Water Qt	LPC-1	LPC-2
Parameters	Units	21-Apr-14	18-Oct-23
Alkalinity	mg/L	-	
Unionized Ammonia	-	641	1300
	mg/L	< 0.01	0.17 229
Ammonia	mg/L	13.6	
BOD	mg/L	5	15
Calcium	mg/L	202	149
COD	mg/L	44	396
Chloride	mg/L	85.6	630
Conductivity	μs/cm	1540	5350
Cyanide	mg/L	< 0.005	<0.008
DOC	mg/L	16.3	73.7
Fluoride	mg/L	< 0.1	<1.8
Hardness	mg/L	622	700
Iron	mg/L	21.7	5.78
Magnesium	mg/L	28.6	68.3
Manganese	mg/L	0.696	0.179
Mercury	mg/L	< 0.02	<0.00002
Nitrate	mg/L	1.1	10.3
Nitrite	mg/L	1.2	1.55
Tot Kjel N	mg/L	14.1	263
pH - lab	pH unit	6.91	7.99
Phenols	mg/L	< 0.001	0.001
Phosphorus	mg/L	< 0.1	0.81
Potassium	mg/L	14.4	191
Sodium	mg/L	81.6	627
Sulphate	mg/L	46	158
Total Dissolved Solids	mg/L	891	2660
TSS	mg/L	235	142
Turbidity	NTU	195	205
Colour	TCU	29	258
Aluminum	mg/L	0.06	0.44
Antimony	mg/L	< 0.0001	0.0025
Arsenic	mg/L	0.0019	0.0151
Barium	mg/L	0.19	0.462
Beryllium	mg/L	< 0.002	<0.001
Boron	μg/L	0.268	6.45
Cadmium	μg/L	< 0.00002	<0.005
Chromium	mg/L	< 0.0002	0.018
Cobalt	mg/L	< 0.005	0.014
Copper	mg/L	0.0008	0.006
Lead	mg/L	0.00004	<0.02
Molybdenum	mg/L	0.0001	<0.01
Nickel	mg/L	< 0.01	0.05
Selenium	mg/L	0.002	0.007
Silver	mg/L	< 0.0002	<0.005
Strontium	mg/L	0.00002	1.8
Thallium	mg/L	0.00026	<0.0003
Vanadium	mg/L	0.00020	0.014
Zinc	mg/L	< 0.005	0.014
	6/ L	. 0.003	0.020

			LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-1	LPC-2	LPC-2	LPC-2	LPC-2
Parameters	Units	ODWQS	21-Apr-14	22-Dec-14	21-Jan-15	25-Jul-18	9-Oct-18	31-May-21	18-Oct-23	21-Jul-14	13-Jul-15	14-Jul-16	25-Apr-18
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.1	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.1	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 0.5	< 0.4	< 0.5	< 0.4	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.1	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethane	μg/L	N/A	< 0.5	0.3	< 0.5	< 0.1	< 0.5	< 0.5	<0.5	0.6	0.9	< 0.5	< 0.5
1,1-Dichloroethylene	μg/L	14		< 0.1		< 0.1	< 0.5	< 0.5	<0.5				< 0.5
Ethylene Dibromide	μg/L	N/A	< 0.2	< 0.1	< 0.2	< 0.1	< 0.2	< 0.2	<0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	μg/L	3	< 0.5	0.1	< 0.5	< 0.1	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	μg/L	5	< 0.5	< 0.1	< 0.5	< 0.1	< 0.5	< 0.5	<0.5	1.9	1.8	< 0.5	< 0.5
1,2-Dichloropropane	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.1	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.1	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	μg/L	1	< 0.5	1.3	1.1	< 0.2	2.7	1.5	1.6	< 0.5	< 0.5	< 0.5	< 0.5
Methyl Ethyl Ketone	μg/L	N/A	< 20	< 1		< 1	< 20	< 20	<20	40		< 20	660
Methyl Isobutyl Ketone	μg/L	N/A	< 20	< 1		< 1	< 20	< 20	<20	<20		< 20	< 20
Acetone	μg/L	N/A	< 30	4	< 30	< 2	< 30	< 30	<30	50	250	< 30	510
Benzene	μg/L	5	2.8	< 0.5	1.9	< 0.5	1.1	1.7	2.9	0.5	0.9	< 0.5	1.4
Bromodichloromethane	μg/L	N/A	< 2	< 0.1	< 2	0.1	< 2	< 2	<2	< 2	< 2	< 2	< 2
Bromoform	μg/L	N/A	< 5	< 0.1	< 5	< 0.1	< 5	< 5	<5	< 5	< 5	< 5	< 5
Bromomethane	μg/L	N/A	< 0.5	< 0.3	< 0.5	< 0.3	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	μg/L	5	< 0.2	< 0.2	< 0.2	< 0.2	5.7	< 0.2	<0.2	< 0.2	< 0.2	< 0.2	
Chlorobenzene	μg/L	80	1.2	8.0	1	2.1	< 1	1.2	1.8	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	μg/L	N/A	< 1	< 0.3	< 1	< 0.1	< 0.5	< 1	<1	< 1	< 1	< 1	< 1
cis 1,2-Dichloroethene	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.1	< 0.5	< 0.5		< 0.5	0.7	< 0.5	< 0.5
cis 1,3-Dichloroethene	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.1	< 2	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5
Dibromochloromethane	μg/L	N/A	< 2	< 0.1	< 2			< 2	<2	< 2	< 2	< 2	< 2
Dichlorodifluoromethane	μg/L	N/A											
Ethylbenzene	μg/L	2.4	< 0.5	0.5	0.7	< 0.5	< 0.5	< 0.5	1.1	< 0.5	1.7	< 0.5	1.4
m & p-Xylene	μg/L	N/A	4.9	1.4	2.5	< 0.4	< 1.0	< 1.0	2	< 1.0	4.2	< 1.0	1.7
o-Xylene	μg/L	N/A	< 0.5	< 0.1	< 0.5	< 0.1	< 0.5	< 0.5	<0.5	< 0.5	1.3	< 0.5	1
Toluene	μg/L	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	5.8	5.9	< 0.5	1.8
Methyl tert-Butyl Ether	μg/L	N/A	< 2	< 1	< 2	< 1	< 2	< 2	<2	< 2	< 2	< 2	< 2
Methylene Chloride	μg/L	N/A	< 5	< 0.3	< 5	< 0.3	< 0.3	< 5	<5	< 5	< 5	< 5	< 5
Vinyl Chloride	μg/L	2	< 0.5	< 0.2	< 0.5	< 0.2	< 0.5	< 0.2	<0.2	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	μg/L	5	< 0.5	< 0.1	< 0.5			< 0.5	<0.5	< 0.5	< 0.5		
Xylene, m,p,o-	μg/L	300	5.2	1.4	2.8	< 0.4	< 1.1	< 1.1	2	<1.1	5.4	< 1.1	2.7

VOC			LPC-2	LPC-2	LPC-2	LPC-2	LPC-2	LPC-2
Parameters	Units	ODWQS	10-May-19	11-May-19	4-May-21	4-May-22	24-Aug-22	24-Apr-23
1,1,1,2-Tetrachloroethane	μg/L	N/A	< 0.5	< 0.5	< 10	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	μg/L	N/A	< 0.5	< 0.5	< 10	< 0.5	< 0.5	< 0.5
1,1,2,2 Tetrachloroethane	μg/L	N/A	< 0.5	< 0.5	< 10	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	μg/L	N/A	< 0.5	< 0.5	< 10	< 0.5	< 0.5	< 0.5
1,1-Dichloroethane	μg/L	N/A	< 0.5	< 0.5	< 10	< 0.5	< 0.5	< 0.5
1,1-Dichloroethylene	μg/L	14	< 0.5	< 0.5	< 10	< 0.5	< 0.5	< 0.5
Ethylene Dibromide	μg/L	N/A	< 0.2	< 0.2	< 4	< 0.2	< 0.2	<0.2
1,2-Dichlorobenzene	μg/L	3	< 0.5	< 0.5	< 10	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	μg/L	5	< 0.5	< 0.5	< 10	0.5	< 0.5	< 0.5
1,2-Dichloropropane	μg/L	N/A	< 0.5	< 0.5	< 10	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	μg/L	N/A	< 0.5	< 0.5	< 10	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	μg/L	1	< 0.5	< 0.5	< 10	< 0.5	2.9	< 0.5
Methyl Ethyl Ketone	μg/L	N/A	310	< 20	1500	< 20	< 20	30
Methyl Isobutyl Ketone	μg/L	N/A	< 20	< 20	< 400	< 20	< 20	< 20
Acetone	μg/L	N/A	320	< 30	1340	< 30	< 30	50
Benzene	μg/L	5	0.7	< 0.5	< 10	< 0.5	2.5	< 0.5
Bromodichloromethane	μg/L	N/A	< 2	< 2	< 40	< 2	< 2	< 2
Bromoform	μg/L	N/A	< 5	< 5	< 100	< 5	< 5	< 5
Bromomethane	μg/L	N/A	< 0.5	< 0.5	< 3	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	μg/L	5	< 0.2	< 0.2	< 4	< 0.2	< 0.2	< 0.2
Chlorobenzene	μg/L	80	< 0.5	< 0.5	< 10	< 0.5	17	< 0.5
Chloroform	μg/L	N/A	< 1	< 1	< 20	< 1	< 1	< 1
cis 1,2-Dichloroethene	μg/L	N/A	< 0.5	< 0.5	< 10	< 0.5	< 0.5	< 0.5
cis 1,3-Dichloroethene	μg/L	N/A	< 0.5	< 0.5	< 10	< 0.5	< 0.5	< 0.5
Dibromochloromethane	μg/L	N/A	< 2	< 2	< 40	< 2	< 2	< 2
Dichlorodifluoromethane	μg/L	N/A						
Ethylbenzene	μg/L	2.4	0.6	< 0.5	< 10	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	N/A	1.2	< 1.0	< 20	< 1.0	2.4	< 1.0
o-Xylene	μg/L	N/A	0.6	< 0.5	< 10	< 0.5	< 0.5	< 0.5
Toluene	μg/L	N/A	12.6	< 0.5	< 10	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	N/A	< 2	< 2	< 40	< 2	< 2	< 2
Methylene Chloride	μg/L	N/A	< 5	< 5	< 6	< 5	< 5	< 5
Vinyl Chloride	μg/L	2	< 0.2	< 0.2	< 2	< 0.2	< 0.2	< 0.2
Trichloroethylene	μg/L	5	< 0.5	< 0.5	< 10			< 0.5
Xylene, m,p,o-	μg/L	300	1.8	< 1.1	< 22	< 1.1	2.4	< 1.1

Leachate - PCBs

Leachate -	PCBS	
Parameters	PCB	NTA
Units	μg/L	mg/L
Leachate Pum	ping Chamber (LP	C1)
12-May-06	< 0.04	ND
29-Jun-06	< 0.04	
26-Oct-06	< 0.04	< 0.05
21-Dec-06	< 0.1	
27-Apr-07		< 0.05
30-May-07	< 0.001	< 0.05
22-Oct-07	< 0.001	< 0.05
27-Feb-08	< 0.001	
18-Mar-08	< 0.001	
17-Apr-08	< 0.001	< 0.05
18-Jun-08	< 0.001	
28-Jul-08	< 0.001	
22-Oct-08	< 0.001	0.10
4-May-09	0.015	0.10
7-Jul-09		
	< 0.001	
27-Oct-09	< 0.001	
16-Nov-09	< 0.001	
5-May-10	< 0.001	
28-Oct-10	< 0.001	< 0.05
17-May-12	0.002	0.07
23-Jul-12	0.002	
25-Oct-12	< 0.001	0.09
27-May-14	< 0.05	
29-Oct-14	< 0.05	
27-May-15	< 0.05	
20-Oct-15	< 0.05	
24-May-16	< 0.05	< 0.03
17-Oct-16	< 0.05	< 0.03
25-May-17	< 0.05	< 0.03
17-Oct-17	< 0.05	< 0.03
8-May-18	< 0.05	< 0.03
10-Oct-18	< 0.05	< 0.03
15-May-19	< 0.05	< 0.03
9-Oct-19	< 0.05	< 0.03
11-May-20	<0.05	<0.03
13-Oct-20	<0.05	<0.03
20-Apr-21	<0.05	\0.03
31-May-21	<0.05	<0.03
		₹0.05
11-Aug-21	<0.05	40.03
19-May-22	<0.05	<0.03
25-May-23	<0.05	<0.03
18-Oct-23	<0.05	<0.03
	ping Chamber Nev	w Cell (LPC2)
24-May-06	< 0.1	
26-Oct-06	< 0.4	
26-Feb-08	< 0.001	
7-Jul-09	< 0.001	
12-Jul-10	< 0.001	
21-Jul-14	< 0.05	
13-Jul-15	< 0.05	
14-Jul-16	< 0.05	
25-Apr-18	< 0.05	
10-May-19	< 0.05	
30-Apr-20	< 0.05	
4-May-21	<0.05	
4-May-22	<0.05	
24-Apr-23		
p. 20	3.30	

Leacnate -	- BIEX C		15		
Davamatava	Dannana	Ethyl	mala Vidana	- Vulana	Taluana
Parameters	Benzene	benzene	m/p-Xylene	o-Xylene	Toluene
Units	μg/L	μg/L	μg/L	μg/L	μg/L
Leachate Pu					
5-Jan-06	<1		5.1	3.1	2.7
1-Mar-06	<1		1.2	4.4	<1
12-May-06	3.0		26.9	10.4	18.9
29-Jun-06	2.6		21.5	6.8	6.8
10-Aug-06	1.6		0.8	1.0	0.4
21-Sep-06	<2		<4	<3	<2
26-Oct-06	0.6		1.0	1.1	< 0.3
21-Dec-06	2.8		9.7	4.3	2.5
29-Jan-07	2.5		5.7	2.1	2.4
14-Feb-07	3.2		7.7	2.6	4.0
21-Mar-07	3.0		14.4	0.7	0.2
10-Apr-07 27-Apr-07	1.1 2.8		1.6 2.8	0.9 1.7	0.3
30-May-07	2.9		12.1	4.3	1.8
7-Jun-07	2.3		10.8	3.3	2.5
31-Jul-07	1.6		7.7	3.3	0.8
22-Oct-07 20-Nov-07	2,4 2.6		3.0 1.8	1.1 < 0.2	1.2 < 0.2
27-Feb-08	2.6		7.6	2.5	2.4
18-Mar-08	2.9		10.4	2.0	1.8
17-Apr-08	4.3		10.9	1.2	0.5
18-Jun-08	3.2		6.1	0.9	0.4
22-Oct-08 10-Dec-08	1.9 2.5		4.0 4.2	0.8 0.7	0.2 0.8
13-Jan-09	4.8	1.3	12.2	1.2	0.8
4-May-09	2.7	< 0.1	2.3	< 0.1	< 0.1
7-Jul-09	2.9	0.2	2.8	0.3	0.2
27-Oct-09	2.3	0.3	3.6	0.3	< 0.1
16-Nov-09 13-Jan-10	0.5 3.4	< 0.1 2.7	0.2 14.1	0.1 3.8	< 0.1 2.3
10-Feb-10	1.1	< 0.1	2.3	1.6	0.1
16-Mar-10	1.2	< 0.1	1.8	0.4	< 0.1
20-Apr-10	3.3	0.6	7.2	0.5	0.4
5-May-10 15-Jun-10	2.8 3.0	0.4	5.2 3.7	0.3	< 0.1 0.5
7-May-10	3.7	2.3	11.3	2.1	1.1
30-Sep-10	2.0	2.4	4.2	0.5	0.2
28-Oct-10	2.2	3.1	6.6	0.7	0.3
16-Nov-10	2.2	2.8	4.7	0.5	0.2
13-Dec-10 10-Jan-11	1.0 2.3	1.6 1.8	2.7 5.6	0.4 1.5	0.2 0.6
14-Feb-11	3.7	3.0	14.0	2.5	0.9
11-Mar-11	1.4	2.6	4.6	0.9	< 0.4
11-Apr-11	1.8	1.1	3.6	0.5	< 0.4
5-May-11 16-Jun-11	2.1 2.8	2.7	6.2 5.1	0.9 0.7	0.3 0.6
28-Jul-11	2.5	1.2	3.7	0.7	0.6
22-Aug-11	2.2	0.9	3.1	0.4	< 0.5
3-Oct-11	2.1	1.3	5.1	< 0.5	< 1.0
27-Oct-11	2.3	1.6	5.0	0.6	0.3
1-Dec-11 21-Dec-11	1.8 2.7	1.2 1.8	4.1 8.0	0.5 0.8	4.3 < 0.4
24-Jan-12	1.5	1.0	2.8	< 0.5	< 1.0
21-Feb-12	2.6	1.2	3.2	< 0.5	< 1.0
19-Mar-12	2.2	1.5	4.4	0.6	< 0.4
17-May-12	3.4	3.3	8.2	1.5	0.7
20-Jun-12	2.3	0.9	2.7	0.6	0.3
23-Jul-12	4.3	2.2	9.4	1.2	< 0.5
21-Aug-12	2.3	< 1.0	3.3	< 1.0	< 2.0
25-Oct-12	2.4	0.6	1.1	0.3	< 0.2
22-Nov-12	2.1	1.2	4.6	0.4	< 0.5
18-Dec-12	2.5	1.7	8.3	0.8	0.2
21-Apr-14	2.8	< 0.5	4.9	< 0.5	< 0.5
27-May-14 25-Jun-14	1.4 3.6	< 0.5 < 0.5	2.7 3.1	< 0.5 < 0.5	< 0.5 < 0.5
25-Jun-14 21-Jul-14	1.5	< 0.5	1.8	< 0.5	< 0.5
20-Aug-14	1.7	< 0.5	1.3	< 0.5	< 0.5
29-Sep-14	0.8	< 0.5	1.9	< 0.5	< 0.5
29-Oct-14	1.5	< 0.5	1.8	< 0.5	< 0.5
22-Dec-14 21-Jan-15	< 0.5	0.5	1.4	< 0.1	< 0.5
16-Mar-15	1.9	0.7	2.5	< 0.5	< 0.5
20-Apr-15	1.3 0.6	< 0.5 < 0.5	1.3 < 1.0	< 0.5 < 0.5	< 0.5 < 0.5
20-Apr-15 27-May-15	2.8	< 0.5	3.5	< 0.5	< 0.5

Leachate -	BTEX c	ompound	ds		
Parameters	Benzene	Ethyl benzene	m/p-Xylene	o-Xylene	Toluene
Units	μg/L	μg/L	μg/L	μg/L	μg/L
22-Jun-15	2.6	< 0.5	1.3	< 0.5	< 0.5
13-Jul-15 5-Aug-15	3.3 2.2	< 0.5 < 0.5	2.1 1.0	< 0.5 < 0.5	< 0.5 < 0.5
20-Oct-15	1.0	< 0.5	< 0.4	< 0.1	< 0.5
18-Nov-15	1.6	1.2	1.8	< 0.5	< 0.5
16-Dec-15	1.4	1.4	1.3	< 0.5	< 0.5
27-Jan-16	1.6	2.8	4.6	0.7	0.9
4-Feb-16	0.8	1.4	1.6	< 0.5	< 0.5
30-Mar-16 12-Apr-16	1.1 0.9	< 0.5 0.8	1.1 < 1.0	< 0.5 < 0.5	< 0.5 < 0.5
21-Apr-16	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5
24-May-16	2.0	< 0.5	< 1.0	< 0.5	< 0.5
14-Jun-16	1.6	< 0.5	<1.0	< 0.5	< 0.5
14-Jul-16	1.9	< 0.5	1.3	< 0.5	< 0.5
2-Aug-16	1.4	< 0.5	< 1.0	< 0.5	< 0.5
29-Sep-16	1.5 1.6	< 0.5 < 0.5	< 1.0 < 1.0	< 0.5 < 0.5	< 0.5 < 0.5
17-Oct-16 21-Nov-16	1.2	< 0.5	< 1.0	< 0.5	< 0.5
21-Nov-16	1.2	0.7	1.4	< 0.5	< 0.5
23-Jan-17	0.5	< 0.5	< 1.0	< 0.5	< 0.5
23-Feb-17	0.9	0.7	1.1	< 0.5	< 0.5
29-Mar-17	1.1	< 0.5	< 1.0	< 0.5	< 0.5
24-Apr-17 25-May-17	< 0.5 1.3	< 0.5 < 0.5	< 0.4 < 1.0	< 0.1 < 0.5	< 0.5 < 0.5
25-May-17 20-Jul-17	1.3 < 0.5	< 0.5	< 1.0	< 0.5	< 0.5
24-Aug-17	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5
21-Sep-17	2.5	< 0.5	< 1.0	< 0.5	< 0.5
17-Oct-17	1.5	< 0.5	< 1.0	< 0.5	< 0.5
13-Nov-17	1.4	< 0.5	< 1.0	< 0.5	< 0.5
7-Dec-17 15-Jan-18	< 0.5 1.2	< 0.5 1.6	< 1.0 1.2	< 0.5 0.9	< 0.5 2.1
15-Feb-18	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5
14-Mar-18	2.4	1.5	1.8	< 0.5	< 0.5
25-Apr-18	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5
8-May-18	2.5	1.9	2.2	< 0.5	< 0.5
4-Jun-18	0.7 < 0.5	1.3 < 0.5	2.1 < 0.4	< 0.5 < 0.1	< 0.5 < 0.5
25-Jul-18 22-Aug-18	0.9	< 0.5	< 0.4	< 0.1	< 0.5
24-Sep-18	1.5	< 0.5	< 1.0	< 0.5	0.9
9-Oct-18	1.1	< 0.5	< 1.0	< 0.5	< 0.5
10-Oct-18	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5
6-Nov-18	1.8	0.7	< 1.0	< 0.5	< 0.5
19-Dec-18 29-Jan-19	3.4 2.3	2.5 2.7	2.5 4.2	< 0.5 < 0.5	< 0.5 < 0.5
14-Feb-19	0.7	< 0.5	< 1.0	< 0.5	< 0.5
11-Mar-19	0.6	< 0.5	< 1.0	< 0.5	< 0.5
9-May-19	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5
11-Jun-19	1.6	1.1	1.1	< 0.5	< 0.5
15-Jul-19 14-Aug-19	0.6 < 0.5	< 0.5 < 0.5	< 1.0 < 1.0	< 0.5 < 0.5	< 0.5 < 0.5
30-Sep-19	1.8	< 0.5	< 1.0	< 0.5	< 0.5
9-Oct-19	1.7	< 0.5	< 1.0	< 0.5	< 0.5
12-Nov-19	1.5	< 0.5	< 1.0	< 0.5	< 0.5
18-Dec-19	1.9	0.8	< 1.0	< 0.5	< 0.5
21-Jan-20 5-Feb-20	1.4	3.0 0.6	1.9 < 1.0	< 0.5 < 0.5	< 0.5 < 0.5
18-Mar-20	1.2	0.7	< 1.0	< 0.5	< 0.5
30-Apr-20	1.5	0.7	1.0	< 0.5	< 0.5
11-May-20	1.6	0.7	< 0.5	< 1.0	< 0.5
24-Jun-20	1.3	0.6	< 1.0	< 0.5	< 0.5
13-Jul-20	1.4	< 0.5	< 1.0	< 0.5	< 0.5 < 0.5
11-Aug-20 9-Sep-20	1.5 1.2	< 0.5 < 0.5	< 1.0 < 1.0	< 0.5 < 0.5	< 0.5
13-Oct-20	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5
25-Nov-20	1.1	< 0.5	< 1.0	< 0.5	< 0.5
18-Jan-21	1.2	< 0.5	< 1.0	< 0.5	< 0.5
3-Mar-21	1.0 0.6	0.6 0.6	< 1.0 < 1.0	< 0.5 < 0.5	< 0.5 < 0.5
29-Mar-21 4-May-21	1.7	1.0	1.1	< 0.5	< 0.5
31-May-21	1.7	< 0.5	< 1.0	< 0.5	< 0.5
22-Jun-21	1.4	< 0.5	< 1.0	< 0.5	< 0.5
26-Jul-21	2.5	0.8	1.2	< 0.5	< 0.5
16-Aug-21	1.3	< 0.5	< 1.0	< 0.5	< 0.5
28-Sep-21 13-Oct-21	1.5 1.9	< 0.5 < 0.5	1.2 < 1.0	< 0.5 < 0.5	< 0.5 < 0.5
29-Nov-21	0.6	< 0.5	< 1.0	< 0.5	< 0.5
13-Dec-21	1.0	0.8	1.5	< 0.5	< 0.5
25-Jan-22	1.3	2.4	2.4	< 0.5	< 0.5
22-Feb-22	1.8	0.5	1.2	< 0.5	< 0.5
21-Mar-22	0.8	< 0.5	< 1.0	< 0.5	< 0.5
4-May-22 19-May-22	1.4	0.7 < 0.5	1.0 < 1.0	< 0.5 < 0.5	< 0.5 < 0.5
21-Jun-22	1.8	0.6	< 1.0	< 0.5	< 0.5
27-Jul-22	2.3	< 0.5	< 1.0	< 0.5	< 0.5
24-Aug-22	1.3	< 0.5	< 1.0	< 0.5	< 0.5
13-Sep-22	1.5	< 0.5	< 1.0	< 0.5	< 0.5
26-Oct-22 17-Nov-22	< 0.5 1.9	< 0.5 < 0.5	< 1.0 < 1.0	< 0.5 < 0.5	< 0.5 < 0.5
7-Dec-22	1.4	< 0.5	< 1.0	< 0.5	< 0.5
18-Jan-23	1.4	0.6	< 1.0	< 0.5	< 0.5

Loudillato	2:270	ompoun	40		
Parameters	Benzene	Ethyl benzene	m/p-Xylene	o-Xylene	Toluene
Units	μg/L	μg/L	μg/L	μg/L	μg/L
10-Feb-23	0.7	< 0.5	< 1.0	< 0.5	< 0.5
1-Mar-23	1.5	0.6	<1	<0.5	< 0.5
24-Apr-23	1.8	0.8	1.1	< 0.5	< 0.5
25-May-23	1.8	0.5	< 1.0	< 0.5	< 0.5
14-Jun-23	3.6	0.6	1.8	< 0.5	< 0.5
6-Jul-23	4.0	0.6	1.6	<0.5	<0.5
15-Aug-23	3.2	1.2	2.0	<0.5	<0.5
18-Sep-23	3.4	0.6	1.0	<0.5	<0.5
18-Oct-23	2.9	1.1	2.0	<0.5	<0.5
2-Nov-23	1.9	0.8	2.0	<0.5	<0.5
18-Dec-23	2.7	1.0	1.0	<0.5	<0.5

Leachate -		Ethyl			
Parameters	Benzene	benzene	m/p-Xylene	o-Xylene	Toluene
Units	μg/L	μg/L	μg/L	μg/L	μg/L
Leachate Pur					
24-May-06	<40		<40	<40	<40
26-Oct-06	0.6		2.4	1.3	39.8
29-Jan-07	0.6		< 0.4	< 0.2	12.5
10-Apr-07	0.4		< 0.4	0.2	11.1
27-Apr-07	0.3		< 0.4	< 0.2	10.7
30-May-07	< 0.2		< 0.4	< 0.2	19.5
22-Oct-07	< 0.2		1.2	< 0.2	23.9
26-Feb-08	< 0.2		< 0.4	< 0.2	4.2
18-Mar-08	< 0.2		< 0.4	< 0.2	1.9
23-Apr-08	0.1		0.4	< 0.1	3.1
18-Jun-08	0.4		0.9	0.3	2.5
22-Oct-08	0.3		0.8	0.3	4.3
4-May-09	0.5	1.4	< 0.1	1.8	14.0
7-Jul-09	0.5	1.1	3.7	1.7	1.3
27-Oct-09	0.7	2.0	5.9	2.7	41.1
16-Nov-09	0.9	1.8	4.7	2.2	44.8
5-May-10	0.4	1.8	3.2	1.4	35.0
12-Jul-10	1.5	4.2	11.5	4.6	110.0
24-Aug-10	1.3	4.2	10.9	4.1	120.0
28-Oct-10	0.6	1.5	3.4	1.4	60.0
5-May-11	0.3	0.7	1.4	0.6	7.9
27-Oct-11	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0
17-May-12	< 0.5	< 0.5	0.6	< 0.5	< 1.0
25-Oct-12	< 2.5	< 2.5	< 2.5	< 2.5	< 5.0
26-Feb-14	0.7	< 0.5	< 1.0	< 0.5	3.4
27-May-14	< 0.5	< 0.5	1.4	< 0.5	7.8
21-Jul-14	0.5	< 0.5	< 1.0	< 0.5	5.8
29-Oct-14	< 0.5	< 0.5	< 1.0	< 0.5	1.2
13-Jul-15	0.9	1.7	4.2	1.3	5.9
14-Jul-16	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5
24-Apr-16	< 0.5	< 0.5	< 0.4	< 0.1	< 0.5
25-Apr-18	1.4	1.4	1.7	1.0	1.8
31-Jul-18	1.9	0.8	1.4	< 0.5	< 0.5
10-May-19	0.7	0.6	1.2	0.6	12.6
30-Apr-20	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5
4-May-21	< 10	< 10	< 20	< 10	< 10
4-May-22	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5
24-Aug-22	2.5	< 0.5	2.4	< 0.5	< 0.5
26-Oct-22	1.7	< 0.5	< 1.0	< 0.5	< 0.5
24-Apr-23	< 0.5	< 0.5	< 1.0	< 0.5	< 0.5

Leachate - Pesticides

Parameters 100																						1403	1 0300	Leachate
12-May-96	Gross Beta Nitrilotriacetic acid	Gross	Lindane (Hexachlorocy ane) Gamma	DDT +											Endosulphan		_							Parameters
29-Jum-06	Bq/L mg	Bq/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
29-Jun-06	1.00	< 0.1						<0.4	<0.4	<0.2	<0.2	<0.2	<0.8	<0.2	<0.8	<0.2	<0.8		<0.2	<0.2	<0.2	<0.2		12-May-06
27-Apr-07	1.70	<0.1						<0.4	<0.4	<0.2	<0.2	<0.2	<0.8	<0.2	<0.8	<0.2	<0.8		<0.2	<0.2	<0.2	<0.2		
27-Apr-07	1.00	<0.1						<0.4	<0.4	<0.2	<0.2	<0.2	<0.8	<0.2	<0.8	<0.2	<0.8		<0.2	<0.2	<0.2	<0.2		26-Oct-06
27-Apr-07 c0.2 c0.2 c0.2 c0.2 c0.2 c0.8 c0.2 c0.8 c0.2 c0.8 c0.2 c0.2 c0.2 c0.4 c0.4 c0.5 c0	1.50	0.40	į					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1		21-Dec-06
18-Mar-08	<0.1	<0.1						<0.4	<0.4	<0.2	<0.2	<0.2	<0.8	<0.2	<0.8	<0.2	<0.8		<0.2	<0.2	<0.2	<0.2		27-Apr-07
17-Apr-08	1.40	<0.1						<0.001	<0.008	<0.001	<0.001	<0.002	< 0.013	<0.001	< 0.003	<0.002	<0.003		<0.004	<0.001	<0.003	<0.003		30-May-07
22-Oct-08	0.90	<0.1						<0.001	<0.008	<0.001	<0.001	<0.002	<0.013	<0.001	<0.003	<0.002	<0.003		<0.004	<0.001	<0.003	<0.003		18-Mar-08
4-May-09	1.20	0.20						<0.001	<0.008	<0.001	<0.001	<0.002	< 0.013	<0.001	< 0.003	<0.002	<0.003		<0.004	<0.001	<0.003	< 0.003		17-Apr-08
27-Oct-09	1.70	0.20						<0.001	<0.008	<0.001	<0.001	<0.002	<0.013	<0.001	<0.003	<0.002	<0.003		<0.004	<0.001	<0.003	<0.003		22-Oct-08
16-Nov-09								<0.001	<0.008	<0.001	<0.001			<0.001	<0.003	<0.002	<0.003		<0.004	<0.005	<0.003	<0.003		4-May-09
5-May-10								<0.001	<0.008	< 0.001	<0.001	<0.002	< 0.013	<0.001	<0.003	<0.002	<0.003		<0.004	<0.005	<0.003	<0.003		27-Oct-09
28-Oct-10								<0.001	<0.008	<0.001	<0.001			<0.001		<0.002	<0.003				<0.003	<0.003		16-Nov-09
5-May-11	0.30	< 0.1				< 0.003	< 0.003		< 0.008	< 0.001	< 0.001	< 0.002		< 0.001		< 0.002	< 0.003		< 0.004	< 0.005	< 0.003		< 0.003	5-May-10
27-Oct-11	0.40	< 0.1				< 0.003	< 0.003	< 0.001	< 0.008	< 0.001	< 0.001			< 0.001	< 0.003	< 0.002	< 0.003				< 0.003	< 0.003		
17-May-12 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 <																								
25-Oct-12 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005																								
27-May-14	< 0.005																							
29-Oct-14	< 0.005																							
27-May-15	0.65																							
20-Oct-15	0.44		<u> </u>			< 0.04	< 0.01								< 0.05		< 0.05					< 0.1	< 0.1	
24-May-16	0.53		<u> </u>														 							
17-Oct-16	0.65		ļ																					
25-May-17 <0.05 <0.01 <0.05 <0.01 <0.05 <0.01 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05	0.45		ļ																					
17-Oct-17 < 0.05 < 0.01 < 0.05 < 0.01 < 0.05 < 0.01 < 0.05 < 0.01 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	0.89		<u> </u>																					
8-May-18 < 0.05 < 0.01 < 0.05 < 0.01 < 0.05 < 0.01 < 0.05 < 0.01 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	0.52		 																					
9-Oct-18 < 0.05 < 0.01 < 0.05 < 0.01 < 0.05 < 0.01 < 0.05 < 0.01 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	0.69														< 0.05									
10-Oct-18 < 0.05 < 0.01 < 0.05 < 0.01 < 0.05 < 0.01 < 0.4 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	0.45	< 0.1																						
	0.62	0.60																						
1 15-May-101 -0.001 -0.001 -0.001 -0.001 -0.001 -0.001 -0.001 -0.001 -0.001 -0.001 -0.01 -0.01 -0.001 -0.001 -0.001 -0.001 -0.001 -0.001	0.87 <	0.33	<0.1	<0.01	<0.04	< 0.05	< 0.05	<1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	<0.05	< 0.4	< 0.05	< 0.05	< 0.4	< 0.01	< 0.05	< 0.01	< 0.05	15-May-19
9-0ct-19 < 0.05 < 0.01 < 0.05 < 0.01 < 0.05 < 0.01 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	0.87																							
3-0ct 1 (0.05	0.37																							
13-0ct-20 < 0.05 < 0.01 < 0.05 < 0.01 < 0.05 < 0.01 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	0.60																							
31-May-21 < 0.05 < 0.01 < 0.05 < 0.01 < 0.05 < 0.01 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	<0.21 <																							
13-Oct-21 < 0.05 < 0.01 < 0.05 < 0.01 < 0.05 < 0.01 < 0.05 < 0.001 < 0.05 < 0.001 < 0.05 < 0.001 < 0.05 < 0.01 < 0.05 < 0.01 < 0.05 < 0.05 < 0.01 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0		.0.20																						
19-May-22 < 0.05 < 0.01 < 0.05 < 0.01 < 0.04 < 0.05 < 0.05 < 0.04 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05	0.62	0.2																						
17-Nov-22 < 0.05 < 0.01 < 0.05 < 0.01 < 0.4 < 0.05 < 0.05 < 0.0 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.01 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.05 < 0.05 < 0.04 < 0.01 < 0.1 < 0.10	3.3																							
25-May-23 < 0.05 < 0.01 < 0.05 < 0.01 < 0.4 < 0.05 < 0.05 < 0.4 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.1 < 0.1 < 0.1 < 0.1 < 1 < 0.05 < 0.05 < 0.04 < 0.01 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1	0.46																							
18-0ct-23 < 0.05 < 0.01 < 0.05 < 0.01 < 0.4 < 0.05 < 0.05 < 0.4 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.05 < 0.1 < 0.1 < 0.1 < 0.1 < 1 < 0.05 < 0.05 < 0.04 < 0.01 < 0.1 < 0.1 < 0.10	1.23																							



APPENDIX C Surface Water Quality Summary Tables

General Water Quan	,		CP1	CP1	CP1	CP1	CP1	CP1	CP1	CP1	CP1	CP1	CP1	CP1	CP1	CP1	CP1	CP1 (Dup)
Parameter	UNITS	PWQO	17-Oct-17	6-Nov-17	7-Dec-17	28-Jun-18	10-Oct-18	24-Apr-19	17-Jul-19	24-Jun-20	22-Oct-20	15-Jun-21	15-Oct-21	21-Jun-22	17-Oct-22	8-Jun-23	16-Aug-23	16-Aug-23
pH -Lab	pH units	6.5-8.5	8.18	8.36	8.23	8.04	8.07	8.12	8	9	8.1	7.49	8.06	8.27	8.03	8.36	8.4	8.4
Conductivity	uS/cm	-	983	726	768	1420	547	1260	1140	1510	1070	1330	911	1460	1490	1320	931	927
BOD	mg/L	-	<3	<3	<3	< 3	5	< 3	< 3	< 3	< 3	3	4	< 3	8	< 3	4	5
COD	mg/L	-	22	<5	29	20	56	33	62	49	48	73	81	79	116	67	89	87
Total Dissolved Solids	mg/L	-	560	374	407	758	294	647	549	765	605	750	513	732	861	649	488	509
Total Suspended Solids	mg/L	-	14	4	42	4	< 3	10	8	16	13	12	8	5	78	128	9	10
Alkalinity	mg/L	-	126	215	245	66	143	163	130	37	162	78	177	102	218	93	162	160
Hardness	mg/L	-	430	318	327	196	162	260	188	145	261	179	196	158	365	140	127	143
Ammonia	mg/L	-	0.03	< 0.01	0.03	0.04	0.06	0.05	0.07	0.05	0.28	0.15	0.14	0.06	0.1	0.08	0.33	2.08
Un-ionized Ammonia	mg/L	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02	0.02	0.04	< 0.01	< 0.01	< 0.01	0.04	0.12	0.78
Calcium	mg/L	-	147	106	112	59.5	50.7	91.3	55.1	41.1	87.6	53.7	64.9	46.6	128	38.3	39.4	44.4
Chloride	mg/L	-	80.5	35.3	55.2	363	69.9	268	221	410	175	348	150	324	226	271	173	173
DOC	mg/L	-	5.5	8	13.1	5.3	20.5	17.4	11.6	4.1	8.8	6.7	15.5	9.5	7	5.3	30.2	33.8
Fluoride	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1	<0.1	<0.1
Iron	mg/L	0.3	0.258	0.16	0.475	0.059	0.31	0.215	0.15	0.121	0.622	0.534	0.29	0.111	3.05	1.25	0.244	0.233
Magnesium	mg/L	-	15.2	8.26	9.51	11.4	8.61	7.71	8.91	11.8	10.1	10.8	8.2	9.31	13.7	10.7	6.99	7.74
Manganese	mg/L	-	0.045	0.017	0.044	0.028	0.034	0.103	0.122	0.072	0.282	0.279	0.496	0.031	1.06	0.092	0.15	0.181
Nitrate	mg/L	-	1.95	1.96	1.18	< 0.05	< 0.05	0.12	< 0.05	0.06	0.07	0.1	< 0.05	< 0.05	0.27	< 0.5	< 0.05	0.06
Nitrite	mg/L	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.12	< 0.05	< 0.05	< 0.5	< 0.05	< 0.05
TKN	mg/L	-	0.5	0.6	0.7	0.8	1.3	0.8	1.8	1.3	2	2.5	2.4	2.5	5.3	2.3	2.5	5.3
Sodium	mg/L	-	41.9	24.8	37.1	214	39.1	134	142	207	97	167	82.5	201	124	146	85.4	94.1
Sulphate	mg/L	-	196	66	43	60	4	28	19	37	93	57	43	33	165	54	24	24
Phenols	mg/L	0.001	0.003	0.002	< 0.001	< 0.001	< 0.002	< 0.002	< 0.002	< 0.001	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	0.002	0.002
Phosphorus	mg/L	0.03	0.03	0.03	0.06	0.01	0.05	0.05	0.04	0.04	0.06	0.15	0.08	0.06	0.4	0.04	0.09	0.11
Potassium	mg/L	-	4.1	3.4	3.2	9.8	35.5	10.5	24.7	35.2	42	39.4	56.9	56.4	68.7	71.5	62.2	68.7
Aluminum	mg/L	0.075	0.19	0.19	0.4	0.06	0.03	0.05	0.03	0.03	0.03	0.04	0.01	0.04	0.04	0.02	0.14	0.13
Antimony	mg/L	-	0.0003	< 0.0001	0.0002	0.0004	< 0.0001	0.0003	0.0003	0.0002	0.0002	0.0003	0.0004	0.0006	0.0009	0.0004	0.0005	0.0006
Arsenic	mg/L	0.1	0.0006	0.0002	0.0007	0.0007	0.0008	0.0006	0.0013	0.0013	0.0011	0.0015	0.0013	0.001	0.0021	0.0011	0.0014	0.0014
Barium	mg/L	-	0.085	0.047	0.055	0.039	0.059	0.059	0.054	0.048	0.094	0.061	0.075	0.045	0.147	0.057	0.045	0.051
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	<0.0001
Boron	mg/L	0.2	0.303	0.106	0.068	0.179	0.08	0.048	0.117	0.171	0.118	0.099	0.118	0.099	0.107	0.087	0.094	0.101
Cadmium	mg/L	0.0002	0.000045	< 0.000014	0.000033	< 0.000015	0.000028	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	0.000036	0.000015	<0.000015	<0.000015
Chromium	mg/L	0.1	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.001	< 0.001	0.002	0.001	< 0.001	<0.001	<0.001
Cobalt	mg/L	0.0006	< 0.0001	< 0.0001	0.0002	0.0003	0.0001	0.0002	0.0002	0.0002	0.0005	0.0003	0.0003	0.0003	0.0013	0.0006	0.0004	0.0004
Copper	mg/L	0.005	0.006	0.0148	0.0016	0.0028	0.0055	0.0011	0.0019	0.0008	0.0014	0.0008	0.0014	0.0014	0.0025	0.0022	0.0018	0.0019
Lead	mg/L	0.025	0.00048	0.00031	0.00057	0.00003	0.00024	0.00018	0.00014	0.0004	0.00031	0.00015	0.00009	0.00004	0.00192	0.0008	0.00023	0.0002
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	<0.00002
Molybdenum	mg/L	0.04	0.0032	0.0001	0.0009	0.0036	0.0003	0.0008	0.0013	0.0012	0.0023	0.0012	0.0012	0.0012	0.0092	0.0015	0.001	0.001
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0025	0.0026
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.002	< 0.001	<0.001	<0.001
Silver	mg/L	0.0001	< 0.00002	< 0.00002	0.00009	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001
Strontium	mg/L	-	1.06	0.537	0.525	0.736	0.221	0.615	0.604	0.544	0.677	0.525	0.497	0.391	0.697	0.333	0.237	0.264
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.0001	< 0.00005	<0.00005	<0.00005
Vanadium	mg/L	-	0.0004	< 0.0001	0.0006	0.0003	0.0001	0.0003	0.0003	0.0006	0.001	0.0007	0.0003	0.0003	0.0043	0.0014	0.0008	0.0008
Zinc	mg/L	0.03	0.044	< 0.005	0.022	0.016	0.008	0.023	0.008	0.013	0.008	0.022	< 0.005	0.007	0.019	0.007	<0.005	<0.005
Cyanide	mg/L	0.005								< 0.005	< 0.005	< 0.005	< 0.005			< 0.005	<0.005	<0.005
Turbidity	NTU	-								< 0.5	0.9	8.2	6.4			7.6	9.5	10.7
Tannins & Lignins	ma/L	_										0.7	1.1		1	0.9	1.2	1.1

PWQO - Provincial Water Quality Objectives

Contrat Water Quar	,		CP1	CP2	CP2	CP2	CP2	CP2	CP2	CP2	CP2	CP2	CP2	CP2	CP2	CP2	CP2	Emb A
Parameter	UNITS	PWQO	5-Oct-23	22-Jun-17	17-Oct-17	6-Nov-17	7-Dec-17	28-Jun-18	24-Apr-19	17-Jul-19	2-Oct-19	22-Oct-20	15-Oct-21	21-Jun-22	8-Jun-23	16-Aug-23	5-Oct-23	21-Apr-14
pH -Lab	pH units	6.5-8.5	7.92	7.93	8.33	8.37	8.27	8	8.15	8.07	7.89	8.23	8.16	8.21		8.18	8.22	8.07
Conductivity	uS/cm	-	1100	537	837	730	704	698	427	2170		1610	1030	838		916	1140	488
BOD	mg/L	-	6	<3	<3	<3	<3	8	< 3	< 3		< 3	< 3	< 3		<3	<3	< 3
COD	mg/L	-	108	51	14	<5	21	38	25	57		17	34	18		26	29	17
Total Dissolved Solids	mg/L	-	624	272	449	375	366	372	219	1154		910	590	469		507	686	261
Total Suspended Solids	mg/L	-	22	3	13	21	4	12	7	13		40	161	40		<3	25	104
Alkalinity	mg/L	-	194	189	321	231	300	144	159	310		340	365	321		367	383	158
Hardness	mg/L	-	194	180	361	314	338	243	183	798		490	451	388		376	487	197
Ammonia	mg/L	-	0.19	0.59	0.03	< 0.01	0.02	0.07	0.05	0.11	0.11	0.03	0.05	0.05		1.27	0.19	0.38
Un-ionized Ammonia	mg/L	0.02	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01		0.07	<0.01	0.02
Calcium	mg/L	-	60.3	59	129	115	112	76.7	66.8	257		174	161	137		135	173	69.7
Chloride	mg/L	-	216	39.6	45.3	30.6	25.6	136	23.9	400		306	123	75.4		76	159	43.8
DOC	mg/L	-	5.7	15.9	5.9	7.8	6.3	15.8	6.6	7.5		4.2	6.5	7.5		9.4	6.3	6.7
Fluoride	mg/L	-	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1		< 0.1	< 0.1	< 0.1		<0.1	<0.1	0.1
Iron	mg/L	0.3	0.494	0.891	0.226	0.134	0.053	0.696	0.115	0.179		0.088	0.947	0.103		0.157	0.132	0.061
Magnesium	mg/L	-	10.5	7.85	9.28	8.2	7.59	12.4	3.95	19.7		13.3	11.7	9.02		9.38	13.4	5.65
Manganese	mg/L	-	0.408	0.163	0.054	0.023	0.015	1.18	0.024	0.243		0.053	0.301	0.034		0.16	0.186	0.013
Nitrate	mg/L	-	0.06	< 0.05	1.76	2.38	1.91	0.07	0.56	< 0.05		< 0.05	< 0.05	2.96		0.25	< 0.05	1.6
Nitrite	mg/L	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05	0.07	< 0.05		<0.05	< 0.05	< 0.1
TKN	mg/L	-	4.4	1.7	0.5	0.6	0.4	1.6	0.8	1.2		0.9	0.9	0.9		1.8	0.7	0.3
Sodium	mg/L	-	105	20.9	37.2	23.6	20.9	56.7	13.3	149		144	56.5	37.6		43.1	72.3	24.7
Sulphate	mg/L	-	28	3	34	56	19	< 1	10	128		53	16	15		19	33	12
Phenols	mg/L	0.001	<0.001	0.036	0.002	0.002	< 0.001	< 0.001	< 0.002	< 0.002		< 0.002	< 0.002	< 0.001		0.002	<0.001	< 0.001
Phosphorus	mg/L	0.03	0.21	0.12	0.03	0.03	0.01	0.08	0.05	0.05		0.02	0.1	0.03	D	0.02	0.02	0.01
Potassium	mg/L	-	86.3	27	1.9	2.8	1.3	0.7	2.3	13.2		12.6	2.2	2.2	Dry	2.7	4.7	2.6
Aluminum	mg/L	0.075	0.04	0.06	0.19	0.13	0.09	0.1	0.04	0.11		0.06	0.05	0.07		0.1	0.08	0.1
Antimony	mg/L	-	0.0006	0.0002	< 0.0001	0.0001	< 0.0001	0.0002	0.0002	0.0004		0.0002	0.0003	0.0004		0.0005	0.0004	< 0.0001
Arsenic	mg/L	0.1	0.0016	0.0023	0.0004	0.0004	0.0004	0.0029	0.0002	0.0008		0.0004	0.0005	0.0004		0.0004	0.0003	0.0002
Barium	mg/L	-	0.075	0.083	0.064	0.047	0.037	0.101	0.026	0.132		0.082	0.08	0.052		0.058	0.077	0.03
Beryillium	mg/L	1.1	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002		< 0.002	< 0.002	< 0.002		<0.0001	<0.0001	< 0.002
Boron	mg/L	0.2	0.129	0.058	0.019	0.068	0.011	0.018	0.008	0.092		0.041	0.024	0.02		0.025	0.023	0.011
Cadmium	mg/L	0.0002	<0.000015	< 0.000014	0.000067	< 0.000014	< 0.000014	< 0.000015	< 0.000015	< 0.000015		< 0.000015	0.000023	< 0.000015		<0.000015	<0.000015	< 0.00002
Chromium	mg/L	0.1	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001		0.001	0.001	0.001		<0.001	<0.001	< 0.0002
Cobalt	mg/L	0.0006	0.0005	0.0003	< 0.0001	< 0.0001	< 0.0001	0.0005	< 0.0001	0.0003		0.0002	0.0006	0.0002		0.0005	0.0005	< 0.005
Copper	mg/L	0.005	0.0004	0.0003	0.0052	0.0009	0.0005	0.0011	0.0006	0.002		0.0019	0.001	0.0028		0.0012	0.0007	0.0005
Lead	mg/L	0.025	0.00013	0.00017	0.00057	0.00013	0.00004	0.00025	0.00007	0.00012		0.00007	0.00061	0.00007		0.00008	0.00014	0.00024
Mercury	mg/L	-	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002		< 0.00002	< 0.00002	< 0.00002		<0.00002	<0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0013	0.0004	0.0002	0.001	0.0002	0.0003	0.0002	0.0019		0.0007	0.0002	0.0002		0.0002	0.0002	0.0003
Nickel	mg/L	0.025	0.0028	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01		0.0007	0.001	< 0.01
Selenium	mg/L	-	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001		< 0.001	< 0.001	< 0.001		<0.001	<0.001	< 0.001
Silver	mg/L	0.0001	<0.0001	< 0.00002	0.00003	< 0.00002	0.00007	< 0.0001	< 0.0001	< 0.0001		< 0.0001	< 0.0001	< 0.0001		<0.0001	<0.0001	< 0.00002
Strontium	mg/L	-	0.37	0.243	0.315	0.444	0.29	0.365	0.166	0.998		0.569	0.445	0.376		0.38	0.457	
Thallium	mg/L	-	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005		< 0.00005	< 0.00005	< 0.00005		<0.00005	<0.00005	< 0.00005
Vanadium	mg/L	-	0.0007	0.0003	0.0005	0.0002	0.0002	0.0006	0.0002	0.0008		0.0004	0.0012	0.0005		0.0006	0.0003	0.0006
Zinc	mg/L	0.03	<0.005	< 0.005	0.043	0.0002	0.013	0.012	0.0002	0.000		< 0.005	0.009	0.0003		0.005	0.005	< 0.005
Cyanide	mg/L	0.005	<0.005	- 0.000	0.340	0.01	0.010	0.012	0.010	< 0.005	< 0.005	- 0.000	0.000	0.017		<0.005	<0.005	- 0.000
Turbidity	NTU	0.000	20.1							0.003	91.6					4.4	29	<u> </u>
Tannins & Lignins	mg/L		1.2							0.0	0.5					<0.5	<0.5	
rammo & Ligilino	my/L	-	1.2								0.5	1				\0. 0	~ ∪.5	1

PWQO - Provincial Water Quality Objectives

General Water Quar	l		Emb A	Emb A	Emb A	Emb A	Emb A											
Parameter	UNITS	PWQO	17-Jun-14	13-Aug-14	14-Oct-14	28-Apr-15	17-Jun-15	18-Aug-15	17-Nov-15	28-Apr-16	14-Jun-16	9-Aug-16	12-Oct-16	24-Apr-17	22-Jun-17	24-Aug-17	17-Oct-17	9-May-18
pH -Lab	pH units	6.5-8.5	8.17	7.99	8.22	8.24	8.51	8.22	8.26	8.4	9.09	8.56	8.18	8.25	8.2	8.1	8.04	8.15
Conductivity	uS/cm	-	1290	305	517	439	1120	715	475	468	668	465	1170	788	883	886	728	557
BOD	mg/L	-	< 3	< 3	< 3	< 2	< 2	< 3	< 2	< 2	3	< 3	< 3	<3	<3	<3	<3	< 3
COD	mg/L	-	25	25	19	8	23	25	15	22	40	27	24	21	30	36	29	32
Total Dissolved Solids	mg/L	-	689	173	270	238	609	357	255	247	354	235	637	459	429	444	382	314
Total Suspended Solids	mg/L	-	3	5	4	4	26	< 3	11	3	17	4	3	4	3	11	6	4
Alkalinity	mg/L	-	190	111	153	173	197	125	169	172	90	92	185	165	204	178	164	169
Hardness	mg/L	-	273	130	175	205	293	156	216	202	150	121	251	243	235	236	220	215
Ammonia	mg/L	-	0.07	0.16	0.04	0.02	0.06	0.04	0.04	0.06	0.03	0.02	0.34	0.31	1.47	0.81	3.44	0.26
Un-ionized Ammonia	mg/L	0.02	< 0.01	0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	0.01	0.02	0.08	0.08	1.05	0.03
Calcium	mg/L	-	87.2	38.5	55.1	69.5	99.8	44.2	70.8	66.3	41.2	30.7	73	92.1	78.7	76.7	67.8	67.8
Chloride	mg/L	-	223	30.8	61	26.4	198	119	31	33.5	125	71.8	178	60	108	116	92.7	71.6
DOC	mg/L	-	3.9	8.6	7.6	6.5	1.9	3.2	9.2	8.4	7.2	7.4	4.5	6.9	7.6	7.8	6.8	9
Fluoride	mg/L	-	0.2	0.2	0.1	0.2	< 0.1	0.2	0.1	< 0.1	0.1	0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Iron	mg/L	0.3	0.199	0.069	0.046	0.068	< 0.005	0.017	0.057	0.052	0.094	0.016	0.042	0.043	0.065	0.118	0.077	0.08
Magnesium	mg/L	-	13.4	8.3	8.98	7.58	10.5	11	9.38	8.86	11.5	10.7	16.6	10.6	9.46	12.7	12.3	9.15
Manganese	mg/L	-	0.037	0.047	0.02	0.017	0.014	0.007	0.01	0.028	0.019	0.011	0.018	0.033	0.043	0.057	0.055	0.041
Nitrate	mg/L	-	0.7	0.1	1.4	0.6	5.8	0.9	1.3	0.7	0.3	< 0.1	5.2	1.6	0.53	0.22	0.18	0.4
Nitrite	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.3	0.1	0.09	0.11	< 0.05	< 0.05
TKN	mg/L	-	0.3	0.75	0.8	0.6	0.9	0.9	0.7	0.7	0.9	1.1	1.5	1.2	2.3	1.9	4.1	1
Sodium	mg/L	-	150	17.8	19.4	14.5	109	65.2	17.4	19	75.1	42.7	131	98.5	72.9	85.3	67.3	32.5
Sulphate	mg/L	-	87	8	24	11	41	35	17	11	40	22	100	25	31	39	32	14
Phenols	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	< 0.001	0.003	0.004	0.006	0.003	< 0.001
Phosphorus	mg/L	0.03	0.02	0.04	0.02	0.04	0.02	0.02	0.03	0.05	0.03	0.03	0.03	0.03	0.03	0.08	0.06	0.04
Potassium	mg/L	-	11.4	1.4	2.6	2.1	5.9	3.1	2.4	1.9	5	1.9	14.7	5.1	3.9	6.2	7.4	2.6
Aluminum	mg/L	0.075	0.23	0.04	0.04	0.06	0.19	0.08	0.06	0.03	0.13	0.02	0.27	0.29	0.16	0.54	0.17	0.07
Antimony	mg/L	-	0.0003	0.0003	0.0001	< 0.0001	0.0003	0.0004	< 0.0001	< 0.0001	0.0001	0.0002	0.0003	0.0001	0.0003	0.0004	0.0001	< 0.0001
Arsenic	mg/L	0.1	0.0004	0.0004	0.0004	0.0002	0.0004	0.0006	0.0003	0.0003	0.0003	0.0004	0.0005	0.0008	0.0007	0.0006	0.0006	< 0.0001
Barium	mg/L	-	0.056	0.027	0.032	0.031	0.033	0.038	0.039	0.023	0.011	0.029	0.038	0.042	0.034	0.077	0.057	0.046
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.105	0.016	0.016	0.008	0.067	0.041	0.011	< 0.005	0.058	0.037	0.151	0.054	0.052	0.09	0.073	0.016
Cadmium	mg/L	0.0002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00005	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	0.000016	0.000085	0.000057	< 0.000015
Chromium	mg/L	0.1	0.0003	0.0009	0.0003	< 0.0002	0.0004	0.0003	< 0.0002	0.0009	0.0005	0.0004	0.0004	< 0.0015	< 0.001	< 0.001	0.001	< 0.001
Cobalt	mg/L	0.0006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0001	< 0.0001	0.0001	0.0003	< 0.0001	< 0.0001
Copper	mg/L	0.005	0.0019	0.0005	0.0003	0.0005	0.0028	0.0037	0.0006	0.0007	0.0006	0.0005	0.0017	0.0015	0.0012	0.0053	0.0072	< 0.0001
Lead	mg/L	0.025	0.00027	0.00025	0.00012	0.00009	0.00035	0.00085	0.00014	0.00014	0.00044	0.00004	0.00052	0.00029	0.00021	0.00092	0.00062	< 0.00002
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0017	0.0003	0.0003	0.0003	0.0007	0.0007	0.0003	0.0003	0.0003	0.0003	0.001	0.0007	0.0017	0.0042	0.0011	< 0.0001
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	0.00011	< 0.00002	0.00011	0.00031	< 0.00002	< 0.00002	< 0.00002	< 0.0001
Strontium	mg/L	-	0.312	0.159	0.183	0.195	0.331	0.207	0.227	0.208	0.201	0.151	0.262	0.28	0.265	0.282	0.213	0.21
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	0.0011	0.0016	0.0005	0.0003	0.0004	0.0007	0.0005	0.0004	0.0005	0.0005	0.0003	0.0004	0.0005	0.0002	0.0003	< 0.0001
Zinc	mg/L	0.03	0.011	< 0.005	0.007	< 0.005	0.011	0.007	< 0.005	< 0.005	0.009	< 0.005	0.031	0.451	< 0.005	0.049	0.041	0.024
Cyanide	mg/L	0.005																
Turbidity	NTU	-																
Tannins & Lignins	mg/L	-																
DWOO Brovingial Water Ou		•		•			•			•	•	•		•	•		•	

PWQO - Provincial Water Quality Objectives

Parameter oH -Lab	UNITS	DWOO	Emb A	Emb A	Emb A	Emb A	Emb A		Emb A	Emb A	Emb A	Emb A	Emb A	Emb A	Emb A	Emb A	Emb A	Emb A
		PWQO	26-Jun-18	28-Aug-18	10-Oct-18	25-Apr-19	18-Jul-19	Emb A 12-Aug-19	8-Oct-19	27-Apr-20	24-Jun-20	10-Aug-20	22-Oct-20	26-Apr-21	15-Jun-21	10-Aug-21	12-Oct-21	26-Apr-22
	pH units	6.5-8.5	8.07	8.1	7.95	8.04	7.96	8.19	7.98	8	7.99	8.05	8.2	8.23	8.02	8.13	7.99	7.99
Conductivity	uS/cm	-	1370	423	1200	895	1020	1110	867	1270	1060	1170	758	996	1520	1360	829	1480
BOD	mg/L	-	< 3	2	4	< 3	< 3	< 3	< 3	4	< 3	< 3	< 3	< 3	5	4	< 3	5
COD	mg/L	-	34	46	32	28	31	30	21	32	31	23	17	27	68	42	37	26
Total Dissolved Solids	mg/L	-	732	227	658	457	500	608	475	677	564	626	383	526	821	738	470	761
Total Suspended Solids	mg/L	-	9	9	4	14	7	5	3	28	4	7	7	3	4	12	10	4
Alkalinity	mg/L	-	257	110	195	206	162	168	162	230	153	158	180	221	302	267	193	253
Hardness	mg/L	-	270	143	293	266	226	221	195	327	211	239	254	282	345	294	211	322
Ammonia	mg/L	-	15.9	0.14	0.89	0.16	1.12	0.59	0.54	0.22	0.57	0.28	0.27	1.84	22.1	11	3.24	9.87
Jn-ionized Ammonia	mg/L	0.02	0.53	< 0.01	0.04	< 0.01	0.11	0.09	0.01	< 0.01	0.03	< 0.01	< 0.01	0.12	1.24	0.11	0.02	0.06
Calcium	mg/L	-	75	47.3	92.7	88.7	64.6	68.2	57.2	98.1	70.2	72.1	70.4	89.5	87.3	80.2	65.2	107
Chloride	mg/L	-	239	54.5	188	134	161	227	145	252	204	226	107	163	260	250	139	255
OOC	mg/L	-	6.3	9.9	5.6	6.8	7.3	7	7	3.5	5	4.2	5.9	4.8	6.8	4.8	4.3	< 0.2
Fluoride	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 1
ron	mg/L	0.3	0.057	0.049	0.071	0.068	0.055	0.04	0.006	0.08	0.124	0.083	0.055	0.073	0.161	0.146	0.013	0.047
Magnesium	mg/L	-	12.5	10.6	14.9	8.06	10.4	12.3	12.7	11.4	13.3	14.2	12	11.3	15.8	14.7	11.8	13.2
Manganese	mg/L	-	0.058	0.045	0.056	0.026	0.107	0.048	< 0.001	0.028	0.075	0.062	0.025	0.024	0.114	0.082	< 0.001	0.032
Nitrate	mg/L	-	0.25	< 0.05	3.54	4.9	0.2	0.24	1.19	7	0.12	0.25	0.86	0.83	1.85	< 0.05	< 0.05	3.53
Vitrite	mg/L	-	0.1	< 0.05	0.22	< 0.05	< 0.05	< 0.05	1.07	< 0.05	< 0.05	< 0.05	< 0.05	0.13	< 0.5	< 0.05	0.15	< 0.5
TKN	mg/L	-	19.5	1.1	2	1.2	2.3	1.7	1.3	1.5	2	1.3	1.1	3	25.5	13.4	4.5	10.3
Sodium	mg/L	-	151	33.1	134	69.4	113	128	97.5	127	118	129	50.6	85.4	157	140	81.4	169
Sulphate	mg/L	-	68	13	92	29	43	57	44	42	56	77	29	34	75	63	43	42
Phenols	mg/L	0.001	< 0.001	< 0.002	0.003	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0.008	< 0.002	< 0.002	< 0.002	0.002	< 0.002	< 0.001	< 0.001
Phosphorus	mg/L	0.03	0.05	0.04	0.04	0.04	0.04	0.02	0.03	0.07	0.06	0.03	0.02	0.07	0.11	0.08	0.07	0.06
Potassium	mg/L		11.9	2.3	11.3	4.2	9.4	12.5	11.8	9	9.8	13.6	5.2	7.1	15.8	14.7	9.6	10.1
Aluminum	mg/L	0.075	0.25	0.05	0.18	0.1	0.07	0.14	0.06	0.28	0.08	0.16	0.05	0.18	0.23	0.15	0.03	0.1
Antimony	mg/L	-	0.0002	0.0001	0.0003	0.0004	0.0005	0.0005	0.0002	0.0002	0.0004	0.0004	0.0003	0.0004	0.0005	0.0006	0.0003	0.0004
Arsenic	mg/L	0.1	0.0004	0.0004	0.0003	0.0002	0.0003	0.0003	0.0003	0.0002	0.0003	0.0003	0.0003	0.0003	0.0004	0.0003	0.0003	0.0002
Barium	mg/L	-	0.06	0.047	0.062	0.045	0.066	0.055	0.032	0.044	0.058	0.069	0.044	0.043	0.109	0.079	0.044	0.056
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002		< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.127	0.034	0.127	0.029	0.102	0.128	0.098	0.078	0.184	0.199	0.049	0.055	0.165	0.112	0.072	0.107
Cadmium	mg/L	0.0002	< 0.000015	< 0.000015	0.000034	< 0.000015	< 0.000015	< 0.000015	< 0.000015	0.000021	< 0.000015	0.000024	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.1	< 0.001	0.001	0.001	< 0.001	< 0.001	< 0.001		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	0.0006	0.0003	0.0001	0.0002	0.0001	0.0001	0.0002	< 0.0001	0.0003	0.0001	0.0001	< 0.0001	0.0001	0.0001	0.0003	0.0002	0.0002
Copper	mg/L	0.005	0.0015	0.0002	0.0054	0.0012	0.0009	0.0007	0.0011	0.0049	0.0005	0.0007	0.0006	0.0007	0.0011	0.0008	0.0004	0.0017
_ead	mg/L	0.025	0.00014	0.00011	0.00067	0.00016	0.00037	0.00066	0.00036	0.00081	0.00039	0.00076	0.00024	0.00022	0.00015	0.00014	0.0002	0.00026
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0015	0.0006	0.0013	0.0006	0.0019	0.0033	0.0008	0.0015	0.0017	0.0128	0.0007	0.003	0.0011	0.0003	0.0003	0.0032
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	0.273	0.205	0.309	0.24	0.237	0.25	0.243	0.282	0.263	0.281	0.226	0.275	0.318	0.314	0.219	0.373
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
/anadium	mg/L	-	0.0003	0.0004	0.0007	0.0005	0.0004	0.0005	0.0002	0.0005	0.0004	0.0003	0.0003	0.0004	0.0002	0.0003	0.0004	0.0003
Zinc	mg/L	0.03	0.013	0.026	0.039	0.014	0.014	0.022	0.02	0.025	0.024	0.034	0.012	0.015	0.018	0.013	< 0.005	0.013
Cyanide	mg/L	0.005					< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005				
Turbidity	NTU	-											2.9	3.9				
Tannins & Lignins	mg/L	-									2.5	3.8						

PWQO - Provincial Water Quality Objectives

General Water Quan	• • •		Emb A Emb A	Emb A	Emb B													
Parameter	UNITS	PWQO	21-Jun-22	24-Aug-22	17-Oct-22	24-Apr-23	8-Jun-23	16-Aug-23	5-Oct-23	21-Apr-14	17-Jun-14	13-Aug-14	14-Oct-14	28-Apr-15	17-Jun-15	18-Aug-15	17-Nov-15	28-Apr-16
pH -Lab	pH units	6.5-8.5	8.11	7.99	7.92	8.18	8.16	8	8.13	8.09	8.32	8	8.16	7.99	8.11	8.25	8.24	8.37
Conductivity	uS/cm	-	1420	1050	905	524	1440	1360	1300	365	466	289	401	513	488	427	472	472
BOD	mg/L	-	< 3	< 3	4	< 3	< 3	<3	<3	< 3	< 3	< 3	< 3	7	< 2	3	< 2	< 2
COD	mg/L	-	35	29	24	22	< 5	28	31	17	25	20	18	97	35	31	14	21
Total Dissolved Solids	mg/L	-	725	545	447	268	681	750	747	198	245	163	210	277	267	216	261	249
Total Suspended Solids	mg/L	-	3	5	3	5	< 3	4	20	8	4	7	< 3	98	6	3	10	3
Alkalinity	mg/L	-	277	191	177	194	149	212	210	150	139	103	143	190	199	141	170	174
Hardness	mg/L	-	337	195	233	223	242	261	280	180	181	127	177	222	245	167	227	207
Ammonia	mg/L	-	7.02	9.69	0.9	0.11	0.12	1.06	0.45	0.04	0.04	0.04	0.03	0.14	0.05	0.02	0.03	0.1
Un-ionized Ammonia	mg/L	0.02	0.27	0.12	0.04	< 0.01	0.02	0.05	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Calcium	mg/L	-	103	59.3	66	65.1	60.3	84.2	86.3	63.7	57	37.1	55.6	76.5	85	50.7	74.4	67.9
Chloride	mg/L	-	245	188	143	42.9	289	275	273	14.3	52.8	28.9	30.4	40.2	19.7	40.9	31.1	32.1
DOC	mg/L	-	4.4	3.3	2.7	8.9	1.1	3.1	1.3	7.3	8	8.9	9.3	6.2	10.9	8.1	9.2	8.2
Fluoride	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 1	<0.7	<0.7	0.1	0.2	< 0.1	0.2	0.2	0.1	0.1	0.1	< 0.1
Iron	mg/L	0.3	0.057	0.04	0.154	0.061	0.017	0.017	0.05	0.06	0.116	0.068	0.102	0.229	0.09	0.054	0.07	0.056
Magnesium	mg/L	-	12.5	11.5	12.8	7.71	13	12.3	15.6	5.05	9.33	8.32	9.25	7.59	7.83	9.85	9.87	9.03
Manganese	mg/L	-	0.056	0.063	0.02	0.028	0.006	0.022	0.017	0.007	0.027	0.042	0.02	0.117	0.019	0.022	0.011	0.03
Nitrate	mg/L	-	0.29	0.1	6.61	1.25	6.42	6.48	7.64	1.2	< 0.1	< 0.1	< 0.1	0.4	2	< 0.1	1.3	0.7
Nitrite	mg/L	-	< 0.05	< 0.05	0.41	< 0.05	0.68	<0.40	<0.40	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1
TKN	mg/L	-	10.5	16.9	1.7	0.8	1.3	2	1	0.6	0.5	0.74	0.9	2.5	0.9	0.9	0.7	0.7
Sodium	mg/L	-	132	105	77.6	19	159	146	137	9.1	29.2	17.2	16.6	20.5	13.3	21.6	18.3	18.5
Sulphate	mg/L	-	49	33	31	15	58	60	57	9	12	8	9	13	10	8	17	12
Phenols	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	<0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.005	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	0.03	0.05	0.04	0.03	0.03	0.04	0.04	0.04	0.03	0.04	0.04	0.03	0.27	0.03	0.03	0.03	0.05
Potassium	mg/L	-	7.7	8.6	8	1.9	12.3	14.6	18	2	1.5	1.4	2.5	3.5	1.8	0.4	2.6	1.9
Aluminum	mg/L	0.075	0.17	0.06	0.08	0.02	0.43	0.22	0.51	0.07	0.04	0.03	0.02	0.12	0.06	0.04	0.07	0.03
Antimony	mg/L	-	0.0005	0.0004	0.0004	0.0003	0.0005	0.0003	0.0008	< 0.0001	0.0002	0.0003	< 0.0001	0.0005	< 0.0001	0.0004	0.0001	< 0.0001
Arsenic	mg/L	0.1	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	0.0005	0.0004	0.0003	0.0007	0.0004	0.0006	0.0003	0.0003
Barium	mg/L	-	0.047	0.045	0.043	0.031	0.003	0.065	0.054	0.027	0.032	0.026	0.041	0.042	0.04	0.032	0.042	0.024
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.086	0.106	0.076	0.01	0.164	0.192	0.196	0.006	0.02	0.017	0.013	0.055	0.012	< 0.006	0.011	< 0.005
Cadmium	mg/L	0.0002	< 0.000015	< 0.000015	< 0.000015	< 0.000015	0.00003	<0.000015	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00037	< 0.00002	0.00004	0.00008	< 0.00002
Chromium	mg/L	0.1	0.001	< 0.001	< 0.001	0.002	< 0.001	<0.001	<0.001	< 0.0002	0.0004	0.0009	< 0.0002	0.0014	0.0002	0.0004	0.0004	< 0.0002
Cobalt	mg/L	0.0006	0.0002	0.0001	0.0001	0.0001	0.0002	0.0003	0.0004	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.005	0.0005	0.0006	0.0015	0.0005	0.0044	0.0029	0.0058	0.0002	0.0008	0.0005	0.0003	0.0091	0.0002	0.0041	0.0032	0.0006
Lead	mg/L	0.025	0.00015	0.00016	0.00023	0.00011	0.0006	0.00025	0.00043	0.00009	0.00021	0.00026	0.00009	0.00157	0.00017	0.00069	0.00057	0.00014
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0013	0.0011	0.0014	0.0003	0.003	0.0044	0.0049	0.0003	0.0005	0.0003	0.0001	0.0011	0.0003	0.0002	0.0003	0.0003
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0016	0.0021	< 0.01	< 0.01	< 0.01	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	0.00003
Strontium	mg/L	-	0.326	0.237	0.245	0.193	0.263	0.302	0.304		0.213	0.16	0.192	0.214	0.255	0.206	0.24	0.206
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00036	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	0.0003	0.0002	0.0004	0.0005	0.0004	0.0005	0.0007	0.0007	0.0008	0.0013	0.0003	0.0011	0.0007	0.0006	0.0005	0.0004
Zinc	mg/L	0.03	0.009	< 0.005	0.01	< 0.005	0.028	0.017	0.012	< 0.005	0.007	0.005	0.006	0.029	< 0.005	0.017	< 0.005	< 0.005
Cyanide	mg/L	0.005				< 0.005	< 0.005	<0.005	<0.005									
Turbidity	NTU	-				2.4	1.5	2.1	8.4									
Tannins & Lignins	mg/L	-																

PWQO - Provincial Water Quality Objectives
Bold & highlighting indicates PWQO exceedance

Parameter pH -Lab	UNITS	PWQO							Emb B	Emb B		Emb B		Emb B				
·			14-Jun-16	9-Aug-16	12-Oct-16	24-Apr-17	22-Jun-17	24-Aug-17	17-Oct-17	9-May-18	26-Jun-18	28-Aug-18	10-Oct-18	25-Apr-19	18-Jul-19	12-Aug-19	8-Oct-19	27-Apr-20
Demoderations.	pH units	6.5-8.5	8.19	8.14	8.19	8.28	8.08	8.13	7.92	8.08	8.09	8.02	8.02	8.2	8.17	7.91	7.97	8.02
Conductivity	uS/cm	-	445	368	475	475	355	360	437	434	418	405	526	455	265	427	460	520
BOD	mg/L	-	2	< 3	< 3	<3	<3	<3	<3	< 3	< 3	2	3	< 3	< 3	< 3	< 3	< 3
COD	mg/L	-	22	26	27	24	40	27	30	33	23	46	38	27	30	30	19	26
Total Dissolved Solids	mg/L	-	234	189	239	234	169	185	217	240	210	217	274	231	126	225	240	261
Total Suspended Solids	mg/L	-	3	5	< 3	5	3	4	5	< 3	4	6	10	5	3	4	< 3	11
Alkalinity	mg/L	-	113	105	142	154	118	119	141	165	106	125	165	166	64	108	135	185
Hardness	mg/L	-	150	138	181	188	111	147	165	202	133	157	216	207	88	159	173	255
Ammonia	mg/L	-	0.05	0.02	0.09	0.05	< 0.01	0.02	0.05	0.1	0.08	0.04	0.05	0.07	0.05	0.11	0.14	0.05
Un-ionized Ammonia	mg/L	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02	0.01	< 0.01	< 0.01
Calcium	mg/L	-	43.7	37.1	50.3	57.1	38.5	46.7	51.5	64.7	34.4	54.5	67.9	69.6	21.9	47.9	51.9	70.3
Chloride	mg/L	-	61.3	42.9	52.2	35.1	28	29.9	39.7	33	58.8	44.1	58.4	27.4	33.6	60.3	58.7	36.3
DOC	mg/L	-	8.3	8.4	9.3	9.1	10.6	11.1	9.8	8.6	9.3	11	11.8	1.7	9.3	10	8	8.6
Fluoride	mg/L	-	0.1	0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Iron	mg/L	0.3	0.182	0.037	0.012	0.076	0.038	0.063	0.032	0.088	0.02	0.059	0.051	0.078	0.023	0.04	0.059	0.073
Magnesium	mg/L	-	9.98	11.1	13.4	8.13	5.64	9.59	8.82	8.43	8.19	10.5	11.2	6.23	6.64	9.56	10.5	7.14
Manganese	mg/L	-	0.025	0.014	0.019	0.02	0.016	0.03	0.011	0.063	0.016	0.047	0.021	0.021	0.017	0.007	0.02	0.021
Nitrate	mg/L	-	0.1	< 0.1	< 0.1	0.9	< 0.05	< 0.05	< 0.05	0.29	0.11	< 0.05	< 0.05	1.92	< 0.05	0.07	< 0.05	2.16
Nitrite	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
TKN	mg/L	-	0.8	0.8	0.8	0.7	0.8	0.7	0.6	0.8	0.8	0.9	0.8	0.2	0.7	0.8	0.7	0.6
Sodium	mg/L	-	33.7	23	29.7	18.2	21.4	18.5	22.5	19.8	32.8	26.2	33.9	13.8	20.2	32	28	14.9
Sulphate	mg/L	-	16	11	14	17	4	8	8	9	11	6	6	12	6	9	8	20
Phenols	mg/L	0.001	< 0.001	0.001	0.003	< 0.001	0.013	0.006	0.004	< 0.001	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	0.03	0.04	0.03	0.02	0.01	0.02	0.04	0.02	0.04	0.03	0.05	0.03	0.01	0.03	0.02	0.03	0.02
Potassium	mg/L	-	1.4	0.3	1.9	1.6	0.5	0.9	2.1	2.1	0.7	0.8	1.9	2.1	< 0.1	0.9	2	1.3
Aluminum	mg/L	0.075	0.04	0.02	0.02	0.06	0.02	0.06	0.03	0.06	0.03	0.04	0.05	0.05	0.01	0.03	0.04	0.06
Antimony	mg/L	-	0.0001	0.0002	0.0001	< 0.0001	0.0001	0.0004	< 0.0001	< 0.0001	0.0002	0.0001	< 0.0001	0.0001	0.0003	0.0002	0.0002	< 0.0001
Arsenic	mg/L	0.1	0.0003	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0002	0.0003	0.0004	0.0003	0.0002
Barium	mg/L	-	0.023	0.031	0.037	0.028	0.017	0.05	0.031	0.044	0.024	0.045	0.048	0.032	0.018	0.034	0.035	0.027
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.018	0.016	0.02	0.006	0.016	0.018	0.019	0.01	0.013	0.029	0.023	0.007	0.014	0.022	0.016	0.008
Cadmium	mg/L	0.0002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	0.000077	0.000056	< 0.000015	< 0.000015	0.000089	0.000042	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.1	0.0005	0.0005	0.0003	< 0.0015	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.002	< 0.001	< 0.001	< 0.001	0.002	< 0.001
Cobalt	mg/L	0.0006	< 0.005	< 0.005	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	0.0002	0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002
Copper	mg/L	0.005	0.0005	0.0004	0.0003	0.0002	0.0004	0.0085	0.0069	0.0005	0.0005	0.0065	0.0072	0.0012	0.0004	0.0008	0.0007	0.0012
Lead	mg/L	0.025	0.00048	0.00007	0.00003	0.00016	0.00009	0.00061	0.00047	0.0002	0.00004	0.00042	0.00033	0.00012	0.00009	0.00018	0.00012	0.00015
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0003	0.0001	0.0001	0.0003	0.0002	0.0004	0.0002	0.0003	0.0003	0.0002	0.0002	0.0004	0.0002	0.0003	0.0001	0.0005
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	0.00007	< 0.00002	0.00007	0.00022	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	0.191	0.162	0.21	0.163	0.144	0.2	0.142	0.193	0.152	0.214	0.234	0.171	0.113	0.193	0.182	0.178
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	0.0006	0.0007	0.0003	0.0005	0.0004	0.0002	0.0003	0.0005	0.0004	0.0003	0.0002	0.0005	0.0005	0.0005	0.0001	0.0005
Zinc	mg/L	0.03	< 0.005	< 0.005	< 0.005	0.017	< 0.005	0.043	0.006	0.018	0.006	0.018	0.016	0.009	0.006	0.006	0.005	0.005
Cyanide	mg/L	0.005									< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Turbidity	NTU	-														1.6	4.5	2.5
Tannins & Lignins	mg/L	-													2.7			

PWQO - Provincial Water Quality Objectives

Concrat Water Quar			Emb B	Emb B (Dup)	Emb B	Emb B	Emb B											
Parameter	UNITS	PWQO	24-Jun-20	10-Aug-20	22-Oct-20	26-Apr-21	15-Jun-21	10-Aug-21	12-Oct-21	26-Apr-22	21-Jun-22	24-Aug-22	17-Oct-22	24-Apr-23	24-Apr-23	8-Jun-23	16-Aug-23	5-Oct-23
pH -Lab	pH units	6.5-8.5	7.92	8.01	8.16	8.2	8.37	8.14	8.01	7.73	8.06	8.03	7.91	8.13	8.16	7.96	7.26	8.07
Conductivity	uS/cm	-	403	403	508	518	371	333	461	527	435	421	500	521	528	341	387	503
BOD	mg/L	-	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	<3	<3
COD	mg/L		28	29	16	25	29	41	34	28	34	30	25	22	24	32	31	37
Total Dissolved Solids	mg/L	-	216	212	261	283	204	174	250	276	239	216	251	274	279	170	218	273
Total Suspended Solids	mg/L	-	4	3	7	5	4	5	11	5	< 3	5	< 3	< 3	< 3	< 3	5	3
Alkalinity	mg/L	-	113	97	165	185	102	98	160	189	157	117	164	191	189	105	128	180
Hardness	mg/L	-	152	152	223	227	145	127	173	214	183	140	191	218	218	119	154	195
Ammonia	mg/L	-	0.08	0.02	0.04	0.04	0.09	0.03	0.07	3.39	0.09	0.07	0.24	0.12	0.15	1	0.17	0.08
Un-ionized Ammonia	mg/L	0.02	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	0.07	< 0.01	< 0.01	0.01	< 0.01	< 0.01	0.11	0.02	<0.01
Calcium	mg/L	-	48.4	44.6	66	80.2	35.4	31.9	55	71.4	60.9	41.7	52.8	70.3	71	30.9	46.5	58.4
Chloride	mg/L	-	48.7	58.8	49.1	41.4	54.5	41	52.7	40.5	43.3	54.5	54.1	44.5	48.7	35.7	45.5	55.8
DOC	mg/L	-	8.8	8.6	9.9	9	10.9	10.5	7.9	8.6	13	7.3	6	5.2	8.6	8.2	8.6	3
Fluoride	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	<0.1	<0.1
Iron	mg/L	0.3	0.21	0.081	0.051	0.082	0.098	0.058	0.042	0.073	0.054	0.068	0.043	0.062	0.062	0.035	0.054	0.054
Magnesium	mg/L	-	10.2	9.76	12	9.16	10	8.73	8.71	8.72	8.45	8.76	11.2	7.72	7.84	7.99	9.25	12
Manganese	mg/L	-	0.087	0.029	0.011	0.024	0.026	0.095	0.038	0.037	0.014	0.035	0.012	0.038	0.036	0.022	0.039	0.034
Nitrate	mg/L	-	0.07	0.1	< 0.05	1.13	0.1	< 0.05	< 0.05	1.08	0.16	0.08	0.1	0.78	0.57	< 0.05	0.09	0.11
Nitrite	mg/L	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
TKN	mg/L		1.1	0.8	0.7	0.8	1.1	0.9	0.9	3.5	0.9	1.1	0.9	0.8	0.8	1.3	0.8	0.9
Sodium	mg/L	-	26.8	27.4	16.7	22.1	28.8	21.8	23.7	21.2	24.4	25.8	19.9	21.7	23.6	21.2	27.7	24.6
Sulphate	mg/L	-	12	12	15	18	13	10	11	14	7	9	12	13	12	10	10	10
Phenols	mg/L	0.001	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.001
Phosphorus	mg/L	0.03	0.06	0.03	0.02	0.09	0.06	0.03	0.04	0.03	0.03	0.04	0.01	0.03	0.03	0.03	0.03	0.03
Potassium	mg/L	-	1.2	0.7	2.2	1.9	1.3	0.9	2.5	2	0.7	0.9	2	2	2.1	0.2	1.4	3.5
Aluminum	mg/L	0.075	0.02	0.03	0.06	0.05	0.04	0.01	0.03	0.05	0.03	< 0.01	0.01	0.02	0.02	< 0.01	0.04	<0.01
Antimony	mg/L	-	0.0002	0.0004	0.0003	0.0003	0.0006	0.0004	0.0002	0.0003	0.0004	0.0004	0.0003	0.0003	0.0005	0.0003	0.0001	0.0004
Arsenic	mg/L	0.1	0.0005	0.0004	0.0003	0.0003	0.0006	0.0004	0.0003	0.0003	0.0003	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0004
Barium	mg/L	-	0.043	0.044	0.047	0.04	0.023	0.025	0.036	0.037	0.032	0.029	0.038	0.034	0.034	0.015	0.035	0.043
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	<0.0001
Boron	mg/L	0.2	0.093	0.09	0.011	0.012	0.019	< 0.005	0.015	0.011	0.014	0.007	0.012	0.012	0.012	0.013	0.016	0.018
Cadmium	mg/L	0.0002	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	<0.000015	<0.000015
Chromium	mg/L	0.1	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	0.002	0.002	< 0.001	<0.001	<0.001
Cobalt	mg/L	0.0006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0002	0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.0002
Copper	mg/L	0.005	0.0007	0.0003	0.0003	0.0006	0.0005	0.0004	0.0002	0.0005	0.0004	0.0005	0.0004	0.0004	0.001	0.0002	0.0006	0.0006
Lead	mg/L	0.025	0.00018	0.00004	0.00006	0.00015	0.00014	0.0001	0.00009	0.00012	0.0001	0.00008	0.00007	0.00011	0.00011	0.00009	0.00008	0.00006
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	<0.00002
Molybdenum	mg/L	0.04	0.0004	0.0003	0.0003	0.0004	0.0004	0.0002	0.0002	0.0003	0.0003	0.0002	0.0003	0.0003	0.0003	0.0002	0.0002	0.0001
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0004	0.0007
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.001
Silver	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001
Strontium	mg/L		0.195	0.183	0.208	0.224	0.154	0.148	0.176	0.211	0.201	0.175	0.201	0.199	0.206	0.13	0.176	0.225
Thallium	mg/L		< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	<0.00005
Vanadium	mg/L		0.0005	0.0004	0.0003	0.0005	0.0005	0.0004	0.0003	0.0004	0.0004	0.0004	0.0002	0.0004	0.0004	0.0004	0.0003	0.0003
Zinc	mg/L	0.03	0.011	0.066	0.005	0.005	0.017	0.011	0.022	< 0.005	0.006	< 0.005	0.011	< 0.005	< 0.005	< 0.005	0.005	<0.005
Cyanide	mg/L	0.005								5.223		5.223		< 0.005	< 0.005	< 0.005	<0.005	<0.005
Turbidity	NTU	-												2.2	1.8	2	2.4	1.6
Tannins & Lignins	mg/L	-														_		
				l .		l .	l				ı		ı	ı	1		l .	

PWQO - Provincial Water Quality Objectives Bold & highlighting indicates PWQO exceedance

Concrai Water Quar			Emb C	Emb C	Emb C	Emb C												
Parameter	UNITS	PWQO	21-Apr-14	17-Jun-14	13-Aug-14	14-Oct-14	28-Apr-15	17-Jun-15	18-Aug-15	17-Nov-15	28-Apr-16	14-Jun-16	9-Aug-16	12-Oct-16	24-Apr-17	22-Jun-17	24-Aug-17	17-Oct-17
pH -Lab	pH units	6.5-8.5	8.13	8.32	7.99	8.29	8.23	8.2	8.39	8.24	8.37	9.1	8.14	8.21	8.3	8.16	8.06	8.15
Conductivity	uS/cm	-	437	485	294	473	641	506	405	486	489	383	476	540	479	483	407	490
BOD	mg/L	-	< 3	< 3	< 3	< 3	< 2	< 2	< 3	< 2	< 2	3	< 3	< 3	<3	<3	<3	<3
COD	mg/L	-	18	23	14	26	10	33	35	13	24	41	29	27	24	29	29	29
Total Dissolved Solids	mg/L	-	238	253	165	252	350	274	213	270	258	202	252	271	252	242	207	257
Total Suspended Solids	mg/L	-	9	< 3	7	6	< 3	11	6	9	3	4	4	< 3	6	4	3	6
Alkalinity	mg/L	-	153	113	102	150	247	198	84	170	179	87	103	126	157	163	124	138
Hardness	mg/L	-	194	153	128	189	273	233	127	235	208	119	136	154	198	195	154	192
Ammonia	mg/L	-	0.23	0.06	0.07	0.06	< 0.01	0.08	0.03	0.03	0.06	0.05	0.02	0.04	0.08	0.1	0.02	0.93
Un-ionized Ammonia	mg/L	0.02	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.4
Calcium	mg/L	-	68.3	46.3	37.6	60	97.5	80.9	33.3	77.4	68.6	31.8	36.2	41.6	63.6	63.1	47.7	58.1
Chloride	mg/L	-	33.3	72.6	29.8	42.6	47.6	27	64.4	33.9	35.6	59.3	77.4	77.7	37.8	35.4	38.9	50.5
DOC	mg/L	-	6.9	7.9	7.7	8.8	4.3	10.3	5.4	9.2	8.6	9.5	7.4	8.1	9.4	10.2	10.3	8.5
Fluoride	mg/L	-	0.1	0.1	< 0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1
Iron	mg/L	0.3	0.065	0.057	0.068	0.084	0.068	0.088	0.115	0.064	0.058	0.069	0.029	< 0.005	0.044	0.081	0.104	0.068
Magnesium	mg/L	-	5.57	9.16	8.17	9.61	7.05	7.55	10.8	10.2	8.87	9.55	11	12.1	8.44	8.03	9.95	11.3
Manganese	mg/L	-	0.01	0.024	0.039	0.025	0.018	0.018	0.022	0.01	0.03	0.014	0.023	0.028	0.028	0.029	0.029	0.029
Nitrate	mg/L	-	1.5	0.1	0.1	0.7	1.7	2	< 0.1	1.4	0.8	0.1	0.2	< 0.1	1	1.06	< 0.05	0.07
Nitrite	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.05	< 0.05	< 0.05
TKN	mg/L	-	0.8	0.8	0.7	1	0.5	0.9	0.9	0.7	0.9	0.9	0.8	0.9	0.7	0.9	0.7	1.7
Sodium	mg/L	-	19.3	38.7	18.1	27	25.6	16.5	38.1	20.1	19.8	33.5	41	44.6	22.7	25.4	24	33
Sulphate	mg/L	-	10	16	8	16	14	11	14	17	12	15	21	21	20	11	11	16
Phenols	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	0.008	0.002	0.021	0.007	0.004
Phosphorus	mg/L	0.03	0.02	0.07	0.04	0.03	0.02	0.04	0.03	0.03	0.07	0.04	0.03	0.02	0.01	0.02	0.03	0.04
Potassium	mg/L	-	2.4	1.9	1.3	3.4	2.2	1.9	2.4	2.7	2	0.6	2.3	3.7	1.9	1	1.2	3.9
Aluminum	mg/L	0.075	0.09	0.06	0.04	0.05	0.04	0.09	0.07	0.07	0.04	0.03	0.03	0.02	0.06	0.06	0.09	0.07
Antimony	mg/L	-	< 0.0001	0.0003	0.0003	< 0.0001	< 0.0001	0.0001	0.0004	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	0.0002	0.0005	< 0.0001
Arsenic	mg/L	0.1	0.0002	0.0005	0.0003	0.0003	0.0002	0.0004	0.0005	0.0003	0.0003	0.0003	0.0005	0.0004	0.0004	0.0005	0.0004	0.0005
Barium	mg/L	-	0.03	0.03	0.026	0.035	0.032	0.038	0.036	0.042	0.023	0.012	0.034	0.032	0.028	0.037	0.057	0.054
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.009	0.027	0.017	0.028	0.012	0.013	0.012	0.013	< 0.005	0.022	0.033	0.036	0.009	0.015	0.021	0.027
Cadmium	mg/L	0.0002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00005	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.000014	< 0.000014	0.000064	0.000051
Chromium	mg/L	0.1	< 0.0002	0.0006	0.0008	< 0.0002	< 0.0002	< 0.0002	0.0003	< 0.0002	< 0.0002	0.0004	0.0005	0.0004	< 0.0015	< 0.001	0.001	0.001
Cobalt	mg/L	0.0006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001
Copper	mg/L	0.005	0.0004	0.0008	0.0006	0.0004	0.0005	0.0003	0.0037	0.0008	0.0011	0.0004	0.0004	0.0004	0.0004	0.0007	0.0065	0.0064
Lead	mg/L	0.025	0.00013	0.00022	0.00026	0.00013	0.00005	0.00026	0.00063	0.0002	0.00021	0.00049	0.00009	0.00004	0.00006	0.00013	0.00042	0.00051
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0003	0.0006	0.0003	0.0003	0.0002	0.0003	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002	0.0004	0.0004	0.0005	0.0004
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00005	0.00014	< 0.00002	0.00006	0.00021	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	-		0.186	0.158	0.205	0.281	0.237	0.187	0.247	0.211	0.153	0.163	0.187	0.183	0.211	0.203	0.189
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	0.0007	0.001	0.0013	0.0004	0.0002	0.0007	0.0005	0.0005	0.0004	0.0006	0.0006	0.0003	0.0005	0.0005	0.0002	0.0003
Zinc	mg/L	0.03	< 0.005	0.006	0.006	0.009	< 0.005	0.008	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.079	0.009	0.03	0.055
Cyanide	mg/L	0.005														< 0.005	< 0.005	< 0.005
Turbidity	NTU	-																
Tannins & Lignins	mg/L	-																
	. J. –			l	l	l	l			l	l		l	l		l		

PWQO - Provincial Water Quality Objectives

Contrat Water Quar			Emb C	Emb C	Emb C	Emb C	Emb C	Emb C	Emb C	Emb C	Emb C	Emb C	Emb C	Emb C	Emb C	Emb C	Emb C	Emb C
Parameter	UNITS	PWQO	9-May-18	26-Jun-18	28-Aug-18	10-Oct-18	25-Apr-19	18-Jul-19	12-Aug-19	8-Oct-19	27-Apr-20	24-Jun-20	10-Aug-20	22-Oct-20	26-Apr-21	15-Jun-21	10-Aug-21	12-Oct-21
pH -Lab	pH units	6.5-8.5	8.16	8.54	8.05	8.03	8.19	8.45	7.97	8.08	8	7.98	7.93	8.17	8.21	8.16	8.02	7.99
Conductivity	uS/cm	-	509	397	1130	608	467	265	426	577	547	484	469	606	540	514	423	536
BOD	mg/L	-	< 3	4	< 2	3	< 3	< 3	< 3	< 3	< 3	< 3	4	< 3	< 3	< 3	3	< 3
COD	mg/L	-	34	56	35	37	28	37	28	24	25	33	36	16	29	38	45	39
Total Dissolved Solids	mg/L	-	300	213	616	320	239	128	216	309	277	261	244	331	289	274	224	290
Total Suspended Solids	mg/L	-	< 3	8	13	< 3	7	3	7	6	4	5	18	3	4	3	8	10
Alkalinity	mg/L	-	184	108	184	163	167	66	54	144	182	133	82	192	184	133	123	146
Hardness	mg/L	-	208	133	246	209	211	89	82	189	250	180	139	235	227	179	153	155
Ammonia	mg/L	-	0.28	0.13	4.9	0.64	0.07	0.05	0.05	1.07	0.11	0.09	0.02	0.19	0.14	1	0.24	1.61
Un-ionized Ammonia	mg/L	0.02	0.02	< 0.01	0.13	0.04	< 0.01	0.02	< 0.01	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.08	< 0.01	0.04
Calcium	mg/L	-	67.3	39.5	81.8	65.1	72.5	22.2	18.9	56.9	71	59.8	38.5	67.9	77.7	43	40	46.6
Chloride	mg/L	-	61	54	198	72	29.7	32.2	90.6	81	47.7	60.2	81.9	74.8	47	78.3	55.3	78.6
DOC	mg/L	-	8.2	14.5	6.5	10.3	9.3	10.8	9	7.6	8	10.2	8.2	7.5	8.7	9.8	10.1	5.9
Fluoride	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Iron	mg/L	0.3	0.06	0.034	0.08	0.07	0.08	0.024	0.02	0.063	0.064	0.078	0.075	0.026	0.056	0.091	0.062	0.036
Magnesium	mg/L	-	8.83	9.06	14.1	11.3	6.74	6.29	8.47	11.3	7.18	10.2	10.3	11.3	8.74	9.97	9.49	9.37
Manganese	mg/L	-	0.049	0.028	0.06	0.029	0.014	0.023	0.004	0.032	0.032	0.071	0.055	0.002	0.024	0.032	0.069	0.032
Nitrate	mg/L	-	0.31	< 0.05	0.72	0.4	2.1	< 0.05	0.06	< 0.05	2.05	0.07	0.11	0.26	1.21	0.08	< 0.05	0.1
Nitrite	mg/L	-	< 0.05	< 0.05	0.16	0.07	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
TKN	mg/L	-	1	1.3	6.4	1.6	0.7	0.9	0.7	1.8	0.7	1	1.1	0.9	1	2.2	1.4	2.7
Sodium	mg/L	-	32.7	33.6	134	41.7	14.9	21.8	48.5	48.5	19.9	32.7	42.3	38.5	23.6	40	29.7	37.4
Sulphate	mg/L	-	13	11	60	23	13	6	17	18	20	17	19	20	19	18	13	23
PhenoIs	mg/L	0.001	< 0.001	< 0.001	0.003	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001
Phosphorus	mg/L	0.03	0.04	0.05	0.05	0.03	0.02	0.03	0.01	0.04	0.02	0.04	0.04	0.02	0.06	0.05	0.05	0.09
Potassium	mg/L	-	2.7	0.6	11.7	3.8	2.3	< 0.1	0.6	5.3	1.7	1	2	3.3	2.1	3.2	2.1	4.9
Aluminum	mg/L	0.075	0.08	0.05	0.23	0.05	0.05	0.05	0.03	0.04	0.06	0.03	0.03	0.06	0.05	0.04	0.01	0.02
Antimony	mg/L	-	< 0.0001	0.0002	0.0003	0.0001	0.0004	0.0003	0.0005	0.0003	< 0.0001	0.0002	0.0004	0.0003	0.0003	0.0004	0.0005	0.0003
Arsenic	mg/L	0.1	0.0004	0.0005	0.0003	0.0003	0.0002	0.0003	0.0003	0.0004	0.0003	0.0004	0.0003	0.0003	0.0003	0.0005	0.0004	0.0003
Barium	mg/L	-	0.048	0.022	0.063	0.057	0.035	0.027	0.021	0.042	0.028	0.045	0.044	0.045	0.037	0.026	0.059	0.038
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.017	0.02	0.132	0.028	0.007	0.023	0.038	0.041	0.009	0.112	0.114	0.028	0.014	0.032	0.009	0.028
Cadmium	mg/L	0.0002	0.000016	0.000063	< 0.000015	0.000048	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.1	< 0.001	< 0.001	0.001	< 0.001	0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	0.0006	< 0.0001	0.0002	0.0003	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0002
Copper	mg/L	0.005	0.0006	0.0074	0.0006	0.0059	0.0008	0.0004	0.0002	0.0005	0.0012	0.0008	0.0004	0.0007	0.0005	0.0006	0.0003	0.0003
Lead	mg/L	0.025	0.00018	0.0006	0.00038	0.00038	0.00015	0.00008	0.00007	0.00024	0.00017	0.00015	0.0001	0.00014	0.00018	0.00022	0.00017	0.0001
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0008	0.0003	0.0071	0.0003	0.0003	0.0002	0.0006	0.0004	0.0005	0.0004	0.0005	0.0004	0.0006	0.0004	0.0002	0.0003
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	- 0.0004	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	0.202	0.176	0.306	0.238	0.181	0.112	0.123	0.199	0.179	0.22	0.179	0.219	0.213	0.17	0.172	0.169
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00007	< 0.00005
Vanadium	mg/L	- 0.02	0.0006	0.0006	0.0003	0.0003	0.0005	0.0004	0.0006	0.0003	0.0005	0.0003	0.0003	0.0003	0.0005	0.0005	0.0005	0.0003
Zinc	mg/L	0.03	0.014	0.016	0.032	0.018	0.008	0.006	0.006	0.007	0.019	0.013	0.014	0.005	< 0.005	0.013	0.007	0.016
Cyanide	mg/L	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005				-			0.7	<i></i>	4.0	0.0	\vdash
Turbidity	NTU	-			0.4	2.8	2.9							2.7	5.4	4.6	0.8	1
Tannins & Lignins	mg/L	-		4.1	6.1													1

PWQO - Provincial Water Quality Objectives

			Emb C Emb C	Near shore #1	Near shore #1	Near shore #1	Near shore #1	Near shore #1	Near shore #1	Near shore #1	Near shore #1							
Parameter	UNITS	PWQO	26-Apr-22	21-Jun-22	24-Aug-22	17-Oct-22	24-Apr-23	8-Jun-23	16-Aug-23	5-Oct-23	25-Apr-19	12-Aug-19	8-Oct-19	27-Apr-20	24-Jun-20	22-Oct-20	26-Apr-21	15-Jun-21
pH -Lab	pH units	6.5-8.5	7.86	8.17	8.13	7.94	8.17	8	9.07	7.65	8.09	8.05	8.02	7.95	7.89	8.15	8.12	9.01
Conductivity	uS/cm	-	546	426	505	505	552	478	360	536								
BOD	mg/L	-	< 3	< 3	< 3	< 3	< 3	< 3	4	<3								
COD	mg/L	-	31	36	33	20	17	< 5	39	35								
Total Dissolved Solids	mg/L	-	288	233	257	263	286	238	196	291								
Total Suspended Solids	mg/L	-	5	< 3	3	< 3	< 3	< 3	11	<3	< 3	< 3	< 3	3	5	5	4	6
Alkalinity	mg/L	-	201	150	110	165	192	139	76	121								
Hardness	mg/L	-	233	182	138	194	219	160	90.4	142								
Ammonia	mg/L	-	0.32	0.12	0.92	0.18	0.12	0.41	1.36	0.08	0.12	0.06	0.28	0.14	0.08	0.04	0.04	0.03
Un-ionized Ammonia	mg/L	0.02	0.01	0.01	0.06	< 0.01	< 0.01	0.04	0.04	<0.01								
Calcium	mg/L	-	78.3	57.4	39.8	56.1	70	43.3	22.8	37.3								
Chloride	mg/L	-	40.4	41.3	81.6	53.6	51.8	57.3	64.2	95.9								
DOC	mg/L	-	9	12.8	6.3	5.5	5.2	7	8.8	3.6								
Fluoride	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	<0.1	<0.1								
Iron	mg/L	0.3	0.144	0.065	0.053	0.034	0.068	0.133	0.021	0.021	0.069	0.03	0.041	0.056	0.067	0.052	0.094	0.041
Magnesium	mg/L	-	9.1	8.43	9.33	11.9	8.02	8.39	8.13	11.9								
Manganese	mg/L	-	0.034	0.02	0.034	0.012	0.03	0.029	0.017	0.051								
Nitrate	mg/L	-	1.36	0.58	0.09	0.54	1.43	0.28	0.09	0.24								
Nitrite	mg/L	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07	<0.05	<0.05								
TKN	mg/L	-	0.8	1	2.4	1	0.8	1.2	1.1	1								
Sodium	mg/L	-	21.2	22.7	39.6	23.8	23.3	29.4	37.3	49.8								
Sulphate	mg/L	-	15	11	13	16	16	14	14	15								
Phenols	mg/L	0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001								
Phosphorus	mg/L	0.03	0.04	0.04	0.04	0.02	0.03	0.04	0.04	0.02								
Potassium	mg/L	-	2	1.4	2.3	2.2	2.2	1.3	1.5	6.9								
Aluminum	mg/L	0.075	0.05	0.04	0.02	0.02	0.03	0.03	0.04	<0.01								
Antimony	mg/L	-	0.0003	0.0005	0.0003	0.0005	0.0004	0.0004	0.0002	0.0005								
Arsenic	mg/L	0.1	0.0003	0.0003	0.0004	0.0003	0.0003	0.0004	0.0003	0.0003								
Barium	mg/L	-	0.043	0.03	0.03	0.04	0.033	0.022	0.019	0.034								
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	<0.0001								
Boron	mg/L	0.2	0.012	0.01	0.021	0.018	0.013	0.018	0.03	0.047								
Cadmium	mg/L	0.0002	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	<0.000015	<0.000015								
Chromium	mg/L	0.1	< 0.001	0.001	< 0.001	< 0.001	0.002	< 0.001	<0.001	<0.001								
Cobalt	mg/L	0.0006	0.0001	0.0002	< 0.0001	0.0001	0.0002	< 0.0001	<0.0001	0.0002								
Copper	mg/L	0.005	0.001	0.0004	0.0028	0.0004	0.0029	0.0006	0.0015	0.0008								
Lead	mg/L	0.025	0.00034	0.00014	0.00012	0.00009	0.00024	0.00028	0.00008	0.00006								
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	<0.00002								
Molybdenum	mg/L	0.04	0.0004	0.0003	0.0002	0.0003	0.0004	0.0005	0.0005	0.0008								
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0008	0.0006								
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.001								
Silver	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001								
Strontium	mg/L	-	0.226	0.187	0.177	0.215	0.201	0.159	0.119	0.194								
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	<0.00005								
Vanadium	mg/L	-	0.0006	0.0005	0.0003	0.0003	0.0005	0.0006	0.0004	0.0002								
Zinc	mg/L	0.03	< 0.005	< 0.005	0.006	< 0.005	< 0.005	0.009	0.005	<0.005								
Cyanide	mg/L	0.005					< 0.005	< 0.005	<0.005	<0.005								
Turbidity	NTU	-					2.5	5.1	5.2	4.7								1.8
Tannins & Lignins	mg/L	-																

General Water Qua	ality																	
																Near Shore #1		
Parameter	UNITS	PWQO	10-Aug-21		26-Apr-22					8-Jun-23	16-Aug-23		25-Apr-19	12-Aug-19	8-Oct-19	24-Jun-20	22-Oct-20	26-Apr-21
pH -Lab	pH units	6.5-8.5	7.99	7.52	7.83	8.14	8.15	8.11	7.97	7.45	7.2	7.35						
Conductivity	uS/cm	-																
BOD	mg/L	-																
COD	mg/L	-																
Total Dissolved Solids	mg/L	-																
Total Suspended Solids	mg/L	-	9	< 3	< 3	< 3	3	4	<3	4	8	3						
Alkalinity	mg/L	-																
Hardness	mg/L	-														173		
Ammonia	mg/L	-	0.03	0.07	0.15	0.02	0.01	0.03	0.37	0.12	0.11	0.07						
Un-ionized Ammonia	mg/L	0.02																
Calcium	mg/L	-														53.9		
Chloride	mg/L	-	42.5															
DOC	mg/L	-																
Fluoride	mg/L	-																
Iron	mg/L	0.3		0.114	0.041	0.062	0.021	0.025	0.059	0.12	0.026	0.045	0.039	0.03	0.047	0.024	0.036	0.033
Magnesium	mg/L	-														9.21		
Manganese	mg/L	-														0.055		
Nitrate	mg/L	-	0.06															
Nitrite	mg/L	-	< 0.05															1
TKN	mg/L	_	0.00															1
Sodium	mg/L	-														24.6		
Sulphate	mg/L	_	< 1													24.0		
Phenols	mg/L	0.001																
Phosphorus	mg/L	0.03														< 0.1		-
Potassium	mg/L	-														0.6		-
Aluminum	mg/L	0.075														0.03		-
Antimony	mg/L	-														< 0.0001		-
Arsenic	mg/L	0.1														0.0004		-
Barium	mg/L	-														0.0004		
Beryillium	mg/L	1.1														< 0.002		
Boron	mg/L	0.2														0.002		-
Cadmium	mg/L	0.0002	1	+		+					+		+	+		< 0.000015		
Chromium		0.0002	1	+		+					+		+	+		< 0.00013		
Cobalt	mg/L	0.0006														< 0.001		-
	mg/L	0.000														0.0006		
Copper	mg/L	0.005														0.0008		
Lead	mg/L	0.025														0.00006		<u> </u>
Mercury	mg/L															0.0000		-
Molybdenum	mg/L	0.04														0.0002		
Nickel	mg/L	0.025														< 0.01		
Selenium	mg/L															< 0.001		ļ
Silver	mg/L	0.0001														< 0.0001		
Strontium	mg/L	-														0.183		
Thallium	mg/L	-														< 0.005		_
Vanadium	mg/L	-														0.0004		
Zinc	mg/L	0.03														< 0.005		
Cyanide	mg/L	0.005																
Turbidity	NTU	-	2.7	1.8			0		1.3	1.7	1.6	1.8				0		
Tannins & Lignins	mg/L	-																

General Water Qua	<u>,</u>		Near shore #1	Near shore #1	Near shore #1	Near shore #1	Near shore #1	Near shore #1	Near shore #11	lear shore #1	Near shore #11	Near shore #11	Near shore #2	Near shore #2	Near shore #	Near shore #2	Near Shore #3	Near shore #2
Parameter	UNITS	PWQO		12-Oct-21					24-Apr-23				25-Apr-19			27-Apr-20	24-Jun-20	
pH -Lab	pH units	6.5-8.5		.2 000 2.	20740. 22			00.22	2.746.20	0 00 20		0 00: 20	8.03	7.93	8.07	8.04	8.14	8.01
Conductivity	uS/cm	-											0.00	1.00	0.01	0.0 .	0	0.01
BOD	mg/L	-																1
COD	mg/L	-																
Total Dissolved Solids	mg/L	-																
Total Suspended Solids	mg/L	-											8	< 3	4	3	8	5
Alkalinity	mg/L	-												_			_	
Hardness	mg/L	-																
Ammonia	mg/L	-											0.07	0.05	0.09	0.08	0.05	0.05
Un-ionized Ammonia	mg/L	0.02																0.00
Calcium	mg/L	-																
Chloride	mg/L	-																
DOC	mg/L	-																
Fluoride	mg/L	-																
Iron	mg/L	0.3	0.03	0.045	0.032	0.029	< 0.005	< 0.005	0.021	0.035	<0.005	0.014	0.084	0.054	0.033	0.063	0.091	0.078
Magnesium	mg/L	-																
Manganese	mg/L	-																
Nitrate	mg/L	-																
Nitrite	mg/L	-																
TKN	mg/L	-																
Sodium	mg/L	-																
Sulphate	mg/L	-																
Phenols	mg/L	0.001																
Phosphorus	mg/L	0.03																
Potassium	mg/L	-																
Aluminum	mg/L	0.075																1
Antimony	mg/L	-																1
Arsenic	mg/L	0.1																1
Barium	mg/L	-																1
Beryillium	mg/L	1.1																1
Boron	mg/L	0.2																
Cadmium	mg/L	0.0002																
Chromium	mg/L	0.1																
Cobalt	mg/L	0.0006																
Copper	mg/L	0.005																
Lead	mg/L	0.025																
Mercury	mg/L	-																
Molybdenum	mg/L	0.04																
Nickel	mg/L	0.025																
Selenium	mg/L	-																
Silver	mg/L	0.0001																1
Strontium	mg/L	-																1
Thallium	mg/L	-																
Vanadium	mg/L	-																
Zinc	mg/L	0.03																
Cyanide	mg/L	0.005																
Turbidity	NTU	-																
Tannins & Lignins	mg/L	-																
PWOO - Provincial Water O			•	•	•	•		•										

General Water Qua	anty		Near shore #5	Noar shore #2	Noar choro #	Noar choro #	Noar choro #	Noar shore #	Noar choro #	Near shore #2	Noar choro #5	Noar shore #2	Noar choro #	loar choro #2	Near shore #2	loar shore #2	Maar Shore #2	loar choro #
Parameter	UNITS	PWQO	26-Apr-21	15-Jun-21	12-Oct-21	26-Apr-22	21-Jun-22			24-Apr-23	8-Jun-23	16-Aug-23	5-Oct-23		12-Aug-19	8-Oct-19	24-Jun-20	
pH -Lab	pH units	6.5-8.5	7.99	9.29	7.88	8.05	7.75	8.22	7.78	7.87	8.23	8.36	7.74	20-Api-19	12-Aug-19	0-001-19	24-3411-20	22-001-20
Conductivity	uS/cm	-	7.55	9.29	7.00	0.00	7.75	0.22	7.70	7.07	0.23	0.30	7.74					+
BOD	mg/L	-																+
COD	mg/L	-																
Total Dissolved Solids	mg/L	-	1	+														+
Total Suspended Solids	mg/L	-	4	4	6	< 3	4	< 3	3	<3	7	<3	12					+
Alkalinity		-	4	4	0	\ 3	4	\ 3	3	\3	,	\3	12					
	mg/L	-															151	
Hardness Ammonia	mg/L	-	0.06	0.05	0.04	0.12	0.02	< 0.01	< 0.01	0.07	0.18	<0.05	0.14				151	
	mg/L	0.02	0.06	0.05	0.04	0.12	0.02	< 0.01	< 0.01	0.07	0.16	<0.05	0.14					
Un-ionized Ammonia	mg/L																40.0	
Calcium	mg/L	-															46.9	
Chloride	mg/L	-																-
DOC	mg/L	-																-
Fluoride	mg/L	-																
Iron	mg/L	0.3	0.058	0.077	0.123	0.075	0.148	0.051	0.059	0.064	0.18	0.021	0.1	0.053	0.027	0.038	0.027	0.044
Magnesium	mg/L	-															8.33	
Manganese	mg/L	-															0.009	
Nitrate	mg/L	-																
Nitrite	mg/L	-																ļ
TKN	mg/L	-																
Sodium	mg/L	-															27.4	
Sulphate	mg/L	-																
Phenols	mg/L	0.001																
Phosphorus	mg/L	0.03															< 0.1	
Potassium	mg/L	-															0.3	
Aluminum	mg/L	0.075															0.03	
Antimony	mg/L	-															< 0.0001	
Arsenic	mg/L	0.1															0.0003	
Barium	mg/L	-															0.027	
Beryillium	mg/L	1.1															< 0.002	
Boron	mg/L	0.2															0.035	
Cadmium	mg/L	0.0002															< 0.000015	
Chromium	mg/L	0.1															< 0.001	
Cobalt	mg/L	0.0006															< 0.005	
Copper	mg/L	0.005															0.0006	
Lead	mg/L	0.025															0.00005	
Mercury	mg/L	-																
Molybdenum	mg/L	0.04															0.0001	
Nickel	mg/L	0.025															< 0.01	
Selenium	mg/L	-															< 0.001	
Silver	mg/L	0.0001															< 0.0001	
Strontium	mg/L	-															0.186	
Thallium	mg/L	-															< 0.005	
Vanadium	mg/L	-															0.0002	
Zinc	mg/L	0.03															< 0.005	
Cyanide	mg/L	0.005	1														0.000	
Turbidity	NTU	-								1.1	1.1	1	8.6					
Tannins & Lignins	mg/L	_						1		1	1		0.0					
PWQO - Provincial Water Q			1	1	1	1	1	1	1	1	1	1	l	1	1	I	ı	1

Second column Second Colum	General Water Quar			Near shore #2	Near shore #21	Near shore #2	Near shore #2l	Near shore #21	Near shore #2	Near shore #21	Near shore #21	Near shore #2	Near shore #2	lear shore #2	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down
Contention Solien	Parameter	UNITS	PWQO																28-Apr-15
COD	pH -Lab	pH units	6.5-8.5				0	0	0	0					8.14	8.3	7.98	8.23	8.02
Column	Conductivity	uS/cm	-												364	528	296	432	478
Columber Columber	BOD	mg/L	-												< 3	< 3	< 3	< 3	4
Second Continue	COD	mg/L	-												18	25	11	20	65
Makindy	Total Dissolved Solids	mg/L													200	279	169	220	257
Section Sect	Total Suspended Solids	mg/L	-												< 3	3	9	4	86
Immonia mgl .	Alkalinity	mg/L	-												148	133	101	151	189
Immonia	Hardness	mg/L	-												181	183	131	173	220
Authors	Ammonia		-												0.09	0.05	0.09	0.03	0.01
Askum mgt -	Un-ionized Ammonia	mg/L	0.02												< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Note mg/L	Calcium		-												64	56.9	38.6	54.6	75.7
Lounde	Chloride	mg/L	-												15.8	72.6	31.1	32.6	29
Note Might Company	DOC	mg/L	-												6.9	7.7	8.5	9	6.9
Nonestation mg/L -	Fluoride		-												0.1	0.1	< 0.1	0.2	0.2
Magnesium mg/L -	Iron	•	0.3	0.033	0.048	0.038	0.042	0.069	0.015	< 0.005	0.031	0.057	0.008	0.025	0.057	0.059	0.089	0.043	0.548
Illiste	Magnesium	_	-												5.18	9.81	8.34	8.88	7.39
Interest mg/L	Manganese	mg/L	-												0.01	0.023	0.048	0.016	0.086
Main	Nitrate	mg/L	-												1.3	0.2	0.1	0.3	0.4
Miles	Nitrite	mg/L	-												< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Maphate Maple Maphate Maphat	TKN		-												0.2	1.1	0.74	0.8	2.2
Thenois mg/L 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.002 0.0	Sodium	mg/L	-												9.9	40.2	19.3	17.6	14.4
Procedure Proc	Sulphate	mg/L	-												9	17	9	12	11
Indesploys mg/L 0.03 mg/L 0.03 mg/L 0.075	Phenols	mg/L	0.001												< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Aurhinum	Phosphorus	mg/L	0.03												0.01	0.09	0.04	0.02	0.23
Intimony mg/L -	Potassium	mg/L	-												2.1	2	1.5	2.5	2.8
Intrinory mg/L -	Aluminum	mg/L	0.075												0.09	0.04	0.06	0.42	0.26
Partium mg/L -	Antimony	mg/L	-												< 0.0001	0.0002	0.0002	< 0.0001	0.0001
Pary Pary	Arsenic	mg/L	0.1												< 0.0001	0.0006	0.0004	0.0003	0.0008
Property Property	Barium	mg/L	-												0.029	0.035	0.028	0.032	0.073
Cadmium mg/L 0.0002 0.00002 0.00002 0.00002 0.00002 0.00002 0.00003 0.00003 0.00003 0.00004 0.00007 0.00004 0.00004 0.00005 0.00004 0.00005 0.00004 0.00005 0.00004 0.00005	Beryillium	mg/L	1.1												< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Chromium mg/L 0.1	Boron	mg/L	0.2												0.006	0.028	0.018	0.019	0.01
Cobalt mg/L 0.0006 0.0006 0.0005 0.0005 0.0005 0.0005 0.0005 0.0005 0.0005 0.0005 0.0005 0.0005 0.0002 0.00008 0.0007 0.0003 0.00021 0.0002 0.00008 0.0007 0.0003 0.00021 0.00002 0.0000	Cadmium	mg/L	0.0002												< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00013
Copper	Chromium	mg/L	0.1												< 0.0002	0.0004	0.0007	0.0007	0.0004
Bead mg/L 0.025	Cobalt	mg/L	0.0006												< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Note Marcury May	Copper	mg/L	0.005												0.0002	0.0008	0.0007	0.0003	0.0021
Molybdenum mg/L 0.04	Lead	mg/L	0.025												0.00015	0.00023	0.00042	0.00017	0.00119
	Mercury	mg/L	-												< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Selenium mg/L -	Molybdenum	mg/L	0.04												0.0003	0.0006	0.0003	0.0002	0.0003
Silver mg/L 0.0001	Nickel	mg/L	0.025												< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Strontium mg/L -	Selenium	mg/L	-												< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
finalium mg/L - 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0004 < 0.0008 drinc mg/L 0.03 < 0.005 < 0.005 < 0.008 0.009 0.008 0.024 dyanide mg/L 0.005	Silver		0.0001												< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Anadium mg/L -	Strontium	mg/L	-													0.215	0.163	0.184	0.21
Anadium mg/L -	Thallium		-												< 0.00005	< 0.00005		< 0.00005	0.00012
inc mg/L 0.03	Vanadium	_	-												0.0007			0.0004	
Syanide mg/L 0.005	Zinc	_	0.03												< 0.005	0.008	0.009	0.008	
Turbidity NTU - 7.7	Cyanide	_	0.005																
'	Turbidity						İ						İ				1		1
	Tannins & Lignins		-																1

Concrai Water Quar	,		Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down
Parameter	UNITS	PWQO	17-Jun-15	18-Aug-15	17-Nov-15	28-Apr-16	14-Jun-16	9-Aug-16	12-Oct-16	24-Apr-17	22-Jun-17	24-Aug-17	17-Oct-17	9-May-18	26-Jun-18	28-Aug-18	10-Oct-18	25-Apr-19
pH -Lab	pH units	6.5-8.5	8.14	8.29	8.24	8.37	8.81	8.55	8.22	8.31	8.07	8.14	8.13	8.18	8.7	8.15	8.08	8.17
Conductivity	uS/cm	-	503	376	485	500	382	416	504	477	486	424	430	424	410	422	555	459
BOD	mg/L	-	< 2	< 3	< 2	< 2	3	< 3	< 3	<3	<3	<3	<3	< 3	< 3	3	3	< 3
COD	mg/L	-	31	24	16	26	35	31	29	22	34	31	29	31	33	37	35	32
Total Dissolved Solids	mg/L	-	271	191	262	264	201	211	254	242	254	208	213	238	222	226	285	231
Total Suspended Solids	mg/L	-	6	5	9	6	< 3	3	3	6	8	3	6	12	6	7	3	7
Alkalinity	mg/L	-	194	96	168	183	91	80	122	157	169	139	129	156	84	128	162	167
Hardness	mg/L	-	232	125	217	211	123	108	160	195	222	174	155	196	110	162	220	208
Ammonia	mg/L	-	0.08	0.02	0.02	0.07	0.03	0.03	0.07	0.05	0.11	0.05	0.3	0.07	0.38	0.21	0.3	0.09
Un-ionized Ammonia	mg/L	0.02	< 0.01	< 0.01	< 0.01	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02	< 0.01	0.02	< 0.01
Calcium	mg/L	-	80.4	34.9	71	70.1	33.8	26.9	44	59.9	73.3	48.9	47.2	66.3	32.4	52.6	68.6	68.7
Chloride	mg/L	-	27.5	50.2	35.8	36.5	56.9	70	69.2	36.2	32.8	35.5	40.3	37.4	69.7	46.6	57.4	27.7
DOC	mg/L	-	9.8	6	9.1	8.4	9.3	8	8	9.1	11.1	10.6	8.5	8.2	10.1	9.4	10.4	9.4
Fluoride	mg/L	-	0.1	0.1	0.1	0.2	0.1	0.1	0.2	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Iron	mg/L	0.3	0.066	0.043	0.057	0.062	0.074	0.01	0.011	0.086	0.4	0.032	0.064	0.159	0.055	0.081	0.071	0.079
Magnesium	mg/L	-	7.64	9.17	9.56	8.75	9.32	9.82	12.1	8.21	9.38	8.63	8.91	8.88	9.61	10.5	11.7	6.36
Manganese	mg/L	-	0.016	0.027	0.009	0.04	0.018	0.024	0.026	0.027	0.054	0.019	0.018	0.045	0.023	0.04	0.023	0.014
Nitrate	mg/L	-	2	< 0.1	1.3	0.9	< 0.1	< 0.1	0.1	1	1.04	< 0.05	0.14	0.36	0.06	< 0.05	0.23	2.04
Nitrite	mg/L	-	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
TKN	mg/L	-	0.9	0.8	0.7	0.8	0.8	1.1	1	0.7	1.5	0.7	1	0.9	1.3	1.1	1.1	0.9
Sodium	mg/L	-	17.2	28.1	20	20.2	31.8	38.1	42.7	19	24.7	20	23.4	20.7	43.8	26.9	34.5	13.4
Sulphate	mg/L	-	11	9	17	13	13	16	20	18	11	10	13	11	14	11	16	12
Phenols	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	0.007	0.002	0.02	0.006	0.005	< 0.001	< 0.001	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	0.03	0.03	0.03	0.03	0.02	0.03	0.03	0.03	0.01	0.1	0.03	0.03	0.06	0.04	0.05	0.02	0.02
Potassium	mg/L	-	1.8	0.6	2.6	2	0.6	1.6	3.5	1.6	1.1	0.9	2.5	2.1	1.2	1.8	2.8	2.2
Aluminum	mg/L	0.075	0.07	0.03	0.06	0.04	0.03	0.02	0.02	0.06	0.27	0.03	0.06	0.11	0.03	0.06	0.06	0.05
Antimony	mg/L	-	0.0002	0.0004	< 0.0001	< 0.0001	< 0.0001	0.0003	< 0.0001	< 0.0001	0.0003	0.0002	0.0001	0.0003	0.0002	0.0001	0.0002	0.0005
Arsenic	mg/L	0.1	0.0004	0.0005	0.0003	0.0003	0.0002	0.0004	0.0006	0.0004	0.0006	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0002
Barium	mg/L	-	0.038	0.024	0.039	0.023	0.012	0.027	0.034	0.028	0.055	0.034	0.033	0.047	0.036	0.049	0.055	0.034
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.013	< 0.006	0.012	< 0.005	0.021	0.026	0.034	0.007	0.019	0.018	0.017	0.01	0.025	0.03	0.022	0.007
Cadmium	mg/L	0.0002	< 0.00002	0.00005	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000014	0.000056	< 0.000015	< 0.000015	< 0.000015	0.000036	< 0.000015
Chromium	mg/L	0.1	< 0.0002	0.0002	< 0.0002	< 0.0002	0.0011	0.0005	0.0003	< 0.0015	< 0.001	< 0.001	0.001	< 0.001	< 0.001	0.001	0.001	0.001
Cobalt	mg/L	0.0006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0001	< 0.0001	0.0001
Copper	mg/L	0.005	0.0002	0.0036	0.0011	0.0015	0.0002	0.0004	0.0004	0.0001	0.0011	0.0003	0.0069	0.0009	0.0009	0.0003	0.0057	0.0011
Lead	mg/L	0.025	0.00019	0.00058	0.00018	0.00027	0.00038	0.00005	0.00007	0.00022	0.00081	0.00011	0.00058	0.00082	0.00016	0.00022	0.00041	0.00014
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	0.0002	0.0005	0.0004	0.0003	0.0003	0.0003	0.0004	0.0004	0.0003	0.0004
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	< 0.00002	< 0.00002	< 0.00002	0.00006	0.00019	< 0.00002	0.00007	0.00018	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	0.242	0.16	0.226	0.205	0.154	0.141	0.191	0.172	0.254	0.166	0.134	0.2	0.166	0.207	0.241	0.172
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	0.0005	0.0005	0.0005	0.0005	0.0006	0.0007	0.0003	0.0005	0.0008	0.0003	0.0004	0.0007	0.0006	0.0005	0.0004	0.0005
Zinc	mg/L	0.03	< 0.005	0.084	0.049	< 0.005	< 0.005	< 0.005	< 0.005	0.142	0.098	0.005	< 0.005	0.021	0.021	0.024	0.02	0.012
Cyanide	mg/L	0.005						5.223										
Turbidity	NTU	-																
Tannins & Lignins	mg/L	-																
				l .	l .	l .			ı	ı	1		ı		1	ı		

Contra Water Quar			Scg-Down	ScG-Down	ScG-Down	ScG-Down	ScG-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down
Parameter	UNITS	PWQO	18-Jul-19	12-Aug-19	8-Oct-19	27-Apr-20	24-Jun-20	10-Aug-20	22-Oct-20	26-Apr-21	15-Jun-21	10-Aug-21	12-Oct-21	26-Apr-22	21-Jun-22	24-Aug-22	17-Oct-22	24-Apr-23
pH -Lab	pH units	6.5-8.5	8.15	7.99	8.01	8	7.87	8.03	8.15	8.22	7.88	8.1	7.81	7.87	8.2	8.01	7.94	8.15
Conductivity	uS/cm	-	478	329	501	540	444	434	512	549	465	387	405	614	412	525	502	538
BOD	mg/L	-	4	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
COD	mg/L	-	38	33	27	26	28	33	18	29	43	41	42	32	32	34	19	19
Total Dissolved Solids	mg/L	-	236	167	259	279	238	223	273	293	248	203	216	307	227	267	268	283
Total Suspended Solids	mg/L	-	8	7	4	13	3	6	8	10	6	15	17	11	10	4	3	3
Alkalinity	mg/L	-	113	85	128	182	96	82	168	193	118	117	122	195	147	120	163	188
Hardness	mg/L	-	152	108	157	250	137	130	229	225	162	149	141	226	177	146	194	225
Ammonia	mg/L	-	0.05	0.06	0.3	0.1	0.12	0.01	0.07	0.14	0.69	0.09	0.19	0.58	0.15	1.18	0.26	0.2
Un-ionized Ammonia	mg/L	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.03	< 0.01	< 0.01	0.02	0.02	0.06	0.01	< 0.01
Calcium	mg/L	-	44.2	32.1	47.1	76.1	42.1	37	66.5	75	40.3	38.9	41.6	75.8	57.6	42.5	55.9	71.3
Chloride	mg/L	-	60.7	45.1	71.1	44.2	70.3	73.4	49.1	47.8	71.6	46.5	51.6	61.5	38	80.7	56	49
DOC	mg/L	-	9.3	9.7	8.7	7.6	8	7.9	9.4	8.7	10.3	9.9	6.6	8.2	12.8	6.3	5.2	8
Fluoride	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Iron	mg/L	0.3	0.07	0.037	0.036	0.125	0.125	0.079	0.057	0.089	0.12	0.135	0.151	0.12	0.113	0.066	0.066	0.08
Magnesium	mg/L	-	7.89	6.75	9.63	7.8	10.4	9.18	11.6	8.72	9.64	8.99	9.02	8.92	8.5	9.73	11.6	8.3
Manganese	mg/L	-	0.042	0.02	0.014	0.046	0.058	0.033	0.013	0.027	0.054	0.074	0.05	0.033	0.03	0.045	0.014	0.032
Nitrate	mg/L	-	< 0.05	0.06	< 0.05	2.1	0.09	0.08	0.15	1.13	0.08	0.06	0.12	1.31	0.48	0.09	0.43	1.23
Nitrite	mg/L	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
TKN	mg/L	-	1.1	0.8	1	0.8	1.1	1	0.8	1.1	2.3	1.2	1.2	1	1	2.5	1.1	0.9
Sodium	mg/L	-	40.9	23.9	38	20	38.4	36.3	24.9	24.3	35.5	24	23.2	24.6	21.7	42.5	28.3	24.2
Sulphate	mg/L	-	12	8	11	20	18	16	17	19	17	12	15	16	11	13	15	15
Phenols	mg/L	0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	0.03	0.05	0.03	0.03	0.04	0.06	0.03	0.02	0.08	0.11	0.06	0.06	0.04	0.04	0.05	0.03	0.04
Potassium	mg/L	-	2.5	0.3	4.7	1.7	1.7	1.3	2.5	2	2.3	1.6	2.4	2.1	1.4	2.4	2.3	2.2
Aluminum	mg/L	0.075	0.03	0.02	0.04	0.05	0.02	0.03	0.06	0.05	0.04	0.01	0.03	0.05	0.04	< 0.01	0.02	0.03
Antimony	mg/L	-	0.0001	0.0001	0.0001	< 0.0001	0.0004	0.0004	0.0005	0.0004	0.0005	0.0004	0.0004	0.0004	0.0003	0.0003	0.0004	0.0004
Arsenic	mg/L	0.1	0.0004	0.0003	0.0003	0.0003	0.0004	0.0004	0.0003	0.0003	0.0006	0.0004	0.0003	0.0003	0.0004	0.0004	0.0003	0.0003
Barium	mg/L	-	0.034	0.022	0.036	0.03	0.039	0.043	0.046	0.038	0.025	0.032	0.033	0.041	0.032	0.032	0.04	0.035
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.029	0.02	0.03	0.009	0.103	0.11	0.017	0.013	0.026	< 0.005	0.013	0.015	0.01	0.023	0.02	0.013
Cadmium	mg/L	0.0002	< 0.000015	< 0.000015	< 0.000015	0.000016	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.1	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	0.002
Cobalt	mg/L	0.0006	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0002	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001
Copper	mg/L	0.005	0.0009	0.0007	0.0007	0.0014	0.0003	0.0002	0.0006	0.0006	0.0007	0.0005	0.0004	0.0007	0.0005	0.0004	0.0006	0.0006
Lead	mg/L	0.025	0.00025	0.00018	0.00012	0.00046	0.00016	0.00009	0.00014	0.0003	0.0004	0.00046	0.00036	0.00033	0.00033	0.00015	0.00014	0.00019
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0006	0.0003	0.0003	0.0005	0.0005	0.0003	0.0004	0.0005	0.0004	0.0002	0.0002	0.0004	0.0003	0.0003	0.0003	0.0003
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	0.165	0.127	0.172	0.194	0.185	0.167	0.213	0.212	0.159	0.155	0.153	0.22	0.186	0.187	0.216	0.208
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	0.0004	0.0005	0.0002	0.0006	0.0005	0.0004	0.0004	0.0006	0.0006	0.0007	0.0005	0.0005	0.0006	0.0004	0.0003	0.0005
Zinc	mg/L	0.03	0.009	< 0.005	< 0.005	0.005	0.014	0.019	0.005	0.005	0.017	0.015	0.017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Cyanide	mg/L	0.005	0.000	- 0.000	- 0.000	0.000	0.017	0.010	0.000	0.000	0.017	0.010	0.017	- 0.000	- 0.000	- 0.000	- 0.000	< 0.005
Turbidity	NTU	-																3.3
Tannins & Lignins	mg/L																	3.3
I ALITHIA & LIGHTIA	IIIg/L	-	1								1	1						1

PWQO - Provincial Water Quality Objectives

	ity		Scg-Down	Scg-Down	Scg-Down (Dup	Scg-Down	Scg-Up	Scg-Up	Scg-Up	Scg-Up	Scg-Up	Scg-Up	Scg-Up	Scg-Up	Scg-Up	Scg-Up	Scg-Up	Scg-Up
Parameter	UNITS	PWQO	8-Jun-23	16-Aug-23	16-Aug-23	5-Oct-23	21-Apr-14	17-Jun-14	13-Aug-14	14-Oct-14	29-Apr-15	17-Jun-15	18-Aug-15	17-Nov-15	28-Apr-16	14-Jun-16	9-Aug-16	12-Oct-16
pH -Lab	pH units	6.5-8.5	7.92	7.44	7.5	7.73	8.18	8.22	8.02	7.84	8.33	8.09	8.16	8.26	8.39	8.43	8.02	8.22
Conductivity	uS/cm	-	424	447	429	539	357	490	279	1240	415	490	412	470	480	409	368	476
BOD	mg/L		< 3	<3	<3	<3	< 3	< 3	< 3	< 3	3	< 2	< 3	< 2	< 2	6	< 3	< 3
COD	mg/L	-	< 5	33	31	32	19	24	24	14	18	32	27	14	24	21	34	26
Total Dissolved Solids	mg/L	-	216	250	224	295	190	249	157	676	223	261	206	262	257	214	185	244
Total Suspended Solids	mg/L	-	< 3	3	7	3	19	4	8	5	5	6	< 3	9	< 3	5	5	< 3
Alkalinity	mg/L	-	126	132	125	125	147	171	99	178	163	205	149	164	182	122	117	154
Hardness	mg/L	-	144	155	128	151	169	201	127	274	187	229	168	230	218	149	140	199
Ammonia	mg/L	-	0.15	1.58	1	0.07	< 0.01	0.07	0.04	0.39	< 0.01	0.05	0.02	0.03	0.06	0.05	0.04	0.07
Un-ionized Ammonia	mg/L	0.02	0.02	0.21	0.09	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Calcium	mg/L	-	39.3	47.2	38.3	41.8	59.8	65.8	36.7	88.5	62.3	80	50.9	75.1	72.1	43.9	37.6	56.2
Chloride	mg/L	-	50.7	56.6	56.9	96.4	13.1	37.5	27	194	26.5	18.1	30.8	34.4	31.1	47.1	35.8	42.8
DOC	mg/L	-	4.9	7.7	7.7	2.5	7	9.1	8.5	3	7.5	11	8.3	9.1	8.3	8.7	8.9	9
Fluoride	mg/L	-	0.2	<0.1	<0.1	<0.1	0.1	0.1	< 0.1	0.1	< 0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2
Iron	mg/L	0.3	0.091	0.053	0.037	0.032	0.089	0.119	0.07	0.107	0.033	0.1	0.073	0.213	0.056	0.194	0.088	0.068
Magnesium	mg/L	-	8.48	9.02	7.83	11.3	4.84	8.91	8.46	12.8	7.67	7.09	9.82	10.2	9.19	9.48	11.2	14.2
Manganese	mg/L	-	0.026	0.071	0.041	0.037	0.01	0.036	0.041	0.032	0.016	0.011	0.016	0.019	0.028	0.031	0.03	0.03
Nitrate	mg/L	-	0.14	0.21	0.27	0.31	1.3	0.2	< 0.1	9.8	0.5	2.1	0.1	1.2	0.9	0.1	< 0.1	0.1
Nitrite	mg/L	-	< 0.05	< 0.05	<0.05	< 0.05	< 0.1	< 0.1	< 0.1	0.5	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TKN	mg/L	-	1	0.9	0.9	0.5	0.5	0.9	0.71	1.5	0.6	1.2	0.8	0.7	0.7	0.9	0.9	0.9
Sodium	mg/L	-	26.9	33	28.6	46.7	7.7	20.1	16.3	124	14.4	10.6	16.6	19	17.9	25.6	18.4	24.4
Sulphate	mg/L	-	13	13	13	16	8	12	8	93	10	10	7	17	12	14	12	20
Phenols	mg/L	0.001	< 0.001	<0.001	<0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	0.004
Phosphorus	mg/L	0.03	0.02	0.03	0.03	0.02	0.03	0.07	0.04	0.04	0.02	0.03	0.02	0.02	0.06	0.04	0.04	0.04
Potassium	mg/L	-	0.8	2.4	1.8	6.8	1.9	1.2	1.4	11.3	2.1	1.7	0.5	2.5	1.9	0.7	0.2	2.5
Aluminum	mg/L	0.075	0.02	0.04	0.04	0.02	0.09	0.06	0.04	0.74	0.04	0.07	0.04	0.1	0.03	0.03	0.04	0.04
Antimony	mg/L	-	0.0004	0.0002	0.0001	0.0007	< 0.0001	0.0001	0.0003	0.0005	0.0001	< 0.0001	0.0002	0.0001	< 0.0001	0.0001	0.0003	0.0001
Arsenic	mg/L	0.1	0.0004	0.0003	0.0003	0.0003	0.0002	0.0005	0.0004	0.0003	0.0002	0.0004	0.0005	0.0003	0.0003	0.0003	0.0005	0.0005
Barium	mg/L	-	0.018	0.036	0.029	0.033	0.027	0.036	0.027	0.036	0.029	0.038	0.032	0.054	0.026	0.02	0.034	0.049
Beryillium	mg/L	1.1	< 0.002	<0.0001	<0.0001	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.016	0.026	0.022	0.042	< 0.005	0.016	0.015	0.12	0.008	0.01	< 0.006	0.012	< 0.005	0.014	0.013	0.017
Cadmium	mg/L	0.0002	< 0.000015	<0.000015	<0.000015	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00009	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Chromium	mg/L	0.1	< 0.001	<0.001	<0.001	<0.001	0.0002	< 0.0002	0.0007	< 0.0002	0.0004	0.0002	0.0005	0.0054	< 0.0002	0.0004	0.0005	0.0005
Cobalt	mg/L	0.0006	< 0.0001	0.0001	0.0001	0.0002	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001
Copper	mg/L	0.005	0.0004	0.001	0.0008	0.0009	0.0002	0.0008	0.0004	0.0021	0.0004	0.0004	0.0046	0.0005	0.0005	0.0004	0.0005	0.0008
Lead	mg/L	0.025	0.00024	0.00013	0.0001	0.00007	0.00022	0.0003	0.00036	0.00021	0.00008	0.00013	0.00103	0.00019	0.00008	0.00042	0.0003	0.00027
Mercury	mg/L	-	< 0.00002	<0.00002	<0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0004	0.0004	0.0004	0.0008	0.0003	0.0005	0.0003	0.0018	0.0003	0.0003	0.0002	0.001	0.0003	0.0002	0.0002	0.0003
Nickel	mg/L	0.025	< 0.01	0.0006	0.0006	0.0007	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	<0.001	<0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	< 0.0001	<0.0001	<0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	0.00006	< 0.00002	0.00009
Strontium	mg/L	-	0.153	0.174	0.147	0.193		0.22	0.16	0.297	0.184	0.229	0.204	0.248	0.212	0.189	0.164	0.217
Thallium	mg/L	-	< 0.00005	<0.00005	<0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	0.0005	0.0003	0.0003	0.0003	0.0007	0.0007	0.0014	0.0003	0.0005	0.0004	0.0005	0.0004	0.0004	0.0006	0.0007	0.0003
Zinc	mg/L	0.03	< 0.005	0.014	0.005	<0.005	< 0.005	0.007	< 0.005	0.023	< 0.005	0.031	0.009	0.086	< 0.005	< 0.005	< 0.005	< 0.005
Cyanide	mg/L	0.005	< 0.005	<0.005	<0.005	<0.005												
Turbidity	NTU	•	3.7	2.8	5.6	1.6												
Tannins & Lignins	mg/L	-																

PWQO - Provincial Water Quality Objectives

Concrai Water Quar	,		Scg-Up	Scg-Up	Scg-Up	Scg-Up	Scg-Up	Scg-Up	Scg-Up	Scg-Up	Scg-Up	Scg-Up	Scg-Up	Scg-Up	Scg-Up	Scg-Up	Scg-Up	Scg-Up
Parameter	UNITS	PWQO	24-Apr-17	22-Jun-17	24-Aug-17	17-Oct-17	1-Mar-18	23-Apr-18	9-May-18	26-Jun-18	28-Aug-18	10-Oct-18	25-Apr-19	18-Jul-19	12-Aug-19	8-Oct-19	8-Oct-19	27-Apr-20
pH -Lab	pH units	6.5-8.5	8.24	8.17	8.09	8.08	8.23	8.41	8.16	8.12	8.03	8.11	8.19	7.98	8.09	7.96	7.99	8.11
Conductivity	uS/cm	-	465	471	391	388	528	506	414	423	356	457	449	417	442	418	420	508
BOD	mg/L	-	<2	<3	<3	<3	< 3	< 3	< 3	< 3	< 2	2	< 3	4	< 3	< 3	< 3	< 3
COD	mg/L	-	26	33	35	34	10	12	34	25	32	39	26	35	38	54	20	22
Total Dissolved Solids	mg/L	-	235	240	207	207	278	263	231	223	199	238	235	201	223	220	224	267
Total Suspended Solids	mg/L	-	4	3	4	6	3	3	7	6	22	< 3	8	7	4	3	3	4
Alkalinity	mg/L	-	155	186	134	117	230	228	156	129	103	168	164	131	153	133	132	182
Hardness	mg/L	-	192	212	168	175	270	230	188	152	130	210	204	167	183	165	175	251
Ammonia	mg/L	-	0.04	0.05	0.03	0.06	0.03	0.03	0.05	0.03	0.12	0.04	0.06	0.06	0.07	0.03	0.03	0.04
Un-ionized Ammonia	mg/L	0.02	0.02	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Calcium	mg/L	-	57	69.8	57.8	52.6	90.8	84.4	61	43.4	51.8	64.1	72.8	47.7	57.2	47.9	50.7	80.5
Chloride	mg/L	-	35	24.7	30.1	37	15.1	12.3	34.9	51.4	41	35.3	28.2	37.2	37.8	47.5	47.4	32.9
DOC	mg/L		8.2	11.8	10.9	8.7	5	5.1	8.1	9.3	8	11.2	9.4	9.9	11.1	8	7.8	8.3
Fluoride	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Iron	mg/L	0.3	0.044	0.109	0.149	0.077	0.041	0.031	0.121	0.067	0.547	0.068	0.173	0.107	0.092	0.075	0.076	0.071
Magnesium	mg/L	-	7.98	8.45	10.2	10.7	6.2	4.65	8.01	8.79	8.89	12	6.87	7.08	9.63	11.1	11.8	8.14
Manganese	mg/L	-	0.014	0.017	0.107	0.035	0.008	0.003	0.035	0.026	0.065	0.016	0.018	0.037	0.032	0.017	0.018	0.014
Nitrate	mg/L	-	1	0.63	< 0.05	0.06	1.84	2.79	0.55	< 0.05	0.1	< 0.05	1.96	< 0.05	0.08	< 0.05	< 0.05	2.26
Nitrite	mg/L	-	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
TKN	mg/L	-	0.7	0.9	0.8	0.8	0.4	0.4	0.8	0.8	0.8	0.8	0.2	0.9	0.8	0.6	0.6	0.5
Sodium	mg/L	-	16.9	16.8	18.1	22.7	13.7	11.1	17.7	30.4	23.9	20.2	13.8	22.2	18.2	21.1	22.5	14.8
Sulphate	mg/L	-	19	8	9	12	12	12	10	11	9	10	12	7	8	10	9	20
Phenols	mg/L	0.001	0.003	0.005	0.006	0.002	< 0.001	< 0.001	< 0.001	< 0.001	0.002	0.003	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	0.03	0.02	0.03	0.05	0.03	0.05	< 0.01	0.04	0.03	0.06	0.03	0.02	0.05	0.02	0.04	0.03	0.03
Potassium	mg/L	-	1.4	0.5	1.2	2.1	1.4	1.5	1.9	0.8	1.9	2.2	2.3	1.2	0.3	2.3	2.4	1.5
Aluminum	mg/L	0.075	0.05	0.06	0.1	0.05	0.07	0.06	0.07	0.03	0.35	0.05	0.05	0.03	0.03	0.03	0.04	0.05
Antimony	mg/L	-	< 0.0001	0.0002	0.0002	< 0.0001	< 0.0001	< 0.0001	0.0003	0.0001	0.0003	< 0.0001	0.0001	0.0001	0.0002	< 0.0001	0.0001	0.0001
Arsenic	mg/L	0.1	0.0003	0.0005	0.0005	0.0005	0.0006	0.0002	0.0003	0.0006	0.0005	0.0004	0.0002	0.0004	0.0005	0.0003	0.0003	0.0002
Barium	mg/L	-	0.027	0.046	0.064	0.05	0.037	0.027	0.041	0.031	0.048	0.051	0.036	0.032	0.039	0.04	0.042	0.031
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.006	0.011	0.016	0.019	0.006	0.007	0.009	0.013	0.029	0.012	0.007	0.014	0.015	0.013	0.013	0.008
Cadmium	mg/L	0.0002	< 0.000014	< 0.000014	0.000066	0.00006	< 0.000014	< 0.000014	< 0.000015	< 0.000015	0.000049	0.000033	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.1	< 0.001	< 0.001	0.001	0.001	< 0.001	< 0.001	0.001	< 0.001	0.003	< 0.001	< 0.001	< 0.001	< 0.001	0.002	0.002	< 0.001
Cobalt	mg/L	0.0006	< 0.0001	< 0.0001	0.0002	0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0003	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002
Copper	mg/L	0.005	< 0.0001	0.0004	0.0056	0.0064	0.0004	0.0018	0.0007	0.0007	0.0029	0.0065	0.0012	0.0016	0.0009	0.0009	0.0008	0.0011
Lead	mg/L	0.025	0.00003	0.00012	0.00063	0.00054	0.00004	0.00006	0.00033	0.0001	0.00169	0.00033	0.00016	0.00055	0.0004	0.00013	0.00017	0.00011
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0003	0.0003	0.0003	0.0003	0.0002	0.0002	0.0003	0.0003	0.0003	0.0002	0.0004	0.0002	0.0002	0.0002	0.0002	0.0004
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	0.00014	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	0.164	0.227	0.217	0.176	0.228	0.196	0.186	0.181	0.193	0.218	0.183	0.163	0.208	0.172	0.183	0.203
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	0.0004	0.0005	0.0003	0.0004	0.0005	0.0004	0.0007	0.0005	0.0014	0.0003	0.0005	0.0005	0.0007	0.0002	0.0002	0.0005
Zinc	mg/L	0.03	< 0.005	< 0.005	0.092	0.041	0.031	< 0.005	0.018	0.005	0.045	0.014	0.018	0.008	0.006	0.006	0.005	< 0.005
Cyanide	mg/L	0.005																
Turbidity	NTU	-																
Tannins & Lignins	mg/L	-																
	9, =		1									1			1			1

General Water Quar			Scg-Up Scg-Up	Scg-Up (Dup)														
Parameter	UNITS	PWQO	24-Jun-20	10-Aug-20	22-Oct-20	26-Apr-21	15-Jun-21	10-Aug-21	12-Oct-21	26-Apr-22	21-Jun-22	24-Aug-22	17-Oct-22	24-Apr-23	8-Jun-23	16-Aug-23	5-Oct-23	5-Oct-23
pH -Lab	pH units	6.5-8.5	7.96	8.07	8.16	8.22	8.06	8.15	7.97	7.97	8.09	7.99	8.06	8.11	7.93	7.48	8.14	8.12
Conductivity	uS/cm	-	414	428	485	508	423	391	376	544	381	418	466	495	444	445	508	512
BOD	mg/L	-	< 3	< 3	< 3	< 3	4	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	<3	<3	<3
COD	mg/L	-	32	27	13	24	34	40	47	44	33	26	23	21	19	26	29	28
Total Dissolved Solids	mg/L	-	220	219	259	277	226	217	208	286	204	214	248	260	227	234	287	282
Total Suspended Solids	mg/L	-	6	6	5	3	9	11	21	6	11	5	3	3	7	4	<3	<3
Alkalinity	mg/L	-	114	114	185	181	126	125	115	208	132	127	185	179	159	141	207	201
Hardness	mg/L	-	161	172	247	224	178	161	141	242	162	154	213	196	173	154	225	226
Ammonia	mg/L	-	0.17	0.03	0.03	0.02	0.05	0.02	0.05	0.96	0.09	0.08	0.21	0.2	0.08	0.21	0.08	0.11
Un-ionized Ammonia	mg/L	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.04	0.12	< 0.01	0.01	< 0.01	< 0.01	0.01	<0.01	<0.01
Calcium	mg/L	-	51.2	50.2	71.6	78.9	44.8	47.6	41.5	82.2	47.8	47.2	58.8	66.1	51.3	48	68.5	68.6
Chloride	mg/L	-	48.7	54.8	30.3	39.2	53.4	46	49.7	32.7	37.3	47.7	32.3	42.5	39	52.2	45.2	44.5
DOC	mg/L	-	8.9	8.8	8.6	9.2	11	9.7	6.5	8.9	12.3	7.2	7.3	5.4	5.3	7.8	2.3	3.7
Fluoride	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	<0.1	<0.1	<0.1
Iron	mg/L	0.3	0.235	0.161	0.055	0.088	0.187	0.151	0.101	0.106	0.09	0.183	0.059	0.07	0.133	0.087	0.089	0.079
Magnesium	mg/L	1	10.3	11.4	12.3	9.2	9.98	10.3	9.1	8.83	8	8.79	12.2	7.93	8.6	8.32	13.1	13.1
Manganese	mg/L	1	0.095	0.043	0.007	0.02	0.049	0.086	0.051	0.02	0.028	0.03	0.008	0.031	0.035	0.037	0.03	0.028
Nitrate	mg/L	1	0.16	0.09	0.24	1.26	0.08	0.05	0.09	1.79	0.36	0.09	0.08	0.97	0.1	0.12	0.11	0.08
Nitrite	mg/L	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	< 0.05	< 0.05	< 0.05
TKN	mg/L	1	1	1	0.6	0.8	1.2	1	1.2	1.3	1	0.8	0.8	0.8	1.2	0.9	0.8	0.8
Sodium	mg/L	1	24.9	20.3	14.5	20.4	26.3	24.6	22.4	17.5	19	26.4	14.4	19.8	20.5	26.3	20.7	20.8
Sulphate	mg/L	1	15	14	17	19	14	11	14	15	10	9	17	14	11	11	11	11
Phenols	mg/L	0.001	0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	<0.001
Phosphorus	mg/L	0.03	0.07	0.04	0.01	0.12	0.1	0.04	0.05	0.03	0.05	0.04	0.02	0.04	0.08	0.03	0.03	0.03
Potassium	mg/L	-	1.1	0.5	2.1	1.9	1.2	1.8	2.2	1.8	1.2	1.1	2.3	2	0.5	1.7	2.7	2.8
Aluminum	mg/L	0.075	0.03	0.03	0.06	0.05	0.04	0.01	0.03	0.05	0.03	0.01	0.02	0.02	0.02	0.04	0.03	0.03
Antimony	mg/L	-	0.0005	0.0003	0.0003	0.0004	0.0004	0.0007	0.0003	0.0003	< 0.0001	0.0004	0.0004	0.0003	0.0004	0.0002	0.0004	0.0004
Arsenic	mg/L	0.1	0.0005	0.0005	0.0002	0.0003	0.0006	0.0004	0.0003	0.0002	< 0.0001	0.0004	0.0003	0.0003	0.0004	0.0004	0.0004	0.0004
Barium	mg/L	-	0.044	0.049	0.049	0.04	0.029	0.034	0.033	0.042	0.027	0.034	0.042	0.032	0.028	0.037	0.049	0.049
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.0001	<0.0001	<0.0001
Boron	mg/L	0.2	0.088	0.086	0.011	0.011	0.015	< 0.005	0.012	0.012	0.007	0.009	0.009	0.01	0.011	0.013	0.016	0.016
Cadmium	mg/L	0.0002	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	<0.000015	<0.000015	< 0.000015
Chromium	mg/L	0.1	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	0.001	< 0.001	< 0.001	0.002	< 0.001	<0.001	< 0.001	<0.001
Cobalt	mg/L	0.0006	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0002	0.0002	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0001	< 0.0001	0.0001	0.0002	0.0002
Copper	mg/L	0.005	0.0005	0.0005	0.0003	0.0007	0.0008	0.0004	0.0003	0.0007	0.0001	0.0009	0.0004	0.0004	0.0005	0.0007	0.0008	0.0007
Lead	mg/L	0.025	0.00025	0.0003	0.00008	0.00023	0.00045	0.00029	0.00034	0.00016	0.00002	0.00016	0.00008	0.00012	0.0003	0.00032	0.00014	0.00013
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	<0.00002	<0.00002
Molybdenum	mg/L	0.04	0.0004	0.0004	0.0004	0.0004	0.0004	0.0002	0.0002	0.0003	< 0.0001	0.0002	0.0002	0.0003	0.0003	0.0003	0.0001	0.0001
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0005	0.0008	0.0008
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	<0.001
Silver	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001
Strontium	mg/L	-	0.199	0.194	0.22	0.223	0.169	0.184	0.15	0.242	0.162	0.187	0.214	0.185	0.176	0.168	0.247	0.248
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	<0.00005	<0.00005
Vanadium	mg/L		0.0007	0.0007	0.0003	0.0004	0.0007	0.0006	0.0006	0.0005	< 0.0001	0.0005	0.0003	0.0005	0.0006	0.0004	0.0003	0.0003
Zinc	mg/L	0.03	0.017	0.016	< 0.005	0.006	< 0.005	0.012	0.007	< 0.005	0.005	< 0.005	0.006	0.015	< 0.005	<0.005	<0.005	<0.005
Cyanide	mg/L	0.005												< 0.005	< 0.005	<0.005	<0.005	<0.005
Turbidity	NTU	-												3.5	6.4	3.8	1.9	1.5
Tannins & Lignins	mg/L	-																
DWOO Brownsial Water Out	5		l	l		l	1	1		1	1	1	l	1	1	l .	l	

Contra Water Quar			SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW2
Parameter	UNITS	PWQO	21-Apr-14	27-Apr-15	10-Jun-15	17-Nov-15	20-Apr-16	24-Apr-17	25-Apr-18	24-Apr-19	30-Apr-20	20-Apr-21	26-Apr-22	24-Apr-23	8-Jun-23	16-Aug-23	5-Oct-23	21-Apr-14
pH -Lab	pH units	6.5-8.5	8.1	8.13	7.84	8.06	8.05	8.18	8.32	8.13	8.03	8.18	8.08	8.22				7.9
Conductivity	uS/cm	-	1060	1150	929	998	1100	1110	877	894	976	982	1120	964				939
BOD	mg/L	-	< 3	< 2	< 2	2	4	<3	< 3	< 3	4	< 3	< 3	< 3				< 3
COD	mg/L	-	16	12	31	14	106	15	24	33	21	8	28	12				15
Total Dissolved Solids	mg/L	-	566	601	479	614	645	570	464	471	530	555	592	522				520
Total Suspended Solids	mg/L	-	10	< 3	26	262	352	<3	6	4	14	36	53	8				10
Alkalinity	mg/L	-	307	329	299	334	311	278	277	270	246	298	303	320				299
Hardness	mg/L	-	320	347	280	521	463	318	283	293	289	339	327	342				357
Ammonia	mg/L	-	0.17	0.02	0.01	< 0.01	0.05	< 0.01	0.03	0.22	0.03	0.02	0.28	0.02				0.02
Un-ionized Ammonia	mg/L	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01				< 0.01
Calcium	mg/L	-	117	125	99	190	170	108	101	105	105	123	118	115				128
Chloride	mg/L	-	152	167	113	108	157	170	107	109	145	132	166	121				104
DOC	mg/L	-	5.4	3.5	8.3	4.7	3.8	4.3	7.1	7.7	4.4	4.8	3.2	3.3				6.6
Fluoride	mg/L	-	0.1	0.2	0.1	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1				0.1
Iron	mg/L	0.3	0.073	0.08	0.598	3.6	2.45	0.023	0.093	0.081	0.238	0.075	0.609	0.258				0.065
Magnesium	mg/L	-	6.79	8.42	7.97	11.6	9.15	6.45	7.52	6.49	6.41	7.61	7.86	7.58				9.13
Manganese	mg/L	-	0.035	0.042	0.111	1.91	0.952	0.003	0.021	0.049	0.052	0.034	0.139	0.06				0.032
Nitrate	mg/L	-	0.1	0.1	< 0.1	0.1	0.2	< 0.1	0.12	0.27	0.2	< 0.05	< 0.05	0.08				2.2
Nitrite	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05				< 0.1
TKN	mg/L	-	0.6	0.7	1.2	0.7	0.7	0.5	0.7	1.1	0.6	0.4	0.8	1				0.7
Sodium	mg/L	-	84.6	80.3	60.7	58.7	95.4	91.8	62.1	64.3	83	89	99.4	67				55.7
Sulphate	mg/L	-	12	12	10	26	14	16	8	11	14	16	9	11				29
Phenols	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001				< 0.001
Phosphorus	mg/L	0.03	0.08	0.02	0.09	0.06	0.12	0.01	0.08	0.07	0.05	0.07	0.04	0.05	D	D	D	0.05
Potassium	mg/L	-	8.1	10.8	8.5	14.4	9.6	9.4	11.9	13.1	9.2	7.8	8.6	7.1	Dry	Dry	Dry	4
Aluminum	mg/L	0.075	0.08	0.05	0.19	1.18	1.05	0.04	0.08	0.07	0.07	0.08	0.07	0.03				0.07
Antimony	mg/L	-	< 0.0001	0.0002	0.0002	0.0002	< 0.0001	0.0001	< 0.0001	0.0003	0.0004	0.0001	0.0003	0.0002				< 0.0001
Arsenic	mg/L	0.1	0.0003	0.0002	0.0004	0.0007	0.0007	0.0009	0.0003	0.0003	0.0004	0.0002	0.0004	0.0004				0.0001
Barium	mg/L	-	0.053	0.057	0.068	0.161	0.108	0.055	0.053	0.053	0.056	0.06	0.063	0.057				0.07
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002				< 0.002
Boron	mg/L	0.2	0.012	0.012	0.015	0.017	0.009	0.013	0.012	0.007	0.013	0.013	0.017	0.017				0.015
Cadmium	mg/L	0.0002	< 0.00002	< 0.00002	0.00002	0.00016	0.00012	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	0.000038				< 0.00002
Chromium	mg/L	0.1	< 0.0002	< 0.0002	0.0005	0.0014	0.001	< 0.0015	0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002				< 0.0002
Cobalt	mg/L	0.0006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.0001	0.0003	0.0003	0.0001	0.0003	0.0002				< 0.005
Copper	mg/L	0.005	0.0014	0.001	0.002	0.0054	0.0034	0.0012	0.0012	0.0015	0.0013	0.0009	0.0013	0.0008				0.0018
Lead	mg/L	0.025	0.00029	0.00005	0.00055	0.00275	0.00441	< 0.00002	0.0001	0.00006	0.0003	0.00007	0.00046	0.00026				0.00007
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002				< 0.00002
Molybdenum	mg/L	0.04	0.0003	0.0003	0.0003	0.0002	0.0001	0.0004	0.0004	0.0005	0.0004	0.0003	0.0002	0.0002				0.0004
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01				< 0.01
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001				< 0.001
Silver	mg/L	0.0001	< 0.00002	< 0.00002	< 0.00002	0.00005	< 0.00002	0.00047	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001				< 0.00002
Strontium	mg/L	-		0.337	0.294	0.474	0.416	0.273	0.264	0.246	0.255	0.302	0.321	0.295				
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005				< 0.00005
Vanadium	mg/L	-	0.0008	0.0002	0.0004	0.0019	0.0025	0.0003	0.0003	0.0004	0.0006	0.0003	0.0006	0.0004				0.0006
Zinc	mg/L	0.03	0.006	0.005	0.031	0.159	0.077	< 0.005	0.019	0.011	0.022	0.019	0.008	0.009				0.009
Cyanide	mg/L	0.005	0.000	0.000		J. 133		0.000	0.0.0	0.011	0.022	0.0.0	0.000	< 0.005				0.000
Turbidity	NTU	-												14.3				
Tannins & Lignins	mg/L	_												17.0				
. a. amio a Liganio	g/∟		1	L				L		L	1					1		

PWQO - Provincial Water Quality Objectives

	ity		SW2	SW2	SW2	SW2	SW2	SW2	SW2									
Parameter	UNITS	PWQO	17-Jun-14	13-Aug-14	14-Oct-14	27-Apr-15	10-Jun-15	17-Nov-15	20-Apr-16	25-May-16	8-Jun-16	24-Apr-17	22-Jun-17	24-Aug-17	17-Oct-17	25-Apr-18	28-Jun-18	22-Aug-18
pH -Lab	pH units	6.5-8.5	7.56	7.7	7.63	7.88	7.69	7.88	7.97	8.02	8.03	7.93	7.53	7.75	7.79	8.12	7.75	7.89
Conductivity	uS/cm	-	1040	924	1020	1200	1110	1090	955	949	942	861	764	923	1020	867	1010	1090
BOD	mg/L	-	< 3	< 3	< 3	< 2	< 2	< 2	< 2	3	3	<3	<3	<3	<3	< 3	< 3	< 2
COD	mg/L	-	7	23	15	9	23	< 5	5	13	23	11	13	9	7	28	< 5	13
Total Dissolved Solids	mg/L	-	558	571	558	671	765	669	552	541	546	467	397	486	534	477	576	597
Total Suspended Solids	mg/L	-	5	26	34	25	330	102	17	36	30	12	<3	5	8	4	4	25
Alkalinity	mg/L	-	294	283	304	349	314	373	335	347	369	272	281	296	298	315	319	294
Hardness	mg/L	-	401	413	408	453	753	542	423	433	431	330	294	369	383	304	362	369
Ammonia	mg/L	-	0.01	0.02	0.1	0.04	0.03	< 0.01	0.05	0.09	0.16	0.02	< 0.01	0.09	0.06	0.02	0.17	0.1
Un-ionized Ammonia	mg/L	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Calcium	mg/L	-	138	137	136	162	272	195	150	152	152	120	105	126	129	109	120	131
Chloride	mg/L	-	132	135	118	140	147	98.9	82	63.9	67.9	85.9	49	89.2	103	95.9	137	149
DOC	mg/L	-	2.1	2.4	2.5	3.3	3.9	2.9	3	3	4.1	3.7	5.4	3.1	2.7	8.2	1.9	2.1
Fluoride	mg/L	-	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1
Iron	mg/L	0.3	0.038	0.113	0.514	0.725	8.91	3.49	0.432	1.72	2.09	0.191	0.081	0.071	0.114	0.069	0.058	0.412
Magnesium	mg/L	-	13.7	17	16.5	11.7	17.6	13.1	11.7	12.8	12.6	9.79	9.04	12.1	14.6	7.72	15	17.1
Manganese	mg/L	-	0.018	0.027	0.037	0.22	0.535	0.663	0.105	0.54	0.625	0.03	0.087	0.105	0.119	0.011	0.061	0.085
Nitrate	mg/L	-	1.9	1.1	1.8	0.1	1.3	< 0.1	0.1	0.2	0.2	1.4	1.05	0.6	0.55	1.17	0.97	0.35
Nitrite	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
TKN	mg/L	-	0.4	0.17	0.7	0.4	1.1	0.4	0.3	0.4	0.6	0.4	0.4	0.3	0.3	0.7	0.7	0.4
Sodium	mg/L	-	56.6	66.2	57.1	94.7	86.9	64.5	53.5	44.8	47.7	48.1	43.4	55.2	65.1	53.9	78.1	74
Sulphate	mg/L	-	32	38	37	49	33	67	50	54	39	32	20	23	41	15	32	47
Phenols	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	0.004	0.005	< 0.001	< 0.001	0.006
Phosphorus	mg/L	0.03	0.05	0.02	0.07	0.02	0.23	0.05	0.03	0.05	0.11	0.02	0.01	0.03	0.01	0.02	0.01	0.03
Potassium	mg/L	-	1.5	1.9	2.1	2.2	4.2	2.1	1.8	1.9	1.3	1.8	1.4	2.3	2.3	5.5	2.7	2.9
Aluminum	mg/L	0.075	0.07	0.05	0.11	0.07	4.5	0.44	0.13	0.13	0.27	0.21	0.06	0.08	0.08	0.08	0.08	0.22
Antimony	mg/L	-	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0002	< 0.0001	< 0.0001	0.0002	< 0.0001
Arsenic	mg/L	0.1	0.0001	< 0.0001	0.0003	0.0002	0.001	0.0006	0.0002	0.0004	0.0003	0.0004	0.0004	0.0004	0.0006	0.0003	0.0002	0.0003
Barium	mg/L	-	0.103	0.117	0.12	0.082	0.149	0.108	0.072	0.092	0.08	0.078	0.072	0.107	0.112	0.053	0.107	0.128
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.024	0.028	0.026	0.02	0.035	0.024	0.011	0.033	0.022	0.015	0.024	0.032	0.035	0.016	0.03	0.034
Cadmium	mg/L	0.0002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00008	0.00013	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	< 0.000014	0.000047	< 0.000015	0.000041	0.000119
Chromium	mg/L	0.1	0.0005	0.0028	0.0014	< 0.0002	0.0049	0.0004	0.0002	0.0004	0.0003	< 0.0015	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.001
Cobalt	mg/L	0.0006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0001	0.0002	0.0004	0.0002	< 0.0001	0.0005	0.0005
Copper	mg/L	0.005	0.0012	0.0012	0.0015	0.0009	0.0058	0.0047	0.0007	0.0014	0.001	0.0011	0.0019	0.0011	0.006	0.0022	0.0071	0.0092
Lead	mg/L	0.025	0.00031	0.00003	0.00022	0.00005	0.0053	0.00077	0.00025	0.00017	0.00089	0.00006	0.00004	0.00002	0.00035	0.00006	0.00029	0.00105
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0003	0.0004	0.0004	0.0002	0.0003	0.0001	0.0001	0.0002	< 0.0001	0.0002	0.0002	0.0003	0.0003	0.0005	0.0003	0.0004
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	0.00005	< 0.00002	< 0.00002	< 0.00002	0.00038	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001
Strontium	mg/L	-	0.462	0.51	0.522	0.456	0.696	0.52	0.409	0.411	0.407	0.314	0.322	0.381	0.363	0.276	0.433	0.485
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00007	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	0.0001	0.0028	0.0003	< 0.0001	0.0053	0.0009	0.0003	0.0003	0.0006	0.0003	0.0001	< 0.0001	0.0001	0.0003	0.0002	0.0005
Zinc	mg/L	0.03	0.019	0.026	0.026	0.066	0.14	0.099	0.016	0.014	0.03	0.053	0.01	0.015	0.012	0.007	0.015	0.037
Cyanide	mg/L	0.005																
Turbidity	NTU	-																
Tannins & Lignins	mg/L	-																

PWQO - Provincial Water Quality Objectives

			SW2 SW2	SW2	SW2	SW2	SW2	SW2										
Parameter	UNITS	PWQO	9-Oct-18	24-Apr-19	17-Jul-19	13-Aug-19	30-Apr-20	24-Jun-20	22-Oct-20	20-Apr-21	15-Jun-21	20-Oct-21	26-Oct-21	26-Apr-22	21-Jun-22	24-Aug-22	17-Oct-22	24-Apr-23
pH -Lab	pH units	6.5-8.5	7.54	8.17	7.74	8.05	7.88	7.83	8.09	8.06	7.72	7.88	7.97	8.18	7.6	7.69	7.81	8.05
Conductivity	uS/cm	-	1130	847	967	968	883	1140	1110	923	1260	815	1160	946	1030	1250	1120	947
BOD	mg/L	-	2	< 3	< 3	< 3	< 3	6	7	< 3	< 6	3	<2	< 3	< 3	17	< 3	< 3
COD	mg/L	-	6	24	9	14	10	21	< 5	< 5	< 5	74	62	17	21	28	11	10
Total Dissolved Solids	mg/L	-	602	452	501	532	481	661	621	522	702	461	689	521	536	673	659	517
Total Suspended Solids	mg/L	-	< 3	3	10	24	4	160	14	16	189	37	11	38	46	50	206	6
Alkalinity	mg/L	-	286	307	288	280	262	267	276	293	278	329	480	334	315	286	384	317
Hardness	mg/L	-	417	372	387	383	367	380	421	376	420	340	580	418	389	391	471	362
Ammonia	mg/L	-	0.03	0.04	0.07	0.05	< 0.01	0.25	0.02	0.03	0.1	0.04	0.07	0.92	0.03	0.2	0.06	0.04
Un-ionized Ammonia	mg/L	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.02	< 0.02	0.02	< 0.01	< 0.01	< 0.01	< 0.01
Calcium	mg/L	-	136	130	127	130	128	183	141	130	143	150	220	150	133	130	169	122
Chloride	mg/L	-	149	62.1	97.4	121	97.1	180	166	107	213	39	66	78.6	115	201	102	108
DOC	mg/L	-	2.6	11.3	2.8	2.5	2.5	2	1.1	2.7	2.4	21.7	24.3	7.2	2.7	1.5	1.5	3.9
Fluoride	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Iron	mg/L	0.3	0.078	0.058	0.056	0.609	0.134	0.283	1.11	0.092	0.784	1.1	0.5	0.808	0.184	0.14	6.41	0.317
Magnesium	mg/L	-	18.7	8.89	12.8	14	11.5	16.1	16.7	12.3	15.3	10	16	10.4	13.9	16.1	13.9	9.9
Manganese	mg/L	-	0.061	0.015	0.087	0.144	0.035	0.688	0.134	0.025	0.107	0.13	0.19	0.043	0.049	0.082	0.908	0.049
Nitrate	mg/L	-	0.46	5.03	1	0.9	0.94	0.72	0.53	1.2	0.83	1.9	0.6	3.89	0.46	0.07	0.14	0.67
Nitrite	mg/L	-	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.02	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
TKN	mg/L	-	0.3	1.1	0.3	0.2	0.2	0.7	0.4	0.3	0.4	3	1.7	1.2	0.4	6	0.4	0.7
Sodium	mg/L	-	81.4	40.3	60.9	58.6	51.3	86.7	82.7	55.6	156	23	39	51.6	58.1	102	53.6	55.9
Sulphate	mg/L	-	49	21	27	37	32	31	44	33	37	39	55	24	27	48	81	28
Phenols	mg/L	0.001	< 0.002	< 0.002	0.004	< 0.002	< 0.002	< 0.001	< 0.002	< 0.002	< 0.002	0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	0.03	0.01	0.02	< 0.01	0.02	< 0.01	0.04	0.08	0.03	0.08	0.18	0.035	0.05	0.02	0.28	0.02	0.04
Potassium	mg/L		2.8	5.7	2.5	2.3	1.3	2.3	2.4	1.3	2.1	14	7.9	4.1	1.9	2.7	1.4	3
Aluminum	mg/L	0.075	0.07	0.06	0.07	0.06	0.08	0.07	0.05	0.09	0.09	0.73	0.16	0.07	0.04	0.04	0.05	0.03
Antimony	mg/L	-	< 0.0001	< 0.0001	0.0004	< 0.0001	0.0004	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0005	< 0.0005	0.0003	0.0004	0.0004	0.0007	0.0002
Arsenic	mg/L	0.1	0.0002	0.0003	0.0002	0.0003	0.0001	0.0003	0.0005	0.0001	0.0003	< 0.001	< 0.001	0.0004	0.0002	0.0003	0.0007	0.0003
Barium	mg/L	-	0.125	0.066	0.107	0.11	0.081	0.157	0.122	0.088	0.121	0.095	0.12	0.072	0.104	0.177	0.091	0.132
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.0005	< 0.0005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.034	0.013	0.028	0.031	0.015	0.107	0.037	0.015	0.027	0.04	0.05	0.025	0.021	0.027	0.026	0.023
Cadmium	mg/L	0.0002	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.0001	< 0.0001	< 0.000015	< 0.000015	< 0.000028	< 0.000028	< 0.000015
Chromium	mg/L	0.1	0.002	0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	0.001	< 0.005	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	0.002
Cobalt	mg/L	0.0006	0.0002	0.0002	0.0002	0.0004	0.0002	0.0005	0.0005	0.0001	0.0006	0.0007	< 0.0005	0.0004	0.0002	0.0006	0.0011	0.0002
Copper	mg/L	0.005	0.0008	0.0025	0.001	0.0015	0.001	0.0012	0.0012	0.0007	0.0019	0.005	0.003	0.0028	0.0012	0.0014	0.0014	0.0015
Lead	mg/L	0.025	0.00004	0.00003	0.00004	0.00031	0.00005	0.00017	0.00027	0.00005	0.0005	0.0012	< 0.0005	0.00054	0.00008	0.00007	0.0008	0.00007
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00001	< 0.00001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0003	0.0006	0.0003	0.0004	0.0002	0.0002	0.0003	0.0002	0.0002	0.0015	0.0007	0.0005	0.0002	0.0003	< 0.0002	0.0002
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.002	0.001	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.002	< 0.002	< 0.001	< 0.001	< 0.002	< 0.002	< 0.001
Silver	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	0.485	0.328	0.414	0.406	0.346	0.48	0.491	0.376	0.454	0.37	0.59	0.41	0.432	0.495	0.438	0.36
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.0001	< 0.0001	< 0.00005
Vanadium	mg/L	-	0.0002	0.0005	0.0001	0.0004	0.0002	0.0003	0.0007	0.0001	0.0007	0.0018	0.0012	0.001	0.0002	0.0002	0.0011	0.0003
Zinc	mg/L	0.03	0.03	0.01	0.032	0.028	0.006	0.057	0.016	0.018	0.035	0.009	0.007	0.018	0.013	0.027	0.016	0.031
Cyanide	mg/L	0.005																< 0.005
Turbidity	NTU	-																3.6
Tannins & Lignins	ma/L	-																

Contrat Water Quar			SW2	SW2	SW2	SW3	SW3	SW3										
Parameter	UNITS	PWQO	8-Jun-23	16-Aug-23	5-Oct-23	21-Apr-14	17-Jun-14	13-Aug-14	14-Oct-14	28-Apr-15	10-Jun-15	17-Nov-15	20-Apr-16	16-May-16	8-Jun-16	24-Apr-17	22-Jun-17	24-Aug-17
pH -Lab	pH units	6.5-8.5	7.79	7.58	7.82	8.27	8.11	8.07	8.2	8.26	8.21	8.21	8.23	8.19	8.22	8.2	8.03	8.03
Conductivity	uS/cm	-	1190	1060	1170	839	930	921	1000	854	876	971	759	850	979	817	789	882
BOD	mg/L	-	11	<3	7	< 3	11	< 3	< 3	< 2	< 2	< 2	< 2	< 2	4	<3	<3	<3
COD	mg/L	-	566	9	64	16	208	20	5	6	7	< 5	7	6	11	11	12	14
Total Dissolved Solids	mg/L	-	634	565	672	464	500	540	541	460	467	556	429	433	526	431	424	480
Total Suspended Solids	mg/L	-	260	15	58	16	164	46	5	< 3	7	14	< 3	10	17	3	7	310
Alkalinity	mg/L	-	315	318	301	296	278	299	310	286	265	311	278	267	292	275	325	320
Hardness	mg/L	-	389	353	427	337	378	380	376	325	325	416	344	289	361	321	337	381
Ammonia	mg/L	-	1.47	0.81	0.23	0.06	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	0.02	0.05	0.1	< 0.01	< 0.01	0.02
Un-ionized Ammonia	mg/L	0.02	0.02	0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Calcium	mg/L	-	133	119	141	121	131	128	125	113	109	142	120	99.5	123	105	120	136
Chloride	mg/L	-	179	140	194	81.1	124	139	124	90.7	108	102	60.9	97.1	134	73.2	42.7	78.8
DOC	mg/L	-	8.4	2.1	0.8	6.8	3.8	4.1	3.2	3.1	3.9	2.6	3.4	2.5	2.6	4.5	5.8	5.6
Fluoride	mg/L	-	< 0.1	<0.1	<0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	< 0.1
Iron	mg/L	0.3	0.468	0.135	0.375	0.42	0.66	0.087	0.204	0.073	0.616	0.282	0.129	0.084	0.575	0.068	0.22	0.574
Magnesium	mg/L	-	14	13.6	18.3	8.71	12.6	14.9	15.3	10.3	12.7	14.9	10.5	9.86	13.1	8	10.6	12.7
Manganese	mg/L	-	0.07	0.049	0.109	0.056	0.088	0.005	0.023	0.012	0.161	0.016	0.01	0.01	0.078	0.003	0.126	0.194
Nitrate	mg/L	-	< 0.05	0.34	0.31	1.1	0.1	< 0.1	0.2	0.4	0.4	1.5	0.8	0.4	0.2	0.3	0.07	< 0.05
Nitrite	mg/L	-	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05
TKN	mg/L	-	5	0.3	4.2	0.7	0.7	0.56	0.5	0.6	0.7	0.4	0.4	0.3	0.5	0.3	0.5	0.5
Sodium	mg/L	-	84.5	67.4	95.4	42.8	51.6	67.8	59.6	40.3	49	58.1	37.2	41.2	61.7	39.8	39.1	49.1
Sulphate	mg/L	-	30	30	36	25	13	10	28	29	25	43	27	22	16	36	15	9
Phenols	mg/L	0.001	< 0.001	<0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	0.004
Phosphorus	mg/L	0.03	0.11	0.02	0.63	0.07	0.1	0.06	0.04	0.01	0.06	0.06	0.01	0.05	0.03	< 0.01	0.01	0.08
Potassium	mg/L	-	2.1	1.8	4	3.2	1	1.6	2.5	2.3	1.3	2.3	2	1.2	0.9	2.3	1.1	2
Aluminum	mg/L	0.075	0.04	0.08	0.09	0.22	0.26	0.05	0.06	0.04	0.24	0.08	0.06	0.03	0.08	0.06	0.1	0.18
Antimony	mg/L	-	0.0003	0.0001	0.0003	< 0.0001	0.0001	0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0004	< 0.0001	< 0.0001	< 0.0001	0.0001
Arsenic	mg/L	0.1	0.0002	0.0002	0.0006	0.0002	0.0004	0.0004	0.0002	0.0002	0.0002	0.0002	0.0002	< 0.0012	0.0002	0.0004	0.0006	0.0008
Barium	mg/L	-	0.221	0.105	0.608	0.07	0.07	0.07	0.089	0.063	0.082	0.086	0.073	0.056	0.065	0.062	0.089	0.089
Beryillium	mg/L	1.1	< 0.002	<0.0001	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.021	0.025	0.032	0.017	0.024	0.025	0.029	0.02	0.019	0.026	0.013	< 0.005	0.014	0.018	0.027	0.03
Cadmium	mg/L	0.0002	< 0.000015	<0.000015	0.000032	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	0.00006	< 0.00002	< 0.001	< 0.00002	< 0.000014	< 0.000014	0.000094
Chromium	mg/L	0.1	< 0.001	<0.001	<0.001	< 0.0002	< 0.0002	0.0021	0.0003	0.0003	0.0006	0.0113	< 0.0002	< 0.0005	0.0002	< 0.0015	< 0.001	< 0.001
Cobalt	mg/L	0.0006	0.0002	0.0003	0.0008	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	0.0002	0.0005
Copper	mg/L	0.005	0.0013	0.0011	0.0038	0.0014	0.001	0.001	0.0011	0.0008	0.0012	0.0034	0.0006	< 0.001	0.0004	0.0008	0.0009	0.0067
Lead	mg/L	0.025	0.00018	0.00005	0.00021	0.00032	0.00035	< 0.00002	0.00006	0.00028	0.00059	0.00031	0.00004	< 0.0006	0.00019	< 0.00002	0.00007	0.00069
Mercury	mg/L	-	< 0.00002	<0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0002	0.0003	0.0002	0.0004	0.0002	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	< 0.001	0.0001	0.0005	0.0007	0.0007
Nickel	mg/L	0.025	< 0.01	0.0008	0.001	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	<0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0008	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	< 0.0001	<0.0001	<0.0001	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.0005	< 0.00002	0.00037	< 0.00002	< 0.00002
Strontium	mg/L	-	0.451	0.439	0.524		0.428	0.452	0.48	0.366	0.411	0.508	0.374	0.329	0.4	0.285	0.379	0.398
Thallium	mg/L	-	< 0.00005	<0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.0006	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	0.0003	0.0002	0.0004	0.0009	0.0005	0.0023	0.0002	0.0001	0.0004	0.0002	0.0003		0.0003	0.0004	0.0003	0.0003
Zinc	mg/L	0.03	0.056	0.021	0.073	< 0.005	0.01	0.006	< 0.005	0.007	0.023	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.024	0.044
Cyanide	mg/L	0.005	< 0.005	<0.005	<0.005													
Turbidity	NTU	-	17.6	6.8	8.8													
Tannins & Lignins	mg/L	-																
				1		1	1			1	1					1		

PWQO - Provincial Water Quality Objectives

Contrat Water Quar			SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3
Parameter	UNITS	PWQO	17-Oct-17	25-Apr-18	28-Jun-18	9-Oct-18	24-Apr-19	17-Jul-19	30-Apr-20	24-Jun-20	22-Oct-20	20-Apr-21	15-Jun-21	11-Aug-21	15-Oct-21	26-Apr-22	21-Jun-22	17-Oct-22
pH -Lab	pH units	6.5-8.5	8.25	8.36	8.19	8.14	8.21	8.08	8.06	7.91	8.21	8.27	8.11	8.23	8.21	8.23	8.18	8.01
Conductivity	uS/cm	-	982	793	1010	1120	842	984	780	1260	1080	837	1260	1050	1030	858	891	1190
BOD	mg/L	-	<3	< 3	< 3	2	< 3	< 3	< 3	22	< 3	< 3	< 3	3	4	< 3	< 3	< 3
COD	mg/L	-	9	25	< 5	6	28	40	12	12	6	< 5	16	19	20	45	16	48
Total Dissolved Solids	mg/L	-	531	431	571	592	447	531	434	664	597	480	720	558	576	462	472	628
Total Suspended Solids	mg/L	-	7	4	6	45	< 3	256	3	520	555	< 3	85	380	570	4	65	62
Alkalinity	mg/L	-	310	281	324	291	322	330	259	334	287	289	362	373	353	316	319	297
Hardness	mg/L	-	403	312	381	423	359	409	338	455	402	364	464	372	410	358	375	390
Ammonia	mg/L	-	0.01	0.02	0.03	0.01	0.04	0.05	< 0.01	0.03	0.02	< 0.01	0.02	0.15	0.04	0.66	0.03	0.05
Un-ionized Ammonia	mg/L	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02	< 0.01	< 0.01
Calcium	mg/L	-	137	110	129	144	124	156	120	156	138	127	162	128	141	128	131	119
Chloride	mg/L	-	100	77.1	144	149	58.9	98.5	74.5	202	162	87.6	202	128	131	66.1	85.1	199
DOC	mg/L	-	4	6.6	3.5	3.4	10.3	6.9	3.5	3.7	1.9	3.3	4.2	4.7	4.1	7	4.9	0.6
Fluoride	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Iron	mg/L	0.3	0.372	0.132	0.205	0.115	0.084	3.99	0.055	0.302	0.411	0.045	0.695	0.509	1.08	0.164	0.239	1.27
Magnesium	mg/L	-	14.6	9.1	14.2	15.3	8.44	12.4	9.36	15.1	13.9	11.2	14.3	12.9	14.1	9.31	11.4	13.9
Manganese	mg/L	-	0.09	0.022	0.053	0.018	0.012	1.66	0.006	0.441	0.135	0.009	0.333	0.293	0.434	0.024	0.083	0.227
Nitrate	mg/L	-	< 0.05	0.85	0.07	< 0.05	4.3	0.06	0.12	< 0.05	< 0.05	< 0.05	0.15	0.14	< 0.05	2.66	< 0.05	0.1
Nitrite	mg/L	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	< 0.05	< 0.05	< 0.05
TKN	mg/L	-	0.4	0.6	0.4	0.5	1.1	2.1	0.3	0.6	0.5	0.2	0.6	0.7	0.5	1.2	0.4	1.4
Sodium	mg/L	-	62.6	46.2	79.2	77	37.5	58	39.3	85.5	76.3	47.9	80.9	60.7	65.3	44.3	48.4	87.4
Sulphate	mg/L	-	28	16	9	34	20	1	29	2	28	27	2	2	8	20	9	26
Phenols	mg/L	0.001	0.003	< 0.001	< 0.001		< 0.002	< 0.002	< 0.002	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	0.03	0.03	0.02	0.03	0.04	0.01	0.35	< 0.01	0.03	0.05	0.05	0.08	0.03	0.06	0.01	0.02	0.19
Potassium	mg/L	-	2.8	3.9	1.2	2.5	5.2	1.9	1.9	1.4	1.9	1.6	1.3	1.7	2.6	3.6	1.5	2.5
Aluminum	mg/L	0.075	0.16	0.09	0.09	0.08	0.07	0.07	0.07	0.07	0.05	0.09	0.05	0.04	0.04	0.07	0.04	0.04
Antimony	mg/L	-	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0001	< 0.0001	0.0004	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0004	0.0004	0.0003	0.0005	0.0003
Arsenic	mg/L	0.1	0.0008	0.0003	0.0004	0.0002	0.0003	0.0016	0.0002	0.0007	0.0003	0.0002	0.0006	0.0007	0.0007	0.0003	0.0003	0.0005
Barium	mg/L	-	0.089	0.065	0.075	0.093	0.066	0.112	0.07	0.098	0.073	0.067	0.08	0.052	0.079	0.062	0.062	0.068
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.028	0.015	0.026	0.025	0.011	0.027	0.018	0.105	0.018	0.016	0.02	0.026	0.027	0.021	0.023	0.022
Cadmium	mg/L	0.0002	0.000048	< 0.000015	< 0.000015	< 0.000015	< 0.000015	0.000039	< 0.000015	< 0.000015	< 0.000015	< 0.000015	0.000021	< 0.000015	< 0.000015	0.000029	< 0.000015	< 0.000028
Chromium	mg/L	0.1	0.001	< 0.001	< 0.001	0.003	0.001	0.002	< 0.001	< 0.001	0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	0.0006	< 0.0001	< 0.0001	0.0004	0.0001	0.0001	0.0014	0.0002	0.0003	0.0003	< 0.0001	0.0005	0.0006	0.0005	0.0002	0.0002	0.0005
Copper	mg/L	0.005	0.0067	0.0015	0.0006	0.0009	0.0026	0.0025	0.0009	0.0006	0.0007	0.0005	0.0012	0.0004	0.0006	0.0021	0.0004	0.0008
Lead	mg/L	0.025	0.0005	0.00005	0.00006	0.00015	0.00006	0.00221	0.00005	0.00008	0.0003	< 0.00002	0.00047	0.00016	0.00048	0.00014	0.00006	0.00068
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0003	0.0004	0.0002	0.0004	0.0005	0.0005	0.0004	0.001	0.0004	0.0002	0.0006	0.0004	0.0002	0.0004	0.0002	< 0.0002
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.002
Silver	mg/L	0.0001	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	0.378	0.304	0.422	0.418	0.311	0.428	0.303	0.455	0.374	0.353	0.457	0.406	0.444	0.357	0.376	0.4
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.0001
Vanadium	mg/L	-	0.0003	0.0002	0.0003	0.0005	0.0004	0.0025	0.0004	0.0003	0.0007	0.0002	0.0009	0.0004	0.0008	0.0003	0.0002	0.0007
Zinc	mg/L	0.03	0.19	0.017	0.022	0.02	0.007	0.033	< 0.005	0.014	< 0.005	0.014	0.019	0.014	0.005	0.009	< 0.005	0.007
Cyanide	mg/L	0.005																
Turbidity	NTU	-																
Tannins & Lignins	mg/L	-																
			l .	l .		ı				l .	ı		ı	l .	l .	ı	1	

General Water Qua	<u>y</u>		SW3	SW3	SW3	SW3	SW4	SW4	SW4	SW4	SW4							
Parameter	UNITS	PWQO	24-Apr-23	8-Jun-23	16-Aug-23	5-Oct-23	21-Apr-14	27-Apr-15	11-Jun-15	17-Nov-15	20-Apr-16	25-May-16	8-Jun-16	24-Apr-17	22-Jun-17	24-Aug-17	17-Oct-17	25-Apr-18
pH -Lab	pH units	6.5-8.5	8.19		8.13	8.21	8.01	8.12	8.14	8.16	8.21	8.16	8.11	8.12	7.83	8	8.24	8.31
Conductivity	uS/cm	-	851		1010	1020	551	569	756	800	618	813	1180	501	653	643	720	508
BOD	mg/L	_	< 3		<3	<3	< 3	< 2	< 2	< 2	3	< 2	< 2	<3	<3	5	<3	< 3
COD	mg/L	_	14		16	<5	8	< 5	13	< 5	11	17	21	8	6	15	9	18
Total Dissolved Solids	mg/L	-	465		549	599	301	317	401	458	347	438	639	269	350	363	407	269
Total Suspended Solids	mg/L	-	3		31	<3	6	58	5	8	5	17	22	3	6	22	<3	5
Alkalinity	mg/L	-	315		338	298	278	292	312	256	249	327	385	251	346	328	366	232
Hardness	mg/L	-	322		364	395	291	308	305	339	299	362	433	261	347	404	409	246
Ammonia	mg/L	-	0.09		0.21	0.35	0.02	< 0.01	< 0.01	0.01	0.03	0.06	0.06	< 0.01	< 0.01	0.02	0.01	0.02
Un-ionized Ammonia	mg/L	0.02	< 0.01		0.03	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Calcium	mg/L	-	116		126	133	107	113	109	123	109	130	153	93.3	123	135	149	88.6
Chloride	mg/L	-	82.2		132	166	6.6	6.8	45.4	55.8	34.2	52.5	148	6.6	3.7	7.5	8.8	12.7
DOC	mg/L	-	4.6		3.3	2.9	3.9	5.5	8.2	4.2	4.2	5.3	5.2	4.1	4.2	5.4	3.5	5.7
Fluoride	mg/L	-	< 0.1		<0.1	<0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.3
Iron	mg/L	0.3	0.252		0.766	0.138	0.023	0.045	0.082	0.15	0.047	0.569	1.14	0.024	0.067	0.128	0.079	0.056
Magnesium	mg/L	-	8.99		12	15	5.54	6.3	7.67	7.5	6.67	8.78	12.3	4.85	6.55	7.95	8.79	5.86
Manganese	mg/L	-	0.025		0.239	0.059	0.008	0.015	0.037	0.048	0.019	0.375	0.87	0.004	0.065	0.036	0.025	0.01
Nitrate	mg/L	-	0.34		0.06	0.06	< 0.1	< 0.1	2	6.8	1.6	0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	1.32
Nitrite	mg/L	-	< 0.05		<0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05
TKN	mg/L	-	0.6		0.4	0.7	0.3	0.2	1	0.7	0.4	0.6	0.7	0.2	0.4	0.4	0.2	0.4
Sodium	mg/L	-	45.1		65.1	76.1	5.1	5.3	28.7	36.6	23.1	34.7	78.7	3.8	4.6	5	5.8	10.5
Sulphate	mg/L	-	21		8	26	9	10	13	49	16	13	13	9	4	9	14	10
Phenols	mg/L	0.001	< 0.001		<0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.004	0.004	< 0.001
Phosphorus	mg/L	0.03	0.03	Dry	0.03	<0.01	0.06	< 0.01	0.03	0.06	0.01	0.03	0.05	< 0.01	0.02	0.04	0.02	0.02
Potassium	mg/L	-	2.7	Diy	2	2.6	0.7	0.7	0.5	1.5	1.8	0.5	0.4	0.6	0.6	1.3	1.3	1.5
Aluminum	mg/L	0.075	0.03		0.2	0.05	0.04	0.04	0.05	0.06	0.04	0.1	0.16	0.05	0.06	0.12	0.12	0.08
Antimony	mg/L	-	0.0003		<0.0001	0.0004	< 0.0001	0.0001	0.0002	0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	0.0002	0.0005	0.0001	< 0.0001
Arsenic	mg/L	0.1	0.0003		0.0006	0.0002	0.0001	0.0002	0.0003	0.0002	0.0002	0.0005	0.0005	0.0001	0.0003	0.0004	0.0002	0.0004
Barium	mg/L	-	0.061		0.068	0.062	0.025	0.029	0.033	0.045	0.037	0.053	0.057	0.024	0.035	0.039	0.048	0.037
Beryillium	mg/L	1.1	< 0.002		<0.0001	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.019		0.025	0.025	0.005	0.008	0.005	0.007	< 0.005	0.024	0.013	0.006	0.016	0.022	0.017	0.007
Cadmium	mg/L	0.0002	< 0.000015		<0.000015	<0.000015	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	0.00012	0.000041	< 0.000015
Chromium	mg/L	0.1	0.002		<0.001	<0.001	< 0.0002	< 0.0002	0.0004	0.0003	0.0003	0.0003	0.0003	< 0.0015	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	0.0006	0.0002		0.0005	0.0004	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	0.0001	0.0003	< 0.0001	< 0.0001
Copper	mg/L	0.005	0.001		0.0007	0.0004	< 0.0001	0.0003	0.0012	0.0008	0.0005	0.001	0.0006	< 0.0001	0.0004	0.0103	0.0056	0.0005
Lead	mg/L	0.025	0.00007		0.00032	0.00006	0.00019	< 0.00002	0.00044	0.00011	< 0.00002	< 0.00002	0.00023	< 0.00002	0.00002	0.00059	0.00039	0.00005
Mercury	mg/L	-	< 0.00002		<0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0003		0.0002	0.0001	< 0.0001	0.0001	0.0002	0.0002	0.0001	0.0002	0.0002	0.0001	0.0001	0.0003	0.0001	0.0001
Nickel	mg/L	0.025	< 0.01		0.0009	0.0041	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001		<0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	< 0.0001		<0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00026	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	-	0.331		0.39	0.402		0.303	0.309	0.332	0.288	0.359	0.439	0.232	0.341	0.347	0.352	0.225
Thallium	mg/L	-	< 0.00005		<0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.000005	< 0.000005	< 0.000005	< 0.00005
Vanadium	mg/L	-	0.0002		0.0005	0.0001	0.0005	0.0002	0.0004	0.0003	0.0002	0.0006	0.0005	0.0002	0.0002	0.0005	0.0004	0.0003
Zinc	mg/L	0.03	0.028		0.006	0.013	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.091	0.014	0.027	0.016	0.024
Cyanide	mg/L	0.005	< 0.005		<0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Turbidity	NTU	-	10.4		6.9	2.1	3.8	10.2	11.5	7.5	40.7	9.6	26.9	3.1	0.9	4.7	1.2	357
Tannins & Lignins	mg/L	-															0.6	

Contra Water Quar			SW4 SW4	SW13	SW13	SW13	SW13	SW13	SW13									
Parameter	UNITS	PWQO	24-Apr-19	31-Oct-19	30-Apr-20	20-Apr-21	15-Oct-21	26-Apr-22	21-Jun-22	24-Apr-23	16-Aug-23	5-Oct-23	21-Apr-14	17-Jun-14	14-Oct-14	28-Apr-15	11-Jun-15	18-Nov-15
pH -Lab	pH units	6.5-8.5	8.19	8.01	8.17	8.24	8.16	8.33	8.25	8.23	8.18	8.15	7.97	7.78	7.53	7.84	7.86	7.76
Conductivity	uS/cm	-	557	447	550	575	720	638	774	608	837	854	685	504	699	1600	1310	1280
BOD	mg/L	-	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	<3	<3	5	25	14	3	< 2	7
COD	mg/L	-	19	22	14	7	31	6	18	11	24	23	22	148	308	25	14	29
Total Dissolved Solids	mg/L	-	293	247	304	328	415	342	406	322	494	520	338	270	379	889	665	702
Total Suspended Solids	mg/L	-	12	< 3	< 3	< 3	6	< 3	3	4	4	10	19	82	410	30	32	134
Alkalinity	mg/L	-	230	132	225	264	326	268	290	267	347	363	235	228	296	214	190	172
Hardness	mg/L	-	282	195	265	290	360	300	324	292	414	445	252	259	317	392	280	324
Ammonia	mg/L	-	0.04	0.15	< 0.01	0.01	0.05	0.12	0.12	0.35	0.24	0.62	0.21	0.09	0.14	0.43	0.03	0.09
Un-ionized Ammonia	mg/L	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.03	0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Calcium	mg/L	-	101	69.1	96.7	106	129	108	117	92.8	149	160	92	94.2	113	133	92.3	106
Chloride	mg/L	-	19.2	16.2	24.2	19.5	39	29.6	51.2	31.7	60.2	64.8	48.5	16.8	41.7	325	228	216
DOC	mg/L	-	6.5	8.4	6.4	5.7	10.8	6.9	7.2	4	6.6	8.2	6.1	15.1	17.2	2.2	3.4	3.3
Fluoride	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	<0.1	0.1	0.2	0.1	0.2	0.1	0.1
Iron	mg/L	0.3	0.04	< 0.005	0.056	0.049	0.156	0.029	0.029	0.058	0.134	0.082	0.076	0.38	1.56	0.233	0.039	0.688
Magnesium	mg/L	-	5.25	5.31	5.71	6.13	9.1	7.2	7.92	5.92	10.1	10.9	5.37	5.81	8.6	14.2	11.9	14.2
Manganese	mg/L	-	0.004	0.004	0.02	0.013	0.022	0.003	0.006	0.012	0.038	0.02	0.02	1.62	1.24	0.046	0.016	0.054
Nitrate	mg/L	-	2.65	< 0.05	0.85	0.69	< 0.05	1.89	4.24	1.22	0.54	< 0.05	0.4	< 0.1	< 0.1	8.9	9.2	14.6
Nitrite	mg/L	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TKN	mg/L	-	0.6	0.6	0.5	0.3	0.8	0.5	0.8	1	0.7	0.7	0.9	2.9	6.4	1.9	1.2	1.8
Sodium	mg/L	-	10.6	6	15.2	13	22.9	18.6	20.9	16	37.8	31.2	34.6	12.4	28.6	181	118	126
Sulphate	mg/L	-	17	60	17	15	17	15	17	14	23	33	12	< 1	3	58	53	60
Phenols	mg/L	0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	<0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	0.03	0.01	0.03	0.02	0.04	0.05	0.01	0.03	0.02	0.02	0.03	0.09	0.27	0.74	0.18	0.07	0.23
Potassium	mg/L	-	1.8	4.8	1.5	1.2	1.9	2.1	1.5	1.7	2.8	2.1	2.2	1.4	3.9	9.4	7.4	10.9
Aluminum	mg/L	0.075	0.05	0.05	0.06	0.07	0.04	0.07	0.03	0.03	0.14	0.08	0.13	0.07	0.04	7.33	1.12	6.29
Antimony	mg/L	-	0.0003	0.0004	0.0004	< 0.0001	0.0003	0.0003	0.0004	0.0002	0.0002	0.0004	< 0.0001	0.0001	0.0001	0.0002	0.0004	0.0003
Arsenic	mg/L	0.1	0.0002	0.0003	0.0002	0.0001	0.0004	0.0002	0.0003	0.0002	0.0004	0.0003	0.0001	0.0008	0.0004	0.0003	0.0002	0.0005
Barium	mg/L	-	0.037	0.021	0.035	0.034	0.051	0.042	0.045	0.035	0.067	0.063	0.021	0.139	0.041	0.1	0.04	0.076
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.006	0.007	0.011	0.009	0.022	0.014	0.017	0.012	0.027	0.018	0.016	0.016	0.045	0.085	0.072	0.107
Cadmium	mg/L	0.0002	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	<0.000015	<0.000015	< 0.00002	0.00002	0.00005	0.00005	0.00005	0.00009
Chromium	mg/L	0.1	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	<0.001	<0.001	< 0.0002	< 0.0002	0.0007	0.0005	0.0005	0.0015
Cobalt	mg/L	0.0006	0.0001	0.0003	0.0001	< 0.0001	0.0002	0.0001	0.0002	0.0001	0.0004	0.0004	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.005	0.0008	0.0015	0.0007	0.0006	0.0006	0.0008	0.0007	0.0007	0.0011	0.0008	0.0007	0.0016	0.0051	0.0094	0.0056	0.0086
Lead	mg/L	0.025	0.00003	0.00003	0.00006	0.00003	0.00009	0.00017	0.00004	0.00007	0.00015	0.00006	0.00016	0.00084	0.00168	0.00103	0.00107	0.00152
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0003	0.0002	0.0002	0.0002	0.0002	0.0001	0.0002	0.0001	0.0003	0.0001	0.0002	0.0003	< 0.0001	0.0004	0.0013	0.0007
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.001	0.0005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	-	0.234	0.17	0.228	0.261	0.359	0.307	0.317	0.252	0.418	0.397		0.249	0.271	0.438	0.302	0.403
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	0.0004	0.0004	0.0004	0.0003	0.0005	0.0004	0.0006	0.0004	0.0007	0.0005	0.0005	0.0003	0.0003	0.0003	0.0002	0.0009
Zinc	mg/L	0.03	0.006	0.012	< 0.005	0.014	< 0.005	< 0.005	< 0.005	< 0.005	0.007	0.006	< 0.005	0.016	0.007	0.045	0.032	0.098
Cyanide	mg/L	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		< 0.005	< 0.005	<0.005	<0.005						
Turbidity	NTU	-	74.8	1.5	3.4	4.3	5.4			3.5	3.7	22.2						
Tannins & Lignins	mg/L	-		0.7							***							
										1			1			1	1	

PWQO - Provincial Water Quality Objectives

Concrai Water Quar			SW13	SW13	SW13	SW13	SW13	SW13	SW13	SW13	SW13	SW13	SW13	SW13	SW13	SW13	SW13	SW13
Parameter	UNITS	PWQO	21-Apr-16	26-May-16	8-Jun-16	11-Oct-16	24-Apr-17	22-Jun-17	24-Aug-17	17-Oct-17	25-Apr-18	28-Jun-18	22-Aug-18	11-Oct-18	24-Apr-19	17-Jul-19	13-Aug-19	16-Oct-19
pH -Lab	pH units	6.5-8.5	7.87	7.86	7.9	8.18	8.12	7.74	7.46	7.67	8.11	7.98	7.73	7.89	7.98	7.77	8.26	7.98
Conductivity	uS/cm	-	1490	1430	1360	1200	470	597	472	635	520	1370	964	739	474	1350	839	594
BOD	mg/L	-	5	27	32.4	6	<3	5	9	<3	< 3	5	17	103	4	13	< 3	< 3
COD	mg/L	-	23	1720	2780	69	21	106	274	2460	27	44	559	554	200	183	38	47
Total Dissolved Solids	mg/L	-	806	772	764	647	250	336	356	1145	283	757	530	406	239	681	463	340
Total Suspended Solids	mg/L	-	10	670	4600	88	31	114	330	3700	28	10	1010	3700	4	105	9	38
Alkalinity	mg/L	-	224	221	222	191	228	298	313	275	216	257	236	288	210	229	271	169
Hardness	mg/L	-	390	365	382	242	233	291	291	376	233	281	265	320	229	306	317	197
Ammonia	mg/L	-	1.23	0.29	0.28	0.29	0.09	0.12	0.67	0.41	0.03	15.8	0.17	0.2	0.04	1.96	0.17	0.08
Un-ionized Ammonia	mg/L	0.02	0.05	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	0.4	< 0.01	< 0.01	< 0.01	0.07	< 0.01	< 0.01
Calcium	mg/L	-	130	119	125	70.8	81.6	118	109	753	82.7	88.8	101	127	80.2	101	110	87.9
Chloride	mg/L	-	272	265	231	180	8.2	11.3	14.4	29.2	27.4	239	146	55.9	13.1	202	99.1	62.2
DOC	mg/L	-	3.2	3	4.1	4.6	7.1	10	20.9	11.5	5.9	7	17.8	42	8.1	9	10.2	13.6
Fluoride	mg/L	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Iron	mg/L	0.3	0.789	0.585	2.92	0.077	0.337	3.04	11	97.4	0.089	0.128	1.15	6.91	0.191	0.874	0.94	0.634
Magnesium	mg/L	-	15.7	16.6	16.6	15.7	4.32	7.95	8.1	30.1	6.49	14.4	11	11.6	5	13.2	10.3	15
Manganese	mg/L	-	0.2	0.141	0.171	0.034	0.134	0.69	1.43	23.1	0.023	0.098	0.704	6.49	0.26	0.164	1.04	0.335
Nitrate	mg/L	-	3.4	3.4	0.2	7.5	0.3	0.08	0.21	0.19	< 0.05	0.44	< 0.05	< 0.05	< 0.05	0.67	0.22	2.4
Nitrite	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	0.1	< 0.05	< 0.05	0.27	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06
TKN	mg/L	-	9.8	5.7	23.1	1.7	1.9	6.8	6.8	43.7	0.7	20.2	22.7	11.4	0.9	9.5	1.1	1.3
Sodium	mg/L	-	170	159	153	124	8.4	14.4	16.1	26.7	22.3	159	88.9	29.5	9	158	56.8	55.3
Sulphate	mg/L	-	56	52	88	95	9	1	4	9	12	68	34	7	5	51	18	13
Phenols	mg/L	0.001	< 0.001	< 0.001	< 0.001	0.009	< 0.001	0.005	0.011	0.007	< 0.001	< 0.001	0.005	0.019	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	0.03	1.84	1.15	2.82	0.05	0.19	0.95	1.48	3.5	0.07	0.14	3.05	1.84	0.1	1.48	0.05	< 0.01
Potassium	mg/L	-	11	12.7	12	13.7	0.4	0.4	2.8	10.9	1.8	12.9	5.4	9.1	0.7	14.8	3.7	4.6
Aluminum	mg/L	0.075	25.5	14.8	68.1	0.28	0.09	0.24	0.9	37.1	0.06	0.56	1.03	0.31	0.03	0.07	0.06	0.05
Antimony	mg/L	-	0.0002	0.0002	0.0001	0.0003	< 0.0001	0.0004	0.0002	0.0008	< 0.0001	0.0002	0.0002	0.0001	0.0001	0.0002	< 0.0001	< 0.0001
Arsenic	mg/L	0.1	0.0006	0.0006	0.001	0.0004	0.0003	0.0004	0.0014	0.0118	0.0002	0.0004	0.0005	0.001	0.0001	0.0007	0.0007	0.0005
Barium	mg/L	-	0.173	0.112	0.304	0.035	0.015	0.053	0.092	1.18	0.027	0.065	0.08	0.123	0.02	0.301	0.038	0.033
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.086	0.138	0.152	0.121	0.015	0.025	0.045	0.514	0.02	0.136	0.107	0.052	0.015	0.16	0.057	0.103
Cadmium	mg/L	0.0002	0.00014	0.00006	0.00035	0.00003	< 0.000014	0.000027	0.000142	0.00322	0.000038	0.000052	0.000172	0.000086	< 0.000015	0.000108	< 0.000015	0.00002
Chromium	mg/L	0.1	0.0031	0.0038	0.0136	< 0.0002	< 0.0015	< 0.001	0.004	0.076	< 0.001	0.001	0.002	0.001	< 0.001	0.008	< 0.001	0.001
Cobalt	mg/L	0.0006	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.0001	0.0002	0.0011	0.0119	< 0.0001	0.0004	0.0008	0.0006	< 0.0001	0.0004	0.0003	0.0005
Copper	mg/L	0.005	0.0219	0.0133	0.0101	0.0018	< 0.0001	0.0011	0.0128	0.0764	0.0061	0.0084	0.0138	0.0085	0.001	0.0177	0.0007	0.0014
Lead	mg/L	0.025	0.00291	0.00239	0.0116	0.00055	0.00007	0.00076	0.0028	0.141	0.00121	0.00064	0.00215	0.00168	0.00019	0.00506	0.00021	0.00031
Mercury	mg/L	-	< 0.00002	< 0.00002	0.00019	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00005	0.0002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0005	0.0003	0.0002	0.0008	0.0002	0.0001	0.0005	0.0029	0.0002	0.0018	0.0009	0.0001	0.0001	0.0031	0.0003	0.0002
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.12	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00046	< 0.00002	< 0.00002	0.00041	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0004	< 0.0001	< 0.0001
Strontium	mg/L	-	0.511	0.459	0.804	0.254	0.18	0.309	0.263	1.3	0.195	0.307	0.318	0.326	0.172	0.395	0.32	0.364
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.0004	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	0.0012	0.0014	0.0054	0.0002	0.0004	0.0005	0.0021	0.0447	0.0001	0.0004	0.0019	0.0008	0.0001	0.0026	0.0003	0.0006
Zinc	mg/L	0.03	0.081	0.075	0.196	0.033	0.186	0.035	0.065	0.762	0.019	0.038	0.055	0.027	0.007	0.083	0.01	0.014
Cyanide	mg/L	0.005																
Turbidity	NTU	-																
Tannins & Lignins	mg/L	-																
	. J. –		1	1	1	1	1		1	1	1		1	1	1	1	1	

General Water Quar	l		SW13	SW13	SW13	SW13	SW13	SW13	SW13	SW13	SW14							
Parameter	UNITS	PWQO	30-Apr-20	20-Apr-21	26-Apr-22	21-Jun-22	24-Apr-23	8-Jun-23	16-Aug-23	5-Oct-23	9-Apr-14	21-Apr-14	9-Jul-14	14-Oct-14	28-Apr-15	8-Jun-15	11-Jun-15	15-Jul-15
pH -Lab	pH units	6.5-8.5	7.86	8.06	7.78	7.79	8.08				8.06	8.37	7.63	8.12	8.25	8.17	8.12	8.06
Conductivity	uS/cm	-	1460	621	685	1640	1520				377	533	690	814	635	685	728	769
BOD	mg/L	-	8	16	38	18	< 3				< 3	< 3	23	< 3	< 2	< 3	< 2	< 3
COD	mg/L	-	48	107	74	173	17				10	12	82	14	19	29	16	26
Total Dissolved Solids	mg/L	-	839	348	357	815	781				206	287	453	440	333	367	375	422
Total Suspended Solids	mg/L	-	36	270	90	60	4				< 3	5	611	10	3	3	10	15
Alkalinity	mg/L	-	231	289	249	286	218				170	241	165	277	241	270	286	292
Hardness	mg/L	-	351	337	249	354	317				191	248	262	331	244	292	269	349
Ammonia	mg/L	-	0.56	0.16	0.38	9.23	0.15				< 0.01	< 0.01	0.58	0.02	0.01	0.06	< 0.01	0.09
Un-ionized Ammonia	mg/L	0.02	< 0.01	0.01	< 0.01	0.09	< 0.01				< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Calcium	mg/L	-	117	121	86.6	118	101				70.4	90.5	87.1	117	86.6	105	95.9	124
Chloride	mg/L	-	314	25.6	58.4	262	309				12.3	22.8	119	80.9	48	46.4	54.2	59.6
DOC	mg/L	-	4	15.9	8.4	5.8	2.1				4.9	5.7	11.3	7.1	5.1	9.4	8.1	5
Fluoride	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 1				< 0.1	0.1	0.2	0.2	0.2	0.1	0.1	< 0.1
Iron	mg/L	0.3	0.121	2.1	0.137	0.61	0.029				0.04	0.052	0.857	0.02	0.159	0.16	0.096	2.61
Magnesium	mg/L	-	14.3	8.33	7.94	14.4	12.5				3.7	5.34	10.8	9.16	6.72	7.32	7.13	9.3
Manganese	mg/L	-	0.04	0.632	0.12	0.402	0.007				0.015	0.025	0.86	0.023	0.047	0.03	0.039	0.9
Nitrate	mg/L	-	2.67	< 0.05	0.43	0.96	9.09				0.4	< 0.1	< 0.1	< 0.1	1.7	0.5	1.2	0.7
Nitrite	mg/L	-	0.3	< 0.05	0.06	< 0.05	< 0.5				< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TKN	mg/L	-	2.5	3	1.8	18.5	1.1				0.26	0.4	1.3	0.6	0.6	0.7	0.9	1.2
Sodium	mg/L	-	168	19.6	46.7	169	164				8.1	12.9	78.6	41.5	23.2	32.1	29.6	36.9
Sulphate	mg/L	-	52	5	5	50	54				6	9	4	22	14	10	11	8
Phenols	mg/L	0.001	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001				< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	0.03	0.23	0.43	0.19	0.79	0.07	D	D	D	0.01	0.02	0.62	0.03	0.02	0.02	0.04	0.12
Potassium	mg/L	-	15.1	1.8	2.3	9.8	9.7	Dry	Dry	Dry	1.7	1.4	51.9	2.3	2.6	1.5	0.5	1.9
Aluminum	mg/L	0.075	0.13	0.07	0.06	0.1	0.11				0.07	0.06	0.11	0.06	0.08	0.12	0.07	1.17
Antimony	mg/L	-	0.0004	0.0003	0.0004	0.0004	0.0005				< 0.0001	< 0.0001	0.0005	0.0002	0.0002	0.0001	0.0002	0.0002
Arsenic	mg/L	0.1	0.0002	0.0003	0.0002	0.0004	< 0.0002				0.0028	0.0002	0.0008	0.0005	0.0003	0.0005	0.0003	0.0007
Barium	mg/L	-	0.054	0.041	0.03	0.089	0.054				0.021	0.029	0.082	0.042	0.04	0.033	0.028	0.07
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002				< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.11	0.02	0.046	0.141	0.162				0.006	0.01	0.657	0.024	0.011	0.019	0.01	0.024
Cadmium	mg/L	0.0002	0.000045	0.000015	< 0.000015	0.000045	< 0.000028				< 0.00002	< 0.00002	0.00003	< 0.00002	0.00006	< 0.00002	< 0.00002	0.00016
Chromium	mg/L	0.1	< 0.001	0.001	< 0.001	0.004	0.002				0.0008	< 0.0002	< 0.0002	0.0003	0.0002	0.0002	< 0.0002	0.0013
Cobalt	mg/L	0.0006	0.0002	0.0003	0.0002	0.0005	0.0002				< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.005	0.0034	0.0014	0.0007	0.007	0.0057				0.0006	0.0002	0.0015	0.0007	0.0007	0.0009	0.0001	0.0029
Lead	mg/L	0.025	0.0008	0.00042	0.00007	0.00144	0.00044				0.00003	0.00005	0.00069	0.00003	0.00008	< 0.00002	< 0.00002	0.00125
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002				< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0009	0.0001	0.0003	0.0019	0.0013				0.0002	0.0001	0.0003	0.0001	0.0007	0.0002	0.0001	0.0001
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01				< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.002				0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001				< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	0.00006
Strontium	mg/L	-	0.335	0.269	0.236	0.391	0.345						0.259	0.353	0.259	0.303	0.27	0.384
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.0001				< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	0.0004	0.0005	0.0003	0.0008	0.0003				0.0004	0.0007	0.0008	0.0004	0.0002	0.0005	0.0004	0.0019
Zinc	mg/L	0.03	0.036	0.02	< 0.005	0.028	0.027				< 0.005	< 0.005	0.05	< 0.005	0.02	< 0.005	< 0.005	0.2
Cyanide	mg/L	0.005					< 0.005											
Turbidity	NTU	-					1.8											
Tannins & Lignins	mg/L	-																
DWOO Bravingial Water Ou	Ü	1		1			1		1		1	1			1	1	l	

PWQO - Provincial Water Quality Objectives

General Water Quar			SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14
Parameter	UNITS	PWQO	17-Nov-15	21-Apr-16	26-May-16	8-Jun-16	24-Apr-17	23-May-17	22-Jun-17	24-Aug-17	17-Oct-17	25-Apr-18	28-Jun-18	17-Jul-18	22-Aug-18	11-Oct-18	24-Apr-19	5-Jun-19
pH -Lab	pH units	6.5-8.5	8.12	8.2	7.75	7.82	8.21	7.95	7.91	7.92	8.12	8.24	8.05	7.3	7.68	7.93	8.07	8.15
Conductivity	uS/cm	-	735	651	1190	1110	683	532	537	498	783	438	457		722	871	449	
BOD	mg/L	-	2	< 2	26	>18	<3	<3	<3	<3	17	< 3	< 3		8	10	4	
COD	mg/L	-	6	9	88	389	26	25	33	32	23	16	34		65	61	30	
Total Dissolved Solids	mg/L	-	420	363	685	752	358	262	284	252	415	233	250		377	460	229	
Total Suspended Solids	mg/L	-	7	< 3	260	3000	6	104	4	6	6	5	16		30	20	16	
Alkalinity	mg/L	-	224	239	479	444	202	212	216	190	296	175	155		188	212	168	
Hardness	mg/L	-	309	289	518	725	233	206	225	210	332	190	180		193	253	202	
Ammonia	mg/L	-	< 0.01	0.09	0.65	1.97	0.03	0.11	0.02	0.04	0.06	0.03	0.11	0.09	0.54	0.05	0.04	0.02
Un-ionized Ammonia	mg/L	0.02	< 0.01	< 0.01	< 0.01	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	
Calcium	mg/L	-	110	104	181	260	85.2	72.1	85.4	67.2	119	67.9	59.9		67.8	94.7	71.4	
Chloride	mg/L	-	63.8	51.9	91.2	98.7	75	26.4	29.7	33.9	38.9	26.6	50.6		115	142	24.9	
DOC	mg/L	-	6.3	6.1	8.4	7.5	7.9	9	10.4	11.9	8	5.1	12.3		12.2	11.5	6.9	
Fluoride	mg/L	-	0.1	0.1	0.2	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1		< 0.1	< 0.1	< 0.1	
Iron	mg/L	0.3	0.248	0.047	2.73	22.5	0.129	0.176	0.254	0.322	0.159	0.071	0.771		1.6	0.847	0.147	
Magnesium	mg/L	-	8.21	7.32	16	18.6	6.11	6.18	7.02	5.76	8.43	4.97	7.48		7.88	11	4.04	
Manganese	mg/L	-	0.036	0.028	13.6	3.86	0.041	0.161	0.105	0.047	0.084	0.01	0.075		0.491	0.342	0.019	
Nitrate	mg/L	-	3.1	1	0.1	0.1	0.7	0.2	0.06	< 0.05	0.63	0.67	0.08		< 0.05	< 0.05	0.66	
Nitrite	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.14	< 0.05	< 0.05	0.24	< 0.05	< 0.05		< 0.05	< 0.05	< 0.05	
TKN	mg/L	-	0.8	0.5	3.4	21	0.8	0.9	0.9	0.9	0.6	0.5	1.3		2.7	1.7	1.1	
Sodium	mg/L	-	40.1	32.6	73.3	73.3	44.4	19.1	24.1	24	34.2	16.2	34.7		62.3	83.5	13.9	
Sulphate	mg/L	-	45	16	17	4	19	9	6	4	33	11	1		2	5	11	
Phenols	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.011	0.008	0.009	0.009	< 0.001	< 0.001		0.005	0.004	< 0.002	
Phosphorus	mg/L	0.03	0.06	0.01	0.31	5.36	0.04	0.05	0.05	0.04	0.03	0.03	0.06		0.31	0.16	0.05	
Potassium	mg/L	-	3.8	2.7	2	1.6	2.8	1.7	1.8	2.1	3.6	2	2		6	6.7	2.4	
Aluminum	mg/L	0.075	0.17	0.04	0.18	4.59	0.11	0.09	0.1	0.04	0.06	0.07	0.04		0.05	0.09	0.05	
Antimony	mg/L	-	< 0.0001	< 0.0001	0.0001	0.0001	< 0.0001	0.0004	0.0005	0.0003	< 0.0001	< 0.0001	0.0002		< 0.0001	0.0001	0.0006	
Arsenic	mg/L	0.1	0.0003	0.0002	0.0016	0.0023	0.0005	0.0004	0.0006	0.0006	0.0005	< 0.0001	0.0009		0.0006	0.0005	0.0002	
Barium	mg/L	-	0.045	0.034	0.121	0.263	0.036	0.036	0.043	0.026	0.047	0.03	0.033		0.048	0.072	0.029	
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002		< 0.002	< 0.002	< 0.002	
Boron	mg/L	0.2	0.02	0.006	0.07	0.088	0.016	0.007	0.023	0.025	0.027	0.01	0.025		0.045	0.053	0.006	
Cadmium	mg/L	0.0002	< 0.00002	< 0.00002	< 0.00002	0.0004	< 0.000014	< 0.000014	< 0.000014	< 0.000014	0.00003	0.000029	< 0.000015		0.000125	0.000042	< 0.000015	
Chromium	mg/L	0.1	< 0.0002	0.0002	0.0003	0.0037	< 0.0015	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001		0.001	< 0.001	< 0.001	
Cobalt	mg/L	0.0006	< 0.005	< 0.005	< 0.005	0.008	< 0.0001	0.0002	0.0001	0.0002	< 0.0001	< 0.0001	0.0003		0.0003	0.0002	< 0.0001	
Copper	mg/L	0.005	0.0007	0.0005	0.0017	0.0131	0.0005	0.0008	0.0007	0.0002	0.0051	0.0012	0.0004		0.0063	0.0047	0.0014	
Lead	mg/L	0.025	0.0001	< 0.00002	0.00018	0.0102	< 0.00002	0.00004	0.00005	< 0.00002	0.00038	0.00091	0.00005		0.00074	0.00031	0.00019	
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002		< 0.00002	< 0.00002	< 0.00002	
Molybdenum	mg/L	0.04	0.0002	0.0002	0.0003	0.0001	0.0004	0.0002	0.0002	< 0.0001	0.0003	0.0002	0.0002		0.0001	0.0001	0.0002	
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	
Selenium	mg/L	-	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	< 0.001	< 0.001	1
Silver	mg/L	0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00046	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00057	< 0.0001		< 0.0001	< 0.0001	< 0.0001	
Strontium	mg/L	-	0.32	0.293	0.494	0.602	0.239	0.219	0.282	0.203	0.295	0.184	0.227		0.262	0.344	0.17	
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005		< 0.00005	< 0.00005	< 0.00005	
Vanadium	mg/L	-	0.0004	0.0002	0.0009	0.0146	0.0003	0.0003	0.0003	< 0.0001	0.0002	0.0002	0.0003		0.0002	0.0002	0.0003	
Zinc	mg/L	0.03	0.044	< 0.005	0.009	0.158	0.023	0.04	0.065	< 0.005	< 0.005	0.013	0.016		0.022	0.021	0.01	
Cyanide	mg/L	0.005																
Turbidity	NTU	-																
Tannins & Lignins	mg/L	-													1			

General Water Qua	illy		014/4	014/4	014/4	014/4	014/4	014/4.4	014/4	014/4.4	014/4.4	014/4	014/4	0)4/4.4	SW14	018/4.4	014/4.4	SW14
Parameter	UNITS	PWQO	SW14 17-Jul-19	SW14 6-Aug-19	SW14 13-Aug-19	SW14 27-Aug-19	SW14 2-Oct-19	SW14 16-Oct-19	SW14 31-Oct-19	SW14 30-Apr-20	SW14 10-Jun-20	SW14 15-Oct-20	SW14 22-Oct-20	SW14 30-Nov-20	20-Apr-21	SW14 4-May-21	SW14 8-Jul-21	23-Sep-21
pH -Lab	pH units	6.5-8.5	7.87	7.7	8.14	7.47	7.96	7.95	8.01	8.01	7.84	7.64	8.09	8.07	8.32	8.13	8.09	7.91
Conductivity	uS/cm	- 0.3-0.3	938	1.1	749	1.41	7.90	7.93	0.01	647	7.04	7.04	1150	6.07	676	0.13	0.09	7.91
BOD	mg/L	-	8		< 3			9		< 3			< 3		< 3			+
COD	mg/L	-	44		50			155		21			27		8			+
Total Dissolved Solids	mg/L	-	494		421			535		358			638		389			+
Total Suspended Solids	mg/L	-	85		12			1210		16			14		3			+
Alkalinity	mg/L	_	281		242			199		221			191		269			+
Hardness	mg/L	_	370		261			270		265			339		308			+
Ammonia	mg/L	_	1.02	0.23	0.09	0.27	0.09	0.46	0.13	0.03	0.56	0.23	0.04	0.05	0.02	0.03	0.06	0.09
Un-ionized Ammonia	mg/L	0.02	< 0.01	0.20	< 0.01	0.27	0.00	< 0.01	0.10	< 0.01	0.00	0.20	< 0.01	0.00	< 0.01	0.00	0.00	0.00
Calcium	mg/L	-	121		90.4			195		95.6			118		112			+
Chloride	mg/L	_	84.8		102			76.8		57.9			196		50.2			+
DOC	mg/L	_	11.6		11.3			13.4		6.2			5.5		6.1			+
Fluoride	mg/L	_	< 0.1		< 0.1			< 0.1		< 0.1			< 0.1		< 0.1			+
Iron	mg/L	0.3	3.18		1.23			24.1		0.431			0.083		0.13			+
Magnesium	mg/L	-	10.8		8.52			13.2		6.44			10.7		6.86			+
Manganese	mg/L	-	2.71		0.715			2.75		0.257			0.011		0.086			+
Nitrate	mg/L	-	0.12		0.09			0.1		0.56			< 0.05		0.63			+
Nitrite	mg/L	_	< 0.05		< 0.05			< 0.05		< 0.05			< 0.05		< 0.05			+
TKN	mg/L		2.2		1.5			3.3		0.6			1.5		0.4			+
Sodium	mg/L	_	65		55.8			43.4		31			94.2		29.7			+
Sulphate	mg/L	_	33		12			50		17			87		19			+
Phenols	mg/L	0.001	< 0.002		< 0.002			< 0.002		< 0.002			< 0.002		< 0.002			+
Phosphorus	mg/L	0.03	0.13		0.13			0.64		0.05			0.12		0.06			+
Potassium	mg/L	-	4.4		4.6			9.8		2.5			9.8		1.7			+
Aluminum	mg/L	0.075	0.07		0.05			0.06		0.06			0.05		0.07			+
Antimony	mg/L	-	0.0003		< 0.0001			0.0001		0.0004			0.0001		0.0003			+
Arsenic	mg/L	0.1	0.0011		0.0008			0.0029		0.0003			0.0005		0.0002			+
Barium	mg/L	-	0.072		0.037			0.181		0.04			0.069		0.039			+
Beryillium	mg/L	1.1	< 0.002		< 0.002			< 0.002		< 0.002			< 0.002		< 0.002			+
Boron	mg/L	0.2	0.063		0.055			0.079		0.02			0.04		0.011			+
Cadmium	mg/L	0.0002	< 0.000015		< 0.000015			0.000256		< 0.000015			< 0.000015		< 0.000015			1
Chromium	mg/L	0.1	< 0.001		< 0.001			0.014		< 0.001			< 0.001		0.001			1
Cobalt	mg/L	0.0006	0.0007		0.0003			0.0064		0.0003			0.0001		0.0002			1
Copper	mg/L	0.005	0.0008		0.0009			0.0129		0.0007			0.0011		0.0009			
Lead	mg/L	0.025	0.00009		0.00021			0.00975		0.0001			0.00003		0.00007			
Mercury	mg/L	-	< 0.00002		< 0.00002			< 0.00002		< 0.00002			< 0.00002		< 0.00002			
Molybdenum	mg/L	0.04	0.0002		0.0002			0.0002		0.0002			0.0006		0.0002			
Nickel	mg/L	0.025	< 0.01		< 0.01			0.01		< 0.01			< 0.01		< 0.01			
Selenium	mg/L	-	< 0.001		< 0.001			< 0.001		< 0.001			< 0.001		< 0.001			
Silver	mg/L	0.0001	< 0.0001		< 0.0001			< 0.0001		< 0.0001			< 0.0001		< 0.0001			1
Strontium	mg/L	-	0.373		0.279			0.467		0.241			0.332		0.276			1
Thallium	mg/L	-	< 0.00005		< 0.00005			0.00011		< 0.00005			< 0.00005		< 0.00005			1
Vanadium	mg/L	-	0.0006		0.0006			0.0172		0.0006			0.0005		0.0004			1
Zinc	mg/L	0.03	0.018		0.01			0.101		< 0.005			0.006		0.013			1
Cyanide	mg/L	0.005	3.310	†	5.01	†		3.101		0.000			5.500		3.310			+
Turbidity	NTU	-													1			†
Tannins & Lignins	mg/L	_													1			+
			1	1	1	1		1	1	1	1	1	1	1	1			1

## stake	General Water Quar			SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW15	SW15	SW15	SW15
Description USION - 931	Parameter	UNITS	PWQO	15-Oct-21	25-Oct-21	26-Apr-22	7-Jun-22	21-Jun-22	24-Apr-23	1-May-23	8-Jun-23	26-Jun-23	15-Aug-23	16-Aug-23	5-Oct-23	9-Apr-14	21-Apr-14	17-Jun-14	9-Jul-14
Color	pH -Lab	pH units	6.5-8.5	8.03	7.98	8.22	8.06	8.08	8.21	8.11	7.93	8.07	7.97	7.95	8.13	7.87	7.17	9.1	7.98
Description	Conductivity	uS/cm	-	931		620		768	624		1150			840	872	1790	1160	1020	865
Maintenness Maintenness	BOD	mg/L	-	< 3		< 3		< 3	11		< 3			<3	<3	< 3	< 3	8	< 3
Value Valu	COD	mg/L	-	57		22		18	10		14			23	40	23	22	43	34
Sealinty	Total Dissolved Solids	mg/L	-	513		333		418	340		617			467	491	939	581	504	431
Interfaces	Total Suspended Solids	mg/L	-	44		< 3		7	< 3		4			3	62	13	7	9	35
Immonia	Alkalinity	mg/L	-	297		248		255	241		434			301	243	259	162	66	65
In-in-initial Ammonia mg L 0.02 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.02 < 0.01 < 0.02 < 0.01 < 0.02 < 0.01 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02 < 0.02	Hardness	mg/L	-	348		277		293	260		435			337	283	364	227	98	88
Description	Ammonia	mg/L	-	0.05	0.04	0.05	0.05	0.06	0.03	0.12	0.15	0.08	< 0.05	0.14	0.21	0.12	< 0.01	0.04	0.08
Difference mg/L -	Un-ionized Ammonia	mg/L	0.02	< 0.01		< 0.01		< 0.01	< 0.01		< 0.01			<0.01	<0.01	< 0.01	< 0.01	0.02	< 0.01
DOC	Calcium	mg/L	-	123		99.6		103	91.3		143			120	97.8	132	79.3	28.6	27.2
Northead Margin North	Chloride	mg/L	-	111		37.2		92.4	52.4		123			86.9	139	397	231	256	216
March Marc	DOC	mg/L	-	9.2		6.2		7.7	3.5		4.8			7.8	9.3	5.2	5.8	5.7	6.2
Magnesibum mgl, - 9.79 6.84 8.87 6.34 14.4 9.04 9.35 8.31 6.91 6.41 4.91	Fluoride	mg/L	-	< 0.1		< 0.1		< 0.1	< 0.1		0.1			<0.1	<0.1	0.1	0.1	0.2	0.2
Langenee mg/L	Iron	mg/L	0.3	0.341		0.063		0.126	0.044		1.9			0.198	0.14	0.139	0.19	0.272	0.414
Illitate mgl, - - - - - - - - - - - - - - - -	Magnesium	mg/L	-	9.79		6.84		8.87	6.34		14.4			9.04	9.35	8.31	6.91	6.41	4.91
Miles	Manganese	mg/L	-	0.275		0.021		0.065	0.019		5.47			0.412	0.024	0.025	0.02	0.018	0.027
Main	Nitrate	mg/L	-	< 0.05		0.86		1.56	0.46		< 0.05			0.07	0.17	0.5	< 0.1	< 0.1	< 0.1
industrian mg/L - 56.9 25 45.4 28.5 53.8 50.6 50.4 212 133 160 133 11 14 3 12 27 27 28 8 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Nitrite	mg/L	-	0.07		< 0.05		< 0.05	< 0.05		< 0.05			< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1
Description Description	TKN	mg/L	-	1		0.5		1	0.5		1			0.9	1.4	0.75	0.4	2.5	1.4
Premotis mg/L 0.001 < 0.002 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001	Sodium	mg/L	-	56.9		25		45.4	28.5		63.8			50.6	60.4	212	133	160	133
Prosphorus mg/L 0.03 0.06 0.02 0.05 0.03 0.03 0.03 0.04 0.06 0.03 0.03 0.15 0.06	Sulphate	mg/L	-	26		13		11	14		3			12	27	27	29	8	5
Potassium mg/L - 6.6 2.5 3.4 2.9 2.1 7.1 10.9 4.9 4.4 4.9 5.2 2 4 4 4 4.9 5.2 2 4 4 4 4.9 5.2 2 4 4 4 4.9 5.2 2 4 4 4 4.9 5.2 2 4 4 4 4.9 5.2 2 4 4 4 4 4.9 5.2 2 4 4 4 4 4.9 5.2 2 4 4 4 4 4.9 5.2 2 4 4 4 4 4.9 5.2 2 4 4 4 4 4.9 5.2 2 4 4 4 4 4.9 5.2 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Phenols	mg/L	0.001	< 0.002		< 0.001		< 0.001	< 0.001		< 0.001			< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001
Authinum mg/L 0.075 0.03 0.05 0.02 0.02 0.002 0.0002 0.0002 0.0001 0.00002 0.00003 0.0002 0.00003 0.00002 0.00003 0.00002 0.00003 0.00002 0.00003 0.00002 0.00003 0.00002 0.00003 0.00002 0.00003 0.00002 0.00003 0.00002 0.00003 0.00002 0.00003 0.00002 0.00003 0.00002 0.00003 0.0000	Phosphorus	mg/L	0.03	0.06		0.02		0.05	0.03		0.03			0.04	0.06	0.03	0.03	0.18	0.06
within my mg/L - 0.0003	Potassium	mg/L	-	6.6		2.5		3.4	2.9		2.1			7.1	10.9	4.9	4.4	4.9	5.2
Arsenic mg/L 0.1 0.0008 0.0002 0.0004 0.0002 0.0012 0.0012 0.0006 0.0004 0.0037 0.0005 0.0017 0.0015 (aritum mg/L - 0.06 0.037 0.038 0.034 0.088 0.088 0.081 0.081 0.081 0.083 0.056 0.019 0.028 (aritum mg/L - 0.0002 0.00	Aluminum	mg/L	0.075	0.03		0.05		0.02	0.02		0.06			0.1	0.07	0.18	0.06	0.04	0.19
Partium mg/L - 0.06 0.037 0.036 0.034 0.068 0.068 0.061 0.061 0.083 0.056 0.019 0.028	Antimony	mg/L	-	0.0003		0.0002		0.0003	0.0003		0.0002			0.0001	0.0004	0.0002	< 0.0001	0.0003	0.0002
Peryllium mg/L 1.1 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002	Arsenic	mg/L	0.1	0.0006		0.0002		0.0004	0.0002		0.0012			0.0006	0.0004	0.0037	0.0005	0.0017	0.0015
Serian mg/L 0.2 0.041 0.015 0.033 0.019 0.073 0.041 0.053 0.028 0.055 0.084 0.069	Barium	mg/L	-	0.06		0.037		0.036	0.034		0.068			0.061	0.061	0.083	0.056	0.019	0.028
Admium mg/L 0.0002 < 0.000015	Beryillium	mg/L	1.1	< 0.002		< 0.002		< 0.002	< 0.002		< 0.002			<0.0001	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002
Chromium mg/L 0.1 < 0.001 < 0.001 0.001 0.002 < 0.001 < 0.001 < 0.001 < 0.0001 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0002 < 0.0005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005	Boron	mg/L	0.2	0.041		0.015		0.033	0.019		0.073			0.041	0.053	0.028	0.055	0.084	0.069
Cobalt	Cadmium	mg/L	0.0002	< 0.000015		< 0.000015		< 0.000015	< 0.000015		< 0.000015			<0.000015	<0.000015	0.00002	< 0.00002	< 0.00002	< 0.00002
Copper	Chromium	mg/L	0.1	< 0.001		< 0.001		0.001	0.002		< 0.001			< 0.001	<0.001	0.0008	< 0.0002	0.0003	< 0.0002
Pead	Cobalt	mg/L	0.0006	0.0003		0.0001		0.0001	0.0001		0.0016			0.0004	0.0003	< 0.005	< 0.005	< 0.005	< 0.005
Nercury mg/L -	Copper	mg/L	0.005	0.0005		0.0007		0.0006	0.0005		0.0004			0.0008	0.0007	0.0039	0.0011	0.0016	0.0013
Molybdenum mg/L 0.04 0.0003 0.0001 0.0002 0.0002 0.0002 0.0002 0.0003 0.0007 0.001 0.0009 0.0005 Molybdenum mg/L 0.025 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.000 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001	Lead	mg/L	0.025	0.00008		0.00003		0.00003	< 0.00002		0.00008			0.00007	0.00005	0.00026	0.00015	0.00009	0.00037
Alickel mg/L 0.025 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.	Mercury	mg/L	-	< 0.00002		< 0.00002		< 0.00002	< 0.00002		< 0.00002			<0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Selenium mg/L -	Molybdenum	mg/L	0.04	0.0003		0.0001		0.0002	0.0002		0.0002			0.0002	0.0003	0.0007	0.001	0.0009	0.0005
Silver mg/L 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0001 < 0.0002 < 0.00002 < 0.00003 < 0.0000 < 0.00003 < 0.0000 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.00005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 <	Nickel	mg/L	0.025	< 0.01		< 0.01		< 0.01	< 0.01		< 0.01			0.001	0.0008	< 0.01	< 0.01	< 0.01	< 0.01
Strontium mg/L - 0.374 0.285 0.314 0.254 0.394 0.347 0.285 0.0005 0.186 0.154 0.186 0.186 0.154 0.186 0.18	Selenium	mg/L	-	< 0.001		< 0.001		< 0.001	< 0.001		< 0.001			< 0.001	<0.001	0.002	< 0.001	< 0.001	< 0.001
Table Mark	Silver	mg/L	0.0001	< 0.0001		< 0.0001		< 0.0001	< 0.0001		< 0.0001			<0.0001	<0.0001	< 0.00002	< 0.00002	0.00003	< 0.00002
Table Mark	Strontium	mg/L	-	0.374		0.285		0.314	0.254		0.394			0.347	0.285			0.186	0.154
/anadium mg/L - 0.0004 0.0003 0.0003 0.0002 0.0006 0.0003 0.0005 0.0003 0.0005	Thallium	-	-	< 0.00005		< 0.00005		< 0.00005	< 0.00005		< 0.00005			<0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Tinc mg/L 0.03 0.005 0.007 < 0.005 < 0.005	Vanadium		-													0.0008		0.0005	0.0005
Cyanide mg/L 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0	Zinc		0.03																< 0.005
Turbidity NTU - 0.9 12.3 1.6 4	Cyanide	-																	1
	Turbidity	•																	•
	Tannins & Lignins	ma/L							0.6		1.2			0.6	0.8		1		1

PWQO - Provincial Water Quality Objectives

General Water Qua	lity		SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15							
Parameter	UNITS	PWQO	13-Aug-14	14-Oct-14	20-Apr-15	27-Apr-15	8-Jun-15	11-Jun-15	11-Oct-16	24-Apr-17	25-May-17	22-Jun-17	24-Aug-17	17-Oct-17	25-Apr-18	28-Jun-18	22-Aug-18	10-Oct-18
pH -Lab	pH units	6.5-8.5	8.43	8.39	8.1	7.84	8.22	7.93	8.32	8.4	8.24	8.05	7.62	7.87	8.22	7.73	7.68	7.99
Conductivity	uS/cm	-	752	463	1700	1840	1030	1210	641	1660	730	1030	536	1360	948	1100	1450	944
BOD	mg/L	-	< 3	< 3	< 3	4	< 3	< 2	12	<3	<3	<3	6	<3	< 3	< 3	8	3
COD	mg/L	-	35	17	20	12	31	13	11	35	27	29	63	47	42	60	93	33
Total Dissolved Solids	mg/L	-	410	247	897	953	535	619	361	793	351	562	459	814	531	579	948	487
Total Suspended Solids	mg/L	-	8	14	5	874	10	14	40	9	64	28	640	172	7	50	165	6
Alkalinity	mg/L	-	77	85	198	297	184	251	185	107	215	312	203	312	215	99	189	129
Hardness	mg/L	-	94	98	316	461	198	229	200	149	173	273	642	589	230	120	288	171
Ammonia	mg/L	-	0.05	0.04	0.05	< 0.01	0.05	< 0.01	0.07	0.02	0.04	< 0.01	0.13	0.07	0.05	0.07	0.1	0.09
Un-ionized Ammonia	mg/L	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Calcium	mg/L	-	29.6	31.4	114	162	71.3	81.6	65	43	58.9	110	237	211	77.9	32.1	171	53.2
Chloride	mg/L	-	193	81.7	390	363	186	206	36.8	385	75.1	95.6	28	120	164	271	330	197
DOC	mg/L	-	5.7	6	3.9	2.5	5.2	5.1	4.6	4.6	5.4	8.3	16.9	8.7	7.1	10.8	8.9	6
Fluoride	mg/L	-	0.3	0.2	0.2	0.2	0.2	0.2	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1
Iron	mg/L	0.3	0.289	0.352	0.218	0.929	0.287	0.169	0.048	0.114	0.513	0.486	8.24	4.75	0.096	0.446	9.76	0.302
Magnesium	mg/L	-	4.77	4.71	7.39	13.5	4.71	6.01	11.8	8.82	6.35	10.4	12.4	14.9	8.64	9.6	16.1	9.24
Manganese	mg/L	-	0.019	0.046	0.063	0.569	0.009	0.011	0.027	0.005	0.106	0.281	0.611	1.98	0.004	0.168	0.754	0.038
Nitrate	mg/L	-	< 0.1	< 0.1	0.4	< 0.1	< 0.1	0.1	< 0.1	0.1	0.05	0.05	0.11	0.05	1.01	< 0.05	< 0.05	< 0.05
Nitrite	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
TKN	mg/L	-	1.21	1	0.7	0.6	0.9	1	0.8	1.2	0.5	0.8	2.3	1.2	1	1.9	11.1	0.9
Sodium	mg/L	-	126	58.5	228	197	128	137	49.7	247	61.2	119	14.5	106	98.2	191	232	126
Sulphate	mg/L	-	4	15	34	37	31	36	85	38	19	37	16	162	39	6	73	15
Phenols	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.006	0.002	0.002	0.008	0.015	0.004	< 0.001	< 0.001	0.01	0.006
Phosphorus	mg/L	0.03	0.03	0.05	0.04	0.03	0.05	0.04	0.05	0.02	0.03	0.05	0.47	0.24	0.03	0.06	0.81	0.03
Potassium	mg/L	-	6.1	3.5	3.2	1.3	2.5	1.6	1.7	5.9	1.2	1.9	20.4	6.3	15.2	9.4	2.4	5.1
Aluminum	mg/L	0.075	0.04	0.14	0.16	0.06	0.27	0.2	0.04	0.03	0.11	0.24	4.4	0.63	0.1	0.03	2.38	0.04
Antimony	mg/L	-	0.0002	0.0003	0.0004	0.0001	0.0008	0.0005	0.0001	0.0003	0.0001	0.0005	0.0003	0.0002	0.0002	0.0002	0.0003	0.0002
Arsenic	mg/L	0.1	0.0018	0.001	0.0004	0.0003	0.0006	0.0004	0.0004	0.0019	0.0006	0.001	0.0025	0.0022	0.0007	0.0012	0.0027	0.0008
Barium	mg/L	-	0.028	0.026	0.072	0.14	0.051	0.054	0.076	0.046	0.032	0.066	0.155	0.124	0.053	0.037	0.16	0.056
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.063	0.052	0.037	0.03	0.048	0.04	< 0.005	0.073	0.018	0.067	0.072	0.106	0.142	0.111	0.144	0.09
Cadmium	mg/L	0.0002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.000014	< 0.000014	0.000016	0.000157	0.000071	< 0.000015	0.000071	0.000255	0.000037
Chromium	mg/L	0.1	0.0009	0.0005	0.0003	< 0.0002	0.0007	0.0004	< 0.0002	< 0.0015	< 0.001	< 0.001	0.008	0.001	< 0.001	< 0.001	0.006	< 0.001
Cobalt	mg/L	0.0006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	0.0002	0.0003	0.0005	0.0041	0.0037	0.0001	0.0004	0.0026	0.0001
Copper	mg/L	0.005	0.0013	0.0008	0.0031	0.0014	0.0036	0.002	0.0006	0.0023	0.0014	0.0024	0.0174	0.0098	0.0021	0.0096	0.0164	0.0054
Lead	mg/L	0.025	0.00006	0.00027	0.0002	0.00006	0.00041	0.00018	0.00225	< 0.00002	0.00018	0.00034	0.00812	0.00161	0.00012	0.0004	0.00479	0.00033
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0007	0.0008	0.001	< 0.0001	0.001	0.0012	0.0002	0.0008	0.0006	0.0007	0.0009	0.0015	0.0007	0.0002	0.0007	0.0004
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	< 0.00002	< 0.00002	0.00029	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00043	0.00002	0.00002	0.00004	0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	0.173	0.15	0.419	0.898	0.268	0.297	0.216	0.286	0.195	0.417	0.497	0.518	0.252	0.199	0.551	0.247
Thallium	mg/L	-	< 0.00005	< 0.00005	0.00022	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00008	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	0.0009	0.0004	0.0002	< 0.0001	0.0009	0.0004	0.0002	< 0.0001	0.0002	0.0006	0.0082	0.0012	0.0001	0.0002	0.0055	0.0001
Zinc	mg/L	0.03	< 0.005	0.008	0.012	< 0.005	0.006	0.005	< 0.005	< 0.005	0.011	0.103	0.085	0.063	0.005	0.037	0.072	0.032
Cyanide	mg/L	0.005																< 0.005
Turbidity	NTU	-																2.6
Tannins & Lignins	mg/L	-																
PWOO - Provincial Water Or			1				1			1	1	1	1	1		1		

PWQO - Provincial Water Quality Objectives Bold & highlighting indicates PWQO exceedance

and a riigriiigriiing mareateer riige exceedance

General Water Quar			SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15
Parameter	UNITS	PWQO	24-Apr-19	5-Jun-19	17-Jul-19	9-Oct-19	31-Oct-19	30-Apr-20	24-Jun-20	22-Oct-20	30-Nov-20	20-Apr-21	4-May-21	15-Jun-21	8-Jul-21	23-Sep-21	15-Oct-21	26-Apr-22
pH -Lab	pH units	6.5-8.5	8.09	7.96	7.84	7.87	8.14	7.88	7.73	8.09	7.8	8	8.11	7.7	8.13	8.02	7.72	8.03
Conductivity	uS/cm	-	958		752	1110		1060	1340	1010		1810		854			873	2140
BOD	mg/L		< 3		12	< 3		5	6	4		< 3		24			5	< 3
COD	mg/L	-	36		83	76		56	65	53		54		101			89	34
Total Dissolved Solids	mg/L		493		359	626		585	665	552		1003		484			469	1226
Total Suspended Solids	mg/L		4		80	62		150	340	19		28		89			84	285
Alkalinity	mg/L	-	163		111	268		293	141	147		331		225			142	233
Hardness	mg/L	-	208		87	386		344	163	239		491		234			161	523
Ammonia	mg/L		0.04	0.45	0.08	0.07	0.09	0.03	0.18	0.05	0.12	0.26	1.11	0.15	0.17	0.06	0.08	1.35
Un-ionized Ammonia	mg/L	0.02	< 0.01		< 0.01	< 0.01		< 0.01	< 0.01	< 0.01		0.01		< 0.01			< 0.01	0.03
Calcium	mg/L	-	76.1		20.6	133		107	44.3	78.3		171		71.3			48.5	191
Chloride	mg/L	-	183		135	190		141	309	185		342		143			182	497
DOC	mg/L		6.1		11.5	8.5		5.4	6.1	4.9		6.8		31.5			7.9	2.5
Fluoride	mg/L		< 0.1		< 0.1	< 0.1		0.1	< 0.1	< 0.1		< 0.1		< 0.1			< 0.1	< 0.1
Iron	mg/L	0.3	0.191		0.15	0.022		2.16	1.1	0.406		2.53		2.75			7.59	4.04
Magnesium	mg/L	-	5.84		7.58	13		18.6	11.8	10.5		15.5		13.6			9.74	11
Manganese	mg/L	-	0.046		0.075	0.003		0.105	0.073	0.044		0.552		0.266			0.219	0.184
Nitrate	mg/L		< 0.05		< 0.05	< 0.05		0.09	0.21	< 0.05		< 0.05		0.1			< 0.05	1.45
Nitrite	mg/L		< 0.05		< 0.05	< 0.05		< 0.05	< 0.05	< 0.05		< 0.05		< 0.05			0.1	< 0.05
TKN	mg/L		1		1.5	2.5		1.6	2.4	1.5		2.3		3.1			3.4	1.9
Sodium	mg/L		108		118	96.9		92	193	109		203		90.1			110	311
Sulphate	mg/L	-	15		4	19		30	12	67		55		5			13	63
Phenols	mg/L	0.001	< 0.002		< 0.002	< 0.002		< 0.002	< 0.001	< 0.002		< 0.002		< 0.002			< 0.002	< 0.001
Phosphorus	mg/L	0.03	0.05		0.04	0.37		0.22	0.06	0.07		0.21		0.44			0.23	0.39
Potassium	mg/L	-	7.3		8.3	12.9		2.6	7.8	8.1		8.3		9			11.8	7
Aluminum	mg/L	0.075	0.05		0.02	0.09		0.07	0.03	0.02		0.09		0.06			0.01	0.09
Antimony	mg/L	-	0.0002		0.0002	0.0001		0.0003	0.0002	0.0001		0.0004		0.0001			0.0005	0.0006
Arsenic	mg/L	0.1	0.0005		0.0008	0.0016		0.0006	0.0023	0.0008		0.0012		0.0016			0.0034	0.0011
Barium	mg/L	1	0.052		0.024	0.069		0.054	0.055	0.059		0.111		0.042			0.05	0.122
Beryillium	mg/L	1.1	< 0.002		< 0.002	< 0.002		< 0.002	< 0.002	< 0.002		< 0.002		< 0.002			< 0.002	< 0.002
Boron	mg/L	0.2	0.047		0.203	0.089		0.055	0.281	0.149		0.265		0.145			0.215	0.137
Cadmium	mg/L	0.0002	< 0.000015		< 0.000015	0.000049		< 0.000015	< 0.000015	< 0.000015		< 0.000015		< 0.000015			0.000025	0.000069
Chromium	mg/L	0.1	0.001		< 0.001	< 0.001		< 0.001	< 0.001	0.001		0.001		0.002			0.001	0.003
Cobalt	mg/L	0.0006	0.0002		0.0002	0.002		0.0005	0.0002	0.0002		0.0021		0.0003			0.0009	0.0017
Copper	mg/L	0.005	0.0021		0.0017	0.0055		0.0011	0.0007	0.0004		0.001		0.002			0.002	0.0057
Lead	mg/L	0.025	0.00014		0.00012	0.00329		0.00059	0.00023	0.00022		0.00035		0.00036			0.00082	0.00437
Mercury	mg/L	-	< 0.00002		< 0.00002	< 0.00002		< 0.00002	< 0.00002	< 0.00002		< 0.00002		< 0.00002			< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0005		0.0001	0.0005		0.0003	0.0006	0.0005		0.0006		0.0001			0.0005	0.0006
Nickel	mg/L	0.025	< 0.01		< 0.01	< 0.01		< 0.01	< 0.01	< 0.01		< 0.01		< 0.01			< 0.01	< 0.01
Selenium	mg/L	-	< 0.001		< 0.001	< 0.001		< 0.001	< 0.001	< 0.001		0.001		< 0.001			< 0.001	< 0.002
Silver	mg/L	0.0001	< 0.0001		< 0.0001	< 0.0001		< 0.0001	< 0.0001	< 0.0001		< 0.0001		< 0.0001			< 0.0001	< 0.0001
Strontium	mg/L		0.227		0.131	0.404		0.414	0.237	0.324		0.578		0.308			0.282	0.656
Thallium	mg/L		< 0.00005		< 0.00005	< 0.00005		< 0.00005	< 0.00005	< 0.00005		< 0.00005		< 0.00005			< 0.00005	< 0.0001
Vanadium	mg/L		0.0002		< 0.0001	0.0032		0.0008	0.0005	0.0002		0.0007		0.0006			0.0015	0.003
Zinc	mg/L	0.03	0.023		0.01	< 0.005		0.01	0.011	< 0.005		0.012		0.021			0.012	0.029
Cyanide	mg/L	0.005	< 0.005															
Turbidity	NTU		330															
Tannins & Lignins	mg/L																	

Contra Water Quar	1		SW15	SW15	SW15	SW15	SW15	SW16	SW16	SW16	SW16	SW16	SW16	SW16	SW16	SW16	SW16	SW16
Parameter	UNITS	PWQO	7-Jun-22	24-Apr-23	1-May-23	8-Jun-23	26-Jun-23	21-Apr-14	11-Jun-15	11-Oct-16	24-Apr-17	22-Jun-17	24-Aug-17	17-Oct-17	25-Apr-18	28-Jun-18	22-Aug-18	10-Oct-18
pH -Lab	pH units	6.5-8.5	7.79	8.06	8.15		7.84	7.76	7.71	8.23	8.03	7.77	7.67	8.2	8.22	7.98	7.62	7.43
Conductivity	uS/cm	-		2090				1430	1830	644	1230	740	561	757	544	2470	1110	1380
BOD	mg/L	-		22				< 3	< 2	10	<3	18	7	<3	< 3	< 3	8	22
COD	mg/L	-		147				43	6	28	32	55	77	29	23	56	345	296
Total Dissolved Solids	mg/L	-		1187				738	865	393	610	372	278	369	285	1353	635	724
Total Suspended Solids	mg/L	-		3900				66	8	490	40	21	26	42	12	40	140	700
Alkalinity	mg/L	-		319				324	390	185	268	229	86	137	145	334	155	300
Hardness	mg/L	-		607				549	378	215	380	253	100	195	169	474	172	488
Ammonia	mg/L	-	0.08	0.19	2.58		<0.05	< 0.01	< 0.01	0.04	0.02	< 0.01	0.03	0.03	0.02	0.45	0.08	0.13
Un-ionized Ammonia	mg/L	0.02		< 0.01				< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Calcium	mg/L	-		367				181	133	93.6	134	91.3	35.9	61.7	60	166	68.5	167
Chloride	mg/L	-		328				238	304	36.8	207	76.1	103	115	77.2	608	263	237
DOC	mg/L	-		3.5				4	3.4	5.4	6.7	11.8	10.7	7.2	5	7.4	9.1	8.9
Fluoride	mg/L	-		< 1				0.1	0.2	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Iron	mg/L	0.3		7.69				3.72	0.231	0.779	0.157	1	2.99	0.321	0.099	0.462	10.8	3.9
Magnesium	mg/L	-		28.8				23.4	11	12.8	8.98	8.48	6.86	9.92	4.68	14.3	9.56	17.1
Manganese	mg/L	-		0.476				0.321	0.265	0.089	0.064	0.509	0.155	0.026	0.013	2	0.255	0.583
Nitrate	mg/L	-		14				< 0.1	< 0.1	0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrite	mg/L	-		< 0.5				< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
TKN	mg/L	-		5				0.6	0.4	0.7	1	1.3	1.5	0.9	0.6	2.1	10.1	8
Sodium	mg/L	-		167				71.6	148	49.8	81.6	50.2	69.6	73.5	39.2	348	158	98.2
Sulphate	mg/L	-		219				25	33	85	15	2	5	21	13	2	29	24
Phenols	mg/L	0.001		< 0.001				< 0.001	< 0.001	0.008	0.002	0.012	0.011	0.005	< 0.001	< 0.001	0.004	0.011
Phosphorus	mg/L	0.03		0.62		_		0.1	0.03	0.09	0.07	0.12	0.14	0.05	0.05	0.11	0.62	0.7
Potassium	mg/L	-		42.2		Dry		1.2	0.6	2.2	2.8	4.5	2.3	5	3.4	11.2	3	1.7
Aluminum	mg/L	0.075		0.06				0.06	0.05	0.48	0.17	0.06	0.13	0.06	0.05	0.09	0.73	0.14
Antimony	mg/L	-		0.0008				< 0.0001	0.0001	0.0001	0.0002	0.0003	0.0002	0.0002	< 0.0001	0.0003	0.0003	< 0.0001
Arsenic	mg/L	0.1		0.0024				0.001	0.0003	0.0006	0.0016	0.0015	0.0009	0.001	0.0004	0.0018	0.0031	0.0009
Barium	mg/L	_		0.267				0.078	0.096	0.059	0.055	0.067	0.044	0.058	0.028	0.111	0.106	0.156
Beryillium	mg/L	1.1		< 0.002				< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2		0.999				0.058	0.028	< 0.005	0.019	0.037	0.045	0.061	0.021	0.066	0.101	0.062
Cadmium	mg/L	0.0002		0.000175				< 0.00002	< 0.00002	0.00009	0.000015	< 0.000014	0.000078	0.000046	< 0.000015	0.000017	0.000135	0.000055
Chromium	mg/L	0.1		0.011				< 0.0002	< 0.0002	0.0009	< 0.0015	< 0.001	< 0.001	0.001	< 0.001	0.001	0.003	0.001
Cobalt	mg/L	0.0006		0.0045				< 0.005	< 0.005	0.0005	0.0002	0.0002	0.0004	< 0.0001	< 0.0001	0.001	0.0012	0.0005
Copper	mg/L	0.005		0.0182				0.0002	0.0005	0.0031	0.001	0.0007	0.0097	0.0071	0.0007	0.0025	0.0105	0.0104
Lead	mg/L	0.025		0.0104				0.00014	< 0.00002	0.0025	0.0001	0.00003	0.00062	0.00045	0.00005	0.00011	0.00238	0.00079
Mercury	mg/L	-		< 0.00002				< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002
Molybdenum	mg/L	0.04		0.0008				< 0.0001	0.0002	0.0002	0.001	0.0002	0.0003	0.0005	0.0003	0.0003	0.0013	0.0002
Nickel	mg/L	0.025		0.01				< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-		< 0.002				< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001		< 0.0001				< 0.00002	< 0.00002	0.00002	0.00043	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-		1.1					0.582	0.268	0.384	0.334	0.171	0.231	0.162	0.6	0.279	0.584
Thallium	mg/L	-		< 0.0001				< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-		0.0082				0.0004	< 0.0001	0.0011	0.0004	0.0001	0.0002	0.0002	< 0.0001	0.0003	0.0033	0.0004
Zinc	mg/L	0.03		0.162				< 0.005	< 0.005	0.022	0.034	0.019	0.046	0.062	< 0.005	0.016	0.039	0.026
Cyanide	mg/L	0.005		< 0.005				- 0.000	< 0.005	0.022	< 0.005	0.010	< 0.005	0.002	< 0.005	0.010	0.000	0.020
Turbidity	NTU	-		576					1.7		3.1		8.9		194			
Tannins & Lignins	mg/L	_		0.0					< 0.5		1.4		0.9		2.7			†
· a a Ligimio	y/L								٠.٥٠		1.7		0.0		۷.۱			<u>i</u>

PWQO - Provincial Water Quality Objectives

General Water Qua	ality																	
		D14400	SW16	SW16	SW16	SW16	SW16	SW16	SW16	SW16	SW16	SW16	SW18	SW18	SW18	SW18	SW18	SW18
Parameter	UNITS	PWQO	24-Apr-19	17-Jul-19	9-Oct-19	20-Apr-21	15-Oct-21	26-Apr-22	24-Apr-23	8-Jun-23	16-Aug-23	5-Oct-23	20-Apr-15	28-Apr-15	8-Jun-15	11-Jun-15	15-Jul-15	17-Nov-15
pH -Lab	pH units	6.5-8.5	7.98	7.85	7.64	8.19	7.81	8.03	8.06				8.26	7.94	8.19	7.74	7.41	7.96
Conductivity	uS/cm	-	464	1870	1160	1230	1720	2320	2060				585	657	699	574	577	705
BOD	mg/L	-	< 3	33	22	< 3	7	< 3	< 3				3	< 2	< 3	< 2	< 3	3
COD	mg/L	-	30	95	132	9	70	36	36				11	23	26	38	36	16
Total Dissolved Solids	mg/L	-	235	921	660	697	1051	1262	1130				318	351	370	288	304	394
Total Suspended Solids	mg/L	-	8	85	700	< 3	200	39	110				< 3	< 3	5	8	14	8
Alkalinity	mg/L	-	133	174	270	289	334	228	212				244	198	285	156	207	186
Hardness	mg/L	-	162	185	386	384	626	374	245				273	232	287	162	235	263
Ammonia	mg/L	-	0.03	0.16	0.06	0.02	0.2	1.33	0.03				0.03	0.01	0.05	< 0.01	0.08	< 0.01
Un-ionized Ammonia	mg/L	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02	< 0.01				< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Calcium	mg/L	-	55.9	62.5	135	132	217	135	91.2				99.5	80.1	103	54	82.2	90.7
Chloride	mg/L	-	53.5	420	232	211	356	552	563				27.4	82.6	44.5	82.5	48.6	80.2
DOC	mg/L	-	6.9	22.3	9.4	5.7	8	2.1	1.4				7.7	5.2	8.2	10.8	8.6	8.7
Fluoride	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1				0.1	< 0.1	0.1	0.1	< 0.1	0.1
Iron	mg/L	0.3	0.15	0.922	4.36	0.212	36	1.25	1.51				0.058	0.107	0.115	0.387	1.14	0.088
Magnesium	mg/L	-	3.77	7.92	11.7	13.1	20.2	8.94	7.19				5.98	7.74	6.99	6.52	7.28	8.9
Manganese	mg/L	-	0.045	0.752	0.481	0.008	1.04	0.084	0.165				0.008	0.024	0.017	0.156	0.577	0.017
Nitrate	mg/L	-	0.06	< 0.05	< 0.05	< 0.05	< 0.05	0.34	< 0.5				1.6	< 0.1	0.6	0.1	< 0.1	< 0.1
Nitrite	mg/L	-	< 0.05	< 0.05	< 0.05	< 0.05	0.09	< 0.05	< 0.5				< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TKN	mg/L	-	0.7	2.3	5.8	0.6	1.9	1.8	1.1				0.5	0.7	0.7	1	1.1	0.9
Sodium	mg/L	-	29.2	312	107	119	119	368	298				16.8	42.3	29.3	42.5	34.3	46
Sulphate	mg/L	-	8	5	5	37	98	54	40				13	15	11	6	4	49
Phenols	mg/L	0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001				< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	0.03	0.05	0.21	0.48	0.06	0.56	0.13	0.15	Dry	Dry	Dry	0.02	0.04	0.02	0.09	0.07	0.05
Potassium	mg/L	-	4.3	7.2	2.4	1.5	3.3	4.3	3.2	Diy	Diy	Diy	1.6	5.1	1.3	0.9	1.4	8.1
Aluminum	mg/L	0.075	0.04	0.03	0.08	0.08	0.06	0.06	0.04				0.06	0.03	0.1	0.02	0.07	0.06
Antimony	mg/L	-	0.0002	0.0003	0.0001	0.0003	0.0005	0.0005	0.0008				0.0001	0.0001	0.0003	0.0003	0.0003	< 0.0001
Arsenic	mg/L	0.1	0.0002	0.0018	0.0014	0.0004	0.01	0.0006	0.0009				0.0002	0.0004	0.0003	0.0004	0.0006	0.0005
Barium	mg/L	-	0.029	0.138	0.077	0.069	0.158	0.106	0.078				0.032	0.03	0.034	0.022	0.051	0.04
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002				< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.015	0.046	0.039	0.023	0.07	0.083	0.054				0.011	0.025	0.016	0.032	0.039	0.041
Cadmium	mg/L	0.0002	< 0.000015	< 0.000015	0.000046	< 0.000015	< 0.000028	0.000031	0.000032				< 0.00002	0.00017	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Chromium	mg/L	0.1	< 0.001	0.015	0.002	< 0.001	0.001	0.001	0.004				< 0.0002	< 0.0002	< 0.0002	0.0003	0.0006	0.0002
Cobalt	mg/L	0.0006	< 0.0001	0.0005	0.0006	0.0002	0.0015	0.0007	0.001				< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.005	0.001	0.004	0.0043	0.0011	0.0006	0.0037	0.0058				0.0009	0.0005	0.0006	< 0.0001	< 0.0001	0.0007
Lead	mg/L	0.025	0.00008	0.00011	0.00072	0.00005	0.00018	0.00149	0.00212				0.00003	0.00003	< 0.00002	< 0.00002	< 0.00002	0.00005
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002				< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0003	< 0.0001	0.0003	0.0014	0.0005	0.0007	0.0008				0.0002	0.0005	0.0002	< 0.0001	< 0.0001	0.0006
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01				< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.002	< 0.002	< 0.002				< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001				0.00017	< 0.00002	< 0.00002	< 0.00002	0.00004	< 0.00002
Strontium	mg/L	-	0.16	0.282	0.403	0.421	0.794	0.544	0.391				0.264	0.254	0.3	0.172	0.264	0.287
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.0001	< 0.0001	< 0.0001				0.0001	0.0001	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	< 0.0001	0.0003	0.0006	0.0001	0.0051	0.0012	0.0021				0.0003	0.0001	0.0006	0.0001	0.0003	0.0003
Zinc	mg/L	0.03	0.009	0.012	0.024	0.013	0.007	0.016	0.013				< 0.005	< 0.005	< 0.005	< 0.005	0.017	< 0.005
Cyanide	mg/L	0.005							< 0.005							5.553		
Turbidity	NTU	-							180									
Tannins & Lignins	mg/L	_	1															t
	9, -	1	1	1	ı		1	ı	l .	ı	ı				1	ı		1

PWQO - Provincial Water Quality Objectives

Contra Water Quar			SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18
Parameter	UNITS	PWQO	21-Apr-16	26-May-16	8-Jun-16	24-Apr-17	23-May-17	22-Jun-17	24-Aug-17	17-Oct-17	25-Apr-18	28-Jun-18	22-Aug-18	11-Oct-18	24-Apr-19	5-Jun-19	17-Jul-19	6-Aug-19
pH -Lab	pH units	6.5-8.5	7.82	7.91	8.04	8.13	8.18	7.93	7.87	8.24	8.19	7.96	7.79	7.73	8.14	8.16	7.92	7.76
Conductivity	uS/cm	-	794	1010	1280	763	522	525	527	847	429	504	690	927	436		819	
BOD	mg/L	-	3	5	13	<3	<3	<3	<3	<3	< 3	< 3	5	86	< 3		11	
COD	mg/L	-	29	47	41	35	22	33	29	25	20	103	54	244	25		44	
Total Dissolved Solids	mg/L	-	426	598	731	393	253	277	304	451	231	274	365	490	226		411	
Total Suspended Solids	mg/L	-	4	300	170	<3	<3	3	6	3	5	10	14	400	6		300	
Alkalinity	mg/L	-	198	310	343	182	213	223	203	324	177	147	180	247	164		230	
Hardness	mg/L	-	241	388	548	216	193	231	291	357	179	178	193	246	197		294	
Ammonia	mg/L	-	0.04	0.26	0.13	0.01	0.05	0.04	0.03	0.03	0.03	0.06	0.1	0.17	0.03	0.02	1.15	0.19
Un-ionized Ammonia	mg/L	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		0.02	
Calcium	mg/L	-	82.9	138	200	76.5	68.9	84	105	129	64.8	58.2	68.3	257	71		94.7	
Chloride	mg/L	-	121	143	189	111	24.3	24.2	35.1	44.9	27.2	68.9	112	146	25		87	
DOC	mg/L	-	9.1	8.6	5.4	9.1	8.5	10.7	11.9	6.3	5.2	14.9	11.9	16.8	4.9		12.1	
Fluoride	mg/L	-	0.1	0.2	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1		< 0.1	
Iron	mg/L	0.3	0.147	4.87	1.09	0.091	0.024	0.307	0.625	0.041	0.052	0.97	1.44	9.12	0.153		2.99	
Magnesium	mg/L	1	8.29	10.7	11.9	6.08	4.98	6.02	7.84	8.37	4.14	7.81	7.51	12.4	4.04		8.08	
Manganese	mg/L	-	0.063	1.6	0.729	0.028	0.022	0.103	0.672	0.005	0.006	0.26	0.628	1.16	0.023		1.91	
Nitrate	mg/L	-	0.1	0.4	0.2	< 0.1	< 0.05	0.14	< 0.05	1.78	0.64	< 0.05	< 0.05	< 0.05	0.67		0.05	
Nitrite	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		0.05	
TKN	mg/L	-	0.4	2.5	1.5	0.8	1.8	1	0.8	0.5	0.5	1.6	1.7	10.4	0.8		2.4	
Sodium	mg/L	-	68.7	89	90.9	64.9	17.2	20.3	25.4	37.1	15.3	43.3	60.5	85.4	14		58.7	
Sulphate	mg/L	-	18	21	29	22	9	6	5	35	11	2	1	10	10		14	
Phenols	mg/L	0.001	< 0.001	< 0.001	< 0.001	0.005	0.008	0.005	0.009	0.002	< 0.001	0.005	0.007	0.007	< 0.002		< 0.002	
Phosphorus	mg/L	0.03	0.02	0.43	0.18	0.04	0.01	0.04	0.05	0.02	0.03	0.14	0.18	1.58	0.04		0.14	
Potassium	mg/L	1	6.9	2.2	2	4	1.3	1.7	2.7	2	2	4	5.5	7.7	2.4		4.9	
Aluminum	mg/L	0.075	0.03	1.15	0.33	0.04	0.03	0.03	0.22	0.07	0.06	0.07	0.05	2.56	0.05		0.06	
Antimony	mg/L	-	0.0001	0.0001	0.0002	< 0.0001	< 0.0001	0.0001	0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	0.0001		0.0003	
Arsenic	mg/L	0.1	0.0004	0.001	0.0008	0.0007	0.0003	0.0007	0.0006	0.0004	0.0002	0.0008	0.0005	0.0013	0.0002		0.0012	
Barium	mg/L	1	0.036	0.084	0.105	0.031	0.026	0.029	0.073	0.047	0.022	0.038	0.045	0.208	0.029		0.061	
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002		< 0.002	
Boron	mg/L	0.2	0.027	0.052	0.021	0.023	0.007	0.016	0.027	0.018	0.008	0.032	0.046	0.067	0.005		0.061	
Cadmium	mg/L	0.0002	< 0.00002	0.00006	0.00007	< 0.000014	< 0.000014	< 0.000014	0.000076	0.000041	< 0.000015	0.000072	0.000091	0.000315	< 0.000015		< 0.000015	
Chromium	mg/L	0.1	0.0003	0.0017	0.0006	< 0.0015	0.012	< 0.001	0.001	< 0.001	< 0.001	0.001	0.001	0.003	< 0.001		< 0.001	
Cobalt	mg/L	0.0006	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.0001	0.0002	0.0006	< 0.0001	< 0.0001	0.0004	0.0003	0.0023	< 0.0001		0.0006	
Copper	mg/L	0.005	0.0007	0.0038	0.0053	0.0004	0.0008	0.0005	0.0059	0.006	0.0005	0.0068	0.0069	0.0172	0.0011		0.0006	
Lead	mg/L	0.025	0.00002	0.00199	0.00099	< 0.00002	0.00004	0.00003	0.00063	0.00036	0.00004	0.00038	0.00054	0.00375	0.00007		0.0001	
Mercury	mg/L	-	< 0.00002	< 0.00002	0.00005	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002		< 0.00002	
Molybdenum	mg/L	0.04	0.0004	< 0.0001	0.0003	0.0006	0.0002	0.0002	0.0002	0.0003	0.0002	0.0001	0.0001	0.0004	0.0002		0.0002	
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01	
Selenium	mg/L	1	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	
Silver	mg/L	0.0001	< 0.00002	< 0.00002	< 0.00002	0.00037	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001		< 0.0001	
Strontium	mg/L		0.279	0.377	0.523	0.223	0.199	0.249	0.298	0.291	0.158	0.235	0.257	0.53	0.17		0.305	
Thallium	mg/L		< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005		< 0.00005	
Vanadium	mg/L	-	0.0001	0.0033	0.0012	0.0002	< 0.0001	0.0002	0.0005	0.0004	0.0003	0.0004	0.0001	0.0073	0.0002		0.0006	
Zinc	mg/L	0.03	< 0.005	0.399	0.188	0.046	0.042	0.005	0.63	0.011	< 0.005	0.03	0.02	0.228	0.008		0.026	
Cyanide	mg/L	0.005	0.000	- U.U.U				0.000		0.0	0.000	0.00	0.02		0.000		0.020	
Turbidity	NTU	-																
Tannins & Lignins	mg/L	_																<u> </u>
· a a Ligillio	mg/L						1											<u> </u>

	iity		SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18
Parameter	UNITS	PWQO	13-Aug-19	27-Aug-19	10-Sep-19	2-Oct-19	8-Oct-19	16-Oct-19	31-Oct-19	30-Apr-20	15-Oct-20	22-Oct-20	30-Nov-20	20-Apr-21	4-May-21	15-Jun-21	8-Jul-21	11-Aug-21
pH -Lab	pH units	6.5-8.5	8.08	7.4	7.84	8	7.74	7.81	8.04	7.99	7.83	7.96	7.95	8.31	8.21	7.88	8.14	7.86
Conductivity	uS/cm	-	691				799			643		1140		676		1050		691
BOD	mg/L	-	4				4			< 3		< 3		< 3		< 3		< 3
COD	mg/L	-	68				33			25		< 5		9		55		42
Total Dissolved Solids	mg/L	-	368				424			355		631		386		576		361
Total Suspended Solids	mg/L	-	20				16			5		31		< 3		8		8
Alkalinity	mg/L	-	155				188			222		180		270		216		198
Hardness	mg/L	-	190				229			254		331		305		274		199
Ammonia	mg/L	-	0.13	2.12	1.39	0.16	0.52	0.77	0.05	0.03	0.07	0.05	0.04	0.02	0.02	0.19	0.03	0.19
Un-ionized Ammonia	mg/L	0.02	0.02				0.02			< 0.01		< 0.01		< 0.01		< 0.01		< 0.01
Calcium	mg/L	-	62.3				77.3			91.4		112		111		90.2		65.8
Chloride	mg/L	-	124				139			56.4		197		49		196		101
DOC	mg/L	-	11.3				9.3			6.4		6		6.4		10.5		10.1
Fluoride	mg/L	-	< 0.1				< 0.1			< 0.1		< 0.1		< 0.1		< 0.1		< 0.1
Iron	mg/L	0.3	1.1				1.41			0.211		0.683		0.061		1.07		1.12
Magnesium	mg/L	-	8.27				8.8			6.18		12.3		6.79		11.7		8.32
Manganese	mg/L	-	0.341				0.748			0.114		0.243		0.029		0.252		1
Nitrate	mg/L	-	0.06				< 0.05			0.74		< 0.05		0.69		0.08		0.09
Nitrite	mg/L	-	< 0.05				< 0.05			< 0.05		< 0.05		< 0.05		< 0.05		< 0.05
TKN	mg/L	-	2.7				1.6			0.6		2.5		0.4		1.8		1.5
Sodium	mg/L	-	66.3				69.2			30		96.3		29.3		103		56.6
Sulphate	mg/L	-	4				7			16		87		18		11		5
Phenols	mg/L	0.001	< 0.002				< 0.002			< 0.002		< 0.002		< 0.002		0.002		< 0.002
Phosphorus	mg/L	0.03	0.25				0.09			0.03		0.25		0.04		0.12		0.1
Potassium	mg/L	-	9.1				7.2			2.4		13.4		1.6		5.6		3.3
Aluminum	mg/L	0.075	0.03				0.06			0.06		0.04		0.08		0.07		0.03
Antimony	mg/L	-	0.0001				0.0002			0.0004		0.0002		0.0001		0.0001		0.0004
Arsenic	mg/L	0.1	0.0005				0.0008			0.0002		0.0007		0.0002		0.0009		0.0007
Barium	mg/L	-	0.044				0.054			0.037		0.068		0.038		0.051		0.043
Beryillium	mg/L	1.1	< 0.002				< 0.002			< 0.002		< 0.002		< 0.002		< 0.002		< 0.002
Boron	mg/L	0.2	0.052				0.046			0.018		0.048		0.011		0.058		0.072
Cadmium	mg/L	0.0002	< 0.000015				< 0.000015			< 0.000015		0.000027		< 0.000015		< 0.000015		< 0.000015
Chromium	mg/L	0.1	< 0.001				0.002			< 0.001		0.001		< 0.001		0.002		< 0.001
Cobalt	mg/L	0.0006	0.0002				0.0004			0.0002		0.0002		< 0.0001		0.0003		0.0004
Copper	mg/L	0.005	0.0009				0.0029			0.0007		0.0027		0.0007		0.0007		0.0003
Lead	mg/L	0.025	0.00026				0.00006			0.00006		0.00013		0.00004		0.00009		0.00006
Mercury	mg/L	-	< 0.00002				< 0.00002			< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002
Molybdenum	mg/L	0.04	< 0.0001				0.0002			0.0002		0.0005		0.0002		0.0002		< 0.0001
Nickel	mg/L	0.025	< 0.01				< 0.01			< 0.01		< 0.01		< 0.01		< 0.01		< 0.01
Selenium	mg/L	-	< 0.001				< 0.001			< 0.001		< 0.001		< 0.001		< 0.001		< 0.001
Silver	mg/L	0.0001	< 0.0001				< 0.0001			< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001
Strontium	mg/L	-	0.26				0.253			0.236		0.362		0.277		0.33		0.271
Thallium	mg/L	-	< 0.00005				< 0.00005			< 0.00005		< 0.00005		< 0.00005		< 0.00005		< 0.00005
Vanadium	mg/L	-	0.0007				0.0003			0.0004		0.0006		0.0004		0.0007		0.0002
Zinc	mg/L	0.03	0.022				0.103			< 0.005		0.053		0.009		0.047		0.059
Cyanide	mg/L	0.005																
Turbidity	NTU	-																
Tannins & Lignins	mg/L	-																

Concrai Water Qua			SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	WPCP Eff
Parameter	UNITS	PWQO	23-Sep-21	15-Oct-21	25-Oct-21	26-Apr-22	7-Jun-22	21-Jun-22	5-Jul-22	17-Oct-22	24-Apr-23	1-May-23	8-Jun-23	26-Jun-23	15-Aug-23	16-Aug-23	5-Oct-23	21-Apr-14
pH -Lab	pH units	6.5-8.5	8.02	7.86	7.88	8.32	8.12	7.88	7.43	7.83	8.31	8.19	7.95	8.05	7.52	7.13	8.07	7.97
Conductivity	uS/cm	-		912		649		749		1200	643		1030			678	897	1670
BOD	mg/L	-		14		< 3		< 3		< 3	< 3		< 3			3	<3	< 3
COD	mg/L	-		146		23		33		52	9		44			64	52	17
Total Dissolved Solids	mg/L	-		579		351		401		641	349		525			362	534	916
Total Suspended Solids	mg/L	-		1400		< 3		10		6	< 3		64			8	10	11
Alkalinity	mg/L	-		288		270		212		213	272		251			183	207	233
Hardness	mg/L	-		401		288		207		306	290		277			195	291	408
Ammonia	mg/L	-	0.08	0.14	0.04	0.1	2.51	0.05	0.19	0.18	0.01	0.16	0.21	0.14	0.07	0.77	0.18	0.85
Un-ionized Ammonia	mg/L	0.02		< 0.01		< 0.01		< 0.01		< 0.01	< 0.01		< 0.01			0.02	<0.01	0.03
Calcium	mg/L	-		142		104		69.8		94.4	96.4		84.6			67.3	97.4	142
Chloride	mg/L	-		117		37		110		237	43.8		176			103	168	331
DOC	mg/L	-		9.9		6		9.3		4.1	5.6		5.7			10.4	10.6	3.9
Fluoride	mg/L	-		< 0.1		< 0.1		< 0.1		< 0.1	< 0.1		0.1			<0.1	<0.1	0.1
Iron	mg/L	0.3		21.8		0.056		0.253		0.073	0.031		1.01			1.76	0.648	0.038
Magnesium	mg/L	-		11.3		6.75		7.81		11.2	6.12		10.3			6.43	11.7	12.6
Manganese	mg/L	-		22.3		0.011		0.149		0.023	0.011		0.5			0.82	0.24	0.045
Nitrate	mg/L	-		< 0.05		1.23		0.87		0.1	0.84		< 0.05			0.09	<0.05	8.5
Nitrite	mg/L	-		< 0.05		< 0.05		< 0.05		< 0.05	< 0.05		< 0.05			<0.05	< 0.05	< 0.1
TKN	mg/L	-		5.6		0.8		1.1		3	0.5		1.8			1.4	1.7	1.7
Sodium	mg/L	-		58.2		23.7		54.9		105	23.9		86.5			53.4	82.8	192
Sulphate	mg/L	-		26		14		7		47	14		6			4	29	53
Phenols	mg/L	0.001		< 0.002		< 0.001		< 0.001		< 0.001	< 0.001		< 0.001			0.004	<0.001	< 0.001
Phosphorus	mg/L	0.03		1.06		0.02		0.06		0.19	0.04		0.1			0.1	0.09	0.06
Potassium	mg/L	-		8.1		2.3		4.3		17.7	2.2		8.6			14.1	20.3	7.5
Aluminum	mg/L	0.075		0.03		0.06		0.02		0.04	0.02		0.03			0.03	0.11	1.13
Antimony	mg/L	-		0.0004		0.0003		0.0004		0.0004	0.0001		0.0003			0.0001	0.0004	< 0.0001
Arsenic	mg/L	0.1		0.005		0.0002		0.0005		0.0004	0.0002		0.0008			0.0007	0.0005	0.0002
Barium	mg/L	-		0.394		0.038		0.035		0.056	0.035		0.053			0.06	0.057	0.07
Beryillium	mg/L	1.1		< 0.002		< 0.002		< 0.002		< 0.002	< 0.002		< 0.002			<0.0001	<0.0001	< 0.002
Boron	mg/L	0.2		0.058		0.013		0.047		0.091	0.012		0.074			0.068	0.23	0.063
Cadmium	mg/L	0.0002		0.000242		< 0.000015		< 0.000015		< 0.000028	< 0.000015		< 0.000015			<0.000015	<0.000015	< 0.00002
Chromium	mg/L	0.1		0.006		< 0.001		< 0.001		< 0.001	0.002		< 0.001			<0.001	<0.001	< 0.0002
Cobalt	mg/L	0.0006		0.0109		0.0001		0.0001		< 0.0002	0.0001		0.0003			0.0003	0.0004	< 0.005
Copper	mg/L	0.005		0.0054		0.0009		0.0004		0.0003	0.0006		0.0004			0.0006	0.0007	0.0036
Lead	mg/L	0.025		0.00322		0.00005		0.00002		0.00011	0.00003		0.0002			0.00006	0.00018	0.00019
Mercury	mg/L	-		0.00002		< 0.00002		< 0.00002		< 0.00002	< 0.00002		< 0.00002			<0.00002	<0.00002	< 0.00002
Molybdenum	mg/L	0.04		0.0004		0.0001		< 0.0001		0.0003	0.0002		< 0.0001			<0.0001	0.0003	0.0004
Nickel	mg/L	0.025		< 0.01		< 0.01		< 0.01		< 0.01	< 0.01		< 0.01			0.0009	0.0009	< 0.01
Selenium	mg/L	-	1	< 0.001		< 0.001		< 0.001		< 0.002	< 0.001		< 0.001			<0.001	<0.001	0.001
Silver	mg/L	0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001	< 0.0001		< 0.0001			<0.0001	<0.0001	< 0.00002
Strontium	mg/L	-		0.436		0.291		0.249		0.35	0.255		0.316			0.224	0.32	
Thallium	mg/L	-		< 0.00005		< 0.00005		< 0.00005		< 0.0001	< 0.00005		< 0.00005			<0.00005	<0.00005	< 0.00005
Vanadium	mg/L	-		0.0123		0.0004		0.0002		< 0.0001	0.0003		0.0006			0.0002	0.0006	0.0006
Zinc	mg/L	0.03		0.112		< 0.005		< 0.005		< 0.005	< 0.005		0.007			<0.005	0.016	0.011
Cyanide	mg/L	0.005		- 		0.000		0.000		0.000	< 0.005		< 0.005			<0.005	<0.005	< 0.005
Turbidity	NTU	-						1			0.9		17.7			6.5	1.7	19.1
Tannins & Lignins	mg/L	_									0.6		1.5			1.6	1.1	
· ao a Ligitilo	1119/1				1						0.0		1.0			1.0	1.1	

PWQO - Provincial Water Quality Objectives

Concrai Water Quar			WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff
Parameter	UNITS	PWQO	17-Jun-14	13-Aug-14	14-Oct-14	10-Feb-15	28-Apr-15	15-Jun-15	19-Aug-15	18-Nov-15	26-May-16	8-Jun-16	11-Aug-16	17-Oct-16	24-Apr-17	22-Jun-17	24-Aug-17	17-Oct-17
pH -Lab	pH units	6.5-8.5	7.89	7.9	7.84	7.47	7.85	7.89	8	7.7	8.02	8.03	7.82	7.82	8.11	7.85	7.84	7.97
Conductivity	uS/cm	-	1350	1080	1240	1490	1610	1260	1210	1290	1430	1360	1080	1220	1630	1320	1190	1100
BOD	mg/L	-	< 3	< 3	< 3	5	< 2	< 2	< 3	< 2	5	4	5	7	3	3	8	4
COD	mg/L	-	20	17	14	43	10	16	24	< 5	23	22	26	18	18	21	28	30
Total Dissolved Solids	mg/L	-	720	654	676	863	865	659	616	692	783	713	591	664	805	658	595	548
Total Suspended Solids	mg/L	-	6	5	5	142	9	10	11	4	9	10	3	18	8	12	5	8
Alkalinity	mg/L	-	216	160	178	188	213	227	190	173	218	196	162	335	251	268	217	203
Hardness	mg/L	-	297	265	274	373	362	307	240	300	361	282	217	353	341	315	286	269
Ammonia	mg/L	-	0.36	1.24	0.39	0.84	0.4	0.07	0.29	0.07	0.41	0.31	1.02	7.85	0.61	1.32	1.79	4.3
Un-ionized Ammonia	mg/L	0.02	0.01	0.08	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.16	0.03	0.01	0.07	0.18
Calcium	mg/L	-	97.5	84.8	88.5	118	123	106	75.7	98.6	117	89	63.2	113	116	107	88.7	85.4
Chloride	mg/L	-	222	190	194	288	326	205	200	217	265	222	185	149	295	182	165	144
DOC	mg/L	-	4	3.6	3	6.2	2.6	1.3	1.8	3.5	3.2	4	3.9	5.8	3.8	3.8	6.7	5.6
Fluoride	mg/L	-	0.1	< 0.1	0.1	0.1	0.2	< 0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1
Iron	mg/L	0.3	0.129	0.115	0.107	0.237	0.076	0.052	0.197	0.055	0.106	0.148	0.119	4.45	0.054	0.062	0.083	0.112
Magnesium	mg/L	-	13	12.9	12.8	19.1	13.3	9.97	12.5	13	16.8	14.4	14.5	17.3	12.7	11.4	13.2	13.4
Manganese	mg/L	-	0.044	0.026	0.032	0.069	0.035	0.008	0.075	0.016	0.065	0.043	0.065	0.575	0.033	0.036	0.068	0.054
Nitrate	mg/L	-	2	5.4	9.8	4.3	9.1	8.8	2.7	14.9	5.4	2.3	0.5	3.6	2.9	0.23	0.67	0.5
Nitrite	mg/L	-	< 0.1	0.6	0.5	5.5	< 0.1	< 0.1	0.4	< 0.1	0.8	0.6	1.2	0.4	0.7	0.22	0.45	0.63
TKN	mg/L	-	1.4	2.17	1.5	2.8	1.2	0.9	1.5	1.1	1.6	1.4	2.4	9.7	1.7	2.4	2.8	5.4
Sodium	mg/L	-	145	136	124	204	168	109	106	123	160	146	121	97.4	161	135	126	109
Sulphate	mg/L	-	93	96	93	67	58	47	85	60	53	100	90	44	46	52	57	58
Phenols	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.016	0.004	0.004	0.008	0.005
Phosphorus	mg/L	0.03	0.08	0.08	0.04	0.3	0.05	0.05	0.09	0.05	0.12	0.08	0.05	0.05	0.09	0.1	0.07	0.09
Potassium	mg/L	-	11	12.3	11.3	15.4	8.7	5.9	9.3	10.6	13	11.4	12.2	9.7	7.7	6.9	11.3	10.6
Aluminum	mg/L	0.075	0.67	0.51	0.74	2.4	1.27	0.87	0.98	0.99	0.95	0.72	0.62	0.34	0.95	1.1	0.82	0.86
Antimony	mg/L	_	0.0002	0.0005	0.0005	< 0.0001	0.0002	0.0004	0.0003	0.0002	0.0004	0.0003	0.0003	0.0002	0.0002	0.0005	0.0002	0.0002
Arsenic	mg/L	0.1	0.0004	0.0003	0.0003	< 0.0001	0.0002	0.0005	0.0004	0.0003	0.0004	0.0001	0.0003	0.0008	0.0012	0.0007	0.0007	0.0007
Barium	mg/L	_	0.05	0.044	0.036	0.052	0.063	0.052	0.051	0.047	0.055	0.039	0.037	0.085	0.062	0.061	0.053	0.06
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.109	0.133	0.12	0.158	0.078	0.083	0.09	0.101	0.134	0.123	0.146	0.117	0.086	0.082	0.133	0.128
Cadmium	mg/L	0.0002	0.00003	0.00002	< 0.00002	0.00002	0.00004	0.00025	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.000014	0.000018	< 0.000014	0.000063
Chromium	mg/L	0.1	0.0005	0.001	< 0.0002	0.0007	< 0.0002	< 0.0002	0.0002	< 0.0002	0.0005	0.0003	< 0.0002	0.0003	< 0.0015	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	0.0006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0002	< 0.0001	0.0002	0.0003	< 0.0001
Copper	mg/L	0.005	0.0021	0.002	0.0021	0.0102	0.0044	0.0033	0.0021	0.0032	0.0038	0.0018	0.001	0.0007	0.0026	0.0023	0.0016	0.0079
Lead	mg/L	0.025	0.00029	0.00047	0.00021	0.0012	0.00056	0.00047	0.00031	0.00035	0.00092	0.00091	0.00037	0.00017	0.00038	0.0003	0.00026	0.00081
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0017	0.0019	0.0018	0.0013	0.0004	0.0009	0.0042	0.0013	0.0008	0.0009	0.001	0.0003	0.0007	0.0038	0.0045	0.0015
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	0.00002	< 0.00002	< 0.00002	0.00053	< 0.00002	0.00024	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00022	< 0.00002	0.00024	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	-	0.319	0.301	0.297	0.41	0.396	0.339	0.271	0.336	0.381	0.312	0.243	0.386	0.351	0.349	0.284	0.26
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00025	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	0.0008	0.0013	0.0003	< 0.0001	0.0001	0.0005	0.0004	0.0003	0.0002	0.0003	0.0003	0.0003	0.0003	0.0003	< 0.0001	0.0003
Zinc	mg/L	0.03	0.018	0.028	0.003	0.105	0.036	0.0003	0.032	0.025	0.052	0.041	0.028	0.0003	0.304	0.031	0.013	0.095
Cyanide	mg/L	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.020	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Turbidity	NTU	-	1.1	27.1	6.1	2.3	1.3	2.5	5.6	3.3	1.8	5.5		94.5	1.7	2.6	2.1	1.8
Tannins & Lignins	mg/L	_	1,1	21.1	0.1	2.0	1.0	2.0	5.0	0.0	1.1	0.9		34.5	1.7	2.0	4.1	1.0
ramina a Ligitita	mg/L	-	1			l	1	1		1	1.1	0.9	l	l	1	l	1	1

PWQO - Provincial Water Quality Objectives

General Water Quali	7		WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff
Parameter	UNITS	PWQO	25-Apr-18	28-Jun-18	22-Aug-18	11-Oct-18	24-Apr-19	17-Jul-19	13-Aug-19	8-Oct-19	30-Apr-20	24-Jun-20	10-Aug-20	22-Oct-20	20-Apr-21	15-Jun-21	11-Aug-21	11-Aug-21
pH -Lab	pH units	6.5-8.5	8.14	8.07	7.77	8.02	8.01	8.03	8.12	7.91	7.93	7.86	7.94	8.12	8.09	7.78	7.91	7.97
Conductivity	uS/cm	-	1580	1400	1150	1270	1600	1290	1200	1130	1530	1400	1220	1260	1580	1550	1490	1480
BOD	mg/L	-	< 3	6	8	> 24	< 3	7	< 3	3	3	9	< 3	3	4	8	10	10
COD	mg/L	-	19	26	36	120	28	32	31	27	25	27	24	14	20	75	63	64
Total Dissolved Solids	mg/L	i -	791	765	616	711	801	626	632	638	870	751	663	670	850	871	783	810
Total Suspended Solids	mg/L	-	12	6	13	16	10	9	9	7	10	10	7	8	8	23	18	18
Alkalinity	mg/L	-	230	252	200	238	226	200	201	189	240	201	176	212	273	304	301	302
Hardness	mg/L	-	348	282	219	292	370	288	253	237	333	291	277	298	373	297	263	291
Ammonia	mg/L	-	0.08	17.6	6.8	4.12	0.46	0.68	0.41	0.39	0.56	2.12	0.28	0.43	5.46	24.3	18.8	18.9
Un-ionized Ammonia	mg/L	0.02	< 0.01	0.35	0.22	0.07	< 0.01	0.02	< 0.01	0.02	< 0.01	0.11	< 0.01	0.02	0.36	0.51	0.16	0.16
Calcium	mg/L	-	120	87.8	68.4	98.7	130	81.3	80.2	71.8	111	91.7	85.5	95.3	124	93	81.6	90.4
Chloride	mg/L	-	307	240	200	200	298	195	209	217	326	260	228	227	286	248	239	242
DOC	mg/L	-	2.3	6.8	6.5	16.4	3.5	6.1	7.6	6.1	3.6	3.9	4.1	3.1	4.1	6.9	5.5	5.7
Fluoride	mg/L	-	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Iron	mg/L	0.3	0.045	0.138	0.195	0.156	0.063	0.119	0.102	0.165	0.066	0.154	0.147	0.084	0.226	0.378	0.441	0.401
Magnesium	mg/L	-	11.7	15.1	12.4	17.1	11.4	11.9	12.8	14	13.4	15.3	15.3	14.5	15.4	15.8	14.5	15.9
Manganese	mg/L	-	0.031	0.086	0.068	0.088	0.032	0.056	0.022	0.018	0.028	0.092	0.034	0.02	0.034	0.106	0.083	0.092
Nitrate	mg/L		7.83	0.22	0.2	0.25	10.1	0.95	3.26	2.41	2.51	0.35	0.35	2.67	0.1	0.08	0.07	0.05
Nitrite	mg/L	-	< 0.05	0.32	0.18	0.13	0.11	0.22	0.19	< 0.05	0.51	0.15	0.28	0.22	0.21	< 0.05	< 0.05	< 0.05
TKN	mg/L	-	1.1	22.1	9.2	5.6	1.7	2	1.5	1.8	1.9	4.2	1.5	1.7	6.6	27.8	22.3	22.5
Sodium	mg/L	-	169	164	127	145	172	144	130	128	160	162	134	132	176	161	151	166
Sulphate	mg/L	-	38	70	67	94	45	59	65	68	53	82	81	54	56	89	74	72
Phenols	mg/L	0.001	< 0.001	< 0.001	0.004	0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.002	< 0.002	< 0.002	0.003	0.004	< 0.002
Phosphorus	mg/L	0.03	0.1	0.12	0.13	0.17	0.1	0.06	0.03	0.1	0.1	0.12	0.06	0.1	0.14	0.53	0.49	0.56
Potassium	mg/L	-	6.7	13.3	11.4	13.8	7.9	13.5	14.1	15.1	14.6	15.6	13.3	14.5	11.8	16.1	16.7	18.3
Aluminum	mg/L	0.075	0.56	0.76	0.85	0.85	0.09	0.1	0.21	0.11	0.1	0.1	0.08	0.13	0.11	0.17	0.14	0.13
Antimony	mg/L	-	0.0002	0.0004	< 0.0005	0.0002	0.0003	0.0003	0.0002	0.0006	0.0004	0.0004	0.0005	0.0002	0.0003	0.0001	0.0004	0.0005
Arsenic	mg/L	0.1	0.0005	0.0004	< 0.0005	0.0004	0.0002	0.0003	0.0003	0.0003	0.0002	0.0003	0.0003	0.0002	0.0002	0.0004	0.0004	0.0004
Barium	mg/L	-	0.073	0.056	0.057	0.063	0.076	0.049	0.04	0.039	0.05	0.059	0.059	0.054	0.09	0.073	0.068	0.075
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.059	0.137	0.122	0.134	0.069	0.14	0.157	0.16	0.101	0.21	0.236	0.134	0.127	0.177	0.148	0.163
Cadmium	mg/L	0.0002	0.000074	< 0.000015	< 0.000070	0.000035	0.000017	0.000019	0.000037	0.000034	0.000018	< 0.000015	0.000037	0.000028	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.1	< 0.001	< 0.001	0.001	0.001	0.001	< 0.001	< 0.001	0.002	0.001	< 0.001	< 0.001	0.001	< 0.001	0.001	< 0.001	< 0.001
Cobalt	mg/L	0.0006	< 0.0001	0.0004	< 0.0005	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0001	0.0002	0.0002	0.0002	0.0001	0.0002	0.0003
Copper	mg/L	0.005	0.0029	0.0018	0.0013	0.0064	0.004	0.0025	0.0021	0.004	0.0025	0.0009	0.0019	0.0024	0.0015	0.0059	0.0045	0.0045
Lead	mg/L	0.025	0.00017	0.00018	0.0005	0.0007	0.00032	0.00177	0.00096	0.00107	0.00057	0.00045	0.00136	0.00098	0.0003	0.00016	0.00026	0.00037
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.014	0.002	0.0018	0.0014	0.0009	0.0034	0.008	0.0021	0.0009	0.0041	0.0117	0.0016	0.0023	0.0015	0.0012	0.0014
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	< 0.001	< 0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001
Strontium	mg/L	-	0.358	0.322	0.278	0.328	0.378	0.281	0.273	0.247	0.317	0.327	0.312	0.301	0.394	0.327	0.319	0.348
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.0003	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	< 0.0001	0.0001	< 0.0005	0.0002	0.0004	0.0004	0.0005	0.0003	0.0002	0.0001	0.0005	0.0003	0.0002	0.0002	0.0002	0.0001
Zinc	mg/L	0.03	0.03	0.031	0.033	0.042	0.023	0.05	0.048	0.061	0.033	0.044	0.058	0.042	0.032	0.021	0.023	0.013
Cyanide	mg/L	0.005	< 0.005	< 0.005									< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Turbidity	NTU	_	0.7	2.9	0.0	0.8		T	4.4				000	20.0	0.0	4.4	4.5	2.6
Turbluity	INTO		2.7	2.9	2.2	0.0			1.4	4	1	1	936	30.9	2.2	4.4	1.5	2.0

PWQO - Provincial Water Quality Objectives

			WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff
Parameter	UNITS	PWQO	15-Oct-21	26-Apr-22	21-Jun-22	24-Aug-22	17-Oct-22	24-Apr-23	8-Jun-23	16-Aug-23	5-Oct-23
pH -Lab	pH units	6.5-8.5	7.68	8.1	8	7.92	7.92	7.92	7.93	7.68	7.91
Conductivity	uS/cm	-	1430	1640	1690	1370	1380	1540	1580	1430	1300
BOD	mg/L	-	16	4	6	10	4	< 3	< 3	<3	<3
COD	mg/L	-	265	42	31	26	36	47	20	22	26
Total Dissolved Solids	mg/L	-	783	839	901	720	663	800	772	803	753
Total Suspended Solids	mg/L	-	48	11	8	9	9	17	13	9	13
Alkalinity	mg/L	-	329	266	323	246	184	216	222	191	196
Hardness	mg/L	-	303	347	367	250	284	315	309	285	295
Ammonia	mg/L	-	14.8	10.6	14.5	13.9	2.41	0.08	0.19	0.88	0.46
Un-ionized Ammonia	mg/L	0.02	0.22	0.08	0.26	0.14	0.11	< 0.01	0.01	0.14	<0.01
Calcium	mg/L	-	94.7	116	127	78.4	85.6	105	94.9	92	90.7
Chloride	mg/L	-	246	290	287	251	230	321	285	284	256
DOC	mg/L	-	24.6	2.6	4.2	3	1.9	2.1	2	2.6	1.2
Fluoride	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1	<0.7	<0.7
Iron	mg/L	0.3	0.392	0.052	0.166	0.094	0.044	0.048	0.069	0.033	0.095
Magnesium	mg/L	-	16.1	13.8	15.1	13.2	16	12.5	14.2	13.4	16.6
Manganese	mg/L	-	0.071	0.031	0.06	0.051	0.038	0.008	0.011	0.005	0.011
Nitrate	mg/L	-	< 0.05	4.86	< 0.05	0.06	17	8.59	9	13	12.2
Nitrite	mg/L	-	0.11	0.16	< 0.05	0.47	1.47	< 0.05	< 0.5	<0.40	<0.40
TKN	mg/L	-	28.1	12.2	20.2	22.6	5.1	1.4	1.5	1.2	1.8
Sodium	mg/L	-	155	188	191	146	154	161	172	165	144
Sulphate	mg/L	-	23	47	57	47	46	61	59	58	54
Phenols	mg/L	0.001	0.011	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.001
Phosphorus	mg/L	0.03	2.87	0.09	0.16	0.1	0.12	0.16	0.15	0.1	0.12
Potassium	mg/L	-	32	10.9	10.9	12.8	17	9.3	14	14.5	20.6
Aluminum	mg/L	0.075	0.12	0.1	0.22	0.22	0.1	2.13	0.11	1.14	1.49
Antimony	mg/L	-	0.0005	0.0007	0.0007	0.0005	0.0006	0.0006	0.0005	0.0004	0.0007
Arsenic	mg/L	0.1	0.0003	0.0002	0.0003	0.0003	0.0003	< 0.0005	0.0003	0.0003	0.0003
Barium	mg/L	-	0.065	0.064	0.075	0.046	0.047	0.058	0.052	0.052	0.05
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	<0.0001
Boron	mg/L	0.2	0.166	0.115	0.15	0.165	0.167	0.159	0.175	0.204	0.202
Cadmium	mg/L	0.0002	< 0.000028	< 0.000015	< 0.000015	< 0.000028	< 0.000028	< 0.000070	0.000045	0.000034	0.000016
Chromium	mg/L	0.1	0.001	< 0.001	0.001	< 0.001	< 0.001	0.002	< 0.001	<0.001	<0.001
Cobalt	mg/L	0.0006	< 0.0002	0.0002	0.0003	< 0.0002	0.0002	< 0.0005	0.0002	0.0004	0.0003
Copper	mg/L	0.005	0.0083	0.0021	0.0011	0.0008	0.0037	0.0072	0.0095	0.0091	0.0097
Lead	mg/L	0.025	0.00013	0.00025	0.00013	0.00036	0.00028	0.0004	0.00079	0.00026	0.00018
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	<0.00002
Molybdenum	mg/L	0.04	0.0007	0.0032	0.0022	0.004	0.001	0.0011	0.0026	0.0054	0.0044
Nickel	mg/L	0.025	0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0015	0.0011
Selenium	mg/L	-	< 0.002	< 0.001	< 0.001	< 0.002	< 0.002	< 0.005	< 0.001	<0.001	<0.001
Silver	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001
Strontium	mg/L	-	0.324	0.401	0.406	0.296	0.32	0.346	0.327	0.328	0.32
Thallium	mg/L	-	< 0.0001	< 0.00005	< 0.00005	< 0.0001	< 0.0001	< 0.0003	< 0.00005	<0.00005	<0.00005
Vanadium	mg/L	-	< 0.0002	0.0003	0.0001	< 0.0002	< 0.0002	< 0.0005	0.0003	0.0005	0.0004
Zinc	mg/L	0.03	0.013	0.018	0.017	0.022	0.035	0.029	0.055	0.023	0.014
Cyanide	mg/L	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	<0.005
Turbidity	NTU	-	1.5	1.9	3.2	124	3.4	5.5	4.8	2.6	3.9
Tannins & Lignins	mg/L	-				1.3	0				
PWQO - Provincial Water Qu	-1:4 - 01-1	_									

Surface Water Chemistry Summary - VOC

			Emb A										
Parameters	Units	PWQO	17-Jun-15	17-Nov-15	14-Jun-16	12-Oct-16	24-Apr-17	22-Jun-17	24-Aug-17	17-Oct-17	26-Jun-18	28-Aug-18	10-Oct-18
1,1,1,2-Tetrachloroethane	μg/L	20											
1,1,1-Trichloroethane	μg/L	10											
1,1,2,2 Tetrachloroethane	μg/L	70											
1,1,2-Trichloroethane	μg/L	800											
1,1-Dichloroethane	μg/L	200											
1,1-Dichloroethylene	μg/L	40											
Ethylene Dibromide	μg/L	5											
1,2-Dichlorobenzene	μg/L	2.5	< 0.5	< 0.5	< 0.5	< 0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.5
1,2-Dichloroethane	μg/L	100	< 0.5	< 0.5	< 0.5	< 0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.5
1,2-Dichloropropane	μg/L	0.7	< 0.5	< 0.5	< 0.5	< 0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.5
1,3-Dichlorobenzene	μg/L	2.5	< 0.5	< 0.5	< 0.5	< 0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.5
1,4-Dichlorobenzene	μg/L	4	< 0.5	< 0.5	< 0.5	< 0.2	<0.2	<0.2	<0.2	<0.2	< 0.2	< 0.2	< 0.5
Methyl Ethyl Ketone	μg/L	400											
Methyl Isobutyl Ketone	μg/L	-											
Acetone	μg/L	-											
Benzene	μg/L	100	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	-	< 2	< 2	< 2	< 0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 2
Bromoform	μg/L	60	< 5	< 5	< 5	< 0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 5
Bromomethane	μg/L	0.9	< 0.5	< 0.5	< 0.5	< 0.3	<0.3	<0.3	<0.3	<0.3	< 0.3	< 0.3	< 0.5
Carbon Tetrachloride	μg/L	-	< 0.2	< 0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2	<0.2	< 0.2	< 0.2	< 0.2
Chlorobenzene	μg/L	15	< 0.5	< 0.5	< 0.5	< 0.2	<0.2	<0.2	<0.2	<0.2	< 0.2	< 0.2	< 0.5
Chloroform	μg/L	-	< 1	< 1	< 1	0.6	<0.3	<0.3	<0.3	<0.3	0.7	< 0.3	1
cis 1,2-Dichloroethene	μg/L	200	< 0.5	< 0.5	< 0.5	< 0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.5
cis 1,3-Dichloroethene	μg/L	-	< 0.5	< 0.5	< 0.5	< 0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.5
Dibromochloromethane	μg/L	40	< 2	< 2	< 2	< 0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 2
Dichlorodifluoromethane	μg/L	100	< 5	< 5	< 5	< 0.3	<0.3	<0.3	<0.3	<0.3	< 0.3	< 0.3	< 0.3
Ethylbenzene	μg/L	-	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	-	< 1.0	< 1.0	< 1.0	< 0.4	<0.4	<0.4	<0.4	<0.4	< 0.4	< 0.4	< 1.0
o-Xylene	μg/L	40	< 0.5	< 0.5	< 0.5	< 0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.5
Toluene	μg/L	0.8	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	-											
Methylene Chloride	μg/L	700				< 0.3	<0.3	<0.3	<0.3	<0.3	< 0.3	< 0.3	< 0.06
Vinyl Chloride	μg/L	600	< 0.5	< 0.5	< 0.5	< 0.2	<0.2	<0.2	<0.2	<0.2	< 0.2	< 0.2	< 0.5
Trichloroethylene	μg/L	20			< 0.5	< 0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.5
Xylene, m,p,o-	μg/L	-											

ODWQS - Ontario Drinking Water Quality Standards Bold & Highlighted - ODWQS exceedance Bold - Detection

Surface Water Chemistry Summary - VOC

			Emb A	Emb A	Emb A	Emb B							
Parameters	Units	PWQO	25-Apr-19	18-Jul-19	12-Aug-19	17-Jun-15	17-Nov-15	14-Jun-16	12-Oct-16	24-Apr-17	22-Jun-17	24-Aug-17	17-Oct-17
1,1,1,2-Tetrachloroethane	μg/L	20											
1,1,1-Trichloroethane	μg/L	10											
1,1,2,2 Tetrachloroethane	μg/L	70											
1,1,2-Trichloroethane	μg/L	800											
1,1-Dichloroethane	μg/L	200											
1,1-Dichloroethylene	μg/L	40											
Ethylene Dibromide	μg/L	5											
1,2-Dichlorobenzene	μg/L	2.5	< 0.5	< 0.5	< 0.5					<0.1	<0.1	<0.1	<0.1
1,2-Dichloroethane	μg/L	100	< 0.5	< 0.5	< 0.5					<0.1	<0.1	<0.1	<0.1
1,2-Dichloropropane	μg/L	0.7	< 0.5	< 0.5	< 0.5					<0.1	<0.1	<0.1	<0.1
1,3-Dichlorobenzene	μg/L	2.5	< 0.5	< 0.5	< 0.5					<0.1	<0.1	<0.1	<0.1
1,4-Dichlorobenzene	μg/L	4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2	<0.2	<0.2	<0.2	<0.2
Methyl Ethyl Ketone	μg/L	400											
Methyl Isobutyl Ketone	μg/L	-											
Acetone	μg/L	-											
Benzene	μg/L	100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	μg/L	-	< 2	< 2	< 2					<0.1	<0.1	<0.1	<0.1
Bromoform	μg/L	60	< 5	< 5	< 5					<0.1	<0.1	<0.1	<0.1
Bromomethane	μg/L	0.9	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.3	<0.3	<0.3	<0.3	<0.3
Carbon Tetrachloride	μg/L	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2	<0.2
Chlorobenzene	μg/L	15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2	<0.2	<0.2	<0.2	<0.2
Chloroform	μg/L	-	< 1	< 1	< 1	< 1	< 1	< 1	< 0.3	<0.3	<0.3	1	<0.3
cis 1,2-Dichloroethene	μg/L	200	< 0.5	< 0.5	< 0.5					<0.1	<0.1	<0.1	<0.1
cis 1,3-Dichloroethene	μg/L	-	< 0.5	< 0.5	< 0.5					<0.1	<0.1	<0.1	<0.1
Dibromochloromethane	μg/L	40	< 2	< 2	< 2					<0.1	<0.1	<0.1	<0.1
Dichlorodifluoromethane	μg/L	100	< 2	< 2	< 2	< 5	< 5	< 5	< 0.3	<0.3	<0.3	1	<0.3
Ethylbenzene	μg/L	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5
m & p-Xylene	μg/L	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.4	<0.4	<0.4	<0.4	<0.4
o-Xylene	μg/L	40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	<0.1	<0.1	<0.1	<0.1
Toluene	μg/L	0.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5
Methyl tert-Butyl Ether	μg/L	-											
Methylene Chloride	μg/L	700	< 5	< 5	< 5				< 0.3	<0.3	<0.3	1	<0.3
Vinyl Chloride	μg/L	600	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 0.2	<0.2	<0.2	<0.2	<0.2
Trichloroethylene	μg/L	20	< 0.5	< 0.5	< 0.5			< 0.5	< 0.1	<0.1	<0.1	<0.1	<0.1
Xylene, m,p,o-	μg/L	-											

ODWQS - Ontario Drinking Water Quality Standards Bold & Highlighted - ODWQS exceedance Bold - Detection

			Emb B	Emb C									
Parameters	Units	PWQO	26-Jun-18	28-Aug-18	10-Oct-18	18-Jul-19	12-Aug-19	17-Jun-15	17-Nov-15	14-Jun-16	12-Oct-16	24-Apr-17	22-Jun-17
1,1,1,2-Tetrachloroethane	μg/L	20											
1,1,1-Trichloroethane	μg/L	10											
1,1,2,2 Tetrachloroethane	μg/L	70											
1,1,2-Trichloroethane	μg/L	800											
1,1-Dichloroethane	μg/L	200											
1,1-Dichloroethylene	μg/L	40											
Ethylene Dibromide	μg/L	5											
1,2-Dichlorobenzene	μg/L	2.5	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	<0.1	<0.1
1,2-Dichloroethane	μg/L	100	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	<0.1	<0.1
1,2-Dichloropropane	μg/L	0.7	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	<0.1	<0.1
1,3-Dichlorobenzene	μg/L	2.5	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	<0.1	<0.1
1,4-Dichlorobenzene	μg/L	4	< 0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2	<0.2	<0.2
Methyl Ethyl Ketone	μg/L	400											
Methyl Isobutyl Ketone	μg/L	-											
Acetone	μg/L	-											
Benzene	μg/L	100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5
Bromodichloromethane	μg/L	-	< 0.1	< 0.1	< 2	< 2	< 2	< 2	< 2	< 2	< 0.1	<0.1	<0.1
Bromoform	μg/L	60	< 0.1	< 0.1	< 5	< 5	< 5	< 5	< 5	< 5	< 0.1	<0.1	<0.1
Bromomethane	μg/L	0.9	< 0.3	< 0.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.3	<0.3	<0.3
Carbon Tetrachloride	μg/L	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.2	<0.2
Chlorobenzene	μg/L	15	< 0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2	<0.2	<0.2
Chloroform	μg/L	-	< 0.3	< 0.3	< 1	< 1	1	< 1	< 1	< 1	< 0.3	<0.3	<0.3
cis 1,2-Dichloroethene	μg/L	200	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	<0.1	<0.1
cis 1,3-Dichloroethene	μg/L	-	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	<0.1	<0.1
Dibromochloromethane	μg/L	40	< 0.1	< 0.1	< 2	< 2	< 2	< 2	< 2	< 2	< 0.1	<0.1	<0.1
Dichlorodifluoromethane	μg/L	100	< 0.3	< 0.3	< 0.3	< 2	< 2	< 5	< 5	< 5	< 0.3	<0.3	<0.3
Ethylbenzene	μg/L	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5
m & p-Xylene	μg/L	-	< 0.4	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.4	<0.4	<0.4
o-Xylene	μg/L	40	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	<0.1	<0.1
Toluene	μg/L	0.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5
Methyl tert-Butyl Ether	μg/L	-											
Methylene Chloride	μg/L	700	< 0.3	< 0.3	< 0.06	< 5	< 5				< 0.3	<0.3	<0.3
Vinyl Chloride	μg/L	600	< 0.2	< 0.2	< 0.5	< 0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 0.2	<0.2	<0.2
Trichloroethylene	μg/L	20	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5			< 0.5	< 0.1	<0.1	<0.1
Xylene, m,p,o-	μg/L	-											

			Emb C	Scg-Down	Scg-Down	Scg-Down							
Parameters	Units	PWQO	24-Aug-17	17-Oct-17	26-Jun-18	28-Aug-18	10-Oct-18	25-Apr-19	18-Jul-19	12-Aug-19	17-Jun-15	17-Nov-15	24-Apr-17
1,1,1,2-Tetrachloroethane	μg/L	20											
1,1,1-Trichloroethane	μg/L	10											
1,1,2,2 Tetrachloroethane	μg/L	70											
1,1,2-Trichloroethane	μg/L	800											
1,1-Dichloroethane	μg/L	200											
1,1-Dichloroethylene	μg/L	40											
Ethylene Dibromide	μg/L	5											
1,2-Dichlorobenzene	μg/L	2.5	<0.1	<0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.1
1,2-Dichloroethane	μg/L	100	<0.1	<0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.1
1,2-Dichloropropane	μg/L	0.7	<0.1	<0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.1
1,3-Dichlorobenzene	μg/L	2.5	<0.1	<0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.2
1,4-Dichlorobenzene	μg/L	4	<0.2	<0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.2
Methyl Ethyl Ketone	μg/L	400											
Methyl Isobutyl Ketone	μg/L	-											
Acetone	μg/L	-											
Benzene	μg/L	100	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Bromodichloromethane	μg/L	-	<0.1	<0.1	< 0.1	< 0.1	< 2	< 2	< 2	< 2	< 2	< 2	<0.2
Bromoform	μg/L	60	<0.1	<0.1	< 0.1	< 0.1	< 5	< 5	< 5	< 5	< 5	< 5	<0.1
Bromomethane	μg/L	0.9	<0.3	<0.3	< 0.3	< 0.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.3
Carbon Tetrachloride	μg/L	-	<0.2	<0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.2
Chlorobenzene	μg/L	15	<0.2	<0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.2
Chloroform	μg/L	-	<0.3	<0.3	< 0.3	0.8	< 1	< 1	< 1	< 1	< 1	< 1	<0.3
cis 1,2-Dichloroethene	μg/L	200	<0.1	<0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.1
cis 1,3-Dichloroethene	μg/L	-	<0.1	<0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.1
Dibromochloromethane	μg/L	40	<0.1	<0.1	< 0.1	< 0.1	< 2	< 2	< 2	< 2	< 2	< 2	<0.1
Dichlorodifluoromethane	μg/L	100	<0.3	<0.3	< 0.3	< 0.3	< 0.3	< 2	< 2	< 2	< 5	< 5	<0.3
Ethylbenzene	μg/L	-	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
m & p-Xylene	μg/L	-	<0.4	<0.4	< 0.4	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.4
o-Xylene	μg/L	40	<0.1	<0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.1
Toluene	μg/L	0.8	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Methyl tert-Butyl Ether	μg/L	-											
Methylene Chloride	μg/L	700	<0.3	<0.3	< 0.3	< 0.3	< 0.06	< 5	< 5	< 5			<0.3
Vinyl Chloride	μg/L	600	<0.2	<0.2	< 0.2	< 0.2	< 0.5	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	<0.2
Trichloroethylene	μg/L	20	<0.1	<0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5			<0.1
Xylene, m,p,o-	μg/L	-											

			Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down	Scg-Down
Parameters	Units	PWQO	24-Aug-17	17-Oct-17	28-Aug-18	25-Apr-19	12-Aug-19	26-Apr-21	15-Jun-21	10-Aug-21	12-Oct-21	24-Apr-23	5-Oct-23
1,1,1,2-Tetrachloroethane	μg/L	20						< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,1,1-Trichloroethane	μg/L	10						< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,1,2,2 Tetrachloroethane	μg/L	70						< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,1,2-Trichloroethane	μg/L	800						< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,1-Dichloroethane	μg/L	200						< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,1-Dichloroethylene	μg/L	40						< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Ethylene Dibromide	μg/L	5						< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.2
1,2-Dichlorobenzene	μg/L	2.5	<0.1	<0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,2-Dichloroethane	μg/L	100	<0.1	<0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,2-Dichloropropane	μg/L	0.7	<0.1	<0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,3-Dichlorobenzene	μg/L	2.5	<0.1	<0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,4-Dichlorobenzene	μg/L	4	<0.2	<0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Methyl Ethyl Ketone	μg/L	400						< 20	< 20	< 20	< 20	< 20	<20
Methyl Isobutyl Ketone	μg/L	-						< 20	< 20	< 20	< 20	< 20	<20
Acetone	μg/L	-						< 30	< 30	< 30	< 30	< 30	<30
Benzene	μg/L	100	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Bromodichloromethane	μg/L	-	<0.1	<0.1	< 0.1	< 2	< 2	< 2	< 2	< 2	< 2	< 2	<2
Bromoform	μg/L	60	<0.1	<0.1	< 0.1	< 5	< 5	< 5	< 5	< 5	< 5	< 5	<5
Bromomethane	μg/L	0.9	<0.3	<0.3	< 0.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Carbon Tetrachloride	μg/L	-	<0.2	<0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.2
Chlorobenzene	μg/L	15	<0.2	<0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Chloroform	μg/L	-	<0.3	<0.3	< 0.3	< 1	< 1	< 1	< 1	< 1	< 1	< 1	<1
cis 1,2-Dichloroethene	μg/L	200	<0.1	<0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
cis 1,3-Dichloroethene	μg/L	-	<0.1	<0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Dibromochloromethane	μg/L	40	<0.1	<0.1	< 0.1	< 2	< 2	< 2	< 2	< 2	< 2	< 2	<2
Dichlorodifluoromethane	μg/L	100	<0.3	<0.3	< 0.3	< 2	< 2	< 5	< 5	< 5	< 5		
Ethylbenzene	μg/L	-	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
m & p-Xylene	μg/L	-	<0.4	<0.4	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1
o-Xylene	μg/L	40	<0.1	<0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Toluene	μg/L	0.8	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	8.0	< 0.5	<0.5
Methyl tert-Butyl Ether	μg/L	-						< 2	< 2	< 2	< 2	< 2	<2
Methylene Chloride	μg/L	700	<0.3	<0.3	< 0.3	< 5	< 5					< 5	<5
Vinyl Chloride	μg/L	600	<0.2	<0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.2
Trichloroethylene	μg/L	20	<0.1	<0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Xylene, m,p,o-	μg/L	-						< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1

			Scg-Up										
Parameters	Units	PWQO	17-Jun-15	17-Nov-15	24-Apr-17	24-Aug-17	28-Aug-18	25-Apr-19	25-Apr-19	12-Aug-19	26-Apr-21	15-Jun-21	10-Aug-21
1,1,1,2-Tetrachloroethane	μg/L	20									< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	μg/L	10									< 0.5	< 0.5	< 0.5
1,1,2,2 Tetrachloroethane	μg/L	70									< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	μg/L	800									< 0.5	< 0.5	< 0.5
1,1-Dichloroethane	μg/L	200									< 0.5	< 0.5	< 0.5
1,1-Dichloroethylene	μg/L	40									< 0.5	< 0.5	< 0.5
Ethylene Dibromide	μg/L	5									< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	μg/L	2.5			<0.1	<0.2	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	μg/L	100			<0.1	<0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	μg/L	0.7			<0.1	<0.3	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	μg/L	2.5			<0.1	<0.4	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	μg/L	4	< 0.5	< 0.5	<0.2	<0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl Ethyl Ketone	μg/L	400									< 20	< 20	< 20
Methyl Isobutyl Ketone	μg/L	-									< 20	< 20	< 20
Acetone	μg/L	-									< 30	< 30	< 30
Benzene	μg/L	100	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	-			<0.1	<0.4	< 0.1	< 2	< 2	< 2	< 2	< 2	< 2
Bromoform	μg/L	60			<0.1	<0.3	< 0.1	< 5	< 5	< 5	< 5	< 5	< 5
Bromomethane	μg/L	0.9	< 0.5	< 0.5	<0.3	<0.3	< 0.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	μg/L	-	< 0.2	< 0.2	<0.2	<0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chlorobenzene	μg/L	15	< 0.5	< 0.5	<0.2	<0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	μg/L	-	< 1	< 1	<0.3	<0.3	< 0.3	< 1	< 1	< 1	< 1	< 1	< 1
cis 1,2-Dichloroethene	μg/L	200			<0.1	<0.3	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis 1,3-Dichloroethene	μg/L	-			<0.1	<0.3	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dibromochloromethane	μg/L	40			<0.1	<0.3	< 0.1	< 2	< 2	< 2	< 2	< 2	< 2
Dichlorodifluoromethane	μg/L	100	< 5	< 5	<0.3	<0.3	< 0.3	< 2	< 2	< 2	< 5	< 5	< 5
Ethylbenzene	μg/L	-	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	-	< 1.0	< 1.0	<0.4	<0.4	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	40	< 0.5	< 0.5	<0.1	<0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	0.8	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	-									< 2	< 2	< 2
Methylene Chloride	μg/L	700			<0.3	<0.3	< 0.3	< 5	< 5	< 5			
Vinyl Chloride	μg/L	600	< 0.5	< 0.5	<0.2	<0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Trichloroethylene	μg/L	20			<0.1	<0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Xylene, m,p,o-	μg/L	-									< 1.1	< 1.1	< 1.1

			Scg-Up	Scg-Up	Scg-Up	Scg-Up	SW3	SW3	SW3	SW3	SW3	SW3	SW3
Parameters	Units	PWQO	12-Oct-21	24-Apr-23	16-Aug-23	5-Oct-23	28-Apr-15	10-Jun-15	17-Nov-15	24-Apr-17	17-Oct-17	24-Apr-19	20-Apr-21
1,1,1,2-Tetrachloroethane	μg/L	20	< 0.5	< 0.5	<0.5	<0.5							< 0.5
1,1,1-Trichloroethane	μg/L	10	< 0.5	< 0.5	<0.5	<0.5							< 0.5
1,1,2,2 Tetrachloroethane	μg/L	70	< 0.5	< 0.5	<0.5	<0.5							< 0.5
1,1,2-Trichloroethane	μg/L	800	< 0.5	< 0.5	<0.5	<0.5							< 0.5
1,1-Dichloroethane	μg/L	200	< 0.5	< 0.5	<0.5	<0.5							< 0.5
1,1-Dichloroethylene	μg/L	40	< 0.5	< 0.5	<0.5	<0.5							< 0.5
Ethylene Dibromide	μg/L	5	< 0.2	< 0.2	<0.2	<0.2							< 0.2
1,2-Dichlorobenzene	μg/L	2.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	<0.1	<0.1	< 0.5	< 0.5
1,2-Dichloroethane	μg/L	100	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	<0.1	<0.1	< 0.5	< 0.5
1,2-Dichloropropane	μg/L	0.7	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	<0.1	<0.1	< 0.5	< 0.5
1,3-Dichlorobenzene	μg/L	2.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	<0.1	<0.1	< 0.5	< 0.5
1,4-Dichlorobenzene	μg/L	4	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	<0.2	<0.2	< 0.5	< 0.5
Methyl Ethyl Ketone	μg/L	400	< 20	< 20	<20	<20							< 20
Methyl Isobutyl Ketone	μg/L	-	< 20	< 20	<20	<20							< 20
Acetone	μg/L	-	< 30	< 30	<30	<30							< 30
Benzene	μg/L	100	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	-	< 2	< 2	<2	<2	< 2	< 2	< 2	<0.1	<0.1	< 2	< 2
Bromoform	μg/L	60	< 5	< 5	<5	<5	< 5	< 5	< 5	<0.1	<0.1	< 5	< 5
Bromomethane	μg/L	0.9	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	<0.3	<0.3	< 0.5	< 0.5
Carbon Tetrachloride	μg/L	-	< 0.2	< 0.2	<0.2	<0.2	< 0.2	< 0.2	< 0.2	<0.2	<0.2	< 0.2	< 0.2
Chlorobenzene	μg/L	15	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	<0.2	<0.2	< 0.5	< 0.5
Chloroform	μg/L	-	< 1	< 1	<1	<1	< 1	< 1	< 1	<0.3	<0.3	< 1	< 1
cis 1,2-Dichloroethene	μg/L	200	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	<0.1	<0.1	< 0.5	< 0.5
cis 1,3-Dichloroethene	μg/L	-	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	<0.1	<0.1	< 0.5	< 0.5
Dibromochloromethane	μg/L	40	< 2	< 2	<2	<2	< 2	< 2	< 2	<0.1	<0.1	< 2	< 2
Dichlorodifluoromethane	μg/L	100	< 5				< 5	< 5	< 5	<0.3	<0.3	< 0.2	< 5
Ethylbenzene	μg/L	-	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	-	< 1.0	< 1.0	<1	<1	< 1.0	< 1.0	< 1.0	<0.4	<0.4	< 1.0	< 1.0
o-Xylene	μg/L	40	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	<0.1	<0.1	< 0.5	< 0.5
Toluene	μg/L	0.8	0.6	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	-	< 2	< 2	<2	<2							< 2
Methylene Chloride	μg/L	700		< 5	<5	<5				<0.3	<0.3	< 5	
Vinyl Chloride	μg/L	600	< 0.2	< 0.2	<0.2	<0.2	< 0.5	< 0.5	< 0.5	<0.2	<0.2	< 0.2	< 0.2
Trichloroethylene	μg/L	20	< 0.5	< 0.5	<0.5	<0.5				<0.1	<0.1	< 0.5	< 0.5
Xylene, m,p,o-	μg/L	-	< 1.1	< 1.1	<1.1	<1.1							< 1.1

			SW3	SW3	SW3	SW3	SW3	SW3	SW13	SW13	SW13	SW13	SW13
Parameters	Units	PWQO	15-Jun-21	10-Aug-21	15-Oct-21	24-Apr-23	16-Aug-23	19-Oct-23	11-Jun-15	18-Nov-15	24-Apr-17	22-Jun-17	24-Aug-17
1,1,1,2-Tetrachloroethane	μg/L	20	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5					
1,1,1-Trichloroethane	μg/L	10	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5					
1,1,2,2 Tetrachloroethane	μg/L	70	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5					
1,1,2-Trichloroethane	μg/L	800	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5					
1,1-Dichloroethane	μg/L	200	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5					
1,1-Dichloroethylene	μg/L	40	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5					
Ethylene Dibromide	μg/L	5	< 0.2	< 0.2	< 0.2	< 0.2	<0.2	<0.2					
1,2-Dichlorobenzene	μg/L	2.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	<0.1	<0.1	<0.1
1,2-Dichloroethane	μg/L	100	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	<0.1	<0.1	<0.1
1,2-Dichloropropane	μg/L	0.7	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	<0.1	<0.1	<0.1
1,3-Dichlorobenzene	μg/L	2.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	<0.1	<0.1	<0.1
1,4-Dichlorobenzene	μg/L	4	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	<0.2	<0.2	<0.2
Methyl Ethyl Ketone	μg/L	400	< 20	< 20	< 20	< 20	<20	<20					
Methyl Isobutyl Ketone	μg/L	-	< 20	< 20	< 20	< 20	<20	<20					
Acetone	μg/L	-	< 30	< 30	< 30	< 30	<30	<30					
Benzene	μg/L	100	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
Bromodichloromethane	μg/L	-	< 2	< 2	< 2	< 2	<2	<2	< 2	< 2	<0.1	<0.1	<0.1
Bromoform	μg/L	60	< 5	< 5	< 5	< 5	<5	<5	< 5	< 5	<0.1	<0.1	<0.1
Bromomethane	μg/L	0.9	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	<0.3	<0.3	<0.3
Carbon Tetrachloride	μg/L	-	< 0.2	< 0.2	< 0.2	< 0.2	<0.2	<0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2
Chlorobenzene	μg/L	15	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	<0.2	<0.2	<0.2
Chloroform	μg/L	-	< 1	< 1	< 1	< 1	<1	<1	2	< 1	<0.3	<0.3	<0.3
cis 1,2-Dichloroethene	μg/L	200	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	<0.1	<0.1	<0.1
cis 1,3-Dichloroethene	μg/L	-	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	<0.1	<0.1	<0.1
Dibromochloromethane	μg/L	40	< 2	< 2	< 2	< 2	<2	<2	< 2	< 2	<0.1	<0.1	<0.1
Dichlorodifluoromethane	μg/L	100	< 5	< 5	< 5				< 5	< 5	<0.3	<0.3	<0.3
Ethylbenzene	μg/L	-	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
m & p-Xylene	μg/L	-	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	< 1.0	< 1.0	<0.4	<0.4	<0.4
o-Xylene	μg/L	40	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	<0.1	<0.1	<0.1
Toluene	μg/L	0.8	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
Methyl tert-Butyl Ether	μg/L	-	< 2	< 2	< 2	< 2	<2	<2					
Methylene Chloride	μg/L	700				< 5	<5	<5			<0.3	<0.3	<0.3
Vinyl Chloride	μg/L	600	< 0.2	< 0.2	< 0.2	< 0.2	<0.2	<0.2	< 0.5	< 0.5	<0.2	<0.2	<0.2
Trichloroethylene	μg/L	20	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5			<0.1	<0.1	<0.1
Xylene, m,p,o-	μg/L	-	< 1.1	< 1.1	< 1.1	< 1.1	<1.1	<1.1					

100			SW13	SW13	SW13	SW13	SW13	SW14	SW14	SW14	SW14	SW14	SW14
Parameters	Units	PWQO	17-Oct-17	24-Apr-19	16-Oct-19	20-Apr-21	24-Apr-23	28-Apr-15	11-Jun-15	17-Nov-15	24-Apr-17	23-May-17	24-Aug-17
1,1,1,2-Tetrachloroethane	μg/L	20				< 0.5	< 0.5						
1,1,1-Trichloroethane	μg/L	10				< 0.5	< 0.5						
1,1,2,2 Tetrachloroethane	μg/L	70				< 0.5	< 0.5						
1,1,2-Trichloroethane	μg/L	800				< 0.5	< 0.5						
1,1-Dichloroethane	μg/L	200				< 0.5	< 0.5						
1,1-Dichloroethylene	μg/L	40				< 0.5	< 0.5						
Ethylene Dibromide	μg/L	5				< 0.2	< 0.2						
1,2-Dichlorobenzene	μg/L	2.5	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.1	<0.1	<0.1
1,2-Dichloroethane	μg/L	100	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.1	<0.1	<0.1
1,2-Dichloropropane	μg/L	0.7	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.1	<0.1	<0.1
1,3-Dichlorobenzene	μg/L	2.5	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.1	<0.1	<0.1
1,4-Dichlorobenzene	μg/L	4	<0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.2	<0.2	<0.2
Methyl Ethyl Ketone	μg/L	400				< 20	< 20						
Methyl Isobutyl Ketone	μg/L	-				< 20	< 20						
Acetone	μg/L	-				< 30	< 30						
Benzene	μg/L	100	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
Bromodichloromethane	μg/L	-	<0.1	< 2	< 2	< 2	< 2	< 2	< 2	< 2	<0.1	<0.1	<0.1
Bromoform	μg/L	60	<0.1	< 5	< 5	< 5	< 5	< 5	< 5	< 5	<0.1	<0.1	<0.1
Bromomethane	μg/L	0.9	<0.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.3	<0.3	<0.3
Carbon Tetrachloride	μg/L	-	<0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2
Chlorobenzene	μg/L	15	<0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.2	<0.2	<0.2
Chloroform	μg/L	-	<0.3	< 1	< 1	< 1	1	< 1	< 1	< 1	<0.3	<0.3	<0.3
cis 1,2-Dichloroethene	μg/L	200	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.1	<0.1	<0.1
cis 1,3-Dichloroethene	μg/L	-	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.1	<0.1	<0.1
Dibromochloromethane	μg/L	40	<0.1	< 2	< 2	< 2	< 2	< 2	< 2	< 2	<0.1	<0.1	<0.1
Dichlorodifluoromethane	μg/L	100	<0.3	< 0.2	< 2	< 5		< 5	< 5	< 5	<0.3	<0.3	<0.3
Ethylbenzene	μg/L	-	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
m & p-Xylene	μg/L	-	<0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<0.4	<0.4	<0.4
o-Xylene	μg/L	40	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.1	<0.1	<0.1
Toluene	μg/L	0.8	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5
Methyl tert-Butyl Ether	μg/L	-				< 2	< 2						
Methylene Chloride	μg/L	700	<0.3	< 5	< 5		< 5				<0.3	<0.3	<0.3
Vinyl Chloride	μg/L	600	<0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.5	<0.2	<0.2	<0.2
Trichloroethylene	μg/L	20	<0.1	< 0.5	< 0.5	< 0.5	< 0.5				<0.1	<0.1	<0.1
Xylene, m,p,o-	μg/L	-				< 1.1	< 1.1						

			SW14	SW18	SW18	SW18							
Parameters	Units	PWQO	17-Oct-17	24-Apr-19	16-Oct-19	20-Apr-21	15-Oct-21	24-Apr-23	16-Aug-23	19-Oct-23	28-Apr-15	11-Jun-15	17-Nov-15
1,1,1,2-Tetrachloroethane	μg/L	20				< 0.5	< 0.5	< 0.5	<0.5	<0.5			
1,1,1-Trichloroethane	μg/L	10				< 0.5	< 0.5	< 0.5	<0.5	<0.5			
1,1,2,2 Tetrachloroethane	μg/L	70				< 0.5	< 0.5	< 0.5	<0.5	<0.5			
1,1,2-Trichloroethane	μg/L	800				< 0.5	< 0.5	< 0.5	<0.5	<0.5			
1,1-Dichloroethane	μg/L	200				< 0.5	< 0.5	< 0.5	<0.5	<0.5			
1,1-Dichloroethylene	μg/L	40				< 0.5	< 0.5	< 0.5	<0.5	<0.5			
Ethylene Dibromide	μg/L	5				< 0.2	< 0.2	< 0.2	<0.2	<0.2			
1,2-Dichlorobenzene	μg/L	2.5	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	μg/L	100	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	μg/L	0.7	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	μg/L	2.5	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	μg/L	4	<0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5
Methyl Ethyl Ketone	μg/L	400				< 20	< 20	< 20	<20	<20			
Methyl Isobutyl Ketone	μg/L	-				< 20	< 20	< 20	<20	<20			
Acetone	μg/L	-				< 30	< 30	< 30	<30	<30			
Benzene	μg/L	100	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	-	<0.1	< 2	< 2	< 2	< 2	< 2	<2	<2	< 2	< 2	< 2
Bromoform	μg/L	60	<0.1	< 5	< 5	< 5	< 5	< 5	<5	<5	< 5	< 5	< 5
Bromomethane	μg/L	0.9	<0.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	μg/L	-	<0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.2	<0.2	< 0.2	< 0.2	< 0.2
Chlorobenzene	μg/L	15	<0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5
Chloroform	μg/L	-	<0.3	< 1	< 1	< 1	< 1	< 1	<1	<1	< 1	< 1	< 1
cis 1,2-Dichloroethene	μg/L	200	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5
cis 1,3-Dichloroethene	μg/L	-	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5
Dibromochloromethane	μg/L	40	<0.1	< 2	< 2	< 2	< 2	< 2	<2	<2	< 2	< 2	< 2
Dichlorodifluoromethane	μg/L	100	<0.3	< 0.2	< 2	< 5	< 5				< 5	< 5	< 5
Ethylbenzene	μg/L	-	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	-	<0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	40	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	0.8	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	μg/L	-				< 2	< 2	< 2	<2	<2			
Methylene Chloride	μg/L	700	<0.3	< 5	< 5			< 5	<5	< 5			
Vinyl Chloride	μg/L	600	<0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.2	<0.2	< 0.5	< 0.5	< 0.5
Trichloroethylene	μg/L	20	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5			
Xylene, m,p,o-	μg/L	-				< 1.1	< 1.1	< 1.1	<1.1	<1.1			

			SW18										
Parameters	Units	PWQO	24-Apr-17	23-May-17	24-Aug-17	17-Oct-17	24-Apr-19	20-Apr-21	15-Jun-21	10-Aug-21	15-Oct-21	24-Apr-23	16-Aug-23
1,1,1,2-Tetrachloroethane	μg/L	20						< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,1,1-Trichloroethane	μg/L	10						< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,1,2,2 Tetrachloroethane	μg/L	70						< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,1,2-Trichloroethane	μg/L	800						< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,1-Dichloroethane	μg/L	200						< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,1-Dichloroethylene	μg/L	40						< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Ethylene Dibromide	μg/L	5						< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.2
1,2-Dichlorobenzene	μg/L	2.5	<0.1	<0.1	<0.1	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,2-Dichloroethane	μg/L	100	<0.1	<0.1	<0.1	<0.1	< 0.5	1	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,2-Dichloropropane	μg/L	0.7	<0.1	<0.1	<0.1	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,3-Dichlorobenzene	μg/L	2.5	<0.1	<0.1	<0.1	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,4-Dichlorobenzene	μg/L	4	<0.2	<0.2	<0.2	<0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Methyl Ethyl Ketone	μg/L	400						< 20	< 20	< 20	< 20	< 20	<20
Methyl Isobutyl Ketone	μg/L	-						< 20	< 20	< 20	< 20	< 20	<20
Acetone	μg/L	-						< 30	< 30	< 30	< 30	< 30	<30
Benzene	μg/L	100	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Bromodichloromethane	μg/L	-	<0.1	<0.1	<0.1	<0.1	< 2	< 2	< 2	< 2	< 2	< 2	<2
Bromoform	μg/L	60	<0.1	<0.1	<0.1	<0.1	< 5	< 5	< 5	< 5	< 5	< 5	<5
Bromomethane	μg/L	0.9	<0.3	<0.3	<0.3	<0.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Carbon Tetrachloride	μg/L	-	<0.2	<0.2	<0.2	<0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.2
Chlorobenzene	μg/L	15	<0.2	<0.2	<0.2	<0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Chloroform	μg/L	-	<0.3	<0.3	<0.3	<0.3	< 1	< 1	< 1	< 1	< 1	< 1	<1
cis 1,2-Dichloroethene	μg/L	200	<0.1	<0.1	<0.1	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
cis 1,3-Dichloroethene	μg/L	-	<0.1	<0.1	<0.1	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Dibromochloromethane	μg/L	40	<0.1	<0.1	<0.1	<0.1	< 2	< 2	< 2	< 2	< 2	< 2	<2
Dichlorodifluoromethane	μg/L	100	<0.3	<0.3	<0.3	<0.3	< 0.2	< 5	< 5	< 5	< 5		
Ethylbenzene	μg/L	-	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
m & p-Xylene	μg/L	-	<0.4	<0.4	<0.4	<0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1
o-Xylene	μg/L	40	<0.1	<0.1	<0.1	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Toluene	μg/L	0.8	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	3
Methyl tert-Butyl Ether	μg/L	-						< 2	< 2	< 2	< 2	< 2	<2
Methylene Chloride	μg/L	700	<0.3	<0.3	<0.3	<0.3	< 5					< 5	<5
Vinyl Chloride	μg/L	600	<0.2	<0.2	<0.2	<0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.2
Trichloroethylene	μg/L	20	<0.1	<0.1	<0.1	<0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Xylene, m,p,o-	μg/L	-						< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1

			SW18	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff
Parameters	Units	PWQO	19-Oct-23	10-Feb-15	28-Apr-15	19-Aug-15	18-Nov-15	26-May-16	8-Jun-16	11-Aug-16	17-Oct-16	24-Apr-17	22-Jun-17
1,1,1,2-Tetrachloroethane	μg/L	20	<0.5										
1,1,1-Trichloroethane	μg/L	10	<0.5										
1,1,2,2 Tetrachloroethane	μg/L	70	<0.5										
1,1,2-Trichloroethane	μg/L	800	<0.5										
1,1-Dichloroethane	μg/L	200	<0.5										
1,1-Dichloroethylene	μg/L	40	<0.5										
Ethylene Dibromide	μg/L	5	<0.2										
1,2-Dichlorobenzene	μg/L	2.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.1	<0.1	<0.1
1,2-Dichloroethane	μg/L	100	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.1	<0.1	<0.1
1,2-Dichloropropane	μg/L	0.7	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.1	<0.1	<0.1
1,3-Dichlorobenzene	μg/L	2.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.1	<0.1	<0.1
1,4-Dichlorobenzene	μg/L	4	<0.5	< 0.5	0.9	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2	< 0.2	<0.2	0.3
Methyl Ethyl Ketone	μg/L	400	<20										
Methyl Isobutyl Ketone	μg/L	-	<20										
Acetone	μg/L	-	<30										
Benzene	μg/L	100	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5
Bromodichloromethane	μg/L	-	<2	< 2	< 2	< 2	< 2	< 2	< 2	0.1	< 0.1	0.5	0.2
Bromoform	μg/L	60	<5	< 5	< 5	< 5	< 5	< 5	< 5	< 0.1	< 0.1	<0.1	<0.1
Bromomethane	μg/L	0.9	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.3	< 0.3	<0.3	<0.3
Carbon Tetrachloride	μg/L	-	<0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.2	<0.2
Chlorobenzene	μg/L	15	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2	< 0.2	<0.2	<0.2
Chloroform	μg/L	-	<1	3	< 1	3	1	2	2	1.3	0.4	1.5	1.3
cis 1,2-Dichloroethene	μg/L	200	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.1	<0.1	<0.1
cis 1,3-Dichloroethene	μg/L	-	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.1	<0.1	<0.1
Dibromochloromethane	μg/L	40	<2	< 2	< 2	< 2	< 2	< 2	< 2	< 0.1	< 0.1	<0.1	<0.1
Dichlorodifluoromethane	μg/L	100		< 5	< 5	< 5	< 5	< 5	< 5	< 0.3	< 0.3	<0.3	<0.3
Ethylbenzene	μg/L	-	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5
m & p-Xylene	μg/L	-	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.4	< 0.4	<0.4	<0.4
o-Xylene	μg/L	40	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.1	<0.1	<0.1
Toluene	μg/L	0.8	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5
Methyl tert-Butyl Ether	μg/L	-	<2										
Methylene Chloride	μg/L	700	<5							< 0.3	< 0.3	<0.3	<0.3
Vinyl Chloride	μg/L	600	<0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2	< 0.2	<0.2	<0.2
Trichloroethylene	μg/L	20	<0.5					< 0.5	< 0.5	0.8	< 0.1	<0.1	<0.1
Xylene, m,p,o-	μg/L		<1.1										

			WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff
Parameters	Units	PWQO	24-Aug-17	17-Oct-17	25-Apr-18	28-Jun-18	22-Aug-18	11-Oct-18	24-Apr-19	17-Jul-19	13-Aug-19	20-Apr-21	15-Jun-21
1,1,1,2-Tetrachloroethane	μg/L	20										< 0.5	< 0.5
1,1,1-Trichloroethane	μg/L	10										< 0.5	< 0.5
1,1,2,2 Tetrachloroethane	μg/L	70										< 0.5	< 0.5
1,1,2-Trichloroethane	μg/L	800										< 0.5	< 0.5
1,1-Dichloroethane	μg/L	200										< 0.5	< 0.5
1,1-Dichloroethylene	μg/L	40										< 0.5	< 0.5
Ethylene Dibromide	μg/L	5										< 0.2	< 0.2
1,2-Dichlorobenzene	μg/L	2.5	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	μg/L	100	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	μg/L	0.7	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	μg/L	2.5	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	μg/L	4	<0.2	0.5	< 0.2	< 0.2	0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl Ethyl Ketone	μg/L	400										< 20	< 20
Methyl Isobutyl Ketone	μg/L	-										< 20	< 20
Acetone	μg/L	-										< 30	80
Benzene	μg/L	100	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	μg/L	-	<0.1	<0.1	< 0.1	< 0.1	0.1	< 2	< 2	< 2	< 2	< 2	< 2
Bromoform	μg/L	60	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 5	< 5	< 5	< 5
Bromomethane	μg/L	0.9	<0.3	<0.3	< 0.3	< 0.3	< 0.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	μg/L	-	<0.2	<0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chlorobenzene	μg/L	15	<0.2	<0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	μg/L	-	1	1.3	0.4	1.9	1.6	3	1	1	2	< 1	2
cis 1,2-Dichloroethene	μg/L	200	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis 1,3-Dichloroethene	μg/L	-	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dibromochloromethane	μg/L	40	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 2	< 2	< 2	< 2	< 2	< 2
Dichlorodifluoromethane	μg/L	100	<0.3	<0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.2	< 2	< 2	< 5	< 5
Ethylbenzene	μg/L	-	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m & p-Xylene	μg/L	-	<0.4	<0.4	< 0.4	< 0.4	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	μg/L	40	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	μg/L	0.8	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5
Methyl tert-Butyl Ether	μg/L	-										< 2	< 2
Methylene Chloride	μg/L	700	<0.3	<0.3		< 0.3	< 0.3	< 0.06	< 5	< 5	< 5		
Vinyl Chloride	μg/L	600	<0.2	<0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Trichloroethylene	μg/L	20	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Xylene, m,p,o-	μg/L	-										< 1.1	< 1.1

			WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff	WPCP Eff
Parameters	Units	PWQO	10-Aug-21	10-Aug-21	15-Oct-21	26-Apr-22	24-Apr-23	5-Oct-23
1,1,1,2-Tetrachloroethane	μg/L	20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,1,1-Trichloroethane	μg/L	10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,1,2,2 Tetrachloroethane	μg/L	70	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,1,2-Trichloroethane	μg/L	800	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,1-Dichloroethane	μg/L	200	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,1-Dichloroethylene	μg/L	40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Ethylene Dibromide	μg/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.2
1,2-Dichlorobenzene	μg/L	2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,2-Dichloroethane	μg/L	100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,2-Dichloropropane	μg/L	0.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,3-Dichlorobenzene	μg/L	2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
1,4-Dichlorobenzene	μg/L	4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Methyl Ethyl Ketone	μg/L	400	< 20	< 20	< 20	< 20	< 20	<20
Methyl Isobutyl Ketone	μg/L	-	< 20	< 20	< 20	< 20	< 20	<20
Acetone	μg/L	-	50	50	50	< 30	< 30	<30
Benzene	μg/L	100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Bromodichloromethane	μg/L	-	< 2	< 2	< 2	< 2	< 2	<2
Bromoform	μg/L	60	< 5	< 5	< 5	< 5	< 5	<5
Bromomethane	μg/L	0.9	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Carbon Tetrachloride	μg/L	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.2
Chlorobenzene	μg/L	15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Chloroform	μg/L	-	3	3	1	1	1	<1
cis 1,2-Dichloroethene	μg/L	200	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
cis 1,3-Dichloroethene	μg/L	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Dibromochloromethane	μg/L	40	< 2	< 2	< 2	< 2	< 2	<2
Dichlorodifluoromethane	μg/L	100	< 5	< 5	< 5			
Ethylbenzene	μg/L	-	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	<0.5
m & p-Xylene	μg/L	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1
o-Xylene	μg/L	40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Toluene	μg/L	0.8	< 0.5	< 0.5	1.5	< 0.5	< 0.5	<0.5
Methyl tert-Butyl Ether	μg/L	-	< 2	< 2	< 2	< 2	< 2	<2
Methylene Chloride	μg/L	700					< 5	<5
Vinyl Chloride	μg/L	600	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.2
Trichloroethylene	μg/L	20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5
Xylene, m,p,o-	μg/L	-	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	<1.1

Surface Water - PCBs

Location Sample Date 119/1									
Sample Date	ug/L								
26 Apr 07	0.001 < 0.001								
	<0.001								
· '									
	<0.001								
1	<0.001								
	<0.001								
	<0.001								
	< 0.001								
	< 0.001								
1	< 0.001								
	<0.05								
27-Apr-15	< 0.05								
10-Jun-15	< 0.05								
17-Nov-15	< 0.05								
25-Apr-18	< 0.05								
20-Apr-21	< 0.05								
31-Mar-05	0.100								
13-Mar-06	<0.0001								
	<0.04								
10-Apr-07	<0.001								
26-Apr-07	<0.001								
25-Oct-07	<0.001								
14-Apr-08	<0.001								
19-Jun-08	<0.001								
21-Oct-08	<0.001								
7-May-09	<0.001								
17-Jul-09	<0.001								
29-Oct-09	<0.001								
30-Mar-10	<0.001								
3-May-10	< 0.001								
25-Oct-10	< 0.001								
27-May-13	<0.05								
27-Apr-15	< 0.05								
10-Jun-15	< 0.05								
1	< 0.05								
	< 0.05								
	< 0.05								
	< 0.05								
	< 0.05								
1	< 0.05								
	< 0.05								
	< 0.05								
13-3411-21	× 0.05								
	17-Nov-15 25-Apr-18 20-Apr-21 31-Mar-05 13-Mar-06 10-May-06 10-Apr-07 25-Oct-07 14-Apr-08 19-Jun-08 21-Oct-08 7-May-09 17-Jul-09 29-Oct-09 30-Mar-10 3-May-10 25-Oct-10 27-May-13 27-Apr-15								

		PCB						
Location	Sample Date	ug/L						
		0.001						
SW4	26-Apr-07	0.26						
SW4	25-Oct-07	<0.001						
SW4	14-Apr-08	<0.001						
SW4	19-Jun-08	<0.001						
SW4	21-Oct-08	<0.001						
SW4	7-May-09	<0.001						
SW4	29-Oct-09	<0.001						
SW4	30-Mar-10	<0.001						
SW4	3-May-10	< 0.001						
SW4	25-Oct-10	< 0.001						
SW4	27-May-13	<0.05						
SW4	27-Apr-15	< 0.05						
SW4	11-Jun-15	< 0.05						
SW4	17-Nov-15	< 0.05						
SW4	25-Apr-18	< 0.05						
SW4	20-Apr-21	< 0.05						
SW4	15-Oct-21	< 0.05						
SW13	28-Apr-15	< 0.05						
SW13	11-Jun-15	< 0.05						
SW13	18-Nov-15	< 0.05						
SW13	21-Apr-16	< 0.05						
SW13	26-May-16	< 0.05						
SW13	8-Jun-16	< 0.05						
SW13	11-Oct-16	< 0.05						
SW13	24-Apr-17	<0.05						
SW13	22-Jun-17	<0.05						
SW13	24-Aug-17	<0.05						
SW13	17-Oct-17	<0.05						
SW13	25-Apr-18	< 0.05						
SW13	28-Jun-18	< 0.05						
SW13	22-Aug-18	< 0.05						
SW13	11-Oct-18	< 0.05						
SW13	24-Apr-19	< 0.05						
SW13	17-Jul-19	< 0.05						
SW13	13-Aug-19	< 0.05						
SW13	16-Oct-19	< 0.05						
SW13	30-Apr-20	< 0.05						
SW13	20-Apr-21	< 0.05						
SW13	15-Jun-21	< 0.05						
SW13	11-Aug-21	< 0.05						
SW13	26-Apr-22	< 0.05						
SW13	21-Jun-22	< 0.05						
SW13	24-Apr-23	< 0.05						

		PCB
Location	Sample Date	ug/L
		0.001
SW15	10-Apr-07	<0.001
SW15	26-Apr-07	0.003
SW15	25-Oct-07	<0.001
SW15	14-Apr-08	<0.001
SW15	21-Oct-08	<0.001
SW15	30-Mar-10	81.00
SW15	3-May-10	85.00
SW15	25-Oct-10	80.00
SW15	8-Aug-13	<0.05
SW15	21-Oct-13	<0.05
SW15	27-Apr-15	< 0.05
SW15	11-Jun-15	< 0.05
SW15	25-Apr-18	< 0.05
SW15	28-Jun-18	< 0.05
SW15	22-Aug-18	< 0.05
SW15	10-Oct-18	< 0.07
SW15	20-Apr-21	< 0.05
SW15	15-Jun-21	< 0.05
SW15	15-Oct-21	< 0.05
SW16	25-Apr-18	< 0.05
SW16	28-Jun-18	< 0.05
SW16	22-Aug-18	< 0.05
SW16	10-Oct-18	< 0.05
SW16	15-Oct-21	< 0.05
SW18	28-Apr-15	< 0.05
SW18	11-Jun-15	< 0.05
SW18	17-Nov-15	< 0.05
SW18	25-Apr-18	< 0.05
SW18	28-Jun-18	< 0.05
SW18	22-Aug-18	< 0.05
SW18	11-Oct-18	< 0.05
SW18	20-Apr-21	< 0.05
SW18	15-Jun-21	< 0.05
SW18	11-Aug-21	< 0.05
SW18	15-Oct-21	< 0.05
F! ^	0.14 (0	. 0.05
Emb A	9-May-18	< 0.05
Emb A	26-Jun-18	< 0.05
Emb A	28-Aug-18	< 0.05
Emb A	10-Oct-18	< 0.05
Emb A	15-Jun-21	<0.05
Emb A	11-Aug-21	<0.05

Surface Water - PCBs

Surface Water - PCBs									
PCB									
Location	Sample Date	ug/L							
		0.001							
SW3	28-Apr-15	< 0.05							
SW3	10-Jun-15	< 0.05							
SW3	17-Nov-15	< 0.05							
SW3	20-Apr-16	< 0.05							
SW3	16-May-16	< 0.05							
SW3	8-Jun-16	< 0.05							
SW3	24-Apr-17	<0.05							
SW3	22-Jun-17	<0.05							
SW3	24-Aug-17	<0.05							
SW3	17-Oct-17	<0.05							
SW3	25-Apr-18	< 0.05							
SW3	28-Jun-18	< 0.05							
SW3	9-Oct-18	< 0.05							
SW3	24-Apr-19	< 0.05							
SW3	17-Jul-19	< 0.05							
SW3	30-Apr-20	< 0.05							
SW3	24-Jun-20	< 0.05							
SW3	22-Oct-20	< 0.05							
SW3	20-Apr-21	< 0.05							
SW3	15-Jun-21	< 0.05							
SW3	11-Aug-21	< 0.05							
SW3	15-Oct-21	< 0.05							
SW3	26-Apr-22	< 0.05							
SW3	21-Jun-22	< 0.05							
SW3	13-Oct-22	< 0.05							
SW3	24-Apr-23	< 0.05							
SW3	15-Aug-23	< 0.05							
SW3	5-Oct-23	< 0.05							
WPCP Eff	10-Feb-10	< 0.001							
WPCP Eff	25-Apr-18	< 0.05							
WPCP Eff	28-Jun-18	< 0.05							
WPCP Eff	22-Aug-18	< 0.05							
WPCP Eff	11-Oct-18	< 0.05							
WPCP Eff	15-Jun-21	< 0.05							
WPCP Eff	11-Aug-21	< 0.05							
WPCP Eff	15-Oct-21	< 0.05							

Location	Sample Date	PCB ug/L 0.001
SW14	31-Mar-05	0.100
SW14	13-Mar-06	<0.0001
SW14	10-May-06	0.060
SW14	10-Apr-07	<0.001
SW14	26-Apr-07	<0.001
SW14	14-Apr-08	<0.001
SW14	19-Jun-08	<0.001
SW14	21-Oct-08	<0.001
SW14	7-May-09	<0.001
SW14	29-Oct-09	<0.001
SW14	30-Mar-10	< 0.001
SW14	3-May-10	< 0.001
SW14	25-Oct-10	< 0.001
SW14	27-May-13	<0.05
SW14	28-Apr-15	< 0.05
SW14	11-Jun-15	< 0.05
SW14	17-Nov-15	< 0.05
SW14	25-Apr-18	< 0.05
SW14	28-Jun-18	< 0.05
SW14	22-Aug-18	< 0.05
SW14	11-Oct-18	< 0.05
SW14	15-Oct-21	< 0.05
CP-1	28-Jun-18	< 0.05
CP-1	10-Oct-18	< 0.05
CP-1	15-Jun-21	< 0.05
CP-1	15-Oct-21	< 0.05
CP-2	28-Jun-18	< 0.05
CP-2	15-Oct-21	< 0.05

		PCB
Location	Sample Date	ug/L
		0.001
Emb B	9-May-18	< 0.05
Emb B	26-Jun-18	< 0.05
Emb B	28-Aug-18	< 0.05
Emb B	10-Oct-18	< 0.05
Emb B	15-Jun-21	<0.05
Emb B	11-Aug-21	<0.05
F	0.1440	< 0.05
Emb C	9-May-18	< 0.05
Emb C	26-Jun-18	< 0.05
Emb C	28-Aug-18	
Emb C	10-Oct-18	< 0.05
Emb C	15-Jun-21	<0.05
Emb C	11-Aug-21	<0.05
Scg-Up	24-Apr-17	<0.05
Scg-Up	24-Aug-17	<0.05
Scg-Up	9-May-18	< 0.05
Scg-Up	26-Jun-18	< 0.05
Scg-Up	28-Aug-18	< 0.05
Scg-Up	10-Oct-18	< 0.05
Scg-Up	15-Jun-21	<0.05
Scg-Up	11-Aug-21	<0.05
Scg-Down	9-May-18	< 0.05
Scg-Down	26-Jun-18	< 0.05
Scg-Down	28-Aug-18	< 0.05
Scg-Down	10-Oct-18	< 0.05
Scg-Down	15-Jun-21	<0.05
Scg-Down	11-Aug-21	<0.05



APPENDIX D

Laboratory Certificates of Analysis



Final Report

C.O.C.: --- REPORT No. B23-01141 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Deyonte Levene

DATE RECEIVED: 19-Jan-23 DATE REPORTED: 31-Jan-23

SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: 22-010

WATERWORKS NO.

			Client I.D.		LPC		
			Sample I.D.		B23-01141-1	1	
			Date Collecte	ed	18-Jan-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	20-Jan-23/O	632		
Conductivity @25°C	µmho/cm	1	SM 2510B	20-Jan-23/O	1610		
pH @25°C	pH Units		SM 4500H	20-Jan-23/O	7.54		
TDS(ion sum calc.)	mg/L	1	Calc.	23-Jan-23/O	974		
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	23-Jan-23/O	6.4		
BOD(5 day)	mg/L	3	SM 5210B	20-Jan-23/K	6		
COD	mg/L	5	SM5220C	26-Jan-23/K	43		
Phenolics	mg/L	0.001	MOEE 3179	20-Jan-23/K	< 0.001		
Chloride	mg/L	0.5	SM4110C	20-Jan-23/O	140		
Fluoride	mg/L	0.1	SM4110C	20-Jan-23/O	< 0.1		
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	20-Jan-23/K	13.9		
Sulphate	mg/L	1	SM4110C	20-Jan-23/O	48		
Nitrite (N)	mg/L	0.05	SM4110C	20-Jan-23/O	< 0.05		
Nitrate (N)	mg/L	0.05	SM4110C	20-Jan-23/O	0.07		
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	23-Jan-23/K	14.7		
Hardness (as CaCO3)	mg/L	1	SM 3120	25-Jan-23/O	660		
Aluminum	mg/L	0.01	SM 3120	25-Jan-23/O	0.25		
Antimony	mg/L	0.0005	EPA 200.8	24-Jan-23/O	0.0008		
Arsenic	mg/L	0.0005	EPA 200.8	24-Jan-23/O	0.0021		
Barium	mg/L	0.001	SM 3120	25-Jan-23/O	0.325		
Beryllium	mg/L	0.002	SM 3120	25-Jan-23/O	< 0.002		
Boron	mg/L	0.005	SM 3120	25-Jan-23/O	0.336		
Cadmium	mg/L	0.000070	EPA 200.8	24-Jan-23/O	< 0.000070		
Calcium	mg/L	0.02	SM 3120	25-Jan-23/O	211		

R.L. = Reporting Limit

Christine Burke Lab Manager

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-01141 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Deyonte Levene

DATE RECEIVED: 19-Jan-23 DATE REPORTED: 31-Jan-23

SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: 22-010

WATERWORKS NO.

			Client I.D.		LPC		
			Sample I.D.		B23-01141-1		
			Date Collecte	ed	18-Jan-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Chromium	mg/L	0.001	SM 3120	25-Jan-23/O	0.005		
Chromium (VI)	mg/L	0.01	MOE E3056	25-Jan-23/O	< 0.01		
Cobalt	mg/L	0.0005	EPA 200.8	24-Jan-23/O	0.0012		
Copper	mg/L	0.0005	EPA 200.8	24-Jan-23/O	0.0016		
Iron	mg/L	0.005	SM 3120	25-Jan-23/O	33.9		
Lead	mg/L	0.0001	EPA 200.8	24-Jan-23/O	0.0009		
Magnesium	mg/L	0.02	SM 3120	25-Jan-23/O	32.0		
Manganese	mg/L	0.001	SM 3120	25-Jan-23/O	0.493		
Mercury	mg/L	0.00002	SM 3112 B	23-Jan-23/O	< 0.00002		
Molybdenum	mg/L	0.0005	EPA 200.8	24-Jan-23/O	0.0006		
Nickel	mg/L	0.01	SM 3120	25-Jan-23/O	< 0.01		
Potassium	mg/L	0.1	SM 3120	25-Jan-23/O	14.7		
Phosphorus-Total	mg/L	0.01	E3516.2	23-Jan-23/K	0.07		
Phosphorus	mg/L	0.1	SM 3120	25-Jan-23/O	< 0.1		
Selenium	mg/L	0.005	EPA 200.8	24-Jan-23/O	< 0.005		
Silver	mg/L	0.0001	EPA 200.8	24-Jan-23/O	< 0.0001		
Sodium	mg/L	0.2	SM 3120	25-Jan-23/O	97.1		
Strontium	mg/L	0.001	SM 3120	25-Jan-23/O	0.734		
Tin	mg/L	0.05	SM 3120	25-Jan-23/O	< 0.05		
Titanium	mg/L	0.005	SM 3120	25-Jan-23/O	0.010		
Thallium	mg/L	0.0003	EPA 200.8	24-Jan-23/O	< 0.0003		
Uranium	mg/L	0.0003	EPA 200.8	24-Jan-23/O	0.0003		
Vanadium	mg/L	0.0005	EPA 200.8	24-Jan-23/O	0.0016		
Zinc	mg/L	0.005	SM 3120	25-Jan-23/O	0.013		
Anion Sum	meq/L		Calc.	23-Jan-23/O	17.6		

R.L. = Reporting Limit

Christine Burke Lab Manager

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-01141 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Deyonte Levene

DATE RECEIVED: 19-Jan-23
DATE REPORTED: 31-Jan-23

SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: 22-010

WATERWORKS NO.

			Client I.D.	Client I.D.			
			Sample I.D.		B23-01141-1		
			Date Collect	ed	18-Jan-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Cation Sum	meq/L		Calc.	23-Jan-23/O	20.6		
% Difference	%		Calc.	23-Jan-23/O	7.96		
Ion Ratio	AS/CS		Calc.	23-Jan-23/O	0.853		
Conductivity (calc.)	µmho/cm		Calc.	23-Jan-23/O	1592		
Sodium Adsorption Ratio	-		Calc.	23-Jan-23/O	1.65		
TDS(calc.)/EC(actual)	-		Calc.	23-Jan-23/O	0.604		
Langelier Index(25°C)	S.I.		Calc.	23-Jan-23/O	1.16		

¹ Chromium (VI) result is based on total Chromium

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-01141 (ii)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Deyonte Levene

DATE RECEIVED: 19-Jan-23
DATE REPORTED: 31-Jan-23

SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: 22-010

WATERWORKS NO.

			Client I.D.		LPC		
			Sample I.D.		B23-01141-1		
			Date Collect	ed	18-Jan-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Benzene	μg/L	0.5	EPA 8260	23-Jan-23/R	1.4		
Toluene	μg/L	0.5	EPA 8260	23-Jan-23/R	< 0.5		
Ethylbenzene	μg/L	0.5	EPA 8260	23-Jan-23/R	0.6		
Xylene, m,p-	μg/L	1.0	EPA 8260	23-Jan-23/R	< 1.0		
Xylene, o-	μg/L	0.5	EPA 8260	23-Jan-23/R	< 0.5		
Xylene, m,p,o-	μg/L	1.1	EPA 8260	23-Jan-23/R	< 1.1		

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-01863 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

<u>Attention:</u> Deyonte Levene

DATE RECEIVED: 11-Feb-23

DATE REPORTED: 28-Feb-23
SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: 23-010

WATERWORKS NO.

		1	Client I.D.		LPC		
			Sample I.D.		B23-01863-1		
			Date Collecte	ed	10-Feb-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	14-Feb-23/O	443		
Conductivity @25°C	µmho/cm	1	SM 2510B	14-Feb-23/O	1150		
pH @25°C	pH Units		SM 4500H	14-Feb-23/O	7.64		
TDS(ion sum calc.)	mg/L	1	Calc.	16-Feb-23/O	647		
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	15-Feb-23/O	12.6		
BOD(5 day)	mg/L	3	SM 5210B	15-Feb-23/K	5		
COD	mg/L	5	SM5220C	16-Feb-23/K	51		
Phenolics	mg/L	0.001	MOEE 3179	15-Feb-23/K	< 0.001		
Chloride	mg/L	0.5	SM4110C	14-Feb-23/O	85.8		
Fluoride	mg/L	0.1	SM4110C	14-Feb-23/O	< 0.1		
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	14-Feb-23/K	4.90		
Sulphate	mg/L	1	SM4110C	14-Feb-23/O	43		
Nitrite (N)	mg/L	0.05	SM4110C	14-Feb-23/O	< 0.05		
Nitrate (N)	mg/L	0.05	SM4110C	14-Feb-23/O	0.81		
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	14-Feb-23/K	6.7		
Hardness (as CaCO3)	mg/L	1	SM 3120	17-Feb-23/O	492		
Aluminum	mg/L	0.01	SM 3120	17-Feb-23/O	0.86		
Antimony	mg/L	0.0005	EPA 200.8	16-Feb-23/O	0.0006		
Arsenic	mg/L	0.0005	EPA 200.8	16-Feb-23/O	0.0052		
Barium	mg/L	0.001	SM 3120	17-Feb-23/O	0.335		
Beryllium	mg/L	0.002	SM 3120	17-Feb-23/O	< 0.002		
Boron	mg/L	0.005	SM 3120	17-Feb-23/O	0.262		
Cadmium	mg/L	0.000070	EPA 200.8	16-Feb-23/O	0.000113		
Calcium	mg/L	0.02	SM 3120	17-Feb-23/O	165		

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-01863 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Deyonte Levene

DATE RECEIVED: 11-Feb-23
DATE REPORTED: 28-Feb-23

SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: 23-010

WATERWORKS NO.

			Client I.D.		LPC		
			Sample I.D.		B23-01863-1		
			Date Collecte	ed	10-Feb-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Chromium	mg/L	0.001	SM 3120	17-Feb-23/O	0.024		
Chromium (VI)	mg/L	0.01	MOE E3056	15-Feb-23/O	< 0.01		
Cobalt	mg/L	0.0005	EPA 200.8	16-Feb-23/O	0.0025		
Copper	mg/L	0.0005	EPA 200.8	16-Feb-23/O	0.0073		
Iron	mg/L	0.005	SM 3120	17-Feb-23/O	88.1		
Lead	mg/L	0.0001	EPA 200.8	16-Feb-23/O	0.0043		
Magnesium	mg/L	0.02	SM 3120	17-Feb-23/O	17.2		
Manganese	mg/L	0.001	SM 3120	17-Feb-23/O	0.284		
Mercury	mg/L	0.00002	SM 3112 B	15-Feb-23/O	< 0.00002		
Molybdenum	mg/L	0.0005	EPA 200.8	16-Feb-23/O	0.0018		
Nickel	mg/L	0.01	SM 3120	17-Feb-23/O	< 0.01		
Potassium	mg/L	0.1	SM 3120	17-Feb-23/O	6.8		
Phosphorus-Total	mg/L	0.01	E3516.2	14-Feb-23/K	0.44		
Phosphorus	mg/L	0.1	SM 3120	17-Feb-23/O	0.2		
Selenium	mg/L	0.005	EPA 200.8	16-Feb-23/O	< 0.005		
Silver	mg/L	0.0001	EPA 200.8	16-Feb-23/O	< 0.0001		
Sodium	mg/L	0.2	SM 3120	17-Feb-23/O	56.6		
Strontium	mg/L	0.001	SM 3120	17-Feb-23/O	0.446		
Tin	mg/L	0.05	SM 3120	17-Feb-23/O	< 0.05		
Titanium	mg/L	0.005	SM 3120	17-Feb-23/O	0.044		
Thallium	mg/L	0.0003	EPA 200.8	16-Feb-23/O	< 0.0003		
Uranium	mg/L	0.0003	EPA 200.8	16-Feb-23/O	0.0007		
Vanadium	mg/L	0.0005	EPA 200.8	16-Feb-23/O	0.0049		
Zinc	mg/L	0.005	SM 3120	17-Feb-23/O	0.045		
Anion Sum	meq/L		Calc.	16-Feb-23/O	12.2		

R.L. = Reporting Limit

Christine Burke Lab Manager

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-01863 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Deyonte Levene

DATE RECEIVED: 11-Feb-23
DATE REPORTED: 28-Feb-23

SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: 23-010

WATERWORKS NO.

			Client I.D.	Client I.D. Sample I.D.			
			Sample I.D.				
			Date Collected		10-Feb-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Cation Sum	meq/L		Calc.	16-Feb-23/O	12.7		
% Difference	%		Calc.	16-Feb-23/O	1.73		
Ion Ratio	AS/CS		Calc.	16-Feb-23/O	0.966		
Conductivity (calc.)	µmho/cm		Calc.	16-Feb-23/O	1137		
Sodium Adsorption Ratio	-		Calc.	16-Feb-23/O	1.12		
TDS(calc.)/EC(actual)	-		Calc.	16-Feb-23/O	0.561		
Langelier Index(25°C)	S.I.		Calc.	16-Feb-23/O	1.03		

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-01863 (ii)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Deyonte Levene

DATE RECEIVED: 11-Feb-23
DATE REPORTED: 28-Feb-23

SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: 23-010

WATERWORKS NO.

			Client I.D.		LPC		
			Sample I.D.		B23-01863-1		
			Date Collected		10-Feb-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Benzene	μg/L	0.5	EPA 8260	14-Feb-23/R	0.7		
Toluene	μg/L	0.5	EPA 8260	14-Feb-23/R	< 0.5		
Ethylbenzene	μg/L	0.5	EPA 8260	14-Feb-23/R	< 0.5		
Xylene, m,p-	μg/L	1.0	EPA 8260	14-Feb-23/R	< 1.0		
Xylene, o-	μg/L	0.5	EPA 8260	14-Feb-23/R	< 0.5		
Xylene, m,p,o-	μg/L	1.1	EPA 8260	14-Feb-23/R	< 1.1		

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

REPORT No: 23-003458 - Rev. 0 C.O.C.: -

Report To:

City of Kawartha Lakes

PO Box 9000 12 Peel St

Lindsay, ON K9V 5R8

SAMPLE MATRIX:

CADUCEON Environmental Laboratories

112 Commerce Park Dr Unit L

Barrie, ON L4N 8W8

Attention: Deyonte Levene

2023-Mar-02 DATE RECEIVED: DATE REPORTED: 2023-Mar-13

Waste Water

CUSTOMER PROJECT: Lindsay OPS

P.O. NUMBER: 22-010

Analyses	Qtv	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	1	OTTAWA	PCURIEL	2023-Mar-03	A-IC-01	SM 4110B
BOD5 (Liquid)	1	KINGSTON	MDUBIEN	2023-Mar-03	BOD-001	SM 5210B
COD (Liquid)	1	KINGSTON	KWELCH	2023-Mar-06	COD-001	SM 5220D
Cond/pH/Alk Auto (Liquid)	1	OTTAWA	SBOUDREAU	2023-Mar-03	COND-02/PH-02/A	SM 2510B/4500H/
					LK-02	2320B
DOC/DIC (Liquid)	1	OTTAWA	VKASYAN	2023-Mar-06	C-OC-01	EPA 415.2
Ion Balance (Liquid)	1	OTTAWA	SBURROWS		CP-028	MECP E3196
Chromium VI (Liquid)	1	OTTAWA	STAILLON	2023-Mar-07	D-CRVI-01	MECP E3056
ICP/MS Total (Liquid)	1	OTTAWA	TPRICE	2023-Mar-09	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	1	OTTAWA	NHOGAN	2023-Mar-07	D-ICP-01	SM 3120B
Mercury (Liquid)	1	OTTAWA	PBURKILL	2023-Mar-06	D-HG-02	SM 3112B
Ammonia/Phosphate (Liquid)	1	KINGSTON	KDIBBITS	2023-Mar-07	NH3-001	SM 4500NH3
Phenols (Liquid)	1	KINGSTON	JMACINNES	2023-Mar-06	PHEN-01	MECP E3179
TP/TKN (Liquid)	1	KINGSTON	KDIBBITS	2023-Mar-08	TPTKN-001	MECP E3516.2
VOC-Volatiles Full (Water)	1	RICHMOND_HILL	CBURKE	2023-Mar-08	C-VOC-02	EPA 8260

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an *

REPORT No: 23-003458 - Rev. 0

	Cli	Client I.D.		
Parameter	Sam Date Co Units	ple I.D. Illected R.L.	23-003458-1 2023-03-01	
Alkalinity(CaCO3) to pH4.5	mg/L	5	617	
pH @25°C	pH units	-	7.11	
Conductivity @25°C	µmho/cm	1	1640	
TDS (Calc. from Cond.)	mg/L	3	899	
Fluoride	mg/L	0.1	<0.1	
Chloride	mg/L	0.5	148	
Nitrate (N)	mg/L	0.05	0.09	
Nitrite (N)	mg/L	0.05	<0.05	
Sulphate	mg/L	1	39	
BOD5	mg/L	3	7	
Phosphorus (Total)	mg/L	0.01	<0.01	
Total Kjeldahl Nitrogen	mg/L	0.1	16.4	
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	13.5	
Dissolved Organic Carbon	mg/L	0.2	6.4	
Phenolics	mg/L	0.001	<0.001	
COD	mg/L	5	51	
Hardness (as CaCO3)	mg/L	-	700	
Aluminum (Total)	mg/L	0.01	0.118	
Barium (Total)	mg/L	0.001	0.275	
Beryllium (Total)	mg/L	0.001	<0.001	
Boron (Total)	mg/L	0.005	0.309	

REPORT No: 23-003458 - Rev. 0

	Cli	ent I.D.	LPC
		ple I.D.	23-003458-1
Parameter	Date Co Units	llected R.L.	2023-03-01
Cadmium (Total)	mg/L	0.005	<0.005
Calcium (Total)	mg/L	0.02	212
Chromium (Total)	mg/L	0.002	0.004
Cobalt (Total)	mg/L	0.005	<0.005
Copper (Total)	mg/L	0.002	<0.002
Iron (Total)	mg/L	0.005	19.2
Lead (Total)	mg/L	0.02	<0.02
Magnesium (Total)	mg/L	0.02	30.9
Manganese (Total)	mg/L	0.001	0.517
Molybdenum (Total)	mg/L	0.01	<0.01
Nickel (Total)	mg/L	0.01	<0.01
Phosphorus (Total)	mg/L	0.1	<0.1
Potassium (Total)	mg/L	0.1	14.4
Silver (Total)	mg/L	0.005	<0.005
Sodium (Total)	mg/L	0.2	92.6
Strontium (Total)	mg/L	0.001	0.676
Tin (Total)	mg/L	0.05	<0.05
Titanium (Total)	mg/L	0.005	<0.005
Vanadium (Total)	mg/L	0.005	<0.005
Zinc (Total)	mg/L	0.005	0.018
Antimony (Total)	mg/L	0.0005	<0.0005

	Cli	ent I.D.	LPC	
	Sam	ple I.D.	23-003458-1	
	Date Co	1	2023-03-01	
Parameter	Units	R.L.	-	
Arsenic (Total)	mg/L	0.0005	0.0011	
Selenium (Total)	mg/L	0.005	<0.005	
Thallium (Total)	mg/L	0.0003	<0.0003	
Uranium (Total)	mg/L	0.0003	<0.0003	
Chromium (VI)	mg/L	0.01	<0.01	
Mercury	mg/L	0.00002	<0.00002	
Anion Sum	meq/L	-	17.3	
Cation Sum	meq/L	-	18.6	
% Difference	%	-	3.43	
lon Ratio	-	-	0.934	
Sodium Adsorption Ratio	-	-	1.57	
TDS(calc.)/EC(actual)	-	-	0.565	
Conductivity Calc	µmho/cm	-	1530	
Conductivity Calc / Conductivity	-	-	0.933	
Langelier Index(25°C)	-	-	0.760	
Saturation pH (25°C)	-	-	6.39	

	Cli	ent I.D.	LPC
	Sam	ple I.D.	23-003458-1
	Date Co	llected	2023-03-01
Parameter	Units	R.L.	-
Benzene	μg/L	0.5	1.5
Ethylbenzene	μg/L	0.5	0.6
Toluene	μg/L	0.5	<0.5
Xylene, m,p-	μg/L	1	<1
Xylene, m,p,o-	μg/L	1.1	<1.1
Xylene, o-	μg/L	0.5	<0.5



Final Report

C A D U C E N"

ENVIRONMENTAL LABORATOR ES

Cleat compaigned Quality acquired Conceding awards

C.O.C.: - REPORT No: 23-003458 - Rev. 0

Report To:

City of Kawartha Lakes

PO Box 9000 12 Peel St

Lindsay, ON K9V 5R8

SAMPLE MATRIX:

CADUCEON Environmental Laboratories

112 Commerce Park Dr Unit L

Barrie, ON L4N 8W8

Attention: Deyonte Levene

DATE RECEIVED: 2023-Mar-02 DATE REPORTED: 2023-Mar-13

Waste Water

CUSTOMER PROJECT: Lindsay OPS

P.O. NUMBER: 22-010

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	1	OTTAWA	PCURIEL	2023-Mar-03	A-IC-01	SM 4110B
BOD5 (Liquid)	1	KINGSTON	MDUBIEN	2023-Mar-03	BOD-001	SM 5210B
COD (Liquid)	1	KINGSTON	KWELCH	2023-Mar-06	COD-001	SM 5220D
Cond/pH/Alk Auto (Liquid)	1	OTTAWA	SBOUDREAU	2023-Mar-03	COND-02/PH-02/A	SM 2510B/4500H/
					LK-02	2320B
DOC/DIC (Liquid)	1	OTTAWA	VKASYAN	2023-Mar-06	C-OC-01	EPA 415.2
Ion Balance (Liquid)	1	OTTAWA	SBURROWS		CP-028	MECP E3196
Chromium VI (Liquid)	1	OTTAWA	STAILLON	2023-Mar-07	D-CRVI-01	MECP E3056
ICP/MS Total (Liquid)	1	OTTAWA	TPRICE	2023-Mar-09	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	1	OTTAWA	NHOGAN	2023-Mar-07	D-ICP-01	SM 3120B
Mercury (Liquid)	1	OTTAWA	PBURKILL	2023-Mar-06	D-HG-02	SM 3112B
Ammonia/Phosphate (Liquid)	1	KINGSTON	KDIBBITS	2023-Mar-07	NH3-001	SM 4500NH3
Phenols (Liquid)	1	KINGSTON	JMACINNES	2023-Mar-06	PHEN-01	MECP E3179
TP/TKN (Liquid)	1	KINGSTON	KDIBBITS	2023-Mar-08	TPTKN-001	MECP E3516.2
VOC-Volatiles Full (Water)	1	RICHMOND_HILL	CBURKE	2023-Mar-08	C-VOC-02	EPA 8260

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an *

REPORT No: 23-003458 - Rev. 0

		ent I.D.	LPC
	Sam Date Co	ple I.D.	23-003458-1 2023-03-01
Parameter	Units	R.L.	-
Alkalinity(CaCO3) to pH4.5	mg/L	5	617
pH @25°C	pH units	-	7.11
Conductivity @25°C	µmho/cm	1	1640
TDS (Calc. from Cond.)	mg/L	3	899
Fluoride	mg/L	0.1	<0.1
Chloride	mg/L	0.5	148
Nitrate (N)	mg/L	0.05	0.09
Nitrite (N)	mg/L	0.05	<0.05
Sulphate	mg/L	1	39
BOD5	mg/L	3	7
Phosphorus (Total)	mg/L	0.01	<0.01
Total Kjeldahl Nitrogen	mg/L	0.1	16.4
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	13.5
Dissolved Organic Carbon	mg/L	0.2	6.4
Phenolics	mg/L	0.001	<0.001
COD	mg/L	5	51
Hardness (as CaCO3)	mg/L	-	700
Aluminum (Total)	mg/L	0.01	0.118
Barium (Total)	mg/L	0.001	0.275
Beryllium (Total)	mg/L	0.001	<0.001
Boron (Total)	mg/L	0.005	0.309

	Cli	ient I.D.	LPC
		ple I.D.	23-003458-1
Parameter	Date Co Units	ollected R.L.	2023-03-01
Cadmium (Total)	mg/L	0.005	<0.005
Calcium (Total)	mg/L	0.02	212
Chromium (Total)	mg/L	0.002	0.004
Cobalt (Total)	mg/L	0.005	<0.005
Copper (Total)	mg/L	0.002	<0.002
Iron (Total)	mg/L	0.005	19.2
Lead (Total)	mg/L	0.02	<0.02
Magnesium (Total)	mg/L	0.02	30.9
Manganese (Total)	mg/L	0.001	0.517
Molybdenum (Total)	mg/L	0.01	<0.01
Nickel (Total)	mg/L	0.01	<0.01
Phosphorus (Total)	mg/L	0.1	<0.1
Potassium (Total)	mg/L	0.1	14.4
Silver (Total)	mg/L	0.005	<0.005
Sodium (Total)	mg/L	0.2	92.6
Strontium (Total)	mg/L	0.001	0.676
Tin (Total)	mg/L	0.05	<0.05
Titanium (Total)	mg/L	0.005	<0.005
Vanadium (Total)	mg/L	0.005	<0.005
Zinc (Total)	mg/L	0.005	0.018
Antimony (Total)	mg/L	0.0005	<0.0005

	Cli	ent I.D.	LPC	
	Sam	ple I.D.	23-003458-1	
D	Date Co	1	2023-03-01	
Parameter	Units	R.L.	-	
Arsenic (Total)	mg/L	0.0005	0.0011	
Selenium (Total)	mg/L	0.005	<0.005	
Thallium (Total)	mg/L	0.0003	<0.0003	
Uranium (Total)	mg/L	0.0003	<0.0003	
Chromium (VI)	mg/L	0.01	<0.01	
Mercury	mg/L	0.00002	<0.00002	
Anion Sum	meq/L	-	17.3	
Cation Sum	meq/L	-	18.6	
% Difference	%	-	3.43	
lon Ratio	-	-	0.934	
Sodium Adsorption Ratio	-	-	1.57	
TDS(calc.)/EC(actual)	-	-	0.565	
Conductivity Calc	µmho/cm	-	1530	
Conductivity Calc / Conductivity	-	-	0.933	
Langelier Index(25°C)	-	-	0.760	
Saturation pH (25°C)	-	-	6.39	

	Clie	ent I.D.	LPC
	Sam	ple I.D.	23-003458-1
	Date Co	llected	2023-03-01
Parameter	Units	R.L.	-
Benzene	μg/L	0.5	1.5
Ethylbenzene	μg/L	0.5	0.6
Toluene	μg/L	0.5	<0.5
Xylene, m,p-	μg/L	1	<1
Xylene, m,p,o-	μg/L	1.1	<1.1
Xylene, o-	μg/L	0.5	<0.5



Final Report

C.O.C.: - REPORT No: 23-021413 - Rev. 0

Report To:

City of Kawartha Lakes

PO Box 9000

322 Kent Street West

DATE REPORTED:

Lindsay, ON K9V 4T7

CADUCEON Environmental Laboratories

110 West Beaver Creek Rd

Unit #14

Richmond Hill, ON L4B 1J9

Attention: Kayla Pantaleo

DATE RECEIVED: 2023-Aug-16 CUSTOMER PROJECT: Lindsay OPS LPC

P.O. NUMBER:

SAMPLE MATRIX: Waste Water

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	1	OTTAWA	PCURIEL	2023-Aug-18	A-IC-01	SM 4110B
BOD5 (Liquid)	1	KINGSTON	MDUBIEN	2023-Aug-18	BOD-001	SM 5210B
COD (Liquid)	1	KINGSTON	EHINCH	2023-Aug-18	COD-001	SM 5220D
Cond/pH/Alk Auto (Liquid)	1	OTTAWA	SBOUDREAU	2023-Aug-21	COND-02/PH-02/A	SM 2510B/4500H/
					LK-02	2320B
DOC/DIC (Liquid)	1	OTTAWA	VKASYAN	2023-Aug-17	C-OC-01	EPA 415.2
Ion Balance (Calc.)	1	OTTAWA	STAILLON		CP-028	MECP E3196
Chromium VI (Liquid)	1	OTTAWA	STAILLON	2023-Aug-21	D-CRVI-01	MECP E3056
ICP/MS Total (Liquid)	1	OTTAWA	TPRICE	2023-Aug-18	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	1	OTTAWA	NHOGAN	2023-Aug-18	D-ICP-01	SM 3120B
Mercury (Liquid)	1	OTTAWA	TBENNETT	2023-Aug-21	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	1	KINGSTON	KDIBBITS	2023-Aug-28	NH3-001	SM 4500NH3
Phenols (Liquid)	1	KINGSTON	JMACINNES	2023-Aug-24	PHEN-01	MECP E3179
TP & TKN (Liquid)	1	KINGSTON	KDIBBITS	2023-Aug-23	TPTKN-001	MECP E3516.2
VOC-Volatiles Full (Water)	1	RICHMOND_HILL	FLENA	2023-Aug-18	C-VOC-02	EPA 8260

R.L. = Reporting Limit

2023-Aug-30

Steve Garrett

Director of Laboratory Services

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an *

	Cli	ent I.D.	LPC 1	
		ple I.D.		
Parameter	Date Co Units	2023-08-15		
Alkalinity(CaCO3) to pH4.5	mg/L	R.L. 5	702	
pH @25°C	pH units	-	7.11	
Conductivity @25°C	uS/cm	1	1780	
Fluoride	mg/L	0.1	<0.7	
Chloride	mg/L	0.5	158	
Nitrate (N)	mg/L	0.05	<0.40	
Nitrite (N)	mg/L	0.05	<0.40	
Sulphate	mg/L	1	23	
BOD5	mg/L	3	4	
Phosphorus (Total)	mg/L	0.01	0.04	
Total Kjeldahl Nitrogen	mg/L	0.1	24.0	
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	20.3	
Dissolved Organic Carbon	mg/L	0.2	7.8	
Phenolics	mg/L	0.001	<0.001	
COD	mg/L	5	67	
Hardness (as CaCO3)	mg/L	-	600	
Aluminum (Total)	mg/L	0.01	0.10	
Barium (Total)	mg/L	0.001	0.358	
Beryllium (Total)	mg/L	0.001	<0.001	
Boron (Total)	mg/L	0.005	0.412	
Cadmium (Total)	mg/L	0.005	<0.005	

Steve Garrett
Director of Laboratory Services

	ent I.D.	LPC 1		
	· ·	ple I.D.	23-021413-1	
	Date Collect		2023-08-15	
Parameter	Units	R.L.	•	
Calcium (Total)	mg/L	0.02	191	
Chromium (Total)	mg/L	0.002	<0.002	
Cobalt (Total)	mg/L	0.005	<0.005	
Copper (Total)	mg/L	0.002	<0.002	
Iron (Total)	mg/L	0.005	23.3	
Lead (Total)	mg/L	0.02	<0.02	
Magnesium (Total)	mg/L	0.02	34.9	
Manganese (Total)	mg/L	0.001	0.491	
Molybdenum (Total)	mg/L	0.01	<0.01	
Nickel (Total)	mg/L	0.01	0.01	
Phosphorus (Total)	mg/L	0.1	<0.1	
Potassium (Total)	mg/L	0.1	20.9	
Silver (Total)	mg/L	0.005	<0.005	
Sodium (Total)	mg/L	0.2	112	
Strontium (Total)	mg/L	0.001	0.700	
Tin (Total)	mg/L	0.05	<0.05	
Titanium (Total)	mg/L	0.005	<0.005	
Vanadium (Total)	mg/L	0.005	<0.005	
Zinc (Total)	mg/L	0.005	0.005	
Antimony (Total)	mg/L	0.0005	<0.0005	
Arsenic (Total)	mg/L	0.0005	0.0015	

Steve Garrett
Director of Laboratory Services

	Client I.D.			
		ple I.D.	23-021413-1	
Parameter	Date Co Units	llected R.L.	2023-08-15	
Selenium (Total)	mg/L	0.005	<0.005	
Thallium (Total)	mg/L	0.0003	<0.0003	
Uranium (Total)	mg/L	0.0003	<0.0003	
Chromium (VI)	mg/L	0.01	<0.01	
Mercury	mg/L	0.00002	<0.00002	
Anion Sum	meq/L	-	19.0	
Cation Sum	meq/L	-	19.1	
% Difference	%	-	0.351	
Ion Ratio	-	-	0.993	
Sodium Adsorption Ratio	-	-	1.96	
TDS (Ion Sum Calc)	mg/L	1	985	
TDS(calc.)/EC(actual)	-	-	0.552	
Conductivity Calc	µmho/cm	-	1600	
Conductivity Calc / Conductivity	-	-	0.897	
Langelier Index(25°C)	-	-	0.735	
Saturation pH (25°C)	-	-	6.37	
pH (Client Data)	pH units	-	6.59	
Temperature (Client Data)	°C	-	12.3	

	Cli	ent I.D.	LPC 1
	Sam	ple I.D.	23-021413-1
	Date Co	llected	2023-08-15
Parameter	Units	R.L.	-
Benzene	μg/L	0.5	3.2
Ethylbenzene	μg/L	0.5	1.2
Toluene	μg/L	0.5	<0.5
Xylene, m,p-	μg/L	1	2
Xylene, m,p,o-	μg/L	1.1	2.2
Xylene, o-	μg/L	0.5	<0.5



Final Report

C.O.C.: - REPORT No: 23-025381 - Rev. 0

Report To:

City of Kawartha Lakes

PO Box 9000

322 Kent Street West

Lindsay, ON K9V 4T7

CADUCEON Environmental Laboratories

CUSTOMER PROJECT: Lindsay OPS

112 Commerce Park Dr Unit L

Barrie, ON L4N 8W8

P.O. NUMBER:

Attention: Kayla Pantaleo

DATE RECEIVED: 2023-Sep-20

DATE REPORTED: 2023-Oct-04

SAMPLE MATRIX: Waste Water

SAIVIPLE IVIATRIA. Waste Wal	toi					
Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	1	OTTAWA	VKASYAN	2023-Sep-22	A-IC-01	SM 4110B
BOD5 (Liquid)	1	KINGSTON	JWOLFE	2023-Sep-22	BOD-001	SM 5210B
COD (Liquid)	1	KINGSTON	EHINCH	2023-Sep-22	COD-001	SM 5220D
Cond/pH/Alk Auto (Liquid)	1	OTTAWA	SBOUDREAU	2023-Sep-21	COND-02/PH-02/A	SM 2510B/4500H/
					LK-02	2320B
DOC/DIC (Liquid)	1	OTTAWA	VKASYAN	2023-Sep-21	C-OC-01	EPA 415.2
Ion Balance (Calc.)	1	OTTAWA	STAILLON		CP-028	MECP E3196
Chromium VI (Liquid)	1	OTTAWA	STAILLON	2023-Sep-27	D-CRVI-01	MECP E3056
ICP/MS Total (Liquid)	1	OTTAWA	AOZKAYMAK	2023-Sep-26	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	1	OTTAWA	APRUDYVUS	2023-Sep-21	D-ICP-01	SM 3120B
Mercury (Liquid)	1	OTTAWA	TBENNETT	2023-Sep-22	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	1	KINGSTON	KDIBBITS	2023-Sep-26	NH3-001	SM 4500NH3
Phenols (Liquid)	1	KINGSTON	JMACINNES	2023-Sep-26	PHEN-01	MECP E3179
TP & TKN (Liquid)	1	KINGSTON	KDIBBITS	2023-Oct-02	TPTKN-001	MECP E3516.2
VOC-Volatiles Full (Water)	1	RICHMOND_HILL	FLENA	2023-Sep-25	C-VOC-02	EPA 8260

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an $\,^\star$

	LPC#1		
	Sam Date Co	ple I.D.	23-025381-1 2023-09-18
Parameter	Units	R.L.	2023-09-16
Alkalinity(CaCO3) to pH4.5	mg/L	5	801
pH @25°C	pH units	-	7.54
Conductivity @25°C	uS/cm	1	1960
TDS (Calc. from Cond.)	mg/L	3	1080
Fluoride	mg/L	0.1	<0.7
Chloride	mg/L	0.5	238
Nitrate (N)	mg/L	0.05	<0.40
Nitrite (N)	mg/L	0.05	<0.40
Sulphate	mg/L	1	14
BOD5	mg/L	3	12
Phosphorus (Total)	mg/L	0.01	0.07
Total Kjeldahl Nitrogen	mg/L	0.1	34.5
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	28.3
Dissolved Organic Carbon	mg/L	0.2	7.1
Phenolics	mg/L	0.001	<0.001
COD	mg/L	5	110
Hardness (as CaCO3)	mg/L	-	600
Aluminum (Total)	mg/L	0.01	0.19
Barium (Total)	mg/L	0.001	0.425
Beryllium (Total)	mg/L	0.001	<0.001
Boron (Total)	mg/L	0.005	0.581

	Cli	LPC#1	
		ple I.D.	23-025381-1
Parameter	Date Co Units	llected R.L.	2023-09-18
Cadmium (Total)	mg/L	0.005	<0.005
Calcium (Total)	mg/L	0.02	171
Chromium (Total)	mg/L	0.002	<0.002
Cobalt (Total)	mg/L	0.005	<0.005
Copper (Total)	mg/L	0.002	<0.002
Iron (Total)	mg/L	0.005	20.7
Lead (Total)	mg/L	0.02	<0.02
Magnesium (Total)	mg/L	0.02	42.6
Manganese (Total)	mg/L	0.001	0.351
Molybdenum (Total)	mg/L	0.01	<0.01
Nickel (Total)	mg/L	0.01	0.01
Phosphorus (Total)	mg/L	0.1	<0.1
Potassium (Total)	mg/L	0.1	27.5
Silver (Total)	mg/L	0.005	<0.005
Sodium (Total)	mg/L	0.2	131
Strontium (Total)	mg/L	0.001	0.751
Tin (Total)	mg/L	0.05	<0.05
Titanium (Total)	mg/L	0.005	<0.005
Vanadium (Total)	mg/L	0.005	<0.005
Zinc (Total)	mg/L	0.005	<0.005
Antimony (Total)	mg/L	0.0005	<0.0005

	Cli	ent I.D.	LPC #1	
	Sam	ple I.D.	23-025381-1	
	Date Co	llected	2023-09-18	
Parameter	Units	R.L.	-	
Arsenic (Total)	mg/L	0.0005	0.0017	
Selenium (Total)	mg/L	0.005	<0.005	
Thallium (Total)	mg/L	0.0003	<0.0003	
Uranium (Total)	mg/L	0.0003	<0.0003	
Chromium (VI)	mg/L	0.01	<0.01	
Mercury	mg/L	0.00002	<0.00002	
Anion Sum	meq/L	-	23.0	
Cation Sum	meq/L	-	19.6	
% Difference	%	-	8.11	
Ion Ratio	-	-	1.18	
Sodium Adsorption Ratio	-	-	2.32	
TDS (Ion Sum Calc)	mg/L	1	1130	
TDS(calc.)/EC(actual)	-	-	0.574	
Conductivity Calc	µmho/cm	-	1810	
Conductivity Calc / Conductivity	-	-	0.925	
Langelier Index(25°C)	-	-	1.16	
Saturation pH (25°C)	-	-	6.38	
pH (Client Data)	pH units	-	6.59	
Temperature (Client Data)	°C	-	12.8	

	Cli	ent I.D.	LPC #1
	Sam	ple I.D.	23-025381-1
	Date Co	llected	2023-09-18
Parameter	Units	R.L.	-
Benzene	μg/L	0.5	3.4
Ethylbenzene	μg/L	0.5	0.6
Toluene	μg/L	0.5	<0.5
Xylene, m,p-	μg/L	1	1
Xylene, m,p,o-	μg/L	1.1	1.6
Xylene, o-	μg/L	0.5	<0.5



Final Report

C.O.C.: G115072 REPORT No: 23-029410 - Rev. 0

Report To:

City of Kawartha Lakes

PO Box 9000

322 Kent Street West

Lindsay, ON K9V 4T7

CADUCEON Environmental Laboratories

112 Commerce Park Dr Unit L

Barrie, ON L4N 8W8

Attention: Kayla Pantaleo

DATE RECEIVED: 2023-Oct-20 CUSTOMER PROJECT: Lindsay OPS

P.O. NUMBER:

DATE REPORTED: 2023-Nov-21 SAMPLE MATRIX: Waste Water

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	2	OTTAWA	LMACGREGOR	2023-Nov-07	A-IC-01	SM 4110B
BOD5 (Liquid)	2	KINGSTON	JWOLFE	2023-Oct-25	BOD-001	SM 5210B
COD (Liquid)	2	KINGSTON	EHINCH	2023-Oct-30	COD-001	SM 5220D
Colour (Liquid)	2	OTTAWA	MDON	2023-Oct-25	A-COL-01	SM 2120C
Cond/pH/Alk Auto (Liquid)	2	OTTAWA	SBOUDREAU	2023-Oct-25	COND-02/PH-02/A	SM 2510B/4500H/
					LK-02	2320B
Cyanide WAD (Liquid)	2	KINGSTON	JMACINNES	2023-Oct-25	CN-001	SM 4500-CN-E
DOC/DIC (Liquid)	2	OTTAWA	VKASYAN	2023-Oct-31	C-OC-01	EPA 415.2
Ion Balance (Calc.)	2	OTTAWA	ASCHNEIDER		CP-028	MECP E3196
Chromium VI (Liquid)	2	OTTAWA	STAILLON	2023-Oct-30	D-CRVI-01	MECP E3056
ICP/MS Total (Liquid)	2	OTTAWA	TPRICE	2023-Oct-27	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	2	OTTAWA	NHOGAN	2023-Oct-31	D-ICP-01	SM 3120B
Mercury (Liquid)	2	OTTAWA	TBENNETT	2023-Oct-25	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	2	KINGSTON	JYEARWOOD	2023-Nov-09	NH3-001	SM 4500NH3
NTA Liquid (Subcontract)	1	SGS_LAKEFIELD	CBURKE	2023-Nov-02		Subcontracted
OC Pesticides (Liquid)	1	KINGSTON	CSUMMERHAYS	2023-Oct-25	PESTCL-001	EPA 8081
PCB's (Liquid)	1	KINGSTON	CSUMMERHAYS	2023-Oct-25	PCB-001	EPA 8081
Phenols (Liquid)	2	KINGSTON	JMACINNES	2023-Nov-20	PHEN-01	MECP E3179
Radionuc. Liquid (Subcontract)	1	BUREAU_VERITAS	CBURKE	2023-Nov-20		Subcontracted
TP & TKN (Liquid)	2	KINGSTON	JYEARWOOD	2023-Nov-13	TPTKN-001	MECP E3516.2
TSS (Liquid)	2	KINGSTON	KKHUTSYYEVA	2023-Oct-27	TSS-001	SM 2540D
Turbidity (Liquid)	2	OTTAWA	MDON	2023-Oct-25	A-TURB-01	SM 2130B
VOC-Volatiles Full (Water)	1	RICHMOND_HILL	CBURKE	2023-Oct-30	C-VOC-02	EPA 8260

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an $\,^{\star}$

	Client I.D. Sample I.D. Date Collected			LPC 2
Parameter	Units	R.L.	2023-10-18	2023-10-18
Alkalinity(CaCO3) to pH4.5	mg/L	5	715	1300
TDS (Calc. from Cond.)	mg/L	3	982	3030
Conductivity @25°C	uS/cm	1	1790	5350
рН @25°C	pH units	-	7.49	7.99
Colour	TCU	2	14	258
Turbidity	NTU	0.1	1000	205
Fluoride	mg/L	0.1	<0.7	<1.8
Chloride	mg/L	0.5	160	630
Nitrate (N)	mg/L	0.05	<0.40	10.3
Nitrite (N)	mg/L	0.05	<0.40	1.55
Sulphate	mg/L	1	42	158
BOD5	mg/L	3	6	15
Total Suspended Solids	mg/L	3	52	142
Phosphorus (Total)	mg/L	0.01	0.09	0.81
Total Kjeldahl Nitrogen	mg/L	0.1	26.4	263
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	23.8	229
Ammonia (N)-unionized	mg/L	0.01	0.05	0.17
Dissolved Organic Carbon	mg/L	0.2	15.5	73.7
Cyanide (WAD)	mg/L	0.005	<0.005	<0.008
Phenolics	mg/L	0.001	<0.001	0.001
COD	mg/L	5	28	396

	Client I.D.			LPC 2
		Sample I.D. Date Collected		23-029410-2
Parameter	Units	R.L.	2023-10-18	2023-10-18
Hardness (as CaCO3)	mg/L	-	500	700
Aluminum (Total)	mg/L	0.01	0.09	0.44
Barium (Total)	mg/L	0.001	0.316	0.462
Beryllium (Total)	mg/L	0.001	<0.001	<0.001
Boron (Total)	mg/L	0.005	0.389	6.45
Cadmium (Total)	mg/L	0.005	<0.005	<0.005
Calcium (Total)	mg/L	0.02	162	149
Chromium (Total)	mg/L	0.002	<0.002	0.018
Cobalt (Total)	mg/L	0.005	<0.005	0.014
Copper (Total)	mg/L	0.002	<0.002	0.006
Iron (Total)	mg/L	0.005	12.6	5.78
Lead (Total)	mg/L	0.02	<0.02	<0.02
Magnesium (Total)	mg/L	0.02	33.6	68.3
Manganese (Total)	mg/L	0.001	0.385	0.179
Molybdenum (Total)	mg/L	0.01	<0.01	<0.01
Nickel (Total)	mg/L	0.01	<0.01	0.05
Phosphorus (Total)	mg/L	0.1	<0.1	0.7
Potassium (Total)	mg/L	0.1	21.3	191
Silver (Total)	mg/L	0.005	<0.005	<0.005
Sodium (Total)	mg/L	0.2	104	627
Strontium (Total)	mg/L	0.001	0.637	1.80

	Cli	ent I.D.	LPC 1	LPC 2
		ple I.D.	23-029410-1	23-029410-2
Parameter	Date Co Units	R.L.	2023-10-18	2023-10-18
Tin (Total)	mg/L	0.05	<0.05	<0.05
Titanium (Total)	mg/L	0.005	<0.005	0.040
Vanadium (Total)	mg/L	0.005	<0.005	0.014
Zinc (Total)	mg/L	0.005	0.007	0.026
Antimony (Total)	mg/L	0.0005	<0.0005	0.0025
Arsenic (Total)	mg/L	0.0005	0.0015	0.0151
Selenium (Total)	mg/L	0.005	<0.005	0.007
Thallium (Total)	mg/L	0.0003	<0.0003	<0.0003
Uranium (Total)	mg/L	0.0003	0.0003	0.0008
Chromium (VI)	mg/L	0.01	<0.01	<0.01
Mercury	mg/L	0.00002	<0.00002	<0.00002
Anion Sum	meq/L	-	19.7	48.0
Cation Sum	meq/L	-	16.6	45.6
% Difference	%	-	8.47	2.57
Ion Ratio	-	-	1.19	1.05
Sodium Adsorption Ratio	-	-	1.94	10.7
TDS (Ion Sum Calc)	mg/L	1	966	2660
TDS(calc.)/EC(actual)	-	-	0.540	0.498
Conductivity Calc	µmho/cm	-	1560	3940
Conductivity Calc / Conductivity	-	-	0.870	0.736
Langelier Index(25°C)	-	-	1.05	1.76

	Clie	ent I.D.	LPC 1	LPC 2
	Samı	ole I.D.	23-029410-1	23-029410-2
	Date Co	llected	2023-10-18	2023-10-18
Parameter	Units	R.L.	-	-
Saturation pH (25°C)	-	-	6.44	6.23
pH (Client Data)	pH units	-	6.99	7.58
Temperature (Client Data)	°C	-	11.5	16.0

		ent I.D.	LPC 1	
	Sam Date Co	ple I.D.	23-029410-1 2023-10-18	
Parameter	Units	R.L.	2023-10-16	
Acetone	μg/L	30	<30	
Benzene	μg/L	0.5	2.9	
Bromodichloromethane	μg/L	2	<2	
Bromoform	μg/L	5	<5	
Bromomethane	μg/L	0.5	<0.5	
Carbon Tetrachloride	μg/L	0.2	<0.2	
Chlorobenzene	μg/L	0.5	1.8	
Chloroform	μg/L	1	<1	
Chloromethane (Methyl Chloride)	μg/L	2	<2	
Dibromochloromethane	μg/L	2	<2	
Ethylene Dibromide	μg/L	0.2	<0.2	
Dichlorobenzene,1,2-	μg/L	0.5	<0.5	
Dichlorobenzene,1,3-	μg/L	0.5	<0.5	
Dichlorobenzene,1,4-	μg/L	0.5	1.6	
Dichloroethane,1,1-	μg/L	0.5	<0.5	
Dichloroethane,1,2-	μg/L	0.5	<0.5	
Dichloroethylene,1,1-	μg/L	0.5	<0.5	
Dichloroethylene,1,2-cis-	μg/L	0.5	<0.5	
Dichloroethylene,1,2-trans-	μg/L	0.5	<0.5	
Dichloropropane,1,2-	μg/L	0.5	<0.5	
Dichloropropene,1,3-cis-	μg/L	0.5	<0.5	

		lient I.D.	LPC 1	
		ollected	2023-10-18	
Parameter	Units	R.L.	-	
Dichloropropene,1,3-trans-	μg/L	0.5	<0.5	
Ethylbenzene	μg/L	0.5	1.1	
Dichloromethane (Methylene Chloride)	μg/L	5	<5	
Methyl Ethyl Ketone	μg/L	20	<20	
Methyl Isobutyl Ketone	μg/L	20	<20	
Methyl tert-Butyl Ether (MTBE)	μg/L	2	<2	
Styrene	μg/L	0.5	<0.5	
Tetrachloroethane,1,1,1,2-	μg/L	0.5	<0.5	
Tetrachloroethane,1,1,2,2-	μg/L	0.5	<0.5	
Tetrachloroethylene	μg/L	0.5	<0.5	
Total Trihalomethanes	μg/L	6	<6	
Toluene	μg/L	0.5	<0.5	
Trichlorobenzene,1,2,4-	μg/L	0.5	<0.5	
Trichloroethane,1,1,1-	μg/L	0.5	<0.5	
Trichloroethane,1,1,2-	μg/L	0.5	<0.5	
Trichloroethylene	μg/L	0.5	<0.5	
Trichlorofluoromethane (Freon 11)	μg/L	5	<5	
Vinyl Chloride	μg/L	0.2	<0.2	
Xylene, m,p-	μg/L	1	2	
Xylene, o-	μg/L	0.5	<0.5	

		ient I.D.	LPC 1	
		nple I.D. ollected	23-029410-1 2023-10-18	
Parameter	Units	R.L.	-	
Poly-Chlorinated Biphenyls (PCB's)	μg/L	0.05	<0.05	
Identification Comment	-	-	-	
BHC (alpha)	μg/L	0.4	<0.4	
Aldrin	μg/L	0.01	<0.01	
BHC (beta)	μg/L	0.4	<0.4	
Chlordane (alpha)	μg/L	0.05	<0.05	
Chlordane (gamma)	μg/L	0.05	<0.05	
Chlordane (Alpha + Gamma)	μg/L	0.05	<0.05	
BHC (delta)	μg/L	0.01	<0.01	
p,p'-DDD	μg/L	0.05	<0.05	
p,p'-DDE	μg/L	0.01	<0.01	
o,p'-DDT	μg/L	0.05	<0.05	
p,p'-DDT	μg/L	0.05	<0.05	
Dieldrin	μg/L	0.01	<0.01	
Endosulfan I	μg/L	0.05	<0.05	
Endosulfan Sulfate	μg/L	0.05	<0.05	
Endrin	μg/L	0.05	<0.05	
Heptachlor	μg/L	0.1	<0.1	
Heptachlor Epoxide	μg/L	0.02	<0.02	
Hexachlorobenzene	μg/L	0.01	<0.01	
Lindane (Hexachlorocyclohexane, Gamma)	μg/L	0.01	<0.01	

	Client I.D.		LPC 1
	Sam	ple I.D.	23-029410-1
	Date Co		2023-10-18
Parameter	Units	R.L.	-
Methoxychlor	μg/L	0.05	<0.05
Mirex	µg/L	1	<1
Subcontracted Analyses	LPC 1		
	Sam	ple I.D.	23-029410-1
	Date Co		2023-10-18
Parameter	Units	R.L.	-
Nitrilotriacetic acid (NTA)	mg/L	-	<0.03
Gross Alpha	Bq/L	-	<0.10
Gross Beta	Bq/L	-	1.23



Final Report

C.O.C.: - REPORT No: 23-030960 - Rev. 0

Report To:

City of Kawartha Lakes

PO Box 9000

322 Kent Street West

Lindsay, ON K9V 4T7

CADUCEON Environmental Laboratories

110 West Beaver Creek Rd

Unit #14

Richmond Hill, ON L4B 1J9

Attention: Kayla Pantaleo

DATE RECEIVED: 2023-Nov-03

DATE REPORTED: 2023-Dec-13
SAMPLE MATRIX: Waste Water

CUSTOMER PROJECT: Lindsay OPS

P.O. NUMBER:

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	1	OTTAWA	LMACGREGOR	2023-Nov-17	A-IC-01	SM 4110B
BOD5 (Liquid)	1	KINGSTON	JYEARWOOD	2023-Nov-08	BOD-001	SM 5210B
COD (Liquid)	1	KINGSTON	EHINCH	2023-Nov-09	COD-001	SM 5220D
Cond/pH/Alk Auto (Liquid)	1	OTTAWA	SBOUDREAU	2023-Nov-13	COND-02/PH-02/A	SM 2510B/4500H/
					LK-02	2320B
DOC/DIC (Liquid)	1	OTTAWA	VKASYAN	2023-Nov-15	C-OC-01	EPA 415.2
Ion Balance (Calc.)	1	OTTAWA	TPRICE		CP-028	MECP E3196
Chromium VI (Liquid)	1	OTTAWA	STAILLON	2023-Nov-10	D-CRVI-01	MECP E3056
ICP/MS Total (Liquid)	1	OTTAWA	AOZKAYMAK	2023-Nov-09	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	1	OTTAWA	NHOGAN	2023-Nov-21	D-ICP-01	SM 3120B
Mercury (Liquid)	1	OTTAWA	TBENNETT	2023-Nov-07	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	1	KINGSTON	KDIBBITS	2023-Nov-15	NH3-001	SM 4500NH3
Phenols (Liquid)	1	KINGSTON	JMACINNES	2023-Dec-06	PHEN-01	MECP E3179
TP & TKN (Liquid)	1	KINGSTON	KDIBBITS	2023-Nov-30	TPTKN-001	MECP E3516.2
VOC-Volatiles Full (Water)	1	RICHMOND_HILL	CBURKE	2023-Nov-10	C-VOC-02	EPA 8260

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an $\,^\star$

	Client I.D.		
	Sam Date Co	ple I.D.	23-030960-1 2023-11-02
Parameter	Units	R.L.	2023-11-02
Alkalinity(CaCO3) to pH4.5	mg/L	5	685
TDS (Calc. from Cond.)	mg/L	3	977
Conductivity @25°C	uS/cm	1	1780
рН @25°C	pH units	-	7.59
Fluoride	mg/L	0.1	<0.1
Chloride	mg/L	0.5	166
Nitrate (N)	mg/L	0.05	<0.05
Nitrite (N)	mg/L	0.05	<0.05
Sulphate	mg/L	1	25
BOD5	mg/L	3	6
Phosphorus (Total)	mg/L	0.01	0.02
Total Kjeldahl Nitrogen	mg/L	0.1	29.3
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	22.3
Dissolved Organic Carbon	mg/L	0.2	12.2
Phenolics	mg/L	0.001	<0.001
COD	mg/L	5	66
Hardness (as CaCO3)	mg/L	-	600
Aluminum (Total)	mg/L	0.01	0.09
Barium (Total)	mg/L	0.001	0.264
Beryllium (Total)	mg/L	0.001	<0.001
Boron (Total)	mg/L	0.005	0.402

	Clie	ent I.D.	LPC
	Sam _l Date Co	ple I.D. Ilected	23-030960-1 2023-11-02
Parameter	Units	R.L.	-
Cadmium (Total)	mg/L	0.005	<0.005
Calcium (Total)	mg/L	0.02	172
Chromium (Total)	mg/L	0.002	<0.002
Cobalt (Total)	mg/L	0.005	<0.005
Copper (Total)	mg/L	0.002	<0.002
Iron (Total)	mg/L	0.005	0.024
Lead (Total)	mg/L	0.02	<0.02
Magnesium (Total)	mg/L	0.02	32.8
Manganese (Total)	mg/L	0.001	0.420
Molybdenum (Total)	mg/L	0.01	<0.01
Nickel (Total)	mg/L	0.01	<0.01
Phosphorus (Total)	mg/L	0.1	<0.1
Potassium (Total)	mg/L	0.1	20.8
Silver (Total)	mg/L	0.005	<0.005
Sodium (Total)	mg/L	0.2	106
Strontium (Total)	mg/L	0.001	0.636
Tin (Total)	mg/L	0.05	<0.05
Titanium (Total)	mg/L	0.005	<0.005
Vanadium (Total)	mg/L	0.005	<0.005
Zinc (Total)	mg/L	0.005	<0.005
Antimony (Total)	mg/L	0.0005	<0.0005

Client I.D.			LPC
		ple I.D.	23-030960-1
	Date Co		2023-11-02
Parameter	Units	R.L.	-
Arsenic (Total)	mg/L	0.0005	0.0010
Selenium (Total)	mg/L	0.005	<0.005
Thallium (Total)	mg/L	0.0003	<0.0003
Uranium (Total)	mg/L	0.0003	<0.0003
Chromium (VI)	mg/L	0.01	<0.01
Mercury	mg/L	0.00002	<0.00002
Anion Sum	meq/L	-	18.9
Cation Sum	meq/L	-	16.5
% Difference	%	-	6.86
Ion Ratio	-	-	1.15
Sodium Adsorption Ratio	-	-	1.94
TDS (Ion Sum Calc)	mg/L	1	934
TDS(calc.)/EC(actual)	-	-	0.524
Conductivity Calc	µmho/cm	-	1560
Conductivity Calc / Conductivity	-	-	0.878
Langelier Index(25°C)	-	-	1.16
Saturation pH (25°C)	-	-	6.43
pH (Client Data)	pH units	-	7.59
Temperature (Client Data)	°C	-	10.1

	Clie	ent I.D.	LPC
	Sam	ple I.D.	23-030960-1
	Date Co	llected	2023-11-02
Parameter	Units	R.L.	-
Benzene	μg/L	0.5	1.9
Ethylbenzene	μg/L	0.5	0.8
Toluene	μg/L	0.5	<0.5
Xylene, m,p-	μg/L	1	2
Xylene, m,p,o-	μg/L	1.1	1.7
Xylene, o-	μg/L	0.5	<0.5



Final Report

C.O.C.: - REPORT No: 23-035658 - Rev. 0

Report To:

City of Kawartha Lakes

PO Box 9000

322 Kent Street West

Lindsay, ON K9V 4T7

CADUCEON Environmental Laboratories

110 West Beaver Creek Rd

Unit #14

Richmond Hill, ON L4B 1J9

Attention: Bonnie Ferguson

DATE RECEIVED: 2023-Dec-20 CUSTOMER PROJECT: Lindsay OPS

P.O. NUMBER:

DATE REPORTED: 2024-Jan-03 SAMPLE MATRIX: Waste Water

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	1	OTTAWA	LMACGREGOR	2023-Dec-21	A-IC-01	SM 4110B
BOD5 (Liquid)	1	KINGSTON	JWOLFE2	2023-Dec-22	BOD-001	SM 5210B
COD (Liquid)	1	KINGSTON	EHINCH	2023-Dec-27	COD-001	SM 5220D
Cond/pH/Alk Auto (Liquid)	1	OTTAWA	SBOUDREAU	2023-Dec-21	COND-02/PH-02/A	SM 2510B/4500H/
					LK-02	2320B
DOC/DIC (Liquid)	1	OTTAWA	VKASYAN	2023-Dec-21	C-OC-01	EPA 415.2
Ion Balance (Calc.)	1	OTTAWA	ASCHNEIDER		CP-028	MECP E3196
Chromium VI (Liquid)	1	OTTAWA	STAILLON	2023-Dec-27	D-CRVI-01	MECP E3056
ICP/MS Total (Liquid)	1	OTTAWA	AOZKAYMAK	2023-Dec-27	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	1	OTTAWA	APRUDYVUS	2023-Dec-27	D-ICP-01	SM 3120B
Mercury (Liquid)	1	OTTAWA	TBENNETT	2023-Dec-22	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	1	KINGSTON	KDIBBITS	2023-Dec-28	NH3-001	SM 4500NH3
Phenols (Liquid)	1	KINGSTON	JMACINNES	2023-Dec-28	PHEN-01	MECP E3179
TP & TKN (Liquid)	1	KINGSTON	KDIBBITS	2023-Dec-29	TPTKN-001	MECP E3516.2
VOC-Volatiles Full (Water)	1	RICHMOND_HILL	CBURKE	2023-Dec-22	C-VOC-02	EPA 8260

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an $\,^\star$

Client I.D.			LPC
		ple I.D.	23-035658-1
Demonstra	Date Co		2023-12-18
Parameter	Units	R.L.	-
Alkalinity(CaCO3) to pH4.5	mg/L	5	663
TDS (Calc. from Cond.)	mg/L	3	978
Conductivity @25°C	uS/cm	1	1780
рН @25°C	pH units	-	7.34
Fluoride	mg/L	0.1	<0.1
Chloride	mg/L	0.5	183
Nitrate (N)	mg/L	0.05	0.14
Nitrite (N)	mg/L	0.05	<0.05
Sulphate	mg/L	1	36
BOD5	mg/L	3	4
Phosphorus (Total)	mg/L	0.01	0.04
Total Kjeldahl Nitrogen	mg/L	0.1	19.8
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	16.6
Dissolved Organic Carbon	mg/L	0.2	23.4
Phenolics	mg/L	0.001	<0.001
COD	mg/L	5	48
Hardness (as CaCO3)	mg/L	-	600
Aluminum (Total)	mg/L	0.01	0.06
Barium (Total)	mg/L	0.001	0.325
Beryllium (Total)	mg/L	0.001	<0.001
Boron (Total)	mg/L	0.005	0.422

	Clie	ent I.D.	LPC
	Sam _l Date Co	ple I.D.	23-035658-1 2023-12-18
Parameter	Units	R.L.	2023-12-10
Cadmium (Total)	mg/L	0.005	<0.005
Calcium (Total)	mg/L	0.02	192
Chromium (Total)	mg/L	0.002	<0.002
Cobalt (Total)	mg/L	0.005	<0.005
Copper (Total)	mg/L	0.002	<0.002
Iron (Total)	mg/L	0.005	16.7
Lead (Total)	mg/L	0.02	<0.02
Magnesium (Total)	mg/L	0.02	36.2
Manganese (Total)	mg/L	0.001	0.530
Molybdenum (Total)	mg/L	0.01	<0.01
Nickel (Total)	mg/L	0.01	<0.01
Phosphorus (Total)	mg/L	0.1	<0.1
Potassium (Total)	mg/L	0.1	20.0
Silver (Total)	mg/L	0.005	<0.005
Sodium (Total)	mg/L	0.2	125
Strontium (Total)	mg/L	0.001	0.760
Tin (Total)	mg/L	0.05	<0.05
Titanium (Total)	mg/L	0.005	<0.005
Vanadium (Total)	mg/L	0.005	<0.005
Zinc (Total)	mg/L	0.005	<0.005
Antimony (Total)	mg/L	0.0005	<0.0005

	Cli	ent I.D.	LPC
		ple I.D.	23-035658-1
	Date Co	llected	2023-12-18
Parameter	Units	R.L.	-
Arsenic (Total)	mg/L	0.0005	0.0014
Selenium (Total)	mg/L	0.005	<0.005
Thallium (Total)	mg/L	0.0003	<0.0003
Uranium (Total)	mg/L	0.0003	<0.0003
Chromium (VI)	mg/L	0.01	<0.01
Mercury	mg/L	0.00002	<0.00002
Anion Sum	meq/L	-	19.2
Cation Sum	meq/L	-	19.5
% Difference	%	-	0.799
Ion Ratio	-	-	0.984
Sodium Adsorption Ratio	-	-	2.17
TDS (Ion Sum Calc)	mg/L	1	1010
TDS(calc.)/EC(actual)	-	-	0.566
Conductivity Calc	µmho/cm	-	1660
Conductivity Calc / Conductivity	-	-	0.931
Langelier Index(25°C)	-	-	0.933
Saturation pH (25°C)	-	-	6.41
pH (Client Data)	pH units	-	6.59
Temperature (Client Data)	°C	-	9.5

	Clie	ent I.D.	LPC
	Sam	ple I.D.	23-035658-1
	Date Co	llected	2023-12-18
Parameter	Units	R.L.	-
Benzene	μg/L	0.5	2.7
Ethylbenzene	μg/L	0.5	1.0
Toluene	μg/L	0.5	<0.5
Xylene, m,p-	μg/L	1	1
Xylene, m,p,o-	μg/L	1.1	1.2
Xylene, o-	μg/L	0.5	<0.5



Final Report

C.O.C.: --- REPORT No. B23-03106 (ii)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 19-May-23 SAMPLE MATRIX: Surface Water **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		SW-3	SW-13	SW-14	SW-18
			Sample I.D.		B23-03106-3	B23-03106-5	B23-03106-6	B23-03106-9
			Date Collect	ed	24-Apr-23	24-Apr-23	24-Apr-23	24-Apr-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Poly-Chlorinated Biphenyls (PCB's)	μg/L	0.05	EPA 8082	01-May-23/K	< 0.05	< 0.05		
Aroclor	-		-	01-May-23	-	-		
Dichloroethane,1,1-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene,1,1-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane,1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene,1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropane,1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene,1,3-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene,1,4-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,2,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorobenzene,1,2,4-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Acetone	μg/L	30	EPA 8260	01-May-23/R	< 30	< 30	< 30	< 30
Bromodichloromethane	μg/L	2	EPA 8260	01-May-23/R	< 2	< 2	< 2	< 2
Bromomethane	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	μg/L	5	EPA 8260	01-May-23/R	< 5	< 5	< 5	< 5
Benzene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, cis-1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, cis-1,3-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	μg/L	0.2	EPA 8260	01-May-23/R	< 0.2	< 0.2	< 0.2	< 0.2
Monochlorobenzene (Chlorobenzene)	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	μg/L	1	EPA 8260	01-May-23/R	< 1	1	< 1	< 1
Dibromochloromethane	μg/L	2	EPA 8260	01-May-23/R	< 2	< 2	< 2	< 2
Ethylbenzene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03106 (ii)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 19-May-23 SAMPLE MATRIX: Surface Water **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		SW-3	SW-13	SW-14	SW-18
			Sample I.D.		B23-03106-3	B23-03106-5	B23-03106-6	B23-03106-9
			Date Collecte	ed	24-Apr-23	24-Apr-23	24-Apr-23	24-Apr-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Dibromoethane,1,2- (Ethylene Dibromide)	μg/L	0.2	EPA 8260	01-May-23/R	< 0.2	< 0.2	< 0.2	< 0.2
Methyl Ethyl Ketone	μg/L	20	EPA 8260	01-May-23/R	< 20	< 20	< 20	< 20
Methyl-t-butyl Ether	μg/L	2	EPA 8260	01-May-23/R	< 2	< 2	< 2	< 2
Methyl Isobutyl Ketone	μg/L	20	EPA 8260	01-May-23/R	< 20	< 20	< 20	< 20
Dichloromethane (Methylene Chloride)	μg/L	5	EPA 8260	01-May-23/R	< 5	< 5	< 5	< 5
Xylene, m,p-	μg/L	1.0	EPA 8260	01-May-23/R	< 1.0	< 1.0	< 1.0	< 1.0
Xylene, o-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Xylene, m,p,o-	μg/L	1.1	EPA 8260	01-May-23/R	< 1.1	< 1.1	< 1.1	< 1.1
Styrene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, trans-1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, trans-1,3-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	μg/L	5	EPA 8260	01-May-23/R	< 5	< 5	< 5	< 5
Toluene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Vinyl Chloride	μg/L	0.2	EPA 8260	01-May-23/R	< 0.2	< 0.2	< 0.2	< 0.2

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03106 (ii)

Client I.D.

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Koyla Particles

<u>Attention:</u> Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 19-May-23
SAMPLE MATRIX: Surface Water

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

SCG-

DOWNSTRE

P.O. NUMBER: WATERWORKS NO.

SCG-

UPSTREAM

					OFOTREAM	AM	
			Sample I.D.		B23-03106- 10	B23-03106- 11	
			Date Collecte	ed	24-Apr-23	24-Apr-23	
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Poly-Chlorinated Biphenyls (PCB's)	μg/L	0.05	EPA 8082	01-May-23/K			
Aroclor	-		-	01-May-23			
Dichloroethane,1,1-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Dichloroethylene,1,1-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Dichloroethane,1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Dichlorobenzene,1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Dichloropropane,1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Dichlorobenzene,1,3-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Dichlorobenzene,1,4-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Tetrachloroethane,1,1,1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Tetrachloroethane,1,1,2,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Trichloroethane,1,1,1-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Trichloroethane,1,1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Trichlorobenzene,1,2,4-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Acetone	μg/L	30	EPA 8260	01-May-23/R	< 30	< 30	
Bromodichloromethane	μg/L	2	EPA 8260	01-May-23/R	< 2	< 2	
Bromomethane	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Bromoform	μg/L	5	EPA 8260	01-May-23/R	< 5	< 5	
Benzene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Dichloroethene, cis-1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Dichloropropene, cis-1,3-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Carbon Tetrachloride	μg/L	0.2	EPA 8260	01-May-23/R	< 0.2	< 0.2	
Monochlorobenzene (Chlorobenzene)	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Chloroform	μg/L	1	EPA 8260	01-May-23/R	< 1	< 1	

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

REPORT No. B23-03106 (ii) C.O.C.: ---

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23 DATE REPORTED: 19-May-23

SAMPLE MATRIX: Surface Water

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO .: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		SCG- UPSTREAM	SCG- DOWNSTRE AM	
			Sample I.D.		B23-03106- 10	B23-03106- 11	
			Date Collecte	ed	24-Apr-23	24-Apr-23	
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Dibromochloromethane	μg/L	2	EPA 8260	01-May-23/R	< 2	< 2	
Ethylbenzene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Dibromoethane,1,2- (Ethylene Dibromide)	μg/L	0.2	EPA 8260	01-May-23/R	< 0.2	< 0.2	
Methyl Ethyl Ketone	μg/L	20	EPA 8260	01-May-23/R	< 20	< 20	
Methyl-t-butyl Ether	μg/L	2	EPA 8260	01-May-23/R	< 2	< 2	
Methyl Isobutyl Ketone	μg/L	20	EPA 8260	01-May-23/R	< 20	< 20	
Dichloromethane (Methylene Chloride)	μg/L	5	EPA 8260	01-May-23/R	< 5	< 5	
Xylene, m,p-	μg/L	1.0	EPA 8260	01-May-23/R	< 1.0	< 1.0	
Xylene, o-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Xylene, m,p,o-	μg/L	1.1	EPA 8260	01-May-23/R	< 1.1	< 1.1	
Styrene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Dichloroethene, trans-1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Dichloropropene, trans-1,3-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Trichloroethylene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Trichlorofluoromethane	μg/L	5	EPA 8260	01-May-23/R	< 5	< 5	
Toluene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Tetrachloroethylene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5	< 0.5	
Vinyl Chloride	μg/L	0.2	EPA 8260	01-May-23/R	< 0.2	< 0.2	

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie



Final Report

C.O.C.: ---REPORT No. B23-03101 (i)

Client I.D.

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 19-May-23 SAMPLE MATRIX: Waste Water **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO .: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

LPC 1

			Sample I.D.		B23-03101-1		
			Date Collecte	ed	24-Apr-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	27-Apr-23/O	598		
Conductivity @25°C	µmho/cm	1	SM 2510B	27-Apr-23/O	1510		
pH @25°C	pH Units		SM 4500H	27-Apr-23/O	7.22		
TDS(ion sum calc.)	mg/L	1	Calc.	28-Apr-23/O	810		
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	27-Apr-23/O	6.4		
BOD(5 day)	mg/L	3	SM 5210B	02-May-23/K	10		
COD	mg/L	5	SM5220C	05-May-23/K	29		
Phenolics	mg/L	0.001	MOEE 3179	28-Apr-23/K	< 0.001		
Chloride	mg/L	0.5	SM4110C	27-Apr-23/O	98.5		
Fluoride	mg/L	0.1	SM4110C	27-Apr-23/O	< 0.1		
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	05-May-23/K	11.9		
Sulphate	mg/L	1	SM4110C	27-Apr-23/O	35		
Nitrite (N)	mg/L	0.05	SM4110C	27-Apr-23/O	< 0.05		
Nitrate (N)	mg/L	0.05	SM4110C	27-Apr-23/O	0.08		
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	11-May-23/K	14.9		
Hardness (as CaCO3)	mg/L	1	SM 3120	28-Apr-23/O	564		
Aluminum	mg/L	0.01	SM 3120	28-Apr-23/O	0.05		
Antimony	mg/L	0.0005	EPA 200.8	02-May-23/O	< 0.0005		
Arsenic	mg/L	0.0005	EPA 200.8	02-May-23/O	0.0009		
Barium	mg/L	0.001	SM 3120	28-Apr-23/O	0.222		
Beryllium	mg/L	0.002	SM 3120	28-Apr-23/O	< 0.002		
Boron	mg/L	0.005	SM 3120	28-Apr-23/O	0.266		
Cadmium	mg/L).000070	EPA 200.8	02-May-23/O	< 0.000070		
Calcium	mg/L	0.02	SM 3120	28-Apr-23/O	183		
Chromium	mg/L	0.001	SM 3120	28-Apr-23/O	0.001		
Chromium (VI)	mg/L	0.01	MOE E3056	01-May-23/O	< 0.01		
Cobalt	mg/L	0.0005	EPA 200.8	02-May-23/O	0.0008		

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03101 (i)

Client I.D.

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 19-May-23 SAMPLE MATRIX: Waste Water **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

LPC 1

		I	Ciletti I.D.				
			Sample I.D.		B23-03101-1		
			Date Collecte	ed	24-Apr-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Copper	mg/L	0.0005	EPA 200.8	02-May-23/O	< 0.0005		
Iron	mg/L	0.005	SM 3120	28-Apr-23/O	16.2		
Lead	mg/L	0.0001	EPA 200.8	02-May-23/O	0.0002		
Magnesium	mg/L	0.02	SM 3120	28-Apr-23/O	26.1		
Manganese	mg/L	0.001	SM 3120	28-Apr-23/O	0.455		
Mercury	mg/L	0.00002	SM 3112 B	28-Apr-23/O	< 0.00002		
Molybdenum	mg/L	0.0005	EPA 200.8	02-May-23/O	< 0.0005		
Nickel	mg/L	0.01	SM 3120	28-Apr-23/O	< 0.01		
Potassium	mg/L	0.1	SM 3120	28-Apr-23/O	12.5		
Phosphorus-Total	mg/L	0.01	E3516.2	11-May-23/K	0.03		
Phosphorus	mg/L	0.1	SM 3120	28-Apr-23/O	< 0.1		
Selenium	mg/L	0.005	EPA 200.8	02-May-23/O	< 0.005		
Silver	mg/L	0.0001	EPA 200.8	02-May-23/O	< 0.0001		
Sodium	mg/L	0.2	SM 3120	28-Apr-23/O	79.5		
Strontium	mg/L	0.001	SM 3120	28-Apr-23/O	0.622		
Tin	mg/L	0.05	SM 3120	28-Apr-23/O	< 0.05		
Titanium	mg/L	0.005	SM 3120	28-Apr-23/O	< 0.005		
Thallium	mg/L	0.0003	EPA 200.8	02-May-23/O	< 0.0003		
Uranium	mg/L	0.0003	EPA 200.8	02-May-23/O	0.0003		
Vanadium	mg/L	0.0005	EPA 200.8	02-May-23/O	< 0.0005		
Zinc	mg/L	0.005	SM 3120	28-Apr-23/O	0.009		
Anion Sum	meq/L		Calc.	28-Apr-23/O	15.5		
Cation Sum	meq/L		Calc.	28-Apr-23/O	15.9		
% Difference	%		Calc.	28-Apr-23/O	1.50		
Ion Ratio	AS/CS		Calc.	28-Apr-23/O	0.970		
Conductivity (calc.)	µmho/cm		Calc.	28-Apr-23/O	1335		
Sodium Adsorption Ratio	-		Calc.	28-Apr-23/O	1.46		

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03101 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 19-May-23 SAMPLE MATRIX: Waste Water **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		LPC 1		
			Sample I.D.		B23-03101-1		
			Date Collect	ed	24-Apr-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
TDS(calc.)/EC(actual)	-		Calc.	28-Apr-23/O	0.536		
Langelier Index(25°C)	S.I.		Calc.	28-Apr-23/O	0.766		

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03101 (ii)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 19-May-23 SAMPLE MATRIX: Waste Water **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

Fax: 705-252-5746

			Client I.D.		LPC 1		
			Sample I.D.		B23-03101-1		
			Date Collecte	ed	24-Apr-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Benzene	μg/L	0.5	EPA 8260	01-May-23/R	1.8		
Toluene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Ethylbenzene	μg/L	0.5	EPA 8260	01-May-23/R	8.0		
Xylene, m,p-	μg/L	1.0	EPA 8260	01-May-23/R	1.1		
Xylene, o-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Xylene, m,p,o-	μg/L	1.1	EPA 8260	01-May-23/R	1.1		

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03103 (i)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 13-Jun-23 SAMPLE MATRIX: Waste Water **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		LPC 2		
			Sample I.D.		B23-03103-1		
			Date Collecte	ed	24-Apr-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	27-Apr-23/O	1380		
Conductivity @25°C	µmho/cm	1	SM 2510B	27-Apr-23/O	3990		
pH @25°C	pH Units		SM 4500H	27-Apr-23/O	7.76		
Colour	TCU	2	SM 2120C	28-Apr-23/O	131		
Turbidity	NTU	0.1	SM 2130	28-Apr-23/O	1010		
TDS(ion sum calc.)	mg/L	1	Calc.	28-Apr-23/O	2089		
Total Suspended Solids	mg/L	3	SM2540D	28-Apr-23/K	400		
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	27-Apr-23/O	44.2		
BOD(5 day)	mg/L	3	SM 5210B	02-May-23/K	17		
COD	mg/L	5	SM5220C	05-May-23/K	251		
Phenolics	mg/L	0.001	MOEE 3179	28-Apr-23/K	0.013		
Cyanide (Free)	mg/L	0.005	SM 4500CN	27-Apr-23/K	< 0.005		
Chloride	mg/L	0.5	SM4110C	28-Apr-23/O	443		
Fluoride	mg/L	0.1	SM4110C	28-Apr-23/O	< 1		
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	05-May-23/K	110		
Ammonia (N)-unionized	mg/L	0.01	CALC	05-May-23/K	0.05		
Sulphate	mg/L	1	SM4110C	28-Apr-23/O	80		
Nitrite (N)	mg/L	0.05	SM4110C	28-Apr-23/O	< 0.5		
Nitrate (N)	mg/L	0.05	SM4110C	28-Apr-23/O	0.87		
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	11-May-23/K	137		
Hardness (as CaCO3)	mg/L	1	SM 3120	28-Apr-23/O	742		
Aluminum	mg/L	0.01	SM 3120	28-Apr-23/O	0.08		
Antimony	mg/L	0.0005	EPA 200.8	02-May-23/O	0.0026		
Arsenic	mg/L	0.0005	EPA 200.8	02-May-23/O	0.0081		
Barium	mg/L	0.001	SM 3120	28-Apr-23/O	0.360		
Beryllium	mg/L	0.002	SM 3120	28-Apr-23/O	< 0.002		
Boron	mg/L	0.005	SM 3120	28-Apr-23/O	3.60		

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03103 (i)

Client I.D.

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

<u>Attention:</u> Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 13-Jun-23
SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

LPC 2

			Olicile I.D.		L. 3 L		
			Sample I.D.		B23-03103-1		
			Date Collecte	ed	24-Apr-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Cadmium	mg/L).000070	EPA 200.8	02-May-23/O	< 0.000070		
Calcium	mg/L	0.02	SM 3120	28-Apr-23/O	203		
Chromium	mg/L	0.001	SM 3120	28-Apr-23/O	0.013		
Chromium (VI)	mg/L	0.01	MOE E3056	01-May-23/O	< 0.01		
Cobalt	mg/L	0.0005	EPA 200.8	02-May-23/O	0.0080		
Copper	mg/L	0.0005	EPA 200.8	02-May-23/O	0.0061		
Iron	mg/L	0.005	SM 3120	28-Apr-23/O	7.57		
Lead	mg/L	0.0001	EPA 200.8	02-May-23/O	0.0008		
Magnesium	mg/L	0.02	SM 3120	28-Apr-23/O	57.1		
Manganese	mg/L	0.001	SM 3120	28-Apr-23/O	0.392		
Mercury	mg/L	0.00002	SM 3112 B	02-May-23/O	< 0.00002		
Molybdenum	mg/L	0.0005	EPA 200.8	02-May-23/O	0.0014		
Nickel	mg/L	0.01	SM 3120	28-Apr-23/O	0.03		
Potassium	mg/L	0.1	SM 3120	28-Apr-23/O	135		
Phosphorus-Total	mg/L	0.01	E3516.2	11-May-23/K	0.44		
Phosphorus	mg/L	0.1	SM 3120	28-Apr-23/O	0.4		
Selenium	mg/L	0.005	EPA 200.8	02-May-23/O	< 0.005		
Silver	mg/L	0.0001	EPA 200.8	02-May-23/O	< 0.0001		
Sodium	mg/L	0.2	SM 3120	28-Apr-23/O	335		
Strontium	mg/L	0.001	SM 3120	28-Apr-23/O	1.66		
Tin	mg/L	0.05	SM 3120	28-Apr-23/O	< 0.05		
Titanium	mg/L	0.005	SM 3120	28-Apr-23/O	0.012		
Thallium	mg/L	0.0003	EPA 200.8	02-May-23/O	< 0.0003		
Uranium	mg/L	0.0003	EPA 200.8	02-May-23/O	0.0006		
Vanadium	mg/L	0.0005	EPA 200.8	02-May-23/O	0.0071		
Zinc	mg/L	0.005	SM 3120	28-Apr-23/O	0.041		
Anion Sum	meq/L		Calc.	28-Apr-23/O	41.8		

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03103 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 13-Jun-23 SAMPLE MATRIX: Waste Water **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		LPC 2		
			Sample I.D.		B23-03103-1		
			Date Collect	ed	24-Apr-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Cation Sum	meq/L		Calc.	28-Apr-23/O	33.3		
% Difference	%		Calc.	28-Apr-23/O	11.3		
Ion Ratio	AS/CS		Calc.	28-Apr-23/O	1.26		
Conductivity (calc.)	µmho/cm		Calc.	28-Apr-23/O	3109		
Sodium Adsorption Ratio	-		Calc.	28-Apr-23/O	5.36		
TDS(calc.)/EC(actual)	-		Calc.	28-Apr-23/O	0.524		
Langelier Index(25°C)	S.I.		Calc.	28-Apr-23/O	1.68		

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03103 (ii)

Client I D

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 13-Jun-23
SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

I DC 2

			Client I.D.		LPC 2		
			Sample I.D.		B23-03103-1		
			Date Collect	ed	24-Apr-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Poly-Chlorinated Biphenyls (PCB's)	μg/L	0.05	EPA 8082	01-May-23/K	< 0.05		
Aroclor	-		-	01-May-23	-		
Dichloroethane,1,1-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Dichloroethylene,1,1-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Dichloroethane,1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Dichlorobenzene,1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Dichloropropane,1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Dichlorobenzene,1,3-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Dichlorobenzene,1,4-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Tetrachloroethane,1,1,1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Tetrachloroethane,1,1,2,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Trichloroethane,1,1,1-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Trichloroethane,1,1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Trichlorobenzene,1,2,4-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Acetone	μg/L	30	EPA 8260	01-May-23/R	50		
Bromodichloromethane	μg/L	2	EPA 8260	01-May-23/R	< 2		
Bromomethane	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Bromoform	μg/L	5	EPA 8260	01-May-23/R	< 5		
Benzene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Dichloroethene, cis-1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Dichloropropene, cis-1,3-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Carbon Tetrachloride	μg/L	0.2	EPA 8260	01-May-23/R	< 0.2		
Monochlorobenzene (Chlorobenzene)	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Chloroform	μg/L	1	EPA 8260	01-May-23/R	< 1		
Dibromochloromethane	μg/L	2	EPA 8260	01-May-23/R	< 2		
Ethylbenzene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03103 (ii)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 13-Jun-23
SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

Fax: 705-252-5746

			Client I.D.		LPC 2		
			Sample I.D.		B23-03103-1		
			Date Collecte	ed	24-Apr-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	,		
Dibromoethane,1,2- (Ethylene Dibromide)	μg/L	0.2	EPA 8260	01-May-23/R	< 0.2		
Methyl Ethyl Ketone	μg/L	20	EPA 8260	01-May-23/R	30		
Methyl-t-butyl Ether	μg/L	2	EPA 8260	01-May-23/R	< 2		
Methyl Isobutyl Ketone	μg/L	20	EPA 8260	01-May-23/R	< 20		
Dichloromethane (Methylene Chloride)	μg/L	5	EPA 8260	01-May-23/R	< 5		
Xylene, m,p-	μg/L	1.0	EPA 8260	01-May-23/R	< 1.0		
Xylene, o-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Xylene, m,p,o-	μg/L	1.1	EPA 8260	01-May-23/R	< 1.1		
Styrene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Dichloroethene, trans-1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Dichloropropene, trans-1,3-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Trichloroethylene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Trichlorofluoromethane	μg/L	5	EPA 8260	01-May-23/R	< 5		
Toluene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Tetrachloroethylene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Vinyl Chloride	μg/L	0.2	EPA 8260	01-May-23/R	< 0.2		

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03104

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St

Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 29-May-23

SAMPLE MATRIX: Surface Water

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8

Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		Nearshore - 1	Nearshore - 2	Nearshore - 1 F	Nearshore - 2 F
			Sample I.D.		B23-03104-1	B23-03104-2	B23-03104-3	B23-03104-4
			Date Collect	ed	24-Apr-23	24-Apr-23	24-Apr-23	24-Apr-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
pH @25°C	pH Units		SM 4500H	27-Apr-23/O	7.97	7.87		
Turbidity	NTU	0.1	SM 2130	28-Apr-23/O	1.3	1.1		
Total Suspended Solids	mg/L	3	SM2540D	28-Apr-23/K	< 3	< 3		
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	05-May-23/K	0.37	0.07		
Iron	mg/L	0.005	SM 3120	28-Apr-23/O	0.059	0.064	0.021	0.031

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03106 (i)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Koyla Partales

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23
DATE REPORTED: 19-May-23
SAMPLE MATRIX: Surface Water

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		SW-1	SW-2	SW-3	SW-4
			Sample I.D.		B23-03106-1	B23-03106-2	B23-03106-3	B23-03106-4
			Date Collecte	ed	24-Apr-23	24-Apr-23	24-Apr-23	24-Apr-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	27-Apr-23/O	320	317	315	267
Conductivity @25°C	µmho/cm	1	SM 2510B	27-Apr-23/O	964	947	851	608
pH @25°C	pH Units		SM 4500H	27-Apr-23/O	8.22	8.05	8.19	8.23
Colour	TCU	2	SM 2120C	28-Apr-23/O	18	16	16	21
Turbidity	NTU	0.1	SM 2130	28-Apr-23/O	14.3	3.6	10.4	3.5
TDS(ion sum calc.)	mg/L	1	Calc.	28-Apr-23/O	522	517	465	322
Total Suspended Solids	mg/L	3	SM2540D	01-May-23/K	8	6	3	4
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	27-Apr-23/O	3.3	3.9	4.6	4.0
BOD(5 day)	mg/L	3	SM 5210B	02-May-23/K	< 3	< 3	< 3	< 3
COD	mg/L	5	SM5220C	27-Apr-23/K	12	10	14	11
Phenolics	mg/L	0.001	MOEE 3179	01-May-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Cyanide (Free)	mg/L	0.005	SM 4500CN	02-May-23/K	< 0.005	< 0.005	< 0.005	< 0.005
Chloride	mg/L	0.5	SM4110C	28-Apr-23/O	121	108	82.2	31.7
Fluoride	mg/L	0.1	SM4110C	28-Apr-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	05-May-23/K	0.02	0.04	0.09	0.35
Ammonia (N)-unionized	mg/L	0.01	CALC	05-May-23/K	< 0.01	< 0.01	< 0.01	0.03
Sulphate	mg/L	1	SM4110C	28-Apr-23/O	11	28	21	14
Nitrite (N)	mg/L	0.05	SM4110C	28-Apr-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	28-Apr-23/O	0.08	0.67	0.34	1.22
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	11-May-23/K	1.0	0.7	0.6	1.0
Hardness (as CaCO3)	mg/L	1	SM 3120	01-May-23/O	342	362	322	292
Aluminum	mg/L	0.01	SM 3120	28-Apr-23/O	0.03	0.03	0.03	0.03
Aluminum (total)	mg/L	0.01	SM 3120	01-May-23/O	0.14	0.08	0.08	0.07
Antimony	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0002	0.0002	0.0003	0.0002
Arsenic	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0004	0.0003	0.0003	0.0002
Barium	mg/L	0.001	SM 3120	01-May-23/O	0.057	0.132	0.061	0.035
Beryllium	mg/L	0.002	SM 3120	01-May-23/O	< 0.002	< 0.002	< 0.002	< 0.002



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: ---REPORT No. B23-03106 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 19-May-23 SAMPLE MATRIX: Surface Water **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

JOB/PROJECT NO .: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

Fax: 705-252-5746

			Client I.D.		SW-1	SW-2	SW-3	SW-4
			Sample I.D.		B23-03106-1	B23-03106-2	B23-03106-3	B23-03106-4
			Date Collecte	ed	24-Apr-23	24-Apr-23	24-Apr-23	24-Apr-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Boron	mg/L	0.005	SM 3120	01-May-23/O	0.017	0.023	0.019	0.012
Cadmium	mg/L).000015	EPA 200.8	03-May-23/O	0.000038	< 0.000015	< 0.000015	< 0.000015
Calcium	mg/L	0.02	SM 3120	01-May-23/O	115	122	116	92.8
Chromium	mg/L	0.001	SM 3120	01-May-23/O	0.002	0.002	0.002	0.002
Chromium (VI)	mg/L	0.001	MOE E3056	05-May-23/O	< 0.001	< 0.001	< 0.001	< 0.001 1
Cobalt	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0002	0.0002	0.0002	0.0001
Copper	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0008	0.0015	0.0010	0.0007
Iron	mg/L	0.005	SM 3120	01-May-23/O	0.258	0.317	0.252	0.058
Lead	mg/L	0.00002	EPA 200.8	03-May-23/O	0.00026	0.00007	0.00007	0.00007
Magnesium	mg/L	0.02	SM 3120	01-May-23/O	7.58	9.90	8.99	5.92
Manganese	mg/L	0.001	SM 3120	01-May-23/O	0.060	0.049	0.025	0.012
Mercury	mg/L	0.00002	SM 3112 B	02-May-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0002	0.0002	0.0003	0.0001
Nickel	mg/L	0.01	SM 3120	01-May-23/O	< 0.01	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	01-May-23/O	7.1	3.0	2.7	1.7
Phosphorus-Total	mg/L	0.01	E3516.2	11-May-23/K	0.05	0.04	0.03	0.02
Phosphorus	mg/L	0.1	SM 3120	01-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	03-May-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	EPA 200.8	03-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	01-May-23/O	67.0	55.9	45.1	16.0
Strontium	mg/L	0.001	SM 3120	01-May-23/O	0.295	0.360	0.331	0.252
Tin	mg/L	0.05	SM 3120	01-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Titanium	mg/L	0.005	SM 3120	01-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	0.00005	EPA 200.8	03-May-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Uranium	mg/L	0.00005	EPA 200.8	03-May-23/O	0.00031	0.00425	0.00433	0.00072
Vanadium	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0004	0.0003	0.0002	0.0004
Zinc	mg/L	0.005	SM 3120	01-May-23/O	0.009	0.031	0.028	< 0.005



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03106 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 19-May-23 SAMPLE MATRIX: Surface Water **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		SW-1	SW-2	SW-3	SW-4
			Sample I.D.		B23-03106-1	B23-03106-2	B23-03106-3	B23-03106-4
			Date Collecte	ed	24-Apr-23	24-Apr-23	24-Apr-23	24-Apr-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Anion Sum	meq/L		Calc.	28-Apr-23/O	10.1	9.99	9.06	6.61
Cation Sum	meq/L		Calc.	28-Apr-23/O	9.49	9.43	8.58	5.86
% Difference	%		Calc.	28-Apr-23/O	2.85	2.90	2.71	5.97
Ion Ratio	AS/CS		Calc.	28-Apr-23/O	1.06	1.06	1.06	1.13
Conductivity (calc.)	µmho/cm		Calc.	28-Apr-23/O	948	931	840	584
Sodium Adsorption Ratio	-		Calc.	28-Apr-23/O	1.63	1.31	1.08	0.436
TDS(calc.)/EC(actual)	-		Calc.	28-Apr-23/O	0.541	0.545	0.546	0.530
Langelier Index(25°C)	S.I.		Calc.	28-Apr-23/O	1.32	1.17	1.29	1.18
Tannins and Lignins	mg/L	0.5	SM5500B	04-May-23/K				

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03106 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 19-May-23 SAMPLE MATRIX: Surface Water **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		SW-13	SW-14	SW-15	SW-16
			Sample I.D.		B23-03106-5	B23-03106-6	B23-03106-7	B23-03106-8
			Date Collecte	ed	24-Apr-23	24-Apr-23	24-Apr-23	24-Apr-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	27-Apr-23/O	218	241	319	212
Conductivity @25°C	µmho/cm	1	SM 2510B	27-Apr-23/O	1520	624	2090	2060
pH @25°C	pH Units		SM 4500H	27-Apr-23/O	8.08	8.21	8.06	8.06
Colour	TCU	2	SM 2120C	28-Apr-23/O	13	20	45	30
Turbidity	NTU	0.1	SM 2130	28-Apr-23/O	1.8	0.9	576	180
TDS(ion sum calc.)	mg/L	1	Calc.	28-Apr-23/O	781	340	1187	1130
Total Suspended Solids	mg/L	3	SM2540D	01-May-23/K	4	< 3	3900	110
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	27-Apr-23/O	2.1	3.5	3.5	1.4
BOD(5 day)	mg/L	3	SM 5210B	02-May-23/K	< 3	11	22	< 3
COD	mg/L	5	SM5220C	27-Apr-23/K	17	10	147	36
Phenolics	mg/L	0.001	MOEE 3179	01-May-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Cyanide (Free)	mg/L	0.005	SM 4500CN	02-May-23/K	< 0.005	< 0.005	< 0.005	< 0.005
Chloride	mg/L	0.5	SM4110C	28-Apr-23/O	309	52.4	328	563
Fluoride	mg/L	0.1	SM4110C	28-Apr-23/O	< 1	< 0.1	< 1	< 1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	05-May-23/K	0.15	0.03	0.19	0.03
Ammonia (N)-unionized	mg/L	0.01	CALC	05-May-23/K	< 0.01	< 0.01	< 0.01	< 0.01
Sulphate	mg/L	1	SM4110C	28-Apr-23/O	54	14	219	40
Nitrite (N)	mg/L	0.05	SM4110C	28-Apr-23/O	< 0.5	< 0.05	< 0.5	< 0.5
Nitrate (N)	mg/L	0.05	SM4110C	28-Apr-23/O	9.09	0.46	14.0	< 0.5
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	11-May-23/K	1.1	0.5	5.0	1.1
Hardness (as CaCO3)	mg/L	1	SM 3120	01-May-23/O	317	260	607	245
Aluminum	mg/L	0.01	SM 3120	28-Apr-23/O	0.11	0.02	0.06	0.04
Aluminum (total)	mg/L	0.01	SM 3120	01-May-23/O	0.86	0.03	4.57	1.01
Antimony	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0005	0.0003	0.0008	0.0008
Arsenic	mg/L	0.0001	EPA 200.8	03-May-23/O	< 0.0002	0.0002	0.0024	0.0009
Barium	mg/L	0.001	SM 3120	01-May-23/O	0.054	0.034	0.267	0.078
Beryllium	mg/L	0.002	SM 3120	01-May-23/O	< 0.002	< 0.002	< 0.002	< 0.002



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: ---REPORT No. B23-03106 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 19-May-23

SAMPLE MATRIX: Surface Water

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO .: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		SW-13	SW-14	SW-15	SW-16
			Sample I.D.	Sample I.D.		B23-03106-6	B23-03106-7	B23-03106-8
			Date Collecte	ed	24-Apr-23	24-Apr-23	24-Apr-23	24-Apr-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Boron	mg/L	0.005	SM 3120	01-May-23/O	0.162	0.019	0.999	0.054
Cadmium	mg/L).000015	EPA 200.8	03-May-23/O	< 0.000028	< 0.000015	0.000175	0.000032
Calcium	mg/L	0.02	SM 3120	01-May-23/O	101	91.3	367	91.2
Chromium	mg/L	0.001	SM 3120	01-May-23/O	0.002	0.002	0.011	0.004
Chromium (VI)	mg/L	0.001	MOE E3056	05-May-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0002	0.0001	0.0045	0.0010
Copper	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0057	0.0005	0.0182	0.0058
Iron	mg/L	0.005	SM 3120	01-May-23/O	0.029	0.044	7.69	1.51
Lead	mg/L	0.00002	EPA 200.8	03-May-23/O	0.00044	< 0.00002	0.0104	0.00212
Magnesium	mg/L	0.02	SM 3120	01-May-23/O	12.5	6.34	28.8	7.19
Manganese	mg/L	0.001	SM 3120	01-May-23/O	0.007	0.019	0.476	0.165
Mercury	mg/L	0.00002	SM 3112 B	02-May-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0013	0.0002	0.0008	0.0008
Nickel	mg/L	0.01	SM 3120	01-May-23/O	< 0.01	< 0.01	0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	01-May-23/O	9.7	2.9	42.2	3.2
Phosphorus-Total	mg/L	0.01	E3516.2	11-May-23/K	0.07	0.03	0.62	0.15
Phosphorus	mg/L	0.1	SM 3120	01-May-23/O	< 0.1	< 0.1	0.5	< 0.1
Selenium	mg/L	0.001	EPA 200.8	03-May-23/O	< 0.002	< 0.001	< 0.002	< 0.002
Silver	mg/L	0.0001	EPA 200.8	03-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	01-May-23/O	164	28.5	167	298
Strontium	mg/L	0.001	SM 3120	01-May-23/O	0.345	0.254	1.10	0.391
Tin	mg/L	0.05	SM 3120	01-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Titanium	mg/L	0.005	SM 3120	01-May-23/O	< 0.005	< 0.005	0.240	0.044
Thallium	mg/L	0.00005	EPA 200.8	03-May-23/O	< 0.0001	< 0.00005	< 0.0001	< 0.0001
Uranium	mg/L	0.00005	EPA 200.8	03-May-23/O	0.00043	0.00060	0.00170	0.00064
Vanadium	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0003	0.0002	0.0082	0.0021
Zinc	mg/L	0.005	SM 3120	01-May-23/O	0.027	< 0.005	0.162	0.013



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03106 (i)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23 DATE REPORTED: 19-May-23

SAMPLE MATRIX: Surface Water

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		SW-13	SW-14	SW-15	SW-16
			Sample I.D.		B23-03106-5	B23-03106-6	B23-03106-7	B23-03106-8
			Date Collected		24-Apr-23	24-Apr-23	24-Apr-23	24-Apr-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Anion Sum	meq/L		Calc.	28-Apr-23/O	14.9	6.62	21.2	20.9
Cation Sum	meq/L		Calc.	28-Apr-23/O	13.4	6.39	21.0	18.3
% Difference	%		Calc.	28-Apr-23/O	5.01	1.72	0.342	6.82
Ion Ratio	AS/CS		Calc.	28-Apr-23/O	1.11	1.03	1.01	1.15
Conductivity (calc.)	µmho/cm		Calc.	28-Apr-23/O	1419	629	1937	2062
Sodium Adsorption Ratio	-		Calc.	28-Apr-23/O	4.10	0.777	3.31	8.07
TDS(calc.)/EC(actual)	-		Calc.	28-Apr-23/O	0.514	0.545	0.568	0.549
Langelier Index(25°C)	S.I.		Calc.	28-Apr-23/O	0.938	1.10	1.34	0.833
Tannins and Lignins	mg/L	0.5	SM5500B	04-May-23/K		0.6		

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03106 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 19-May-23 SAMPLE MATRIX: Surface Water **Caduceon Environmental Laboratories**

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		SW-18	SCG- UPSTREAM	SCG- DOWNSTRE AM	EMBAY A
			Sample I.D.		B23-03106-9	B23-03106- 10	B23-03106- 11	B23-03106-12
			Date Collecte	ed	24-Apr-23	24-Apr-23	24-Apr-23	24-Apr-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	27-Apr-23/O	272	179	188	194
Conductivity @25°C	µmho/cm	1	SM 2510B	27-Apr-23/O	643	495	538	524
pH @25°C	pH Units		SM 4500H	27-Apr-23/O	8.31	8.11	8.15	8.18
Colour	TCU	2	SM 2120C	28-Apr-23/O	19	24	27	29
Turbidity	NTU	0.1	SM 2130	28-Apr-23/O	0.9	3.5	3.3	2.4
TDS(ion sum calc.)	mg/L	1	Calc.	28-Apr-23/O	349	260	283	268
Total Suspended Solids	mg/L	3	SM2540D	01-May-23/K	< 3	3	3	5
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	27-Apr-23/O	5.6	5.4	8.0	8.9
BOD(5 day)	mg/L	3	SM 5210B	02-May-23/K	< 3	< 3	< 3	< 3
COD	mg/L	5	SM5220C	27-Apr-23/K	9	21	19	22
Phenolics	mg/L	0.001	MOEE 3179	01-May-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Cyanide (Free)	mg/L	0.005	SM 4500CN	02-May-23/K	< 0.005	< 0.005	< 0.005	< 0.005
Chloride	mg/L	0.5	SM4110C	28-Apr-23/O	43.8	42.5	49.0	42.9
Fluoride	mg/L	0.1	SM4110C	28-Apr-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	05-May-23/K	0.01	0.20	0.20	0.11
Ammonia (N)-unionized	mg/L	0.01	CALC	05-May-23/K	< 0.01	< 0.01	< 0.01	< 0.01
Sulphate	mg/L	1	SM4110C	28-Apr-23/O	14	14	15	15
Nitrite (N)	mg/L	0.05	SM4110C	28-Apr-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	28-Apr-23/O	0.84	0.97	1.23	1.25
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	11-May-23/K	0.5	0.8	0.9	0.8
Hardness (as CaCO3)	mg/L	1	SM 3120	01-May-23/O	290	196	225	223
Aluminum	mg/L	0.01	SM 3120	28-Apr-23/O	0.02	0.02	0.03	0.02
Aluminum (total)	mg/L	0.01	SM 3120	01-May-23/O	0.04	0.04	0.06	0.04
Antimony	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0001	0.0003	0.0004	0.0003

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: ---REPORT No. B23-03106 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 19-May-23

SAMPLE MATRIX: Surface Water

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO .: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		SW-18	SCG- UPSTREAM	SCG- DOWNSTRE AM	EMBAY A
			Sample I.D.		B23-03106-9	B23-03106- 10	B23-03106- 11	B23-03106-12
			Date Collecte	ed	24-Apr-23	24-Apr-23	24-Apr-23	24-Apr-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Arsenic	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0002	0.0003	0.0003	0.0003
Barium	mg/L	0.001	SM 3120	01-May-23/O	0.035	0.032	0.035	0.031
Beryllium	mg/L	0.002	SM 3120	01-May-23/O	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.005	SM 3120	01-May-23/O	0.012	0.010	0.013	0.010
Cadmium	mg/L	0.000015	EPA 200.8	03-May-23/O	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Calcium	mg/L	0.02	SM 3120	01-May-23/O	96.4	66.1	71.3	65.1
Chromium	mg/L	0.001	SM 3120	01-May-23/O	0.002	0.002	0.002	0.002
Chromium (VI)	mg/L	0.001	MOE E3056	05-May-23/O	< 0.001	< 0.001	< 0.001	< 0.001 1
Cobalt	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0001	0.0001	0.0001	0.0001
Copper	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0006	0.0004	0.0006	0.0005
Iron	mg/L	0.005	SM 3120	01-May-23/O	0.031	0.070	0.080	0.061
Lead	mg/L	0.00002	EPA 200.8	03-May-23/O	0.00003	0.00012	0.00019	0.00011
Magnesium	mg/L	0.02	SM 3120	01-May-23/O	6.12	7.93	8.30	7.71
Manganese	mg/L	0.001	SM 3120	01-May-23/O	0.011	0.031	0.032	0.028
Mercury	mg/L	0.00002	SM 3112 B	02-May-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0002	0.0003	0.0003	0.0003
Nickel	mg/L	0.01	SM 3120	01-May-23/O	< 0.01	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	01-May-23/O	2.2	2.0	2.2	1.9
Phosphorus-Total	mg/L	0.01	E3516.2	11-May-23/K	0.04	0.04	0.04	0.03
Phosphorus	mg/L	0.1	SM 3120	01-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	03-May-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	EPA 200.8	03-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	01-May-23/O	23.9	19.8	24.2	19.0
Strontium	mg/L	0.001	SM 3120	01-May-23/O	0.255	0.185	0.208	0.193
Tin	mg/L	0.05	SM 3120	01-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03106 (i)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23 DATE REPORTED: 19-May-23

SAMPLE MATRIX: Surface Water

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		SW-18 B23-03106-9	SCG- UPSTREAM	SCG- DOWNSTRE AM	EMBAY A
			Sample I.D.		B23-03106-9	B23-03106- 10	B23-03106- 11	B23-03106-12
			Date Collecte	ed	24-Apr-23	24-Apr-23	24-Apr-23	24-Apr-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Titanium	mg/L	0.005	SM 3120	01-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	0.00005	EPA 200.8	03-May-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Uranium	mg/L	0.00005	EPA 200.8	03-May-23/O	0.00068	0.00061	0.00069	0.00074
Vanadium	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0003	0.0005	0.0005	0.0005
Zinc	mg/L	0.005	SM 3120	01-May-23/O	< 0.005	0.015	< 0.005	< 0.005
Anion Sum	meq/L		Calc.	28-Apr-23/O	7.02	5.13	5.54	5.48
Cation Sum	meq/L		Calc.	28-Apr-23/O	6.41	4.87	5.35	4.76
% Difference	%		Calc.	28-Apr-23/O	4.53	2.57	1.74	6.97
Ion Ratio	AS/CS		Calc.	28-Apr-23/O	1.09	1.05	1.04	1.15
Conductivity (calc.)	µmho/cm		Calc.	28-Apr-23/O	636	491	534	498
Sodium Adsorption Ratio	-		Calc.	28-Apr-23/O	0.637	0.613	0.722	0.594
TDS(calc.)/EC(actual)	-		Calc.	28-Apr-23/O	0.544	0.524	0.526	0.511
Langelier Index(25°C)	S.I.		Calc.	28-Apr-23/O	1.28	0.750	0.835	0.728
Tannins and Lignins	mg/L	0.5	SM5500B	04-May-23/K	0.6			

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03106 (i)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 19-May-23 SAMPLE MATRIX: Surface Water **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

EMBAYO BUB T

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		EMBAY B	EMBAY C	DUP-7	
			Sample I.D.		B23-03106- 13	B23-03106- 14	B23-03106- 15	
			Date Collecte	ed	24-Apr-23	24-Apr-23	24-Apr-23	
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	27-Apr-23/O	191	192	189	
Conductivity @25°C	µmho/cm	1	SM 2510B	27-Apr-23/O	521	552	528	
pH @25°C	pH Units		SM 4500H	27-Apr-23/O	8.13	8.17	8.16	
Colour	TCU	2	SM 2120C	28-Apr-23/O	27	30	26	
Turbidity	NTU	0.1	SM 2130	28-Apr-23/O	2.2	2.5	1.8	
TDS(ion sum calc.)	mg/L	1	Calc.	28-Apr-23/O	274	286	279	
Total Suspended Solids	mg/L	3	SM2540D	01-May-23/K	< 3	< 3	< 3	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	27-Apr-23/O	5.2	5.2	8.6	
BOD(5 day)	mg/L	3	SM 5210B	02-May-23/K	< 3	< 3	< 3	
COD	mg/L	5	SM5220C	27-Apr-23/K	22	17	24	
Phenolics	mg/L	0.001	MOEE 3179	01-May-23/K	< 0.001	< 0.001	< 0.001	
Cyanide (Free)	mg/L	0.005	SM 4500CN	02-May-23/K	< 0.005	< 0.005	< 0.005	
Chloride	mg/L	0.5	SM4110C	28-Apr-23/O	44.5	51.8	48.7	
Fluoride	mg/L	0.1	SM4110C	28-Apr-23/O	< 0.1	< 0.1	< 0.1	
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	05-May-23/K	0.12	0.12	0.15	
Ammonia (N)-unionized	mg/L	0.01	CALC	05-May-23/K	< 0.01	< 0.01	< 0.01	
Sulphate	mg/L	1	SM4110C	28-Apr-23/O	13	16	12	
Nitrite (N)	mg/L	0.05	SM4110C	28-Apr-23/O	< 0.05	< 0.05	< 0.05	
Nitrate (N)	mg/L	0.05	SM4110C	28-Apr-23/O	0.78	1.43	0.57	
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	11-May-23/K	0.8	0.8	0.8	
Hardness (as CaCO3)	mg/L	1	SM 3120	01-May-23/O	218	219	218	
Aluminum	mg/L	0.01	SM 3120	28-Apr-23/O	0.02	0.03	0.02	
Aluminum (total)	mg/L	0.01	SM 3120	01-May-23/O	0.04	0.05	0.04	
Antimony	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0003	0.0004	0.0005	
Arsenic	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0003	0.0003	0.0003	
Barium	mg/L	0.001	SM 3120	01-May-23/O	0.034	0.033	0.034	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: ---REPORT No. B23-03106 (i)

Client I.D.

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 19-May-23 SAMPLE MATRIX: Surface Water **Caduceon Environmental Laboratories**

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO .: Lindsay OPS

EMBAY C

DUP-7

P.O. NUMBER: WATERWORKS NO.

EMBAY B

			Ciletit I.D.		LIVIDATID	LIVIDATIC	DOI -7	
			Sample I.D.		B23-03106-	B23-03106-	B23-03106-	
					13	14	15	
			Date Collecte	ed	24-Apr-23	24-Apr-23	24-Apr-23	
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Beryllium	mg/L	0.002	SM 3120	01-May-23/O	< 0.002	< 0.002	< 0.002	
Boron	mg/L	0.005	SM 3120	01-May-23/O	0.012	0.013	0.012	
Cadmium	mg/L).000015	EPA 200.8	03-May-23/O	< 0.000015	< 0.000015	< 0.000015	
Calcium	mg/L	0.02	SM 3120	01-May-23/O	70.3	70.0	71.0	
Chromium	mg/L	0.001	SM 3120	01-May-23/O	0.002	0.002	0.002	
Chromium (VI)	mg/L	0.001	MOE E3056	05-May-23/O	< 0.001	< 0.001 1	< 0.001 1	
Cobalt	mg/L	0.0001	EPA 200.8	03-May-23/O	< 0.0001	0.0002	< 0.0001	
Copper	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0004	0.0029	0.0010	
Iron	mg/L	0.005	SM 3120	01-May-23/O	0.062	0.068	0.062	
Lead	mg/L	0.00002	EPA 200.8	03-May-23/O	0.00011	0.00024	0.00011	
Magnesium	mg/L	0.02	SM 3120	01-May-23/O	7.72	8.02	7.84	
Manganese	mg/L	0.001	SM 3120	01-May-23/O	0.038	0.030	0.036	
Mercury	mg/L	0.00002	SM 3112 B	02-May-23/O	< 0.00002	< 0.00002	< 0.00002	
Molybdenum	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0003	0.0004	0.0003	
Nickel	mg/L	0.01	SM 3120	01-May-23/O	< 0.01	< 0.01	< 0.01	
Potassium	mg/L	0.1	SM 3120	01-May-23/O	2.0	2.2	2.1	
Phosphorus-Total	mg/L	0.01	E3516.2	11-May-23/K	0.03	0.03	0.03	
Phosphorus	mg/L	0.1	SM 3120	01-May-23/O	< 0.1	< 0.1	< 0.1	
Selenium	mg/L	0.001	EPA 200.8	03-May-23/O	< 0.001	< 0.001	< 0.001	
Silver	mg/L	0.0001	EPA 200.8	03-May-23/O	< 0.0001	< 0.0001	< 0.0001	
Sodium	mg/L	0.2	SM 3120	01-May-23/O	21.7	23.3	23.6	
Strontium	mg/L	0.001	SM 3120	01-May-23/O	0.199	0.201	0.206	
Tin	mg/L	0.05	SM 3120	01-May-23/O	< 0.05	< 0.05	< 0.05	
Titanium	mg/L	0.005	SM 3120	01-May-23/O	< 0.005	< 0.005	< 0.005	
Thallium	mg/L	0.00005	EPA 200.8	03-May-23/O	< 0.00005	< 0.00005	< 0.00005	
Uranium	mg/L	0.00005		03-May-23/O	0.00063	0.00072	0.00060	
Vanadium	mg/L	0.0001	EPA 200.8	03-May-23/O	0.0004	0.0005	0.0004	

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03106 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 19-May-23 SAMPLE MATRIX: Surface Water **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		EMBAY B	EMBAY C	DUP-7	
			Sample I.D.		B23-03106- 13	B23-03106- 14	B23-03106- 15	
			Date Collecte	ed	24-Apr-23	24-Apr-23	24-Apr-23	
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Zinc	mg/L	0.005	SM 3120	01-May-23/O	< 0.005	< 0.005	< 0.005	
Anion Sum	meq/L		Calc.	28-Apr-23/O	5.40	5.73	5.45	
Cation Sum	meq/L		Calc.	28-Apr-23/O	5.14	5.23	5.27	
% Difference	%		Calc.	28-Apr-23/O	2.39	4.57	1.66	
Ion Ratio	AS/CS		Calc.	28-Apr-23/O	1.05	1.10	1.03	
Conductivity (calc.)	µmho/cm		Calc.	28-Apr-23/O	516	537	528	
Sodium Adsorption Ratio	-		Calc.	28-Apr-23/O	0.654	0.703	0.710	
TDS(calc.)/EC(actual)	-		Calc.	28-Apr-23/O	0.526	0.519	0.529	
Langelier Index(25°C)	S.I.		Calc.	28-Apr-23/O	0.815	0.856	0.846	
Tannins and Lignins	mg/L	0.5	SM5500B	04-May-23/K				

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03117 (i)

Client I.D.

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 19-May-23
SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

WPCP

					Effluent		
			Sample I.D.		B23-03117-1		
			Date Collecte	ed	24-Apr-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	27-Apr-23/O	216		
Conductivity @25°C	µmho/cm	1	SM 2510B	27-Apr-23/O	1540		
pH @25°C	pH Units		SM 4500H	27-Apr-23/O	7.92		
Colour	TCU	2	SM 2120C	28-Apr-23/O	12		
Turbidity	NTU	0.1	SM 2130	28-Apr-23/O	5.5		
TDS(ion sum calc.)	mg/L	1	Calc.	28-Apr-23/O	800		
Total Suspended Solids	mg/L	3	SM2540D	28-Apr-23/K	17		
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	27-Apr-23/O	2.1		
BOD(5 day)	mg/L	3	SM 5210B	03-May-23/K	< 3		
COD	mg/L	5	SM5220C	27-Apr-23/K	47		
Phenolics	mg/L	0.001	MOEE 3179	28-Apr-23/K	< 0.001		
Cyanide (Free)	mg/L	0.005	SM 4500CN	27-Apr-23/K	< 0.005		
Chloride	mg/L	0.5	SM4110C	04-May-23/O	321		
Fluoride	mg/L	0.1	SM4110C	28-Apr-23/O	< 0.1		
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	09-May-23/K	0.08		
Ammonia (N)-unionized	mg/L	0.01	CALC	09-May-23/K	< 0.01		
Sulphate	mg/L	1	SM4110C	28-Apr-23/O	61		
Nitrite (N)	mg/L	0.05	SM4110C	28-Apr-23/O	< 0.05		
Nitrate (N)	mg/L	0.05	SM4110C	28-Apr-23/O	8.59		
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	05-May-23/K	1.4		
Hardness (as CaCO3)	mg/L	1	SM 3120	01-May-23/O	315		
Aluminum	mg/L	0.01	SM 3120	01-May-23/O	2.13		
Antimony	mg/L	0.0005	EPA 200.8	02-May-23/O	0.0006		
Arsenic	mg/L	0.0005	EPA 200.8	02-May-23/O	< 0.0005		
Barium	mg/L	0.001	SM 3120	01-May-23/O	0.058		
Beryllium	mg/L	0.002	SM 3120	01-May-23/O	< 0.002		

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03117 (i)

Client I.D.

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 19-May-23 SAMPLE MATRIX: Waste Water **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

WPCP

					Effluent		
			Sample I.D.		B23-03117-1		
			Date Collecte	ed	24-Apr-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Boron	mg/L	0.005	SM 3120	01-May-23/O	0.159		
Cadmium	mg/L	0.000070	EPA 200.8	02-May-23/O	< 0.000070		
Calcium	mg/L	0.02	SM 3120	01-May-23/O	105		
Chromium	mg/L	0.001	SM 3120	01-May-23/O	0.002		
Chromium (VI)	mg/L	0.01	MOE E3056	01-May-23/O	< 0.01		
Cobalt	mg/L	0.0005	EPA 200.8	02-May-23/O	< 0.0005		
Copper	mg/L	0.0005	EPA 200.8	02-May-23/O	0.0072		
Iron	mg/L	0.005	SM 3120	01-May-23/O	0.048		
Lead	mg/L	0.0001	EPA 200.8	02-May-23/O	0.0004		
Magnesium	mg/L	0.02	SM 3120	01-May-23/O	12.5		
Manganese	mg/L	0.001	SM 3120	01-May-23/O	0.008		
Mercury	mg/L	0.00002	SM 3112 B	02-May-23/O	< 0.00002		
Molybdenum	mg/L	0.0005	EPA 200.8	02-May-23/O	0.0011		
Nickel	mg/L	0.01	SM 3120	01-May-23/O	< 0.01		
Potassium	mg/L	0.1	SM 3120	01-May-23/O	9.3		
Phosphorus-Total	mg/L	0.01	E3516.2	05-May-23/K	0.16		
Phosphorus	mg/L	0.1	SM 3120	01-May-23/O	0.1		
Selenium	mg/L	0.005	EPA 200.8	02-May-23/O	< 0.005		
Silver	mg/L	0.0001	EPA 200.8	02-May-23/O	< 0.0001		
Sodium	mg/L	0.2	SM 3120	01-May-23/O	161		
Strontium	mg/L	0.001	SM 3120	01-May-23/O	0.346		
Tin	mg/L	0.05	SM 3120	01-May-23/O	< 0.05		
Titanium	mg/L	0.005	SM 3120	01-May-23/O	< 0.005		
Thallium	mg/L	0.0003	EPA 200.8	02-May-23/O	< 0.0003		
Uranium	mg/L	0.0003	EPA 200.8	02-May-23/O	0.0005		
Vanadium	mg/L	0.0005	EPA 200.8	02-May-23/O	< 0.0005		
Zinc	mg/L	0.005	SM 3120	01-May-23/O	0.029		

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03117 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 19-May-23 SAMPLE MATRIX: Waste Water **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		WPCP Effluent		
			Sample I.D.		B23-03117-1		
			Date Collected		24-Apr-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Anion Sum	meq/L		Calc.	28-Apr-23/O	15.3		
Cation Sum	meq/L		Calc.	28-Apr-23/O	13.5		
% Difference	%		Calc.	28-Apr-23/O	6.09		
Ion Ratio	AS/CS		Calc.	28-Apr-23/O	1.13		
Conductivity (calc.)	µmho/cm		Calc.	28-Apr-23/O	1448		
Sodium Adsorption Ratio	-		Calc.	28-Apr-23/O	3.94		
TDS(calc.)/EC(actual)	-		Calc.	28-Apr-23/O	0.521		
Langelier Index(25°C)	S.I.		Calc.	28-Apr-23/O	0.793		

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03117 (ii)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Koyla Partales

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23 DATE REPORTED: 19-May-23

SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		WPCP Effluent		
			Sample I.D.		B23-03117-1		
			Date Collect		24-Apr-23		
			Date Collect				
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Dichloroethane,1,1-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Dichloroethylene,1,1-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Dichloroethane,1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Dichlorobenzene,1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Dichloropropane,1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Dichlorobenzene,1,3-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Dichlorobenzene,1,4-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Tetrachloroethane,1,1,1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Tetrachloroethane,1,1,2,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Trichloroethane,1,1,1-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Trichloroethane,1,1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Trichlorobenzene,1,2,4-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Acetone	μg/L	30	EPA 8260	01-May-23/R	< 30		
Bromodichloromethane	μg/L	2	EPA 8260	01-May-23/R	< 2		
Bromomethane	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Bromoform	μg/L	5	EPA 8260	01-May-23/R	< 5		
Benzene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Dichloroethene, cis-1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Dichloropropene, cis-1,3-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Carbon Tetrachloride	μg/L	0.2	EPA 8260	01-May-23/R	< 0.2		
Monochlorobenzene (Chlorobenzene)	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Chloroform	μg/L	1	EPA 8260	01-May-23/R	1		
Dibromochloromethane	μg/L	2	EPA 8260	01-May-23/R	< 2		
Ethylbenzene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Dibromoethane,1,2- (Ethylene Dibromide)	μg/L	0.2	EPA 8260	01-May-23/R	< 0.2		

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03117 (ii)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 26-Apr-23

DATE REPORTED: 19-May-23 SAMPLE MATRIX: Waste Water **Caduceon Environmental Laboratories**

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		WPCP Effluent		
			Sample I.D.		B23-03117-1		
			Date Collected		24-Apr-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Methyl Ethyl Ketone	μg/L	20	EPA 8260	01-May-23/R	< 20		
Methyl-t-butyl Ether	μg/L	2	EPA 8260	01-May-23/R	< 2		
Methyl Isobutyl Ketone	μg/L	20	EPA 8260	01-May-23/R	< 20		
Dichloromethane (Methylene Chloride)	μg/L	5	EPA 8260	01-May-23/R	< 5		
Xylene, m,p-	μg/L	1.0	EPA 8260	01-May-23/R	< 1.0		
Xylene, o-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Xylene, m,p,o-	μg/L	1.1	EPA 8260	01-May-23/R	< 1.1		
Styrene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Dichloroethene, trans-1,2-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Dichloropropene, trans-1,3-	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Trichloroethylene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Trichlorofluoromethane	μg/L	5	EPA 8260	01-May-23/R	< 5		
Toluene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Tetrachloroethylene	μg/L	0.5	EPA 8260	01-May-23/R	< 0.5		
Vinyl Chloride	μg/L	0.2	EPA 8260	01-May-23/R	< 0.2		

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



NH3-001

Final Report

REPORT No: 23-009294 - Rev. 0 C.O.C.: -

Report To:

City of Kawartha Lakes

PO Box 9000

322 Kent Street West

Lindsay, ON K9V 4T7

CADUCEON Environmental Laboratories

110 West Beaver Creek Rd

Unit #14

Richmond Hill, ON L4B 1J9

2023-May-04

Attention: Deyonte Levene

DATE RECEIVED: 2023-May-03

2023-May-05

CUSTOMER PROJECT: Lindsay OPS SW Stormwater

SM 4500NH3

P.O. NUMBER:

DATE REPORTED: SAMPLE MATRIX:

Surface Water

Qty Site Analyzed Authorized Reference Method Analyses Date Analyzed Lab Method Cond/pH/Alk Auto (Liquid) 3 **OTTAWA SBOUDREAU** 2023-May-04 COND-02/PH-02/A SM 2510B/4500H/ LK-02 2320B

VWATTS

Ammonia (Liquid) R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an $\,^{\star}$

3

	Clie	ent I.D.	SW 14	SW 15	SW 18
	Samı	ple I.D.	23-009294-1	23-009294-2	23-009294-3
	Date Co	llected	2023-05-01	2023-05-01	2023-05-01
Parameter	Units	R.L.	-	-	-
pH @25°C	pH units	-	8.11	8.15	8.19
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.12	2.58	0.16

KINGSTON

Christine Burke **Laboratory Manager**



Final Report

C.O.C.: --- REPORT No. B23-03278 (i)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

Fax: 705-252-5746

			Client I.D.		7-90-II	11-90	32-93-I	32-92-II
			Sample I.D.		B23-03278-1	B23-03278-2	B23-03278-3	B23-03278-4
			Date Collecte	ed	01-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	08-May-23/O	5200	378	264	264
Conductivity @25°C	µmho/cm	1	SM 2510B	08-May-23/O	11300	1270	922	910
pH @25°C	pH Units		SM 4500H	08-May-23/O	7.43	7.49	7.66	7.90
Colour	TCU	2	SM 2120C	09-May-23/O	377	< 2	< 2	< 2
Turbidity	NTU	0.1	SM 2130	09-May-23/O	2180	85.5	569	14.2
TDS(ion sum calc.)	mg/L	1	Calc.	11-May-23/O	6415	720	505	487
Total Suspended Solids	mg/L	3	SM2540D	15-May-23/K	2170	70	1170	46
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	10-May-23/O	61.4	2.1	0.6	1.0
BOD(5 day)	mg/L	3	SM 5210B	11-May-23/K	17	< 3	< 3	< 3
COD	mg/L	5	SM5220C	10-May-23/K	1340	16	15	7
Phenolics	mg/L	0.001	MOEE 3179	16-May-23/K	0.029	< 0.001	< 0.001	< 0.001
Cyanide (Free)	mg/L	0.005	SM 4500CN	19-May-23/K	< 0.005	< 0.005	< 0.005	< 0.005
Chloride	mg/L	0.5	SM4110C	08-May-23/O	957	175	117	115
Fluoride	mg/L	0.1	SM4110C	08-May-23/O	< 1	< 0.1	< 0.1	< 0.1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	16-May-23/K	451	2.71	1.50	0.23
Ammonia (N)-unionized	mg/L	0.01	CALC	16-May-23/K	1.56	< 0.01	< 0.01	< 0.01
Sulphate	mg/L	1	SM4110C	08-May-23/O	< 10	36	51	50
Nitrite (N)	mg/L	0.05	SM4110C	08-May-23/O	< 0.5	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	08-May-23/O	< 0.5	< 0.05	< 0.05	< 0.05
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	25-May-23/K	507	4.2	1.7	0.4
Hardness (as CaCO3)	mg/L	1	SM 3120	09-May-23/O	886	517	448	414
Aluminum	mg/L	0.01	SM 3120	09-May-23/O	0.07	0.04	0.06	0.04
Antimony	mg/L	0.0001	EPA 200.8	10-May-23/O	0.0022	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.0001	EPA 200.8	10-May-23/O	0.0040	< 0.0001	< 0.0001	0.0001
Barium	mg/L	0.001	SM 3120	09-May-23/O	0.213	0.323	0.155	0.081
Beryllium	mg/L	0.002	SM 3120	09-May-23/O	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.005	SM 3120	09-May-23/O	2.99	0.090	0.048	0.039



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03278 (i)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		7-90-II	11-90	32-93-I	32-92-II
			Sample I.D.		B23-03278-1	B23-03278-2	B23-03278-3	B23-03278-4
			Date Collecte	ed	01-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Cadmium	mg/L).000010	EPA 200.8	10-May-23/O	< 0.00012	< 0.000012	< 0.000010	< 0.000010
Calcium	mg/L	0.02	SM 3120	09-May-23/O	100 4	142	119	112
Chromium	mg/L	0.001	SM 3120	09-May-23/O	0.021	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	11-May-23/O	< 0.001	< 0.001 1	< 0.001 1	< 0.001 1
Cobalt	mg/L	0.005	SM 3120	09-May-23/O	0.011	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.0001	EPA 200.8	10-May-23/O	0.0008	0.0002	0.0002	0.0004
Iron	mg/L	0.005	SM 3120	09-May-23/O	1.25	8.40	0.469	0.009
Lead	mg/L	0.00002	EPA 200.8	10-May-23/O	0.00047	< 0.00004	0.00008	< 0.00002
Magnesium	mg/L	0.02	SM 3120	09-May-23/O	155	39.2	36.4	32.9
Manganese	mg/L	0.001	SM 3120	09-May-23/O	0.190	0.131	0.018	0.012
Mercury	mg/L	0.00002	SM 3112 B	11-May-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	10-May-23/O	0.0019	< 0.0001	0.0001	0.0003
Nickel	mg/L	0.01	SM 3120	09-May-23/O	0.04	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	09-May-23/O	249	3.4	2.9	2.5
Phosphorus-Total	mg/L	0.01	E3516.2	25-May-23/K	3.37	0.05	0.46	0.05
Phosphorus	mg/L	0.1	SM 3120	09-May-23/O	0.2	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	10-May-23/O	< 0.004	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	EPA 200.8	10-May-23/O	< 0.0005	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	09-May-23/O	1840	88.4	19.3	17.8
Strontium	mg/L	0.001	SM 3120	09-May-23/O	0.697	1.29	0.897	0.789
Tin	mg/L	0.05	SM 3120	09-May-23/O	0.06	< 0.05	< 0.05	< 0.05
Thallium	mg/L	0.00005	EPA 200.8	10-May-23/O	< 0.00008	< 0.00005	< 0.00005	< 0.00005
Titanium	mg/L	0.005	SM 3120	09-May-23/O	0.018	< 0.005	< 0.005	< 0.005
Uranium	mg/L	0.00005	EPA 200.8	10-May-23/O	< 0.00008	< 0.00005	< 0.00005	0.00021
Vanadium	mg/L	0.0001	EPA 200.8	10-May-23/O	0.0061	< 0.0001	< 0.0001	< 0.0001
Zinc	mg/L	0.005	SM 3120	09-May-23/O	0.009	< 0.005	< 0.005	< 0.005
Anion Sum	meq/L		Calc.	11-May-23/O	131	13.3	9.64	9.54

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03278 (i)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23 DATE REPORTED: 09-Jun-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		7-90-II	11-90	32-93-I	32-92-II
			Sample I.D.		B23-03278-1	B23-03278-2	B23-03278-3	B23-03278-4
			Date Collect	ed	01-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Cation Sum	meq/L		Calc.	11-May-23/O	104	14.7	9.89	9.12
% Difference	%		Calc.	11-May-23/O	11.4	5.23	1.26	2.26
Ion Ratio	AS/CS		Calc.	11-May-23/O	1.26	0.901	0.975	1.05
Conductivity (calc.)	µmho/cm		Calc.	11-May-23/O	7877	1291	947	910
Sodium Adsorption Ratio	-		Calc.	11-May-23/O	26.8	1.69	0.397	0.380
TDS(calc.)/EC(actual)	-		Calc.	11-May-23/O	0.570	0.568	0.548	0.536
Langelier Index(25°C)	S.I.		Calc.	11-May-23/O	1.59	0.738	0.696	0.906

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Filtered and acidified from GWC



Final Report

C.O.C.: --- REPORT No. B23-03278 (i)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		43-93-I	43-93-II	44-93-I	44-93-II
			Sample I.D.		B23-03278-5	B23-03278-6	B23-03278-7	B23-03278-8
			Date Collecte	ed	02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	08-May-23/O	246	460	246	363
Conductivity @25°C	µmho/cm	1	SM 2510B	08-May-23/O	798	1070	879	1660
pH @25°C	pH Units		SM 4500H	08-May-23/O	7.78	7.57	7.78	7.60
Colour	TCU	2	SM 2120C	09-May-23/O	< 2	< 2	< 2	< 2
Turbidity	NTU	0.1	SM 2130	09-May-23/O	234	115	67.4	201
TDS(ion sum calc.)	mg/L	1	Calc.	11-May-23/O	436	618	480	851
Total Suspended Solids	mg/L	3	SM2540D	15-May-23/K	350	120	64	376
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	10-May-23/O	0.8	2.5	0.6	0.6
BOD(5 day)	mg/L	3	SM 5210B	11-May-23/K	< 3	< 3	< 3	< 3
COD	mg/L	5	SM5220C	10-May-23/K	5	< 5	< 5	8
Phenolics	mg/L	0.001	MOEE 3179	16-May-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Cyanide (Free)	mg/L	0.005	SM 4500CN	19-May-23/K	< 0.005	< 0.005	< 0.005	< 0.005
Chloride	mg/L	0.5	SM4110C	08-May-23/O	82.6	43.4	112	296
Fluoride	mg/L	0.1	SM4110C	08-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	16-May-23/K	0.31	2.36	0.41	0.92
Ammonia (N)-unionized	mg/L	0.01	CALC	16-May-23/K	< 0.01	< 0.01	< 0.01	< 0.01
Sulphate	mg/L	1	SM4110C	08-May-23/O	57	58	56	27
Nitrite (N)	mg/L	0.05	SM4110C	08-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	08-May-23/O	< 0.05	< 0.05	< 0.05	3.50
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	25-May-23/K	0.7	2.1	0.5	1.2
Hardness (as CaCO3)	mg/L	1	SM 3120	09-May-23/O	404	581	426	498
Aluminum	mg/L	0.01	SM 3120	09-May-23/O	0.03	0.06	0.03	0.05
Antimony	mg/L	0.0001	EPA 200.8	10-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.0001	EPA 200.8	10-May-23/O	< 0.0001	< 0.0001	< 0.0001	0.0001
Barium	mg/L	0.001	SM 3120	09-May-23/O	0.068	0.134	0.188	0.109
Beryllium	mg/L	0.002	SM 3120	09-May-23/O	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.005	SM 3120	09-May-23/O	0.062	0.009	0.060	0.012

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03278 (i)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23 DATE REPORTED: 09-Jun-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		43-93-I	43-93-II	44-93-I	44-93-II
			Sample I.D.		B23-03278-5	B23-03278-6	B23-03278-7	B23-03278-8
			Date Collecte	ed	02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Cadmium	mg/L	0.000010	EPA 200.8	10-May-23/O	< 0.000010	< 0.000012	< 0.000010	< 0.000012
Calcium	mg/L	0.02	SM 3120	09-May-23/O	95.9	208	106	173
Chromium	mg/L	0.001	SM 3120	09-May-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	11-May-23/O	< 0.001	< 0.001 1	< 0.001 1	< 0.001 1
Cobalt	mg/L	0.005	SM 3120	09-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.0001	EPA 200.8	10-May-23/O	0.0002	0.0004	0.0002	0.0006
Iron	mg/L	0.005	SM 3120	09-May-23/O	0.301	< 0.005	0.618	< 0.005
Lead	mg/L	0.00002	EPA 200.8	10-May-23/O	0.00003	< 0.00004	0.00002	< 0.00004
Magnesium	mg/L	0.02	SM 3120	09-May-23/O	40.0	15.0	39.3	15.8
Manganese	mg/L	0.001	SM 3120	09-May-23/O	0.014	< 0.001	0.013	0.001
Mercury	mg/L	0.00002	SM 3112 B	11-May-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	10-May-23/O	< 0.0001	0.0002	0.0002	0.0003
Nickel	mg/L	0.01	SM 3120	09-May-23/O	< 0.01	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	09-May-23/O	3.2	0.8	3.0	1.4
Phosphorus-Total	mg/L	0.01	E3516.2	25-May-23/K	0.13	0.06	0.06	0.16
Phosphorus	mg/L	0.1	SM 3120	09-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	10-May-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	EPA 200.8	10-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	09-May-23/O	10.0	17.6	15.4	120
Strontium	mg/L	0.001	SM 3120	09-May-23/O	1.10	0.432	0.978	0.520
Tin	mg/L	0.05	SM 3120	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Thallium	mg/L	0.00005	EPA 200.8	10-May-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Titanium	mg/L	0.005	SM 3120	09-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Uranium	mg/L	0.00005	EPA 200.8	10-May-23/O	< 0.00005	0.00059	< 0.00005	0.00048
Vanadium	mg/L	0.0001	EPA 200.8	10-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Zinc	mg/L	0.005	SM 3120	09-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Anion Sum	meq/L		Calc.	11-May-23/O	8.43	11.6	9.24	16.4



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03278 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

<u>Attention:</u> Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		43-93-I	43-93-II	44-93-I	44-93-II
			Sample I.D.		B23-03278-5	B23-03278-6	B23-03278-7	B23-03278-8
			Date Collect	ed	02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Cation Sum	meq/L		Calc.	11-May-23/O	8.61	12.4	9.30	15.2
% Difference	%		Calc.	11-May-23/O	1.07	3.16	0.321	3.85
Ion Ratio	AS/CS		Calc.	11-May-23/O	0.979	0.939	0.994	1.08
Conductivity (calc.)	µmho/cm		Calc.	11-May-23/O	821	1072	903	1536
Sodium Adsorption Ratio	-		Calc.	11-May-23/O	0.215	0.317	0.326	2.35
TDS(calc.)/EC(actual)	-		Calc.	11-May-23/O	0.547	0.580	0.546	0.513
Langelier Index(25°C)	S.I.		Calc.	11-May-23/O	0.691	1.08	0.734	0.906

¹ Chromium (VI) result is based on total Chromium

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Filtered and acidified from GWC



Final Report

C.O.C.: --- REPORT No. B23-03278 (i)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		45-93	53-98	55-98-I	55-98-II
			Sample I.D.		B23-03278-9	B23-03278- 10	B23-03278- 11	B23-03278-12
			Date Collecte	ed	02-May-23 02-May-23 02-May-23		02-May-23	
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	08-May-23/O	400	365	242	235
Conductivity @25°C	µmho/cm	1	SM 2510B	08-May-23/O	1840	2160	1020	834
pH @25°C	pH Units		SM 4500H	08-May-23/O	7.59	7.54	7.91	7.91
Colour	TCU	2	SM 2120C	09-May-23/O	< 2	< 2	< 2	< 2
Turbidity	NTU	0.1	SM 2130	09-May-23/O	823	43.9	45.9	10.9
TDS(ion sum calc.)	mg/L	1	Calc.	11-May-23/O	989	1183	509	440
Total Suspended Solids	mg/L	3	SM2540D	15-May-23/K	1590	50	178	4
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	10-May-23/O	0.5	0.5	0.9	0.6
BOD(5 day)	mg/L	3	SM 5210B	11-May-23/K	< 3	< 3	< 3	< 3
COD	mg/L	5	SM5220C	10-May-23/K	< 5	7	10	< 5
Phenolics	mg/L	0.001	MOEE 3179	16-May-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Cyanide (Free)	mg/L	0.005	SM 4500CN	19-May-23/K	< 0.005	< 0.005	< 0.005	< 0.005
Chloride	mg/L	0.5	SM4110C	08-May-23/O	338	497	171	110
Fluoride	mg/L	0.1	SM4110C	08-May-23/O	< 0.1	< 0.1	0.4	< 0.1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	16-May-23/K	3.63	1.41	1.34	1.74
Ammonia (N)-unionized	mg/L	0.01	CALC	16-May-23/K	0.01	< 0.01	0.01	0.02
Sulphate	mg/L	1	SM4110C	08-May-23/O	26	30	36	43
Nitrite (N)	mg/L	0.05	SM4110C	08-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	08-May-23/O	0.75	< 0.05	< 0.05	< 0.05
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	25-May-23/K	3.8	1.6	1.7	1.6
Hardness (as CaCO3)	mg/L	1	SM 3120	09-May-23/O	542	833	369	408
Aluminum	mg/L	0.01	SM 3120	09-May-23/O	0.06	0.07	0.02	0.03
Antimony	mg/L	0.0001	EPA 200.8	10-May-23/O	0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.0001	EPA 200.8	10-May-23/O	< 0.0001	< 0.0003	< 0.0001	0.0001
Barium	mg/L	0.001	SM 3120	09-May-23/O	0.116	1.08	0.127	0.261
Beryllium	mg/L	0.002	SM 3120	09-May-23/O	< 0.002	< 0.002	< 0.002	< 0.002

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03278 (i)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		45-93	53-98	55-98-I	55-98-II
			Sample I.D.		B23-03278-9	B23-03278- 10	B23-03278- 11	B23-03278-12
			Date Collecte	ed	02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Boron	mg/L	0.005	SM 3120	09-May-23/O	0.010	0.063	0.123	0.094
Cadmium	mg/L	0.000010	EPA 200.8	10-May-23/O	< 0.000012	< 0.000029	< 0.000012	< 0.000010
Calcium	mg/L	0.02	SM 3120	09-May-23/O	192	258	73.9	82.7
Chromium	mg/L	0.001	SM 3120	09-May-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	11-May-23/O	< 0.001 1	< 0.001 1	< 0.001	< 0.001 1
Cobalt	mg/L	0.005	SM 3120	09-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.0001	EPA 200.8	10-May-23/O	0.0006	0.0018	0.0001	< 0.0001
Iron	mg/L	0.005	SM 3120	09-May-23/O	< 0.005	1.28	0.317	0.801
Lead	mg/L	0.00002	EPA 200.8	10-May-23/O	< 0.00004	0.0001	< 0.00004	< 0.00002
Magnesium	mg/L	0.02	SM 3120	09-May-23/O	15.5	45.8	44.8	49.0
Manganese	mg/L	0.001	SM 3120	09-May-23/O	< 0.001	0.118	0.014	0.019
Mercury	mg/L	0.00002	SM 3112 B	11-May-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	10-May-23/O	0.0003	< 0.0002	0.0001	0.0002
Nickel	mg/L	0.01	SM 3120	09-May-23/O	< 0.01	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	09-May-23/O	1.7	3.6	4.5	3.3
Phosphorus-Total	mg/L	0.01	E3516.2	25-May-23/K	0.30	0.02	0.05	0.04
Phosphorus	mg/L	0.1	SM 3120	09-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	10-May-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	EPA 200.8	10-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	09-May-23/O	176	128	33.3	11.2
Strontium	mg/L	0.001	SM 3120	09-May-23/O	0.479	1.84	1.94	1.48
Tin	mg/L	0.05	SM 3120	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Thallium	mg/L	0.00005	EPA 200.8	10-May-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Titanium	mg/L	0.005	SM 3120	09-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Uranium	mg/L	0.00005	EPA 200.8	10-May-23/O	0.00056	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	0.0001	EPA 200.8	10-May-23/O	0.0002	< 0.0004	< 0.0001	< 0.0001
Zinc	mg/L	0.005	SM 3120	09-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03278 (i)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		45-93	53-98	55-98-I	55-98-II
			Sample I.D.		B23-03278-9	B23-03278- 10	B23-03278- 11	B23-03278-12
			Date Collect	ed	02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Anion Sum	meq/L		Calc.	11-May-23/O	18.1	21.9	10.4	8.68
Cation Sum	meq/L		Calc.	11-May-23/O	18.5	22.4	8.95	8.77
% Difference	%		Calc.	11-May-23/O	1.08	1.01	7.54	0.536
Ion Ratio	AS/CS		Calc.	11-May-23/O	0.979	0.980	1.16	0.989
Conductivity (calc.)	µmho/cm		Calc.	11-May-23/O	1768	2151	968	851
Sodium Adsorption Ratio	-		Calc.	11-May-23/O	3.29	1.94	0.755	0.241
TDS(calc.)/EC(actual)	-		Calc.	11-May-23/O	0.537	0.548	0.497	0.528
Langelier Index(25°C)	S.I.		Calc.	11-May-23/O	0.971	1.00	0.699	0.736

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Filtered and acidified from GWC



Final Report

C.O.C.: --- REPORT No. B23-03278 (i)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		56-02-I	57-02-II	58-I	61-10-I
			Sample I.D.		B23-03278- 13	B23-03278- 14	B23-03278- 15	B23-03278-16
			Date Collecte	ed	01-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	08-May-23/O	250	253	562	405
Conductivity @25°C	µmho/cm	1	SM 2510B	08-May-23/O	995	2140	2100	1200
pH @25°C	pH Units		SM 4500H	08-May-23/O	7.89	7.79	7.40	7.70
Colour	TCU	2	SM 2120C	09-May-23/O	< 2	< 2	< 2	< 2
Turbidity	NTU	0.1	SM 2130	09-May-23/O	241	25.2	32.7	10.7
TDS(ion sum calc.)	mg/L	1	Calc.	11-May-23/O	534	1149	1257	654
Total Suspended Solids	mg/L	3	SM2540D	15-May-23/K	368	41	15	61
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	10-May-23/O	0.5	1.0	1.7	4.4
BOD(5 day)	mg/L	3	SM 5210B	11-May-23/K	< 3	< 3	< 3	< 3
COD	mg/L	5	SM5220C	10-May-23/K	< 5	5	15	18
Phenolics	mg/L	0.001	MOEE 3179	16-May-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Cyanide (Free)	mg/L	0.005	SM 4500CN	19-May-23/K	< 0.005	< 0.005	< 0.005	< 0.005
Chloride	mg/L	0.5	SM4110C	08-May-23/O	161	503	278	135
Fluoride	mg/L	0.1	SM4110C	08-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	16-May-23/K	2.11	0.91	3.74	4.68
Ammonia (N)-unionized	mg/L	0.01	CALC	16-May-23/K	0.02	< 0.01	< 0.01	0.02
Sulphate	mg/L	1	SM4110C	08-May-23/O	41	84	204	43
Nitrite (N)	mg/L	0.05	SM4110C	08-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	08-May-23/O	< 0.05	0.62	< 0.05	< 0.05
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	25-May-23/K	2.3	1.1	4.3	4.9
Hardness (as CaCO3)	mg/L	1	SM 3120	09-May-23/O	475	452	961	550
Aluminum	mg/L	0.01	SM 3120	09-May-23/O	0.04	0.05	0.08	0.04
Antimony	mg/L	0.0001	EPA 200.8	10-May-23/O	< 0.0001	0.0002	0.0001	< 0.0001
Arsenic	mg/L	0.0001	EPA 200.8	10-May-23/O	< 0.0001	< 0.0003	0.0005	< 0.0001
Barium	mg/L	0.001	SM 3120	09-May-23/O	0.208	0.161	0.209	0.613
Beryllium	mg/L	0.002	SM 3120	09-May-23/O	< 0.002	< 0.002	< 0.002	< 0.002

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

61-10-I

C.O.C.: --- REPORT No. B23-03278 (i)

Client I.D.

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

57-02-II

58-I

P.O. NUMBER: WATERWORKS NO.

56-02-I

			Gildin iibi		00 02 .	07 02 11	00 1	0.101
			Sample I.D.		B23-03278- 13	B23-03278- 14	B23-03278- 15	B23-03278-16
			Date Collecte	ed	01-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Boron	mg/L	0.005	SM 3120	09-May-23/O	0.097	0.070	0.101	0.142
Cadmium	mg/L	0.000010	EPA 200.8	10-May-23/O	< 0.000010	< 0.000029	< 0.000029	< 0.000012
Calcium	mg/L	0.02	SM 3120	09-May-23/O	107	160	311	129
Chromium	mg/L	0.001	SM 3120	09-May-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	11-May-23/O	< 0.001 1	< 0.001 1	< 0.001	< 0.001 1
Cobalt	mg/L	0.005	SM 3120	09-May-23/O	< 0.005	< 0.005	0.007	< 0.005
Copper	mg/L	0.0001	EPA 200.8	10-May-23/O	0.0005	0.0022	0.0007	0.0001
Iron	mg/L	0.005	SM 3120	09-May-23/O	0.766	< 0.005	0.240	0.249
Lead	mg/L	0.00002	EPA 200.8	10-May-23/O	0.00004	< 0.00009	< 0.00009	< 0.00004
Magnesium	mg/L	0.02	SM 3120	09-May-23/O	50.7	12.7	44.7	55.1
Manganese	mg/L	0.001	SM 3120	09-May-23/O	0.017	< 0.001	0.041	0.016
Mercury	mg/L	0.00002	SM 3112 B	11-May-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	10-May-23/O	< 0.0001	< 0.0002	0.0003	< 0.0001
Nickel	mg/L	0.01	SM 3120	09-May-23/O	< 0.01	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	09-May-23/O	4.5	2.0	2.9	5.0
Phosphorus-Total	mg/L	0.01	E3516.2	25-May-23/K	0.19	0.02	0.05	0.32
Phosphorus	mg/L	0.1	SM 3120	09-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	10-May-23/O	< 0.001	< 0.001	0.003	0.001
Silver	mg/L	0.0001	EPA 200.8	10-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	09-May-23/O	19.4	236	78.2	43.7
Strontium	mg/L	0.001	SM 3120	09-May-23/O	1.91	0.600	1.24	1.89
Tin	mg/L	0.05	SM 3120	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Thallium	mg/L	0.00005	EPA 200.8	10-May-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Titanium	mg/L	0.005	SM 3120	09-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Uranium	mg/L	0.00005	EPA 200.8	10-May-23/O	< 0.00005	0.00076	0.00167	< 0.00005
Vanadium	mg/L	0.0001	EPA 200.8	10-May-23/O	< 0.0001	< 0.0004	< 0.0004	0.0002
Zinc	mg/L	0.005	SM 3120	09-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03278 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

<u>Attention:</u> Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		56-02-I	57-02-II	58-I	61-10-I
			Sample I.D.		B23-03278- 13	B23-03278- 14	B23-03278- 15	B23-03278-16
			Date Collect	ed	01-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Anion Sum	meq/L		Calc.	11-May-23/O	10.4	21.0	23.3	12.8
Cation Sum	meq/L		Calc.	11-May-23/O	10.5	19.4	22.7	13.0
% Difference	%		Calc.	11-May-23/O	0.510	4.14	1.42	0.910
Ion Ratio	AS/CS		Calc.	11-May-23/O	0.990	1.09	1.03	0.982
Conductivity (calc.)	µmho/cm		Calc.	11-May-23/O	1028	2041	2015	1191
Sodium Adsorption Ratio	-		Calc.	11-May-23/O	0.387	4.83	1.10	0.811
TDS(calc.)/EC(actual)	-		Calc.	11-May-23/O	0.537	0.537	0.599	0.547
Langelier Index(25°C)	S.I.		Calc.	11-May-23/O	0.844	0.886	1.13	0.946

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Filtered and acidified from GWC



Final Report

C.O.C.: --- REPORT No. B23-03278 (i)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantale

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23 DATE REPORTED: 09-Jun-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		61-10-II	61-17-I	62-17-I	62-17-II
			Sample I.D.		B23-03278- 17	B23-03278- 18	B23-03278- 19	B23-03278-20
			Date Collecte	ed	02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	08-May-23/O	377	410	483	454
Conductivity @25°C	µmho/cm	1	SM 2510B	08-May-23/O	1480	1160	1230	1330
pH @25°C	pH Units		SM 4500H	08-May-23/O	7.70	7.78	7.95	7.65
Colour	TCU	2	SM 2120C	09-May-23/O	< 2	< 2	3	< 2
Turbidity	NTU	0.1	SM 2130	09-May-23/O	923	144	238	113
TDS(ion sum calc.)	mg/L	1	Calc.	11-May-23/O	835	635	701	747
Total Suspended Solids	mg/L	3	SM2540D	15-May-23/K	1870	902	42	276
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	10-May-23/O	1.2	4.7	6.3	6.3
BOD(5 day)	mg/L	3	SM 5210B	11-May-23/K	< 3	< 3	3	< 3
COD	mg/L	5	SM5220C	10-May-23/K	7	21	29	23
Phenolics	mg/L	0.001	MOEE 3179	16-May-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Cyanide (Free)	mg/L	0.005	SM 4500CN	19-May-23/K	< 0.005	< 0.005	< 0.005	< 0.005
Chloride	mg/L	0.5	SM4110C	08-May-23/O	226	121	105	149
Fluoride	mg/L	0.1	SM4110C	08-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	16-May-23/K	0.29	2.51	2.01	1.88
Ammonia (N)-unionized	mg/L	0.01	CALC	16-May-23/K	< 0.01	0.01	0.01	< 0.01
Sulphate	mg/L	1	SM4110C	08-May-23/O	84	37	32	53
Nitrite (N)	mg/L	0.05	SM4110C	08-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	08-May-23/O	< 0.05	< 0.05	0.20	< 0.05
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	25-May-23/K	1.0	2.8	2.3	2.0
Hardness (as CaCO3)	mg/L	1	SM 3120	09-May-23/O	702	543	308	607
Aluminum	mg/L	0.01	SM 3120	09-May-23/O	0.06	0.04	0.03	0.10
Antimony	mg/L	0.0001	EPA 200.8	10-May-23/O	< 0.0001	< 0.0001	0.0001	< 0.0001
Arsenic	mg/L	0.0001	EPA 200.8	10-May-23/O	0.0001	< 0.0001	0.0002	< 0.0001
Barium	mg/L	0.001	SM 3120	09-May-23/O	0.178	0.630	0.235	0.511
Beryllium	mg/L	0.002	SM 3120	09-May-23/O	< 0.002	< 0.002	< 0.002	< 0.002



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

62-17-II

C.O.C.: --- REPORT No. B23-03278 (i)

Client I.D.

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

61-17-I

62-17-I

P.O. NUMBER: WATERWORKS NO.

61-10-II

		I			Dan 2227		_	
			Sample I.D.		B23-03278- 17	B23-03278- 18	B23-03278- 19	B23-03278-20
			Date Collected		02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Boron	mg/L	0.005	SM 3120	09-May-23/O	0.022	0.147	0.134	0.129
Cadmium	mg/L	0.000010	EPA 200.8	10-May-23/O	< 0.000012	< 0.000012	< 0.000012	< 0.000012
Calcium	mg/L	0.02	SM 3120	09-May-23/O	212	126	104	154
Chromium	mg/L	0.001	SM 3120	09-May-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	11-May-23/O	< 0.001 1	< 0.001 1	< 0.001 1	< 0.001 1
Cobalt	mg/L	0.005	SM 3120	09-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.0001	EPA 200.8	10-May-23/O	0.0003	0.0001	0.0008	0.0001
Iron	mg/L	0.005	SM 3120	09-May-23/O	0.544	0.134	0.006	0.640
Lead	mg/L	0.00002	EPA 200.8	10-May-23/O	< 0.00004	< 0.00004	< 0.00004	0.00012
Magnesium	mg/L	0.02	SM 3120	09-May-23/O	42.2	55.8	11.6	53.7
Manganese	mg/L	0.001	SM 3120	09-May-23/O	0.083	0.015	< 0.001	0.028
Mercury	mg/L	0.00002	SM 3112 B	11-May-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	10-May-23/O	0.0009	< 0.0001	0.0002	< 0.0001
Nickel	mg/L	0.01	SM 3120	09-May-23/O	< 0.01	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	09-May-23/O	2.4	5.1	2.3	4.5
Phosphorus-Total	mg/L	0.01	E3516.2	25-May-23/K	0.50	0.15	0.03	0.08
Phosphorus	mg/L	0.1	SM 3120	09-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	10-May-23/O	0.002	0.001	< 0.001	0.001
Silver	mg/L	0.0001	EPA 200.8	10-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	09-May-23/O	42.4	45.4	155	58.8
Strontium	mg/L	0.001	SM 3120	09-May-23/O	0.788	1.97	1.08	1.56
Tin	mg/L	0.05	SM 3120	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Thallium	mg/L	0.00005	EPA 200.8	10-May-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Titanium	mg/L	0.005	SM 3120	09-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Uranium	mg/L	0.00005	EPA 200.8	10-May-23/O	0.00098	< 0.00005	0.00077	0.00009
Vanadium	mg/L	0.0001	EPA 200.8	10-May-23/O	< 0.0001	0.0003	0.0004	0.0003
Zinc	mg/L	0.005	SM 3120	09-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03278 (i)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

<u>Attention:</u> Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		61-10-II	61-17-I	62-17-I	62-17-II
			Sample I.D.		B23-03278- 17	B23-03278- 18	B23-03278- 19	B23-03278-20
			Date Collect	ed	02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Anion Sum	meq/L		Calc.	11-May-23/O	15.6	12.4	13.3	14.4
Cation Sum	meq/L		Calc.	11-May-23/O	16.0	13.0	13.0	14.8
% Difference	%		Calc.	11-May-23/O	1.03	2.40	1.34	1.47
Ion Ratio	AS/CS		Calc.	11-May-23/O	0.980	0.953	1.03	0.971
Conductivity (calc.)	µmho/cm		Calc.	11-May-23/O	1488	1161	1193	1330
Sodium Adsorption Ratio	-		Calc.	11-May-23/O	0.697	0.847	3.85	1.04
TDS(calc.)/EC(actual)	-		Calc.	11-May-23/O	0.563	0.550	0.568	0.563
Langelier Index(25°C)	S.I.		Calc.	11-May-23/O	1.11	1.02	1.17	1.01

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Filtered and acidified from GWC



Final Report

C.O.C.: --- REPORT No. B23-03278 (i)

Client I.D.

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

DUP

P.O. NUMBER: WATERWORKS NO.

62-17-III

			Sample I.D.		B23-03278- 21	B23-03278- 22	
			Date Collecte	ed	02-May-23	02-May-23	
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	08-May-23/O	446	232	
Conductivity @25°C	µmho/cm	1	SM 2510B	08-May-23/O	1170	829	
pH @25°C	pH Units		SM 4500H	08-May-23/O	7.87	7.95	
Colour	TCU	2	SM 2120C	09-May-23/O	< 2	< 2	
Turbidity	NTU	0.1	SM 2130	09-May-23/O	392	10.3	
TDS(ion sum calc.)	mg/L	1	Calc.	11-May-23/O	673	441	
Total Suspended Solids	mg/L	3	SM2540D	15-May-23/K	444	5	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	10-May-23/O	1.6	0.9	
BOD(5 day)	mg/L	3	SM 5210B	11-May-23/K	< 3	< 3	
COD	mg/L	5	SM5220C	10-May-23/K	< 5	< 5	
Phenolics	mg/L	0.001	MOEE 3179	16-May-23/K	< 0.001	< 0.001	
Cyanide (Free)	mg/L	0.005	SM 4500CN	19-May-23/K	< 0.005	< 0.005	
Chloride	mg/L	0.5	SM4110C	08-May-23/O	89.4	112	
Fluoride	mg/L	0.1	SM4110C	08-May-23/O	< 0.1	< 0.1	
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	16-May-23/K	0.31	1.16	
Ammonia (N)-unionized	mg/L	0.01	CALC	16-May-23/K	< 0.01	0.01	
Sulphate	mg/L	1	SM4110C	08-May-23/O	64	43	
Nitrite (N)	mg/L	0.05	SM4110C	08-May-23/O	< 0.05	< 0.05	
Nitrate (N)	mg/L	0.05	SM4110C	08-May-23/O	0.19	< 0.05	
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	25-May-23/K	1.0	1.3	
Hardness (as CaCO3)	mg/L	1	SM 3120	09-May-23/O	449	406	
Aluminum	mg/L	0.01	SM 3120	09-May-23/O	0.04	0.03	
Antimony	mg/L	0.0001	EPA 200.8	10-May-23/O	< 0.0001	< 0.0001	
Arsenic	mg/L	0.0001	EPA 200.8	10-May-23/O	0.0003	0.0001	
Barium	mg/L	0.001	SM 3120	09-May-23/O	0.244	0.262	
Beryllium	mg/L	0.002	SM 3120	09-May-23/O	< 0.002	< 0.002	

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03278 (i)

Client I.D.

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantaleo

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

DUP

P.O. NUMBER: WATERWORKS NO.

62-17-III

			Sample I.D.		B23-03278- 21	B23-03278- 22	
			Date Collecte	ed	02-May-23	02-May-23	
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Boron	mg/L	0.005	SM 3120	09-May-23/O	0.038	0.094	
Cadmium	mg/L	0.000010	EPA 200.8	10-May-23/O	< 0.000012	< 0.000010	
Calcium	mg/L	0.02	SM 3120	09-May-23/O	116	82.8	
Chromium	mg/L	0.001	SM 3120	09-May-23/O	< 0.001	< 0.001	
Chromium (VI)	mg/L	0.001	MOE E3056	11-May-23/O	< 0.001 1	< 0.001 1	
Cobalt	mg/L	0.005	SM 3120	09-May-23/O	< 0.005	< 0.005	
Copper	mg/L	0.0001	EPA 200.8	10-May-23/O	0.0006	0.0002	
Iron	mg/L	0.005	SM 3120	09-May-23/O	0.045	0.830	
Lead	mg/L	0.00002	EPA 200.8	10-May-23/O	< 0.00004	< 0.00002	
Magnesium	mg/L	0.02	SM 3120	09-May-23/O	38.9	48.5	
Manganese	mg/L	0.001	SM 3120	09-May-23/O	0.013	0.016	
Mercury	mg/L	0.00002	SM 3112 B	11-May-23/O	< 0.00002	< 0.00002	
Molybdenum	mg/L	0.0001	EPA 200.8	10-May-23/O	0.0023	0.0002	
Nickel	mg/L	0.01	SM 3120	09-May-23/O	< 0.01	< 0.01	
Potassium	mg/L	0.1	SM 3120	09-May-23/O	4.8	3.3	
Phosphorus-Total	mg/L	0.01	E3516.2	25-May-23/K	0.19	0.04	
Phosphorus	mg/L	0.1	SM 3120	09-May-23/O	< 0.1	< 0.1	
Selenium	mg/L	0.001	EPA 200.8	10-May-23/O	< 0.001	< 0.001	
Silver	mg/L	0.0001	EPA 200.8	10-May-23/O	< 0.0001	< 0.0001	
Sodium	mg/L	0.2	SM 3120	09-May-23/O	93.7	11.1	
Strontium	mg/L	0.001	SM 3120	09-May-23/O	0.737	1.45	
Tin	mg/L	0.05	SM 3120	09-May-23/O	< 0.05	< 0.05	
Thallium	mg/L	0.00005	EPA 200.8	10-May-23/O	< 0.00005	< 0.00005	
Titanium	mg/L	0.005	SM 3120	09-May-23/O	< 0.005	< 0.005	
Uranium	mg/L	0.00005	EPA 200.8	10-May-23/O	0.00058	< 0.00005	
Vanadium	mg/L	0.0001	EPA 200.8	10-May-23/O	0.0003	< 0.0001	
Zinc	mg/L	0.005	SM 3120	09-May-23/O	< 0.005	< 0.005	

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03278 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

<u>Attention:</u> Kayla Pantaleo

DATE RECEIVED: 03-May-23 DATE REPORTED: 09-Jun-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		62-17-III	DUP	
			Sample I.D.		B23-03278- 21	B23-03278- 22	
			Date Collect	ed	02-May-23	02-May-23	
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Anion Sum	meq/L		Calc.	11-May-23/O	12.8	8.70	
Cation Sum	meq/L		Calc.	11-May-23/O	13.2	8.73	
% Difference	%		Calc.	11-May-23/O	1.53	0.204	
Ion Ratio	AS/CS		Calc.	11-May-23/O	0.970	0.996	
Conductivity (calc.)	µmho/cm		Calc.	11-May-23/O	1165	851	
Sodium Adsorption Ratio	-		Calc.	11-May-23/O	1.92	0.239	
TDS(calc.)/EC(actual)	-		Calc.	11-May-23/O	0.576	0.532	
Langelier Index(25°C)	S.I.		Calc.	11-May-23/O	1.10	0.772	

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Filtered and acidified from GWC



Final Report

C.O.C.: --- REPORT No. B23-03278 (ii)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8 Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		7-90-II	11-90	32-93-I	32-92-II
			Sample I.D.		B23-03278-1	B23-03278-2	B23-03278-3	B23-03278-4
			Date Collect	ed	01-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Benzene	μg/L	0.5	EPA 8260	18-May-23/R	4.9	< 0.5	< 0.5	< 0.5
Dichloroethane,1,1-	μg/L	0.5	EPA 8260	21-May-23/R	< 0.5			
Toluene	μg/L	0.5	EPA 8260	18-May-23/R	0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene,1,1-	μg/L	0.5	EPA 8260	21-May-23/R	< 0.5			
Ethylbenzene	μg/L	0.5	EPA 8260	18-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane,1,2-	μg/L	0.5	EPA 8260	21-May-23/R	< 0.5			
Xylene, m,p-	μg/L	1.0	EPA 8260	18-May-23/R	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorobenzene,1,2-	μg/L	0.5	EPA 8260	21-May-23/R	< 0.5			
Xylene, o-	μg/L	0.5	EPA 8260	18-May-23/R	53.4	< 0.5	< 0.5	< 0.5
Dichloropropane,1,2-	μg/L	0.5	EPA 8260	21-May-23/R	< 0.5			
Xylene, m,p,o-	μg/L	1.1	EPA 8260	18-May-23/R	53.4	< 1.1	< 1.1	< 1.1
Dichlorobenzene,1,3-	μg/L	0.5	EPA 8260	21-May-23/R	< 0.5			
Dichlorobenzene,1,4-	μg/L	0.5	EPA 8260	21-May-23/R	4.9			
Tetrachloroethane,1,1,1,2-	μg/L	0.5	EPA 8260	21-May-23/R	< 0.5			
Tetrachloroethane,1,1,2,2-	μg/L	0.5	EPA 8260	21-May-23/R	< 0.5			
Trichloroethane,1,1,1-	μg/L	0.5	EPA 8260	21-May-23/R	< 0.5			
Trichloroethane,1,1,2-	μg/L	0.5	EPA 8260	21-May-23/R	< 0.5			
Trichlorobenzene,1,2,4-	μg/L	0.5	EPA 8260	21-May-23/R	< 0.5			
Acetone	μg/L	30	EPA 8260	21-May-23/R	< 30			
Bromodichloromethane	μg/L	2	EPA 8260	21-May-23/R	< 2			
Bromomethane	μg/L	0.5	EPA 8260	21-May-23/R	< 0.5			
Bromoform	μg/L	5	EPA 8260	21-May-23/R	< 5			
Dichloroethene, cis-1,2-	μg/L	0.5	EPA 8260	21-May-23/R	< 0.5			
Dichloropropene, cis-1,3-	μg/L	0.5	EPA 8260	21-May-23/R	< 0.5			
Carbon Tetrachloride	μg/L	0.2	EPA 8260	21-May-23/R	< 0.2			
Monochlorobenzene (Chlorobenzene)	μg/L	0.5	EPA 8260	21-May-23/R	2.5			
Chloroform	μg/L	1	EPA 8260	21-May-23/R	< 1			

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03278 (ii)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23 DATE REPORTED: 09-Jun-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		7-90-II	11-90	32-93-I	32-92-II
			Sample I.D.		B23-03278-1	B23-03278-2	B23-03278-3	B23-03278-4
			Date Collect	ed	01-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Dibromochloromethane	μg/L	2	EPA 8260	21-May-23/R	< 2			
Dibromoethane,1,2- (Ethylene Dibromide)	μg/L	0.2	EPA 8260	21-May-23/R	< 0.2			
Methyl Ethyl Ketone	μg/L	20	EPA 8260	21-May-23/R	< 20			
Methyl-t-butyl Ether	μg/L	2	EPA 8260	21-May-23/R	< 2			
Methyl Isobutyl Ketone	μg/L	20	EPA 8260	21-May-23/R	< 20			
Dichloromethane (Methylene Chloride)	μg/L	5	EPA 8260	21-May-23/R	< 5			
Styrene	μg/L	0.5	EPA 8260	21-May-23/R	< 0.5			
Dichloroethene, trans-1,2-	μg/L	0.5	EPA 8260	21-May-23/R	< 0.5			
Dichloropropene, trans-1,3-	μg/L	0.5	EPA 8260	21-May-23/R	< 0.5			
Trichloroethylene	μg/L	0.5	EPA 8260	21-May-23/R	< 0.5			
Trichlorofluoromethane	μg/L	5	EPA 8260	21-May-23/R	< 5			
Tetrachloroethylene	μg/L	0.5	EPA 8260	21-May-23/R	< 0.5			
Vinyl Chloride	μg/L	0.2	EPA 8260	21-May-23/R	< 0.2			

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03278 (ii)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Koyla Pantalog

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23 DATE REPORTED: 09-Jun-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		43-93-I	43-93-II	44-93-I	44-93-II
			Sample I.D.		B23-03278-5	B23-03278-6	B23-03278-7	B23-03278-8
			Date Collect	ed	02-May-23	02-May-23	02-May-23	-
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Benzene	μg/L	0.5	EPA 8260	18-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane,1,1-	μg/L	0.5	EPA 8260	21-May-23/R				
Toluene	μg/L	0.5	EPA 8260	18-May-23/R	< 0.5	1.9	< 0.5	< 0.5
Dichloroethylene,1,1-	μg/L	0.5	EPA 8260	21-May-23/R				
Ethylbenzene	μg/L	0.5	EPA 8260	18-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane,1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Xylene, m,p-	μg/L	1.0	EPA 8260	18-May-23/R	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorobenzene,1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Xylene, o-	μg/L	0.5	EPA 8260	18-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropane,1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Xylene, m,p,o-	μg/L	1.1	EPA 8260	18-May-23/R	< 1.1	< 1.1	< 1.1	< 1.1
Dichlorobenzene,1,3-	μg/L	0.5	EPA 8260	21-May-23/R				
Dichlorobenzene,1,4-	μg/L	0.5	EPA 8260	21-May-23/R				
Tetrachloroethane,1,1,1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Tetrachloroethane,1,1,2,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Trichloroethane,1,1,1-	μg/L	0.5	EPA 8260	21-May-23/R				
Trichloroethane,1,1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Trichlorobenzene,1,2,4-	μg/L	0.5	EPA 8260	21-May-23/R				
Acetone	μg/L	30	EPA 8260	21-May-23/R				
Bromodichloromethane	μg/L	2	EPA 8260	21-May-23/R				
Bromomethane	μg/L	0.5	EPA 8260	21-May-23/R				
Bromoform	μg/L	5	EPA 8260	21-May-23/R				
Dichloroethene, cis-1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Dichloropropene, cis-1,3-	μg/L	0.5	EPA 8260	21-May-23/R				
Carbon Tetrachloride	μg/L	0.2	EPA 8260	21-May-23/R				
Monochlorobenzene (Chlorobenzene)	μg/L	0.5	EPA 8260	21-May-23/R				
Chloroform	μg/L	1	EPA 8260	21-May-23/R				

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03278 (ii)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		43-93-I	43-93-II	44-93-I	44-93-II
			Sample I.D.	Sample I.D.		B23-03278-6	B23-03278-7	B23-03278-8
			Date Collect	ed	02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Dibromochloromethane	μg/L	2	EPA 8260	21-May-23/R				
Dibromoethane,1,2- (Ethylene Dibromide)	μg/L	0.2	EPA 8260	21-May-23/R				
Methyl Ethyl Ketone	μg/L	20	EPA 8260	21-May-23/R				
Methyl-t-butyl Ether	μg/L	2	EPA 8260	21-May-23/R				
Methyl Isobutyl Ketone	μg/L	20	EPA 8260	21-May-23/R				
Dichloromethane (Methylene Chloride)	μg/L	5	EPA 8260	21-May-23/R				
Styrene	μg/L	0.5	EPA 8260	21-May-23/R				
Dichloroethene, trans-1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Dichloropropene, trans-1,3-	μg/L	0.5	EPA 8260	21-May-23/R				
Trichloroethylene	μg/L	0.5	EPA 8260	21-May-23/R				
Trichlorofluoromethane	μg/L	5	EPA 8260	21-May-23/R				
Tetrachloroethylene	μg/L	0.5	EPA 8260	21-May-23/R				
Vinyl Chloride	μg/L	0.2	EPA 8260	21-May-23/R				

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

55-98-II

C.O.C.: --- REPORT No. B23-03278 (ii)

Client I.D.

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

53-98

55-98-I

P.O. NUMBER: WATERWORKS NO.

45-93

			Ciletit i.D.		40-90	33-90	33-30-1	33-30-11
			Sample I.D.		B23-03278-9	B23-03278- 10	B23-03278- 11	B23-03278-12
			Date Collect	ed	02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Benzene	μg/L	0.5	EPA 8260	18-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane,1,1-	μg/L	0.5	EPA 8260	21-May-23/R				
Toluene	μg/L	0.5	EPA 8260	18-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene,1,1-	μg/L	0.5	EPA 8260	21-May-23/R				
Ethylbenzene	μg/L	0.5	EPA 8260	18-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane,1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Xylene, m,p-	μg/L	1.0	EPA 8260	18-May-23/R	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorobenzene,1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Xylene, o-	μg/L	0.5	EPA 8260	18-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropane,1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Xylene, m,p,o-	μg/L	1.1	EPA 8260	18-May-23/R	< 1.1	< 1.1	< 1.1	< 1.1
Dichlorobenzene,1,3-	μg/L	0.5	EPA 8260	21-May-23/R				
Dichlorobenzene,1,4-	μg/L	0.5	EPA 8260	21-May-23/R				
Tetrachloroethane,1,1,1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Tetrachloroethane,1,1,2,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Trichloroethane,1,1,1-	μg/L	0.5	EPA 8260	21-May-23/R				
Trichloroethane,1,1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Trichlorobenzene,1,2,4-	μg/L	0.5	EPA 8260	21-May-23/R				
Acetone	μg/L	30	EPA 8260	21-May-23/R				
Bromodichloromethane	μg/L	2	EPA 8260	21-May-23/R				
Bromomethane	μg/L	0.5	EPA 8260	21-May-23/R				
Bromoform	μg/L	5	EPA 8260	21-May-23/R				
Dichloroethene, cis-1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Dichloropropene, cis-1,3-	μg/L	0.5	EPA 8260	21-May-23/R				
Carbon Tetrachloride	μg/L	0.2	EPA 8260	21-May-23/R				
Monochlorobenzene (Chlorobenzene)	μg/L	0.5	EPA 8260	21-May-23/R				

DVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03278 (ii)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8 Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		45-93	53-98	55-98-I	55-98-II
			Sample I.D.		B23-03278-9	B23-03278- 10	B23-03278- 11	B23-03278-12
			Date Collect	ed	02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Chloroform	μg/L	1	EPA 8260	21-May-23/R				
Dibromochloromethane	μg/L	2	EPA 8260	21-May-23/R				
Dibromoethane,1,2- (Ethylene Dibromide)	μg/L	0.2	EPA 8260	21-May-23/R				
Methyl Ethyl Ketone	μg/L	20	EPA 8260	21-May-23/R				
Methyl-t-butyl Ether	μg/L	2	EPA 8260	21-May-23/R				
Methyl Isobutyl Ketone	μg/L	20	EPA 8260	21-May-23/R				
Dichloromethane (Methylene Chloride)	μg/L	5	EPA 8260	21-May-23/R				
Styrene	μg/L	0.5	EPA 8260	21-May-23/R				
Dichloroethene, trans-1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Dichloropropene, trans-1,3-	μg/L	0.5	EPA 8260	21-May-23/R				
Trichloroethylene	μg/L	0.5	EPA 8260	21-May-23/R				
Trichlorofluoromethane	μg/L	5	EPA 8260	21-May-23/R				
Tetrachloroethylene	μg/L	0.5	EPA 8260	21-May-23/R				
Vinyl Chloride	μg/L	0.2	EPA 8260	21-May-23/R				

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03278 (ii)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Koyla Pantalo

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23 DATE REPORTED: 09-Jun-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		56-02-I	57-02-II	58-I	61-10-I
			Sample I.D.		B23-03278- 13	B23-03278- 14	B23-03278- 15	B23-03278-16
			Date Collect	ed	01-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Benzene	μg/L	0.5	EPA 8260	18-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane,1,1-	μg/L	0.5	EPA 8260	21-May-23/R				
Toluene	μg/L	0.5	EPA 8260	18-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene,1,1-	μg/L	0.5	EPA 8260	21-May-23/R				
Ethylbenzene	μg/L	0.5	EPA 8260	18-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane,1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Xylene, m,p-	μg/L	1.0	EPA 8260	18-May-23/R	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorobenzene,1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Xylene, o-	μg/L	0.5	EPA 8260	18-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropane,1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Xylene, m,p,o-	μg/L	1.1	EPA 8260	18-May-23/R	< 1.1	< 1.1	< 1.1	< 1.1
Dichlorobenzene,1,3-	μg/L	0.5	EPA 8260	21-May-23/R				
Dichlorobenzene,1,4-	μg/L	0.5	EPA 8260	21-May-23/R				
Tetrachloroethane,1,1,1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Tetrachloroethane,1,1,2,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Trichloroethane,1,1,1-	μg/L	0.5	EPA 8260	21-May-23/R				
Trichloroethane,1,1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Trichlorobenzene,1,2,4-	μg/L	0.5	EPA 8260	21-May-23/R				
Acetone	μg/L	30	EPA 8260	21-May-23/R				
Bromodichloromethane	μg/L	2	EPA 8260	21-May-23/R				
Bromomethane	μg/L	0.5	EPA 8260	21-May-23/R				
Bromoform	μg/L	5	EPA 8260	21-May-23/R				
Dichloroethene, cis-1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Dichloropropene, cis-1,3-	μg/L	0.5	EPA 8260	21-May-23/R				
Carbon Tetrachloride	μg/L	0.2	EPA 8260	21-May-23/R				
Monochlorobenzene (Chlorobenzene)	μg/L	0.5	EPA 8260	21-May-23/R				

DVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03278 (ii)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8 Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		56-02-I	57-02-II	58-I	61-10-I
			Sample I.D.		B23-03278- 13	B23-03278- 14	B23-03278- 15	B23-03278-16
			Date Collect	ed	01-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Chloroform	μg/L	1	EPA 8260	21-May-23/R				
Dibromochloromethane	μg/L	2	EPA 8260	21-May-23/R				
Dibromoethane,1,2- (Ethylene Dibromide)	μg/L	0.2	EPA 8260	21-May-23/R				
Methyl Ethyl Ketone	μg/L	20	EPA 8260	21-May-23/R				
Methyl-t-butyl Ether	μg/L	2	EPA 8260	21-May-23/R				
Methyl Isobutyl Ketone	μg/L	20	EPA 8260	21-May-23/R				
Dichloromethane (Methylene Chloride)	μg/L	5	EPA 8260	21-May-23/R				
Styrene	μg/L	0.5	EPA 8260	21-May-23/R				
Dichloroethene, trans-1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Dichloropropene, trans-1,3-	μg/L	0.5	EPA 8260	21-May-23/R				
Trichloroethylene	μg/L	0.5	EPA 8260	21-May-23/R				
Trichlorofluoromethane	μg/L	5	EPA 8260	21-May-23/R				
Tetrachloroethylene	μg/L	0.5	EPA 8260	21-May-23/R				
Vinyl Chloride	μg/L	0.2	EPA 8260	21-May-23/R				

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03278 (ii)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8 Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		61-10-II	61-17-I	62-17-I	62-17-II
			Sample I.D.		B23-03278- 17	B23-03278- 18	B23-03278- 19	B23-03278-20
			Date Collect	ed	02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Benzene	μg/L	0.5	EPA 8260	18-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane,1,1-	μg/L	0.5	EPA 8260	21-May-23/R				
Toluene	μg/L	0.5	EPA 8260	18-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene,1,1-	μg/L	0.5	EPA 8260	21-May-23/R				
Ethylbenzene	μg/L	0.5	EPA 8260	18-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane,1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Xylene, m,p-	μg/L	1.0	EPA 8260	18-May-23/R	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorobenzene,1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Xylene, o-	μg/L	0.5	EPA 8260	18-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropane,1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Xylene, m,p,o-	μg/L	1.1	EPA 8260	18-May-23/R	< 1.1	< 1.1	< 1.1	< 1.1
Dichlorobenzene,1,3-	μg/L	0.5	EPA 8260	21-May-23/R				
Dichlorobenzene,1,4-	μg/L	0.5	EPA 8260	21-May-23/R				
Tetrachloroethane,1,1,1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Tetrachloroethane,1,1,2,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Trichloroethane,1,1,1-	μg/L	0.5	EPA 8260	21-May-23/R				
Trichloroethane,1,1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Trichlorobenzene,1,2,4-	μg/L	0.5	EPA 8260	21-May-23/R				
Acetone	μg/L	30	EPA 8260	21-May-23/R				
Bromodichloromethane	μg/L	2	EPA 8260	21-May-23/R				
Bromomethane	μg/L	0.5	EPA 8260	21-May-23/R				
Bromoform	μg/L	5	EPA 8260	21-May-23/R				
Dichloroethene, cis-1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Dichloropropene, cis-1,3-	μg/L	0.5	EPA 8260	21-May-23/R				
Carbon Tetrachloride	μg/L	0.2	EPA 8260	21-May-23/R				
Monochlorobenzene (Chlorobenzene)	μg/L	0.5	EPA 8260	21-May-23/R				

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03278 (ii)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		61-10-II	61-17-I	62-17-I	62-17-II
			Sample I.D.		B23-03278- 17	B23-03278- 18	B23-03278- 19	B23-03278-20
			Date Collect	ed	02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Chloroform	μg/L	1	EPA 8260	21-May-23/R				
Dibromochloromethane	μg/L	2	EPA 8260	21-May-23/R				
Dibromoethane,1,2- (Ethylene Dibromide)	μg/L	0.2	EPA 8260	21-May-23/R				
Methyl Ethyl Ketone	μg/L	20	EPA 8260	21-May-23/R				
Methyl-t-butyl Ether	μg/L	2	EPA 8260	21-May-23/R				
Methyl Isobutyl Ketone	μg/L	20	EPA 8260	21-May-23/R				
Dichloromethane (Methylene Chloride)	μg/L	5	EPA 8260	21-May-23/R				
Styrene	μg/L	0.5	EPA 8260	21-May-23/R				
Dichloroethene, trans-1,2-	μg/L	0.5	EPA 8260	21-May-23/R				
Dichloropropene, trans-1,3-	μg/L	0.5	EPA 8260	21-May-23/R				
Trichloroethylene	μg/L	0.5	EPA 8260	21-May-23/R				
Trichlorofluoromethane	μg/L	5	EPA 8260	21-May-23/R				
Tetrachloroethylene	μg/L	0.5	EPA 8260	21-May-23/R				
Vinyl Chloride	μg/L	0.2	EPA 8260	21-May-23/R				

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03278 (ii)

Client I.D.

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantalo

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 09-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

DUP

P.O. NUMBER:

62-17-III

WATERWORKS NO.

		_			B23-03278- 21	B23-03278- 22	
			Date Collect	ed	02-May-23	02-May-23	
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Benzene	μg/L	0.5	EPA 8260	18-May-23/R	< 0.5	< 0.5	
Dichloroethane,1,1-	μg/L	0.5	EPA 8260	21-May-23/R			
Toluene	μg/L	0.5	EPA 8260	18-May-23/R	< 0.5	< 0.5	
Dichloroethylene,1,1-	μg/L	0.5	EPA 8260	21-May-23/R			
Ethylbenzene	μg/L	0.5	EPA 8260	18-May-23/R	< 0.5	< 0.5	
Dichloroethane,1,2-	μg/L	0.5	EPA 8260	21-May-23/R			
Xylene, m,p-	μg/L	1.0	EPA 8260	18-May-23/R	< 1.0	< 1.0	
Dichlorobenzene,1,2-	μg/L	0.5	EPA 8260	21-May-23/R			
Xylene, o-	μg/L	0.5	EPA 8260	18-May-23/R	< 0.5	< 0.5	
Dichloropropane,1,2-	μg/L	0.5	EPA 8260	21-May-23/R			
Xylene, m,p,o-	μg/L	1.1	EPA 8260	18-May-23/R	< 1.1	< 1.1	
Dichlorobenzene,1,3-	μg/L	0.5	EPA 8260	21-May-23/R			
Dichlorobenzene,1,4-	μg/L	0.5	EPA 8260	21-May-23/R			
Tetrachloroethane,1,1,1,2-	μg/L	0.5	EPA 8260	21-May-23/R			
Tetrachloroethane,1,1,2,2-	μg/L	0.5	EPA 8260	21-May-23/R			
Trichloroethane,1,1,1-	μg/L	0.5	EPA 8260	21-May-23/R			
Trichloroethane,1,1,2-	μg/L	0.5	EPA 8260	21-May-23/R			
Trichlorobenzene,1,2,4-	μg/L	0.5	EPA 8260	21-May-23/R			
Acetone	μg/L	30	EPA 8260	21-May-23/R			
Bromodichloromethane	μg/L	2	EPA 8260	21-May-23/R			
Bromomethane	μg/L	0.5	EPA 8260	21-May-23/R			
Bromoform	μg/L	5	EPA 8260	21-May-23/R			
Dichloroethene, cis-1,2-	μg/L	0.5	EPA 8260	21-May-23/R			
Dichloropropene, cis-1,3-	μg/L	0.5	EPA 8260	21-May-23/R			
Carbon Tetrachloride	μg/L	0.2	EPA 8260	21-May-23/R			
Monochlorobenzene (Chlorobenzene)	μg/L	0.5	EPA 8260	21-May-23/R			

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03278 (ii)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantales

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23 DATE REPORTED: 09-Jun-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		62-17-III	DUP	
			Sample I.D.		B23-03278- 21	B23-03278- 22	
			Date Collect	ed	02-May-23	02-May-23	
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Chloroform	μg/L	1	EPA 8260	21-May-23/R			
Dibromochloromethane	μg/L	2	EPA 8260	21-May-23/R			
Dibromoethane,1,2- (Ethylene Dibromide)	μg/L	0.2	EPA 8260	21-May-23/R			
Methyl Ethyl Ketone	μg/L	20	EPA 8260	21-May-23/R			
Methyl-t-butyl Ether	μg/L	2	EPA 8260	21-May-23/R			
Methyl Isobutyl Ketone	μg/L	20	EPA 8260	21-May-23/R			
Dichloromethane (Methylene Chloride)	μg/L	5	EPA 8260	21-May-23/R			
Styrene	μg/L	0.5	EPA 8260	21-May-23/R			
Dichloroethene, trans-1,2-	μg/L	0.5	EPA 8260	21-May-23/R			
Dichloropropene, trans-1,3-	μg/L	0.5	EPA 8260	21-May-23/R			
Trichloroethylene	μg/L	0.5	EPA 8260	21-May-23/R			
Trichlorofluoromethane	μg/L	5	EPA 8260	21-May-23/R			
Tetrachloroethylene	μg/L	0.5	EPA 8260	21-May-23/R			
Vinyl Chloride	μg/L	0.2	EPA 8260	21-May-23/R			

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		12-91-I	12-91-II	13-91-I	13-91-II
			Sample I.D.		B23-03287-1	B23-03287-2	B23-03287-3	B23-03287-4
			Date Collecte	ed	02-May-23	02-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Benzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	09-May-23/O	294	371	184	223
Toluene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Conductivity @25°C	µmho/cm	1	SM 2510B	09-May-23/O	731	735	701	494
Ethylbenzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
pH @25°C	pH Units		SM 4500H	09-May-23/O	7.79	7.46	7.82	7.75
Xylene, m,p-	μg/L	1.0	EPA 8260	12-May-23/R	< 1.0	< 1.0	< 1.0	< 1.0
TDS(ion sum calc.)	mg/L	1	Calc.	11-May-23/O	403	380	349	263
Xylene, o-	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	09-May-23/O	2.9	9.3	1.6	3.6
Xylene, m,p,o-	μg/L	1.1	EPA 8260	12-May-23/R	< 1.1	< 1.1	< 1.1	< 1.1
COD	mg/L	5	SM5220C	12-May-23/K	< 5	26	< 5	10
Phenolics	mg/L	0.001	MOEE 3179	17-May-23/K	< 0.001	< 0.001	0.017	< 0.001
Chloride	mg/L	0.5	SM4110C	09-May-23/O	33.2	0.5	103	17.0
Fluoride	mg/L	0.1	SM4110C	09-May-23/O	< 0.1	< 0.1	0.1	< 0.1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	23-May-23/K	0.65	0.31	1.69	1.07
Sulphate	mg/L	1	SM4110C	09-May-23/O	54	15	23	9
Nitrite (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	09-May-23/O	0.06	< 0.05	< 0.05	< 0.05
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	26-May-23/K	1.0	0.8	1.5	1.2
Hardness (as CaCO3)	mg/L	1	SM 3120	10-May-23/O	366	353	305	219
Aluminum	mg/L	0.01	SM 3120	10-May-23/O	0.02	0.04	0.02	0.05
Antimony	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0003	0.0005	< 0.0001	0.0002
Barium	mg/L	0.001	SM 3120	10-May-23/O	0.137	0.048	0.120	0.036
Beryllium	mg/L	0.002	SM 3120	10-May-23/O	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.005	SM 3120	10-May-23/O	0.050	0.012	0.100	0.009



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes

PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		12-91-I	12-91-II	13-91-I	13-91-II
			Sample I.D.		B23-03287-1	B23-03287-2	B23-03287-3	B23-03287-4
			Date Collecte	ed	02-May-23	02-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Cadmium	mg/L	0.000010	EPA 200.8	15-May-23/O	< 0.000010	< 0.000010	< 0.000010	< 0.000010
Calcium	mg/L	0.02	SM 3120	10-May-23/O	93.7	130	55.0	80.7
Chromium	mg/L	0.001	SM 3120	10-May-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	17-May-23/O	< 0.001	< 0.001	< 0.001 1	< 0.001 1
Cobalt	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0005	0.0007	0.0006	0.0014
Iron	mg/L	0.005	SM 3120	10-May-23/O	0.016	1.09	0.281	0.111
Lead	mg/L	0.00002	EPA 200.8	15-May-23/O	< 0.00002	0.00003	< 0.00002	0.00032
Magnesium	mg/L	0.02	SM 3120	10-May-23/O	32.1	6.93	40.8	4.11
Manganese	mg/L	0.001	SM 3120	10-May-23/O	0.010	0.364	0.008	0.007
Mercury	mg/L	0.00002	SM 3112 B	15-May-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0004	0.0001	< 0.0001	0.0001
Nickel	mg/L	0.01	SM 3120	10-May-23/O	< 0.01	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	10-May-23/O	2.5	0.6	3.9	0.1
Phosphorus-Total	mg/L	0.01	E3516.2	26-May-23/K	0.83	0.15	0.11	0.17
Phosphorus	mg/L	0.1	SM 3120	10-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	15-May-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	10-May-23/O	10.9	2.9	12.6	17.7
Strontium	mg/L	0.001	SM 3120	10-May-23/O	0.800	0.290	1.63	0.199
Tin	mg/L	0.05	SM 3120	10-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Titanium	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	0.00005	EPA 200.8	15-May-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Uranium	mg/L	0.00005	EPA 200.8	15-May-23/O	0.00089	0.00798	0.00007	0.00029
Vanadium	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	0.0001
Zinc	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Anion Sum	meq/L		Calc.	11-May-23/O	7.94	7.74	7.07	5.12



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		12-91-l	12-91-II	13-91-I	13-91-II
			Sample I.D.		B23-03287-1	B23-03287-2	B23-03287-3	B23-03287-4
			Date Collect	ed	02-May-23	02-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Cation Sum	meq/L		Calc.	11-May-23/O	7.85	7.26	6.76	5.15
% Difference	%		Calc.	11-May-23/O	0.536	3.20	2.19	0.227
Ion Ratio	AS/CS		Calc.	11-May-23/O	1.01	1.07	1.04	0.995
Conductivity (calc.)	µmho/cm		Calc.	11-May-23/O	731	666	696	485
Sodium Adsorption Ratio	-		Calc.	11-May-23/O	0.247	0.0677	0.313	0.522
TDS(calc.)/EC(actual)	-		Calc.	11-May-23/O	0.551	0.517	0.498	0.532
Langelier Index(25°C)	S.I.		Calc.	11-May-23/O	0.768	0.690	0.372	0.572

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Unable to achieve TKN greater than Ammonia for some samples.



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		14-07	15-91-I	15-91-II	16-91-I
			Sample I.D.		B23-03287-5	B23-03287-6	B23-03287-7	B23-03287-8
			Date Collect	ed	01-May-23	01-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Benzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	0.6	< 0.5
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	09-May-23/O	244	548	588	413
Toluene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	1.1
Conductivity @25°C	µmho/cm	1	SM 2510B	09-May-23/O	482	1160	1070	1850
Ethylbenzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
pH @25°C	pH Units		SM 4500H	09-May-23/O	7.78	7.58	7.06	7.58
Xylene, m,p-	μg/L	1.0	EPA 8260	12-May-23/R	< 1.0	< 1.0	< 1.0	< 1.0
TDS(ion sum calc.)	mg/L	1	Calc.	11-May-23/O	249	653	645	983
Xylene, o-	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	09-May-23/O	2.5	6.5	8.0	6.7
Xylene, m,p,o-	μg/L	1.1	EPA 8260	12-May-23/R	< 1.1	< 1.1	< 1.1	< 1.1
COD	mg/L	5	SM5220C	12-May-23/K	21	49	42	84
Phenolics	mg/L	0.001	MOEE 3179	17-May-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Chloride	mg/L	0.5	SM4110C	09-May-23/O	2.5	20.9	2.0	372
Fluoride	mg/L	0.1	SM4110C	09-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	23-May-23/K	1.67	5.07	2.71	1.08
Sulphate	mg/L	1	SM4110C	09-May-23/O	5	59	< 1	1
Nitrite (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	26-May-23/K	2.3	7.0	3.4	2.5
Hardness (as CaCO3)	mg/L	1	SM 3120	10-May-23/O	239	572	579	575
Aluminum	mg/L	0.01	SM 3120	10-May-23/O	0.04	0.05	0.07	0.05
Antimony	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	0.0002
Arsenic	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	0.0001	0.0039	0.0002
Barium	mg/L	0.001	SM 3120	10-May-23/O	0.038	0.119	0.075	0.548
Beryllium	mg/L	0.002	SM 3120	10-May-23/O	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.005	SM 3120	10-May-23/O	0.008	0.085	0.071	0.304



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		14-07	15-91-I	15-91-II	16-91-I
			Sample I.D.		B23-03287-5	B23-03287-6	B23-03287-7	B23-03287-8
			Date Collecte	ed	01-May-23	01-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Cadmium	mg/L).000010	EPA 200.8	15-May-23/O	< 0.000010	< 0.000012	< 0.000012	< 0.000012
Calcium	mg/L	0.02	SM 3120	10-May-23/O	89.3	184	206	171
Chromium	mg/L	0.001	SM 3120	10-May-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	17-May-23/O	< 0.001	< 0.001 1	< 0.001 1	< 0.001 1
Cobalt	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	0.005	< 0.005	0.007
Copper	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0077	0.0003	0.0003	0.0001
Iron	mg/L	0.005	SM 3120	10-May-23/O	0.012	1.14	57.7	0.865
Lead	mg/L	0.00002	EPA 200.8	15-May-23/O	0.00005	< 0.00004	0.00007	< 0.00004
Magnesium	mg/L	0.02	SM 3120	10-May-23/O	3.70	27.4	15.8	36.1
Manganese	mg/L	0.001	SM 3120	10-May-23/O	0.001	0.070	0.279	0.039
Mercury	mg/L	0.00002	SM 3112 B	15-May-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0003	0.0001	0.0004	0.0003
Nickel	mg/L	0.01	SM 3120	10-May-23/O	< 0.01	< 0.01	< 0.01	0.19
Potassium	mg/L	0.1	SM 3120	10-May-23/O	0.4	5.1	0.8	5.1
Phosphorus-Total	mg/L	0.01	E3516.2	26-May-23/K	0.86	1.15	0.29	0.28
Phosphorus	mg/L	0.1	SM 3120	10-May-23/O	< 0.1	0.5	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	15-May-23/O	< 0.001	0.001	0.001	0.004
Silver	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	10-May-23/O	2.1	27.5	9.3	149
Strontium	mg/L	0.001	SM 3120	10-May-23/O	0.164	0.449	0.521	0.668
Tin	mg/L	0.05	SM 3120	10-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Titanium	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	0.00005	EPA 200.8	15-May-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Uranium	mg/L	0.00005	EPA 200.8	15-May-23/O	0.00047	0.00007	< 0.00005	< 0.00005
Vanadium	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	0.0008	0.0002
Zinc	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Anion Sum	meq/L		Calc.	11-May-23/O	5.05	12.8	11.8	18.8



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		14-07	15-91-I	15-91-II	16-91-I
			Sample I.D.		B23-03287-5	B23-03287-6	B23-03287-7	B23-03287-8
			Date Collect	ed	01-May-23	01-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Cation Sum	meq/L		Calc.	11-May-23/O	4.86	12.8	15.1	18.2
% Difference	%		Calc.	11-May-23/O	1.84	0.184	12.2	1.66
Ion Ratio	AS/CS		Calc.	11-May-23/O	1.04	0.996	0.782	1.03
Conductivity (calc.)	µmho/cm		Calc.	11-May-23/O	458	1099	987	1794
Sodium Adsorption Ratio	-		Calc.	11-May-23/O	0.0582	0.500	0.168	2.71
TDS(calc.)/EC(actual)	-		Calc.	11-May-23/O	0.517	0.566	0.600	0.531
Langelier Index(25°C)	S.I.		Calc.	11-May-23/O	0.685	1.11	0.671	0.926

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Unable to achieve TKN greater than Ammonia for some samples.



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		16-91-II	17-91-I	17-91-II	18-91
			Sample I.D.		B23-03287-9	B23-03287- 10	B23-03287- 11	B23-03287-12
			Date Collecte	ed	01-May-23	01-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Benzene	μg/L	0.5	EPA 8260	12-May-23/R	1.7	< 0.5	< 0.5	< 0.5
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	09-May-23/O	608	282	385	298
Toluene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Conductivity @25°C	µmho/cm	1	SM 2510B	09-May-23/O	1640	760	795	789
Ethylbenzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
pH @25°C	pH Units		SM 4500H	09-May-23/O	7.12	7.73	7.64	7.79
Xylene, m,p-	μg/L	1.0	EPA 8260	12-May-23/R	< 1.0	< 1.0	< 1.0	< 1.0
TDS(ion sum calc.)	mg/L	1	Calc.	11-May-23/O	937	420	443	425
Xylene, o-	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	09-May-23/O	8.7	2.2	2.5	1.4
Xylene, m,p,o-	μg/L	1.1	EPA 8260	12-May-23/R	< 1.1	< 1.1	< 1.1	< 1.1
COD	mg/L	5	SM5220C	12-May-23/K	83	< 5	< 5	< 5
Phenolics	mg/L	0.001	MOEE 3179	17-May-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Chloride	mg/L	0.5	SM4110C	09-May-23/O	180	49.3	4.6	66.6
Fluoride	mg/L	0.1	SM4110C	09-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	23-May-23/K	2.52	0.62	0.78	2.54
Sulphate	mg/L	1	SM4110C	09-May-23/O	3	50	44	23
Nitrite (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	< 0.05	1.27	< 0.05
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	26-May-23/K	3.2	0.7	1.1	2.6
Hardness (as CaCO3)	mg/L	1	SM 3120	10-May-23/O	631	346	406	349
Aluminum	mg/L	0.01	SM 3120	10-May-23/O	0.06	0.04	0.04	0.04
Antimony	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0002	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0331	0.0001	< 0.0001	< 0.0001
Barium	mg/L	0.001	SM 3120	10-May-23/O	0.239	0.067	0.045	0.137
Beryllium	mg/L	0.002	SM 3120	10-May-23/O	< 0.002	< 0.002	< 0.002	< 0.002

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

18-91

C.O.C.: --- REPORT No. B23-03287

Client I.D.

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

17-91-I

17-91-II

P.O. NUMBER: WATERWORKS NO.

16-91-II

			Official and		10 01 11	17 51 1	17 51 11	10 01
			Sample I.D.		B23-03287-9	B23-03287- 10	B23-03287- 11	B23-03287-12
			Date Collecte	ed	01-May-23	01-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Boron	mg/L	0.005	SM 3120	10-May-23/O	0.496	0.017	0.013	0.012
Cadmium	mg/L).000010	EPA 200.8	15-May-23/O	< 0.000012	< 0.000010	< 0.000010	< 0.000010
Calcium	mg/L	0.02	SM 3120	10-May-23/O	223	116	151	117
Chromium	mg/L	0.001	SM 3120	10-May-23/O	0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	17-May-23/O	< 0.001 1	< 0.001 1	< 0.001	< 0.001 1
Cobalt	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	0.006	0.006
Copper	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0002	0.0007	0.0008	0.0007
Iron	mg/L	0.005	SM 3120	10-May-23/O	24.5	1.12	< 0.005	0.054
Lead	mg/L	0.00002	EPA 200.8	15-May-23/O	< 0.00004	0.00003	< 0.00002	< 0.00002
Magnesium	mg/L	0.02	SM 3120	10-May-23/O	18.1	13.4	6.87	14.1
Manganese	mg/L	0.001	SM 3120	10-May-23/O	0.197	0.044	< 0.001	0.011
Mercury	mg/L	0.00002	SM 3112 B	15-May-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0014	0.0004	0.0001	0.0003
Nickel	mg/L	0.01	SM 3120	10-May-23/O	0.06	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	10-May-23/O	6.2	1.1	0.5	1.7
Phosphorus-Total	mg/L	0.01	E3516.2	26-May-23/K	0.12	0.21	1.19	0.91
Phosphorus	mg/L	0.1	SM 3120	10-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	15-May-23/O	0.003	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	10-May-23/O	118	20.0	5.3	23.9
Strontium	mg/L	0.001	SM 3120	10-May-23/O	0.586	0.273	0.270	0.276
Tin	mg/L	0.05	SM 3120	10-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Titanium	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	0.00005	EPA 200.8	15-May-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Uranium	mg/L	0.00005	EPA 200.8	15-May-23/O	0.00011	0.00035	0.00035	0.00044
Vanadium	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0004	< 0.0001	< 0.0001	< 0.0001
Zinc	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23 DATE REPORTED: 14-Jun-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		16-91-II	17-91-I	17-91-II	18-91
			Sample I.D.		B23-03287-9	B23-03287- 10	B23-03287- 11	B23-03287-12
			Date Collect	ed	01-May-23	01-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Anion Sum	meq/L		Calc.	11-May-23/O	17.3	8.07	8.83	8.33
Cation Sum	meq/L		Calc.	11-May-23/O	19.2	7.86	8.35	8.06
% Difference	%		Calc.	11-May-23/O	5.27	1.27	2.75	1.66
Ion Ratio	AS/CS		Calc.	11-May-23/O	0.900	1.03	1.06	1.03
Conductivity (calc.)	µmho/cm		Calc.	11-May-23/O	1572	752	765	780
Sodium Adsorption Ratio	-		Calc.	11-May-23/O	2.04	0.469	0.114	0.557
TDS(calc.)/EC(actual)	-		Calc.	11-May-23/O	0.572	0.553	0.558	0.539
Langelier Index(25°C)	S.I.		Calc.	11-May-23/O	0.749	0.783	0.942	0.869

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Unable to achieve TKN greater than Ammonia for some samples.



Final Report

C.O.C.: ---**REPORT No. B23-03287**

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		19-91	20-91-I	20-91-II	20-91-III
			Sample I.D.		B23-03287- 13	B23-03287- 14	B23-03287- 15	B23-03287-16
			Date Collecte	ed	01-May-23	01-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Benzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	09-May-23/O	339	224	292	378
Toluene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Conductivity @25°C	µmho/cm	1	SM 2510B	09-May-23/O	856	668	788	1010
Ethylbenzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
pH @25°C	pH Units		SM 4500H	09-May-23/O	7.76	7.92	7.90	7.74
Xylene, m,p-	μg/L	1.0	EPA 8260	12-May-23/R	< 1.0	< 1.0	< 1.0	< 1.0
TDS(ion sum calc.)	mg/L	1	Calc.	11-May-23/O	476	338	402	527
Xylene, o-	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	09-May-23/O	2.6	0.7	1.7	6.6
Xylene, m,p,o-	μg/L	1.1	EPA 8260	12-May-23/R	< 1.1	< 1.1	< 1.1	< 1.1
COD	mg/L	5	SM5220C	12-May-23/K	6	17	14	20
Phenolics	mg/L	0.001	MOEE 3179	17-May-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Chloride	mg/L	0.5	SM4110C	09-May-23/O	44.4	79.8	83.2	99.2
Fluoride	mg/L	0.1	SM4110C	09-May-23/O	< 0.1	0.6	0.5	< 0.1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	23-May-23/K	1.21	7.96	1.61	1.09
Sulphate	mg/L	1	SM4110C	09-May-23/O	56	5	< 1	7
Nitrite (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	26-May-23/K	1.2	9.2	1.9	1.1
Hardness (as CaCO3)	mg/L	1	SM 3120	10-May-23/O	395	247	321	387
Aluminum	mg/L	0.01	SM 3120	10-May-23/O	0.05	0.01	0.02	0.06
Antimony	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0001	< 0.0001	< 0.0001	< 0.0001
Barium	mg/L	0.001	SM 3120	10-May-23/O	0.130	0.214	1.42	0.315
Beryllium	mg/L	0.002	SM 3120	10-May-23/O	< 0.002	< 0.002	< 0.002	< 0.002



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

20-91-III

C.O.C.: --- REPORT No. B23-03287

Client I D

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

20-91-I

20-91-11

P.O. NUMBER: WATERWORKS NO.

19-91

			Client I.D.		19-91	20-91-I	20-91-II	20-91-111
			Sample I.D.		B23-03287- 13	B23-03287- 14	B23-03287- 15	B23-03287-16
			Date Collecte	ed	01-May-23	01-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Boron	mg/L	0.005	SM 3120	10-May-23/O	0.016	0.193	0.163	0.122
Cadmium	mg/L).000010	EPA 200.8	15-May-23/O	0.000010	< 0.000010	< 0.000010	< 0.000010
Calcium	mg/L	0.02	SM 3120	10-May-23/O	131	46.5	66.4	111
Chromium	mg/L	0.001	SM 3120	10-May-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	17-May-23/O	< 0.001	< 0.001 1	< 0.001	< 0.001 1
Cobalt	mg/L	0.005	SM 3120	10-May-23/O	0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0008	0.0004	0.0006	0.0007
Iron	mg/L	0.005	SM 3120	10-May-23/O	0.347	0.090	0.393	2.44
Lead	mg/L	0.00002	EPA 200.8	15-May-23/O	0.00005	< 0.00002	< 0.00002	0.00050
Magnesium	mg/L	0.02	SM 3120	10-May-23/O	16.8	31.9	37.8	26.7
Manganese	mg/L	0.001	SM 3120	10-May-23/O	0.038	0.013	0.010	0.064
Mercury	mg/L	0.00002	SM 3112 B	15-May-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0003	< 0.0001	< 0.0001	< 0.0001
Nickel	mg/L	0.01	SM 3120	10-May-23/O	< 0.01	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	10-May-23/O	1.9	6.0	4.1	3.1
Phosphorus-Total	mg/L	0.01	E3516.2	26-May-23/K	0.21	0.16	0.07	0.05
Phosphorus	mg/L	0.1	SM 3120	10-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	15-May-23/O	< 0.001	0.002	0.002	0.001
Silver	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	10-May-23/O	23.1	33.7	33.9	50.6
Strontium	mg/L	0.001	SM 3120	10-May-23/O	0.321	2.39	2.06	0.601
Tin	mg/L	0.05	SM 3120	10-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Titanium	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	0.00005	EPA 200.8	15-May-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Uranium	mg/L	0.00005	EPA 200.8	15-May-23/O	0.00068	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	0.0002
Zinc	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes

PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23
SAMPLE MATRIX: Groundwater

a Pantaleo

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		19-91	20-91-I	20-91-II	20-91-III
			Sample I.D.		B23-03287- 13	B23-03287- 14	B23-03287- 15	B23-03287-16
			Date Collect	ed	01-May-23	01-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Anion Sum	meq/L		Calc.	11-May-23/O	9.19	6.86	8.21	10.5
Cation Sum	meq/L		Calc.	11-May-23/O	8.96	6.57	8.03	10.1
% Difference	%		Calc.	11-May-23/O	1.26	2.17	1.12	1.75
Ion Ratio	AS/CS		Calc.	11-May-23/O	1.03	1.04	1.02	1.04
Conductivity (calc.)	µmho/cm		Calc.	11-May-23/O	839	654	769	957
Sodium Adsorption Ratio	-		Calc.	11-May-23/O	0.505	0.932	0.823	1.12
TDS(calc.)/EC(actual)	-		Calc.	11-May-23/O	0.557	0.506	0.510	0.521
Langelier Index(25°C)	S.I.		Calc.	11-May-23/O	0.943	0.485	0.725	0.899

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Unable to achieve TKN greater than Ammonia for some samples.



Final Report

C.O.C.: ---**REPORT No. B23-03287**

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		21-91-I	21-91-II	21-91-III	23-07
			Sample I.D.		B23-03287- 17	B23-03287- 18	B23-03287- 19	B23-03287-20
			Date Collecte	ed	01-May-23	01-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Benzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	0.5	< 0.5
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	09-May-23/O	496	425	519	256
Toluene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Conductivity @25°C	µmho/cm	1	SM 2510B	09-May-23/O	2530	1500	2100	612
Ethylbenzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	0.8	< 0.5	< 0.5
pH @25°C	pH Units		SM 4500H	09-May-23/O	7.64	7.87	7.51	7.90
Xylene, m,p-	μg/L	1.0	EPA 8260	12-May-23/R	< 1.0	< 1.0	< 1.0	< 1.0
TDS(ion sum calc.)	mg/L	1	Calc.	11-May-23/O	1342	767	1129	330
Xylene, o-	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	0.9	< 0.5	< 0.5
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	09-May-23/O	5.4	2.2	6.7	2.3
Xylene, m,p,o-	μg/L	1.1	EPA 8260	12-May-23/R	< 1.1	< 1.1	< 1.1	< 1.1
COD	mg/L	5	SM5220C	12-May-23/K	63	33	91	< 5
Phenolics	mg/L	0.001	MOEE 3179	17-May-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Chloride	mg/L	0.5	SM4110C	09-May-23/O	581	250	402	23.6
Fluoride	mg/L	0.1	SM4110C	09-May-23/O	< 0.1	1.6	< 0.1	< 0.1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	23-May-23/K	3.35	2.15	1.62	1.13
Sulphate	mg/L	1	SM4110C	09-May-23/O	1	< 1	< 1	35
Nitrite (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	26-May-23/K	3.3	2.4	2.9	1.1
Hardness (as CaCO3)	mg/L	1	SM 3120	10-May-23/O	818	396	700	287
Aluminum	mg/L	0.01	SM 3120	10-May-23/O	0.05	0.02	0.06	0.03
Antimony	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0003	0.0004	< 0.0003	0.0001
Barium	mg/L	0.001	SM 3120	10-May-23/O	0.883	3.96	0.959	0.082
Beryllium	mg/L	0.002	SM 3120	10-May-23/O	< 0.002	< 0.002	< 0.002	< 0.002



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: ---**REPORT No. B23-03287**

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

		[Client I.D.		21-91-I	21-91-II	21-91-III	23-07
			Sample I.D.		B23-03287- 17	B23-03287- 18	B23-03287- 19	B23-03287-20
			Date Collecte	ed	01-May-23	01-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Boron	mg/L	0.005	SM 3120	10-May-23/O	0.578	0.512	0.322	0.010
Cadmium	mg/L).000010	EPA 200.8	15-May-23/O	< 0.000029	< 0.000012	< 0.000029	< 0.000010
Calcium	mg/L	0.02	SM 3120	10-May-23/O	161	70.4	186	97.1
Chromium	mg/L	0.001	SM 3120	10-May-23/O	0.001	0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	17-May-23/O	< 0.001	< 0.001 1	< 0.001	< 0.001 1
Cobalt	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	0.005
Copper	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0003	0.0001	< 0.0002	0.0005
Iron	mg/L	0.005	SM 3120	10-May-23/O	6.48	0.302	0.088	0.012
Lead	mg/L	0.00002	EPA 200.8	15-May-23/O	< 0.00009	< 0.00004	< 0.00009	< 0.00002
Magnesium	mg/L	0.02	SM 3120	10-May-23/O	101	53.5	56.9	10.8
Manganese	mg/L	0.001	SM 3120	10-May-23/O	0.034	0.007	0.035	0.011
Mercury	mg/L	0.00002	SM 3112 B	15-May-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0006	0.0002	< 0.0002	0.0007
Nickel	mg/L	0.01	SM 3120	10-May-23/O	< 0.01	< 0.01	0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	10-May-23/O	11.7	7.6	6.9	1.6
Phosphorus-Total	mg/L	0.01	E3516.2	26-May-23/K	0.12	0.09	0.06	0.26
Phosphorus	mg/L	0.1	SM 3120	10-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	15-May-23/O	< 0.001	0.003	0.006	< 0.001
Silver	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	10-May-23/O	182	129	166	8.3
Strontium	mg/L	0.001	SM 3120	10-May-23/O	9.81	5.98	1.94	0.260
Tin	mg/L	0.05	SM 3120	10-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Titanium	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	0.00005	EPA 200.8	15-May-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Uranium	mg/L	0.00005	EPA 200.8	15-May-23/O	< 0.00005	0.00005	< 0.00005	0.00014
Vanadium	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0004	< 0.0001	< 0.0004	< 0.0001
Zinc	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		21-91-l	21-91-II	21-91-III	23-07
			Sample I.D.		B23-03287- 17	B23-03287- 18	B23-03287- 19	B23-03287-20
			Date Collect	ed	01-May-23	01-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Anion Sum	meq/L		Calc.	11-May-23/O	26.3	15.6	21.7	6.51
Cation Sum	meq/L		Calc.	11-May-23/O	24.9	13.7	21.4	6.13
% Difference	%		Calc.	11-May-23/O	2.76	6.48	0.753	2.96
Ion Ratio	AS/CS		Calc.	11-May-23/O	1.06	1.14	1.02	1.06
Conductivity (calc.)	µmho/cm		Calc.	11-May-23/O	2411	1398	2026	597
Sodium Adsorption Ratio	-		Calc.	11-May-23/O	2.77	2.81	2.72	0.212
TDS(calc.)/EC(actual)	-		Calc.	11-May-23/O	0.531	0.510	0.537	0.539
Langelier Index(25°C)	S.I.		Calc.	11-May-23/O	1.03	0.864	0.983	0.852

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Unable to achieve TKN greater than Ammonia for some samples.



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		25-91	25-96	27-93	28-93
			Sample I.D.		B23-03287- 21	B23-03287- 22	B23-03287- 23	B23-03287-24
			Date Collecte	ed	01-May-23	01-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Benzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	09-May-23/O	320	433	217	304
Toluene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Conductivity @25°C	µmho/cm	1	SM 2510B	09-May-23/O	1080	1380	515	2850
Ethylbenzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
pH @25°C	pH Units		SM 4500H	09-May-23/O	7.88	8.12	7.96	7.94
Xylene, m,p-	μg/L	1.0	EPA 8260	12-May-23/R	< 1.0	< 1.0	< 1.0	< 1.0
TDS(ion sum calc.)	mg/L	1	Calc.	11-May-23/O	591	758	279	1471
Xylene, o-	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	09-May-23/O	1.4	< 0.2	2.1	0.4
Xylene, m,p,o-	μg/L	1.1	EPA 8260	12-May-23/R	< 1.1	< 1.1	< 1.1	< 1.1
COD	mg/L	5	SM5220C	12-May-23/K	8	9	< 5	10
Phenolics	mg/L	0.001	MOEE 3179	17-May-23/K	< 0.001	0.010	0.003	< 0.001
Chloride	mg/L	0.5	SM4110C	09-May-23/O	159	195	9.5	760
Fluoride	mg/L	0.1	SM4110C	09-May-23/O	< 0.1	2.4	0.1	1.7
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	23-May-23/K	0.54	3.03	1.96	5.27
Sulphate	mg/L	1	SM4110C	09-May-23/O	14	< 1	43	< 1
Nitrite (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	26-May-23/K	0.6	3.5	0.5	5.3
Hardness (as CaCO3)	mg/L	1	SM 3120	10-May-23/O	349	155	253	534
Aluminum	mg/L	0.01	SM 3120	10-May-23/O	0.05	< 0.01	0.02	0.03
Antimony	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0003	0.0002	< 0.0001	0.0010
Barium	mg/L	0.001	SM 3120	10-May-23/O	0.088	0.236	0.092	1.33
Beryllium	mg/L	0.002	SM 3120	10-May-23/O	< 0.002	< 0.002	< 0.002	< 0.002



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

28-93

C.O.C.: --- REPORT No. B23-03287

Client I D

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

JOB/PROJECT NO.: Lindsay OPS

25-96

27-93

P.O. NUMBER: WATERWORKS NO.

25-91

Fax: 705-252-5746

			Client I.D.		25-91	25-96	27-93	28-93
			Sample I.D.		B23-03287- 21	B23-03287- 22	B23-03287- 23	B23-03287-24
			Date Collecte	ed	01-May-23	01-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Boron	mg/L	0.005	SM 3120	10-May-23/O	0.015	1.37	0.041	1.09
Cadmium	mg/L	0.000010	EPA 200.8	15-May-23/O	< 0.000012	< 0.000012	< 0.000010	< 0.000029
Calcium	mg/L	0.02	SM 3120	10-May-23/O	126	24.5	67.9	86.6
Chromium	mg/L	0.001	SM 3120	10-May-23/O	< 0.001	0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	17-May-23/O	< 0.001 1	< 0.001 1	< 0.001	< 0.001 1
Cobalt	mg/L	0.005	SM 3120	10-May-23/O	0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0007	0.0004	0.0004	0.0006
Iron	mg/L	0.005	SM 3120	10-May-23/O	0.058	0.011	0.639	4.05
Lead	mg/L	0.00002	EPA 200.8	15-May-23/O	0.00011	< 0.00004	< 0.00002	< 0.00009
Magnesium	mg/L	0.02	SM 3120	10-May-23/O	8.29	22.8	20.2	77.2
Manganese	mg/L	0.001	SM 3120	10-May-23/O	0.015	0.003	0.011	0.079
Mercury	mg/L	0.00002	SM 3112 B	15-May-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0004	0.0019	0.0002	0.0005
Nickel	mg/L	0.01	SM 3120	10-May-23/O	< 0.01	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	10-May-23/O	2.9	11.8	2.3	17.6
Phosphorus-Total	mg/L	0.01	E3516.2	26-May-23/K	0.19	0.07	0.03	0.04
Phosphorus	mg/L	0.1	SM 3120	10-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	15-May-23/O	0.001	0.005	< 0.001	< 0.001
Silver	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	10-May-23/O	89.2	242	5.4	341
Strontium	mg/L	0.001	SM 3120	10-May-23/O	0.355	3.43	0.518	12.6
Tin	mg/L	0.05	SM 3120	10-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Titanium	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	0.00005	EPA 200.8	15-May-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Uranium	mg/L	0.00005	EPA 200.8	15-May-23/O	0.00054	0.00013	< 0.00005	< 0.00005
Vanadium	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0004
Zinc	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		25-91	25-96	27-93	28-93
			Sample I.D.		B23-03287- 21	B23-03287- 22	B23-03287- 23	B23-03287-24
			Date Collect	ed	01-May-23	01-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Anion Sum	meq/L		Calc.	11-May-23/O	11.2	14.3	5.49	27.6
Cation Sum	meq/L		Calc.	11-May-23/O	10.9	13.9	5.38	26.2
% Difference	%		Calc.	11-May-23/O	1.08	1.33	1.03	2.67
Ion Ratio	AS/CS		Calc.	11-May-23/O	1.02	1.03	1.02	1.05
Conductivity (calc.)	µmho/cm		Calc.	11-May-23/O	1080	1338	509	2685
Sodium Adsorption Ratio	-		Calc.	11-May-23/O	2.08	8.46	0.147	6.42
TDS(calc.)/EC(actual)	-		Calc.	11-May-23/O	0.545	0.550	0.541	0.516
Langelier Index(25°C)	S.I.		Calc.	11-May-23/O	1.01	0.663	0.685	0.848

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Unable to achieve TKN greater than Ammonia for some samples.



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Koyla Pantalo

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		29-93	30-93	31-93	35-93-I
			Sample I.D.		B23-03287- 25	B23-03287- 26	B23-03287- 27	B23-03287-28
			Date Collecte	ed	01-May-23	02-May-23	02-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Benzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	09-May-23/O	351	465	455	176
Toluene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Conductivity @25°C	µmho/cm	1	SM 2510B	09-May-23/O	1430	1460	1430	447
Ethylbenzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
pH @25°C	pH Units		SM 4500H	09-May-23/O	7.87	7.70	7.68	8.03
Xylene, m,p-	μg/L	1.0	EPA 8260	12-May-23/R	< 1.0	< 1.0	< 1.0	< 1.0
TDS(ion sum calc.)	mg/L	1	Calc.	11-May-23/O	805	783	766	236
Xylene, o-	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	09-May-23/O	1.7	3.2	2.0	1.9
Xylene, m,p,o-	μg/L	1.1	EPA 8260	12-May-23/R	< 1.1	< 1.1	< 1.1	< 1.1
COD	mg/L	5	SM5220C	12-May-23/K	14	15	15	< 5
Phenolics	mg/L	0.001	MOEE 3179	17-May-23/K	0.001	< 0.001	< 0.001	< 0.001
Chloride	mg/L	0.5	SM4110C	09-May-23/O	230	202	199	24.2
Fluoride	mg/L	0.1	SM4110C	09-May-23/O	< 0.1	< 0.1	< 0.1	0.3
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	23-May-23/K	0.93	8.19	8.16	0.20
Sulphate	mg/L	1	SM4110C	09-May-23/O	69	9	11	25
Nitrite (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	0.05	0.09	0.08
Nitrate (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	0.09	0.18	0.10
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	26-May-23/K	0.9	7.4	8.3	0.2
Hardness (as CaCO3)	mg/L	1	SM 3120	10-May-23/O	376	482	472	223
Aluminum	mg/L	0.01	SM 3120	10-May-23/O	0.04	0.03	0.04	< 0.01
Antimony	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0003	0.0044	0.0023	0.0003
Barium	mg/L	0.001	SM 3120	10-May-23/O	0.088	0.417	0.440	0.181
Beryllium	mg/L	0.002	SM 3120	10-May-23/O	< 0.002	< 0.002	< 0.002	< 0.002



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		29-93	30-93	31-93	35-93-I
			Sample I.D.		B23-03287- 25	B23-03287- 26	B23-03287- 27	B23-03287-28
			Date Collecte	ed	01-May-23	02-May-23	02-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Boron	mg/L	0.005	SM 3120	10-May-23/O	0.038	0.102	0.082	0.110
Cadmium	mg/L	0.000010	EPA 200.8	15-May-23/O	< 0.000012	< 0.000012	< 0.000012	< 0.000010
Calcium	mg/L	0.02	SM 3120	10-May-23/O	137	136	135	41.5
Chromium	mg/L	0.001	SM 3120	10-May-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	17-May-23/O	< 0.001 1	< 0.001 1	< 0.001	< 0.001 1
Cobalt	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	0.006	< 0.005	< 0.005
Copper	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0007	0.0003	0.0004	0.0003
Iron	mg/L	0.005	SM 3120	10-May-23/O	0.385	8.73	10.6	< 0.005
Lead	mg/L	0.00002	EPA 200.8	15-May-23/O	0.00005	< 0.00004	< 0.00004	< 0.00002
Magnesium	mg/L	0.02	SM 3120	10-May-23/O	8.16	34.7	32.9	28.9
Manganese	mg/L	0.001	SM 3120	10-May-23/O	0.258	0.266	0.375	0.001
Mercury	mg/L	0.00002	SM 3112 B	15-May-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0003	0.0005	0.0003	0.0004
Nickel	mg/L	0.01	SM 3120	10-May-23/O	< 0.01	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	10-May-23/O	1.8	3.6	3.8	3.4
Phosphorus-Total	mg/L	0.01	E3516.2	26-May-23/K	3.41	0.11	0.12	0.04
Phosphorus	mg/L	0.1	SM 3120	10-May-23/O	0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	15-May-23/O	< 0.001	0.002	0.002	< 0.001
Silver	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	10-May-23/O	148	109	101	7.2
Strontium	mg/L	0.001	SM 3120	10-May-23/O	0.506	0.528	0.510	1.01
Tin	mg/L	0.05	SM 3120	10-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Titanium	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	0.00005	EPA 200.8	15-May-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Uranium	mg/L	0.00005	EPA 200.8	15-May-23/O	0.00045	0.00017	0.00010	0.00006
Vanadium	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	0.0001
Zinc	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

<u>Attention:</u> Kayla Pantaleo

DATE RECEIVED: 03-May-23 DATE REPORTED: 14-Jun-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		29-93	30-93	31-93	35-93-I
			Sample I.D.		B23-03287- 25	B23-03287- 26	B23-03287- 27	B23-03287-28
			Date Collecte	ed	01-May-23	02-May-23	02-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Anion Sum	meq/L		Calc.	11-May-23/O	14.9	15.2	14.9	4.74
Cation Sum	meq/L		Calc.	11-May-23/O	14.0	15.0	14.5	4.85
% Difference	%		Calc.	11-May-23/O	3.07	0.801	1.51	1.15
Ion Ratio	AS/CS		Calc.	11-May-23/O	1.06	1.02	1.03	0.977
Conductivity (calc.)	µmho/cm		Calc.	11-May-23/O	1404	1384	1349	458
Sodium Adsorption Ratio	-		Calc.	11-May-23/O	3.33	2.17	2.02	0.210
TDS(calc.)/EC(actual)	-		Calc.	11-May-23/O	0.562	0.538	0.536	0.527
Langelier Index(25°C)	S.I.		Calc.	11-May-23/O	1.06	1.02	0.985	0.461

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Unable to achieve TKN greater than Ammonia for some samples.



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		35-93-II	36-93	37-93-I	37-93-II
			Sample I.D.		B23-03287- 29	B23-03287- 30	B23-03287- 31	B23-03287-32
			Date Collecte	ed	01-May-23	01-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Benzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	09-May-23/O	266	239	251	299
Toluene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Conductivity @25°C	µmho/cm	1	SM 2510B	09-May-23/O	639	631	1190	1660
Ethylbenzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
pH @25°C	pH Units		SM 4500H	09-May-23/O	7.90	7.94	7.90	7.83
Xylene, m,p-	μg/L	1.0	EPA 8260	12-May-23/R	< 1.0	< 1.0	< 1.0	< 1.0
TDS(ion sum calc.)	mg/L	1	Calc.	11-May-23/O	324	344	635	881
Xylene, o-	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	09-May-23/O	2.1	1.1	1.0	1.1
Xylene, m,p,o-	μg/L	1.1	EPA 8260	12-May-23/R	< 1.1	< 1.1	< 1.1	< 1.1
COD	mg/L	5	SM5220C	12-May-23/K	< 5	< 5	9	62
Phenolics	mg/L	0.001	MOEE 3179	17-May-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Chloride	mg/L	0.5	SM4110C	09-May-23/O	40.6	34.0	215	329
Fluoride	mg/L	0.1	SM4110C	09-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	23-May-23/K	0.42	0.43	0.40	2.05
Sulphate	mg/L	1	SM4110C	09-May-23/O	10	51	66	59
Nitrite (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	09-May-23/O	0.07	0.17	0.07	< 0.05
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	26-May-23/K	0.8	0.5	0.6	2.2
Hardness (as CaCO3)	mg/L	1	SM 3120	10-May-23/O	225	299	454	517
Aluminum	mg/L	0.01	SM 3120	10-May-23/O	0.04	0.02	0.03	0.05
Antimony	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	0.0001	0.0002
Arsenic	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	0.0001	0.0002	0.0003
Barium	mg/L	0.001	SM 3120	10-May-23/O	0.040	0.247	0.278	0.356
Beryllium	mg/L	0.002	SM 3120	10-May-23/O	< 0.002	< 0.002	< 0.002	< 0.002

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantale

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		35-93-II	36-93	37-93-I	37-93-II
			Sample I.D.		B23-03287- 29	B23-03287- 30	B23-03287- 31	B23-03287-32
			Date Collecte	ed	01-May-23	01-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Boron	mg/L	0.005	SM 3120	10-May-23/O	0.007	0.045	0.050	0.030
Cadmium	mg/L	0.000010	EPA 200.8	15-May-23/O	< 0.000010	< 0.000010	< 0.000012	< 0.000012
Calcium	mg/L	0.02	SM 3120	10-May-23/O	84.2	78.0	108	166
Chromium	mg/L	0.001	SM 3120	10-May-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	17-May-23/O	< 0.001 1	< 0.001 1	< 0.001	< 0.001 1
Cobalt	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	0.007	< 0.005
Copper	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0009	0.0001	< 0.0001	0.0001
Iron	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	1.26	1.16	1.78
Lead	mg/L	0.00002	EPA 200.8	15-May-23/O	< 0.00002	< 0.00002	< 0.00004	< 0.00004
Magnesium	mg/L	0.02	SM 3120	10-May-23/O	3.54	25.2	44.5	24.6
Manganese	mg/L	0.001	SM 3120	10-May-23/O	< 0.001	0.021	0.019	0.097
Mercury	mg/L	0.00002	SM 3112 B	15-May-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0002	0.0002	0.0002	0.0002
Nickel	mg/L	0.01	SM 3120	10-May-23/O	< 0.01	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	10-May-23/O	0.4	1.9	3.1	2.2
Phosphorus-Total	mg/L	0.01	E3516.2	26-May-23/K	0.98	0.26	0.33	1.17
Phosphorus	mg/L	0.1	SM 3120	10-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	15-May-23/O	< 0.001	< 0.001	0.001	< 0.001
Silver	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	10-May-23/O	25.4	9.0	46.7	118
Strontium	mg/L	0.001	SM 3120	10-May-23/O	0.195	0.785	1.32	0.703
Tin	mg/L	0.05	SM 3120	10-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Titanium	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	0.00005	EPA 200.8	15-May-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Uranium	mg/L	0.00005	EPA 200.8	15-May-23/O	0.00027	< 0.00005	< 0.00005	0.00023
Vanadium	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Zinc	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes

PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		35-93-II	36-93	37-93-I	37-93-II
			Sample I.D.		B23-03287- 29	B23-03287- 30	B23-03287- 31	B23-03287-32
			Date Collect	ed	01-May-23	01-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Anion Sum	meq/L		Calc.	11-May-23/O	6.68	6.82	12.5	16.5
Cation Sum	meq/L		Calc.	11-May-23/O	5.60	6.47	11.2	15.6
% Difference	%		Calc.	11-May-23/O	8.77	2.62	5.09	2.83
Ion Ratio	AS/CS		Calc.	11-May-23/O	1.19	1.05	1.11	1.06
Conductivity (calc.)	µmho/cm		Calc.	11-May-23/O	583	627	1177	1588
Sodium Adsorption Ratio	-		Calc.	11-May-23/O	0.736	0.227	0.953	2.25
TDS(calc.)/EC(actual)	-		Calc.	11-May-23/O	0.507	0.545	0.533	0.529
Langelier Index(25°C)	S.I.		Calc.	11-May-23/O	0.808	0.759	0.862	1.03

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Unable to achieve TKN greater than Ammonia for some samples.



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		38-93	39-93-I	39-93-II	45-95-I
			Sample I.D.		B23-03287- 33	B23-03287- 34	B23-03287- 35	B23-03287-36
			Date Collecte	ed	01-May-23	01-May-23	01-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Benzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	09-May-23/O	302	255	289	337
Toluene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Conductivity @25°C	µmho/cm	1	SM 2510B	09-May-23/O	667	983	1190	1180
Ethylbenzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
pH @25°C	pH Units		SM 4500H	09-May-23/O	7.93	7.94	7.92	7.82
Xylene, m,p-	μg/L	1.0	EPA 8260	12-May-23/R	< 1.0	< 1.0	< 1.0	< 1.0
TDS(ion sum calc.)	mg/L	1	Calc.	11-May-23/O	362	517	638	698
Xylene, o-	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	09-May-23/O	2.5	1.2	2.2	2.6
Xylene, m,p,o-	μg/L	1.1	EPA 8260	12-May-23/R	< 1.1	< 1.1	< 1.1	< 1.1
COD	mg/L	5	SM5220C	12-May-23/K	< 5	< 5	19	21
Phenolics	mg/L	0.001	MOEE 3179	17-May-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Chloride	mg/L	0.5	SM4110C	09-May-23/O	15.0	153	212	119
Fluoride	mg/L	0.1	SM4110C	09-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	23-May-23/K	11.4	0.95	1.53	1.86
Sulphate	mg/L	1	SM4110C	09-May-23/O	39	46	19	140
Nitrite (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	26-May-23/K	10.8	0.8	1.9	1.8
Hardness (as CaCO3)	mg/L	1	SM 3120	10-May-23/O	321	410	280	440
Aluminum	mg/L	0.01	SM 3120	10-May-23/O	0.03	0.03	0.06	0.04
Antimony	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	0.0001	< 0.0001
Arsenic	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	0.0001	0.0003
Barium	mg/L	0.001	SM 3120	10-May-23/O	0.134	0.256	0.073	0.038
Beryllium	mg/L	0.002	SM 3120	10-May-23/O	< 0.002	< 0.002	< 0.002	< 0.002



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

45-95-I

C.O.C.: --- REPORT No. B23-03287

Client I.D.

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

39-93-I

39-93-II

P.O. NUMBER: WATERWORKS NO.

38-93

			Sample I.D.		B23-03287- 33	B23-03287- 34	B23-03287- 35	B23-03287-36
			Date Collecte	ed	01-May-23	01-May-23	01-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Boron	mg/L	0.005	SM 3120	10-May-23/O	0.025	0.072	0.028	0.115
Cadmium	mg/L).000010	EPA 200.8	15-May-23/O	< 0.000010	< 0.000010	< 0.000012	< 0.000012
Calcium	mg/L	0.02	SM 3120	10-May-23/O	101	85.4	99.8	129
Chromium	mg/L	0.001	SM 3120	10-May-23/O	< 0.001	< 0.001	0.001	0.001
Chromium (VI)	mg/L	0.001	MOE E3056	17-May-23/O	< 0.001 1	< 0.001 1	< 0.001	< 0.001 1
Cobalt	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	0.006
Copper	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0004	0.0004	0.0009	0.0017
Iron	mg/L	0.005	SM 3120	10-May-23/O	0.045	1.14	0.079	2.35
Lead	mg/L	0.00002	EPA 200.8	15-May-23/O	< 0.00002	< 0.00002	0.00015	< 0.00004
Magnesium	mg/L	0.02	SM 3120	10-May-23/O	16.9	48.0	7.51	28.4
Manganese	mg/L	0.001	SM 3120	10-May-23/O	0.036	0.019	0.026	0.076
Mercury	mg/L	0.00002	SM 3112 B	15-May-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0002	0.0002	0.0002	0.0002
Nickel	mg/L	0.01	SM 3120	10-May-23/O	< 0.01	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	10-May-23/O	1.0	3.0	4.6	2.8
Phosphorus-Total	mg/L	0.01	E3516.2	26-May-23/K	0.18	0.02	0.29	0.03
Phosphorus	mg/L	0.1	SM 3120	10-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	15-May-23/O	< 0.001	< 0.001	0.001	0.001
Silver	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	10-May-23/O	8.3	28.0	121	74.3
Strontium	mg/L	0.001	SM 3120	10-May-23/O	0.426	1.42	0.296	0.433
Tin	mg/L	0.05	SM 3120	10-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Titanium	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	0.00005	EPA 200.8	15-May-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Uranium	mg/L	0.00005	EPA 200.8	15-May-23/O	0.00014	< 0.00005	0.00035	0.00008
Vanadium	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	0.0003	< 0.0001
Zinc	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		38-93	39-93-I	39-93-II	45-95-I
			Sample I.D.		B23-03287- 33	B23-03287- 34	B23-03287- 35	B23-03287-36
			Date Collect	ed	01-May-23	01-May-23	01-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Anion Sum	meq/L		Calc.	11-May-23/O	7.27	10.4	12.2	13.0
Cation Sum	meq/L		Calc.	11-May-23/O	6.80	9.56	11.0	12.2
% Difference	%		Calc.	11-May-23/O	3.30	4.07	5.14	3.11
Ion Ratio	AS/CS		Calc.	11-May-23/O	1.07	1.08	1.11	1.06
Conductivity (calc.)	µmho/cm		Calc.	11-May-23/O	646	978	1163	1175
Sodium Adsorption Ratio	-		Calc.	11-May-23/O	0.201	0.600	3.15	1.54
TDS(calc.)/EC(actual)	-		Calc.	11-May-23/O	0.543	0.526	0.536	0.591
Langelier Index(25°C)	S.I.		Calc.	11-May-23/O	0.961	0.815	0.908	0.977

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Unable to achieve TKN greater than Ammonia for some samples.



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		45-95-II	46-95-I	46-95-II	47-96-I
			Sample I.D.		B23-03287- 37	B23-03287- 38	B23-03287- 39	B23-03287-40
			Date Collecte	ed	02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Benzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	09-May-23/O	272	586	570	435
Toluene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Conductivity @25°C	µmho/cm	1	SM 2510B	09-May-23/O	644	1800	1770	1480
Ethylbenzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
pH @25°C	pH Units		SM 4500H	09-May-23/O	7.93	7.68	7.67	7.82
Xylene, m,p-	μg/L	1.0	EPA 8260	12-May-23/R	< 1.0	< 1.0	< 1.0	< 1.0
TDS(ion sum calc.)	mg/L	1	Calc.	11-May-23/O	329	931	905	791
Xylene, o-	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	09-May-23/O	4.1	5.0	3.8	2.5
Xylene, m,p,o-	μg/L	1.1	EPA 8260	12-May-23/R	< 1.1	< 1.1	< 1.1	< 1.1
COD	mg/L	5	SM5220C	12-May-23/K	17	36	28	20
Phenolics	mg/L	0.001	MOEE 3179	17-May-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Chloride	mg/L	0.5	SM4110C	09-May-23/O	32.0	247	244	240
Fluoride	mg/L	0.1	SM4110C	09-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	23-May-23/K	2.77	29.2	32.4	3.05
Sulphate	mg/L	1	SM4110C	09-May-23/O	9	< 1	1	5
Nitrite (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	09-May-23/O	2.18	0.05	< 0.05	< 0.05
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	26-May-23/K	2.6	32.4	32.6	2.8
Hardness (as CaCO3)	mg/L	1	SM 3120	10-May-23/O	262	518	497	490
Aluminum	mg/L	0.01	SM 3120	10-May-23/O	0.02	0.04	0.04	0.04
Antimony	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	0.0001	< 0.0001	< 0.0001
Barium	mg/L	0.001	SM 3120	10-May-23/O	0.020	1.08	1.03	0.486
Beryllium	mg/L	0.002	SM 3120	10-May-23/O	< 0.002	< 0.002	< 0.002	< 0.002



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

47-96-I

C.O.C.: --- REPORT No. B23-03287

Client I D

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

46-95-I

46-95-II

P.O. NUMBER: WATERWORKS NO.

45-95-II

			Client I.D.		45-95-II	46-95-I	46-95-II	47-96-1
			Sample I.D.		B23-03287- 37	B23-03287- 38	B23-03287- 39	B23-03287-40
			Date Collecte	ed	02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Boron	mg/L	0.005	SM 3120	10-May-23/O	0.018	0.115	0.107	0.073
Cadmium	mg/L).000010	EPA 200.8	15-May-23/O	< 0.000010	< 0.000012	< 0.000012	< 0.000012
Calcium	mg/L	0.02	SM 3120	10-May-23/O	93.5	150	144	133
Chromium	mg/L	0.001	SM 3120	10-May-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	17-May-23/O	< 0.001 1	< 0.001 1	< 0.001	< 0.001 1
Cobalt	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	0.006	0.006
Copper	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0013	0.0004	0.0003	0.0004
Iron	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	11.8	11.4	2.27
Lead	mg/L	0.00002	EPA 200.8	15-May-23/O	< 0.00002	< 0.00004	< 0.00004	< 0.00004
Magnesium	mg/L	0.02	SM 3120	10-May-23/O	6.85	34.5	33.6	38.2
Manganese	mg/L	0.001	SM 3120	10-May-23/O	0.003	0.083	0.080	0.132
Mercury	mg/L	0.00002	SM 3112 B	15-May-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0001	0.0001	0.0001	0.0001
Nickel	mg/L	0.01	SM 3120	10-May-23/O	< 0.01	< 0.01	< 0.01	0.02
Potassium	mg/L	0.1	SM 3120	10-May-23/O	3.0	9.3	9.0	3.1
Phosphorus-Total	mg/L	0.01	E3516.2	26-May-23/K	0.49	0.07	0.05	0.07
Phosphorus	mg/L	0.1	SM 3120	10-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	15-May-23/O	< 0.001	0.002	0.002	0.001
Silver	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	10-May-23/O	21.7	127	120	108
Strontium	mg/L	0.001	SM 3120	10-May-23/O	0.247	0.688	0.662	0.535
Tin	mg/L	0.05	SM 3120	10-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Titanium	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	0.00005	EPA 200.8	15-May-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Uranium	mg/L	0.00005	EPA 200.8	15-May-23/O	0.00022	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	0.0003	0.0003	< 0.0001
Zinc	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		45-95-II	46-95-I	46-95-II	47-96-I
			Sample I.D.		B23-03287- 37	B23-03287- 38	B23-03287- 39	B23-03287-40
			Date Collect	ed	02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Anion Sum	meq/L		Calc.	11-May-23/O	6.68	18.7	18.3	15.6
Cation Sum	meq/L		Calc.	11-May-23/O	6.25	16.7	16.0	14.7
% Difference	%		Calc.	11-May-23/O	3.30	5.45	6.66	2.87
Ion Ratio	AS/CS		Calc.	11-May-23/O	1.07	1.12	1.14	1.06
Conductivity (calc.)	µmho/cm		Calc.	11-May-23/O	600	1597	1555	1432
Sodium Adsorption Ratio	-		Calc.	11-May-23/O	0.584	2.43	2.35	2.13
TDS(calc.)/EC(actual)	-		Calc.	11-May-23/O	0.511	0.517	0.511	0.534
Langelier Index(25°C)	S.I.		Calc.	11-May-23/O	0.893	1.12	1.08	1.10

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Unable to achieve TKN greater than Ammonia for some samples.



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23 DATE REPORTED: 14-Jun-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		47-96-II	48-96-I	48-96-II	49-96-I
			Sample I.D.		B23-03287- 41	B23-03287- 42	B23-03287- 43	B23-03287-44
			Date Collecte	ed	02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Benzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	09-May-23/O	460	288	464	282
Toluene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Conductivity @25°C	µmho/cm	1	SM 2510B	09-May-23/O	1730	783	1240	984
Ethylbenzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
pH @25°C	pH Units		SM 4500H	09-May-23/O	7.80	8.12	7.67	8.18
Xylene, m,p-	μg/L	1.0	EPA 8260	12-May-23/R	< 1.0	< 1.0	< 1.0	< 1.0
TDS(ion sum calc.)	mg/L	1	Calc.	11-May-23/O	887	421	682	547
Xylene, o-	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	09-May-23/O	1.2	1.2	2.4	1.1
Xylene, m,p,o-	μg/L	1.1	EPA 8260	12-May-23/R	< 1.1	< 1.1	< 1.1	< 1.1
COD	mg/L	5	SM5220C	12-May-23/K	31	12	52	8
Phenolics	mg/L	0.001	MOEE 3179	17-May-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Chloride	mg/L	0.5	SM4110C	09-May-23/O	278	76.9	139	136
Fluoride	mg/L	0.1	SM4110C	09-May-23/O	< 0.1	0.4	< 0.1	1.1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	23-May-23/K	30.3	1.75	2.17	2.45
Sulphate	mg/L	1	SM4110C	09-May-23/O	2	23	7	30
Nitrite (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	0.22	< 0.05	0.71
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	26-May-23/K	27.4	1.4	2.3	2.3
Hardness (as CaCO3)	mg/L	1	SM 3120	10-May-23/O	412	340	543	159
Aluminum	mg/L	0.01	SM 3120	10-May-23/O	0.06	0.02	0.06	0.01
Antimony	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0039	0.0002	0.0003	< 0.0001
Barium	mg/L	0.001	SM 3120	10-May-23/O	0.137	1.10	0.780	0.025
Beryllium	mg/L	0.002	SM 3120	10-May-23/O	< 0.002	< 0.002	< 0.002	< 0.002



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

49-96-1

C.O.C.: --- REPORT No. B23-03287

Client I D

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

48-96-I

48-96-II

P.O. NUMBER: WATERWORKS NO.

47-96-II

			Sample I.D.		B23-03287-	B23-03287-	B23-03287-	B23-03287-44
				ı	41	42	43	D23-03207-44
			Date Collecte	ed	02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Boron	mg/L	0.005	SM 3120	10-May-23/O	0.131	0.144	0.078	0.521
Cadmium	mg/L).000010	EPA 200.8	15-May-23/O	< 0.000012	< 0.000010	< 0.000012	< 0.000010
Calcium	mg/L	0.02	SM 3120	10-May-23/O	122	69.2	152	33.1
Chromium	mg/L	0.001	SM 3120	10-May-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	17-May-23/O	< 0.001 1	< 0.001 1	< 0.001	< 0.001 1
Cobalt	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0004	0.0006	0.0003	0.0002
Iron	mg/L	0.005	SM 3120	10-May-23/O	13.0	< 0.005	6.01	< 0.005
Lead	mg/L	0.00002	EPA 200.8	15-May-23/O	0.00012	0.00004	0.00007	< 0.00002
Magnesium	mg/L	0.02	SM 3120	10-May-23/O	25.7	40.7	39.5	18.5
Manganese	mg/L	0.001	SM 3120	10-May-23/O	0.376	< 0.001	0.101	< 0.001
Mercury	mg/L	0.00002	SM 3112 B	15-May-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0005	0.0002	< 0.0001	< 0.0001
Nickel	mg/L	0.01	SM 3120	10-May-23/O	< 0.01	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	10-May-23/O	9.2	3.7	3.2	8.1
Phosphorus-Total	mg/L	0.01	E3516.2	26-May-23/K	2.94	0.02	3.05	0.02
Phosphorus	mg/L	0.1	SM 3120	10-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	15-May-23/O	0.001	< 0.001	0.002	0.001
Silver	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	10-May-23/O	160	35.1	56.1	150
Strontium	mg/L	0.001	SM 3120	10-May-23/O	0.535	1.34	0.950	1.77
Tin	mg/L	0.05	SM 3120	10-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Titanium	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	0.00005	EPA 200.8	15-May-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Uranium	mg/L	0.00005	EPA 200.8	15-May-23/O	0.00007	0.00010	< 0.00005	0.00010
Vanadium	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0002	0.0003	0.0002	< 0.0001
Zinc	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005

DVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

<u>Attention:</u> Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		47-96-II	48-96-I	48-96-II	49-96-I
			Sample I.D.		B23-03287- 41	B23-03287- 42	B23-03287- 43	B23-03287-44
			Date Collect	ed	02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Anion Sum	meq/L		Calc.	11-May-23/O	17.1	8.43	13.3	10.2
Cation Sum	meq/L		Calc.	11-May-23/O	16.1	8.42	13.7	9.92
% Difference	%		Calc.	11-May-23/O	2.88	0.0556	1.32	1.49
Ion Ratio	AS/CS		Calc.	11-May-23/O	1.06	1.00	0.974	1.03
Conductivity (calc.)	µmho/cm		Calc.	11-May-23/O	1551	794	1225	980
Sodium Adsorption Ratio	-		Calc.	11-May-23/O	3.43	0.827	1.05	5.19
TDS(calc.)/EC(actual)	-		Calc. 11-May-23/O		0.512	0.538	0.549	0.556
Langelier Index(25°C)	S.I.		Calc. 11-May-23/O		1.06	0.957	1.04	0.678

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Unable to achieve TKN greater than Ammonia for some samples.



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		49-96-II	49-96-III	59-05	60-05
			Sample I.D.		B23-03287- 45	B23-03287- 46	B23-03287- 47	B23-03287-48
			Date Collecte	ed	02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Benzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	09-May-23/O	282	296	591	301
Toluene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Conductivity @25°C	µmho/cm	1	SM 2510B 09-May-2		1000	889	1770	1010
Ethylbenzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
pH @25°C	pH Units		SM 4500H	09-May-23/O	7.96	7.90	7.64	7.96
Xylene, m,p-	μg/L	1.0	EPA 8260	12-May-23/R	< 1.0	< 1.0	< 1.0	< 1.0
TDS(ion sum calc.)	mg/L	1	Calc.	11-May-23/O	555	490	938	530
Xylene, o-	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	09-May-23/O	1.1	1.9	3.6	2.2
Xylene, m,p,o-	μg/L	1.1	EPA 8260	12-May-23/R	< 1.1	< 1.1	< 1.1	< 1.1
COD	mg/L	5	SM5220C	12-May-23/K	9	< 5	33	19
Phenolics	mg/L	0.001	MOEE 3179	•	< 0.001	< 0.001	< 0.001	< 0.001
Chloride	mg/L	0.5	SM4110C	09-May-23/O	128	94.6	240	144
Fluoride	mg/L	0.1	SM4110C	09-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	23-May-23/K	2.02	2.93	18.5	2.04
Sulphate	mg/L	1	SM4110C	09-May-23/O	75	43	< 1	23
Nitrite (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	0.10	< 0.05	< 0.05
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	26-May-23/K	1.8	3.3	24.1	2.0
Hardness (as CaCO3)	mg/L	1	SM 3120	10-May-23/O	423	353	549	412
Aluminum	mg/L	0.01	SM 3120	10-May-23/O	0.03	0.04	0.04	0.04
Antimony	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.0001			0.0002	< 0.0001	0.0002	< 0.0001
Barium	mg/L	0.001			0.124	0.068	1.26	0.207
Beryllium	mg/L	0.002			< 0.002	< 0.002	< 0.002	< 0.002



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

60-05

C.O.C.: --- REPORT No. B23-03287

Client I.D.

Report To:

City of Kawartha Lakes

PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

49-96-III

59-05

P.O. NUMBER:

49-96-II

WATERWORKS NO.

			OHOIR HEI					
			Sample I.D.		B23-03287- 45	B23-03287- 46	B23-03287- 47	B23-03287-48
			Date Collecte	ed	02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Boron	mg/L	0.005	SM 3120	10-May-23/O	0.773	0.066	0.110	0.022
Cadmium	mg/L	0.000010	EPA 200.8	15-May-23/O	< 0.000010	< 0.000010	< 0.000012	< 0.000010
Calcium	mg/L	0.02	SM 3120	10-May-23/O	112	122	159	101
Chromium	mg/L	0.001	SM 3120	10-May-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	17-May-23/O	< 0.001 1	< 0.001 1	< 0.001	< 0.001 1
Cobalt	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	0.007
Copper	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0003	0.0005	0.0006	0.0009
Iron	mg/L	0.005	SM 3120	10-May-23/O	0.318	< 0.005	11.7	0.610
Lead	mg/L	0.00002	EPA 200.8	15-May-23/O	< 0.00002	0.00024	< 0.00004	0.00003
Magnesium	mg/L	0.02	SM 3120	10-May-23/O	35.0	11.4	36.6	38.6
Manganese	mg/L	0.001	SM 3120	10-May-23/O	0.021	< 0.001	0.077	0.030
Mercury	mg/L	0.00002	SM 3112 B	15-May-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0009	0.0005	< 0.0001	0.0001
Nickel	mg/L	0.01	SM 3120	10-May-23/O	< 0.01	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	10-May-23/O	2.5	1.0	8.4	2.9
Phosphorus-Total	mg/L	0.01	E3516.2	26-May-23/K	0.06	0.16	0.14	0.14
Phosphorus	mg/L	0.1	SM 3120	10-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	15-May-23/O	< 0.001	< 0.001	0.003	< 0.001
Silver	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	10-May-23/O	33.0	39.0	128	39.0
Strontium	mg/L	0.001	SM 3120	10-May-23/O	0.819	0.404	0.751	0.543
Tin	mg/L	0.05	SM 3120	10-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Titanium	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	0.00005	EPA 200.8	15-May-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Uranium	mg/L	0.00005		15-May-23/O	0.00006	0.00058	< 0.00005	< 0.00005
Vanadium	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	0.0009	< 0.0001
Zinc	mg/L	0.005			< 0.005	< 0.005	< 0.005	< 0.005



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		49-96-II	49-96-III	59-05	60-05
			Sample I.D.		B23-03287- 45	B23-03287- 46	B23-03287- 47	B23-03287-48
			Date Collect	ed	02-May-23	02-May-23	02-May-23	02-May-23
Parameter	Units	R.L.	Reference Date/Site Method Analyzed					
Anion Sum	meq/L		Calc.	11-May-23/O	10.8	9.50	18.6	10.6
Cation Sum	meq/L		Calc.	11-May-23/O	9.97	8.77	17.4	10.0
% Difference	%		Calc.	11-May-23/O	4.07	4.00	3.42	2.55
Ion Ratio	AS/CS		Calc.	11-May-23/O	1.08	1.08	1.07	1.05
Conductivity (calc.)	µmho/cm		Calc.	11-May-23/O	1004	881	1613	997
Sodium Adsorption Ratio	-		Calc. 11-May-23/O		0.699	0.904	2.37	0.837
TDS(calc.)/EC(actual)	-		Calc. 11-May-23/O		0.554	0.551	0.531	0.525
Langelier Index(25°C)	S.I.		Calc. 11-May-23/O		0.985	0.997	1.11	0.981

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Unable to achieve TKN greater than Ammonia for some samples.



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		DUP - 1	DUP - 2	DUP - 3	DUP - 4
			Sample I.D.	Sample I.D.		B23-03287- 50	B23-03287- 51	B23-03287-52
			Date Collecte	ed	01-May-23	01-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Benzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	09-May-23/O	250	227	259	414
Toluene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	0.6
Conductivity @25°C	µmho/cm	1	SM 2510B	09-May-23/O	598	669	1000	1860
Ethylbenzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
pH @25°C	pH Units		SM 4500H	09-May-23/O	7.87	8.03	8.01	7.83
Xylene, m,p-	μg/L	1.0	EPA 8260	12-May-23/R	< 1.0	< 1.0	< 1.0	< 1.0
TDS(ion sum calc.)	mg/L	1	Calc.	11-May-23/O	330	344	528	974
Xylene, o-	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	09-May-23/O	2.4	1.4	1.1	6.7
Xylene, m,p,o-	μg/L	1.1	EPA 8260	12-May-23/R	< 1.1	< 1.1	< 1.1	< 1.1
COD	mg/L	5	SM5220C	12-May-23/K	11	21	8	91
Phenolics	mg/L	0.001	MOEE 3179	17-May-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Chloride	mg/L	0.5	SM4110C	09-May-23/O	23.8	82.5	161	360
Fluoride	mg/L	0.1	SM4110C	09-May-23/O	< 0.1	0.6	< 0.1	< 0.1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	23-May-23/K	0.62	4.07	1.48	0.88
Sulphate	mg/L	1	SM4110C	09-May-23/O	36	5	46	1
Nitrite (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	26-May-23/K	0.6	3.9	1.4	2.2
Hardness (as CaCO3)	mg/L	1	SM 3120	10-May-23/O	293	249	408	575
Aluminum	mg/L	0.01	SM 3120	10-May-23/O	0.03	0.01	0.02	0.05
Antimony	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	0.0002
Arsenic	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0001	< 0.0001	< 0.0001	0.0002
Barium	mg/L	0.001	-		0.082	0.222	0.255	0.546
Beryllium	mg/L	0.002			< 0.002	< 0.002	< 0.002	< 0.002



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: ---**REPORT No. B23-03287**

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

		[Client I.D.		DUP - 1	DUP - 2	DUP - 3	DUP - 4
			Sample I.D.		B23-03287- 49	I		B23-03287-52
			Date Collecte	ed	01-May-23	01-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Date/Site Method Analyzed					
Boron	mg/L	0.005	SM 3120	10-May-23/O	0.011	0.191	0.070	0.314
Cadmium	mg/L	0.000010	EPA 200.8	15-May-23/O	< 0.000010	< 0.000010	< 0.000010	< 0.000012
Calcium	mg/L	0.02	SM 3120	10-May-23/O	98.6	47.3	85.0	169
Chromium	mg/L	0.001	SM 3120	10-May-23/O	0.002	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	,		< 0.001 1	< 0.001 1	< 0.001 1 < 0.001 1	
Cobalt	mg/L	0.005	SM 3120	10-May-23/O	0.005	< 0.005	0.005	0.006
Copper	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0003	< 0.0001	< 0.0001	0.0001
Iron	mg/L	0.005	SM 3120	10-May-23/O	0.022	0.090	1.14	0.810
Lead	mg/L	0.00002	EPA 200.8	15-May-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00004
Magnesium	mg/L	0.02	SM 3120	10-May-23/O	11.3	31.7	47.5	37.5
Manganese	mg/L	0.001	SM 3120	10-May-23/O	0.010	0.013	0.017	0.036
Mercury	mg/L	0.00002	SM 3112 B	15-May-23/O	< 0.00002	< 0.00002 < 0.00002		< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0006	< 0.0001	0.0002	0.0003
Nickel	mg/L	0.01	SM 3120	10-May-23/O	< 0.01 < 0.01		< 0.01	0.01
Potassium	mg/L	0.1	SM 3120	10-May-23/O	1.5	6.0	2.9	5.2
Phosphorus-Total	mg/L	0.01	E3516.2	26-May-23/K	0.24	0.14	0.05	0.30
Phosphorus	mg/L	0.1	SM 3120	10-May-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	15-May-23/O	< 0.001	0.002	< 0.001	0.004
Silver	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	10-May-23/O	8.8	33.6	28.1	152
Strontium	mg/L	0.001	SM 3120	10-May-23/O	0.264	2.37	1.42	0.683
Tin	mg/L	0.05	SM 3120	10-May-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Titanium	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	0.00005			< 0.00005	< 0.00005	< 0.00005	< 0.00005
Uranium	mg/L	0.00005					< 0.00005	< 0.00005
Vanadium	mg/L	0.0001			< 0.0001	< 0.0001	< 0.0001	0.0002
Zinc	mg/L	0.005			< 0.005	< 0.005	< 0.005	< 0.005



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

<u>Attention:</u> Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		DUP - 1	DUP - 2	DUP - 3	DUP - 4
			Sample I.D.		B23-03287- 49	B23-03287- 50	B23-03287- 51	B23-03287-52
			Date Collect	ed	01-May-23	01-May-23	01-May-23	01-May-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Anion Sum	meq/L		Calc.	11-May-23/O	6.42	7.01	10.7	18.5
Cation Sum	meq/L		Calc.	11-May-23/O	6.27	6.59	9.51	18.3
% Difference	%		Calc.	11-May-23/O	1.21	3.09	5.86	0.466
Ion Ratio	AS/CS		Calc.	11-May-23/O	1.02	1.06	1.12	1.01
Conductivity (calc.)	µmho/cm		Calc.	11-May-23/O	600	663	994	1779
Sodium Adsorption Ratio	-		Calc.	11-May-23/O	0.224	0.926	0.605	2.76
TDS(calc.)/EC(actual)	-		Calc. 11-May-23/O		0.552	0.513	0.527	0.525
Langelier Index(25°C)	S.I.		Calc. 11-May-23/O		0.820	0.609	0.891	1.17

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Unable to achieve TKN greater than Ammonia for some samples.



Final Report

C.O.C.: --- REPORT No. B23-03287

Client I.D.

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

DUP - 6

P.O. NUMBER: WATERWORKS NO.

DUP - 5

			Ollotte IIID1				
			Sample I.D.		B23-03287- 53	B23-03287- 54	
			Date Collect	ed	01-May-23	02-May-23	
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Benzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	09-May-23/O	263	476	
Toluene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	
Conductivity @25°C	µmho/cm	1	SM 2510B	09-May-23/O	630	1240	
Ethylbenzene	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	
pH @25°C	pH Units		SM 4500H	09-May-23/O	7.93	7.76	
Xylene, m,p-	μg/L	1.0	EPA 8260	12-May-23/R	< 1.0	< 1.0	
TDS(ion sum calc.)	mg/L	1	Calc.	11-May-23/O	329	679	
Xylene, o-	μg/L	0.5	EPA 8260	12-May-23/R	< 0.5	< 0.5	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	09-May-23/O	2.0	2.5	
Xylene, m,p,o-	μg/L	1.1	EPA 8260	12-May-23/R	< 1.1	< 1.1	
COD	mg/L	5	SM5220C	12-May-23/K	21	55	
Phenolics	mg/L	0.001	MOEE 3179	17-May-23/K	< 0.001	< 0.001	
Chloride	mg/L	0.5	SM4110C	09-May-23/O	41.4	139	
Fluoride	mg/L	0.1	SM4110C	09-May-23/O	< 0.1	< 0.1	
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	23-May-23/K	0.25	1.12	
Sulphate	mg/L	1	SM4110C	09-May-23/O	10	7	
Nitrite (N)	mg/L	0.05	SM4110C	09-May-23/O	< 0.05	< 0.05	
Nitrate (N)	mg/L	0.05	SM4110C	09-May-23/O	0.08	< 0.05	
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	26-May-23/K	0.5	1.8	
Hardness (as CaCO3)	mg/L	1	SM 3120	10-May-23/O	231	518	
Aluminum	mg/L	0.01	SM 3120	10-May-23/O	0.02	0.05	
Antimony	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	0.0001	
Arsenic	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	0.0006	
Barium	mg/L	0.001	SM 3120	10-May-23/O	0.042	0.794	
Beryllium	mg/L	0.002	SM 3120	10-May-23/O	< 0.002	< 0.002	

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03287

Client I.D.

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

DUP - 6

P.O. NUMBER: WATERWORKS NO.

DUP - 5

			GHOIR HE				
			Sample I.D.		B23-03287- 53	B23-03287- 54	
			Date Collecte	ed	01-May-23	02-May-23	
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Boron	mg/L	0.005	SM 3120	10-May-23/O	0.008	0.078	
Cadmium	mg/L	0.000010	EPA 200.8	15-May-23/O	< 0.000010	< 0.000012	
Calcium	mg/L	0.02	SM 3120	10-May-23/O	86.1	145	
Chromium	mg/L	0.001	SM 3120	10-May-23/O	< 0.001	< 0.001	
Chromium (VI)	mg/L	0.001	MOE E3056	17-May-23/O	< 0.001 1	< 0.001 1	
Cobalt	mg/L	0.005	SM 3120	10-May-23/O	0.005	0.008	
Copper	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0004	< 0.0001	
Iron	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	5.64	
Lead	mg/L	0.00002	EPA 200.8	15-May-23/O	< 0.00002	< 0.00004	
Magnesium	mg/L	0.02	SM 3120	10-May-23/O	3.85	37.8	
Manganese	mg/L	0.001	SM 3120	10-May-23/O	< 0.001	0.097	
Mercury	mg/L	0.00002	SM 3112 B	15-May-23/O	< 0.00002	< 0.00002	
Molybdenum	mg/L	0.0001	EPA 200.8	15-May-23/O	0.0002	< 0.0001	
Nickel	mg/L	0.01	SM 3120	10-May-23/O	< 0.01	< 0.01	
Potassium	mg/L	0.1	SM 3120	10-May-23/O	0.5	3.2	
Phosphorus-Total	mg/L	0.01	E3516.2	26-May-23/K	0.84	3.38	
Phosphorus	mg/L	0.1	SM 3120	10-May-23/O	< 0.1	< 0.1	
Selenium	mg/L	0.001	EPA 200.8	15-May-23/O	< 0.001	0.002	
Silver	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	< 0.0001	
Sodium	mg/L	0.2	SM 3120	10-May-23/O	29.4	55.8	
Strontium	mg/L	0.001	SM 3120	10-May-23/O	0.204	0.936	
Tin	mg/L	0.05	SM 3120	10-May-23/O	< 0.05	< 0.05	
Titanium	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	
Thallium	mg/L	0.00005	EPA 200.8	15-May-23/O	< 0.00005	< 0.00005	
Uranium	mg/L	0.00005	EPA 200.8	15-May-23/O	0.00026	0.00005	
Vanadium	mg/L	0.0001	EPA 200.8	15-May-23/O	< 0.0001	0.0002	
Zinc	mg/L	0.005	SM 3120	10-May-23/O	< 0.005	< 0.005	

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03287

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 03-May-23

DATE REPORTED: 14-Jun-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

		Client I.D.		DUP - 5	DUP - 6		
			Sample I.D.		B23-03287- 53	B23-03287- 54	
			Date Collect	ed	01-May-23	02-May-23	
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Anion Sum	meq/L		Calc.	11-May-23/O	6.63	13.6	
Cation Sum	meq/L		Calc.	11-May-23/O	5.90	13.2	
% Difference	%		Calc.	11-May-23/O	5.80	1.49	
Ion Ratio	AS/CS		Calc.	11-May-23/O	1.12	1.03	
Conductivity (calc.)	µmho/cm		Calc.	11-May-23/O	596	1211	
Sodium Adsorption Ratio	-		Calc.	11-May-23/O	0.841	1.07	
TDS(calc.)/EC(actual)	-		Calc.	11-May-23/O	0.522	0.547	
Langelier Index(25°C)	S.I.		Calc.	11-May-23/O	0.842	1.12	

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Unable to achieve TKN greater than Ammonia for some samples.

	SAME	PLES SUBMITTE	D TO:			TESTIN	NG RE	EQUII	REME	NTS						REPORT NUMBER (Lab Use)			e)
C A D U C E NO INCLUDING CHIEF CHIEF COmmitted, Quality assures		Kingston Ottawa Richmond Hill Barrie London Windsor	X		O'Reg 153 RPI Medium/Fine MISA Guidelines Provincial Water O Other:	Quality C		Table ICC Cours			Agri O'R Site		eachate A	nalysis	6	23.	- 0	328	7
Are any samples to be submitted intended for	2.4.25.24.20.00.00.00.00.00.00.00.00.00.00.00.00.	ption under any	Drinking \	Water Regulation		_	Yes [_						ing Wate	er Sam	ples on a D	es on a Drinking Water Chain of Custody)		
Organization: City of Kawartha Lakes	Address:		Invoicing	Address (if different):	ANAL	YSES	REC	QUES	FED (ty)	pe text	in the	boxes)					DUND SERVIC D (see back p	
Contact: Kayla Pantaleo Tel: 7053249400 Kayla Pantaleo	322 Ken Lindsay,					2848	2C4C	VOC	втех						Suspected Highly Contaminated	E	Platinum Gold Silver	200% 100% 50% \$	Surcharge Surcharge Surcharge
Email: kpantaleo@kawarthalakes.ca	Quote No:		Project Na	ame/No.: LINDSAY OPS	S GW	2E	20	>	B						ed High	X	Bronze Standard	25% S 5-7 da	Surcharge ys
	P.O. No.:		Additiona	I Info:											nspect		Specific Da		
* Sample Ma	rix Legend: WW=Was	te Water, SW=Surfa		V=Groundwater, LS	Liquid Sludge, SS=	Solid SI	udge,	_		Sedimen te Test Fo			s, F=Filte	r, Oil = 0	il	F	eld	# Bottles/	Field Filtered
No. Sample Source and/or Sample Identification		S.P.L.	Sample Matrix *	(yy-mm-dd)	Collected		E			heck Mar			vided		Х	рН	Temp.	Sample	Y/N
6-90-11		1A6EA	GW	2023-04-			X	X		_	-		30.	+		_		-	N
7-90		1A6EC	-GW-	2023-04-			Х	X			_								N-
7-90-11		1A6ED	-GW	2023-09-1	,		X	X		-						7.21	11.0		N W
11-90		1A6F5	-GW-	2023-03-2	_		X		X							7,20	10.2		Y 69
12-91-1		1A6F6	GW	2023-04 2		Х			Х							7,60	7.9	9	Y
2 12-91-11		1A6F7	GW	2023-04 2		Х			х							7.13	8.6		Y
3 13-91-1		1A6F8	GW	2023-04-1	-	Х			х							7.84	Q.1		Y
13-91-11		1A6F9	GW	2023-04- \		Х			х							7.82	7.5		Υ
5 14-07		24A61	GW	2023-04		Х			X							7.80	5.8		Υ
15-91-1		1A6FB	GW	2023-64-)		Х			Х							7.25	7.5		Υ
7 15-91-11		1A6F6	GW	2023-64-		Х			X							6.82	7.9		Υ
16-91-1		1A6FD	GW	2023-04-)		X			X							7.28		7	Υ
SAMPLE SUBMISSION INFORMATION	0 1 (0)	SHIPPING IN	IFORMATIO	N	REPORTING	INVOI	CING		2000	- J D - /-		0					RATORY US		
Sampled by: Submitted by:	Courier (Clier			Invoice	Report by Fax	F		-		ed By (p			utun			Signature:		AH	
Print: A.Turner/S.Yerbury A.Turner/S.Yerbury	Courier (Cade	uceon account)	X	# of Pieces	Report by Email	=	X	-		eceived			23-	71	1)	Time Recei	ved:	1147	
Sign: 4	23-05-03 23-05-0-3 Caduceon (Pick-up)				Invoice by Email Invoice by Mail		X	H		tory Pre			1	Yes	Label	No ed by:	A	1BF	7
Comments:																	Page G	1 of	8

	SAMPLES SUBM	ITTED TO:			TESTING F	REQUIREMENTS	3		REPORT NUMBER (Lab Use)			
CADUCE NO ENVIRONMENTAL LABORATOR ES	Richmond H Barr Londo	Ottawa RPI Richmond Hill Medium/Fine Barrie X MISA Guidelines London Provincial Water Quality Windsor Other:			Table (1-9) ICC Course	Record of Site (Y/N) Agricultural O'Reg 558 Leachate Analys Site: X Landfill Monitoring	sis	B23-0	328			
Are any samples to be submitted intended for	Control of the contro		200000000000000000000000000000000000000		Yes		(If yes, submit all Drinking V	Vater Sam				
Organization: Ac City of Kawartha Lakes	ddress:	Invoicing	Address (if differen	t):	ANALYSE	S REQUESTED	(type text in the boxes)			DUND SERVICED (see back p		
Contact:	322 Kent St. W. Lindsay, Ontario	Project Na	ame/No.:		2848 2C4C	VOC		Suspected Highly Contaminated	Platinum Gold Silver Bronze	100% Surcharge 50% Surcharge		
	0. No.:	Additiona						uspected Hi	X Standard Specific Da	5-7 da		
* Sample Matrix	Legend: WW=Waste Water, SW=		V=Groundwater, LS Date Collected	=Liquid Sludge, SS Time	=Solid Sludge,		ment, PC=Paint Chips, F=Filter, Oil	= Oil				
No. Sample Source and/or Sample Identification	S.P.L.	Sample Matrix *	(yy-mm-dd)	Collected			Mark In The Box Provided	X	Field PH Temp.	# Bottles/ Sample	Field Filtered Y/N	
Q 16-91-II	1A6F3	GW	2023-04		Х	Х			6.70 11.9	9	Υ	
17-91-1	1A6FF	GW	2023-04-		X	Х			7.38 7.9		Y	
17-91-11	1A700	GW	2023-04-		X	X			7.407.7		Υ	
18-91	1A701	GW	2023-05		х	X			7.58 7.2		Y	
19-91	1A702	GW	2023-04		х	Х			7.44 8.1		Υ	
(U 20-91-I	1A703	GW	2023-04		х	Х			784 9.5		Y	
20-91-11	1A704	GW	2023-05-		Х	Х			7.70 8.5		Υ	
16 20-91-111	1A705	GW	2023-04-		Х	X			7.50 7.9		Y	
21-91-1	1A706	GW	2023-04		х	Х			7.15 12.0		Y	
14 21-91-11	1A707	GW	2023-04		х	Х			7.55 11.5		Y	
19 21-91-111	1A708	GW	2023-04		х	X			7,12 11.9		Υ	
23-'07	24A63	GW	2023-04		х	x			7.667.2		Y	
SAMPLE SUBMISSION INFORMATION	SHIPPIN	G INFORMATION	V	REPORTING	INVOICING		SAMPLE RECEIVING IN	FORMATI	ON (LABORATORY USE			
Sampled by: Submitted by:	Courier (Client account)		Invoice	Report by Fax		Received By	(print): Hutum	1	Signature: A			
Print: A.Turner/S.Yerbury A.Turner/S.Yerbury	X	Report by Email X Date Received (yy-mm-dd): 23-65-67 Time Received:					Time Received:	1147				
Sign: And Strip	gn: Drop Off					Laboratory F	Prepared Bottles: Ye	s	No	00		
23-05-03 2?-05-03 Date (yy-mm-dd)/Time: Date (yy-mm-dd)/Time:	Caduceon (Pick-up)		1	Invoice by Mail		Sample Tem	perature °C: 6-6	Labele	d by:	16-) 7	
Comments:									Page G	2 of CufC. May 2015	9 75 9 Revision No. 22	

	SA	AMPLES SUBMITT	ED TO:			TESTI	NG REQ	UIREN	MENTS			REPORT NUM	BER (Lab Us	ie)
C A D U C E	RATORIES mitted. Quality assured.	Kingston Ottawa Richmond Hill Barrie London Windsor	X		O'Reg 153 RPI Medium/Fine MISA Guidelines Provincial Water (Other:		Co Co Objectives	ourse	Agricultural O'Reg 558 Le Site: X Landfill Monit	achate Analysis	B.	13-0	318	7
Are any samples to be su	bmitted intended for Human Cons	umption under a	y Drinking	Water Regulation		_	Yes X	_			er Samples	on a Drinking Wat		
Organization: City of Kawartha Lakes	Address:		Invoicing	Address (if different)):	ANAI	LYSES R	EQUE	ESTED (type text in the b	oxes)			OUND SERVICED (see back page)	
Contact:		Kent St. W. say, Ontario				8	9 0	×			spected Highly Contaminated	Platinum Gold Silver	100%	Surcharge Surcharge Surcharge
Email:	Quote No:		Project N		CIV	2B4B	2040	BTEX			d Highly	Bronze X Standard		Surcharge
kpantaleo@kawarthalakes.d Additional Info (email, cell, etc):	P.O. No.:		Additiona	LINDSAY OPS	S GW						spected	Specific D		ys
	* Sample Matrix Legend: WW=	Waste Water, SW=Su	rface Water, G			Solid S	Sludge, S=	_		, F=Filter, Oil = C)il		in .	
No. Sample Source and/or Sample Identification		S.P.L.	Sample Matrix *	Date Collected (yy-mm-dd)	Time Collected		Ву		licate Test For Each Sample A Check Mark In The Box Prov	ded	X	pH Temp.	# Bottles/ Sample	Field Filtered Y/N
₹ 24	91	1A70F	GW	2023-04-				-			-			Y
71 25-	91	1A710	GW	2023-04-1		Х		Х			7	:66 7.Z	9	Y
22 25-	96	1A711	GW	2023-09-		х		Х			70	95 7.8		Υ
23 27-	93	1A714	GW	2023-04		х		Х			7	:128.9		Y
24 28-	93	1A715	GW	2023-0		X		X			7	2.69 8.4		Y
29-	93	1A716	GW	2023-04		х		X			7.	52 5.9		Y
76 30-	93	1A717	GW	2023-04-2		Х		X			7	34 6.8		Υ
M 31-	93	1A718	GW	2023-04-2		Х		Х			7.	.33 6.8	1	Y
32-6	93-1	1C7FC	—GW	2023-0\$ 2			X	×			->	:46 10.0		Y a
32-9	3-11	1A719	GW	2023-045 2		-	-X-	×			7	72 8.4		Y 4
32-9	3-111	1A71A	GW	2023-04-			Х	Х			-			Y
28 35-9	03-1	1A71D	GW	2023-04		Х		X			8	32 9.7	9	Y
SAMPLE SUBMISSION INFO			INFORMATIC		REPORTING	INVO	DICING	Dag	SAMPLE :			(LABORATORY U		
Sampled by:	Submitted by:	Client account) Caduceon account)		Invoice	Report by Fax Report by Email	l	X		te Received (yy-mm-dd):	23-05	-	e Received:	1147	
Print: A.Turner/S.Yerbury Sign:	Drop Off		X	# of Pieces	Invoice by Email	l I	X		poratory Prepared Bottles:	Yes		No	1	
23-05-03 2 Date (vy-mm-dd)///ime:		n (Pick-up)		# of Pieces	Invoice by Mail	İ			mple Temperature °C:	6.6	Labeled b		46	A
Comments:	Date (yyrmin-day rang;											Page	3 of	B
						- 1						G	0.40 1104	55

Comments:		Sign:	Print:			1		1		1	8	Š.	B	32	3	30		Lab No. Sam		705: Email: Additional Inf	Contact: Tel:	Organization:			0	
	Data (vy-mm-dd)/Time:	AN X	A.Tumer/S.Yerbury	Sampled by:	SAMPLE SUBMISSION INFORMATION													Sample Source and/or Sample Identification		7053249400 Email: kpantaleo@kawarthalakes.ca Additional Info (email, cell, etc):		City of Kawartha Lakes	Are any samples to be		A D U C	
	27-05-03	1	A.Tumer/S.Yerbury	Submitted by:	INFORMATION	45-93	44-93-11	44-93-1	43-93-11	43-93-1	39-93-II	39-93-1	38-93	37-93-11	37-93-1	36-93	35-93-11	ion	* Sample Matrix Lege			Address:	Are any samples to be submitted intended for Human Consumption under any Drinking Water Regulations?	Client committed, Quality assured.	ABORATORIES	
	Caduceon (Pick-up)	Drop Off	Courier (Caduceon account)	Courier (Client account)															and: WW=Waste	. 0	322 Kent St. W. Lindsay, Ontario		an Consumpt		R	SAMPLI
	ck-up)		ceon account)	t account)	SHIPPING	1A763	1A761	1A75F	1A75D	1A75B	1A74F	1A74C	1A722	1A721	1A720	1A71F	1A71E	S.P.L.	Water, SW=Surf.		St. W.		ion under any	London Windsor	Richmond Hill Barrie	SAMPLES SUBMITTED TO:
		×			SHIPPING INFORMATION	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	Sample Matrix *	ace Water, GW=	Project Name/No.: LINI Additional Info:		Invoicing Ad	Drinking Wa		×	
	→	# of Pieces		Invoice		2023-04-2	2023-04- 2	2023-04- /	2023-04- 7	2023-04	2023-04-	2023-04-	2023-04-	2023-04-	2023-04-	2023-04-)	2023-04-1	Date Collected (yy-mm-dd)	Groundwater, L.	e/No.: LINDSAY OPS GW		Invoicing Address (if different):	ter Regulatio		П	
	Invoice by Mail	Invoice by Email	Report by Email	Report by Fax	REPORT		,,											Collected	S=Liquid Sludge,	'S GW		ę.	ns?	Provincial Wat	Medium/Fine MISA Guidelines	O'Reg 153
		×	×		REPORTING / INVOICING	*	×	×	×	×	×	×	×	×	×	×	×	F F F F F F F F F F	SS=Solid Sludge	2B4 2C4		ANALYSES	Yes X	Quality	в П	IESTING
	Sample	Laborato	Date Red	Receive		×	×	×	×	×	×	×	×	×	×	×	×	Indicate By Using A Ch	, S=Soil, Sed=S	VO BTE		SKEQUEST	X No	tives	Course	Table (1-9)
	Sample Temperature °C:	Laboratory Prepared Bottles: Yes	Date Received (yy-mm-dd): 23-05	Received By (print): HUHW	SAMPLE RECEIVING INFORMATION (LABORATORY USE ONLY)													Indicate Test For Each Sample Using A Check Mark In The Box Provided	Sample Matrix Legend: WW=Waste Water, SW=Surface Water, GW=Groundwater, LS=Liquid Sludge, SS=Solid Sludge, S=Soli, Sed=Sediment, PC=Paint Chips, F=Filter, Oil = Oil			EQUESTED (type text in the boxes)	(If yes, submit all Drinking Water Samples on a Drinking Water Chain of Custody)	X Landfill Monitoring	O'Reg 558 Leachate Analysis Site:	
	Labeled by:		CS-CS Time R	Signature:	ORMATION (L.	72	7.5	14	3.	12	1	7.59	7.68	7,38	7,62	7.76	7.81	×	Oil	Suspected Highly	r Contaminated		ater Samples or			
G Page	7	No	Time Received:	ire:	ABORATORY U	78.0	26.9	77.5	8.8	1.65	19 6.3	87.2	-	38 7.1	S.6	4.8 %	1 10.0	Field Temp.		Bronze X Standard Specific Date:	Platinum Gold Silver	REQUEST	n a Drinking Wa		873-0328	REPORT NUI
4 of CofC, May 2011	78	9	1141	1	SE ONLY)						6					_	9	#Bottles/ Sample			200% 100% 50% 8	REQUESTED (see back page)	ter Chain of Cu		85	REPORT NUMBER (Lab Use)
of /s/	7					*	X	*	Y	Y	~	~	Y	~	Ч	~	~	Field Filtered		25% Surcharge 5-7 days	200% Surcharge 100% Surcharge 50% Surcharge	ige)	stody)		7	ě

9 Revision No. 2.	ColC, May 201	_						_										
53	jo G	ege4																
2	191	W	aq pà:	Labele	0-0	:0:	emperature °	Sample T	ſ		nvoice by Mail	1	П	(Pick-up)	Caduceon	23-02-03 23-05-03	23-05-09 Date (vv-mm-dd)/Time:	Comments
	101	-	ON		Kes Kes	softles:	y Prepared E	Laborato		X	nvoice by Email	# of Pieces	X		Drop Off	TATY	- Ab	:ußig
	Lhl	:pe/	Time Receiv	50	50-2	(pp-1	mm-yy) bevie	Date Rec	Ì	X	lism3 yd hoqe?		П	(tunocon account)	Courier (C	YndiəY.S\reibury	A.Tumer/S.Yerbury	:trinfi
	1	H	:eignature:		in		By (print):		i	Ħ	Report by Fax	Invoice	H	lient account)	Courier (C	Submitted by:	Sampled by:	
	E ONLY)	SU YROTAS			CEINING INE	WPLE RE			5	MOICIN	REPORTING / II		HORMADA	SHIPPINGIN		NOITAMAOHU I	SAMPLE SUBMISSION	
*		016	757					X		X		7-50-5202	CM	277A1		86-89		
٨	T	8.8	222					Х		,	(2023-64- 2	СW	ITTAL		III-96-6Þ		9 h
٨		93	152					Х		2	(Z053-0 2 -7	СW	077A1		II-96-6 7		Sh
Х		L'8	60,8					Х)	(Z023-04-7	СW	187A1		1-96-67		hh
٨		8.P	PJ.7					X)	(7-50-5202	СW	∃97A1		11-96-87		Eh
٨		9.8	592					Х)	(Z023-0€.7	CM	α97Α1		1-96-87		24
Х		8.9	25.7					Х)	(2023-047	СW	1A76C		II-96-2 7		11
٨		P.8	05-7					X)	(5053-0€: J	СW	897A1		1-96-27		Oh
٨		801	11.					X		,	(Z023-08-)	СW	A97A1		II-96-9 7		yu S
λ		10)	112					X		,		2023-00-2	GM	897A1		1-96-97		88
λ		p.0	552					X		,	(2023-04-2	GM	797A1		II-96-9 7		12
У	P	2.7	2.7					X)	(*	5023-0€2	CM	397A1		1-96-97		38
Field Filtered	# Bottles!	ble dmaT	Hq.	Х		eldmes	est For Each S Mark in The	Indicate 7			əmiT bətəəllo	Date Collected (yy-mm-ty)	Sample "xirteM	.L.q.2			Pitnebl elqmeS solbns ecurce aldn	Lab No. Sar
					F=Filter, Oil = (edint Chips,	diment, PC=Pa	S=be2 ,li	os=s '	appulS bi	o2=22 ,egbul2 biupi.	=Groundwater, LS=I	ce Water, GW	Aste Water, SW=Surfa	W=WW: WW=W	xirteM elqme2 *		
	(eb 7-2	Standard Specific Da		Suspected Highly Contamin								LINDSAY OPS	IsnotibbA		::oN.C	akes.ca	kpantaleo@kawarha nto (email, cell, etc):	
льсув где пьсув где	S %09	Silver		ghly Co				ВТЕХ	VOC	2C4C		:.oV/em	Project Nar		iote No:	uQ	93249400	A Company
Surch arge Surch arge		Platinum Gold		ntamina										Gent St. W. Ay, Ontario		0	Kayla Pantale Fax:	:l9T
(a6)	cee pack pa	REQUESTE	4	ted		\perp				_				W 13 100	71 000	зукез	City of Kawartha L	Contact:
	DUND SERVICE						D (type text				IA	ddress (if different):	A gnioiovni		Idress:	ÞΑ	:u	Organizatio
(\lambda pots	r Chain of Cus	inking Wate	ples on a Dri	me2 1e	Drinking Wat	lls Jimdus	(If yes,	οN	X	Yes	્રેડ	later Regulations	Drinking W	Imption under any	Human Consu	be submitted intended for h	Are any samples to	
7	Agricultural O'Reg 558 Leachate Analysis Site: Site: X Landfill Monitoring			əs	Cour	lity Objec	RPI Medium/Fine MISA Guidelines Provincial Water Qua Other:		X	Michmond Hill Barne London London Windsor			ENVIRONMENTAL L	2				
					(N/A) sti2 to bro		(6-1)			O'Reg 153			Kingston				
(0	SER (Lab Us	MUN TRO	REP	-			S.	REMENT	SEGU	STING	3T		:OT 0	MPLES SUBMITTE	IAS			

	SAMPLES SUBMIT	TED TO:			TESTING	REQL	JIREMENTS	S			REPORT NUM	BER (Lab Us	e)
CADUCE NENVIRONMENTAL LABORATORIES Client committed. Quality assured.	Kingston Ottawa Richmond Hill Barrie London Windsor	X		O'Reg 153 RPI Medium/Fine MISA Guidelines Provincial Water Other:	Quality Obje	Cou		Record of Site Agricultural O'Reg 558 Le Site: X Landfill Monit	achate Analysis		B 23-c	378	37
Are any samples to be submitted intended for Huma	an Consumption under a	ny Drinking	Water Regulation	ns?	Ye	s X	No	(If yes, submit a	I Drinking Wate	er Samp	ples on a Drinking Wate	r Chain of Cus	stody)
Organization: Address City of Kawartha Lakes		Invoicing	Address (if different	:	ANALYS	ES RE	QUESTED	(type text in the b	oxes)		1000000	OUND SERVIC O (see back pa	7
Contact: Kayla Pantaleo	322 Kent St. W. Lindsay, Ontario	Project N			284B 2C4C	VOC	втех			spected Highly Contaminated	Platinum Gold Silver Bronze	200% 100% 50% S 25% S	Surcharge Surcharge Surcharge Surcharge
kpantaleo@kawarthalakes.ca Additional Info (email, cell, etc): P.O. No.:		Additiona	LINDSAY OPS	S GW						pected	X Standard Specific Da	5-7 day	ys
* Sample Matrix Lege	nd: WW=Waste Water, SW=Su	rface Water, G	W=Groundwater, LS	Liquid Sludge, SS	Solid Sludg	ge, S=S	oil, Sed=Sedi	iment, PC=Paint Chips	F=Filter, Oil = C	33			
Lab No. Sample Source and/or Sample Identification	S.P.L.	Sample Matrix *	Date Collected (yy-mm-dd)	Time Collected		By U		st For Each Sample Mark In The Box Provi	ded	Х	Field PH Temp.	# Bottles/ Sample	Field Filtered Y/N
54-98	1A778	GW	2023-04-			-							Ý
55-98-1	1A77B	GW	2023-04-2		Х	-	X				7.769.7		γ_
55-98-11	1A77D	GW	2023-05-2		×		X				7.749.5		Y
56-02-1	1A77E	GW	2023-05		X		×				7.68 8.2		Υ.
56-02-11	1A77F	GW	2023-94-										7
57-02-1	1A780	GW	2023-04										<u>Y</u>
57-02-11	1A781	-GW	2023-05 2		X		X				7.64 7.6		Y
58-1	1A782	—GW	2023-0\$ 2		X		X				6.718.9		Y
47 59-05	1A783	GW	2023-04- 2		Х		X				7.13 5-0	9	Υ
48 60-05	1A784	GW	2023-04-2		X		х				7.60 6.5	7	Υ
61-10-1	227CE	GW	2023-04- 7		X	-	X				7.49 8.6		Y
61-10-II	227CF	GW	2023-04- 2		Х		Х				7.35 7.6		Υ
SAMPLE SUBMISSION INFORMATION	and I manage a final to	INFORMATIO	N	REPORTING	/ INVOICE	NG	D b d f	-^			ION (LABORATORY US	-	
Sampled by: Submitted by:	Courier (Client account) Courier (Caduceon account)		Invoice	Report by Fax			Received E		tumn 35.5-5		Signature: H	1147	
Print: A.Turner/S.Yerbury A.Turner/S.Yerbury Sign: A. Turner/S.Yerbury	Drop Off	X	W-CDI	Report by Email Invoice by Email	X	=		Prepared Bottles:			No	11 1/	
Sign: 44 23-05-03 23-05-03 Date (yy-mm-dd)/Time: Date (yy-mm-dd)/Time:	Caduceon (Pick-up)		# of Pieces	Invoice by Mail				mperature °C:	6.6	Labele	- A	UBF	1 7
Comments:		17 18									Page	6 of	2- GS

	SA	MPLES SUBMIT	TED TO:			TESTI	NG R	EQUIF	REMEN	TS					REPO	ORT NUME	BER (Lab Us	e)
CADUCE ENVIRONMENTAL LABORATORIES Client committed. Quality assur	1 "-	Kingston Ottawa Richmond Hill Barrie London Windsor	X		O'Reg 153 RPI Medium/Fine MISA Guidelines Provincial Water Other:	Quality	Objecti	Table ICC Cours		X	Record of S Agricultura O'Reg 558 Site: Landfill Mo	Leachate Ar	nalysis	E	313	3-0	329	57
Are any samples to be submitted intended	or Human Cons	umption under a	ny Drinking	Water Regulation	is?		Yes		No				ng Water	Sample	es on a Dri		er Chain of Cus	1000
Organization: City of Kawartha Lakes	Address:		Invoicing	Address (if different):	ANAL	LYSES	SREC	UESTE	D (type	text in the	boxes)			R		DUND SERVICE D (see back pa	
Contact: Kayla Pantaleo Tel: Fax: 7053249400 Email:	1	Kent St. W. say, Ontario	Project N	lame/No.:		2848	2C4C	VOC	втех					Highly Contaminated		Platinum Gold Silver Bronze	200% 100% 50% S 25% S	Surcharge Surcharge Surcharge Surcharge
kpantaleo@kawarthalakes.ca Additional Info (email, cell, etc):	P.O. No.:		Additiona	LINDSAY OPS	S GW	1								Suspected Highly	_	Standard Specific Da	5-7 day	ys
	atrix Legend: WW=\	Waste Water, SW=Si	urface Water, G	W=Groundwater, LS	Liquid Sludge, SS	=Solid S	iludge,						r, Oil = Oi					
No. Sample Source and/or Sample Identification		S.P.L.	Sample Matrix *	Date Collected (yy-mm-dd)	Time Collected						ach Sample The Box Pr			Х	pH Fiel	Temp.	# Bottles/ Sample	Field Filtered Y/N
Dip		-	GW	2023-04-			V		1					7	7.74	9.5		Υ.
449 DUP-1		-	GW	2023-04-		1			/					7	7.46	1.2	9	Y
50 Dup-2		-	GW	2023-04-		J								1	7.84	9.5		Υ
51 Dup-3			GW	2023-04- [V			1					7	7.58	7.2		Υ
52 Dup-4			GW	2028-4-1		V			1					7	7,28	11.1		V
53 Dup - 5		_	6w	2023-0时1					/					-	7.81	10.0		y y
S4 Dup - 6		-	GW	2028-052		1								-	7.29	9.3	7	y
not + pherols->te	,																	
ger chen + Hg + DOC + M	refals.	toni -	70															
Vials->RH																		
SAMPLE SUBMISSION INFORMATION			INFORMATIO	N	REPORTING	INVO	DICING			10.64	17	1 1				ATORY US	E ONLY)	
Sampled by: Submitted by:		Client account)		Invoice	Report by Fax	Ţ	_	-		d By (prin		th			gnature: me Receiv		11117	
Print: A.Turner/S.Yerbury A.Turner/S.Yerbu	Drop Off	Caduceon account)	X	# of Piloson	Report by Email Invoice by Email	ļ	X	-	_		red Bottles		-	 	No	ou.	111(
23-05-09 23-05-0	Caduceon	n (Pick-up)		# of Pieces	Invoice by Mail		^	+		Temperat			/	Labeled		A	18	77
Comments:			,,													Page G	8 of	18
			200		28-9-5											_	CufC, May 20	19 Revision No. 22



Final Report

C.O.C.: --- REPORT No. B23-03611 (i)

Client I.D.

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Deyonte Levene

DATE RECEIVED: 26-May-23

DATE REPORTED: 22-Jun-23
SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

110 West Beaver Creek Rd Unit 14

Richmond Hill ON L4B 1J9

Tel: 289-475-5442 Fax: 289-562-1963

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

LPC #1

			Cheffit I.D.		WPCP		
			Sample I.D.		B23-03611-1		
			Date Collecte	ed	25-May-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	31-May-23/O	682		
Conductivity @25°C	µmho/cm	1	SM 2510B	31-May-23/O	1630		
pH @25°C	pH Units		SM 4500H	31-May-23/O	7.45		
Colour	TCU	2	SM 2120C	31-May-23/O	14		
Turbidity	NTU	0.1	SM 2130	31-May-23/O	279		
TDS(ion sum calc.)	mg/L	1	Calc.	31-May-23/O	929		
Total Suspended Solids	mg/L	3	SM2540D	02-Jun-23/K	240		
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	30-May-23/O	6.0		
BOD(5 day)	mg/L	3	SM 5210B	01-Jun-23/K	8		
COD	mg/L	5	SM5220C	02-Jun-23/K	55		
Phenolics	mg/L	0.001	MOEE 3179	15-Jun-23/K	< 0.001		
Cyanide (Free)	mg/L	0.005	SM 4500CN	30-May-23/K	< 0.005		
Chloride	mg/L	0.5	SM4110C	12-Jun-23/O	127		
Fluoride	mg/L	0.1	SM4110C	12-Jun-23/O	< 1		
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	06-Jun-23/K	14.9		
Ammonia (N)-unionized	mg/L	0.01	CALC	06-Jun-23/K	0.23		
Sulphate	mg/L	1	SM4110C	12-Jun-23/O	40		
Nitrite (N)	mg/L	0.05	SM4110C	12-Jun-23/O	< 0.5		
Nitrate (N)	mg/L	0.05	SM4110C	12-Jun-23/O	< 0.5		
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	15-Jun-23/K	17.2		
Hardness (as CaCO3)	mg/L	1	SM 3120	01-Jun-23/O	571		
Aluminum	mg/L	0.01	SM 3120	01-Jun-23/O	0.06		
Antimony	mg/L	0.0005	EPA 200.8	12-Jun-23/O	< 0.0005		
Arsenic	mg/L	0.0005	EPA 200.8	12-Jun-23/O	0.0008		
Barium	mg/L	0.001	SM 3120	01-Jun-23/O	0.249		
Beryllium	mg/L	0.002	SM 3120	01-Jun-23/O	< 0.002		

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03611 (i)

Client I.D.

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Deyonte Levene

DATE RECEIVED: 26-May-23

DATE REPORTED: 22-Jun-23
SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

110 West Beaver Creek Rd Unit 14

Richmond Hill ON L4B 1J9

Tel: 289-475-5442 Fax: 289-562-1963

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

LPC #1

			Client I.D.		WPCP		
			Sample I.D.		B23-03611-1		
			Date Collecte	ed	25-May-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Boron	mg/L	0.005	SM 3120	01-Jun-23/O	0.303		
Cadmium	mg/L	0.000070	EPA 200.8	12-Jun-23/O	< 0.000070		
Calcium	mg/L	0.02	SM 3120	01-Jun-23/O	178 ²		
Chromium	mg/L	0.001	SM 3120	01-Jun-23/O	0.001		
Chromium (VI)	mg/L	0.01	MOE E3056	02-Jun-23/O	< 0.01		
Cobalt	mg/L	0.0005	EPA 200.8	12-Jun-23/O	0.0006		
Copper	mg/L	0.0005	EPA 200.8	12-Jun-23/O	< 0.0005		
Iron	mg/L	0.005	SM 3120	01-Jun-23/O	15.9		
Lead	mg/L	0.0001	EPA 200.8	12-Jun-23/O	< 0.0001		
Magnesium	mg/L	0.02	SM 3120	01-Jun-23/O	30.9		
Manganese	mg/L	0.001	SM 3120	01-Jun-23/O	0.455		
Mercury	mg/L	0.00002	SM 3112 B	31-May-23/O	< 0.00002		
Molybdenum	mg/L	0.0005	EPA 200.8	12-Jun-23/O	< 0.0005		
Nickel	mg/L	0.01	SM 3120	01-Jun-23/O	< 0.01		
Potassium	mg/L	0.1	SM 3120	01-Jun-23/O	15.5		
Phosphorus-Total	mg/L	0.01	E3516.2	15-Jun-23/K	0.08		
Phosphorus	mg/L	0.1	SM 3120	01-Jun-23/O	< 0.1		
Selenium	mg/L	0.005	EPA 200.8	12-Jun-23/O	< 0.005		
Silver	mg/L	0.0001	EPA 200.8	12-Jun-23/O	< 0.0001		
Sodium	mg/L	0.2	SM 3120	01-Jun-23/O	93.4		
Strontium	mg/L	0.001	SM 3120	01-Jun-23/O	0.686		
Tin	mg/L	0.05	SM 3120	01-Jun-23/O	< 0.05		
Titanium	mg/L	0.005	SM 3120	01-Jun-23/O	< 0.005		
Thallium	mg/L	0.0003	EPA 200.8	12-Jun-23/O	< 0.0003		
Uranium	mg/L	0.0003	EPA 200.8	12-Jun-23/O	< 0.0003		
Vanadium	mg/L	0.0005	EPA 200.8	12-Jun-23/O	< 0.0005		
Zinc	mg/L	0.005	SM 3120	01-Jun-23/O	< 0.005		

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03611 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St

Lindsay ON K9V 5R8

Attention: Deyonte Levene

DATE RECEIVED: 26-May-23

DATE REPORTED: 22-Jun-23 SAMPLE MATRIX: Waste Water **Caduceon Environmental Laboratories**

110 West Beaver Creek Rd Unit 14

Richmond Hill ON L4B 1J9

Tel: 289-475-5442 Fax: 289-562-1963

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		LPC #1 WPCP		
			Sample I.D.		B23-03611-1		
			Date Collecte	ed	25-May-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Anion Sum	meq/L		Calc.	31-May-23/O	18.0		
Cation Sum	meq/L		Calc.	31-May-23/O	17.8		
% Difference	%		Calc.	31-May-23/O	0.728		
Ion Ratio	AS/CS		Calc.	31-May-23/O	1.01		
Conductivity (calc.)	µmho/cm		Calc.	31-May-23/O	1538		
Sodium Adsorption Ratio	-		Calc.	31-May-23/O	1.70		
TDS(calc.)/EC(actual)	-		Calc.	31-May-23/O	0.571		
Langelier Index(25°C)	S.I.		Calc.	31-May-23/O	1.03		

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Field filtered sample.



Final Report

C.O.C.: --- REPORT No. B23-03611 (ii)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Deyonte Levene

DATE RECEIVED: 26-May-23

DATE REPORTED: 22-Jun-23
SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

110 West Beaver Creek Rd Unit 14

Richmond Hill ON L4B 1J9

Tel: 289-475-5442 Fax: 289-562-1963

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		LPC #1 WPCP		
			Sample I.D.		B23-03611-1		
			Date Collecte	ed	25-May-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Bromodichloromethane	μg/L	2	EPA 8260	01-Jun-23/R	< 2		
Bromoform	μg/L	5	EPA 8260	01-Jun-23/R	< 5		
Benzene	μg/L	0.5	EPA 8260	01-Jun-23/R	1.8		
Chloroform	μg/L	1	EPA 8260	01-Jun-23/R	< 1		
Dibromochloromethane	μg/L	2	EPA 8260	01-Jun-23/R	< 2		
Ethylbenzene	μg/L	0.5	EPA 8260	01-Jun-23/R	0.5		
Xylene, m,p-	μg/L	1.0	EPA 8260	01-Jun-23/R	< 1.0		
Xylene, o-	μg/L	0.5	EPA 8260	01-Jun-23/R	< 0.5		
Xylene, m,p,o-	μg/L	1.1	EPA 8260	01-Jun-23/R	< 1.1		
Toluene	μg/L	0.5	EPA 8260	01-Jun-23/R	< 0.5		
Total Trihalomethanes	μg/L	6	EPA 8260	01-Jun-23/R	< 6		

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03611 (iii)

Client I.D.

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

Attention: Deyonte Levene

DATE RECEIVED: 26-May-23

DATE REPORTED: 22-Jun-23
SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

110 West Beaver Creek Rd Unit 14

Richmond Hill ON L4B 1J9

Tel: 289-475-5442 Fax: 289-562-1963

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

LPC #1

					WPCP		
			Sample I.D.		B23-03611-1		
			Date Collecte	ed	25-May-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Poly-Chlorinated Biphenyls (PCB's)	μg/L	0.05	EPA 8082	01-Jun-23/K	< 0.05		
Aroclor	-		-	01-Jun-23	-		
Hexachlorobenzene	μg/L	0.01	EPA 8080	01-Jun-23/K	< 0.01		
BHC (alpha)	μg/L	0.4	EPA 8080	01-Jun-23/K	< 0.4		
Lindane (Hexachlorocyclohexane, Gamma)	μg/L	0.01	EPA 8080	01-Jun-23/K	< 0.01		
BHC (beta)	μg/L	0.4	EPA 8080	01-Jun-23/K	< 0.4		
Heptachlor	μg/L	0.1	EPA 8080	01-Jun-23/K	< 0.1		
BHC (delta)	μg/L	0.4	EPA 8080	01-Jun-23/K	< 0.4		
Aldrin	μg/L	0.01	EPA 8080	01-Jun-23/K	< 0.01		
Chlordane, oxy-	μg/L	0.04	EPA 8080	01-Jun-23/K	< 0.04		
Heptachlor Epoxide	μg/L	0.1	EPA 8080	01-Jun-23/K	< 0.1		
Chlordane (Gamma)	μg/L	0.05	EPA 8080	01-Jun-23/K	< 0.05		
Endosulfan I	μg/L	0.05	EPA 8080	01-Jun-23/K	< 0.05		
Chlordane (alpha)	μg/L	0.05	EPA 8080	01-Jun-23/K	< 0.05		
DDE, 4,4-	μg/L	0.01	EPA 8080	01-Jun-23/K	< 0.01		
Dieldrin	μg/L	0.01	EPA 8080	01-Jun-23/K	< 0.01		
Endrin	μg/L	0.05	EPA 8080	01-Jun-23/K	< 0.05		
DDD, 4,4-	μg/L	0.05	EPA 8080	01-Jun-23/K	< 0.05		
DDT, 2,4-	μg/L	0.05	EPA 8080	01-Jun-23/K	< 0.05		
Endosulfan II	μg/L	0.05	EPA 8080	01-Jun-23/K	< 0.05		
DDT, 4,4-	μg/L	0.05	EPA 8080	01-Jun-23/K	< 0.05		
Endosulfan Sulfate	μg/L	0.05	EPA 8080	01-Jun-23/K	< 0.05		
Endrin Aldehyde	μg/L	0.05	EPA 8080	01-Jun-23/K	< 0.05		
Methoxychlor	μg/L	0.1	EPA 8080	01-Jun-23/K	< 0.1		

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03611 (iii)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Deyonte Levene

DATE RECEIVED: 26-May-23

DATE REPORTED: 22-Jun-23 SAMPLE MATRIX: Waste Water **Caduceon Environmental Laboratories**

110 West Beaver Creek Rd Unit 14

Richmond Hill ON L4B 1J9

Tel: 289-475-5442 Fax: 289-562-1963

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		LPC #1 WPCP		
			Sample I.D.		B23-03611-1		
			Date Collecte	ed	25-May-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Mirex	μg/L	1	EPA 8080	01-Jun-23/K	< 1		
DDD, 2,4-	μg/L	0.05	EPA 8080	01-Jun-23/K	< 0.05		
DDE, 2,4-	μg/L	0.01	EPA 8080	01-Jun-23/K	< 0.01		
DDT + Metabolites	μg/L	0.01	EPA 8080	01-Jun-23/K	< 0.01		
Endosulfan (Total)	μg/L	0.05	EPA 8080	01-Jun-23/K	< 0.05		
Heptachlor + Heptachlor Epoxide	μg/L	0.1	EPA 8080	01-Jun-23/K	< 0.1		
Aldrin + Dieldrin	μg/L	0.02	EPA 8080	01-Jun-23/K	< 0.02		
Chlordane (Total)	μg/L	0.04	EPA 8080	01-Jun-23/K	< 0.04		

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03611 (iv)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

Attention: Deyonte Levene

DATE RECEIVED: 26-May-23

DATE REPORTED: 22-Jun-23
SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

110 West Beaver Creek Rd Unit 14

Richmond Hill ON L4B 1J9

Tel: 289-475-5442 Fax: 289-562-1963

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		LPC #1 WPCP		
			Sample I.D.		B23-03611-1		
			Date Collecte	ed	25-May-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Gross Alpha	Bq/L	0.10	GFPC	07-Jun-23	< 0.10		
Gross Beta	Bq/L	0.10	GFPC	07-Jun-23	0.46		
Nitrilotriacetic acid (NTA)	mg/L	0.03	subcontract	07-Jun-23	< 0.03 2		

¹ subcontracted to Bureau Veritas Labs

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Subcontracted to SGS Lakefield



Final Report

C.O.C.: --- REPORT No. B23-03766

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 09-Jun-23

DATE REPORTED: 29-Jun-23

SAMPLE MATRIX: Surface Water

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: 23-010

WATERWORKS NO.

			Client I.D.		SW-2	SW-14	SW-18	WPCP Effluent
			Sample I.D.		B23-03766-1	B23-03766-2	B23-03766-3	B23-03766-4
			Date Collecte	ed	08-Jun-23	08-Jun-23	08-Jun-23	08-Jun-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	13-Jun-23/O	315	434	251	222
Conductivity @25°C	µmho/cm	1	SM 2510B	13-Jun-23/O	1190	1150	1030	1580
pH @25°C	pH Units		SM 4500H	13-Jun-23/O	7.79	7.93	7.95	7.93
Colour	TCU	2	SM 2120C	13-Jun-23/O	8	16	46	19
Turbidity	NTU	0.1	SM 2130	13-Jun-23/O	17.6	12.3	17.7	4.8
TDS(ion sum calc.)	mg/L	1	Calc.	16-Jun-23/O	634	617	525	772
Total Suspended Solids	mg/L	3	SM2540D	12-Jun-23/K	260	4	64	13
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	13-Jun-23/O	8.4	4.8	5.7	2.0
BOD(5 day)	mg/L	3	SM 5210B	12-Jun-23/K	11	< 3	< 3	< 3
COD	mg/L	5	SM5220C	20-Jun-23/K	566	14	44	20
Phenolics	mg/L	0.001	MOEE 3179	26-Jun-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Cyanide (Free)	mg/L	0.005	SM 4500CN	16-Jun-23/K	< 0.005	< 0.005	< 0.005	< 0.005
Chloride	mg/L	0.5	SM4110C	23-Jun-23/O	179	123	176	285
Fluoride	mg/L	0.1	SM4110C	23-Jun-23/O	< 0.1	0.1	0.1	< 1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	22-Jun-23/K	1.47	0.15	0.21	0.19
Ammonia (N)-unionized	mg/L	0.01	CALC	22-Jun-23/K	0.02	< 0.01	< 0.01	0.01
Sulphate	mg/L	1	SM4110C	23-Jun-23/O	30	3	6	59
Nitrite (N)	mg/L	0.05	SM4110C	23-Jun-23/O	< 0.05	< 0.05	< 0.05	< 0.5
Nitrate (N)	mg/L	0.05	SM4110C	23-Jun-23/O	< 0.05	< 0.05	< 0.05	9.00
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	27-Jun-23/K	5.0	1.0	1.8	1.5
Tannins and Lignins	mg/L	0.5	SM5500B	13-Jun-23/K		1.2	1.5	
Hardness (as CaCO3)	mg/L	1	SM 3120	20-Jun-23/O	389	435	277	309
Aluminum	mg/L	0.01	SM 3120	19-Jun-23/O	0.04	0.06	0.03	0.11
Aluminum (total)	mg/L	0.01	SM 3120	20-Jun-23/O	0.12	0.14	0.22	1.37
Antimony	mg/L	0.0001	EPA 200.8	22-Jun-23/O	0.0003	0.0002	0.0003	0.0005
Arsenic	mg/L	0.0001	EPA 200.8	22-Jun-23/O	0.0002	0.0012	0.0008	0.0003



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03766

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 09-Jun-23 DATE REPORTED: 29-Jun-23

SAMPLE MATRIX: Surface Water

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: 23-010

WATERWORKS NO.

			Client I.D.		SW-2	SW-14	SW-18	WPCP Effluent
			Sample I.D.		B23-03766-1	B23-03766-2	B23-03766-3	B23-03766-4
			Date Collecte	ed	08-Jun-23	08-Jun-23	08-Jun-23	08-Jun-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Barium	mg/L	0.001	SM 3120	20-Jun-23/O	0.221	0.068	0.053	0.052
Beryllium	mg/L	0.002	SM 3120	20-Jun-23/O	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.005	SM 3120	20-Jun-23/O	0.021	0.073	0.074	0.175
Cadmium	mg/L).000015	EPA 200.8	22-Jun-23/O	< 0.000015	< 0.000015	< 0.000015	0.000045
Calcium	mg/L	0.02	SM 3120	20-Jun-23/O	133	143	84.6	94.9
Chromium	mg/L	0.001	SM 3120	20-Jun-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	23-Jun-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	0.0001	EPA 200.8	22-Jun-23/O	0.0002	0.0016	0.0003	0.0002
Copper	mg/L	0.0001	EPA 200.8	22-Jun-23/O	0.0013	0.0004	0.0004	0.0095
Iron	mg/L	0.005	SM 3120	20-Jun-23/O	0.468	1.90	1.01	0.069
Lead	mg/L	0.00002	EPA 200.8	22-Jun-23/O	0.00018	0.00008	0.00020	0.00079
Magnesium	mg/L	0.02	SM 3120	20-Jun-23/O	14.0	14.4	10.3	14.2
Manganese	mg/L	0.001	SM 3120	20-Jun-23/O	0.070	5.47	0.500	0.011
Mercury	mg/L	0.00002	SM 3112 B	20-Jun-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	22-Jun-23/O	0.0002	0.0002	< 0.0001	0.0026
Nickel	mg/L	0.01	SM 3120	20-Jun-23/O	< 0.01	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	20-Jun-23/O	2.1	2.1	8.6	14.0
Phosphorus-Total	mg/L	0.01	E3516.2	27-Jun-23/K	0.11	0.03	0.10	0.15
Phosphorus	mg/L	0.1	SM 3120	20-Jun-23/O	< 0.1	< 0.1	0.1	0.2
Selenium	mg/L	0.001	EPA 200.8	22-Jun-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	EPA 200.8	22-Jun-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	20-Jun-23/O	84.5	63.8	86.5	172
Strontium	mg/L	0.001	SM 3120	20-Jun-23/O	0.451	0.394	0.316	0.327
Tin	mg/L	0.05	SM 3120	20-Jun-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Titanium	mg/L	0.005	SM 3120	20-Jun-23/O	0.007	< 0.005	0.010	< 0.005
Thallium	mg/L	0.00005	EPA 200.8	22-Jun-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Uranium	mg/L	0.00005	EPA 200.8	22-Jun-23/O	0.00057	0.00022	0.00007	0.00020



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03766

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 09-Jun-23
DATE REPORTED: 29-Jun-23

SAMPLE MATRIX: Surface Water

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: 23-010

WATERWORKS NO.

			Client I.D.		SW-2	SW-14	SW-18	WPCP Effluent
			Sample I.D.		B23-03766-1	B23-03766-2	B23-03766-3	B23-03766-4
			Date Collecte	ed	08-Jun-23	08-Jun-23	08-Jun-23	08-Jun-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Vanadium	mg/L	0.0001	EPA 200.8	22-Jun-23/O	0.0003	0.0006	0.0006	0.0003
Zinc	mg/L	0.005	SM 3120	20-Jun-23/O	0.056	< 0.005	0.007	0.055
Anion Sum	meq/L		Calc.	16-Jun-23/O	12.0	12.2	10.1	14.3
Cation Sum	meq/L		Calc.	16-Jun-23/O	11.6	11.5	9.14	13.8
% Difference	%		Calc.	16-Jun-23/O	1.35	3.06	5.12	2.04
Ion Ratio	AS/CS		Calc.	16-Jun-23/O	1.03	1.06	1.11	1.04
Conductivity (calc.)	µmho/cm		Calc.	16-Jun-23/O	1157	1086	976	1397
Sodium Adsorption Ratio	-		Calc.	16-Jun-23/O	1.86	1.36	2.36	4.35
TDS(calc.)/EC(actual)	-		Calc.	16-Jun-23/O	0.532	0.536	0.511	0.490
Langelier Index(25°C)	S.I.		Calc.	16-Jun-23/O	0.940	1.25	0.815	0.771

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03766

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 09-Jun-23 DATE REPORTED: 29-Jun-23

SAMPLE MATRIX: Surface Water

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: 23-010

WATERWORKS NO.

			Client I.D.		Scg- Upstream	Scg-Down	Embay A	Embay B
			Sample I.D.		B23-03766-5	B23-03766-6	B23-03766-7	B23-03766-8
			Date Collecte	ed	08-Jun-23	08-Jun-23	08-Jun-23	08-Jun-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	13-Jun-23/O	159	126	149	105
Conductivity @25°C	µmho/cm	1	SM 2510B	13-Jun-23/O	444	424	1440	341
pH @25°C	pH Units		SM 4500H	13-Jun-23/O	7.93	7.92	8.16	7.96
Colour	TCU	2	SM 2120C	13-Jun-23/O	30	30	16	33
Turbidity	NTU	0.1	SM 2130	13-Jun-23/O	6.4	3.7	1.5	2.0
TDS(ion sum calc.)	mg/L	1	Calc.	16-Jun-23/O	227	216	681	170
Total Suspended Solids	mg/L	3	SM2540D	12-Jun-23/K	7	< 3	< 3	< 3
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	13-Jun-23/O	5.3	4.9	1.1	8.2
BOD(5 day)	mg/L	3	SM 5210B	12-Jun-23/K	< 3	< 3	< 3	< 3
COD	mg/L	5	SM5220C	20-Jun-23/K	19	< 5	< 5	32
Phenolics	mg/L	0.001	MOEE 3179	26-Jun-23/K	< 0.001	< 0.001	0.002	< 0.001
Cyanide (Free)	mg/L	0.005	SM 4500CN	16-Jun-23/K	< 0.005	< 0.005	< 0.005	< 0.005
Chloride	mg/L	0.5	SM4110C	23-Jun-23/O	39.0	50.7	289	35.7
Fluoride	mg/L	0.1	SM4110C	23-Jun-23/O	0.2	0.2	< 1	0.2
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	22-Jun-23/K	0.08	0.15	0.12	1.00
Ammonia (N)-unionized	mg/L	0.01	CALC	22-Jun-23/K	< 0.01	0.02	0.02	0.11
Sulphate	mg/L	1	SM4110C	23-Jun-23/O	11	13	58	10
Nitrite (N)	mg/L	0.05	SM4110C	23-Jun-23/O	0.06	< 0.05	0.68	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	23-Jun-23/O	0.10	0.14	6.42	< 0.05
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	27-Jun-23/K	1.2	1.0	1.3	1.3
Tannins and Lignins	mg/L	0.5	SM5500B	13-Jun-23/K				
Hardness (as CaCO3)	mg/L	1	SM 3120	20-Jun-23/O	173	144	242	119
Aluminum	mg/L	0.01	SM 3120	19-Jun-23/O	0.02	0.02	0.43	< 0.01
Aluminum (total)	mg/L	0.01	SM 3120	20-Jun-23/O	0.06	0.04	0.40	0.01
Antimony	mg/L	0.0001	EPA 200.8	22-Jun-23/O	0.0004	0.0004	0.0005	0.0003
Arsenic	mg/L	0.0001	EPA 200.8	22-Jun-23/O	0.0004	0.0004	0.0003	0.0003



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03766

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 09-Jun-23

DATE REPORTED: 29-Jun-23

SAMPLE MATRIX: Surface Water

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: 23-010

WATERWORKS NO.

			Client I.D.		Scg- Upstream	Scg-Down	Embay A	Embay B
			Sample I.D.		B23-03766-5	B23-03766-6	B23-03766-7	B23-03766-8
			Date Collecte	ed	08-Jun-23	08-Jun-23	08-Jun-23	08-Jun-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Barium	mg/L	0.001	SM 3120	20-Jun-23/O	0.028	0.018	0.003	0.015
Beryllium	mg/L	0.002	SM 3120	20-Jun-23/O	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.005	SM 3120	20-Jun-23/O	0.011	0.016	0.164	0.013
Cadmium	mg/L).000015	EPA 200.8	22-Jun-23/O	< 0.000015	< 0.000015	0.000030	< 0.000015
Calcium	mg/L	0.02	SM 3120	20-Jun-23/O	51.3	39.3	60.3	30.9
Chromium	mg/L	0.001	SM 3120	20-Jun-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	23-Jun-23/O	< 0.001	< 0.001	< 0.001	< 0.001 1
Cobalt	mg/L	0.0001	EPA 200.8	22-Jun-23/O	< 0.0001	< 0.0001	0.0002	< 0.0001
Copper	mg/L	0.0001	EPA 200.8	22-Jun-23/O	0.0005	0.0004	0.0044	0.0002
Iron	mg/L	0.005	SM 3120	20-Jun-23/O	0.133	0.091	0.017	0.035
Lead	mg/L	0.00002	EPA 200.8	22-Jun-23/O	0.00030	0.00024	0.00060	0.00009
Magnesium	mg/L	0.02	SM 3120	20-Jun-23/O	8.60	8.48	13.0	7.99
Manganese	mg/L	0.001	SM 3120	20-Jun-23/O	0.035	0.026	0.006	0.022
Mercury	mg/L	0.00002	SM 3112 B	20-Jun-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	22-Jun-23/O	0.0003	0.0004	0.0030	0.0002
Nickel	mg/L	0.01	SM 3120	20-Jun-23/O	< 0.01	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	20-Jun-23/O	0.5	0.8	12.3	0.2
Phosphorus-Total	mg/L	0.01	E3516.2	27-Jun-23/K	0.08	0.02	0.04	0.03
Phosphorus	mg/L	0.1	SM 3120	20-Jun-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	22-Jun-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	EPA 200.8	22-Jun-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	20-Jun-23/O	20.5	26.9	159	21.2
Strontium	mg/L	0.001	SM 3120	20-Jun-23/O	0.176	0.153	0.263	0.130
Tin	mg/L	0.05	SM 3120	20-Jun-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Titanium	mg/L	0.005	SM 3120	20-Jun-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Thallium	mg/L	0.00005	EPA 200.8	22-Jun-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Uranium	mg/L	0.00005	EPA 200.8	22-Jun-23/O	0.00045	0.00045	0.00022	0.00031



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03766

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St

Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 09-Jun-23

DATE REPORTED: 29-Jun-23

SAMPLE MATRIX: Surface Water

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: 23-010

WATERWORKS NO.

			Client I.D.		Scg- Upstream	Scg-Down	Embay A	Embay B
			Sample I.D.		B23-03766-5	B23-03766-6	B23-03766-7	B23-03766-8
			Date Collecte	ed	08-Jun-23	08-Jun-23	08-Jun-23	08-Jun-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Vanadium	mg/L	0.0001	EPA 200.8	22-Jun-23/O	0.0006	0.0005	0.0004	0.0004
Zinc	mg/L	0.005	SM 3120	20-Jun-23/O	< 0.005	< 0.005	0.028	< 0.005
Anion Sum	meq/L		Calc.	16-Jun-23/O	4.54	4.25	12.9	3.32
Cation Sum	meq/L		Calc.	16-Jun-23/O	4.18	3.87	11.3	3.20
% Difference	%		Calc.	16-Jun-23/O	4.14	4.71	6.42	1.86
Ion Ratio	AS/CS		Calc.	16-Jun-23/O	1.09	1.10	1.14	1.04
Conductivity (calc.)	µmho/cm		Calc.	16-Jun-23/O	432	415	1258	334
Sodium Adsorption Ratio	-		Calc.	16-Jun-23/O	0.696	1.01	4.84	0.879
TDS(calc.)/EC(actual)	-		Calc.	16-Jun-23/O	0.512	0.509	0.475	0.499
Langelier Index(25°C)	S.I.		Calc.	16-Jun-23/O	0.409	0.184	0.632	0.0560

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03766

Client I D

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 09-Jun-23 DATE REPORTED: 29-Jun-23

SAMPLE MATRIX: Surface Water

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

CP1

P.O. NUMBER: 23-010

WATERWORKS NO.

Embay C

			Client I.D.		Embay C	CP1	
			Sample I.D.		B23-03766-9	B23-03766- 10	
			Date Collecte	ed	08-Jun-23	08-Jun-23	
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	13-Jun-23/O	139	93	
Conductivity @25°C	µmho/cm	1	SM 2510B	13-Jun-23/O	478	1320	
pH @25°C	pH Units		SM 4500H	13-Jun-23/O	8.00	8.36	
Colour	TCU	2	SM 2120C	13-Jun-23/O	30	78	
Turbidity	NTU	0.1	SM 2130	13-Jun-23/O	5.1	7.6	
TDS(ion sum calc.)	mg/L	1	Calc.	16-Jun-23/O	238	649	
Total Suspended Solids	mg/L	3	SM2540D	12-Jun-23/K	< 3	128	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	13-Jun-23/O	7.0	5.3	
BOD(5 day)	mg/L	3	SM 5210B	12-Jun-23/K	< 3	< 3	
COD	mg/L	5	SM5220C	20-Jun-23/K	< 5	67	
Phenolics	mg/L	0.001	MOEE 3179	26-Jun-23/K	< 0.001	< 0.001	
Cyanide (Free)	mg/L	0.005	SM 4500CN	16-Jun-23/K	< 0.005	< 0.005	
Chloride	mg/L	0.5	SM4110C	23-Jun-23/O	57.3	271	
Fluoride	mg/L	0.1	SM4110C	23-Jun-23/O	0.2	< 1	
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	22-Jun-23/K	0.41	0.08	
Ammonia (N)-unionized	mg/L	0.01	CALC	22-Jun-23/K	0.04	0.04	
Sulphate	mg/L	1	SM4110C	23-Jun-23/O	14	54	
Nitrite (N)	mg/L	0.05	SM4110C	23-Jun-23/O	0.07	< 0.5	
Nitrate (N)	mg/L	0.05	SM4110C	23-Jun-23/O	0.28	< 0.5	
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	27-Jun-23/K	1.2	2.3	
Tannins and Lignins	mg/L	0.5	SM5500B	13-Jun-23/K		0.9	
Hardness (as CaCO3)	mg/L	1	SM 3120	20-Jun-23/O	160	140	
Aluminum	mg/L	0.01	SM 3120	19-Jun-23/O	0.03	0.02	
Aluminum (total)	mg/L	0.01	SM 3120	20-Jun-23/O	0.05	0.67	
Antimony	mg/L	0.0001	EPA 200.8	22-Jun-23/O	0.0004	0.0004	
Arsenic	mg/L	0.0001	EPA 200.8	22-Jun-23/O	0.0004	0.0011	

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03766

Client I.D.

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 09-Jun-23 DATE REPORTED: 29-Jun-23

SAMPLE MATRIX: Surface Water

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

CP1

P.O. NUMBER: 23-010

WATERWORKS NO.

Embay C

		I			•			
			Sample I.D.		B23-03766-9	B23-03766- 10		
			Date Collecte	ed	08-Jun-23	08-Jun-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Barium	mg/L	0.001	SM 3120	20-Jun-23/O	0.022	0.057		
Beryllium	mg/L	0.002	SM 3120	20-Jun-23/O	< 0.002	< 0.002		
Boron	mg/L	0.005	SM 3120	20-Jun-23/O	0.018	0.087		
Cadmium	mg/L).000015	EPA 200.8	22-Jun-23/O	< 0.000015	0.000015		
Calcium	mg/L	0.02	SM 3120	20-Jun-23/O	43.3	38.3		
Chromium	mg/L	0.001	SM 3120	20-Jun-23/O	< 0.001	< 0.001		
Chromium (VI)	mg/L	0.001	MOE E3056	23-Jun-23/O	< 0.001	< 0.001	1	
Cobalt	mg/L	0.0001	EPA 200.8	22-Jun-23/O	< 0.0001	0.0006		
Copper	mg/L	0.0001	EPA 200.8	22-Jun-23/O	0.0006	0.0022		
Iron	mg/L	0.005	SM 3120	20-Jun-23/O	0.133	1.25		
Lead	mg/L	0.00002	EPA 200.8	22-Jun-23/O	0.00028	0.00080		
Magnesium	mg/L	0.02	SM 3120	20-Jun-23/O	8.39	10.7		
Manganese	mg/L	0.001	SM 3120	20-Jun-23/O	0.029	0.092		
Mercury	mg/L	0.00002	SM 3112 B	20-Jun-23/O	< 0.00002	< 0.00002		
Molybdenum	mg/L	0.0001	EPA 200.8	22-Jun-23/O	0.0005	0.0015		
Nickel	mg/L	0.01	SM 3120	20-Jun-23/O	< 0.01	< 0.01		
Potassium	mg/L	0.1	SM 3120	20-Jun-23/O	1.3	71.5		
Phosphorus-Total	mg/L	0.01	E3516.2	27-Jun-23/K	0.04	0.04		
Phosphorus	mg/L	0.1	SM 3120	20-Jun-23/O	< 0.1	< 0.1		
Selenium	mg/L	0.001	EPA 200.8	22-Jun-23/O	< 0.001	< 0.001		
Silver	mg/L	0.0001	EPA 200.8	22-Jun-23/O	< 0.0001	< 0.0001		
Sodium	mg/L	0.2	SM 3120	20-Jun-23/O	29.4	146		
Strontium	mg/L	0.001	SM 3120	20-Jun-23/O	0.159	0.333		
Tin	mg/L	0.05	SM 3120	20-Jun-23/O	< 0.05	< 0.05		
Titanium	mg/L	0.005	SM 3120	20-Jun-23/O	< 0.005	0.035		
Thallium	mg/L	0.00005	EPA 200.8	22-Jun-23/O	< 0.00005	< 0.00005		
Uranium	mg/L	0.00005	EPA 200.8	22-Jun-23/O	0.00045	0.00044		



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03766

Report To:

Caduceon Environmental Laboratories

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8 112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Attention: Kayla Pantaleo

JOB/PROJECT NO.: Lindsay OPS

DATE RECEIVED: 09-Jun-23 DATE REPORTED: 29-Jun-23

P.O. NUMBER: 23-010

SAMPLE MATRIX: Surface Water

WATERWORKS NO.

Fax: 705-252-5746

			Client I.D.		Embay C	CP1	
			Sample I.D.		B23-03766-9	B23-03766- 10	
			Date Collecte	ed	08-Jun-23	08-Jun-23	
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Vanadium	mg/L	0.0001	EPA 200.8	22-Jun-23/O	0.0006	0.0014	
Zinc	mg/L	0.005	SM 3120	20-Jun-23/O	0.009	0.007	
Anion Sum	meq/L		Calc.	16-Jun-23/O	4.71	10.6	
Cation Sum	meq/L		Calc.	16-Jun-23/O	4.20	11.0	
% Difference	%		Calc.	16-Jun-23/O	5.79	1.83	
Ion Ratio	AS/CS		Calc.	16-Jun-23/O	1.12	0.964	
Conductivity (calc.)	µmho/cm		Calc.	16-Jun-23/O	454	1209	
Sodium Adsorption Ratio	-		Calc.	16-Jun-23/O	1.07	5.37	
TDS(calc.)/EC(actual)	-		Calc.	16-Jun-23/O	0.497	0.491	
Langelier Index(25°C)	S.I.		Calc.	16-Jun-23/O	0.346	0.442	

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Steve Garrett
Director of Laboratory Services

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

....



Final Report

C.O.C.: --- REPORT No. B23-03771

Report To:

City of Kawartha Lakes

PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 09-Jun-23

DATE REPORTED: 29-Jun-23

SAMPLE MATRIX: Surface Water

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: 23-010

WATERWORKS NO.

			Client I.D.		Nearshore #1	Nearshore #1 - F	Nearshore #2	Nearshore #2 - F
			Sample I.D.		B23-03771-1	B23-03771-3	B23-03771-2	B23-03771-4
			Date Collect	ed	08-Jun-23	08-Jun-23	08-Jun-23	08-Jun-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
pH @25°C	pH Units		SM 4500H	13-Jun-23/O	7.45		8.23	
Turbidity	NTU	0.1	SM 2130	13-Jun-23/O	1.7		1.1	
Total Suspended Solids	mg/L	3	SM2540D	14-Jun-23/K	4		7	
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	22-Jun-23/K	0.12		0.18	
Iron	mg/L	0.005	SM 3120	20-Jun-23/O	0.041	0.035	0.075	0.057

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03854 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Deyonte Levene

DATE RECEIVED: 15-Jun-23

DATE REPORTED: 14-Jul-23
SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

110 West Beaver Creek Rd Unit 14

Richmond Hill ON L4B 1J9

Tel: 289-475-5442 Fax: 289-562-1963

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		LPC #1 WPCP		
			Sample I.D.		B23-03854-1		
			Date Collecte	ed	14-Jun-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	19-Jun-23/O	673		
Conductivity @25°C	µmho/cm	1	SM 2510B	19-Jun-23/O	1700		
pH @25°C	pH Units		SM 4500H	19-Jun-23/O	6.81		
TDS(ion sum calc.)	mg/L	1	Calc.	20-Jun-23/O	960		
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	19-Jun-23/O	6.3		
BOD(5 day)	mg/L	3	SM 5210B	16-Jun-23/K	8		
COD	mg/L	5	SM5220C	21-Jun-23/K	69		
Phenolics	mg/L	0.001	MOEE 3179	26-Jun-23/K	< 0.001		
Chloride	mg/L	0.5	SM4110C	29-Jun-23/O	137		
Fluoride	mg/L	0.1	SM4110C	29-Jun-23/O	< 1		
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	27-Jun-23/K	16.3		
Sulphate	mg/L	1	SM4110C	29-Jun-23/O	42		
Nitrite (N)	mg/L	0.05	SM4110C	29-Jun-23/O	< 0.5		
Nitrate (N)	mg/L	0.05	SM4110C	29-Jun-23/O	< 0.5		
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	26-Jun-23/K	19.5		
Hardness (as CaCO3)	mg/L	1	SM 3120	21-Jun-23/O	605		
Aluminum	mg/L	0.01	SM 3120	21-Jun-23/O	0.06		
Antimony	mg/L	0.0005	EPA 200.8	27-Jun-23/O	8000.0		
Arsenic	mg/L	0.0005	EPA 200.8	27-Jun-23/O	0.0087		
Barium	mg/L	0.001	SM 3120	21-Jun-23/O	0.287		
Beryllium	mg/L	0.002	SM 3120	21-Jun-23/O	< 0.002		
Boron	mg/L	0.005	SM 3120	21-Jun-23/O	0.385		
Cadmium	mg/L).000070	EPA 200.8	27-Jun-23/O	< 0.000070		
Calcium	mg/L	0.02	SM 3120	21-Jun-23/O	187 ²		
Chromium	mg/L	0.001	SM 3120	21-Jun-23/O	< 0.001		
Chromium (VI)	mg/L	0.01	MOE E3056	28-Jun-23/O	< 0.01		

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03854 (i)

Client I.D.

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Deyonte Levene

DATE RECEIVED: 15-Jun-23

DATE REPORTED: 14-Jul-23
SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

110 West Beaver Creek Rd Unit 14

Richmond Hill ON L4B 1J9

Tel: 289-475-5442 Fax: 289-562-1963

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

LPC #1

			Client I.D.		WPCP		
			Sample I.D.		B23-03854-1		
			Date Collect	ed	14-Jun-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Cobalt	mg/L	0.0005	EPA 200.8	27-Jun-23/O	0.0026		
Copper	mg/L	0.0005	EPA 200.8	27-Jun-23/O	0.0021		
Iron	mg/L	0.005	SM 3120	21-Jun-23/O	16.5		
Lead	mg/L	0.0001	EPA 200.8	27-Jun-23/O	0.0014		
Magnesium	mg/L	0.02	SM 3120	21-Jun-23/O	33.5		
Manganese	mg/L	0.001	SM 3120	21-Jun-23/O	0.442		
Mercury	mg/L	0.00002	SM 3112 B	19-Jun-23/O	< 0.00002		
Molybdenum	mg/L	0.0005	EPA 200.8	27-Jun-23/O	0.0014		
Nickel	mg/L	0.01	SM 3120	21-Jun-23/O	< 0.01		
Potassium	mg/L	0.1	SM 3120	21-Jun-23/O	17.9		
Phosphorus-Total	mg/L	0.01	E3516.2	26-Jun-23/K	0.36		
Phosphorus	mg/L	0.1	SM 3120	21-Jun-23/O	< 0.1		
Selenium	mg/L	0.005	EPA 200.8	27-Jun-23/O	< 0.005		
Silver	mg/L	0.0001	EPA 200.8	27-Jun-23/O	< 0.0001		
Sodium	mg/L	0.2	SM 3120	21-Jun-23/O	101		
Strontium	mg/L	0.001	SM 3120	21-Jun-23/O	0.716		
Tin	mg/L	0.05	SM 3120	21-Jun-23/O	< 0.05		
Titanium	mg/L	0.005	SM 3120	21-Jun-23/O	< 0.005		
Thallium	mg/L	0.0003	EPA 200.8	27-Jun-23/O	< 0.0003		
Uranium	mg/L	0.0003	EPA 200.8	27-Jun-23/O	0.0004		
Vanadium	mg/L	0.0005	EPA 200.8	27-Jun-23/O	0.0060		
Zinc	mg/L	0.005	SM 3120	21-Jun-23/O	< 0.005		
Anion Sum	meq/L		Calc.	20-Jun-23/O	18.2		
Cation Sum	meq/L		Calc.	20-Jun-23/O	19.0		
% Difference	%		Calc.	20-Jun-23/O	2.18		
Ion Ratio	AS/CS		Calc.	20-Jun-23/O	0.957		
Conductivity (calc.)	µmho/cm		Calc.	20-Jun-23/O	1598		

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-03854 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

<u>Attention:</u> Deyonte Levene

DATE RECEIVED: 15-Jun-23
DATE REPORTED: 14-Jul-23

SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

110 West Beaver Creek Rd Unit 14

Richmond Hill ON L4B 1J9

Tel: 289-475-5442 Fax: 289-562-1963

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		LPC #1 WPCP		
			Sample I.D.		B23-03854-1		
			Date Collect	ed	14-Jun-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Sodium Adsorption Ratio	-		Calc.	20-Jun-23/O	1.79		
TDS(calc.)/EC(actual)	-		Calc.	20-Jun-23/O	0.565		
Langelier Index(25°C)	S.I.		Calc.	20-Jun-23/O	0.408		

¹ Chromium (VI) result is based on total Chromium

AVA

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

² Field filterd sample was used



Final Report

C.O.C.: --- REPORT No. B23-03854 (ii)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Deyonte Levene

DATE RECEIVED: 15-Jun-23

DATE REPORTED: 14-Jul-23
SAMPLE MATRIX: Waste Water

Caduceon Environmental Laboratories

110 West Beaver Creek Rd Unit 14

Richmond Hill ON L4B 1J9

Tel: 289-475-5442 Fax: 289-562-1963

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		LPC #1 WPCP		
			Sample I.D.		B23-03854-1		
			Date Collecte	ed	14-Jun-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Benzene	μg/L	0.5	EPA 8260	15-Jun-23/R	3.6		
Toluene	μg/L	0.5	EPA 8260	15-Jun-23/R	< 0.5		
Ethylbenzene	μg/L	0.5	EPA 8260	15-Jun-23/R	0.6		
Xylene, m,p-	μg/L	1.0	EPA 8260	15-Jun-23/R	1.8		
Xylene, o-	μg/L	0.5	EPA 8260	15-Jun-23/R	< 0.5		
Xylene, m,p,o-	μg/L	1.1	EPA 8260	15-Jun-23/R	1.8		

AVX

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: - REPORT No: 23-015532 - Rev. 0

Report To:

City of Kawartha Lakes

PO Box 9000

322 Kent Street West

Lindsay, ON K9V 4T7

DATE REPORTED:

SAMPLE MATRIX:

CADUCEON Environmental Laboratories

110 West Beaver Creek Rd

Unit #14

Richmond Hill, ON L4B 1J9

Attention: Kayla Pantaleo

DATE RECEIVED: 2023-Jun-28

2023-Jul-07

Surface Water

CUSTOMER PROJECT: Lindsay OPS SW Stormwater

P.O. NUMBER:

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Cond/pH/Alk Auto (Liquid)	3	OTTAWA	MDON	2023-Jun-29	COND-02/PH-02/A	SM 2510B/4500H/
					LK-02	2320B
Ammonia (Liquid)	3	KINGSTON	KDIBBITS	2023-Jul-06	NH3-001	SM 4500NH3

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an $\,^{\star}$

	Clie	ent I.D.	SW18	SW14	SW15
	Samı	ple I.D.	23-015532-1	23-015532-2	23-015532-3
	Date Co	llected	2023-06-26	2023-06-26	2023-06-26
Parameter	Units	R.L.	-	-	-
pH @25°C	pH units	-	8.05	8.07	7.84
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.14	<0.05	<0.05

G	ENERAL SAMPLE SI	UBMISSION FORM	SAMPLE	S SUBMITTE	D TO:			T	STING	REQUIREMENT	rs			RE	PORT NUM	BER (Lab Us	e)
	CADUC	EZIN	Ric	Kingston Ottawa hmond Hill Barrie Windsor	x					.P oring	23-015532						
	Are any samples to	be submitted intended for H	luman Consumptio	on under any	Drinking '	Water Regulation			Yes	No	(If yes.	submit all Drink	ing Water S	Samples on a D	rinking Wate	r Chain of Cu	stody)
Organizati		Add	Iress:		-	Address (if differen		ANALYSES REQUESTED					TURNAROUND SERVICE REQUESTED (see back page)				
Contact:	Kayla Pantaled		1		dsay ON K9V4T7			Ha	Ammonia					y Contaminated	"Must be an Platinum" Gold" Silver	100% 50% \$	Surcharge Surcharge Surcharge
mail:	kpantaleo@kawartha	lakes.ca			Project Name or #: Lindsay Ops Stormwater Additional Info:		-	Amn					Bronze Standard Specific Date:		5-7 da	25% Surcharge 5-7 days	
		* Sample Matri	x Legend: WW=Waste	Water, SW=Sur	face Water,	GW=Groundwater,	LS=Liquid Sludge,	SS=So	lid Sludge	e, S=Soil, Sed=Se	diment, PC=Pair	nt Chips, F=Filter,	1 1 2	5			
Lab No. S	ample Source and/or Sample Identifi			S.P.L. atertrax)	Sample Matrix *	Date Collected (yy-mm-dd)	Time Collected				est For Each Sai	mple		X pH	eld Temp.	# Bottles/ Sample	Field Filtered Y/N
1		SW18	3	1CD7	SW	23-06-26		x	x					7.62	21.5	2	N
2		SW14	1	A2FD	SW	23-06-26		x	×					7,66	21.7	2	N
3		SW15	1	A2BA	SW	23-06-26		х	x					8.22	25.9	2	N
	0	- smal	i gen	ch	200												
	K	- nutr	,										\Box				
								H			++-		+	1			
													11				
	SAMPLE SUBMISSION	INFORMATION		SHIPPING IN	FORMATIC	N	REPORT	ING / II	VVOICIN	G		AMPLE RECEIV	ING INFOR	MATION (LARC	RATORY III	SE ONLY)	
			Courier (Client ac			Invoice	Report by Fax				ed By (print):	John		Signature:		3	
rint:	Sampled by: D. Levene	Submitted by: D. Levene	Courier (Caduceo	n account)	x		Report by Email		x	Date R	eceived (yy-mr		06-24	7 Time Rece	ived:	10 a	m
ign:	Deyonte Levene	Deyonte Levene	Drop Off			# of Pieces	Invoice by Email		x	Labora	tory Prepared		Yes	No		A 4	
	Date (yy-mm-dd)/Time:	Date (yy-mm-dd)/Time:	Caduceon (Pick-u	p)			Invoice by Mail			Sample	e Temperature	°C: 19	6	abeled by:		M	
ommen			•									1.0			Page G	18	



Final Report

C.O.C.: --- REPORT No. B23-04107 (i)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		11-90	32-93-I	43-93-I	43-93-II
			Sample I.D.		B23-04107-1	B23-04107-2	B23-04107-3	B23-04107-4
			Date Collecte	ed	13-Jul-23	12-Jul-23	12-Jul-23	12-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	18-Jul-23/O	352	279	260	490
Conductivity @25°C	µmho/cm	1	SM 2510B	18-Jul-23/O	1040	951	830	1110
pH @25°C	pH Units		SM 4500H	18-Jul-23/O	7.59	7.73	7.77	7.53
Colour	TCU	2	SM 2120C	18-Jul-23/O	< 2	< 2	< 2	< 2
Turbidity	NTU	0.1	SM 2130	18-Jul-23/O	50.6	1260	222	188
TDS(ion sum calc.)	mg/L	1	Calc.	18-Jul-23/O	604	509	449	647
Total Suspended Solids	mg/L	3	SM2540D	21-Jul-23/K	8	1680	590	350
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	17-Jul-23/O	< 0.2	< 0.2	< 0.2	0.3
BOD(5 day)	mg/L	3	SM 5210B	19-Jul-23/K	< 3	< 3	< 3	< 3
COD	mg/L	5	SM5220C	01-Aug-23/K	15	14	8	11
Phenolics	mg/L	0.001	MOEE 3179	17-Jul-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Cyanide (Free)	mg/L	0.005	SM 4500CN	18-Jul-23/K	< 0.005	< 0.005	< 0.005	< 0.005
Chloride	mg/L	0.5	SM4110C	20-Jul-23/O	122	116	87.3	44.8
Fluoride	mg/L	0.1	SM4110C	20-Jul-23/O	< 1	< 0.1	< 0.1	< 1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	21-Jul-23/K	0.57	0.16	0.23	0.22
Ammonia (N)-unionized	mg/L	0.01	CALC	21-Jul-23/K	< 0.01	< 0.01	< 0.01	< 0.01
Sulphate	mg/L	1	SM4110C	20-Jul-23/O	27	52	58	60
Nitrite (N)	mg/L	0.05	SM4110C	20-Jul-23/O	< 0.5	< 0.05	< 0.05	< 0.5
Nitrate (N)	mg/L	0.05	SM4110C	20-Jul-23/O	< 0.5	0.06	0.08	< 0.5
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	24-Jul-23/K	0.9	0.4	0.4	0.7
Hardness (as CaCO3)	mg/L	1	SM 3120	18-Jul-23/O	409	426	394	593
Aluminum	mg/L	0.01	SM 3120	18-Jul-23/O	0.07	0.07	0.06	0.09
Antimony	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001	< 0.0001	< 0.0001	0.0001

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

REPORT No. B23-04107 (i) C.O.C.: ---

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

		1	Client I.D.		11-90	32-93-I	43-93-I	43-93-II
			Sample I.D.		B23-04107-1	B23-04107-2	B23-04107-3	B23-04107-4
			Date Collecte	ed	13-Jul-23	12-Jul-23	12-Jul-23	12-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Barium	mg/L	0.001	SM 3120	18-Jul-23/O	0.295	0.166	0.073	0.162
Beryllium	mg/L	0.002	SM 3120	18-Jul-23/O	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.005	SM 3120	18-Jul-23/O	0.092	0.044	0.056	0.009
Cadmium	mg/L	0.000010	EPA 200.8	19-Jul-23/O	< 0.000010	< 0.000010	< 0.000010	< 0.000012
Calcium	mg/L	0.02	SM 3120	18-Jul-23/O	113	117	97.4	215
Chromium	mg/L	0.001	EPA 200.8	19-Jul-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	20-Jul-23/O	< 0.001	< 0.001	< 0.001 1	< 0.001 1
Cobalt	mg/L	0.005	SM 3120	18-Jul-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.0001	EPA 200.8	19-Jul-23/O	0.0002	0.0003	0.0002	0.0004
Iron	mg/L	0.005	SM 3120	18-Jul-23/O	6.99	0.327	0.339	< 0.005
Lead	mg/L	0.00002	EPA 200.8	19-Jul-23/O	< 0.00002	0.00009	0.00003	< 0.00004
Magnesium	mg/L	0.02	SM 3120	18-Jul-23/O	30.9	32.6	36.5	13.4
Manganese	mg/L	0.001	SM 3120	18-Jul-23/O	0.101	0.010	0.009	< 0.001
Mercury	mg/L	0.00002	SM 3112 B	20-Jul-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001	0.0002	< 0.0001	0.0002
Nickel	mg/L	0.01	SM 3120	18-Jul-23/O	< 0.01	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	18-Jul-23/O	3.3	2.8	3.1	0.9
Phosphorus-Total	mg/L	0.01	E3516.2	24-Jul-23/K	0.17	0.31	0.21	0.16
Phosphorus	mg/L	0.1	SM 3120	18-Jul-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	19-Jul-23/O	0.001	< 0.001	< 0.001	0.001
Silver	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	18-Jul-23/O	88.5	19.4	9.9	18.6
Strontium	mg/L	0.001	SM 3120	18-Jul-23/O	1.15	0.875	1.10	0.449
Tin	mg/L	0.05	SM 3120	18-Jul-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Thallium	mg/L	0.00005	EPA 200.8	19-Jul-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005

R.L. = Reporting Limit

Christine Burke Lab Manager

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-04107 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

		ſ	Client I.D.		11-90	32-93-I	43-93-I	43-93-II
			Sample I.D.		B23-04107-1	B23-04107-2	B23-04107-3	B23-04107-4
			Date Collecte	ed	13-Jul-23	12-Jul-23	12-Jul-23	12-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Titanium	mg/L	0.005	SM 3120	18-Jul-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Uranium	mg/L	0.00005	EPA 200.8	19-Jul-23/O	< 0.00005	< 0.00005	< 0.00005	0.00059
Vanadium	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Zinc	mg/L	0.005	SM 3120	18-Jul-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Anion Sum	meq/L		Calc.	18-Jul-23/O	11.0	9.96	8.87	12.3
Cation Sum	meq/L		Calc.	18-Jul-23/O	12.5	9.47	8.41	12.7
% Difference	%		Calc.	18-Jul-23/O	6.35	2.55	2.70	1.50
Ion Ratio	AS/CS		Calc.	18-Jul-23/O	0.881	1.05	1.06	0.971
Conductivity (calc.)	µmho/cm		Calc.	18-Jul-23/O	1087	941	833	1109
Sodium Adsorption Ratio	-		Calc.	18-Jul-23/O	1.90	0.409	0.217	0.333
TDS(calc.)/EC(actual)	-		Calc.	18-Jul-23/O	0.581	0.535	0.541	0.583
Langelier Index(25°C)	S.I.		Calc.	18-Jul-23/O	0.717	0.782	0.711	1.08

¹ Chromium (VI) result is based on total Chromium

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-04107 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		44-93-I	44-93-II	45-93	53-98
			Sample I.D.		B23-04107-5	B23-04107-6	B23-04107-7	B23-04107-8
			Date Collecte	ed	12-Jul-23	12-Jul-23	12-Jul-23	12-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	18-Jul-23/O	257	379	426	369
Conductivity @25°C	µmho/cm	1	SM 2510B	18-Jul-23/O	900	1790	1760	2670
pH @25°C	pH Units		SM 4500H	18-Jul-23/O	7.72	7.61	7.71	7.53
Colour	TCU	2	SM 2120C	18-Jul-23/O	< 2	< 2	3	< 2
Turbidity	NTU	0.1	SM 2130	18-Jul-23/O	457	311	1160	40.4
TDS(ion sum calc.)	mg/L	1	Calc.	18-Jul-23/O	486	952	1003	1476
Total Suspended Solids	mg/L	3	SM2540D	21-Jul-23/K	520	480	4680	26
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	17-Jul-23/O	< 0.2	< 0.2	< 0.2	< 0.2
BOD(5 day)	mg/L	3	SM 5210B	19-Jul-23/K	< 3	< 3	< 3	< 3
COD	mg/L	5	SM5220C	01-Aug-23/K	13	11	11	17
Phenolics	mg/L	0.001	MOEE 3179	17-Jul-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Cyanide (Free)	mg/L	0.005	SM 4500CN	18-Jul-23/K	< 0.005	< 0.005	< 0.005	< 0.005
Chloride	mg/L	0.5	SM4110C	20-Jul-23/O	112	376	345	742
Fluoride	mg/L	0.1	SM4110C	20-Jul-23/O	< 0.1	< 1	< 1	< 1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	21-Jul-23/K	0.18	0.09	0.43	0.21
Ammonia (N)-unionized	mg/L	0.01	CALC	21-Jul-23/K	< 0.01	< 0.01	< 0.01	< 0.01
Sulphate	mg/L	1	SM4110C	20-Jul-23/O	56	30	25	32
Nitrite (N)	mg/L	0.05	SM4110C	20-Jul-23/O	< 0.05	< 0.5	< 0.5	< 0.5
Nitrate (N)	mg/L	0.05	SM4110C	20-Jul-23/O	0.09	3.94	0.89	< 0.5
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	24-Jul-23/K	0.6	0.5	1.0	0.4
Hardness (as CaCO3)	mg/L	1	SM 3120	18-Jul-23/O	417	531	521	885
Aluminum	mg/L	0.01	SM 3120	18-Jul-23/O	0.06	0.08	0.09	0.12
Antimony	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001	0.0002	< 0.0001	< 0.0003

R.L. = Reporting Limit

Christine Burke Lab Manager

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

REPORT No. B23-04107 (i) C.O.C.: ---

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

		- 1	Client I.D.		44-93-I	44-93-II	45-93	53-98
			Sample I.D.		B23-04107-5	B23-04107-6	B23-04107-7	B23-04107-8
			Date Collecte	ed	12-Jul-23	12-Jul-23	12-Jul-23	12-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Barium	mg/L	0.001	SM 3120	18-Jul-23/O	0.208	0.138	0.117	1.21
Beryllium	mg/L	0.002	SM 3120	18-Jul-23/O	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.005	SM 3120	18-Jul-23/O	0.055	0.019	0.008	0.056
Cadmium	mg/L	0.000010	EPA 200.8	19-Jul-23/O	< 0.000010	< 0.000012	< 0.000012	< 0.000029
Calcium	mg/L	0.02	SM 3120	18-Jul-23/O	109	182	188	286
Chromium	mg/L	0.001	EPA 200.8	19-Jul-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	20-Jul-23/O	< 0.001	< 0.001	< 0.001 1	< 0.001
Cobalt	mg/L	0.005	SM 3120	18-Jul-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.0001	EPA 200.8	19-Jul-23/O	0.0002	0.0006	0.0007	0.0003
Iron	mg/L	0.005	SM 3120	18-Jul-23/O	0.997	< 0.005	< 0.005	1.55
Lead	mg/L	0.00002	EPA 200.8	19-Jul-23/O	0.00003	< 0.00004	< 0.00004	< 0.00009
Magnesium	mg/L	0.02	SM 3120	18-Jul-23/O	35.1	18.6	12.4	41.4
Manganese	mg/L	0.001	SM 3120	18-Jul-23/O	0.014	0.001	0.001	0.138
Mercury	mg/L	0.00002	SM 3112 B	20-Jul-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	19-Jul-23/O	0.0002	0.0005	0.0003	< 0.0002
Nickel	mg/L	0.01	SM 3120	18-Jul-23/O	< 0.01	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	18-Jul-23/O	2.8	1.6	1.6	3.7
Phosphorus-Total	mg/L	0.01	E3516.2	24-Jul-23/K	0.18	0.16	1.08	0.03
Phosphorus	mg/L	0.1	SM 3120	18-Jul-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	19-Jul-23/O	< 0.001	< 0.001	< 0.001	0.002
Silver	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	18-Jul-23/O	15.5	116	175	148
Strontium	mg/L	0.001	SM 3120	18-Jul-23/O	0.951	0.618	0.439	1.81
Tin	mg/L	0.05	SM 3120	18-Jul-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Thallium	mg/L	0.00005	EPA 200.8	19-Jul-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Christine Burke Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from



Final Report

C.O.C.: --- REPORT No. B23-04107 (i)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Koyla Particles

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23
DATE REPORTED: 14-Aug-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

		ſ	Client I.D.		44-93-I	44-93-II	45-93	53-98
			Sample I.D.		B23-04107-5	B23-04107-6	B23-04107-7	B23-04107-8
			Date Collecte	ed	12-Jul-23	12-Jul-23	12-Jul-23	12-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Titanium	mg/L	0.005	SM 3120	18-Jul-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Uranium	mg/L	0.00005	EPA 200.8	19-Jul-23/O	< 0.00005	0.00054	0.00048	< 0.00005
Vanadium	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001	< 0.0001	0.0002	< 0.0004
Zinc	mg/L	0.005	SM 3120	18-Jul-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Anion Sum	meq/L		Calc.	18-Jul-23/O	9.48	19.1	18.8	29.0
Cation Sum	meq/L		Calc.	18-Jul-23/O	9.14	15.7	18.1	24.3
% Difference	%		Calc.	18-Jul-23/O	1.84	9.74	2.01	8.72
Ion Ratio	AS/CS		Calc.	18-Jul-23/O	1.04	1.22	1.04	1.19
Conductivity (calc.)	µmho/cm		Calc.	18-Jul-23/O	905	1705	1780	2626
Sodium Adsorption Ratio	-		Calc.	18-Jul-23/O	0.330	2.19	3.34	2.17
TDS(calc.)/EC(actual)	-		Calc.	18-Jul-23/O	0.541	0.532	0.569	0.553
Langelier Index(25°C)	S.I.		Calc.	18-Jul-23/O	0.705	0.946	1.10	1.04

¹ Chromium (VI) result is based on total Chromium

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-04107 (i)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantaleo

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23
DATE REPORTED: 14-Aug-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		55-98-I	55-98-II	56-02-I	57-02-II
			Sample I.D.		B23-04107-9	B23-04107- 10	B23-04107- 11	B23-04107-12
			Date Collecte	ed	12-Jul-23	12-Jul-23	12-Jul-23	13-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	18-Jul-23/O	242	247	255	290
Conductivity @25°C	µmho/cm	1	SM 2510B	18-Jul-23/O	845	875	950	1880
pH @25°C	pH Units		SM 4500H	18-Jul-23/O	7.89	7.94	7.84	7.87
Colour	TCU	2	SM 2120C	18-Jul-23/O	< 2	< 2	< 2	< 2
Turbidity	NTU	0.1	SM 2130	18-Jul-23/O	32.0	48.1	297	53.1
TDS(ion sum calc.)	mg/L	1	Calc.	18-Jul-23/O	448	468	510	1073
Total Suspended Solids	mg/L	3	SM2540D	21-Jul-23/K	41	64	660	92
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	17-Jul-23/O	< 0.2	< 0.2	0.8	< 0.2
BOD(5 day)	mg/L	3	SM 5210B	19-Jul-23/K	< 3	5	< 3	< 3
COD	mg/L	5	SM5220C	01-Aug-23/K	11	16	14	14
Phenolics	mg/L	0.001	MOEE 3179	17-Jul-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Cyanide (Free)	mg/L	0.005	SM 4500CN	18-Jul-23/K	< 0.005	< 0.005	< 0.005	< 0.005
Chloride	mg/L	0.5	SM4110C	20-Jul-23/O	114	121	147	439
Fluoride	mg/L	0.1	SM4110C	20-Jul-23/O	< 0.1	< 0.1	< 0.1	< 1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	21-Jul-23/K	0.23	0.82	0.41	0.26
Ammonia (N)-unionized	mg/L	0.01	CALC	21-Jul-23/K	< 0.01	< 0.01	< 0.01	< 0.01
Sulphate	mg/L	1	SM4110C	20-Jul-23/O	44	42	43	78
Nitrite (N)	mg/L	0.05	SM4110C	20-Jul-23/O	< 0.05	< 0.05	< 0.05	< 0.5
Nitrate (N)	mg/L	0.05	SM4110C	20-Jul-23/O	0.07	0.06	0.10	< 0.5
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	24-Jul-23/K	0.3	1.1	0.6	0.6
Hardness (as CaCO3)	mg/L	1	SM 3120	18-Jul-23/O	393	339	424	371
Aluminum	mg/L	0.01	SM 3120	18-Jul-23/O	0.06	0.04	0.05	0.08
Antimony	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

57-02-II

C.O.C.: --- REPORT No. B23-04107 (i)

Client I.D.

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

55-98-II

56-02-I

P.O. NUMBER: WATERWORKS NO.

55-98-I

			Sample I.D.		B23-04107-9	B23-04107- 10	B23-04107- 11	B23-04107-12
			Date Collecte	ed	12-Jul-23	12-Jul-23	12-Jul-23	13-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Arsenic	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Barium	mg/L	0.001	SM 3120	18-Jul-23/O	0.288	0.148	0.199	0.153
Beryllium	mg/L	0.002	SM 3120	18-Jul-23/O	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.005	SM 3120	18-Jul-23/O	0.087	0.168	0.089	0.073
Cadmium	mg/L	0.000010	EPA 200.8	19-Jul-23/O	< 0.000010	0.000073	< 0.000010	< 0.000012
Calcium	mg/L	0.02	SM 3120	18-Jul-23/O	85.2	71.4	100	133
Chromium	mg/L	0.001	EPA 200.8	19-Jul-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	20-Jul-23/O	< 0.001 1	< 0.001	< 0.001	< 0.001 1
Cobalt	mg/L	0.005	SM 3120	18-Jul-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.0001	EPA 200.8	19-Jul-23/O	0.0002	0.0002	0.0002	0.0008
Iron	mg/L	0.005	SM 3120	18-Jul-23/O	0.911	0.269	0.728	0.099
Lead	mg/L	0.00002	EPA 200.8	19-Jul-23/O	0.00003	0.00008	0.00003	0.00023
Magnesium	mg/L	0.02	SM 3120	18-Jul-23/O	43.8	39.0	42.3	9.38
Manganese	mg/L	0.001	SM 3120	18-Jul-23/O	0.016	0.012	0.015	0.003
Mercury	mg/L	0.00002	SM 3112 B	20-Jul-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	19-Jul-23/O	0.0002	0.0002	< 0.0001	0.0002
Nickel	mg/L	0.01	SM 3120	18-Jul-23/O	< 0.01	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	18-Jul-23/O	3.2	5.3	4.3	1.9
Phosphorus-Total	mg/L	0.01	E3516.2	24-Jul-23/K	0.03	0.06	0.12	0.04
Phosphorus	mg/L	0.1	SM 3120	18-Jul-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	19-Jul-23/O	< 0.001	< 0.001	< 0.001	0.002
Silver	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	18-Jul-23/O	11.5	40.4	18.2	238
Strontium	mg/L	0.001	SM 3120	18-Jul-23/O	1.45	1.91	1.73	0.480

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-04107 (i)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		55-98-I	55-98-II	56-02-I	57-02-II
			Sample I.D.		B23-04107-9	B23-04107- 10	B23-04107- 11	B23-04107-12
			Date Collecte	ed	12-Jul-23	12-Jul-23	12-Jul-23	13-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Tin	mg/L	0.05	SM 3120	18-Jul-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Thallium	mg/L	0.00005	EPA 200.8	19-Jul-23/O	< 0.00005	0.00009	< 0.00005	< 0.00005
Titanium	mg/L	0.005	SM 3120	18-Jul-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Uranium	mg/L	0.00005	EPA 200.8	19-Jul-23/O	< 0.00005	< 0.00005	< 0.00005	0.00064
Vanadium	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001	0.0001	< 0.0001	< 0.0001
Zinc	mg/L	0.005	SM 3120	18-Jul-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Anion Sum	meq/L		Calc.	18-Jul-23/O	8.97	9.22	10.2	19.8
Cation Sum	meq/L		Calc.	18-Jul-23/O	8.50	8.74	9.44	17.8
% Difference	%		Calc.	18-Jul-23/O	2.69	2.70	3.67	5.22
Ion Ratio	AS/CS		Calc.	18-Jul-23/O	1.06	1.06	1.08	1.11
Conductivity (calc.)	µmho/cm		Calc.	18-Jul-23/O	854	881	966	1897
Sodium Adsorption Ratio	-		Calc.	18-Jul-23/O	0.252	0.955	0.385	5.38
TDS(calc.)/EC(actual)	-		Calc.	18-Jul-23/O	0.530	0.535	0.537	0.572
Langelier Index(25°C)	S.I.		Calc.	18-Jul-23/O	0.742	0.723	0.783	0.944

¹ Chromium (VI) result is based on total Chromium

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-04107 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23
DATE REPORTED: 14-Aug-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8

Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		58-I	61-10-1	61-10-2	61-17-1
			Sample I.D.		B23-04107-	B23-04107-	B23-04107-	B23-04107-16
					13	14	15	101165
			Date Collecte	ed	13-Jul-23	13-Jul-23	13-Jul-23	13-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	18-Jul-23/O	547	436	384	469
Conductivity @25°C	µmho/cm	1	SM 2510B	18-Jul-23/O	1660	1350	1550	1370
pH @25°C	pH Units		SM 4500H	18-Jul-23/O	7.52	7.71	7.58	7.65
Colour	TCU	2	SM 2120C	18-Jul-23/O	3	< 2	< 2	2
Turbidity	NTU	0.1	SM 2130	18-Jul-23/O	53.3	24.7	960	231
TDS(ion sum calc.)	mg/L	1	Calc.	18-Jul-23/O	992	762	865	754
Total Suspended Solids	mg/L	3	SM2540D	21-Jul-23/K	64	70	1910	522
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	17-Jul-23/O	1.0	1.3	< 0.2	2.3
BOD(5 day)	mg/L	3	SM 5210B	19-Jul-23/K	< 3	< 3	< 3	< 3
COD	mg/L	5	SM5220C	01-Aug-23/K	25	30	18	54
Phenolics	mg/L	0.001	MOEE 3179	17-Jul-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Cyanide (Free)	mg/L	0.005	SM 4500CN	18-Jul-23/K	< 0.005	< 0.005	< 0.005	< 0.005
Chloride	mg/L	0.5	SM4110C	20-Jul-23/O	170	183	260	171
Fluoride	mg/L	0.1	SM4110C	20-Jul-23/O	< 1	< 1	< 1	< 1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	21-Jul-23/K	0.07	0.38	0.03	0.44
Ammonia (N)-unionized	mg/L	0.01	CALC	21-Jul-23/K	< 0.01	< 0.01	< 0.01	< 0.01
Sulphate	mg/L	1	SM4110C	20-Jul-23/O	156	50	88	37
Nitrite (N)	mg/L	0.05	SM4110C	20-Jul-23/O	< 0.5	< 0.5	< 0.5	< 0.5
Nitrate (N)	mg/L	0.05	SM4110C	20-Jul-23/O	< 0.5	< 0.5	< 0.5	< 0.5
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	24-Jul-23/K	0.5	0.8	0.4	1.1
Hardness (as CaCO3)	mg/L	1	SM 3120	18-Jul-23/O	700	592	656	587
Aluminum	mg/L	0.01	SM 3120	18-Jul-23/O	0.12	0.07	0.10	0.07
Antimony	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

61-17-1

C.O.C.: --- REPORT No. B23-04107 (i)

Client I.D.

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

61-10-1

61-10-2

P.O. NUMBER: WATERWORKS NO.

58-I

			Sample I.D.		B23-04107- 13	B23-04107- 14	B23-04107- 15	B23-04107-16
			Date Collecte	ed	13-Jul-23	13-Jul-23	13-Jul-23	13-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Arsenic	mg/L	0.0001	EPA 200.8	19-Jul-23/O	0.0003	< 0.0001	0.0001	< 0.0001
Barium	mg/L	0.001	SM 3120	18-Jul-23/O	0.155	0.624	0.168	0.665
Beryllium	mg/L	0.002	SM 3120	18-Jul-23/O	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.005	SM 3120	18-Jul-23/O	0.108	0.137	0.019	0.141
Cadmium	mg/L	0.000010	EPA 200.8	19-Jul-23/O	< 0.000012	< 0.000012	0.000015	< 0.000012
Calcium	mg/L	0.02	SM 3120	18-Jul-23/O	232	151	200	148
Chromium	mg/L	0.001	EPA 200.8	19-Jul-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	20-Jul-23/O	< 0.001	< 0.001 1	< 0.001	< 0.001
Cobalt	mg/L	0.005	SM 3120	18-Jul-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.0001	EPA 200.8	19-Jul-23/O	0.0020	0.0001	0.0004	0.0001
Iron	mg/L	0.005	SM 3120	18-Jul-23/O	0.035	0.438	0.111	0.325
Lead	mg/L	0.00002	EPA 200.8	19-Jul-23/O	< 0.00004	< 0.00004	< 0.00004	< 0.00004
Magnesium	mg/L	0.02	SM 3120	18-Jul-23/O	29.2	52.3	38.0	52.8
Manganese	mg/L	0.001	SM 3120	18-Jul-23/O	0.017	0.020	0.095	0.018
Mercury	mg/L	0.00002	SM 3112 B	20-Jul-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	19-Jul-23/O	0.0004	< 0.0001	0.0009	< 0.0001
Nickel	mg/L	0.01	SM 3120	18-Jul-23/O	< 0.01	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	18-Jul-23/O	2.8	5.0	2.5	5.1
Phosphorus-Total	mg/L	0.01	E3516.2	24-Jul-23/K	0.05	0.03	0.46	0.34
Phosphorus	mg/L	0.1	SM 3120	18-Jul-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	19-Jul-23/O	0.002	0.002	0.003	0.002
Silver	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	18-Jul-23/O	73.4	58.1	46.6	58.2
Strontium	mg/L	0.001	SM 3120	18-Jul-23/O	0.910	1.80	0.779	1.85

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

61-17-1

C.O.C.: --- REPORT No. B23-04107 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

61-10-1

61-10-2

P.O. NUMBER: WATERWORKS NO.

58-I

			Sample I.D.		B23-04107- 13	B23-04107- 14	B23-04107- 15	B23-04107-16
			Date Collecte	ed	13-Jul-23	13-Jul-23	13-Jul-23	13-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Tin	mg/L	0.05	SM 3120	18-Jul-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Thallium	mg/L	0.00005	EPA 200.8	19-Jul-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Titanium	mg/L	0.005	SM 3120	18-Jul-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Uranium	mg/L	0.00005	EPA 200.8	19-Jul-23/O	0.00127	< 0.00005	0.00127	< 0.00005
Vanadium	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001	0.0004	< 0.0001	0.0004
Zinc	mg/L	0.005	SM 3120	18-Jul-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Anion Sum	meq/L		Calc.	18-Jul-23/O	19.0	14.9	16.8	15.0
Cation Sum	meq/L		Calc.	18-Jul-23/O	17.3	14.5	15.2	14.4
% Difference	%		Calc.	18-Jul-23/O	4.77	1.28	5.07	1.79
Ion Ratio	AS/CS		Calc.	18-Jul-23/O	1.10	1.03	1.11	1.04
Conductivity (calc.)	µmho/cm		Calc.	18-Jul-23/O	1609	1365	1526	1350
Sodium Adsorption Ratio	-		Calc.	18-Jul-23/O	1.21	1.04	0.792	1.05
TDS(calc.)/EC(actual)	-		Calc.	18-Jul-23/O	0.597	0.563	0.557	0.550
Langelier Index(25°C)	S.I.		Calc.	18-Jul-23/O	1.12	1.05	0.973	1.01

Client I.D.

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

¹ Chromium (VI) result is based on total Chromium



Final Report

C.O.C.: --- REPORT No. B23-04107 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		62-17-1	62-17-2	62-17-3	DUP
			Sample I.D.		B23-04107- 17	B23-04107- 18	B23-04107- 19	B23-04107-20
			Date Collecte	ed	13-Jul-23	13-Jul-23	23-Jul-13	12-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	18-Jul-23/O	569	437	466	253
Conductivity @25°C	µmho/cm	1	SM 2510B	18-Jul-23/O	1520	1230	1170	949
pH @25°C	pH Units		SM 4500H	18-Jul-23/O	8.00	7.70	7.83	7.85
Colour	TCU	2	SM 2120C	18-Jul-23/O	4	< 2	< 2	< 2
Turbidity	NTU	0.1	SM 2130	18-Jul-23/O	386	45.8	736	317
TDS(ion sum calc.)	mg/L	1	Calc.	18-Jul-23/O	806	704	682	506
Total Suspended Solids	mg/L	3	SM2540D	21-Jul-23/K	1150	77	3240	670
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	17-Jul-23/O	3.7	1.9	1.2	< 0.2
BOD(5 day)	mg/L	3	SM 5210B	19-Jul-23/K	11	< 3	< 3	< 3
COD	mg/L	5	SM5220C	01-Aug-23/K	116	31	16	11
Phenolics	mg/L	0.001	MOEE 3179	17-Jul-23/K	< 0.001	< 0.001	< 0.001	< 0.001
Cyanide (Free)	mg/L	0.005	SM 4500CN	18-Jul-23/K	< 0.005	< 0.005	< 0.005	< 0.005
Chloride	mg/L	0.5	SM4110C	20-Jul-23/O	164	123	91.0	146
Fluoride	mg/L	0.1	SM4110C	20-Jul-23/O	< 1	< 1	< 1	< 0.1
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	21-Jul-23/K	0.65	0.43	0.19	0.39
Ammonia (N)-unionized	mg/L	0.01	CALC	21-Jul-23/K	0.01	< 0.01	< 0.01	< 0.01
Sulphate	mg/L	1	SM4110C	20-Jul-23/O	21	69	62	43
Nitrite (N)	mg/L	0.05	SM4110C	20-Jul-23/O	< 0.5	< 0.5	< 0.5	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	20-Jul-23/O	< 0.5	< 0.5	< 0.5	0.07
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	24-Jul-23/K	1.6	0.8	0.3	0.6
Hardness (as CaCO3)	mg/L	1	SM 3120	18-Jul-23/O	289	559	452	423
Aluminum	mg/L	0.01	SM 3120	18-Jul-23/O	0.06	0.09	0.08	0.05
Antimony	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

DUP

C.O.C.: --- REPORT No. B23-04107 (i)

Client I.D.

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

62-17-2

62-17-3

P.O. NUMBER:

62-17-1

WATERWORKS NO.

			Sample I.D.		B23-04107- 17	B23-04107- 18	B23-04107- 19	B23-04107-20
			Date Collecte	ed	13-Jul-23	13-Jul-23	23-Jul-13	12-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Arsenic	mg/L	0.0001	EPA 200.8	19-Jul-23/O	0.0004	< 0.0001	0.0003	< 0.0001
Barium	mg/L	0.001	SM 3120	18-Jul-23/O	0.394	0.383	0.257	0.198
Beryllium	mg/L	0.002	SM 3120	18-Jul-23/O	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.005	SM 3120	18-Jul-23/O	0.145	0.093	0.033	0.091
Cadmium	mg/L	0.000010	EPA 200.8	19-Jul-23/O	< 0.000012	< 0.000012	< 0.000012	< 0.000010
Calcium	mg/L	0.02	SM 3120	18-Jul-23/O	94.0	154	122	99.8
Chromium	mg/L	0.001	EPA 200.8	19-Jul-23/O	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001	MOE E3056	20-Jul-23/O	< 0.001 1	< 0.001 1	< 0.001	< 0.001 1
Cobalt	mg/L	0.005	SM 3120	18-Jul-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.0001	EPA 200.8	19-Jul-23/O	0.0003	0.0001	0.0006	0.0001
Iron	mg/L	0.005	SM 3120	18-Jul-23/O	0.186	0.685	0.014	0.690
Lead	mg/L	0.00002	EPA 200.8	19-Jul-23/O	< 0.00004	< 0.00004	< 0.00004	0.00003
Magnesium	mg/L	0.02	SM 3120	18-Jul-23/O	13.1	42.4	35.8	42.3
Manganese	mg/L	0.001	SM 3120	18-Jul-23/O	0.025	0.029	0.012	0.016
Mercury	mg/L	0.00002	SM 3112 B	20-Jul-23/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.0001	EPA 200.8	19-Jul-23/O	0.0003	< 0.0001	0.0017	< 0.0001
Nickel	mg/L	0.01	SM 3120	18-Jul-23/O	< 0.01	< 0.01	< 0.01	< 0.01
Potassium	mg/L	0.1	SM 3120	18-Jul-23/O	2.9	3.8	4.6	4.3
Phosphorus-Total	mg/L	0.01	E3516.2	24-Jul-23/K	0.25	0.05	0.20	0.18
Phosphorus	mg/L	0.1	SM 3120	18-Jul-23/O	< 0.1	< 0.1	< 0.1	< 0.1
Selenium	mg/L	0.001	EPA 200.8	19-Jul-23/O	0.002	0.002	< 0.001	< 0.001
Silver	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.2	SM 3120	18-Jul-23/O	168	48.6	85.9	18.2
Strontium	mg/L	0.001	SM 3120	18-Jul-23/O	1.53	1.22	0.711	1.73

R.L. = Reporting Limit

Christine Burke Lab Manager

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

REPORT No. B23-04107 (i) C.O.C.: ---

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23 DATE REPORTED: 14-Aug-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

		[Client I.D.		62-17-1	62-17-2	62-17-3	DUP
			Sample I.D.		B23-04107- 17	B23-04107- 18	B23-04107- 19	B23-04107-20
			Date Collecte	ed	13-Jul-23	13-Jul-23	23-Jul-13	12-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Tin	mg/L	0.05	SM 3120	18-Jul-23/O	< 0.05	< 0.05	< 0.05	< 0.05
Thallium	mg/L	0.00005	EPA 200.8	19-Jul-23/O	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Titanium	mg/L	0.005	SM 3120	18-Jul-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Uranium	mg/L	0.00005	EPA 200.8	19-Jul-23/O	0.00116	< 0.00005	0.00050	< 0.00005
Vanadium	mg/L	0.0001	EPA 200.8	19-Jul-23/O	0.0006	0.0002	0.0002	< 0.0001
Zinc	mg/L	0.005	SM 3120	18-Jul-23/O	< 0.005	< 0.005	< 0.005	< 0.005
Anion Sum	meq/L		Calc.	18-Jul-23/O	16.4	13.6	13.2	10.1
Cation Sum	meq/L		Calc.	18-Jul-23/O	13.2	13.5	12.9	9.43
% Difference	%		Calc.	18-Jul-23/O	10.9	0.704	1.07	3.21
Ion Ratio	AS/CS		Calc.	18-Jul-23/O	1.25	1.01	1.02	1.07
Conductivity (calc.)	µmho/cm		Calc.	18-Jul-23/O	1357	1234	1171	960
Sodium Adsorption Ratio	-		Calc.	18-Jul-23/O	4.30	0.894	1.76	0.385
TDS(calc.)/EC(actual)	-		Calc.	18-Jul-23/O	0.532	0.575	0.581	0.533
Langelier Index(25°C)	S.I.		Calc.	18-Jul-23/O	1.24	1.05	1.10	0.789

Chromium (VI) result is based on total Chromium

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-04107 (i)

Client I.D.

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

DUP-1

					_		
			Sample I.D.		B23-04107- 21		
			Date Collecte	ed	12-Jul-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed		·	
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	18-Jul-23/O	440		
Conductivity @25°C	µmho/cm	1	SM 2510B	18-Jul-23/O	1360		
pH @25°C	pH Units		SM 4500H	18-Jul-23/O	7.72		
Colour	TCU	2	SM 2120C	18-Jul-23/O	< 2		
Turbidity	NTU	0.1	SM 2130	18-Jul-23/O	12.2		
TDS(ion sum calc.)	mg/L	1	Calc.	18-Jul-23/O	766		
Total Suspended Solids	mg/L	3	SM2540D	21-Jul-23/K	27		
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	17-Jul-23/O	1.5		
BOD(5 day)	mg/L	3	SM 5210B	19-Jul-23/K	< 3		
COD	mg/L	5	SM5220C	01-Aug-23/K	29		
Phenolics	mg/L	0.001	MOEE 3179	17-Jul-23/K	< 0.001		
Cyanide (Free)	mg/L	0.005	SM 4500CN	18-Jul-23/K	< 0.005		
Chloride	mg/L	0.5	SM4110C	20-Jul-23/O	189		
Fluoride	mg/L	0.1	SM4110C	20-Jul-23/O	< 1		
Ammonia (N)-Total	mg/L	0.01	SM4500- NH3-H	21-Jul-23/K	0.35		
Ammonia (N)-unionized	mg/L	0.01	CALC	21-Jul-23/K	< 0.01		
Sulphate	mg/L	1	SM4110C	20-Jul-23/O	49		
Nitrite (N)	mg/L	0.05	SM4110C	20-Jul-23/O	< 0.5		
Nitrate (N)	mg/L	0.05	SM4110C	20-Jul-23/O	< 0.5		
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	24-Jul-23/K	0.8		
Hardness (as CaCO3)	mg/L	1	SM 3120	18-Jul-23/O	590		
Aluminum	mg/L	0.01	SM 3120	18-Jul-23/O	0.09		
Antimony	mg/L	0.0001	EPA 200.8	19-Jul-23/O	0.0002		

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

REPORT No. B23-04107 (i) C.O.C.: ---

Client I.D.

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23 SAMPLE MATRIX: Groundwater

Attention: Kayla Pantaleo

JOB/PROJECT NO.: Lindsay OPS

Caduceon Environmental Laboratories

P.O. NUMBER: WATERWORKS NO.

DUP-1

112 Commerce Park Drive

Barrie ON L4N 8W8

Tel: 705-252-5743

Fax: 705-252-5746

			Sample I.D.		B23-04107-		
			-		21		
			Date Collecte	ed	12-Jul-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Arsenic	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001		
Barium	mg/L	0.001	SM 3120	18-Jul-23/O	0.587		
Beryllium	mg/L	0.002	SM 3120	18-Jul-23/O	< 0.002		
Boron	mg/L	0.005	SM 3120	18-Jul-23/O	0.133		
Cadmium	mg/L	0.000010	EPA 200.8	19-Jul-23/O	< 0.000012		
Calcium	mg/L	0.02	SM 3120	18-Jul-23/O	150		
Chromium	mg/L	0.001	EPA 200.8	19-Jul-23/O	< 0.001		
Chromium (VI)	mg/L	0.001	MOE E3056	20-Jul-23/O	< 0.001 1		
Cobalt	mg/L	0.005	SM 3120	18-Jul-23/O	< 0.005		
Copper	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001		
Iron	mg/L	0.005	SM 3120	18-Jul-23/O	0.508		
Lead	mg/L	0.00002	EPA 200.8	19-Jul-23/O	< 0.00004		
Magnesium	mg/L	0.02	SM 3120	18-Jul-23/O	52.3		
Manganese	mg/L	0.001	SM 3120	18-Jul-23/O	0.020		
Mercury	mg/L	0.00002	SM 3112 B	20-Jul-23/O	< 0.00002		
Molybdenum	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001		
Nickel	mg/L	0.01	SM 3120	18-Jul-23/O	< 0.01		
Potassium	mg/L	0.1	SM 3120	18-Jul-23/O	4.9		
Phosphorus-Total	mg/L	0.01	E3516.2	24-Jul-23/K	0.05		
Phosphorus	mg/L	0.1	SM 3120	18-Jul-23/O	< 0.1		
Selenium	mg/L	0.001	EPA 200.8	19-Jul-23/O	0.002		
Silver	mg/L	0.0001	EPA 200.8	19-Jul-23/O	< 0.0001		
Sodium	mg/L	0.2	SM 3120	18-Jul-23/O	56.3		
Strontium	mg/L	0.001	SM 3120	18-Jul-23/O	1.77		

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-04107 (i)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

DUP-1

			Sample I.D.		B23-04107- 21		
			Date Collecte	ed	12-Jul-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Tin	mg/L	0.05	SM 3120	18-Jul-23/O	< 0.05		
Thallium	mg/L	0.00005	EPA 200.8	19-Jul-23/O	< 0.00005		
Titanium	mg/L	0.005	SM 3120	18-Jul-23/O	< 0.005		
Uranium	mg/L	0.00005	EPA 200.8	19-Jul-23/O	< 0.00005		
Vanadium	mg/L	0.0001	EPA 200.8	19-Jul-23/O	0.0003		
Zinc	mg/L	0.005	SM 3120	18-Jul-23/O	< 0.005		
Anion Sum	meq/L		Calc.	18-Jul-23/O	15.1		
Cation Sum	meq/L		Calc.	18-Jul-23/O	14.4		
% Difference	%		Calc.	18-Jul-23/O	2.42		
Ion Ratio	AS/CS		Calc.	18-Jul-23/O	1.05		
Conductivity (calc.)	µmho/cm		Calc.	18-Jul-23/O	1370		
Sodium Adsorption Ratio	-		Calc.	18-Jul-23/O	1.01		
TDS(calc.)/EC(actual)	-		Calc.	18-Jul-23/O	0.562		
Langelier Index(25°C)	S.I.		Calc.	18-Jul-23/O	1.06		

Client I.D.

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

¹ Chromium (VI) result is based on total Chromium



Final Report

C.O.C.: --- REPORT No. B23-04107 (ii)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23
DATE REPORTED: 14-Aug-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		11-90	32-93-I	43-93-I	43-93-II
			Sample I.D.		B23-04107-1	B23-04107-2	B23-04107-3	B23-04107-4
			Date Collecte	ed	13-Jul-23	12-Jul-23	12-Jul-23	12-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Poly-Chlorinated Biphenyls (PCB's)	μg/L	0.05	EPA 8082	20-Jul-23/K	< 0.05	< 0.05	< 0.05	< 0.05
Aroclor	-		-	20-Jul-23	-	-	-	-
Dichloroethane,1,1-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene,1,1-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropane,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene,1,3-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene,1,4-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,2,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorobenzene,1,2,4-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Acetone	μg/L	30	EPA 8260	17-Jul-23/R	< 30	< 30	< 30	< 30
Bromodichloromethane	μg/L	2	EPA 8260	17-Jul-23/R	< 2	< 2	< 2	< 2
Bromomethane	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	μg/L	5	EPA 8260	17-Jul-23/R	< 5	< 5	< 5	< 5
Benzene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, cis-1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, cis-1,3-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	μg/L	0.2	EPA 8260	17-Jul-23/R	< 0.2	< 0.2	< 0.2	< 0.2
Monochlorobenzene (Chlorobenzene)	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

REPORT No. B23-04107 (ii) C.O.C.: ---

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		11-90	32-93-I	43-93-I	43-93-II
			Sample I.D.		B23-04107-1	B23-04107-2	B23-04107-3	B23-04107-4
			Date Collecte	ed	13-Jul-23	12-Jul-23	12-Jul-23	12-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Chloroform	μg/L	1	EPA 8260	17-Jul-23/R	< 1	< 1	< 1	< 1
Dibromochloromethane	μg/L	2	EPA 8260	17-Jul-23/R	< 2	< 2	< 2	< 2
Ethylbenzene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dibromoethane,1,2- (Ethylene Dibromide)	μg/L	0.2	EPA 8260	17-Jul-23/R	< 0.2	< 0.2	< 0.2	< 0.2
Methyl Ethyl Ketone	μg/L	20	EPA 8260	17-Jul-23/R	< 20	< 20	< 20	< 20
Methyl-t-butyl Ether	μg/L	2	EPA 8260	17-Jul-23/R	< 2	< 2	< 2	< 2
Methyl Isobutyl Ketone	μg/L	20	EPA 8260	17-Jul-23/R	< 20	< 20	< 20	< 20
Dichloromethane (Methylene Chloride)	μg/L	5	EPA 8260	17-Jul-23/R	< 5	< 5	< 5	< 5
Xylene, m,p-	μg/L	1.0	EPA 8260	17-Jul-23/R	< 1.0	< 1.0	< 1.0	< 1.0
Xylene, o-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Xylene, m,p,o-	μg/L	1.1	EPA 8260	17-Jul-23/R	< 1.1	< 1.1	< 1.1	< 1.1
Styrene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, trans-1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, trans-1,3-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	μg/L	5	EPA 8260	17-Jul-23/R	< 5	< 5	< 5	< 5
Toluene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	0.8
Tetrachloroethylene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Vinyl Chloride	μg/L	0.2	EPA 8260	17-Jul-23/R	< 0.2	< 0.2	< 0.2	< 0.2

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-04107 (ii)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		44-93-I	44-93-II	45-93	53-98
			Sample I.D.		B23-04107-5	B23-04107-6	B23-04107-7	B23-04107-8
			Date Collecte	ed	12-Jul-23	12-Jul-23	12-Jul-23	12-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Poly-Chlorinated Biphenyls (PCB's)	μg/L	0.05	EPA 8082	20-Jul-23/K	< 0.05	< 0.05	< 0.05	< 0.05
Aroclor	-		-	20-Jul-23	-	-	-	-
Dichloroethane,1,1-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene,1,1-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropane,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene,1,3-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene,1,4-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,2,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorobenzene,1,2,4-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Acetone	μg/L	30	EPA 8260	17-Jul-23/R	< 30	< 30	< 30	< 30
Bromodichloromethane	μg/L	2	EPA 8260	17-Jul-23/R	< 2	< 2	< 2	< 2
Bromomethane	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	μg/L	5	EPA 8260	17-Jul-23/R	< 5	< 5	< 5	< 5
Benzene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, cis-1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, cis-1,3-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	μg/L	0.2	EPA 8260	17-Jul-23/R	< 0.2	< 0.2	< 0.2	< 0.2
Monochlorobenzene (Chlorobenzene)	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-04107 (ii)

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		44-93-I	44-93-II	45-93	53-98
			Sample I.D.		B23-04107-5	B23-04107-6	B23-04107-7	B23-04107-8
			Date Collecte	ed	12-Jul-23	12-Jul-23	12-Jul-23	12-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Chloroform	μg/L	1	EPA 8260	17-Jul-23/R	< 1	< 1	< 1	< 1
Dibromochloromethane	μg/L	2	EPA 8260	17-Jul-23/R	< 2	< 2	< 2	< 2
Ethylbenzene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dibromoethane,1,2- (Ethylene Dibromide)	μg/L	0.2	EPA 8260	17-Jul-23/R	< 0.2	< 0.2	< 0.2	< 0.2
Methyl Ethyl Ketone	μg/L	20	EPA 8260	17-Jul-23/R	< 20	< 20	< 20	< 20
Methyl-t-butyl Ether	μg/L	2	EPA 8260	17-Jul-23/R	< 2	< 2	< 2	< 2
Methyl Isobutyl Ketone	μg/L	20	EPA 8260	17-Jul-23/R	< 20	< 20	< 20	< 20
Dichloromethane (Methylene Chloride)	μg/L	5	EPA 8260	17-Jul-23/R	< 5	< 5	< 5	< 5
Xylene, m,p-	μg/L	1.0	EPA 8260	17-Jul-23/R	< 1.0	< 1.0	< 1.0	< 1.0
Xylene, o-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Xylene, m,p,o-	μg/L	1.1	EPA 8260	17-Jul-23/R	< 1.1	< 1.1	< 1.1	< 1.1
Styrene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, trans-1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, trans-1,3-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	μg/L	5	EPA 8260	17-Jul-23/R	< 5	< 5	< 5	< 5
Toluene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Vinyl Chloride	μg/L	0.2	EPA 8260	17-Jul-23/R	< 0.2	< 0.2	< 0.2	< 0.2

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

57-02-II

C.O.C.: --- REPORT No. B23-04107 (ii)

Client I.D.

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23 DATE REPORTED: 14-Aug-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

55-98-II

56-02-I

P.O. NUMBER: WATERWORKS NO.

55-98-I

					B23-04107-9	B23-04107- 10	B23-04107- 11	B23-04107-12
			Date Collecte	ed	12-Jul-23	12-Jul-23	12-Jul-23	13-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Poly-Chlorinated Biphenyls (PCB's)	μg/L	0.05	EPA 8082	20-Jul-23/K	< 0.05	< 0.05	< 0.05	< 0.05
Aroclor	-		-	20-Jul-23	-	-	-	-
Dichloroethane,1,1-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene,1,1-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropane,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene,1,3-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene,1,4-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,2,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorobenzene,1,2,4-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Acetone	μg/L	30	EPA 8260	17-Jul-23/R	< 30	< 30	< 30	< 30
Bromodichloromethane	μg/L	2	EPA 8260	17-Jul-23/R	< 2	< 2	< 2	< 2
Bromomethane	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	μg/L	5	EPA 8260	17-Jul-23/R	< 5	< 5	< 5	< 5
Benzene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, cis-1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, cis-1,3-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	μg/L	0.2	EPA 8260	17-Jul-23/R	< 0.2	< 0.2	< 0.2	< 0.2

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

REPORT No. B23-04107 (ii) C.O.C.: ---

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23 SAMPLE MATRIX: Groundwater **Caduceon Environmental Laboratories**

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		55-98-I	55-98-II	56-02-I	57-02-II
			Sample I.D.		B23-04107-9	B23-04107- 10	B23-04107- 11	B23-04107-12
			Date Collecte	ed	12-Jul-23	12-Jul-23	12-Jul-23	13-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Monochlorobenzene (Chlorobenzene)	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	μg/L	1	EPA 8260	17-Jul-23/R	< 1	< 1	< 1	< 1
Dibromochloromethane	μg/L	2	EPA 8260	17-Jul-23/R	< 2	< 2	< 2	< 2
Ethylbenzene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dibromoethane,1,2- (Ethylene Dibromide)	μg/L	0.2	EPA 8260	17-Jul-23/R	< 0.2	< 0.2	< 0.2	< 0.2
Methyl Ethyl Ketone	μg/L	20	EPA 8260	17-Jul-23/R	< 20	< 20	< 20	< 20
Methyl-t-butyl Ether	μg/L	2	EPA 8260	17-Jul-23/R	< 2	< 2	< 2	< 2
Methyl Isobutyl Ketone	μg/L	20	EPA 8260	17-Jul-23/R	< 20	< 20	< 20	< 20
Dichloromethane (Methylene Chloride)	μg/L	5	EPA 8260	17-Jul-23/R	< 5	< 5	< 5	< 5
Xylene, m,p-	μg/L	1.0	EPA 8260	17-Jul-23/R	< 1.0	< 1.0	< 1.0	< 1.0
Xylene, o-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Xylene, m,p,o-	μg/L	1.1	EPA 8260	17-Jul-23/R	< 1.1	< 1.1	< 1.1	< 1.1
Styrene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, trans-1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, trans-1,3-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	μg/L	5	EPA 8260	17-Jul-23/R	< 5	< 5	< 5	< 5
Toluene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	μg/L	0.5	EPA 8260 17-Jul-23/R		< 0.5	< 0.5	< 0.5	< 0.5
Vinyl Chloride	μg/L	0.2	EPA 8260	17-Jul-23/R	< 0.2	< 0.2	< 0.2	< 0.2

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

61-17-1

C.O.C.: --- REPORT No. B23-04107 (ii)

Client I.D.

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8
Attention: Koyla Particles

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23 DATE REPORTED: 14-Aug-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

61-10-1

61-10-2

P.O. NUMBER: WATERWORKS NO.

58-I

			Onche i.b.		001	01 10 1	01 10 2	1 01 17 1
			Sample I.D.		B23-04107- 13	B23-04107- 14	B23-04107- 15	B23-04107-16
			Date Collect	ed	13-Jul-23	13-Jul-23	13-Jul-23	13-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Poly-Chlorinated Biphenyls (PCB's)	μg/L	0.05	EPA 8082	20-Jul-23/K	< 0.05	< 0.05	< 0.05	< 0.05
Aroclor	-		-	20-Jul-23	-	-	-	-
Dichloroethane,1,1-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene,1,1-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropane,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene,1,3-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene,1,4-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,2,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorobenzene,1,2,4-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Acetone	μg/L	30	EPA 8260	17-Jul-23/R	< 30	< 30	< 30	< 30
Bromodichloromethane	μg/L	2	EPA 8260	17-Jul-23/R	< 2	< 2	< 2	< 2
Bromomethane	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	μg/L	5	EPA 8260	17-Jul-23/R	< 5	< 5	< 5	< 5
Benzene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, cis-1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, cis-1,3-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	μg/L	0.2	EPA 8260	17-Jul-23/R	< 0.2	< 0.2	< 0.2	< 0.2

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-04107 (ii)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

<u>Attention:</u> Kayla Pantaleo

DATE RECEIVED: 13-Jul-23 DATE REPORTED: 14-Aug-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive

Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

WATERWORKS NO.

			Client I.D.		58-I	61-10-1	61-10-2	61-17-1
			Sample I.D.		B23-04107- 13	B23-04107- 14	B23-04107- 15	B23-04107-16
			Date Collecte	ed	13-Jul-23	13-Jul-23	13-Jul-23	13-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Monochlorobenzene (Chlorobenzene)	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	μg/L	1	EPA 8260	17-Jul-23/R	< 1	< 1	< 1	< 1
Dibromochloromethane	μg/L	2	EPA 8260	17-Jul-23/R	< 2	< 2	< 2	< 2
Ethylbenzene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dibromoethane,1,2- (Ethylene Dibromide)	μg/L	0.2	EPA 8260	17-Jul-23/R	< 0.2	< 0.2	< 0.2	< 0.2
Methyl Ethyl Ketone	μg/L	20	EPA 8260	17-Jul-23/R	< 20	< 20	< 20	< 20
Methyl-t-butyl Ether	μg/L	2	EPA 8260	17-Jul-23/R	< 2	< 2	< 2	< 2
Methyl Isobutyl Ketone	μg/L	20	EPA 8260	17-Jul-23/R	< 20	< 20	< 20	< 20
Dichloromethane (Methylene Chloride)	μg/L	5	EPA 8260	17-Jul-23/R	< 5	< 5	< 5	< 5
Xylene, m,p-	μg/L	1.0	EPA 8260	17-Jul-23/R	< 1.0	< 1.0	< 1.0	< 1.0
Xylene, o-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Xylene, m,p,o-	μg/L	1.1	EPA 8260	17-Jul-23/R	< 1.1	< 1.1	< 1.1	< 1.1
Styrene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, trans-1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, trans-1,3-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	μg/L	5	EPA 8260	17-Jul-23/R	< 5	< 5	< 5	< 5
Toluene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Vinyl Chloride	μg/L	0.2	EPA 8260	17-Jul-23/R	< 0.2	< 0.2	< 0.2	< 0.2

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

DUP

C.O.C.: --- REPORT No. B23-04107 (ii)

Client I.D.

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

62-17-2

62-17-3

P.O. NUMBER: WATERWORKS NO.

62-17-1

			Ciletti I.D.		02-17-1	02-17-2	02-17-3	1 501
			Sample I.D.		B23-04107- 17	B23-04107- 18	B23-04107- 19	B23-04107-20
			Date Collecte	ed	13-Jul-23	13-Jul-23	23-Jul-13	12-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Poly-Chlorinated Biphenyls (PCB's)	μg/L	0.05	EPA 8082	20-Jul-23/K	< 0.05	< 0.05	< 0.05	< 0.05
Aroclor	-		-	20-Jul-23	-	-	-	-
Dichloroethane,1,1-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene,1,1-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropane,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene,1,3-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene,1,4-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,2,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorobenzene,1,2,4-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Acetone	μg/L	30	EPA 8260	17-Jul-23/R	< 30	< 30	< 30	< 30
Bromodichloromethane	μg/L	2	EPA 8260	17-Jul-23/R	< 2	< 2	< 2	< 2
Bromomethane	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	μg/L	5	EPA 8260	17-Jul-23/R	< 5	< 5	< 5	< 5
Benzene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, cis-1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, cis-1,3-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	μg/L	0.2	EPA 8260	17-Jul-23/R	< 0.2	< 0.2	< 0.2	< 0.2

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-04107 (ii)

Report To:

City of Kawartha Lakes
PO Box 9000, 12 Peel St
Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8

Tel: 705-252-5743 Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

			Client I.D.		62-17-1	62-17-2	62-17-3	DUP
			Sample I.D.		B23-04107- 17	B23-04107- 18	B23-04107- 19	B23-04107-20
			Date Collecte	ed	13-Jul-23	13-Jul-23	23-Jul-13	12-Jul-23
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Monochlorobenzene (Chlorobenzene)	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	μg/L	1	EPA 8260	17-Jul-23/R	< 1	< 1	< 1	< 1
Dibromochloromethane	μg/L	2	EPA 8260	17-Jul-23/R	< 2	< 2	< 2	< 2
Ethylbenzene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dibromoethane,1,2- (Ethylene Dibromide)	μg/L	0.2	EPA 8260	17-Jul-23/R	< 0.2	< 0.2	< 0.2	< 0.2
Methyl Ethyl Ketone	μg/L	20	EPA 8260	17-Jul-23/R	< 20	< 20	< 20	< 20
Methyl-t-butyl Ether	μg/L	2	EPA 8260	17-Jul-23/R	< 2	< 2	< 2	< 2
Methyl Isobutyl Ketone	μg/L	20	EPA 8260	17-Jul-23/R	< 20	< 20	< 20	< 20
Dichloromethane (Methylene Chloride)	μg/L	5	EPA 8260	17-Jul-23/R	< 5	< 5	< 5	< 5
Xylene, m,p-	μg/L	1.0	EPA 8260	17-Jul-23/R	< 1.0	< 1.0	< 1.0	< 1.0
Xylene, o-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Xylene, m,p,o-	μg/L	1.1	EPA 8260	17-Jul-23/R	< 1.1	< 1.1	< 1.1	< 1.1
Styrene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, trans-1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, trans-1,3-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	μg/L	5	EPA 8260	17-Jul-23/R	< 5	< 5	< 5	< 5
Toluene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5	< 0.5	< 0.5	< 0.5
Vinyl Chloride	μg/L	0.2	EPA 8260	17-Jul-23/R	< 0.2	< 0.2	< 0.2	< 0.2

R.L. = Reporting Limit

Christine Burke Lab Manager

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-04107 (ii)

Client I.D.

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

<u>Attention:</u> Kayla Pantaleo

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23
SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER:

DUP-1

WATERWORKS NO.

			Sample I.D.		B23-04107- 21		
			Date Collecte	ed	12-Jul-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed		•	,
Poly-Chlorinated Biphenyls (PCB's)	μg/L	0.05	EPA 8082	20-Jul-23/K	< 0.05		
Aroclor	-		-	20-Jul-23	-		
Dichloroethane,1,1-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Dichloroethylene,1,1-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Dichloroethane,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Dichlorobenzene,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Dichloropropane,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Dichlorobenzene,1,3-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Dichlorobenzene,1,4-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Tetrachloroethane,1,1,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Tetrachloroethane,1,1,2,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Trichloroethane,1,1,1-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Trichloroethane,1,1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Trichlorobenzene,1,2,4-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Acetone	μg/L	30	EPA 8260	17-Jul-23/R	< 30		
Bromodichloromethane	μg/L	2	EPA 8260	17-Jul-23/R	< 2		
Bromomethane	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Bromoform	μg/L	5	EPA 8260	17-Jul-23/R	< 5		
Benzene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Dichloroethene, cis-1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Dichloropropene, cis-1,3-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Carbon Tetrachloride	μg/L	0.2	EPA 8260	17-Jul-23/R	< 0.2		

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie



Final Report

C.O.C.: --- REPORT No. B23-04107 (ii)

Client I.D.

Report To:

City of Kawartha Lakes PO Box 9000, 12 Peel St Lindsay ON K9V 5R8

Attention: Kayla Pantaleo

DATE RECEIVED: 13-Jul-23

DATE REPORTED: 14-Aug-23

SAMPLE MATRIX: Groundwater

Caduceon Environmental Laboratories

112 Commerce Park Drive Barrie ON L4N 8W8 Tel: 705-252-5743

Fax: 705-252-5746

JOB/PROJECT NO.: Lindsay OPS

P.O. NUMBER: WATERWORKS NO.

DUP-1

			Sample I.D.		B23-04107- 21		
			Date Collecte	ed	12-Jul-23		
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Monochlorobenzene (Chlorobenzene)	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Chloroform	μg/L	1	EPA 8260	17-Jul-23/R	< 1		
Dibromochloromethane	μg/L	2	EPA 8260	17-Jul-23/R	< 2		
Ethylbenzene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Dibromoethane,1,2- (Ethylene Dibromide)	μg/L	0.2	EPA 8260	17-Jul-23/R	< 0.2		
Methyl Ethyl Ketone	μg/L	20	EPA 8260	17-Jul-23/R	< 20		
Methyl-t-butyl Ether	μg/L	2	EPA 8260	17-Jul-23/R	< 2		
Methyl Isobutyl Ketone	μg/L	20	EPA 8260	17-Jul-23/R	< 20		
Dichloromethane (Methylene Chloride)	μg/L	5	EPA 8260	17-Jul-23/R	< 5		
Xylene, m,p-	μg/L	1.0	EPA 8260	17-Jul-23/R	< 1.0		
Xylene, o-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Xylene, m,p,o-	μg/L	1.1	EPA 8260	17-Jul-23/R	< 1.1		
Styrene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Dichloroethene, trans-1,2-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Dichloropropene, trans-1,3-	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Trichloroethylene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Trichlorofluoromethane	μg/L	5	EPA 8260	17-Jul-23/R	< 5		
Toluene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Tetrachloroethylene	μg/L	0.5	EPA 8260	17-Jul-23/R	< 0.5		
Vinyl Chloride	μg/L	0.2	EPA 8260	17-Jul-23/R	< 0.2		

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an * Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

		SAMPLES SUBMITT	ED TO:			TESTI	NG RE	ดบเ	REMENTS		DED	OPT NUM	BER (Lab Us	201
	ABORATORIES not committed. Quality assured.	Kingston Ottawa Richmond Hill Barrie London Windsor	X		O'Reg 153 RPI Medium/Fine MISA Guidelines Provincial Water Other:		/ Object	Tabl ICC Cour	Record of Site (Y/N) Agricultural O'Reg 558 Leachate Ana Site: X Landfill Monitoring	llysis	323			
20 75 C. C. C. C. C. C. C. C. C. C. C. C. C.	be submitted intended for Human	Consumption under ar					Yes	_		Water Sa	amples on a D			
Organization: City of Kawartha La	Address:		Invoicing	g Address (if differen	t):	ANA	LYSE	SRE	EQUESTED (type text in the boxes)		F		DUND SERVIC D (see back page)	
Contact: Kerri-Snoddy	- Pentaleo	322 Kent St. W. Lindsay, Ontario				2C4C	PCB	VOC		Suspected Highly Contaminated		Platinum Gold Silver	200% 100%	Surcharge Surcharge Surcharge
Email: Kpartaleo ksaoddy@kawarthala	Quote No:		Project N	lame/No.: Lindsay OPS I	Landfill	20	۵	>		d High	X	Bronze Standard	25% S 5-7 da	Surcharge
Additional Info (email, cell, etc):	P.O. No.:		Addition							Suspecte		Specific Da		
Lab	* Sample Matrix Legend: \	WW=Waste Water, SW=Surfac		Groundwater, LS=L Date Collected	iquid Sludge, SS=S Time	olid Slu	idge, S		, Sed=Sediment, PC=Paint Chips, F=Filter, (Indicate Test For Each Sample	Oil = Oil	Elec	ld	# Bottles/	Field Filtered
No. Sample Source and/or Sample Identifi	cation	S.P.L.	Sample Matrix *	(yy-mm-dd)	Collected		В		ing A Check Mark In The Box Provided	Х	рН	Temp.	Sample	Y/N
1	11-90	1A6F5	GW	23 0743		Х	X	Х			7,56	10.3	12	Y
2	32-93-1	1C7FC	GW	23-07-12		х	х	х			7.73	13.0	12	Y
	32-93-11	1A719	GW			X	Х	Х					12	Y
	32-93-III	1A71A	GW			Х	Х	X					12	Y
3	43-93-1	1A75B	GW	23.07-12		Х	Х	Х			7.52	15.9	12	Υ
4	43-93-11	1A75D	GW	23-07-12		Х	Х	Х			7.22	13,3	12	Υ
5	44-93-1	1A75F	GW	23-07-12		Х	Х	Х			7.80	11.1	12	Υ
6	44-93-11	1A761	GW	23-07-12		Х	Х	х			7.45	15.5	12	Υ
7	45-93	1A763	GW	13.0-12		Х	Х	Х			7.40	(0.)	12	Y
8	53-98	1A775	GW	23-07-12		Х	Х	Х			7.36	10,1	12	Υ
9	55-98-1	1A77B	GW	23-07-12		X	Х	Х			7.14	9.9	12	Y
10	55-98-11	1A77D	GW INFORMATIO	23-07-12	BEDODTING	X		Х				8.7	12	Υ
SAMPLE SUBMISSIO	c	ourier (Client account)	RMATIC	Invoice	REPORTING Report by Fax	INVC	JICING	-	Received By (print): Brayden	NEORMA	Signature:		E ONLY)	
Print: Alan June	Submitted by:	ourier (Caduceon account)		myorde	Report by Email	[х	-	Date Received (yy-mm-dd): 27-07	1-13	Time Receive		:40	
Sign:	And	rop Off	X	# of Pieces	Invoice by Email	Ī	Х	ı	Laboratory Prepared Bottles: X	'es	No			
23-07-12/13 Date (yy-mm-dd)/Time:	23 · 07 - 13 c	aduceon (Pick-up)			Invoice by Mail	L		5	Sample Temperature °C: 17.8	Labe	eled by:	P		
Comments:												G Coff: May 2	1 of 019 Revision No	2

	SAMPLES SUBMIT	SAMPLES SUBMITTED TO: TEST			TESTING REQUIREMENTS						DEMO			
C A D U C E N'ENVIRONMENTAL LABORATORIES Client committed, Quality assured.	Kingston Ottawa Richmond Hill Barrie London Windsor	X		O'Reg 153 RPI Medium/Fine MISA Guidelines Provincial Water Other:	Quality (Objectiv	Cour	e (1-9) se	Record of Site (Agricultural O'Reg 558 Leach Site: X Landfill Monitori	nate Analysis	1323	ORT NUMBER (L	7	
Are any samples to be submitted intended for Hu			Water Regulation Address (if different			YSES	DEC	No	(If yes, submit all Dr	inking Water	Samples on a Drin	iking Water Chain	of Custoda	
Organization: City of Kawartha Lakes Contact: Contact: Contact	322 Kent St. W. Lindsay, Ontario		,	,	ANAL	IOLO				(68)	REG	TURNAROUND SEI QUESTED (see bac	RVICE ck page)	
Tel: 705-324-94 Moo Quote kenoddy@kawarthalakes.ca	41.77	Project N	lame/No.: Lindsay OPS L al Info:	andfill	2C4C	200	ACR.	# 1		Suspected Highly Contemisates	Go Silv Bro X Sta	old 100 ver 509 onze 259	0% Surcharge 0% Surcharge % Surcharge % Surcharge	
Additional Info (email, cell, etc):	end: WW=Waste Water, SW=Surfa	ce Water, GW=	Groundwater, LS=Li	guid Sludge, SS=Sc	olid Slude	ie. S=S	ioil s	Sed=Sedi		Suspect	Spe	ecific Date:	days	
Tak		Sample	Date Conected	rime			In	dicate Te	est For Each Sample	ilter, Oil = Oil	Field			
No. Sample Source and/or Sample Identification	S.P.L. 1A77E	Matrix *	(yy-mm-dd) 23-07-12	Collected	x	X X		A Check	Mark In The Box Provided	X		mp. # Bottles/	Field Filtered Y/N	
56-02-I	1A77L	GW	23-07-13			x x	-					4 12	Y	
12	1A782	GW	28-07-13	,	x :	x x					7.80 11.	1	Y	
14 61-10-1	227CE	GW	23-07-13		x x	(x					7.24 14.		Y	
61-10-2	227CF	GW	23-07-13		X >	X					7.46 12.2		Y	
61-17-1	39BB0	GW	23-07-13		X >	X					7.27 15-	7 12	Y	
62-17-1	39BB1	GW	23-01-13		Х	x					7.75 16,2		Y	
18	39BB2	GW	23-07-13		X X	X					7.24 16.4		Y	
62-17-3	39BB3	GW	23-07-13		х	X				7	.37 11.5	12	Y	
20 DUP ∯		GW	23-07-12		X X					7.	67 9.4	12	Y	
u DUP-2		GW	23-07-12		X X	X		H		7.	24 14.2	12	Υ	
	CHIDDIN	G INFORMATIO	JN .	REPORTING /	INVOICE	NC.								
SAMPLE SUBMISSION INFORMATION	Courier (Client account)	MICKWATK	Invoice	Report by Fax	INVOICE	_	Rece	eived By (SAMPLE RECEIVING	INFORMATION	(LABORATORY L	JSE ONLY)		
Sampled by: Submitted by:	Courier (Caduceon account)	П		Report by Email	X	_		_	D WY JED	Sign	nature: BA			
Print: A a Turner Han luner	Drop Off	Х	# of Pieces	Invoice by Email	X	=		_	repared Bottles:	7 -13 Time		6:40		
Sign: 27-07-12-13 27-07-13 Date (vy-mm-dd)/Time: Date (yy-mm-dd)/Time:	Caduceon (Pick-up)			Invoice by Mail			Samp	ole Tempe	erature °C: 12.8	Labeled by	No TP			
Comments: Date (yy-mm-dd) Time: Date (yy-mm-dd) Time: V: 415 -> RH	gen chen zen	Chum,	Amber + hut + Hg + med	+CN+pher	+ Cr	-> K VI-	-) ()	1,0,10			2 of	2	



Final Report

REPORT No: 23-021409 - Rev. 0 C.O.C.: -

Report To:

City of Kawartha Lakes

PO Box 9000

322 Kent Street West

Lindsay, ON K9V 4T7

CADUCEON Environmental Laboratories

110 West Beaver Creek Rd

Unit #14

Richmond Hill, ON L4B 1J9

Attention: Kayla Pantaleo

DATE RECEIVED: 2023-Aug-16

2023-Aug-21

CUSTOMER PROJECT: Lindsay OPS SW Stormwater

P.O. NUMBER:

DATE REPORTED: SAMPLE MATRIX:

Surface Water

Site Analyzed Authorized Analyses Qty Date Analyzed Lab Method Cond/pH/Alk Auto (Liquid) 2 **OTTAWA SBOUDREAU** 2023-Aug-18 COND-02/PH-02/A

LK-02 2320B

Reference Method SM 2510B/4500H/

SM 4500NH3

KINGSTON **KDIBBITS** 2023-Aug-17 NH3-001

Ammonia (Liquid) R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an $\,^{\star}$

	Clie	ent I.D.	SW18	SW14
	Sam	ple I.D.	23-021409-1	23-021409-2
	Date Co	llected	2023-08-15	2023-08-15
Parameter	Units	R.L.	-	-
pH @25°C	pH units	-	7.52	7.97
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.07	0.08

2

Steve Garrett **Director of Laboratory Services**

GEI	NERAL SAMPLE SU	JBMISSION FORM	SAMPLES SUBMITT	ED TO:			TE	STIN	G REC	UIREN	MENTS						REF	PORT NUN	IBER (Lab Us	se)
C	A D U C	ARGUATORICS	Kingston Ottawa Richmond Hill Barrie Windsor	x		O'Reg 153/04 O'Reg 406/19 RPI Coarse MISA Other:		(1 - 9)		ICC Medius PWQO		_	_	TCLP		2	3	-0	214	-09
	Are any samples to i	be submitted intended for Hu	man Consumption under an	y Drinking V	Water Regulation	10000		Yes	[X	No	(If yes, su	bmit all D	rinking	Water	Samples	on a Dr	rinking Wat	er Chain of Gu	etody)
Organization	City of Kawartha L	Addre	95	Invoicing	Address (if differen	tt:					ANALYS	ES REQUEST	TED				1		OUND SERVICED (see back p	
Contact: Tel:	Kayla Pantaleo	322	Kent St. W. Lindsay ON K9V4	17				mia								Contaminated		*Must be an Platinum* Gold* Silver	100%	Surcharge Surcharge Surcharge
Email: Additional In	kpantaleo@kawartha nfo (email, cell, etc):	Quote P.O. #		Project N Additiona	ame or #: Lindsay Ops Sto al Info:	rmwater	H	Ammonla								Suspected Highly	E	Bronze Standard Specific D		Surcharge lys
Lab No. San	nple Source and/or Sample Identifi		ogend: WW=Wasto Water, SW=S S.P.L (Watertrax)	urface Water, Sample Matrix *	GW=Groundwater, Data Collected (vy-nun-dd)	LS=Liquid Sludge, Time Collected	SS=So	lld Sluc		Indi	cate Test	ent, PC=Paint C For Each Sampl ark in The Box F	e	ilter, O	il = Oil	х	Fie pH	eld Temp.	# Bottles Sample	Field Filtered Y/N
T		SW18	31CD7	SW	23-08-15	11:15 AM	×	×									7.03	18.7	2	N
2		SW14	1A2F0	SW	23-08-15	11.30AM	×	х									7.52	18.2	2	N
	良(K - nutr	gen chan	(
			•																	
	SAMPLE SUBMISSION		SHIPPING I Courier (Client account)	NFORMATIO		REPORT Report by Fax	ING /	INVOIC	ING	F	Received	By (print):	MPLE RE	CEIVIN			N (LABO) gnature:	RATORY U	SE ONLY)	
Print:	Sampled by: Devonte Levene	Submitted by: Deyonte Levene	Courier (Caduceon account)	x	Invoice	Report by Email		X]	-	10000	eived (yy-mm-	dd); 73	3-08			ne Recei	ived:	1015	5
Sign:	D Levene	D Levene	Drop Off	H	# of Pieces	Invoice by Email		×		L	aborator	ry Prepared Bo		X	Yes		No		100	
	Date (yy-mm-dd)/Time:	Date (yy-mm-dd)/Time:	Caduceon (Pick-up)			Invoice by Mail			j	S	Sample T	emperature °C	: (10		Labeled I	by:		1	
Commen		J. Janeagy Hills																Page	of	
																		G		



Final Report

REPORT No: 23-021484 - Rev. 0 C.O.C.: -

Report To:

City of Kawartha Lakes PO Box 9000 322 Kent Street West

Lindsay, ON K9V 4T7

CADUCEON Environmental Laboratories

112 Commerce Park Dr Unit L

Barrie, ON L4N 8W8

Attention: Deyonte Levene

2023-Aug-17 DATE RECEIVED: DATE REPORTED:

2023-Sep-12

CUSTOMER PROJECT: Lindsay OPS

P.O. NUMBER:

Surface Water SAMPLE MATRIX:

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	12	OTTAWA	VKASYAN	2023-Aug-21	A-IC-01	SM 4110B
BOD5 (Liquid)	12	KINGSTON	MDUBIEN	2023-Aug-21	BOD-001	SM 5210B
COD (Liquid)	12	KINGSTON	EHINCH	2023-Aug-22	COD-001	SM 5220D
Colour (Liquid)	12	OTTAWA	MDON	2023-Aug-21	A-COL-01	SM 2120C
Cond/pH/Alk Auto (Liquid)	14	OTTAWA	SBOUDREAU	2023-Aug-21	COND-02/PH-02/A	SM 2510B/4500H/
					LK-02	2320B
Cyanide WAD (Liquid)	12	KINGSTON	JMACINNES	2023-Aug-22	CN-001	SM 4500-CN-E
DOC/DIC (Liquid)	12	OTTAWA	VKASYAN	2023-Aug-18	C-OC-01	EPA 415.2
Ion Balance (Calc.)	12	OTTAWA	STAILLON		CP-028	MECP E3196
Chromium VI (Liquid)	12	OTTAWA	STAILLON	2023-Aug-22	D-CRVI-01	MECP E3056
ICP/MS Total (Liquid)	12	OTTAWA	TPRICE	2023-Aug-21	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	14	OTTAWA	NHOGAN	2023-Aug-22	D-ICP-01	SM 3120B
ICP/OES (Liquid)	14	OTTAWA	NHOGAN	2023-Aug-21	D-ICP-01	SM 3120B
Mercury (Liquid)	12	OTTAWA	TBENNETT	2023-Aug-23	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	14	KINGSTON	KDIBBITS	2023-Aug-21	NH3-001	SM 4500NH3
PCB's (Liquid)	1	KINGSTON	CSUMMERHAYS	2023-Aug-24	PCB-001	EPA 8081
Phenols (Liquid)	12	KINGSTON	JMACINNES	2023-Aug-21	PHEN-01	MECP E3179
Tannins (Liquid)	2	KINGSTON	EHINCH	2023-Aug-23	TAN-001	SM 5550
TP & TKN (Liquid)	12	KINGSTON	KDIBBITS	2023-Aug-22	TPTKN-001	MECP E3516.2
TSS (Liquid)	14	KINGSTON	JMACINNES	2023-Aug-29	TSS-001	SM 2540D
Turbidity (Liquid)	14	OTTAWA	MDON	2023-Aug-22	A-TURB-01	SM 2130B
VOC-Volatiles Full (Water)	4	RICHMOND_HILL	FLENA	2023-Aug-19	C-VOC-02	EPA 8260

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an *

						REPURIN	lo: 23-021484 - Rev. 0
	Cli	ent I.D.	SCG-UPSTREAM	SCG-DOWNSTREA M	ЕМВАҮ А	EMBAY B	ЕМВАҮ С
	Sam	ple I.D.	23-021484-1	23-021484-2	23-021484-3	23-021484-4	23-021484-5
	Date Co		2023-08-16	2023-08-16	2023-08-16	2023-08-16	2023-08-16
Parameter	Units	R.L.	-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5	141	132	212	128	76
pH @25°C	pH units	-	7.48	7.44	8.00	7.26	9.07
Conductivity @25°C	uS/cm	1	445	447	1360	387	360
Colour	TCU	2	21	18	18	18	28
Turbidity	NTU	0.1	3.8	2.8	2.1	2.4	5.2
Fluoride	mg/L	0.1	<0.1	<0.1	<0.7	<0.1	<0.1
Chloride	mg/L	0.5	52.2	56.6	275	45.5	64.2
Nitrate (N)	mg/L	0.05	0.12	0.21	6.48	0.09	0.09
Nitrite (N)	mg/L	0.05	<0.05	<0.05	<0.40	<0.05	<0.05
Sulphate	mg/L	1	11	13	60	10	14
BOD5	mg/L	3	<3	<3	<3	<3	4
Total Suspended Solids	mg/L	3	4	3	4	5	11
Phosphorus (Total)	mg/L	0.01	0.03	0.03	0.04	0.03	0.04
Total Kjeldahl Nitrogen	mg/L	0.1	0.9	0.9	2.0	0.8	1.1
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.21	1.58	1.06	0.17	1.36
Ammonia (N)-unionized	mg/L	0.01	0.01	0.21	0.05	0.02	0.04
Dissolved Organic Carbon	mg/L	0.2	7.8	7.7	3.1	8.6	8.8
Cyanide (WAD)	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phenolics	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
COD	mg/L	5	26	33	28	31	39
Aluminum	mg/L	0.01	0.02	0.03	0.14	0.03	0.04

						ILI OKI I	10. 23-02 1404 - Rev. u
	Cli	ent I.D.	SCG-UPSTREAM	SCG-DOWNSTREA M	ЕМВАҮ А	EMBAY B	EMBAY C
	Sam	ple I.D.	23-021484-1	23-021484-2	23-021484-3	23-021484-4	23-021484-5
	Date Co	ollected	2023-08-16	2023-08-16	2023-08-16	2023-08-16	2023-08-16
Parameter	Units	R.L.	-	-	-	-	-
Hardness (as CaCO3)	mg/L	-	154	155	261	154	90.4
Aluminum (Total)	mg/L	0.01	0.04	0.04	0.22	0.04	0.04
Barium (Total)	mg/L	0.001	0.037	0.036	0.065	0.035	0.019
Boron (Total)	mg/L	0.005	0.013	0.026	0.192	0.016	0.030
Calcium (Total)	mg/L	0.02	48.0	47.2	84.2	46.5	22.8
Iron (Total)	mg/L	0.005	0.087	0.053	0.017	0.054	0.021
Magnesium (Total)	mg/L	0.02	8.32	9.02	12.3	9.25	8.13
Manganese (Total)	mg/L	0.001	0.037	0.071	0.022	0.039	0.017
Phosphorus (Total)	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Potassium (Total)	mg/L	0.1	1.7	2.4	14.6	1.4	1.5
Sodium (Total)	mg/L	0.2	26.3	33.0	146	27.7	37.3
Strontium (Total)	mg/L	0.001	0.168	0.174	0.302	0.176	0.119
Tin (Total)	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium (Total)	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc (Total)	mg/L	0.005	<0.005	0.014	0.017	0.005	0.005
Antimony (Total)	mg/L	0.0001	0.0002	0.0002	0.0003	0.0001	0.0002
Arsenic (Total)	mg/L	0.0001	0.0004	0.0003	0.0003	0.0003	0.0003
Beryllium (Total)	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cadmium (Total)	mg/L	0.00001	<0.00015	<0.000015	<0.000015	<0.000015	<0.000015
Chromium (Total)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt (Total)	mg/L	0.0001	0.0001	0.0001	0.0003	<0.0001	<0.0001

						REPURIN	lo: 23-021484 - Rev. 0
	Cli	ent I.D.	SCG-UPSTREAM	SCG-DOWNSTREA M	EMBAY A	ЕМВАҮ В	EMBAY C
	Sam	ple I.D.	23-021484-1	23-021484-2	23-021484-3	23-021484-4	23-021484-5
	Date Co		2023-08-16	2023-08-16	2023-08-16	2023-08-16	2023-08-16
Parameter	Units	R.L.	-	-	-	-	-
Copper (Total)	mg/L	0.0001	0.0007	0.0010	0.0029	0.0006	0.0015
Lead (Total)	mg/L	0.00002	0.00032	0.00013	0.00025	0.00008	0.00008
Molybdenum (Total)	mg/L	0.0001	0.0003	0.0004	0.0044	0.0002	0.0005
Nickel (Total)	mg/L	0.0002	0.0005	0.0006	0.0016	0.0004	0.0008
Selenium (Total)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silver (Total)	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Thallium (Total)	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Uranium (Total)	mg/L	0.00005	0.00031	0.00026	0.00023	0.00027	0.00018
Vanadium (Total)	mg/L	0.0001	0.0004	0.0003	0.0005	0.0003	0.0004
Chromium (VI)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Mercury	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Anion Sum	meq/L	-	4.54	4.51	13.7	4.05	3.63
Cation Sum	meq/L	-	4.29	5.07	12.0	4.34	3.57
% Difference	%	-	2.80	5.79	6.61	3.46	0.888
Ion Ratio	-	-	1.06	0.891	1.14	0.933	1.02
Sodium Adsorption Ratio	-	-	0.922	1.15	3.93	0.971	1.71
TDS (Ion Sum Calc)	mg/L	1	234	250	750	218	196
TDS(calc.)/EC(actual)	-	-	0.525	0.559	0.550	0.563	0.544
Conductivity Calc	µmho/cm	-	449	498	1340	426	390
Conductivity Calc / Conductivity	-	-	1.01	1.11	0.983	1.10	1.08
Langelier Index(25°C)	-	-	-0.122	-0.199	0.770	-0.399	0.885

CADUCEON Environmental Laboratories Certificate of Analysis

Final Report

REPORT No: 23-021484 - Rev. 0

	Clid	ent I.D.	SCG-UPSTREAM	SCG-DOWNSTREA M	EMBAY A	ЕМВАҮ В	ЕМВАУ С
	Sam	ple I.D.	23-021484-1	23-021484-2	23-021484-3	23-021484-4	23-021484-5
	llected	2023-08-16	2023-08-16	2023-08-16	2023-08-16	2023-08-16	
Parameter	Units	R.L.	-	-	-	-	-
Saturation pH (25°C)	-	-	7.60	7.64	7.23	7.66	8.18
pH (Client Data)	H (Client Data) pH units -		8.02	8.27	8	8.28	7.74
Temperature (Client Data)	°C	-	23.3	23.6	23.4	23.6	25.4

						REFORT	10. 23-02 1404 - Rev. U
	Cli	ent I.D.	NEARSHORE 1	NEARSHORE 2	DUP 1	SW-2	SW-3
	Sam	ple I.D.	23-021484-6	23-021484-7	23-021484-8	23-021484-9	23-021484-10
	Date Co		2023-08-16	2023-08-16	2023-08-16	2023-08-16	2023-08-16
Parameter	Units	R.L.	-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5			125	318	338
pH @25°C	pH units	-	7.20	8.36	7.50	7.58	8.13
Conductivity @25°C	uS/cm	1			429	1060	1010
Colour	TCU	2			19	6	16
Turbidity	NTU	0.1	1.6	1.0	5.6	6.8	6.9
Fluoride	mg/L	0.1			<0.1	<0.1	<0.1
Chloride	mg/L	0.5			56.9	140	132
Nitrate (N)	mg/L	0.05			0.27	0.34	0.06
Nitrite (N)	mg/L	0.05			<0.05	<0.05	<0.05
Sulphate	mg/L	1			13	30	8
BOD5	mg/L	3			<3	<3	<3
Total Suspended Solids	mg/L	3	8	<3	7	15	31
Phosphorus (Total)	mg/L	0.01			0.03	0.02	0.03
Total Kjeldahl Nitrogen	mg/L	0.1			0.9	0.3	0.4
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.11	<0.05	1.00	0.81	0.21
Ammonia (N)-unionized	mg/L	0.01			0.09	0.01	0.03
Dissolved Organic Carbon	mg/L	0.2			7.7	2.1	3.3
Cyanide (WAD)	mg/L	0.005			<0.005	<0.005	<0.005
Phenolics	mg/L	0.001			<0.001	<0.001	<0.001
COD	mg/L	5			31	9	16
Aluminum	mg/L	0.01			0.03	0.07	0.08

						KEFOKII	10. 23-021464 - Rev.
	CI	ient I.D.	NEARSHORE 1	NEARSHORE 2	DUP 1	SW-2	SW-3
	San	ıple I.D.	23-021484-6	23-021484-7	23-021484-8	23-021484-9	23-021484-10
	Date Co	-	2023-08-16	2023-08-16	2023-08-16	2023-08-16	2023-08-16
Parameter	Units	R.L.	-	-	-	-	-
Iron	mg/L	0.005	<0.005	0.008			
Hardness (as CaCO3)	mg/L	-			128	353	364
Aluminum (Total)	mg/L	0.01			0.04	0.08	0.20
Barium (Total)	mg/L	0.001			0.029	0.105	0.068
Boron (Total)	mg/L	0.005			0.022	0.025	0.025
Calcium (Total)	mg/L	0.02			38.3	119	126
Iron (Total)	mg/L	0.005	0.026	0.021	0.037	0.135	0.766
Magnesium (Total)	mg/L	0.02			7.83	13.6	12.0
Manganese (Total)	mg/L	0.001			0.041	0.049	0.239
Phosphorus (Total)	mg/L	0.1			<0.1	<0.1	<0.1
Potassium (Total)	mg/L	0.1			1.8	1.8	2.0
Sodium (Total)	mg/L	0.2			28.6	67.4	65.1
Strontium (Total)	mg/L	0.001			0.147	0.439	0.390
Tin (Total)	mg/L	0.05			<0.05	<0.05	<0.05
Titanium (Total)	mg/L	0.005			<0.005	<0.005	0.008
Zinc (Total)	mg/L	0.005			0.005	0.021	0.006
Antimony (Total)	mg/L	0.0001			0.0001	0.0001	<0.0001
Arsenic (Total)	mg/L	0.0001			0.0003	0.0002	0.0006
Beryllium (Total)	mg/L	0.0001			<0.0001	<0.0001	<0.0001
Cadmium (Total)	mg/L	0.00001			<0.000015	<0.000015	<0.000015
Chromium (Total)	mg/L	0.001			<0.001	<0.001	<0.001

						INEI OINT	10. 23-021464 - Rev
	Cli	ent I.D.	NEARSHORE 1	NEARSHORE 2	DUP 1	SW-2	SW-3
	Sam	ple I.D.	23-021484-6	23-021484-7	23-021484-8	23-021484-9	23-021484-10
	Date Co	· .	2023-08-16	2023-08-16	2023-08-16	2023-08-16	2023-08-16
Parameter	Units	R.L.	-	-	-	-	-
Cobalt (Total)	mg/L	0.0001			0.0001	0.0003	0.0005
Copper (Total)	mg/L	0.0001			0.0008	0.0011	0.0007
Lead (Total)	mg/L	0.00002			0.00010	0.00005	0.00032
Molybdenum (Total)	mg/L	0.0001			0.0004	0.0003	0.0002
Nickel (Total)	mg/L	0.0002			0.0006	0.0008	0.0009
Selenium (Total)	mg/L	0.001			<0.001	<0.001	<0.001
Silver (Total)	mg/L	0.0001			<0.0001	<0.0001	<0.0001
Thallium (Total)	mg/L	0.00005			<0.00005	<0.00005	<0.00005
Uranium (Total)	mg/L	0.00005			0.00025	0.00051	0.00030
Vanadium (Total)	mg/L	0.0001			0.0003	0.0002	0.0005
Chromium (VI)	mg/L	0.001			<0.001	<0.001	<0.001
Mercury	mg/L	0.00002			<0.00002	<0.00002	<0.00002
Anion Sum	meq/L	-			4.39	10.9	10.6
Cation Sum	meq/L	-			3.92	10.1	10.3
% Difference	%	-			5.62	3.96	1.80
Ion Ratio	-	-			1.12	1.08	1.04
Sodium Adsorption Ratio	-	-			1.10	1.56	1.48
TDS (Ion Sum Calc)	mg/L	1			224	565	549
TDS(calc.)/EC(actual)	-	-			0.522	0.534	0.542
Conductivity Calc	µmho/cm	-			431	1020	1010
Conductivity Calc / Conductivity	-	-			1.01	0.966	0.992

CADUCEON Environmental Laboratories Certificate of Analysis

Final Report

REPORT No: 23-021484 - Rev. 0

	Clid	ent I.D.	NEARSHORE 1	NEARSHORE 2	DUP 1	SW-2	SW-3
	Sam	ple I.D.	23-021484-6	23-021484-7	23-021484-8	23-021484-9	23-021484-10
	Date Co	llected	2023-08-16	2023-08-16	2023-08-16	2023-08-16	2023-08-16
Parameter	Units	R.L.	-	-	-	-	-
Langelier Index(25°C)	-	-			-0.253	0.685	1.29
Saturation pH (25°C)	-	-			7.75	6.89	6.84
pH (Client Data)	pH units	-	8.51	8.51	8.27	7.54	8.16
Temperature (Client Data)	lier Index(25°C)		23.5	23.4	23.6	18.8	20.8

	Cli	ent I.D.	SW-4	SW-14	SW-14 SW-18		
	Sam	ple I.D.	23-021484-11	23-021484-12	23-021484-13	23-021484-14	
Parameter	Date Co Units	llected R.L.	2023-08-16	2023-08-16	2023-08-16	2023-08-16	
Alkalinity(CaCO3) to pH4.5	mg/L	5	347	301	183	191	
Airaility(GaGGG) to pri4.3						191	
pH @25°C	pH units	-	8.18	7.95	7.13	7.68	
Conductivity @25°C	uS/cm	1	837	840	678	1430	
Colour	TCU	2	26	32	68	18	
Turbidity	NTU	0.1	3.7	1.6	6.5	2.6	
Fluoride	mg/L	0.1	<0.1	<0.1	<0.1	<0.7	
Chloride	mg/L	0.5	60.2	86.9	103	284	
Nitrate (N)	mg/L	0.05	0.54	0.07	0.09	13.0	
Nitrite (N)	mg/L	0.05	<0.05	<0.05	<0.05	<0.40	
Sulphate	mg/L	1	23	12	4	58	
BOD5	mg/L	3	<3	<3	3	<3	
Total Suspended Solids	mg/L	3	4	3	8	9	
Phosphorus (Total)	mg/L	0.01	0.02	0.04	0.10	0.10	
Total Kjeldahl Nitrogen	mg/L	0.1	0.7	0.9	1.4	1.2	
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.24	0.14	0.77	0.88	
Ammonia (N)-unionized	mg/L	0.01	0.01	<0.01	0.02	0.14	
Dissolved Organic Carbon	mg/L	0.2	6.6	7.8	10.4	2.6	
Tannin & Lignin	mg/L	0.5		0.6	1.6		
Cyanide (WAD)	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	
Phenolics	mg/L	0.001	<0.001	<0.001	0.004	<0.001	
COD	mg/L	5	24	23	64	22	

	CI	ient I.D.	SW-4	SW-14	SW-18	WPCP Effluent	
	San	ple I.D.	23-021484-11 2023-08-16	23-021484-12 2023-08-16	23-021484-13 2023-08-16	23-021484-14 2023-08-16	
Parameter	Units	R.L.	-	-	-	-	
Aluminum	mg/L	0.01	0.08	0.06	0.04	0.12	
Hardness (as CaCO3)	mg/L	-	414	337	195	285	
Aluminum (Total)	mg/L	0.01	0.14	0.10	0.03	1.14	
Barium (Total)	mg/L	0.001	0.067	0.061	0.060	0.052	
Boron (Total)	mg/L	0.005	0.027	0.041	0.068	0.204	
Calcium (Total)	mg/L	0.02	149	120	67.3	92.0	
Iron (Total)	mg/L	0.005	0.134	0.198	1.76	0.033	
Magnesium (Total)	mg/L	0.02	10.1	9.04	6.43	13.4	
Manganese (Total)	mg/L	0.001	0.038	0.412	0.820	0.005	
Phosphorus (Total)	mg/L	0.1	<0.1	<0.1	0.1	<0.1	
Potassium (Total)	mg/L	0.1	2.8	7.1	14.1	14.5	
Sodium (Total)	mg/L	0.2	37.8	50.6	53.4	165	
Strontium (Total)	mg/L	0.001	0.418	0.347	0.224	0.328	
Tin (Total)	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	
Titanium (Total)	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	
Zinc (Total)	mg/L	0.005	0.007	<0.005	<0.005	0.023	
Antimony (Total)	mg/L	0.0001	0.0002	0.0001	0.0001	0.0004	
Arsenic (Total)	mg/L	0.0001	0.0004	0.0006	0.0007	0.0003	
Beryllium (Total)	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Cadmium (Total)	mg/L	0.00001	<0.000015	<0.00015	<0.00015	0.000034	
Chromium (Total)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	

	Cli	ent I.D.	SW-4	SW-14	SW-18	WPCP Effluent
	Sam	ple I.D.	23-021484-11	23-021484-12	23-021484-13	23-021484-14
Parameter	Date Co Units	llected R.L.	2023-08-16	2023-08-16	2023-08-16	2023-08-16
Cobalt (Total)	mg/L	0.0001	0.0004	0.0004	0.0003	0.0004
Copper (Total)	mg/L	0.0001	0.0011	0.0008	0.0006	0.0091
Lead (Total)	mg/L	0.00002	0.00015	0.00007	0.00006	0.00026
Molybdenum (Total)	mg/L	0.0001	0.0003	0.0002	<0.0001	0.0054
Nickel (Total)	mg/L	0.0002	0.0010	0.0010	0.0009	0.0015
Selenium (Total)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001
Silver (Total)	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Thallium (Total)	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Jranium (Total)	mg/L	0.00005	0.00077	0.00048	<0.00005	0.00019
Vanadium (Total)	mg/L	0.0001	0.0007	0.0003	0.0002	0.0005
Chromium (VI)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001
Mercury	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Anion Sum	meq/L	-	9.15	8.72	6.66	14.0
Cation Sum	meq/L	-	10.0	9.16	6.75	13.4
% Difference	%	-	4.54	2.45	0.706	1.98
on Ratio	-	-	0.913	0.952	0.986	1.04
Sodium Adsorption Ratio	-	-	0.809	1.20	1.67	4.25
TDS (Ion Sum Calc)	mg/L	1	494	467	362	803
TDS(calc.)/EC(actual)	-	-	0.590	0.556	0.534	0.563
Conductivity Calc	µmho/cm	-	894	859	685	1430
Conductivity Calc / Conductivity	-	-	1.07	1.02	1.01	1.00

	Client I.D.		SW-4	SW-14	SW-18	WPCP Effluent
	Sam	ple I.D.	23-021484-11	23-021484-12	23-021484-13	23-021484-14
	Date Co	llected	2023-08-16	2023-08-16	2023-08-16	2023-08-16
Parameter	Units	R.L.	-	-	-	-
Langelier Index(25°C)	-	-	1.43	1.05	-0.231	0.433
Saturation pH (25°C)	-	-	6.75	6.90	7.36	7.25
pH (Client Data)	pH units	-	8.16	7.85	7.62	8.08
Temperature (Client Data)	°C	-	21.5	21.9	22.3	22.7

	Cli	ent I.D.	SCG-UPSTREAM	SW-3	SW-14	SW-18
	Sam Date Co	ple I.D. Ilected	23-021484-1 2023-08-16	23-021484-10 2023-08-16	23-021484-12 2023-08-16	23-021484-13 2023-08-16
Parameter	Units	R.L.	-	-	-	-
Acetone	μg/L	30	<30	<30	<30	<30
Benzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	μg/L	2	<2	<2	<2	<2
Bromoform	μg/L	5	<5	<5	<5	<5
Bromomethane	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	μg/L	0.2	<0.2	<0.2	<0.2	<0.2
Chlorobenzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Chloroform	μg/L	1	<1	<1	<1	<1
Chloromethane (Methyl Chloride)	μg/L	2	<2	<2	<2	<2
Dibromochloromethane	μg/L	2	<2	<2	<2	<2
Ethylene Dibromide	μg/L	0.2	<0.2	<0.2	<0.2	<0.2
Dichlorobenzene,1,2-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Dichlorobenzene,1,3-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Dichlorobenzene,1,4-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Dichloroethane,1,1-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Dichloroethane,1,2-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Dichloroethylene,1,1-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Dichloroethylene,1,2-cis-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Dichloroethylene,1,2-trans-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Dichloropropane,1,2-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Dichloropropene,1,3-cis-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5

	ent I.D.	SCG-UPSTREAM	SW-3	SW-14	SW-18	
		ple I.D.	23-021484-1	23-021484-10	23-021484-12	23-021484-13
		llected	2023-08-16	2023-08-16	2023-08-16	2023-08-16
Parameter	Units	R.L.	-	-	-	-
Dichloropropene,1,3-trans-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Dichloromethane (Methylene Chloride)	μg/L	5	<5	<5	<5	<5
Methyl Ethyl Ketone	μg/L	20	<20	<20	<20	<20
Methyl Isobutyl Ketone	μg/L	20	<20	<20	<20	<20
Methyl tert-Butyl Ether (MTBE)	μg/L	2	<2	<2	<2	<2
Styrene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethane,1,1,1,2-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethane,1,1,2,2-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Toluene	μg/L	0.5	<0.5	<0.5	<0.5	3.0
Trichlorobenzene,1,2,4-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethane,1,1,1-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethane,1,1,2-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane (Freon 11)	μg/L	5	<5	<5	<5	<5
Vinyl Chloride	μg/L	0.2	<0.2	<0.2	<0.2	<0.2
Xylene, m,p-	μg/L	1	<1	<1	<1	<1
Xylene, o-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5

	CI	ient I.D.	SW-3
		nple I.D.	23-021484-10
		•	
	Date Co	ollected	2023-08-16
Parameter	Units	R.L.	-
Poly-Chlorinated Biphenyls (PCB's)	μg/L	0.05	<0.05
Identification Comment	-	-	-

Unable to achieve TKN greater than ammonia for samples 2,5 and 9. Samples analyzed in duplicate



Final Report

REPORT No: 23-021557 - Rev. 0 C.O.C.: -

Report To:

City of Kawartha Lakes PO Box 9000

322 Kent Street West Lindsay, ON K9V 4T7 **CADUCEON Environmental Laboratories**

112 Commerce Park Dr Unit L

Barrie, ON L4N 8W8

Attention: Deyonte Levene

2023-Aug-17 DATE RECEIVED: DATE REPORTED:

2023-Sep-11

CUSTOMER PROJECT: Lindsay OPS

P.O. NUMBER:

SAMPLE MATRIX: Surface W	/ater					
Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	3	OTTAWA	VKASYAN	2023-Aug-22	A-IC-01	SM 4110B
BOD5 (Liquid)	3	KINGSTON	MDUBIEN	2023-Aug-23	BOD-001	SM 5210B
COD (Liquid)	3	KINGSTON	EHINCH	2023-Aug-22	COD-001	SM 5220D
Colour (Liquid)	3	OTTAWA	STAILLON	2023-Aug-23	A-COL-01	SM 2120C
Cond/pH/Alk Auto (Liquid)	3	OTTAWA	SBOUDREAU	2023-Aug-22	COND-02/PH-02/A	SM 2510B/4500H/
					LK-02	2320B
Cyanide WAD (Liquid)	3	KINGSTON	JMACINNES	2023-Aug-22	CN-001	SM 4500-CN-E
DOC/DIC (Liquid)	3	OTTAWA	VKASYAN	2023-Aug-22	C-OC-01	EPA 415.2
Ion Balance (Calc.)	3	OTTAWA	STAILLON		CP-028	MECP E3196
Chromium VI (Liquid)	3	OTTAWA	STAILLON	2023-Aug-24	D-CRVI-01	MECP E3056
ICP/MS Total (Liquid)	3	OTTAWA	TPRICE	2023-Aug-23	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	3	OTTAWA	NHOGAN	2023-Aug-22	D-ICP-01	SM 3120B
ICP/OES (Liquid)	3	OTTAWA	NHOGAN	2023-Aug-22	D-ICP-01	SM 3120B
Mercury (Liquid)	3	OTTAWA	TBENNETT	2023-Aug-23	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	3	KINGSTON	KDIBBITS	2023-Aug-29	NH3-001	SM 4500NH3
Phenols (Liquid)	3	KINGSTON	JMACINNES	2023-Aug-28	PHEN-01	MECP E3179
Tannins (Liquid)	3	KINGSTON	EHINCH	2023-Aug-23	TAN-001	SM 5550
TP & TKN (Liquid)	3	KINGSTON	KDIBBITS	2023-Aug-25	TPTKN-001	MECP E3516.2
TSS (Liquid)	3	KINGSTON	JMACINNES	2023-Aug-29	TSS-001	SM 2540D
Turbidity (Liquid)	3	OTTAWA	MDON	2023-Aug-23	A-TURB-01	SM 2130B

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an *

REPORT No: 23-021557 - Rev. 0

	Cli	ent I.D.	CP 1	CP 2	Dup	
		Sample I.D. Date Collected		23-021557-2	23-021557-3	
Parameter	Date Co Units	llected R.L.	2023-08-16	2023-08-16	2023-08-16	
Alkalinity(CaCO3) to pH4.5	mg/L	5	162	367	160	
pH @25°C	pH units	-	8.40	8.18	8.40	
Conductivity @25°C	uS/cm	1	931	916	927	
Colour	TCU	2	95	24	86	
Turbidity	NTU	0.1	9.5	4.4	10.7	
Fluoride	mg/L	0.1	<0.1	<0.1	<0.1	
Chloride	mg/L	0.5	173	76.0	173	
Nitrate (N)	mg/L	0.05	<0.05	0.25	0.06	
Nitrite (N)	mg/L	0.05	<0.05	<0.05	<0.05	
Sulphate	mg/L	1	24	19	24	
BOD5	mg/L	3	4	<3	5	
Total Suspended Solids	mg/L	3	9	<3	10	
Phosphorus (Total)	mg/L	0.01	0.09	0.02	0.11	
Total Kjeldahl Nitrogen	mg/L	0.1	2.5	1.8	5.3	
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.33	1.27	2.08	
Ammonia (N)-unionized	mg/L	0.01	0.12	0.07	0.78	
Dissolved Organic Carbon	mg/L	0.2	30.2	9.4	33.8	
Tannin & Lignin	mg/L	0.5	1.2	<0.5	1.1	
Cyanide (WAD)	mg/L	0.005	<0.005	<0.005	<0.005	
Phenolics	mg/L	0.001	0.002	0.002	0.002	
COD	mg/L	5	89	26	87	

REPORT No: 23-021557 - Rev. 0

	Cli	ent I.D.	CP 1	CP 2	Dup
		ple I.D.	23-021557-1	23-021557-2	23-021557-3
Parameter	Date Co Units	llected R.L.	2023-08-16	2023-08-16	2023-08-16
Aluminum	mg/L	0.01	0.03	0.08	0.04
Hardness (as CaCO3)	mg/L	-	127	376	143
Aluminum (Total)	mg/L	0.01	0.14	0.10	0.13
Barium (Total)	mg/L	0.001	0.045	0.058	0.051
Boron (Total)	mg/L	0.005	0.094	0.025	0.101
Calcium (Total)	mg/L	0.02	39.4	135	44.4
Iron (Total)	mg/L	0.005	0.244	0.157	0.233
Magnesium (Total)	mg/L	0.02	6.99	9.38	7.74
Manganese (Total)	mg/L	0.001	0.150	0.160	0.181
Phosphorus (Total)	mg/L	0.1	<0.1	<0.1	<0.1
Potassium (Total)	mg/L	0.1	62.2	2.7	68.7
Sodium (Total)	mg/L	0.2	85.4	43.1	94.1
Strontium (Total)	mg/L	0.001	0.237	0.380	0.264
Tin (Total)	mg/L	0.05	<0.05	<0.05	<0.05
Titanium (Total)	mg/L	0.005	0.006	<0.005	0.005
Zinc (Total)	mg/L	0.005	<0.005	0.005	<0.005
Antimony (Total)	mg/L	0.0001	0.0005	0.0005	0.0006
Arsenic (Total)	mg/L	0.0001	0.0014	0.0004	0.0014
Beryllium (Total)	mg/L	0.0001	<0.0001	<0.0001	<0.0001
Cadmium (Total)	mg/L	0.00001 5	<0.000015	<0.000015	<0.000015
Chromium (Total)	mg/L	0.001	<0.001	<0.001	<0.001

REPORT No: 23-021557 - Rev. 0

	Cli	ent I.D.	CP 1	CP 2	Dup	
		ple I.D.	23-021557-1	23-021557-2	23-021557-3	
Dansaratas	Date Co	1	2023-08-16	2023-08-16	2023-08-16	
Parameter	Units	R.L.	-	-	-	
Cobalt (Total)	mg/L	0.0001	0.0004	0.0005	0.0004	
Copper (Total)	mg/L	0.0001	0.0018	0.0012	0.0019	
Lead (Total)	mg/L	0.00002	0.00023	0.00008	0.00020	
Molybdenum (Total)	mg/L	0.0001	0.0010	0.0002	0.0010	
Nickel (Total)	mg/L	0.0002	0.0025	0.0007	0.0026	
Selenium (Total)	mg/L	0.001	<0.001	<0.001	<0.001	
Silver (Total)	mg/L	0.0001	<0.0001	<0.0001	<0.0001	
Thallium (Total)	mg/L	0.00005	<0.00005	<0.00005	<0.00005	
Uranium (Total)	mg/L	0.00005	0.00018	0.00072	0.00017	
Vanadium (Total)	mg/L	0.0001	0.0008	0.0006	0.0008	
Chromium (VI)	mg/L	0.001	<0.001	<0.001	<0.001	
Mercury	mg/L	0.00002	<0.00002	<0.00002	<0.00002	
Anion Sum	meq/L	-	8.62	9.90	8.58	
Cation Sum	meq/L	-	7.87	9.48	8.73	
% Difference	%	-	4.53	2.17	0.829	
Ion Ratio	-	-	1.09	1.04	0.984	
Sodium Adsorption Ratio	-	-	3.29	0.967	3.43	
TDS (Ion Sum Calc)	mg/L	1	488	507	509	
TDS(calc.)/EC(actual)	-	-	0.525	0.554	0.549	
Conductivity Calc	µmho/cm	-	902	905	942	
Conductivity Calc / Conductivity	-	-	0.969	0.988	1.02	

	CP 1	CP 2	Dup		
Sample I.D.			23-021557-1	23-021557-2	23-021557-3
	Date Co	llected	2023-08-16	2023-08-16	2023-08-16
Parameter	Units	R.L.	-	-	-
Langelier Index(25°C)	-	-	0.744	1.41	0.789
Saturation pH (25°C)	-	-	7.66	6.77	7.61
pH (Client Data)	pH units	-	8.96	8.11	8.96
Temperature (Client Data)	°C	-	27	21.3	27

TKN and ammonia results have been confirmed for samples 1 and 3 $\,$



Final Report

C.O.C.: - REPORT No: 23-027856 - Rev. 0

Report To:

City of Kawartha Lakes PO Box 9000

322 Kent Street West Lindsay, ON K9V 4T7

SAMPLE MATRIX:

CADUCEON Environmental Laboratories

112 Commerce Park Dr Unit L

Barrie, ON L4N 8W8

Attention: Deyonte Levene

DATE RECEIVED: 2023-Oct-06 DATE REPORTED: 2023-Nov-01

2023-Nov-01 Surface Water CUSTOMER PROJECT: Lindsay OPS

P.O. NUMBER:

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	9	OTTAWA	STAILLON	2023-Oct-13	A-IC-01	SM 4110B
BOD5 (Liquid)	9	KINGSTON	JYEARWOOD	2023-Oct-18	BOD-001	SM 5210B
COD (Liquid)	9	KINGSTON	EHINCH	2023-Oct-13	COD-001	SM 5220D
Colour (Liquid)	9	OTTAWA	MDON	2023-Oct-13	A-COL-01	SM 2120C
Cond/pH/Alk Auto (Liquid)	9	OTTAWA	SBOUDREAU	2023-Oct-12	COND-02/PH-02/A	SM 2510B/4500H/
					LK-02	2320B
Cyanide WAD (Liquid)	9	KINGSTON	JMACINNES	2023-Oct-13	CN-001	SM 4500-CN-E
DOC/DIC (Liquid)	9	OTTAWA	VKASYAN	2023-Oct-19	C-OC-01	EPA 415.2
Ion Balance (Calc.)	9	OTTAWA	STAILLON		CP-028	MECP E3196
Chromium VI (Liquid)	9	OTTAWA	STAILLON	2023-Oct-17	D-CRVI-01	MECP E3056
ICP/MS Total (Liquid)	9	OTTAWA	TPRICE	2023-Oct-16	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	9	OTTAWA	APRUDYVUS	2023-Oct-13	D-ICP-01	SM 3120B
ICP/OES (Liquid)	9	OTTAWA	APRUDYVUS	2023-Oct-16	D-ICP-01	SM 3120B
Mercury (Liquid)	9	OTTAWA	TBENNETT	2023-Oct-13	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	9	KINGSTON	KDIBBITS	2023-Oct-17	NH3-001	SM 4500NH3
Phenols (Liquid)	9	KINGSTON	JMACINNES	2023-Oct-19	PHEN-01	MECP E3179
Tannins (Liquid)	1	KINGSTON	EHINCH	2023-Oct-13	TAN-001	SM 5550
TP & TKN (Liquid)	9	KINGSTON	KDIBBITS	2023-Oct-20	TPTKN-001	MECP E3516.2
TSS (Liquid)	9	KINGSTON	TSUNNY	2023-Oct-13	TSS-001	SM 2540D
Turbidity (Liquid)	9	OTTAWA	MDON	2023-Oct-13	A-TURB-01	SM 2130B
VOC-Volatiles Full (Water)	3	RICHMOND_HILL	JEVANS	2023-Oct-17	C-VOC-02	EPA 8260

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an $\,^\star$

Michelle Dubien
Data Specialist

	Cli	ent I.D.	SCG-UPSTREAM	SCG-DOWNSTREA M	ЕМВАҮ А	ЕМВАҮ В	EMBAY C
	Sam	ple I.D.	23-027856-1	23-027856-2	23-027856-3	23-027856-4	23-027856-5
	Date Co		2023-10-05	2023-10-05	2023-10-05	2023-10-05	2023-10-05
Parameter	Units	R.L.	-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5	207	125	210	180	121
pH @25°C	pH units	-	8.14	7.73	8.13	8.07	7.65
Conductivity @25°C	uS/cm	1	508	539	1300	503	536
Colour	TCU	2	27	20	19	25	21
Turbidity	NTU	0.1	1.9	1.6	8.4	1.6	4.7
Fluoride	mg/L	0.1	<0.1	<0.1	<0.7	<0.1	<0.1
Chloride	mg/L	0.5	45.2	96.4	273	55.8	95.9
Nitrate (N)	mg/L	0.05	0.11	0.31	7.64	0.11	0.24
Nitrite (N)	mg/L	0.05	<0.05	<0.05	<0.40	<0.05	<0.05
Sulphate	mg/L	1	11	16	57	10	15
BOD5	mg/L	3	<3	<3	<3	<3	<3
Total Suspended Solids	mg/L	3	<3	3	20	3	<3
Phosphorus (Total)	mg/L	0.01	0.03	0.02	0.04	0.03	0.02
Total Kjeldahl Nitrogen	mg/L	0.1	0.8	0.5	1.0	0.9	1.0
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.08	0.07	0.45	0.08	0.08
Ammonia (N)-unionized	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dissolved Organic Carbon	mg/L	0.2	2.3	2.5	1.3	3.0	3.6
Cyanide (WAD)	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phenolics	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
COD	mg/L	5	29	32	31	37	35
Aluminum	mg/L	0.01	0.02	<0.01	0.13	0.01	<0.01

	Cli	ent I.D.	SCG-UPSTREAM	SCG-DOWNSTREA M	EMBAY A	EMBAY B	EMBAY C
	Sam	ple I.D.	23-027856-1	23-027856-2	23-027856-3	23-027856-4	23-027856-5
	Date Co		2023-10-05	2023-10-05	2023-10-05	2023-10-05	2023-10-05
Parameter	Units	R.L.	-	-	-	-	-
Hardness (as CaCO3)	mg/L	-	225	151	280	195	142
Aluminum (Total)	mg/L	0.01	0.03	0.02	0.51	<0.01	<0.01
Barium (Total)	mg/L	0.001	0.049	0.033	0.054	0.043	0.034
Boron (Total)	mg/L	0.005	0.016	0.042	0.196	0.018	0.047
Calcium (Total)	mg/L	0.02	68.5	41.8	86.3	58.4	37.3
Iron (Total)	mg/L	0.005	0.089	0.032	0.050	0.054	0.021
Magnesium (Total)	mg/L	0.02	13.1	11.3	15.6	12.0	11.9
Manganese (Total)	mg/L	0.001	0.030	0.037	0.017	0.034	0.051
Phosphorus (Total)	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Potassium (Total)	mg/L	0.1	2.7	6.8	18.0	3.5	6.9
Sodium (Total)	mg/L	0.2	20.7	46.7	137	24.6	49.8
Strontium (Total)	mg/L	0.001	0.247	0.193	0.304	0.225	0.194
Tin (Total)	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium (Total)	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc (Total)	mg/L	0.005	<0.005	<0.005	0.012	<0.005	<0.005
Antimony (Total)	mg/L	0.0001	0.0004	0.0007	0.0008	0.0004	0.0005
Arsenic (Total)	mg/L	0.0001	0.0004	0.0003	0.0003	0.0004	0.0003
Beryllium (Total)	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cadmium (Total)	mg/L	0.00001	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Chromium (Total)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt (Total)	mg/L	0.0001	0.0002	0.0002	0.0004	0.0002	0.0002

		REFORT NO. 25-021					
	Cli	ent I.D.	SCG-UPSTREAM	SCG-DOWNSTREA M	EMBAY A	EMBAY B	EMBAY C
	Sam	ple I.D.	23-027856-1	23-027856-2	23-027856-3	23-027856-4	23-027856-5
	Date Co	-	2023-10-05	2023-10-05	2023-10-05	2023-10-05	2023-10-05
Parameter	Units	R.L.	-	-	-	-	-
Copper (Total)	mg/L	0.0001	0.0008	0.0009	0.0058	0.0006	0.0008
Lead (Total)	mg/L	0.00002	0.00014	0.00007	0.00043	0.00006	0.00006
Molybdenum (Total)	mg/L	0.0001	0.0001	0.0008	0.0049	0.0001	0.0008
Nickel (Total)	mg/L	0.0002	0.0008	0.0007	0.0021	0.0007	0.0006
Selenium (Total)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silver (Total)	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Thallium (Total)	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Uranium (Total)	mg/L	0.00005	0.00030	0.00024	0.00018	0.00028	0.00022
Vanadium (Total)	mg/L	0.0001	0.0003	0.0003	0.0007	0.0003	0.0002
Chromium (VI)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Mercury	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Anion Sum	meq/L	-	5.66	5.56	13.6	5.39	5.46
Cation Sum	meq/L	-	5.48	5.24	12.1	5.07	5.19
% Difference	%	-	1.57	3.04	6.03	3.03	2.50
Ion Ratio	-	-	1.03	1.06	1.13	1.06	1.05
Sodium Adsorption Ratio	-	-	0.600	1.65	3.57	0.764	1.82
TDS (Ion Sum Calc)	mg/L	1	287	295	747	273	291
TDS(calc.)/EC(actual)	-	-	0.564	0.548	0.574	0.543	0.543
Conductivity Calc	µmho/cm	-	542	571	1340	521	564
Conductivity Calc / Conductivity	-	-	1.07	1.06	1.03	1.04	1.05
Langelier Index(25°C)	-	-	0.849	0.00540	0.905	0.650	-0.138

CADUCEON Environmental Laboratories Certificate of Analysis

Final Report

REPORT No: 23-027856 - Rev. 0

	Client I.D.			SCG-DOWNSTREA M	ЕМВАҮ А	ЕМВАҮ В	ЕМВАҮ С
	Sample I.D. Date Collected		23-027856-1	23-027856-2	23-027856-3	23-027856-4	23-027856-5
			2023-10-05	2023-10-05	2023-10-05	2023-10-05	2023-10-05
Parameter	Units	R.L.	-	-	-	-	-
Saturation pH (25°C)	-	-	7.29	7.72	7.23	7.42	7.79
pH (Client Data)	pH units	-	7.7	7.82	7.56	7.79	7.87
Temperature (Client Data)	°C	-	19.9	20.9	20.4	21	19

	Cli	ent I.D.	DUP	SW2	CP1	WPCP Effluent	
	Sam	ple I.D.	23-027856-6	23-027856-7	23-027856-8	23-027856-9	
Parameter	Date Co Units		2023-10-05	2023-10-05	2023-10-05	2023-10-05	
		R.L.	-	-	-	-	
Alkalinity(CaCO3) to pH4.5	mg/L	5	201	301	194	196	
pH @25°C	pH units	-	8.12	7.82	7.92	7.91	
Conductivity @25°C	uS/cm	1	512	1170	1100	1300	
Colour	TCU	2	26	4	49	19	
Turbidity	NTU	0.1	1.5	8.8	20.1	3.9	
Fluoride	mg/L	0.1	<0.1	<0.1	<0.1	<0.7	
Chloride	mg/L	0.5	44.5	194	216	256	
Nitrate (N)	mg/L	0.05	0.08	0.31	0.06	12.2	
Nitrite (N)	mg/L	0.05	<0.05	<0.05	<0.05	<0.40	
Sulphate	mg/L	1	11	36	28	54	
BOD5	mg/L	3	<3	7	6	<3	
Total Suspended Solids	mg/L	3	<3	58	22	13	
Phosphorus (Total)	mg/L	0.01	0.03	0.63	0.21	0.12	
Total Kjeldahl Nitrogen	mg/L	0.1	0.8	4.2	4.4	1.8	
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.11	0.23	0.19	0.46	
Ammonia (N)-unionized	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	
Dissolved Organic Carbon	mg/L	0.2	3.7	0.8	5.7	1.2	
Tannin & Lignin	mg/L	0.5			1.2		
Cyanide (WAD)	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	
Phenolics	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	
COD	mg/L	5	28	64	108	26	

	CI	ient I.D.	DUP	SW2	CP1	WPCP Effluent	
	Sam Date Co	ple I.D.	23-027856-6 2023-10-05	23-027856-7 2023-10-05	23-027856-8 2023-10-05	23-027856-9 2023-10-05	
Parameter	Units	R.L.	-	-	-	-	
Aluminum	mg/L	0.01	0.02	0.03	0.01	0.09	
Hardness (as CaCO3)	mg/L	-	226	427	194	295	
Aluminum (Total)	mg/L	0.01	0.03	0.09	0.04	1.49	
Barium (Total)	mg/L	0.001	0.049	0.608	0.075	0.050	
Boron (Total)	mg/L	0.005	0.016	0.032	0.129	0.202	
Calcium (Total)	mg/L	0.02	68.6	141	60.3	90.7	
Iron (Total)	mg/L	0.005	0.079	0.375	0.494	0.095	
Magnesium (Total)	mg/L	0.02	13.1	18.3	10.5	16.6	
Manganese (Total)	mg/L	0.001	0.028	0.109	0.408	0.011	
Phosphorus (Total)	mg/L	0.1	<0.1	0.7	0.2	0.1	
Potassium (Total)	mg/L	0.1	2.8	4.0	86.3	20.6	
Sodium (Total)	mg/L	0.2	20.8	95.4	105	144	
Strontium (Total)	mg/L	0.001	0.248	0.524	0.370	0.320	
Tin (Total)	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	
Titanium (Total)	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	
Zinc (Total)	mg/L	0.005	<0.005	0.073	<0.005	0.014	
Antimony (Total)	mg/L	0.0001	0.0004	0.0003	0.0006	0.0007	
Arsenic (Total)	mg/L	0.0001	0.0004	0.0006	0.0016	0.0003	
Beryllium (Total)	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Cadmium (Total)	mg/L	0.00001 5	<0.000015	0.000032	<0.000015	0.000016	
Chromium (Total)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	

	Cli	ent I.D.	DUP	SW2	SW2 CP1		
		ple I.D.	23-027856-6	23-027856-7	23-027856-8	23-027856-9	
Parameter	Date Co Units	llected R.L.	2023-10-05	2023-10-05	2023-10-05	2023-10-05	
Cobalt (Total)	mg/L	0.0001	0.0002	0.0008	0.0005	0.0003	
Copper (Total)	mg/L	0.0001	0.0007	0.0038	0.0004	0.0097	
Lead (Total)	mg/L	0.00002	0.00013	0.00021	0.00013	0.00018	
Molybdenum (Total)	mg/L	0.0001	0.0001	0.0002	0.0013	0.0044	
Nickel (Total)	mg/L	0.0002	0.0008	0.0010	0.0028	0.0011	
Selenium (Total)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	
Silver (Total)	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Thallium (Total)	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	
Jranium (Total)	mg/L	0.00005	0.00030	0.00031	0.00030	0.00012	
Vanadium (Total)	mg/L	0.0001	0.0003	0.0004	0.0007	0.0004	
Chromium (VI)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	
Mercury	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	
Anion Sum	meq/L	-	5.51	12.3	10.6	13.1	
Cation Sum	meq/L	-	5.50	12.8	10.7	12.7	
% Difference	%	-	0.0440	2.30	0.724	1.63	
on Ratio	-	-	1.00	0.955	0.986	1.03	
Sodium Adsorption Ratio	-	-	0.603	2.01	3.28	3.64	
TDS (Ion Sum Calc)	mg/L	1	282	672	624	753	
TDS(calc.)/EC(actual)	-	-	0.551	0.572	0.569	0.578	
Conductivity Calc	μmho/cm	-	537	1230	1140	1340	
Conductivity Calc / Conductivity	-	-	1.05	1.05	1.04	1.03	

	Client I.D.			SW2	CP1	WPCP Effluent
	Sample I.D.			23-027856-7	23-027856-8	23-027856-9
	Date Collected		2023-10-05	2023-10-05	2023-10-05	2023-10-05
Parameter	Units	R.L.	-	-	-	-
Langelier Index(25°C)	-	-	0.817	0.965	0.515	0.677
Saturation pH (25°C)	-	-	7.30	6.86	7.41	7.23
pH (Client Data)	pH units	-	7.7	6.96	7.41	7.21
Temperature (Client Data)	°C	-	19.9	15.1	19	20.7

	Cli	Client I.D. SCG-UPSTREAM		SCG-DOWNSTREA M	WPCP Effluent	
	Sam Date Co	ple I.D. Ilected	23-027856-1 2023-10-05	23-027856-2 2023-10-05	23-027856-9 2023-10-05	
Parameter	Units	R.L.		-	•	
Acetone	μg/L	30	<30	<30	<30	
Benzene	μg/L	0.5	<0.5	<0.5	<0.5	
Bromodichloromethane	μg/L	2	<2	<2	<2	
Bromoform	μg/L	5	<5	<5	<5	
Bromomethane	μg/L	0.5	<0.5	<0.5	<0.5	
Carbon Tetrachloride	μg/L	0.2	<0.2	<0.2	<0.2	
Chlorobenzene	μg/L	0.5	<0.5	<0.5	<0.5	
Chloroform	μg/L	1	<1	<1	<1	
Chloromethane (Methyl Chloride)	μg/L	2	<2	<2	<2	
Dibromochloromethane	μg/L	2	<2	<2	<2	
Ethylene Dibromide	μg/L	0.2	<0.2	<0.2	<0.2	
Dichlorobenzene,1,2-	μg/L	0.5	<0.5	<0.5	<0.5	
Dichlorobenzene,1,3-	μg/L	0.5	<0.5	<0.5	<0.5	
Dichlorobenzene,1,4-	μg/L	0.5	<0.5	<0.5	<0.5	
Dichloroethane,1,1-	μg/L	0.5	<0.5	<0.5	<0.5	
Dichloroethane,1,2-	μg/L	0.5	<0.5	<0.5	<0.5	
Dichloroethylene,1,1-	μg/L	0.5	<0.5	<0.5	<0.5	
Dichloroethylene,1,2-cis-	μg/L	0.5	<0.5	<0.5	<0.5	
Dichloroethylene,1,2-trans-	μg/L	0.5	<0.5	<0.5	<0.5	
Dichloropropane,1,2-	μg/L	0.5	<0.5	<0.5	<0.5	
Dichloropropene,1,3-cis-	μg/L	0.5	<0.5	<0.5	<0.5	

	Clie	ent I.D.	SCG-UPSTREAM	SCG-DOWNSTREA M	WPCP Effluent	
	Sam	ple I.D.	23-027856-1	23-027856-2	23-027856-9	
	Date Co	llected	2023-10-05	2023-10-05	2023-10-05	
Parameter	Units	R.L.	-	-	-	
Dichloropropene,1,3-trans-	μg/L	0.5	<0.5	<0.5	<0.5	
Ethylbenzene	μg/L	0.5	<0.5	<0.5	<0.5	
Dichloromethane (Methylene Chloride)	μg/L	5	<5	<5	<5	
Methyl Ethyl Ketone	μg/L	20	<20	<20	<20	
Methyl Isobutyl Ketone	μg/L	20	<20	<20	<20	
Methyl tert-Butyl Ether (MTBE)	μg/L	2	<2	<2	<2	
Styrene	μg/L	0.5	<0.5	<0.5	<0.5	
Tetrachloroethane,1,1,1,2-	µg/L	0.5	<0.5	<0.5	<0.5	
Tetrachloroethane,1,1,2,2-	µg/L	0.5	<0.5	<0.5	<0.5	
Tetrachloroethylene	µg/L	0.5	<0.5	<0.5	<0.5	
Toluene	μg/L	0.5	<0.5	<0.5	<0.5	
Trichlorobenzene,1,2,4-	μg/L	0.5	<0.5	<0.5	<0.5	
Trichloroethane,1,1,1-	μg/L	0.5	<0.5	<0.5	<0.5	
Trichloroethane,1,1,2-	μg/L	0.5	<0.5	<0.5	<0.5	
Trichloroethylene	μg/L	0.5	<0.5	<0.5	<0.5	
Trichlorofluoromethane (Freon 11)	μg/L	5	<5	<5	<5	
Vinyl Chloride	μg/L	0.2	<0.2	<0.2	<0.2	
Xylene, m,p-	μg/L	1	<1	<1	<1	
Xylene, o-	µg/L	0.5	<0.5	<0.5	<0.5	



CERTIFICATE OF ANALYSIS

Final Report

REPORT No: 23-029755 - Rev. 0 C.O.C.: -

Report To:

City of Kawartha Lakes

PO Box 9000

322 Kent Street West Lindsay, ON K9V 4T7 **CADUCEON Environmental Laboratories**

112 Commerce Park Dr Unit L

Barrie, ON L4N 8W8

Attention: Kayla Pantaleo

2023-Oct-20 DATE RECEIVED:

2023-Dec-01

CUSTOMER PROJECT: Lindsay OPS

P.O. NUMBER:

DATE REPORTED: SAMPLE MATRIX:

Ground Water

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	51	OTTAWA	PCURIEL	2023-Nov-09	A-IC-01	SM 4110B
COD (Liquid)	51	KINGSTON	EHINCH	2023-Oct-31	COD-001	SM 5220D
Cond/pH/Alk Auto (Liquid)	51	OTTAWA	SBOUDREAU	2023-Nov-03	COND-02/PH-02/A	SM 2510B/4500H/
					LK-02	2320B
DOC/DIC (Liquid)	51	OTTAWA	VKASYAN	2023-Nov-08	C-OC-01	EPA 415.2
Ion Balance (Calc.)	51	OTTAWA	TPRICE		CP-028	MECP E3196
Chromium VI (Liquid)	51	OTTAWA	STAILLON	2023-Nov-01	D-CRVI-01	MECP E3056
ICP/MS (Liquid)	51	OTTAWA	TPRICE	2023-Oct-30	D-ICPMS-01	EPA 200.8
ICP/OES (Liquid)	51	OTTAWA	APRUDYVUS	2023-Oct-27	D-ICP-01	SM 3120B
Mercury (Liquid)	51	OTTAWA	TBENNETT	2023-Oct-27	D-HG-02	SM 3112B
Ammonia (Liquid)	51	KINGSTON	KDIBBITS	2023-Nov-22	NH3-001	SM 4500NH3
Phenols (Liquid)	51	KINGSTON	JMACINNES	2023-Nov-30	PHEN-01	MECP E3179
TP & TKN (Liquid)	51	KINGSTON	KDIBBITS	2023-Nov-27	TPTKN-001	MECP E3516.2
VOC-Volatiles Full (Water)	51	RICHMOND HILL	FLENA	2023-Nov-08	C-VOC-02	EPA 8260

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an $\,^{\star}$

			REPORT No: 23-029755 - Re						
	Cli	ent I.D.	12-91-I	12-91-II	13-91-I	13-91-II	14-'07		
	Sam	ple I.D.	23-029755-1	23-029755-2	23-029755-3	23-029755-4	23-029755-5		
	Date Co	•	2023-10-18	2023-10-18	2023-10-17	2023-10-17	2023-10-17		
Parameter	Units	R.L.	-	-	-	-	-		
Alkalinity(CaCO3) to pH4.5	mg/L	5	297	399	210	428	293		
TDS (Calc. from Cond.)	mg/L	3	372	467	367	1150	345		
Conductivity @25°C	uS/cm	1	717	882	706	2080	664		
pH @25°C	pH units	-	7.31	7.19	7.30	7.43	7.34		
Fluoride	mg/L	0.1	<0.1	<0.1	<0.1	<0.7	<0.1		
Chloride	mg/L	0.5	31.4	13.0	90.5	374	23.5		
Nitrate (N)	mg/L	0.05	0.14	<0.05	0.44	<0.40	0.20		
Nitrite (N)	mg/L	0.05	<0.05	<0.05	0.09	<0.40	<0.05		
Sulphate	mg/L	1	47	65	20	<2	22		
Phosphorus (Total)	mg/L	0.01	0.18	0.09	0.02	0.37	1.29		
Total Kjeldahl Nitrogen	mg/L	0.1	0.8	1.3	0.9	0.8	1.0		
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.50	0.44	0.71	0.13	0.51		
Dissolved Organic Carbon	mg/L	0.2	3.7	10.9	2.5	2.9	3.3		
Phenolics	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001		
COD	mg/L	5	15	29	11	16	20		
Hardness (as CaCO3)	mg/L	0.02	343	408	308	383	288		
Aluminum	mg/L	0.01	0.02	0.06	0.02	0.05	0.04		
Barium	mg/L	0.001	0.130	0.056	0.118	0.213	0.058		
Boron	mg/L	0.005	0.054	0.035	0.106	0.022	0.012		
Calcium	mg/L	0.02	85.9	142	55.7	132	106		
Iron	mg/L	0.005	0.047	1.14	0.126	0.988	<0.005		

						REPORT NO. 23-029/55 - Rev. 0		
	Cli	ent I.D.	12-91-I	12-91-II	13-91-I	13-91-II	14-'07	
	Sam	ple I.D.	23-029755-1	23-029755-2	23-029755-3	23-029755-4	23-029755-5	
	Date Co	- 1	2023-10-18	2023-10-18	2023-10-17	2023-10-17	2023-10-17	
Parameter	Units	R.L.	-	-	-	-	-	
Magnesium	mg/L	0.02	31.2	13.0	41.0	13.0	5.67	
Manganese	mg/L	0.001	0.012	0.330	0.005	0.030	0.003	
Phosphorus	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Potassium	mg/L	0.1	2.4	1.0	4.0	2.2	0.9	
Sodium	mg/L	0.2	10.8	9.9	12.8	274	3.5	
Strontium	mg/L	0.001	0.787	0.399	1.61	0.492	0.195	
Tin	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Titanium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Zinc	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Antimony	mg/L	0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0002	
Arsenic	mg/L	0.0001	0.0004	0.0007	<0.0001	0.0005	0.0001	
Beryllium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Cadmium	mg/L	0.00001	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	
Chromium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Cobalt	mg/L	0.0001	0.0001	0.0003	<0.0001	0.0002	<0.0001	
Copper	mg/L	0.0001	0.0007	0.0007	0.0003	0.0002	0.0007	
Lead	mg/L	0.00002	<0.00002	0.00006	<0.00002	<0.00004	<0.00002	
Molybdenum	mg/L	0.0001	0.0005	0.0003	<0.0001	0.0001	0.0002	
Nickel	mg/L	0.0002	0.0004	0.0012	<0.0002	0.0003	0.0003	
Selenium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Silver	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	

	Cli	ent I.D.	12-91-I	12-91-II	13-91-I	13-91-II	14-'07
	Sam	ple I.D.	23-029755-1	23-029755-2	23-029755-3	23-029755-4	23-029755-5
	Date Co		2023-10-18	2023-10-18	2023-10-17	2023-10-17	2023-10-17
Parameter	Units	R.L.	-	-	-	-	-
Thallium	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Uranium	mg/L	0.00005	0.00076	0.00647	0.00007	0.00038	0.00075
Vanadium	mg/L	0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001
Chromium (VI)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mercury	mg/L	0.00002	<0.00002	<0.00002	<0.00002	0.00002	<0.00002
Anion Sum	meq/L	-	7.82	9.70	7.19	19.1	7.00
Cation Sum	meq/L	-	7.41	8.68	6.86	19.7	5.91
% Difference	%	-	2.73	5.55	2.40	1.58	8.38
Ion Ratio	-	-	1.06	1.12	1.05	0.969	1.18
Sodium Adsorption Ratio	-	-	0.255	0.213	0.318	6.09	0.0891
TDS (Ion Sum Calc)	mg/L	1	388	485	352	1060	338
TDS(calc.)/EC(actual)	-	-	0.541	0.550	0.499	0.507	0.509
Conductivity Calc	µmho/cm	-	702	819	692	1890	602
Conductivity Calc / Conductivity	-	-	0.980	0.929	0.980	0.907	0.907
Langelier Index(25°C)	-	-	0.265	0.480	-0.0854	0.671	0.379
Saturation pH (25°C)	-	-	7.05	6.71	7.39	6.76	6.96
pH (Client Data)	pH units	-	7.68	7.25	7.53	7.52	7.46
Temperature (Client Data)	°C	-	12.3	13.3	10.8	12.3	12.1

						REFORT NO. 23-029799 - Rev. C		
	Cli	ent I.D.	15-91-I	15-91-II	16-91-1	17-91-l	17-91-11	
	Sam	ple I.D.	23-029755-6	23-029755-7	23-029755-8	23-029755-9	23-029755-10	
	Date Co		2023-10-17	2023-10-17	2023-10-17	2023-10-17	2023-10-17	
Parameter	Units	R.L.	-	-	-	-	-	
Alkalinity(CaCO3) to pH4.5	mg/L	5	578	567	417	301	383	
TDS (Calc. from Cond.)	mg/L	3	632	544	991	401	413	
Conductivity @25°C	uS/cm	1	1170	1020	1800	766	788	
pH @25°C	pH units	-	7.44	6.93	7.31	7.45	7.39	
Fluoride	mg/L	0.1	<0.1	<0.1	<0.7	<0.1	<0.1	
Chloride	mg/L	0.5	18.1	3.4	334	43.2	9.1	
Nitrate (N)	mg/L	0.05	<0.05	0.05	<0.40	0.17	0.72	
Nitrite (N)	mg/L	0.05	0.08	<0.05	<0.40	0.06	<0.05	
Sulphate	mg/L	1	52	3	<2	45	45	
Phosphorus (Total)	mg/L	0.01	0.96	0.07	0.21	0.13	0.65	
Total Kjeldahl Nitrogen	mg/L	0.1	9.0	0.6	3.3	1.4	0.7	
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	3.14	0.74	1.11	1.24	1.23	
Dissolved Organic Carbon	mg/L	0.2	9.0	11.7	10.0	2.9	3.2	
Phenolics	mg/L	0.001	0.004	<0.001	<0.001	<0.001	<0.001	
COD	mg/L	5	92	32	111	11	5	
Hardness (as CaCO3)	mg/L	0.02	578	551	610	334	356	
Aluminum	mg/L	0.01	0.07	0.06	0.11	0.04	0.04	
Barium	mg/L	0.001	0.159	0.076	0.594	0.063	0.041	
Boron	mg/L	0.005	0.093	0.076	0.308	0.016	0.011	
Calcium	mg/L	0.02	186	196	186	112	131	
Iron	mg/L	0.005	1.76	53.5	8.80	0.715	<0.005	

			REPORT No: 23-029755								
	Client I.D. 15-91-I	15-91-I	15-91-II	16-91-I	17-91-1	17-91-II					
	Sam	ple I.D.	23-029755-6	23-029755-7	23-029755-8	23-029755-9	23-029755-10				
	Date Co	- 1	2023-10-17	2023-10-17	2023-10-17	2023-10-17	2023-10-17				
Parameter	Units	R.L.	-	-	-	-	-				
Magnesium	mg/L	0.02	27.6	14.8	35.3	13.2	6.95				
Manganese	mg/L	0.001	0.057	0.191	0.049	0.022	0.003				
Phosphorus	mg/L	0.1	0.4	<0.1	<0.1	<0.1	<0.1				
Potassium	mg/L	0.1	3.7	0.8	4.8	1.1	0.6				
Sodium	mg/L	0.2	26.3	6.8	138	20.5	8.5				
Strontium	mg/L	0.001	0.448	0.470	0.668	0.263	0.239				
Tin	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05				
Titanium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005				
Zinc	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005				
Antimony	mg/L	0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001				
Arsenic	mg/L	0.0001	0.0001	0.0045	0.0007	<0.0001	<0.0001				
Beryllium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001				
Cadmium	mg/L	0.00001 5	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015				
Chromium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001				
Cobalt	mg/L	0.0001	<0.0001	0.0006	0.0001	<0.0001	<0.0001				
Copper	mg/L	0.0001	0.0002	0.0002	0.0004	0.0004	0.0007				
Lead	mg/L	0.00002	<0.00002	<0.00002	0.00034	<0.00002	<0.00002				
Molybdenum	mg/L	0.0001	<0.0001	0.0004	0.0004	0.0004	0.0002				
Nickel	mg/L	0.0002	0.0022	0.0021	0.0122	0.0003	0.0004				
Selenium	mg/L	0.001	<0.001	<0.001	0.002	<0.001	<0.001				
Silver	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001				

	Cli	ent I.D.	15-91-l	15-91-II	16-91-I	17-91-1	17-91-II
	Sam	ple I.D.	23-029755-6	23-029755-7	23-029755-8	23-029755-9	23-029755-10
	Date Co		2023-10-17	2023-10-17	2023-10-17	2023-10-17	2023-10-17
Parameter	Units	R.L.	-	-	-	-	-
Thallium	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Uranium	mg/L	0.00005	<0.00005	<0.00005	<0.00005	0.00035	0.00042
Vanadium	mg/L	0.0001	<0.0001	0.0007	0.0007	<0.0001	<0.0001
Chromium (VI)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mercury	mg/L	0.00002	0.00004	0.00002	0.00003	0.00002	0.00003
Anion Sum	meq/L	-	13.1	11.5	17.8	8.19	8.91
Cation Sum	meq/L	-	12.9	14.2	18.8	7.62	7.51
% Difference	%	-	0.868	10.5	2.77	3.55	8.51
Ion Ratio	-	-	1.02	0.811	0.946	1.07	1.19
Sodium Adsorption Ratio	-	-	0.475	0.126	2.43	0.488	0.196
TDS (Ion Sum Calc)	mg/L	1	663	619	958	417	435
TDS(calc.)/EC(actual)	-	-	0.565	0.607	0.531	0.544	0.552
Conductivity Calc	µmho/cm	-	1110	951	1730	740	738
Conductivity Calc / Conductivity	-	-	0.946	0.933	0.962	0.966	0.936
Langelier Index(25°C)	-	-	0.999	0.503	0.697	0.515	0.629
Saturation pH (25°C)	-	-	6.44	6.43	6.61	6.94	6.76
pH (Client Data)	pH units	-	7.35	6.80	7.54	7.59	7.37
Temperature (Client Data)	°C	-	11.1	11.5	15.5	11.5	12.6

						NEI OKI I	io. 23-029/55 - Rev. (
	Cli	ent I.D.	18-91	19-91	20-91-I	20-91-II	20-91-III	
	Sam	ple I.D.	23-029755-11	23-029755-12	23-029755-13	23-029755-14	23-029755-15	
	Date Co		2023-10-17	2023-10-17	2023-10-17	2023-10-17	2023-10-17	
Parameter	Units	R.L.	-		-	-		
Alkalinity(CaCO3) to pH4.5	mg/L	5	326	361	234	331	394	
TDS (Calc. from Cond.)	mg/L	3	429	456	327	431	514	
Conductivity @25°C	uS/cm	1	815	863	630	819	965	
pH @25°C	pH units	-	7.43	7.54	7.70	7.57	7.46	
Fluoride	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Chloride	mg/L	0.5	58.2	43.0	53.7	70.8	76.3	
Nitrate (N)	mg/L	0.05	0.10	0.06	0.07	0.07	0.06	
Nitrite (N)	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Sulphate	mg/L	1	20	48	12	4	13	
Phosphorus (Total)	mg/L	0.01	0.26	0.42	0.11	0.08	0.04	
Total Kjeldahl Nitrogen	mg/L	0.1	0.6	0.9	6.5	1.4	1.5	
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.87	0.69	6.52	0.81	0.95	
Dissolved Organic Carbon	mg/L	0.2	2.0	3.1	3.3	5.2	7.7	
Phenolics	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
COD	mg/L	5	9	12	13	26	27	
Hardness (as CaCO3)	mg/L	0.02	336	372	116	342	392	
Aluminum	mg/L	0.01	0.05	0.04	<0.01	0.02	0.04	
Barium	mg/L	0.001	0.136	0.131	0.112	1.47	0.272	
Boron	mg/L	0.005	0.015	0.017	0.081	0.168	0.109	
Calcium	mg/L	0.02	110	128	28.8	72.1	114	
Iron	mg/L	0.005	0.445	0.437	0.873	0.336	1.85	

						INEI ORT I). 23-029/33 - Rev. 0	
	Cli	ent I.D.	18-91	19-91	20-91-I	20-91-II	20-91-III	
	Sam	ple I.D.	23-029755-11	23-029755-12	23-029755-13	23-029755-14	23-029755-15	
	Date Co	· .	2023-10-17	2023-10-17	2023-10-17	2023-10-17	2023-10-17	
Parameter	Units	R.L.	-	-	-	-	-	
Magnesium	mg/L	0.02	14.8	12.7	10.8	39.4	26.1	
Manganese	mg/L	0.001	0.010	0.024	0.109	0.011	0.064	
Phosphorus	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Potassium	mg/L	0.1	1.7	2.0	5.5	4.1	2.8	
Sodium	mg/L	0.2	16.5	37.6	66.7	33.2	40.2	
Strontium	mg/L	0.001	0.259	0.292	0.889	2.10	0.541	
Tin	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Titanium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Zinc	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Antimony	mg/L	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	
Arsenic	mg/L	0.0001	0.0002	0.0002	0.0002	<0.0001	<0.0001	
Beryllium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Cadmium	mg/L	0.00001 5	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	
Chromium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Cobalt	mg/L	0.0001	<0.0001	0.0004	0.0001	<0.0001	<0.0001	
Copper	mg/L	0.0001	0.0005	0.0006	0.0004	0.0002	0.0002	
Lead	mg/L	0.00002	0.00010	<0.00002	<0.00002	<0.00002	<0.00002	
Molybdenum	mg/L	0.0001	0.0003	0.0002	0.0006	<0.0001	<0.0001	
Nickel	mg/L	0.0002	0.0003	0.0008	0.0005	0.0016	0.0040	
Selenium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Silver	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	

	Cli	ent I.D.	18-91	19-91	20-91-1	20-91-11	20-91-111	
	Date Co		23-029755-11 2023-10-17	23-029755-12 2023-10-17	23-029755-13 2023-10-17	23-029755-14 2023-10-17	23-029755-15 2023-10-17	
Parameter	Units	R.L.	-	-	-	-	-	
Thallium	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	
Uranium	mg/L	0.00005	0.00035	0.00106	<0.00005	<0.00005	<0.00005	
Vanadium	mg/L	0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001	
Chromium (VI)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Mercury	mg/L	0.00002	0.00002	0.00002	0.00002	0.00003	0.00003	
Anion Sum	meq/L	-	8.59	9.42	6.45	8.69	10.3	
Cation Sum	meq/L	-	7.50	9.15	5.44	8.46	9.78	
% Difference	%	-	6.75	1.46	8.47	1.37	2.55	
Ion Ratio	-	-	1.14	1.03	1.19	1.03	1.05	
Sodium Adsorption Ratio	-	-	0.392	0.849	2.69	0.781	0.883	
TDS (Ion Sum Calc)	mg/L	1	418	488	320	423	511	
TDS(calc.)/EC(actual)	-	-	0.513	0.566	0.507	0.516	0.529	
Conductivity Calc	μmho/cm	-	755	851	569	794	918	
Conductivity Calc / Conductivity	-	-	0.926	0.986	0.903	0.969	0.951	
Langelier Index(25°C)	-	-	0.523	0.741	0.0864	0.485	0.650	
Saturation pH (25°C)	-	-	6.91	6.80	7.61	7.09	6.81	
pH (Client Data)	pH units	-	7.61	7.71	7.95	7.76	7.40	
Temperature (Client Data)	°C	-	12.8	11.3	10.7	11.5	11.3	

			REPORT No: 23-029755							
	Client I.D.	21-91-l	21-91-II	21-91-III	23-'07	25-91				
	Sam	ple I.D.	23-029755-16	23-029755-17	23-029755-18	23-029755-19	23-029755-20			
	Date Co		2023-10-17	2023-10-17	2023-10-17	2023-10-17	2023-10-17			
Parameter	Units	R.L.	-	-	-	-	-			
Alkalinity(CaCO3) to pH4.5	mg/L	5	528	455	528	269	372			
TDS (Calc. from Cond.)	mg/L	3	1430	828	1190	315	690			
Conductivity @25°C	uS/cm	1	2570	1520	2150	607	1280			
pH @25°C	pH units	-	7.46	7.70	7.30	7.51	7.56			
Fluoride	mg/L	0.1	<0.7	<0.7	<0.7	<0.1	<0.1			
Chloride	mg/L	0.5	535	224	377	19.9	176			
Nitrate (N)	mg/L	0.05	<0.40	<0.40	<0.40	0.16	0.09			
Nitrite (N)	mg/L	0.05	<0.40	<0.40	<0.40	0.05	<0.05			
Sulphate	mg/L	1	<2	<2	<2	30	23			
Phosphorus (Total)	mg/L	0.01	0.06	0.12	0.05	1.04	0.14			
Total Kjeldahl Nitrogen	mg/L	0.1	4.4	3.3	4.1	1.0	2.7			
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	2.57	1.96	1.65	0.76	2.64			
Dissolved Organic Carbon	mg/L	0.2	7.2	6.6	11.0	3.7	3.0			
Phenolics	mg/L	0.001	<0.001	<0.001	0.001	<0.001	<0.001			
COD	mg/L	5	69	51	111	21	14			
Hardness (as CaCO3)	mg/L	0.02	847	454	725	296	418			
Aluminum	mg/L	0.01	0.06	0.03	0.06	0.03	0.05			
Barium	mg/L	0.001	0.868	4.75	1.00	0.086	0.103			
Boron	mg/L	0.005	0.601	0.566	0.350	0.011	0.021			
Calcium	mg/L	0.02	168	83.4	197	99.8	151			
Iron	mg/L	0.005	4.39	2.46	11.9	0.029	0.110			

					KEPO				
	Cli	ent I.D.	21-91-I	21-91-II	21-91-III	23-'07	25-91		
	Sam	ple I.D.	23-029755-16	23-029755-17	23-029755-18	23-029755-19	23-029755-20		
	Date Co	- 1	2023-10-17	2023-10-17	2023-10-17	2023-10-17	2023-10-17		
Parameter	Units	R.L.	-	-	-	-	-		
Magnesium	mg/L	0.02	104	59.8	56.5	11.2	9.86		
Manganese	mg/L	0.001	0.023	0.008	0.047	0.024	0.014		
Phosphorus	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
Potassium	mg/L	0.1	11.6	8.4	6.6	1.7	2.7		
Sodium	mg/L	0.2	176	141	161	9.0	93.6		
Strontium	mg/L	0.001	10.2	6.71	1.46	0.264	0.407		
Tin	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Titanium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
Zinc	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
Antimony	mg/L	0.0001	0.0002	<0.0001	0.0001	<0.0001	0.0003		
Arsenic	mg/L	0.0001	<0.0003	0.0004	0.0002	0.0001	0.0004		
Beryllium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		
Cadmium	mg/L	0.00001	<0.000030	<0.000015	<0.000015	<0.000015	<0.000015		
Chromium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	0.001		
Cobalt	mg/L	0.0001	<0.0001	<0.0001	0.0002	0.0003	0.0002		
Copper	mg/L	0.0001	<0.0002	0.0002	0.0002	0.0004	0.0006		
Lead	mg/L	0.00002	<0.00009	<0.00002	<0.00002	<0.00002	0.00003		
Molybdenum	mg/L	0.0001	<0.0002	<0.0001	<0.0001	0.0009	0.0006		
Nickel	mg/L	0.0002	0.0070	0.0044	0.0190	0.0008	0.0015		
Selenium	mg/L	0.001	0.005	0.003	0.003	<0.001	<0.001		
Silver	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		

,										
	Cli	ent I.D.	21-91-I	21-91-II	21-91-III	23-'07	25-91			
	Sam	ple I.D.	23-029755-16	23-029755-17	23-029755-18	23-029755-19	23-029755-20			
	Date Co	- 1	2023-10-17	2023-10-17	2023-10-17	2023-10-17	2023-10-17			
Parameter	Units	R.L.	-	-	-	-	-			
Thallium	mg/L	0.00005	<0.00005	<0.00005	0.00005	<0.00005	<0.00005			
Uranium	mg/L	0.00005	0.00005	<0.00005	<0.00005	0.00016	0.00069			
Vanadium	mg/L	0.0001	<0.0004	0.0002	0.0004	<0.0001	0.0002			
Chromium (VI)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
Mercury	mg/L	0.00002	0.00003	0.00002	0.00002	0.00002	0.00003			
Anion Sum	meq/L	-	25.7	15.4	21.2	6.58	12.9			
Cation Sum	meq/L	-	25.4	15.7	22.3	6.34	12.5			
% Difference	%	-	0.493	1.00	2.60	1.84	1.56			
Ion Ratio	-	-	1.01	0.980	0.949	1.04	1.03			
Sodium Adsorption Ratio	-	-	2.63	2.89	2.60	0.228	1.99			
TDS (Ion Sum Calc)	mg/L	1	1320	793	1130	334	680			
TDS(calc.)/EC(actual)	-	-	0.513	0.522	0.525	0.550	0.534			
Conductivity Calc	µmho/cm	-	2360	1440	2000	604	1220			
Conductivity Calc / Conductivity	-	-	0.920	0.949	0.929	0.995	0.958			
Langelier Index(25°C)	-	-	0.895	0.796	0.806	0.496	0.827			
Saturation pH (25°C)	-	-	6.56	6.90	6.49	7.01	6.73			
pH (Client Data)	pH units	-	7.11	7.44	6.84	7.54	7.53			
Temperature (Client Data)	°C	-	12.5	11.9	11.4	10.9	12.9			

						KEFORT	REPORT NO. 23-029/55 - Rev. (
	Cli	ent I.D.	25-96	27-93	28-93	29-93	30-93	
	Sam	ple I.D.	23-029755-21	23-029755-22	23-029755-23	23-029755-24	23-029755-25	
	Date Co		2023-10-17	2023-10-17	2023-10-17	2023-10-17	2023-10-19	
Parameter	Units	R.L.	-	-	-	-	-	
Alkalinity(CaCO3) to pH4.5	mg/L	5	457	227	305	366	459	
TDS (Calc. from Cond.)	mg/L	3	751	260	1620	741	767	
Conductivity @25°C	uS/cm	1	1380	503	2910	1360	1410	
pH @25°C	pH units	-	7.91	7.45	7.63	7.66	7.44	
Fluoride	mg/L	0.1	1.7	<0.1	<0.7	<0.1	<0.1	
Chloride	mg/L	0.5	172	8.5	762	192	181	
Nitrate (N)	mg/L	0.05	<0.40	0.06	<0.40	0.11	<0.05	
Nitrite (N)	mg/L	0.05	<0.40	<0.05	<0.40	<0.05	0.05	
Sulphate	mg/L	1	29	36	<2	54	12	
Phosphorus (Total)	mg/L	0.01	0.06	0.02	0.02	2.05	0.06	
Total Kjeldahl Nitrogen	mg/L	0.1	4.2	0.5	6.5	1.2	8.4	
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	3.63	0.37	5.73	0.76	6.27	
Dissolved Organic Carbon	mg/L	0.2	1.5	2.7	1.6	3.0	4.4	
Phenolics	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
COD	mg/L	5	23	5	14	19	23	
Hardness (as CaCO3)	mg/L	0.02	158	251	529	364	414	
Aluminum	mg/L	0.01	<0.01	0.02	0.03	0.04	0.03	
Barium	mg/L	0.001	0.238	0.087	1.25	0.090	0.334	
Boron	mg/L	0.005	1.45	0.042	1.23	0.055	0.099	
Calcium	mg/L	0.02	25.6	67.9	86.4	133	110	
Iron	mg/L	0.005	0.225	0.633	4.16	0.532	3.00	

Final Report

REPORT No: 23-029755 - Rev. 0

			REFORT NO. 23-025							
	Client I.D. 25-96	27-93	28-93	29-93	30-93					
	Sam	ple I.D.	23-029755-21	23-029755-22	23-029755-23	23-029755-24	23-029755-25			
	Date Co	- 1	2023-10-17	2023-10-17	2023-10-17	2023-10-17	2023-10-19			
Parameter	Units	R.L.	-	-	-	-	-			
Magnesium	mg/L	0.02	22.9	19.7	76.1	7.77	33.7			
Manganese	mg/L	0.001	0.004	0.011	0.072	0.156	0.144			
Phosphorus	mg/L	0.1	<0.1	<0.1	<0.1	0.2	<0.1			
Potassium	mg/L	0.1	11.8	2.2	17.9	2.0	3.6			
Sodium	mg/L	0.2	237	5.5	327	138	106			
Strontium	mg/L	0.001	3.38	0.490	12.4	0.456	0.494			
Tin	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Titanium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
Zinc	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
Antimony	mg/L	0.0001	0.0002	<0.0001	0.0002	0.0002	<0.0001			
Arsenic	mg/L	0.0001	0.0002	<0.0001	0.0006	0.0005	0.0021			
Beryllium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Cadmium	mg/L	0.00001 5	<0.000015	<0.000015	<0.000030	<0.000015	<0.000015			
Chromium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
Cobalt	mg/L	0.0001	<0.0001	<0.0001	<0.0001	0.0006	0.0017			
Copper	mg/L	0.0001	0.0003	0.0002	0.0002	0.0003	0.0004			
Lead	mg/L	0.00002	<0.00004	<0.00002	<0.00009	<0.00004	<0.00002			
Molybdenum	mg/L	0.0001	0.0006	0.0002	0.0004	0.0003	0.0004			
Nickel	mg/L	0.0002	0.0002	<0.0002	<0.0002	0.0006	0.0061			
Selenium	mg/L	0.001	0.003	<0.001	<0.001	<0.001	<0.001			
Silver	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			

	Cli	ent I.D.	25-96	27-93	28-93	29-93	30-93		
	Sam	ple I.D.	23-029755-21	23-029755-22	23-029755-23	23-029755-24	23-029755-25		
	Date Co	- 1	2023-10-17	2023-10-17	2023-10-17	2023-10-17	2023-10-19		
Parameter	Units	R.L.		-	-	-	-		
Thallium	mg/L	0.00005	0.00005	<0.00005	<0.00005	<0.00005	<0.00005		
Uranium	mg/L	0.00005	<0.00005	<0.00005	<0.00005	0.00035	0.00015		
Vanadium	mg/L	0.0001	<0.0001	<0.0001	<0.0004	<0.0001	<0.0001		
Chromium (VI)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Mercury	mg/L	0.00002	0.00003	0.00003	0.00003	0.00003	<0.00002		
Anion Sum	meq/L	-	14.7	5.55	27.6	13.9	14.5		
Cation Sum	meq/L	-	13.8	5.34	25.8	13.4	13.1		
% Difference	%	-	2.95	1.90	3.46	1.62	5.06		
Ion Ratio	-	-	1.06	1.04	1.07	1.03	1.11		
Sodium Adsorption Ratio	-	-	8.18	0.151	6.18	3.15	2.26		
TDS (Ion Sum Calc)	mg/L	1	775	278	1460	748	724		
TDS(calc.)/EC(actual)	-	-	0.561	0.552	0.501	0.548	0.513		
Conductivity Calc	µmho/cm	-	1330	506	2660	1310	1280		
Conductivity Calc / Conductivity	-	-	0.964	1.01	0.914	0.958	0.908		
Langelier Index(25°C)	-	-	0.495	0.196	0.538	0.865	0.660		
Saturation pH (25°C)	-	-	7.41	7.25	7.09	6.79	6.78		
pH (Client Data)	pH units	-	7.77	7.81	7.54	7.04	7.59		
Temperature (Client Data)	°C	-	11.4	11.5	10.4	12.6	11.9		

					REFORT NO. 23-029/55 - Rev. 0		
	Cli	ent I.D.	31-93	35-93-1	35-93-11	36-93	37-93-1
	Sam	ple I.D.	23-029755-26	23-029755-27	23-029755-28	23-029755-29	23-029755-30
	Date Co	-	2023-10-19	2023-10-19	2023-10-19	2023-10-19	2023-10-19
Parameter	Units	R.L.	-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5	462	188	325	259	260
TDS (Calc. from Cond.)	mg/L	3	770	230	589	325	622
Conductivity @25°C	uS/cm	1	1420	445	1100	627	1160
pH @25°C	pH units	-	7.43	7.50	7.49	7.47	7.52
Fluoride	mg/L	0.1	<0.1	0.3	<0.1	<0.1	<0.1
Chloride	mg/L	0.5	182	21.3	148	26.2	183
Nitrate (N)	mg/L	0.05	0.11	0.37	0.24	0.28	0.06
Nitrite (N)	mg/L	0.05	0.66	<0.05	<0.05	<0.05	<0.05
Sulphate	mg/L	1	12	19	24	43	55
Phosphorus (Total)	mg/L	0.01	0.17	0.05	0.38	0.13	0.03
Total Kjeldahl Nitrogen	mg/L	0.1	9.6	0.4	0.9	1.3	0.7
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	7.55	0.32	1.10	1.74	0.68
Dissolved Organic Carbon	mg/L	0.2	4.2	2.9	2.8	3.8	2.2
Phenolics	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
COD	mg/L	5	26	16	<5	12	12
Hardness (as CaCO3)	mg/L	0.02	422	212	312	308	430
Aluminum	mg/L	0.01	0.04	0.01	0.03	0.03	0.03
Barium	mg/L	0.001	0.365	0.180	0.080	0.245	0.252
Boron	mg/L	0.005	0.092	0.119	0.020	0.049	0.054
Calcium	mg/L	0.02	115	40.0	110	82.4	102
Iron	mg/L	0.005	2.57	<0.005	0.005	1.25	1.02

			REPORT No: 23-02978							
	Cli	ent I.D.	31-93	35-93-I	35-93-II	36-93	37-93-1			
	Sam	ple I.D.	23-029755-26	23-029755-27	23-029755-28	23-029755-29	23-029755-30			
	Date Co	- 1	2023-10-19	2023-10-19	2023-10-19	2023-10-19	2023-10-19			
Parameter	Units	R.L.		-	-	-	-			
Magnesium	mg/L	0.02	32.7	27.3	9.04	24.8	42.7			
Manganese	mg/L	0.001	0.175	<0.001	0.001	0.022	0.018			
Phosphorus	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
Potassium	mg/L	0.1	4.1	3.4	1.5	2.0	3.1			
Sodium	mg/L	0.2	101	7.1	77.0	8.5	43.1			
Strontium	mg/L	0.001	0.478	0.974	0.320	0.755	1.27			
Tin	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Titanium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
Zinc	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
Antimony	mg/L	0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001			
Arsenic	mg/L	0.0001	0.0010	0.0003	<0.0001	0.0002	0.0002			
Beryllium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Cadmium	mg/L	0.00001 5	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015			
Chromium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
Cobalt	mg/L	0.0001	0.0008	<0.0001	<0.0001	<0.0001	<0.0001			
Copper	mg/L	0.0001	0.0005	0.0005	0.0015	0.0003	0.0002			
Lead	mg/L	0.00002	<0.00002	<0.00002	<0.00002	0.00002	<0.00002			
Molybdenum	mg/L	0.0001	0.0003	0.0004	0.0002	0.0002	0.0002			
Nickel	mg/L	0.0002	0.0047	0.0002	0.0003	<0.0002	<0.0002			
Selenium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
Silver	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			

	Cli	ent I.D.	31-93	35-93-1	35-93-II	36-93	37-93-I			
	Sam	ple I.D.	23-029755-26	23-029755-27	23-029755-28	23-029755-29	23-029755-30			
	Date Co		2023-10-19	2023-10-19	2023-10-19	2023-10-19	2023-10-19			
Parameter	Units	R.L.		-	-	-	-			
Thallium	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005			
Uranium	mg/L	0.00005	0.00010	0.00006	0.00033	<0.00005	<0.00005			
Vanadium	mg/L	0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001			
Chromium (VI)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
Mercury	mg/L	0.00002	0.00002	<0.00002	0.00003	0.00002	0.00002			
Anion Sum	meq/L	-	14.7	4.78	11.2	6.82	11.5			
Cation Sum	meq/L	-	13.1	4.67	9.62	6.66	10.6			
% Difference	%	-	5.70	1.24	7.46	1.23	4.13			
Ion Ratio	-	-	1.12	1.03	1.16	1.02	1.09			
Sodium Adsorption Ratio	-	-	2.15	0.213	1.90	0.211	0.905			
TDS (Ion Sum Calc)	mg/L	1	729	233	565	345	586			
TDS(calc.)/EC(actual)	-	-	0.514	0.523	0.515	0.550	0.507			
Conductivity Calc	µmho/cm	-	1290	447	1010	627	1090			
Conductivity Calc / Conductivity	-	-	0.908	1.00	0.925	1.00	0.943			
Langelier Index(25°C)	-	-	0.671	-0.0565	0.570	0.347	0.470			
Saturation pH (25°C)	-	-	6.76	7.56	6.92	7.12	7.05			
pH (Client Data)	pH units	-	7.63	7.21	7.18	7.31	7.23			
Temperature (Client Data)	°C	-	11.8	11.6	13.0	11.8	10.8			

			REFORT NO. 23								
	Cli	ent I.D.	37-93-II	38-93	39-93-1	39-93-11	45-95-1				
	Sam	ple I.D.	23-029755-31	23-029755-32	23-029755-33	23-029755-34	23-029755-35				
	Date Co		2023-10-19	2023-10-19	2023-10-17	2023-10-17	2023-10-18				
Parameter	Units	R.L.	-	-	-	-	-				
Alkalinity(CaCO3) to pH4.5	mg/L	5	299	320	268	399	351				
TDS (Calc. from Cond.)	mg/L	3	758	347	526	1020	628				
Conductivity @25°C	uS/cm	1	1400	669	986	1860	1170				
pH @25°C	pH units	-	7.55	7.54	7.56	7.59	7.54				
Fluoride	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1				
Chloride	mg/L	0.5	242	12.3	139	438	105				
Nitrate (N)	mg/L	0.05	0.08	0.16	0.07	0.09	0.07				
Nitrite (N)	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05				
Sulphate	mg/L	1	51	33	38	45	124				
Phosphorus (Total)	mg/L	0.01	0.78	0.42	0.03	0.43	0.02				
Total Kjeldahl Nitrogen	mg/L	0.1	1.0	0.7	0.6	0.9	1.4				
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.29	0.46	0.43	0.31	0.96				
Dissolved Organic Carbon	mg/L	0.2	2.7	4.1	2.2	2.7	5.0				
Phenolics	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001				
COD	mg/L	5	23	8	7	13	12				
Hardness (as CaCO3)	mg/L	0.02	375	314	414	430	443				
Aluminum	mg/L	0.01	0.04	0.04	0.03	0.04	0.04				
Barium	mg/L	0.001	0.255	0.132	0.239	0.158	0.040				
Boron	mg/L	0.005	0.035	0.028	0.075	0.048	0.130				
Calcium	mg/L	0.02	126	98.7	86.2	153	131				
Iron	mg/L	0.005	0.092	0.249	1.29	0.013	2.27				

	Cli	ent I.D.	37-93-II	38-93	39-93-1	39-93-II	45-95-I			
	Sam	ple I.D.	23-029755-31	23-029755-32	23-029755-33	23-029755-34	23-029755-35			
	Date Co	- 1	2023-10-19	2023-10-19	2023-10-17	2023-10-17	2023-10-18			
Parameter	Units	R.L.	-	-	-	-	-			
Magnesium	mg/L	0.02	14.7	16.4	48.3	11.6	28.0			
Manganese	mg/L	0.001	0.022	0.026	0.017	0.007	0.046			
Phosphorus	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
Potassium	mg/L	0.1	2.1	1.1	2.9	5.7	2.7			
Sodium	mg/L	0.2	132	8.2	28.4	200	72.8			
Strontium	mg/L	0.001	0.477	0.423	1.42	0.466	0.425			
Tin	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Titanium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
Zinc	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
Antimony	mg/L	0.0001	0.0004	0.0001	<0.0001	0.0002	0.0001			
Arsenic	mg/L	0.0001	0.0002	0.0001	<0.0001	<0.0001	0.0002			
Beryllium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Cadmium	mg/L	0.00001	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015			
Chromium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
Cobalt	mg/L	0.0001	0.0001	<0.0001	0.0002	<0.0001	0.0001			
Copper	mg/L	0.0001	0.0012	0.0006	0.0002	0.0008	0.0002			
Lead	mg/L	0.00002	<0.00004	<0.00002	<0.00002	<0.00004	<0.00002			
Molybdenum	mg/L	0.0001	0.0003	0.0002	0.0001	0.0002	0.0001			
Nickel	mg/L	0.0002	0.0007	0.0002	<0.0002	0.0003	0.0020			
Selenium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
Silver	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			

<u>, </u>										
	Cli	ent I.D.	37-93-II	38-93	39-93-1	39-93-II	45-95-I			
	Sam	ple I.D.	23-029755-31	23-029755-32	23-029755-33	23-029755-34	23-029755-35			
	Date Co		2023-10-19	2023-10-19	2023-10-17	2023-10-17	2023-10-18			
Parameter	Units	R.L.	-	-	-	-	-			
Thallium	mg/L	0.00005	0.00006	<0.00005	<0.00005	<0.00005	<0.00005			
Uranium	mg/L	0.00005	0.00033	0.00012	<0.00005	0.00066	0.00006			
Vanadium	mg/L	0.0001	0.0002	<0.0001	<0.0001	0.0008	<0.0001			
Chromium (VI)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
Mercury	mg/L	0.00002	0.00002	<0.00002	0.00002	<0.00002	<0.00002			
Anion Sum	meq/L	-	13.9	7.43	10.1	20.1	12.6			
Cation Sum	meq/L	-	13.3	6.68	9.69	17.5	12.2			
% Difference	%	-	1.91	5.29	1.96	7.08	1.35			
Ion Ratio	-	-	1.04	1.11	1.04	1.15	1.03			
Sodium Adsorption Ratio	-	-	2.98	0.200	0.608	4.20	1.51			
TDS (Ion Sum Calc)	mg/L	1	748	362	506	1050	677			
TDS(calc.)/EC(actual)	-	-	0.535	0.542	0.513	0.567	0.580			
Conductivity Calc	µmho/cm	-	1340	641	958	1850	1140			
Conductivity Calc / Conductivity	-	-	0.963	0.958	0.972	0.997	0.980			
Langelier Index(25°C)	-	-	0.644	0.586	0.461	0.864	0.720			
Saturation pH (25°C)	-	-	6.91	6.95	7.10	6.73	6.82			
pH (Client Data)	pH units	-	7.40	7.42	7.76	7.56	7.21			
Temperature (Client Data)	°C	-	12.0	12.4	10.9	12.4	11.2			

				KEFORT	I NO. 23-029/55 - Rev. 0		
	Cli	ent I.D.	45-95-II	46-95-I	46-95-II	47-96-1	47-96-II
	Sam	ple I.D.	23-029755-36	23-029755-37	23-029755-38	23-029755-39	23-029755-40
	Date Co		2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18
Parameter	Units	R.L.	-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5	356	616	625	429	516
TDS (Calc. from Cond.)	mg/L	3	510	997	1000	733	995
Conductivity @25°C	uS/cm	1	958	1820	1830	1350	1810
pH @25°C	pH units	-	7.52	7.50	7.55	7.63	7.67
Fluoride	mg/L	0.1	<0.1	<0.1	<0.7	<0.1	<0.7
Chloride	mg/L	0.5	89.5	21.5	216	185	252
Nitrate (N)	mg/L	0.05	0.36	<0.05	<0.40	0.07	<0.40
Nitrite (N)	mg/L	0.05	<0.05	<0.05	<0.40	<0.05	<0.40
Sulphate	mg/L	1	10	<1	<2	6	<2
Phosphorus (Total)	mg/L	0.01	0.42	0.03	0.07	0.03	2.43
Total Kjeldahl Nitrogen	mg/L	0.1	0.8	26.3	41.5	1.9	59.4
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.17	32.1	39.4	1.53	48.0
Dissolved Organic Carbon	mg/L	0.2	5.0	7.8	7.0	4.1	6.6
Phenolics	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
COD	mg/L	5	19	44	43	20	99
Hardness (as CaCO3)	mg/L	0.02	358	547	544	475	383
Aluminum	mg/L	0.01	0.04	0.06	0.10	0.04	0.05
Barium	mg/L	0.001	0.036	1.10	1.06	0.429	0.169
Boron	mg/L	0.005	0.046	0.116	0.109	0.074	0.148
Calcium	mg/L	0.02	128	161	159	129	114
Iron	mg/L	0.005	<0.005	13.3	13.5	1.80	14.9

			REPORT No: 23-029755 -								
	Cli	ient I.D.	45-95-II	46-95-I	46-95-II	47-96-1	47-96-II				
	Sam	ple I.D.	23-029755-36	23-029755-37	23-029755-38	23-029755-39	23-029755-40				
	Date Co		2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18				
Parameter	Units	R.L.	-	-	-	-	-				
Magnesium	mg/L	0.02	9.20	35.2	35.6	37.0	23.9				
Manganese	mg/L	0.001	0.013	0.088	0.086	0.090	0.286				
Phosphorus	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1				
Potassium	mg/L	0.1	5.6	9.0	9.2	2.5	14.9				
Sodium	mg/L	0.2	50.6	125	128	93.8	157				
Strontium	mg/L	0.001	0.339	0.704	0.708	0.537	0.463				
Tin	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05				
Titanium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005				
Zinc	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005				
Antimony	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001				
Arsenic	mg/L	0.0001	0.0001	0.0001	0.0001	<0.0001	0.0052				
Beryllium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001				
Cadmium	mg/L	0.00001	<0.000015	<0.000015	<0.000015	<0.000015	<0.00015				
Chromium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001				
Cobalt	mg/L	0.0001	0.0001	0.0005	0.0005	<0.0001	0.0005				
Copper	mg/L	0.0001	0.0015	0.0003	0.0002	0.0002	0.0002				
Lead	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.00005				
Molybdenum	mg/L	0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0006				
Nickel	mg/L	0.0002	0.0008	0.0023	0.0021	0.0021	0.0018				
Selenium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001				
Silver	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001				

			- 100.50							
	Cli	ent I.D.	45-95-II	46-95-I	46-95-II	47-96-I	47-96-II			
	Sam	ple I.D.	23-029755-36	23-029755-37	23-029755-38	23-029755-39	23-029755-40			
	Date Co		2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18			
Parameter	Units	R.L.	-	-	-	-	-			
Thallium	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005			
Uranium	mg/L	0.00005	0.00024	<0.00005	<0.00005	<0.00005	0.00006			
Vanadium	mg/L	0.0001	<0.0001	0.0004	0.0003	<0.0001	0.0002			
Chromium (VI)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
Mercury	mg/L	0.00002	<0.00002	0.00002	<0.00002	0.00002	0.00003			
Anion Sum	meq/L	-	9.88	12.9	18.6	13.9	17.4			
Cation Sum	meq/L	-	9.48	17.3	16.7	13.7	15.7			
% Difference	%	-	2.07	14.7	5.37	0.639	5.38			
Ion Ratio	-	-	1.04	0.744	1.11	1.01	1.11			
Sodium Adsorption Ratio	-	-	1.17	2.33	2.36	1.87	3.49			
TDS (Ion Sum Calc)	mg/L	1	508	735	923	712	887			
TDS(calc.)/EC(actual)	-	-	0.530	0.405	0.505 (12)	0.527	0.490			
Conductivity Calc	µmho/cm	-	916	1250	1580	1290	1520			
Conductivity Calc / Conductivity	-	-	0.956	0.687	0.864	0.957	0.839			
Langelier Index(25°C)	-	-	0.714	1.01	1.03	0.890	0.946			
Saturation pH (25°C)	-	-	6.81	6.49	6.52	6.74	6.72			
pH (Client Data)	pH units	-	7.79	7.27	6.92	7.01	7.33			
Temperature (Client Data)	°C	-	12.8	10.7	11.6	11.1	11.9			

						REPORT NO. 23-029799 - Rev. 0			
	Cli	ent I.D.	48-96-I	48-96-II	49-96-I	49-96-II	49-96-III		
	Sam	ple I.D.	23-029755-41	23-029755-42	23-029755-43	23-029755-44	23-029755-45		
	Date Co		2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18		
Parameter	Units	R.L.	-	-			•		
Alkalinity(CaCO3) to pH4.5	mg/L	5	309	450	295	288	330		
TDS (Calc. from Cond.)	mg/L	3	415	635	498	540	508		
Conductivity @25°C	uS/cm	1	790	1180	937	1010	954		
pH @25°C	pH units	-	7.72	7.44	7.20	7.61	7.53		
Fluoride	mg/L	0.1	<0.1	<0.1	1.0	<0.1	<0.1		
Chloride	mg/L	0.5	64.6	115	108	118	93.0		
Nitrate (N)	mg/L	0.05	0.10	<0.05	0.08	0.71	0.16		
Nitrite (N)	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Sulphate	mg/L	1	19	13	27	66	40		
Phosphorus (Total)	mg/L	0.01	0.02	3.11	0.03	0.06	0.05		
Total Kjeldahl Nitrogen	mg/L	0.1	0.8	2.1	3.7	0.7	0.4		
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.50	0.61	3.56	0.45	0.17		
Dissolved Organic Carbon	mg/L	0.2	2.8	5.7	2.4	2.7	3.7		
Phenolics	mg/L	0.001	0.001	<0.001	<0.001	<0.001	<0.001		
COD	mg/L	5	23	44	11	11	9		
Hardness (as CaCO3)	mg/L	0.02	325	504	146	425	348		
Aluminum	mg/L	0.01	0.02	0.04	<0.01	0.04	0.04		
Barium	mg/L	0.001	1.07	0.739	0.022	0.124	0.068		
Boron	mg/L	0.005	0.147	0.077	0.574	0.858	0.066		
Calcium	mg/L	0.02	67.0	138	25.4	113	121		
Iron	mg/L	0.005	0.008	3.67	0.058	0.099	<0.005		

			REFORT NO. 23-029755 -							
	Cli	ent I.D.	48-96-I	48-96-II	49-96-I	49-96-II	49-96-111			
	Sam	ple I.D.	23-029755-41	23-029755-42	23-029755-43	23-029755-44	23-029755-45			
	Date Co		2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18			
Parameter	Units	R.L.	-	-	-	-	-			
Magnesium	mg/L	0.02	38.4	38.8	20.0	34.6	11.0			
Manganese	mg/L	0.001	0.002	0.064	0.006	0.008	<0.001			
Phosphorus	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
Potassium	mg/L	0.1	3.6	3.1	8.6	2.8	1.0			
Sodium	mg/L	0.2	34.4	49.9	146	38.4	39.9			
Strontium	mg/L	0.001	1.28	0.894	1.95	0.796	0.398			
Tin	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Titanium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
Zinc	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
Antimony	mg/L	0.0001	0.0002	<0.0001	<0.0001	0.0001	0.0001			
Arsenic	mg/L	0.0001	0.0002	0.0002	<0.0001	0.0001	0.0001			
Beryllium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Cadmium	mg/L	0.00001	<0.000015	<0.000015	<0.000015	<0.00015	<0.000015			
Chromium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
Cobalt	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Copper	mg/L	0.0001	0.0004	0.0002	0.0002	0.0004	0.0008			
Lead	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.00002			
Molybdenum	mg/L	0.0001	0.0002	<0.0001	<0.0001	0.0011	0.0004			
Nickel	mg/L	0.0002	0.0017	0.0024	<0.0002	0.0003	0.0004			
Selenium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
Silver	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			

<u> </u>									
	Cli	ent I.D.	48-96-I	48-96-II	49-96-I	49-96-II	49-96-111		
	Sam	ple I.D.	23-029755-41	23-029755-42	23-029755-43	23-029755-44	23-029755-45		
	Date Co		2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18		
Parameter	Units	R.L.	-	-	-	-	-		
Thallium	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005		
Uranium	mg/L	0.00005	0.00009	<0.00005	<0.00005	0.00007	0.00056		
Vanadium	mg/L	0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001		
Chromium (VI)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Mercury	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002		
Anion Sum	meq/L	-	8.40	12.5	9.58	10.5	10.1		
Cation Sum	meq/L	-	8.12	12.5	9.53	10.3	8.73		
% Difference	%	-	1.68	0.107	0.267	1.22	7.07		
Ion Ratio	-	-	1.03	0.998	1.01	1.02	1.15		
Sodium Adsorption Ratio	-	-	0.829	0.967	5.27	0.810	0.930		
TDS (Ion Sum Calc)	mg/L	1	413	631	514	549	505		
TDS(calc.)/EC(actual)	-	-	0.523	0.535	0.549	0.542	0.529		
Conductivity Calc	µmho/cm	-	769	1130	915	996	896		
Conductivity Calc / Conductivity	-	-	0.973	0.962	0.976	0.984	0.939		
Langelier Index(25°C)	-	-	0.573	0.760	-0.388	0.649	0.670		
Saturation pH (25°C)	-	-	7.15	6.68	7.59	6.96	6.86		
pH (Client Data)	pH units	-	7.75	6.88	7.38	7.06	7.11		
Temperature (Client Data)	°C	-	12.5	11.4	9.9	9.5	10.5		

-			REPORT NO. 23-025						
	Cli	ent I.D.	59-'05	60-'05	DUP	DUP-1	DUP-2		
	Sam	ple I.D.	23-029755-46	23-029755-47	23-029755-48	23-029755-49	23-029755-50		
	Date Co		2023-10-19	2023-10-19	2023-10-17	2023-10-17	2023-10-17		
Parameter	Units	R.L.	-	-	-	-	-		
Alkalinity(CaCO3) to pH4.5	mg/L	5	624	321	418	266	396		
TDS (Calc. from Cond.)	mg/L	3	977	542	996	310	515		
Conductivity @25°C	uS/cm	1	1780	1020	1810	597	967		
pH @25°C	pH units	-	7.47	7.73	7.51	7.57	7.58		
Fluoride	mg/L	0.1	<0.1	<0.1	<0.7	<0.1	<0.1		
Chloride	mg/L	0.5	211	126	332	19.8	74.8		
Nitrate (N)	mg/L	0.05	<0.05	0.13	<0.40	0.07	0.06		
Nitrite (N)	mg/L	0.05	<0.05	<0.05	<0.40	<0.05	<0.05		
Sulphate	mg/L	1	3	19	<2	29	12		
Phosphorus (Total)	mg/L	0.01	0.06	0.36	0.14	0.61	0.04		
Total Kjeldahl Nitrogen	mg/L	0.1	27.6	0.9	2.5	0.4	1.1		
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	24.3	0.96	0.71	0.30	1.08		
Dissolved Organic Carbon	mg/L	0.2	6.9	2.8	10.1	3.6	7.8		
Phenolics	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001		
COD	mg/L	5	39	15	99	17	23		
Hardness (as CaCO3)	mg/L	0.02	560	406	599	296	394		
Aluminum	mg/L	0.01	0.06	0.05	0.10	0.03	0.04		
Barium	mg/L	0.001	1.23	0.206	0.600	0.087	0.273		
Boron	mg/L	0.005	0.113	0.022	0.315	0.011	0.111		
Calcium	mg/L	0.02	164	100	181	99.8	114		
Iron	mg/L	0.005	12.6	0.671	8.69	0.030	1.80		

			REPORT No: 23-029755 - Re							
	Cli	Client I.D.		60-'05	DUP	DUP-1	DUP-2			
	Sam	ple I.D.	23-029755-46	23-029755-47	23-029755-48	23-029755-49	23-029755-50			
	Date Co		2023-10-19	2023-10-19	2023-10-17	2023-10-17	2023-10-17			
Parameter	Units	R.L.		-	-	-	-			
Magnesium	mg/L	0.02	36.6	38.0	35.6	11.3	26.4			
Manganese	mg/L	0.001	0.078	0.013	0.045	0.024	0.060			
Phosphorus	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
Potassium	mg/L	0.1	8.3	3.0	5.0	1.7	2.9			
Sodium	mg/L	0.2	122	38.5	142	9.3	40.9			
Strontium	mg/L	0.001	0.732	0.534	0.683	0.270	0.555			
Tin	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Titanium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
Zinc	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
Antimony	mg/L	0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001			
Arsenic	mg/L	0.0001	<0.0001	<0.0001	0.0006	0.0001	<0.0001			
Beryllium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Cadmium	mg/L	0.00001 5	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015			
Chromium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
Cobalt	mg/L	0.0001	0.0004	0.0004	0.0001	0.0003	<0.0001			
Copper	mg/L	0.0001	0.0002	0.0004	0.0001	0.0002	<0.0001			
Lead	mg/L	0.00002	<0.00004	0.00012	0.00024	<0.00002	<0.00002			
Molybdenum	mg/L	0.0001	<0.0001	<0.0001	0.0003	0.0009	<0.0001			
Nickel	mg/L	0.0002	0.0020	0.0010	0.0113	0.0008	0.0040			
Selenium	mg/L	0.001	0.001	<0.001	0.002	<0.001	<0.001			
Silver	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			

		NET ON 140: 25-025755 - Nev. 0					
	Cli	ent I.D.	59-'05	60-'05	DUP	DUP-1	DUP-2
	Date Co		23-029755-46 2023-10-19	23-029755-47 2023-10-19	23-029755-48 2023-10-17	23-029755-49 2023-10-17	23-029755-50 2023-10-17
Parameter	Units	R.L.	•	-	-	-	-
Thallium	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Uranium	mg/L	0.00005	<0.00005	0.00006	<0.00005	0.00016	<0.00005
Vanadium	mg/L	0.0001	0.0005	<0.0001	0.0005	<0.0001	0.0001
Chromium (VI)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mercury	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Anion Sum	meq/L	-	18.5	10.4	17.7	6.49	10.3
Cation Sum	meq/L	-	17.4	9.92	18.8	6.37	9.81
% Difference	%	-	2.99	2.32	2.85	0.939	2.40
Ion Ratio	-	-	1.06	1.05	0.945	1.02	1.05
Sodium Adsorption Ratio	-	-	2.24	0.831	2.52	0.235	0.899
TDS (Ion Sum Calc)	mg/L	1	932	519	956	331	511
TDS(calc.)/EC(actual)	-	-	0.523	0.511	0.527	0.555	0.529
Conductivity Calc	µmho/cm	-	1580	970	1730	602	918
Conductivity Calc / Conductivity	-	-	0.889	0.956	0.954	1.01	0.950
Langelier Index(25°C)	-	-	0.978	0.775	0.886	0.552	0.771
Saturation pH (25°C)	-	-	6.49	6.96	6.62	7.02	6.81
pH (Client Data)	pH units	-	7.20	7.72	7.54	7.54	7.40
Temperature (Client Data)	°C	-	9.1	11.7	15.5	10.9	11.3

	Cli	DUP-6	
Parameter	Sam Date Co Units	ple I.D. Ilected R.L.	23-029755-51 2023-10-18
Alkalinity(CaCO3) to pH4.5	mg/L	5	309
TDS (Calc. from Cond.)	mg/L	3	411
Conductivity @25°C	uS/cm	1	783
pH @25°C	pH units	-	7.82
Fluoride	mg/L	0.1	<0.1
Chloride	mg/L	0.5	65.8
Nitrate (N)	mg/L	0.05	0.10
Nitrite (N)	mg/L	0.05	<0.05
Sulphate	mg/L	1	20
Phosphorus (Total)	mg/L	0.01	0.02
Total Kjeldahl Nitrogen	mg/L	0.1	0.2
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.08
Dissolved Organic Carbon	mg/L	0.2	4.2
Phenolics	mg/L	0.001	0.001
COD	mg/L	5	17
Hardness (as CaCO3)	mg/L	0.02	328
Aluminum	mg/L	0.01	0.02
Barium	mg/L	0.001	1.08
Boron	mg/L	0.005	0.146
Calcium	mg/L	0.02	67.4
Iron	mg/L	0.005	0.006

	Cli	DUP-6	
	Sam Date Co	ple I.D.	23-029755-51 2023-10-18
Parameter	Units	R.L.	
Magnesium	mg/L	0.02	38.7
Manganese	mg/L	0.001	0.001
Phosphorus	mg/L	0.1	<0.1
Potassium	mg/L	0.1	3.6
Sodium	mg/L	0.2	34.6
Strontium	mg/L	0.001	1.29
Tin	mg/L	0.05	<0.05
Titanium	mg/L	0.005	<0.005
Zinc	mg/L	0.005	<0.005
Antimony	mg/L	0.0001	0.0001
Arsenic	mg/L	0.0001	0.0002
Beryllium	mg/L	0.0001	<0.0001
Cadmium	mg/L	0.00001 5	<0.000015
Chromium	mg/L	0.001	<0.001
Cobalt	mg/L	0.0001	<0.0001
Copper	mg/L	0.0001	0.0002
Lead	mg/L	0.00002	0.00002
Molybdenum	mg/L	0.0001	0.0002
Nickel	mg/L	0.0002	0.0016
Selenium	mg/L	0.001	<0.001
Silver	mg/L	0.0001	<0.0001

	Client I.D.				
	Date Co		23-029755-51 2023-10-18		
Parameter	Units	R.L.	•		
Thallium	mg/L	0.00005	<0.00005		
Uranium	mg/L	0.00005	0.00010		
Vanadium	mg/L	0.0001	0.0002		
Chromium (VI)	mg/L	0.01	<0.01		
Mercury	mg/L	0.00002	<0.00002		
Anion Sum	meq/L	-	8.45		
Cation Sum	meq/L	-	8.17		
% Difference	%	-	1.68		
Ion Ratio	-	-	1.03		
Sodium Adsorption Ratio	-	-	0.832		
TDS (Ion Sum Calc)	mg/L	1	416		
TDS(calc.)/EC(actual)	-	-	0.531		
Conductivity Calc	µmho/cm	-	774		
Conductivity Calc / Conductivity	-	-	0.988		
Langelier Index(25°C)	-	-	0.677		
Saturation pH (25°C)	-	-	7.14		
pH (Client Data)	pH units	-	7.75		
Temperature (Client Data)	°C	-	12.5		

			KEI CKI NCI 20 020700 NOV.							
	Client I.D.		12-91-l	12-91-II	13-91-1	13-91-II	14-'07			
	Sam	ple I.D.	23-029755-1	23-029755-2	23-029755-3	23-029755-4	23-029755-5			
	Date Co		2023-10-18	2023-10-18	2023-10-17	2023-10-17	2023-10-17			
Parameter	Units	R.L.	-	-	-	-	-			
Benzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
Ethylbenzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
Toluene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
Xylene, m,p-	μg/L	1	<1	<1	<1	<1	<1			
Xylene, m,p,o-	μg/L	1.1	<1.1	<1.1	<1.1	<1.1	<1.1			
Xylene, o-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
	Client I.		15-91-I	15-91-II	16-91-1	17-91-1	17-91-II			
	Sam	ple I.D.	23-029755-6	23-029755-7	23-029755-8	23-029755-9	23-029755-10			
	Date Co		2023-10-17	2023-10-17	2023-10-17	2023-10-17	2023-10-17			
Parameter	Units	R.L.	-	-	-	-	-			
Benzene	μg/L	0.5	<0.5	0.6	<0.5	<0.5	<0.5			
Ethylbenzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
Toluene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
Xylene, m,p-	μg/L	1	<1	<1	<1	<1	<1			
Xylene, m,p,o-	μg/L	1.1	<1.1	<1.1	<1.1	<1.1	<1.1			
Xylene, o-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5			

	Client I.D.			19-91	20-91-I	20-91-11	20-91-111
	Sam	ple I.D.	23-029755-11	23-029755-12	23-029755-13	23-029755-14	23-029755-15
	Date Co		2023-10-17	2023-10-17	2023-10-17	2023-10-17	2023-10-17
Parameter.							
Parameter	Units	R.L.		-	-	-	-
Benzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene, m,p-	μg/L	1	<1	<1	<1	<1	<1
Xylene, m,p,o-	μg/L	1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Xylene, o-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Client I.D.		21-91-I	21-91-II	21-91-111	23-'07	25-91
	Sam	ple I.D.	23-029755-16	23-029755-17	23-029755-18	23-029755-19	23-029755-20
	Date Co		2023-10-17	2023-10-17	2023-10-17	2023-10-17	2023-10-17
Parameter	Units	R.L.	2023-10-17	2023-10-17	2023-10-17	2023-10-17	2023-10-17
Benzene	µg/L	0.5	<0.5	<0.5	0.6	<0.5	<0.5
Ethylbenzene	μg/L	0.5	<0.5	0.7	<0.5	<0.5	<0.5
Toluene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene, m,p-	μg/L	1	<1	<1	<1	<1	<1
Xylene, m,p,o-	μg/L	1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Xylene, o-	μg/L	0.5	<0.5	0.7	<0.5	<0.5	<0.5

,							
	Cli	ent I.D.	25-96	27-93	28-93	29-93	30-93
	Sam	ple I.D.	23-029755-21	23-029755-22	23-029755-23	23-029755-24	23-029755-25
	Date Co		2023-10-17	2023-10-17	2023-10-17	2023-10-17	2023-10-19
D	Units	R.L.					
Parameter	Units	K.L.	-	-	-	-	-
Benzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene, m,p-	μg/L	1	<1	<1	<1	<1	<1
Xylene, m,p,o-	μg/L	1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Xylene, o-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Client I.D.		31-93	35-93-I	35-93-II	36-93	37-93-I
	Sam	ple I.D.	23-029755-26	23-029755-27	23-029755-28	23-029755-29	23-029755-30
	Date Co		2023-10-19	2023-10-19	2023-10-19	2023-10-19	2023-10-19
Parameter	Units	R.L.	-	-	-	-	-
Benzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene, m,p-	μg/L	1	<1	<1	<1	<1	<1
Xylene, m,p,o-	μg/L	1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Xylene, o-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5

	Client I.D.		37-93-II	38-93	39-93-1	39-93-11	45-95-I
	Sam	ple I.D.	23-029755-31	23-029755-32	23-029755-33	23-029755-34	23-029755-35
	Date Co		2023-10-19	2023-10-19	2023-10-17	2023-10-17	2023-10-18
Parameter	Units	R.L.	-	-	-	-	-
latineter	Units	IX.E.			-		
Benzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene, m,p-	μg/L	1	<1	<1	<1	<1	<1
Xylene, m,p,o-	μg/L	1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Xylene, o-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Client I.D.		45-95-II	46-95-1	46-95-II	47-96-l	47-96-II
	Sam	ple I.D.	23-029755-36	23-029755-37	23-029755-38	23-029755-39	23-029755-40
	Date Co		2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18
Parameter	Units	R.L.	-	-	-	-	-
Benzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene, m,p-	μg/L	1	<1	<1	<1	<1	<1
Xylene, m,p,o-	μg/L	1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Xylene, o-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5

	Cli	ent I.D.	48-96-I	48-96-II	49-96-1	49-96-II	49-96-III
	Sample I.D.		23-029755-41	23-029755-42	23-029755-43	23-029755-44	23-029755-45
	Date Co		2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18
Davamatav	Units	R.L.					
Parameter	Units	K.L.	-	-	-	-	-
Benzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene, m,p-	μg/L	1	<1	<1	<1	<1	<1
Xylene, m,p,o-	μg/L	1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Xylene, o-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Cli	ent I.D.	59-'05	60-'05	DUP	DUP-1	DUP-2
	Sam	ple I.D.	23-029755-46	23-029755-47	23-029755-48	23-029755-49	23-029755-50
	Date Co		2023-10-19	2023-10-19	2023-10-17	2023-10-17	2023-10-17
Parameter	Units	R.L.	-	-	-	-	-
Benzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene, m,p-	μg/L	1	<1	<1	<1	<1	<1
Xylene, m,p,o-	μg/L	1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Xylene, o-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5

	Clid	DUP-6	
	Sam	ple I.D.	23-029755-51
	Date Co	llected	2023-10-18
Parameter	Units	R.L.	-
Benzene	μg/L	0.5	<0.5
Ethylbenzene	μg/L	0.5	<0.5
Toluene	μg/L	0.5	<0.5
Xylene, m,p-	μg/L	1	<1
Xylene, m,p,o-	μg/L	1.1	<1.1
Xylene, o-	μg/L	0.5	<0.5

Comments:

12. Unable to calculate ion balance due to sample matrix



CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: - REPORT No: 23-029653 - Rev. 0

Report To:

City of Kawartha Lakes

PO Box 9000

322 Kent Street West

Lindsay, ON K9V 4T7

SAMPLE MATRIX:

CADUCEON Environmental Laboratories

112 Commerce Park Dr Unit L

Barrie, ON L4N 8W8

Attention: Kayla Pantaleo

DATE RECEIVED: 2023-Oct-20 DATE REPORTED: 2023-Nov-21

2023-Nov-21 Ground Water CUSTOMER PROJECT: Lindsay OPS

P.O. NUMBER:

O/ (IVII EE IVI/ (I T (I))).						
Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	24	OTTAWA	LMACGREGOR	2023-Nov-07	A-IC-01	SM 4110B
BOD5 (Liquid)	24	KINGSTON	JWOLFE2	2023-Nov-09	BOD-001	SM 5210B
COD (Liquid)	24	KINGSTON	EHINCH	2023-Oct-30	COD-001	SM 5220D
Colour (Liquid)	24	OTTAWA	MDON	2023-Oct-27	A-COL-01	SM 2120C
Cond/pH/Alk Auto (Liquid)	24	OTTAWA	SBOUDREAU	2023-Nov-01	COND-02/PH-02/A	SM 2510B/4500H/
					LK-02	2320B
Cyanide WAD (Liquid)	24	KINGSTON	JMACINNES	2023-Oct-31	CN-001	SM 4500-CN-E
DOC/DIC (Liquid)	24	OTTAWA	VKASYAN	2023-Nov-03	C-OC-01	EPA 415.2
Ion Balance (Calc.)	24	OTTAWA	STAILLON		CP-028	MECP E3196
Chromium VI (Liquid)	24	OTTAWA	STAILLON	2023-Oct-30	D-CRVI-01	MECP E3056
ICP/MS (Liquid)	24	OTTAWA	AOZKAYMAK	2023-Oct-27	D-ICPMS-01	EPA 200.8
ICP/OES (Liquid)	24	OTTAWA	NHOGAN	2023-Oct-26	D-ICP-01	SM 3120B
Mercury (Liquid)	24	OTTAWA	TBENNETT	2023-Oct-26	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	24	KINGSTON	JYEARWOOD	2023-Nov-09	NH3-001	SM 4500NH3
Phenols (Liquid)	24	KINGSTON	JMACINNES	2023-Nov-20	PHEN-01	MECP E3179
TP & TKN (Liquid)	24	KINGSTON	KDIBBITS	2023-Nov-15	TPTKN-001	MECP E3516.2
TSS (Liquid)	24	KINGSTON	KKHUTSYYEVA	2023-Oct-27	TSS-001	SM 2540D
Turbidity (Liquid)	24	OTTAWA	MDON	2023-Oct-27	A-TURB-01	SM 2130B
VOC-Volatiles Full (Water)	24	RICHMOND_HILL	CBURKE	2023-Oct-30	C-VOC-02	EPA 8260

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an $\,^{\star}$

			REPORT No: 23-029653 - Rev. (
	Cli	ent I.D.	7-90	11-90	32-93-1	32-93-II	43-93-1			
	Sam	ple I.D.	23-029653-1	23-029653-2	23-029653-3	23-029653-4	23-029653-5			
	Date Collected		2023-10-17	2023-10-18	2023-10-18	2023-10-18	2023-10-18			
Parameter	Units	R.L.	-	-	-	-	-			
Alkalinity(CaCO3) to pH4.5	mg/L	5	6500	388	282	289	273			
TDS (Calc. from Cond.)	mg/L	3	7810	570	497	504	437			
Conductivity @25°C	uS/cm	1	13400	1060	935	948	830			
pH @25°C	pH units	-	7.76	7.74	7.59	7.87	7.47			
Colour	TCU	2	465	<2	<2	2	<2			
Turbidity	NTU	0.1	884	11.9	819	8.9	382			
Fluoride	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
Chloride	mg/L	0.5	1250	124	131	132	95.6			
Nitrate (N)	mg/L	0.05	<0.05	<0.05	<0.05	0.15	0.08			
Nitrite (N)	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Sulphate	mg/L	1	<1	33	57	55	60			
BOD5	mg/L	3	19	<3	<3	<3	<3			
Total Suspended Solids	mg/L	3	1140	4	2200	16	236			
Phosphorus (Total)	mg/L	0.01	3.99	<0.01	1.36	0.04	0.13			
Total Kjeldahl Nitrogen	mg/L	0.1	578	2.2	1.5	1.0	0.5			
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	579	1.10	0.47	0.67	0.34			
Ammonia (N)-unionized	mg/L	0.01	0.05	<0.01	<0.01	0.01	<0.01			
Dissolved Organic Carbon	mg/L	0.2	208	4.5	2.8	2.4	2.4			
Cyanide (WAD)	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
Phenolics	mg/L	0.001	<0.005	<0.001	<0.001	<0.001	<0.001			
COD	mg/L	5	1080	23	30	14	16			

			REPORT No: 23-029653 - Rev							
	Cli	ent I.D.	7-90	11-90	32-93-1	32-93-11	43-93-I			
	Sam	Sample I.D.		23-029653-2	23-029653-3	23-029653-4	23-029653-5			
	Date Collected		23-029653-1 2023-10-17	2023-10-18	2023-10-18	2023-10-18	2023-10-18			
Parameter	Units	R.L.	-	-	-	-	-			
Hardness (as CaCO3)	mg/L	0.02	1110	393	406	407	383			
Aluminum	mg/L	0.01	0.70	0.06	0.07	0.07	0.06			
Barium	mg/L	0.001	0.480	0.282	0.147	0.083	0.067			
Boron	mg/L	0.005	3.93	0.094	0.041	0.042	0.056			
Calcium	mg/L	0.02	111	102	108	111	90.5			
Iron	mg/L	0.005	4.05	1.69	0.242	<0.005	0.556			
Magnesium	mg/L	0.02	203	33.6	33.1	31.5	38.2			
Manganese	mg/L	0.001	0.150	0.046	0.012	0.001	0.010			
Phosphorus	mg/L	0.1	1.6	<0.1	<0.1	<0.1	<0.1			
Potassium	mg/L	0.1	326	3.3	2.6	2.8	2.9			
Sodium	mg/L	0.2	2290	45.4	17.6	19.4	8.9			
Strontium	mg/L	0.001	0.765	1.13	0.826	0.816	1.06			
Tin	mg/L	0.05	0.16	<0.05	<0.05	<0.05	<0.05			
Titanium	mg/L	0.005	0.076	<0.005	<0.005	<0.005	<0.005			
Zinc	mg/L	0.005	0.049	<0.005	<0.005	<0.005	<0.005			
Antimony	mg/L	0.0001	0.0034	<0.0001	<0.0001	<0.0001	<0.0001			
Arsenic	mg/L	0.0001	0.0084	<0.0001	<0.0001	0.0003	<0.0001			
Beryllium	mg/L	0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001			
Cadmium	mg/L	0.00001 5	<0.000590	<0.000015	<0.000015	<0.000015	<0.000015			
Chromium	mg/L	0.001	0.071	<0.001	<0.001	<0.001	<0.001			
Cobalt	mg/L	0.0001	0.0208	0.0002	0.0002	0.0002	0.0001			

			REFORT NO. 23-025033 - F							
	Cli	ent I.D.	7-90	11-90	32-93-1	32-93-II	43-93-1			
	Sam	ple I.D.	23-029653-1	23-029653-2	23-029653-3	23-029653-4	23-029653-5			
	Date Co	- 1	2023-10-17	2023-10-18	2023-10-18	2023-10-18	2023-10-18			
Parameter	Units	R.L.	-	-	-	-	-			
Copper	mg/L	0.0001	0.0433	0.0007	0.0004	0.0006	0.0003			
Lead	mg/L	0.00002	0.0658	<0.00002	0.00006	<0.00002	0.00002			
Molybdenum	mg/L	0.0001	0.0092	<0.0001	0.0002	0.0005	<0.0001			
Nickel	mg/L	0.0002	0.0992	0.0009	<0.0002	0.0006	0.0008			
Selenium	mg/L	0.001	<0.021	<0.001	<0.001	<0.001	<0.001			
Silver	mg/L	0.0001	<0.0023	<0.0001	<0.0001	<0.0001	<0.0001			
Thallium	mg/L	0.00005	0.00040	<0.00005	<0.00005	<0.00005	<0.00005			
Uranium	mg/L	0.00005	0.00070	<0.00005	<0.00005	0.00034	<0.00005			
Vanadium	mg/L	0.0001	0.0159	<0.0001	<0.0001	<0.0001	<0.0001			
Chromium (VI)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
Mercury	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002			
Anion Sum	meq/L	-	165	11.9	10.5	10.6	9.42			
Cation Sum	meq/L	-	130	10.0	8.98	9.07	8.18			
% Difference	%	-	11.8	8.63	7.91	7.97	7.05			
Ion Ratio	-	-	1.27	1.19	1.17	1.17	1.15			
Sodium Adsorption Ratio	-	-	29.9	0.996	0.380	0.418	0.198			
TDS (Ion Sum Calc)	mg/L	1	8090	575	519	525	461			
TDS(calc.)/EC(actual)	-	-	0.603	0.540	0.555	0.554	0.556			
Conductivity Calc	µmho/cm	-	9290	1020	950	960	846			
Conductivity Calc / Conductivity	-	-	0.693	0.962	1.02	1.01	1.02			
Langelier Index(25°C)	-	-	2.07	0.865	0.612	0.913	0.401			

CADUCEON Environmental Laboratories Certificate of Analysis

Final Report

REPORT No: 23-029653 - Rev. 0

	Client I.D.			11-90	32-93-1	32-93-11	43-93-1
Sample I.D.			23-029653-1	23-029653-2	23-029653-3	23-029653-4	23-029653-5
	Date Co	llected	2023-10-17	2023-10-18	2023-10-18	2023-10-18	2023-10-18
Parameter	Units	R.L.	-	-	-	-	-
Saturation pH (25°C)	-	-	5.69	6.87	6.98	6.96	7.07
pH (Client Data)	pH units	-	7.10	7.52	7.62	7.94	7.52
Temperature (Client Data)	°C	-	15.2	11.3	10.0	11.2	11.7

			REPORT NO. 23-025							
	Cli	ent I.D.	43-93-II	44-93-I	44-93-II	45-93	53-98			
	Sample I.D. Date Collected		23-029653-6	23-029653-7	23-029653-8	23-029653-9	23-029653-10			
			2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18			
Parameter	Units	R.L.	-	-	-	-	-			
Alkalinity(CaCO3) to pH4.5	mg/L	5	513	262	404	426	380			
TDS (Calc. from Cond.)	mg/L	3	593	468	963	888	1560			
Conductivity @25°C	uS/cm	1	1100	885	1760	1620	2800			
pH @25°C	pH units	-	7.47	7.55	7.49	7.59	7.34			
Colour	TCU	2	<2	<2	<2	<2	<2			
Turbidity	NTU	0.1	174	277	417	510	20.9			
Fluoride	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
Chloride	mg/L	0.5	45.1	125	387	321	834			
Nitrate (N)	mg/L	0.05	0.07	<0.05	2.60	0.66	<0.05			
Nitrite (N)	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Sulphate	mg/L	1	62	57	29	27	35			
BOD5	mg/L	3	<3	4	<3	<3	<3			
Total Suspended Solids	mg/L	3	130	276	660	1060	28			
Phosphorus (Total)	mg/L	0.01	0.11	0.07	0.11	0.35	0.02			
Total Kjeldahl Nitrogen	mg/L	0.1	0.4	0.5	0.3	0.5	0.5			
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.14	0.95	0.05	0.13	0.32			
Ammonia (N)-unionized	mg/L	0.01	<0.01	0.01	<0.01	<0.01	<0.01			
Dissolved Organic Carbon	mg/L	0.2	5.8	2.4	3.1	3.2	2.9			
Cyanide (WAD)	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
Phenolics	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
COD	mg/L	5	15	11	13	8	17			

Final Report

REPORT No: 23-029653 - Rev. 0

			REPORT No: 23-029653 - Rev.							
	Cli	ent I.D.	43-93-II	44-93-1	44-93-II	45-93	53-98			
	Sam	Sample I.D.		23-029653-7	23-029653-8	23-029653-9	23-029653-10			
	Date Co	-	23-029653-6 2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18			
Parameter	Units	R.L.	-	-	-	-	-			
Hardness (as CaCO3)	mg/L	0.02	538	386	450	390	922			
Aluminum	mg/L	0.01	0.12	0.06	0.09	0.08	0.14			
Barium	mg/L	0.001	0.146	0.179	0.106	0.090	1.23			
Boron	mg/L	0.005	0.006	0.049	0.009	<0.005	0.044			
Calcium	mg/L	0.02	193	96.3	163	140	297			
Iron	mg/L	0.005	<0.005	0.814	<0.005	0.082	1.69			
Magnesium	mg/L	0.02	13.4	35.3	10.3	9.76	43.6			
Manganese	mg/L	0.001	0.001	0.012	<0.001	0.002	0.141			
Phosphorus	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
Potassium	mg/L	0.1	0.8	2.6	1.2	1.2	3.6			
Sodium	mg/L	0.2	17.7	13.8	148	146	156			
Strontium	mg/L	0.001	0.430	0.890	0.439	0.336	1.75			
Tin	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Titanium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
Zinc	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
Antimony	mg/L	0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001			
Arsenic	mg/L	0.0001	0.0001	<0.0001	0.0001	0.0001	<0.0001			
Beryllium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Cadmium	mg/L	0.00001 5	<0.000015	<0.000015	<0.000015	0.000114	<0.000015			
Chromium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
Cobalt	mg/L	0.0001	0.0003	0.0002	0.0003	0.0003	0.0005			

						KEFOKI	KT NO. 23-029055 - Rev.	
	Cli	ient I.D.	43-93-II	44-93-1	44-93-II	45-93	53-98	
	Sam	ıple I.D.	23-029653-6	23-029653-7	23-029653-8	23-029653-9	23-029653-10	
	Date Co	-	2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18	
Parameter	Units	R.L.	-	-	-	-	-	
Copper	mg/L	0.0001	0.0008	0.0004	0.0009	0.0008	0.0016	
Lead	mg/L	0.00002	0.00003	<0.00002	<0.00004	<0.00004	<0.00004	
Molybdenum	mg/L	0.0001	0.0002	0.0002	0.0002	0.0003	<0.0001	
Nickel	mg/L	0.0002	0.0005	0.0009	0.0018	0.0018	<0.0002	
Selenium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Silver	mg/L	0.0001	<0.0001	<0.0001	<0.0001	0.0006	<0.0001	
Thallium	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	
Uranium	mg/L	0.00005	0.00068	<0.00005	0.00048	0.00043	<0.00005	
Vanadium	mg/L	0.0001	0.0001	<0.0001	<0.0001	0.0002	<0.0001	
Chromium (VI)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Mercury	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	
Anion Sum	meq/L	-	12.8	9.95	19.8	18.2	31.8	
Cation Sum	meq/L	-	11.5	8.44	15.5	14.2	25.4	
% Difference	%	-	5.26	8.23	12.3	12.3	11.2	
Ion Ratio	-	-	1.11	1.18	1.28	1.28	1.25	
Sodium Adsorption Ratio	-	-	0.332	0.306	3.04	3.22	2.24	
TDS (Ion Sum Calc)	mg/L	1	640	488	993	903	1600	
TDS(calc.)/EC(actual)	-	-	0.580	0.552	0.566	0.557	0.571	
Conductivity Calc	μmho/cm	-	1080	900	1750	1590	2820	
Conductivity Calc / Conductivity	-	-	0.974	1.02	0.996	0.977	1.01	
Langelier Index(25°C)	-	-	0.993	0.489	0.806	0.863	0.880	

CADUCEON Environmental Laboratories Certificate of Analysis

Final Report

REPORT No: 23-029653 - Rev. 0

	Client I.D.			44-93-1	44-93-II	45-93	53-98
Sample I.D.			23-029653-6	23-029653-7	23-029653-8	23-029653-9	23-029653-10
	Date Co	llected	2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18
Parameter	Units	R.L.	-	-	-	-	-
Saturation pH (25°C)	-	-	6.48	7.06	6.68	6.73	6.46
pH (Client Data)	pH units	-	7.41	7.87	7.57	7.65	7.11
Temperature (Client Data)	°C	-	12.8	9.4	11.1	10.4	11.2

			REPORT NO. 23-025033							
	Cli	ent I.D.	55-98-1	55-98-II	56-02-1	57-02-11	58-I			
	Sample I.D.		23-029653-11	23-029653-12	23-029653-13	23-029653-14	23-029653-15			
	Date Co		2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18			
Parameter	Units	R.L.	-	-	-	-	-			
Alkalinity(CaCO3) to pH4.5	mg/L	5	263	258	240	326	556			
TDS (Calc. from Cond.)	mg/L	3	506	441	466	997	856			
Conductivity @25°C	uS/cm	1	952	837	881	1820	1570			
pH @25°C	pH units	-	7.55	7.53	7.48	7.57	7.50			
Colour	TCU	2	<2	<2	<2	2	3			
Turbidity	NTU	0.1	7.6	5.1	147	38.5	5.3			
Fluoride	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
Chloride	mg/L	0.5	157	124	158	431	159			
Nitrate (N)	mg/L	0.05	<0.05	<0.05	0.10	0.42	<0.05			
Nitrite (N)	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Sulphate	mg/L	1	36	45	25	83	149			
BOD5	mg/L	3	<3	<3	<3	<3	<3			
Total Suspended Solids	mg/L	3	11	10	174	66	22			
Phosphorus (Total)	mg/L	0.01	0.07	0.02	0.11	0.04	0.02			
Total Kjeldahl Nitrogen	mg/L	0.1	1.7	0.6	0.7	0.6	0.5			
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	1.37	0.49	0.55	0.26	0.16			
Ammonia (N)-unionized	mg/L	0.01	0.11	<0.01	<0.01	<0.01	<0.01			
Dissolved Organic Carbon	mg/L	0.2	1.7	2.2	2.2	2.6	6.4			
Cyanide (WAD)	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
Phenolics	mg/L	0.001	0.001	<0.001	<0.001	<0.001	<0.001			
COD	mg/L	5	25	14	13	38	20			

					REFORT No. 23-029893 - Rev. (
	CI	ient I.D.	55-98-1	55-98-II 23-029653-12	56-02-I 23-029653-13	57-02-11	58-I
	Sam	ıple I.D.	23-029653-11			23-029653-14	23-029653-15
	Date Co	- 1	2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18
Parameter	Units	R.L.	-	-	-	-	-
Hardness (as CaCO3)	mg/L	0.02	317	372	383	339	621
Aluminum	mg/L	0.01	0.04	0.06	0.08	0.08	0.11
Barium	mg/L	0.001	0.170	0.248	0.164	0.149	0.133
Boron	mg/L	0.005	0.193	0.083	0.087	0.081	0.128
Calcium	mg/L	0.02	62.9	76.4	87.7	120	203
Iron	mg/L	0.005	0.148	0.775	0.675	0.160	0.126
Magnesium	mg/L	0.02	38.8	44.0	39.9	9.59	27.5
Manganese	mg/L	0.001	0.012	0.014	0.017	0.003	0.024
Phosphorus	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Potassium	mg/L	0.1	5.6	2.9	3.8	1.6	2.7
Sodium	mg/L	0.2	51.4	10.1	14.5	209	71.5
Strontium	mg/L	0.001	2.09	1.36	1.55	0.427	0.801
Tin	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Antimony	mg/L	0.0001	<0.0001	<0.0001	<0.0001	0.0002	0.0001
Arsenic	mg/L	0.0001	<0.0001	<0.0001	<0.0001	0.0002	0.0005
Beryllium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cadmium	mg/L	0.00001 5	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Chromium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	mg/L	0.0001	0.0001	0.0002	0.0011	0.0005	0.0007

			REPORT NO. 25-029053							
	Cli	ent I.D.	55-98-I	55-98-II	56-02-1	57-02-II	58-I			
	Sam	ple I.D.	23-029653-11	23-029653-12	23-029653-13	23-029653-14	23-029653-15			
	Date Co	- 1	2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18			
Parameter	Units	R.L.		-	-	-	-			
Copper	mg/L	0.0001	0.0006	0.0003	0.0004	0.0016	0.0014			
Lead	mg/L	0.00002	<0.00002	<0.00002	0.00015	<0.00004	0.00004			
Molybdenum	mg/L	0.0001	<0.0001	0.0002	<0.0001	0.0005	0.0003			
Nickel	mg/L	0.0002	0.0005	0.0007	0.0008	0.0010	0.0019			
Selenium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
Silver	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Thallium	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005			
Uranium	mg/L	0.00005	<0.00005	<0.00005	<0.00005	0.00145	0.00136			
Vanadium	mg/L	0.0001	<0.0001	<0.0001	0.0002	0.0002	<0.0001			
Chromium (VI)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
Mercury	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002			
Anion Sum	meq/L	-	10.4	9.59	9.77	20.4	18.7			
Cation Sum	meq/L	-	8.77	8.02	8.46	15.9	15.6			
% Difference	%	-	8.72	8.95	7.21	12.4	9.04			
Ion Ratio	-	-	1.19	1.20	1.16	1.28	1.20			
Sodium Adsorption Ratio	-	-	1.26	0.228	0.322	4.94	1.25			
TDS (Ion Sum Calc)	mg/L	1	510	458	474	1050	946			
TDS(calc.)/EC(actual)	-	-	0.536	0.547	0.538	0.580	0.604			
Conductivity Calc	µmho/cm	-	949	861	913	1840	1530			
Conductivity Calc / Conductivity	-	-	0.997	1.03	1.04	1.01	0.974			
Langelier Index(25°C)	-	-	0.306	0.363	0.340	0.650	1.05			

CADUCEON Environmental Laboratories Certificate of Analysis

Final Report

REPORT No: 23-029653 - Rev. 0

	Client I.D. Sample I.D. Date Collected		55-98-1	55-98-II	56-02-1	57-02-11	58-1
			23-029653-11	23-029653-12	23-029653-13	23-029653-14	23-029653-15
			2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18
Parameter	Units	R.L.	-	-	-	-	-
Saturation pH (25°C)	-	-	7.24	7.17	7.14	6.92	6.45
pH (Client Data)	pH units	-	8.13	7.80	7.85	7.79	6.80
Temperature (Client Data)	°C	-	8.0	8.6	8.7	12.3	13.3

	Cli	ent I.D.	61-10-l	61-10-II	61-17-1	62-17-1	62-17-II			
	Sam	ple I.D.	23-029653-16	23-029653-17	23-029653-18	23-029653-19	23-029653-20			
	Date Co		2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18			
Parameter	Units	R.L.	-	-	-	-	-			
Alkalinity(CaCO3) to pH4.5	mg/L	5	489	398	517	505	480			
TDS (Calc. from Cond.)	mg/L	3	806	834	822	737	739			
Conductivity @25°C	uS/cm	1	1480	1530	1510	1360	1360			
pH @25°C	pH units	-	7.56	7.66	7.47	7.80	7.61			
Colour	TCU	2	3	<2	4	7	3			
Turbidity	NTU	0.1	1.2	979	78.4	210	36.2			
Fluoride	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
Chloride	mg/L	0.5	228	285	232	158	172			
Nitrate (N)	mg/L	0.05	<0.05	<0.05	<0.05	0.42	<0.05			
Nitrite (N)	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Sulphate	mg/L	1	40	98	35	32	57			
BOD5	mg/L	3	<3	<3	<3	4	<3			
Total Suspended Solids	mg/L	3	11	1890	73	64	64			
Phosphorus (Total)	mg/L	0.01	0.03	0.41	0.09	0.13	0.05			
Total Kjeldahl Nitrogen	mg/L	0.1	1.1	0.3	1.5	0.8	1.5			
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.39	0.07	0.53	0.23	0.77			
Ammonia (N)-unionized	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
Dissolved Organic Carbon	mg/L	0.2	8.9	2.9	9.4	9.3	7.6			
Cyanide (WAD)	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
Phenolics	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
COD	mg/L	5	31	16	49	29	37			

			REPORT No: 23-029653 - Rev. 0							
	Cli	ent I.D.	61-10-I	61-10-II	61-17-I	62-17-I	62-17-II			
	Sam	ple I.D.	23-029653-16	23-029653-17	23-029653-18	23-029653-19	23-029653-20			
		llected	2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18			
Parameter	Units	R.L.	-	-	-	-	-			
Hardness (as CaCO3)	mg/L	0.02	601	614	596	291	552			
Aluminum	mg/L	0.01	0.09	0.11	0.10	0.06	0.09			
Barium	mg/L	0.001	0.649	0.159	0.720	0.335	0.419			
Boron	mg/L	0.005	0.139	0.020	0.152	0.122	0.103			
Calcium	mg/L	0.02	147	182	142	93.1	145			
Iron	mg/L	0.005	0.505	0.311	0.173	0.122	0.621			
Magnesium	mg/L	0.02	56.7	38.7	58.6	14.2	46.1			
Manganese	mg/L	0.001	0.066	0.094	0.016	0.027	0.026			
Phosphorus	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
Potassium	mg/L	0.1	4.8	2.5	5.1	3.0	3.7			
Sodium	mg/L	0.2	60.0	43.4	62.3	130	51.4			
Strontium	mg/L	0.001	1.84	0.760	1.98	1.45	1.30			
Tin	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Titanium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
Zinc	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
Antimony	mg/L	0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001			
Arsenic	mg/L	0.0001	0.0001	0.0003	<0.0001	0.0005	<0.0001			
Beryllium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Cadmium	mg/L	0.00001	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015			
Chromium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
Cobalt	mg/L	0.0001	0.0003	0.0021	0.0003	0.0004	0.0003			

	Cli	ent I.D.	61-10-I	61-10-II	61-17-I	62-17-l	62-17-II			
	Sam	ple I.D.	23-029653-16	23-029653-17	23-029653-18	23-029653-19	23-029653-20			
	Date Co	- 1	2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18			
Parameter	Units	R.L.	-	-	-	-	-			
Copper	mg/L	0.0001	0.0007	0.0009	0.0007	0.0006	0.0006			
Lead	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002			
Molybdenum	mg/L	0.0001	<0.0001	0.0008	<0.0001	0.0004	<0.0001			
Nickel	mg/L	0.0002	0.0062	0.0027	0.0067	0.0035	0.0047			
Selenium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
Silver	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Thallium	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005			
Uranium	mg/L	0.00005	<0.00005	0.00135	<0.00005	0.00100	<0.00005			
Vanadium	mg/L	0.0001	0.0004	0.0001	0.0004	0.0007	0.0003			
Chromium (VI)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
Mercury	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002			
Anion Sum	meq/L	-	17.0	18.0	17.6	15.2	15.6			
Cation Sum	meq/L	-	14.8	14.3	14.8	11.6	13.4			
% Difference	%	-	7.01	11.7	8.60	13.6	7.58			
Ion Ratio	-	-	1.15	1.26	1.19	1.32	1.16			
Sodium Adsorption Ratio	-	-	1.07	0.762	1.11	3.32	0.952			
TDS (Ion Sum Calc)	mg/L	1	830	888	845	735	764			
TDS(calc.)/EC(actual)	-	-	0.561	0.581	0.561	0.541	0.561			
Conductivity Calc	µmho/cm	-	1470	1540	1490	1240	1330			
Conductivity Calc / Conductivity	-	-	0.996	1.01	0.990	0.915	0.978			
Langelier Index(25°C)	-	-	0.924	1.03	0.843	0.989	0.970			

CADUCEON Environmental Laboratories Certificate of Analysis

Final Report

REPORT No: 23-029653 - Rev. 0

	Client I.D.			61-10-II	61-17-I	62-17-I	62-17-II
	Sample I.D. Date Collected		23-029653-16 2023-10-18	23-029653-17 2023-10-18	23-029653-18 2023-10-18	23-029653-19 2023-10-18	23-029653-20 2023-10-18
Parameter	Units	R.L.	-	-	-	-	-
Saturation pH (25°C)	-	-	6.64	6.63	6.63	6.81	6.64
pH (Client Data)	pH units	-	7.32	7.34	6.91	7.64	7.11
Temperature (Client Data)	°C	-	10.7	12.6	11.3	11.5	12.7

	Cli	ent I.D.	62-17-III	DUP-3	DUP-4	DUP-5
		ple I.D.	23-029653-21	23-029653-22	23-029653-23	23-029653-24
Parameter	Date Co Units	llected R.L.	2023-10-18	2023-10-18	2023-10-18	2023-10-18
Alkalinity(CaCO3) to pH4.5	mg/L	5	468	560	494	485
TDS (Calc. from Cond.)	mg/L	3	604	851	815	745
Conductivity @25°C	uS/cm	1	1120	1560	1500	1370
pH @25°C	pH units	-	7.75	7.51	7.60	7.67
Colour	TCU	2	<2	3	4	3
Turbidity	NTU	0.1	577	14.5	0.6	47.5
Fluoride	mg/L	0.1	<0.1	<0.1	<0.1	<0.1
Chloride	mg/L	0.5	79.7	159	233	179
Nitrate (N)	mg/L	0.05	0.24	<0.05	<0.05	<0.05
Nitrite (N)	mg/L	0.05	<0.05	<0.05	<0.05	<0.05
Sulphate	mg/L	1	61	149	38	56
BOD5	mg/L	3	<3	<3	<3	<3
Total Suspended Solids	mg/L	3	562	11	4	64
Phosphorus (Total)	mg/L	0.01	0.17	0.02	0.02	0.03
Total Kjeldahl Nitrogen	mg/L	0.1	0.3	0.4	1.4	1.2
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.09	<0.05	0.85	0.98
Ammonia (N)-unionized	mg/L	0.01	<0.01	<0.01	<0.01	<0.01
Dissolved Organic Carbon	mg/L	0.2	2.7	5.7	8.7	8.9
Cyanide (WAD)	mg/L	0.005	<0.005	<0.005	<0.005	<0.005
Phenolics	mg/L	0.001	<0.001	<0.001	<0.001	<0.001
COD	mg/L	5	19	20	43	35

	CI	ient I.D.	62-17-III	DUP-3	DUP-4	DUP-5
		nple I.D.	23-029653-21 2023-10-18	23-029653-22 2023-10-18	23-029653-23 2023-10-18	23-029653-24 2023-10-18
Parameter	Units	R.L.	-	-	-	-
Hardness (as CaCO3)	mg/L	0.02	405	636	599	561
Aluminum	mg/L	0.01	0.07	0.11	0.10	0.10
Barium	mg/L	0.001	0.225	0.135	0.633	0.425
Boron	mg/L	0.005	0.036	0.130	0.138	0.106
Calcium	mg/L	0.02	102	209	147	147
Iron	mg/L	0.005	<0.005	0.121	0.425	0.623
Magnesium	mg/L	0.02	36.6	27.5	56.4	47.2
Manganese	mg/L	0.001	0.003	0.025	0.019	0.026
Phosphorus	mg/L	0.1	<0.1	<0.1	<0.1	<0.1
Potassium	mg/L	0.1	4.3	2.7	4.8	3.8
Sodium	mg/L	0.2	74.1	72.8	59.1	52.4
Strontium	mg/L	0.001	0.667	0.803	1.82	1.32
Tin	mg/L	0.05	<0.05	<0.05	<0.05	<0.05
Titanium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.005	0.005	<0.005	<0.005	<0.005
Antimony	mg/L	0.0001	0.0002	<0.0001	<0.0001	<0.0001
Arsenic	mg/L	0.0001	0.0004	0.0005	0.0001	<0.0001
Beryllium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cadmium	mg/L	0.00001	<0.000015	<0.000015	<0.000015	<0.000015
Chromium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	mg/L	0.0001	0.0002	0.0008	0.0003	0.0003

	Cli	ent I.D.	62-17-III	DUP-3	DUP-4	DUP-5
	Sam	ple I.D.	23-029653-21	23-029653-22	23-029653-23	23-029653-24
	Date Co		2023-10-18	2023-10-18	2023-10-18	2023-10-18
Parameter	Units	R.L.		-	-	-
Copper	mg/L	0.0001	0.0007	0.0005	0.0006	0.0005
Lead	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Molybdenum	mg/L	0.0001	0.0016	0.0003	<0.0001	<0.0001
Nickel	mg/L	0.0002	0.0006	0.0038	0.0062	0.0047
Selenium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001
Silver	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Thallium	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Uranium	mg/L	0.00005	0.00050	0.00135	<0.00005	<0.00005
Vanadium	mg/L	0.0001	0.0002	<0.0001	0.0004	0.0003
Chromium (VI)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01
Mercury	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Anion Sum	meq/L	-	12.9	18.8	17.2	15.9
Cation Sum	meq/L	-	11.4	16.0	14.7	13.7
% Difference	%	-	5.95	8.07	7.76	7.65
Ion Ratio	-	-	1.13	1.18	1.17	1.17
Sodium Adsorption Ratio	-	-	1.60	1.26	1.05	0.962
TDS (Ion Sum Calc)	mg/L	1	640	955	834	778
TDS(calc.)/EC(actual)	-	-	0.569	0.613	0.558	0.566
Conductivity Calc	µmho/cm	-	1090	1540	1480	1360
Conductivity Calc / Conductivity	-	-	0.970	0.989	0.989	0.987
Langelier Index(25°C)	-	-	0.956	1.08	0.968	1.04

	Cli	ent I.D.	62-17-III	DUP-3	DUP-4	DUP-5	
	Sam	ple I.D.	23-029653-21	23-029653-22	23-029653-23	23-029653-24	
	Date Co		2023-10-18	2023-10-18	2023-10-18	2023-10-18	
Parameter	Units	R.L.	-	-	-	-	
Saturation pH (25°C)	-	-	6.79	6.43	6.63	6.63	
pH (Client Data)	pH units	-	7.57	6.80	7.32	7.11	
Temperature (Client Data)	°C	-	13.1	13.3	10.7	12.7	
	Cli	ent I.D.	7-90	11-90	32-93-1	32-93-11	43-93-1
	Sam	ple I.D.	23-029653-1	23-029653-2	23-029653-3	23-029653-4	23-029653-5
	Date Co		2023-10-17	2023-10-18	2023-10-18	2023-10-18	2023-10-18
Parameter	Units	R.L.	-	-	-	-	-
Benzene	μg/L	0.5	5.6	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	μg/L	0.5	1.7	<0.5	<0.5	<0.5	<0.5
Toluene	μg/L	0.5	1.1	<0.5	<0.5	<0.5	<0.5
Xylene, m,p-	μg/L	1	1	<1	<1	<1	<1
Xylene, m,p,o-	µg/L	1.1	50.2	<1.1	<1.1	<1.1	<1.1
Xylene, o-	μg/L	0.5	48.8	<0.5	<0.5	<0.5	<0.5

	Client I.D.		43-93-II	44-93-1	44-93-11	45-93	53-98
	Sam	ple I.D.	23-029653-6	23-029653-7	23-029653-8	23-029653-9	23-029653-10
	Date Co		2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18
Parameter	Units R.L.		2023-10-10	2023-10-10	2023-10-16	2023-10-10	2023-10-10
raiailletei	Units	N.L.	-	-	-	-	-
Benzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene, m,p-	μg/L	1	<1	<1	<1	<1	<1
Xylene, m,p,o-	μg/L	1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Xylene, o-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Cli	ent I.D.	55-98-I	55-98-11	56-02-1	57-02-II	58-1
	Sam	ple I.D.	23-029653-11	23-029653-12	23-029653-13	23-029653-14	23-029653-15
	Date Co		2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18
Parameter	Units	R.L.	-	-	-	-	-
Benzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene, m,p-	μg/L	1	<1	<1	<1	<1	<1
Xylene, m,p,o-	μg/L	1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Xylene, o-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5

REPORT No: 23-029653 - Rev. 0

Client I.D.		61-10-l	61-10-II	61-17-1	62-17-l	62-17-II	
	Sam	ple I.D.	23-029653-16	23-029653-17	23-029653-18	23-029653-19	23-029653-20
	Date Co		2023-10-18	2023-10-18	2023-10-18	2023-10-18	2023-10-18
Parameter.							
Parameter	Units	R.L.	-	-	-	-	-
Benzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene, m,p-	μg/L	1	<1	<1	<1	<1	<1
Xylene, m,p,o-	μg/L	1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Xylene, o-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Client I.D.		62-17-III	DUP-3	DUP-4	DUP-5	
	Sam	ple I.D.	23-029653-21	23-029653-22	23-029653-23	23-029653-24	
	Date Co	-	2023-10-18	2023-10-18	2023-10-18	2023-10-18	
Parameter	Units	R.L.	2023-10-10	2023-10-10	2023-10-10	2023-10-10	
Benzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	
Ethylbenzene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	
Toluene	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	
Xylene, m,p-	μg/L	1	<1	<1	<1	<1	
Xylene, m,p,o-	µg/L	1.1	<1.1	<1.1	<1.1	<1.1	
Xylene, o-	μg/L	0.5	<0.5	<0.5	<0.5	<0.5	



CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: G115071 REPORT No: 23-029417 - Rev. 0

Report To:

City of Kawartha Lakes

PO Box 9000

322 Kent Street West

Lindsay, ON K9V 4T7

CADUCEON Environmental Laboratories

112 Commerce Park Dr Unit L

Barrie, ON L4N 8W8

Attention: Kayla Pantaleo

2023-Oct-20 DATE RECEIVED:

2023-Nov-21

CUSTOMER PROJECT: Lindsay OPS

P.O. NUMBER:

DATE REPORTED: SAMPLE MATRIX:

Surface Water

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	5	OTTAWA	LMACGREGOR	2023-Nov-04	A-IC-01	SM 4110B
BOD5 (Liquid)	5	KINGSTON	JWOLFE2	2023-Nov-09	BOD-001	SM 5210B
COD (Liquid)	5	KINGSTON	EHINCH	2023-Oct-30	COD-001	SM 5220D
Colour (Liquid)	5	OTTAWA	MDON	2023-Oct-25	A-COL-01	SM 2120C
Cond/pH/Alk Auto (Liquid)	5	OTTAWA	SBOUDREAU	2023-Oct-26	COND-02/PH-02/A	SM 2510B/4500H/
					LK-02	2320B
Cyanide WAD (Liquid)	5	KINGSTON	JMACINNES	2023-Oct-26	CN-001	SM 4500-CN-E
DOC/DIC (Liquid)	5	OTTAWA	VKASYAN	2023-Nov-06	C-OC-01	EPA 415.2
Ion Balance (Calc.)	5	OTTAWA	STAILLON		CP-028	MECP E3196
Chromium VI (Liquid)	5	OTTAWA	STAILLON	2023-Oct-26	D-CRVI-01	MECP E3056
ICP/MS Total (Liquid)	5	OTTAWA	AOZKAYMAK	2023-Oct-25	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	5	OTTAWA	APRUDYVUS	2023-Oct-25	D-ICP-01	SM 3120B
ICP/OES (Liquid)	5	OTTAWA	NHOGAN	2023-Oct-27	D-ICP-01	SM 3120B
Mercury (Liquid)	5	OTTAWA	TBENNETT	2023-Oct-25	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	5	KINGSTON	JYEARWOOD	2023-Nov-09	NH3-001	SM 4500NH3
PCB's (Liquid)	1	KINGSTON	CSUMMERHAYS	2023-Oct-25	PCB-001	EPA 8081
Phenols (Liquid)	5	KINGSTON	JMACINNES	2023-Nov-20	PHEN-01	MECP E3179
Tannins (Liquid)	3	KINGSTON	EHINCH	2023-Oct-24	TAN-001	SM 5550
TP & TKN (Liquid)	5	KINGSTON	KDIBBITS	2023-Nov-13	TPTKN-001	MECP E3516.2
TSS (Liquid)	5	KINGSTON	KKHUTSYYEVA	2023-Oct-27	TSS-001	SM 2540D
Turbidity (Liquid)	5	OTTAWA	MDON	2023-Oct-25	A-TURB-01	SM 2130B
VOC-Volatiles Full (Water)	3	RICHMOND_HILL	CBURKE	2023-Oct-30	C-VOC-02	EPA 8260

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an *

					REPORT NO. 23-029417 - Rev. C		
	Cli	ent I.D.	SW3	SW4	SW14	SW18	CP2
	Sam	ple I.D.	23-029417-1	23-029417-2	23-029417-3	23-029417-4	23-029417-5
	Date Co		2023-10-19	2023-10-19	2023-10-19	2023-10-19	2023-10-19
Parameter	Units	R.L.	-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5	298	363	243	207	383
Conductivity @25°C	uS/cm	1	1020	854	872	897	1140
pH @25°C	pH units	-	8.21	8.15	8.13	8.07	8.22
Colour	TCU	2	8	15	24	32	15
Turbidity	NTU	0.1	2.1	22.2	4.0	1.7	29.0
Fluoride	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chloride	mg/L	0.5	166	64.8	139	168	159
Nitrate (N)	mg/L	0.05	0.06	<0.05	0.17	<0.05	<0.05
Nitrite (N)	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sulphate	mg/L	1	26	33	27	29	33
BOD5	mg/L	3	<3	<3	<3	<3	<3
Total Suspended Solids	mg/L	3	<3	10	62	10	25
Phosphorus (Total)	mg/L	0.01	<0.01	0.03	0.06	0.09	0.02
Total Kjeldahl Nitrogen	mg/L	0.1	0.7	0.7	1.4	1.7	0.7
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.35	0.62	0.21	0.18	0.19
Ammonia (N)-unionized	mg/L	0.01	0.01	<0.01	<0.01	<0.01	<0.01
Dissolved Organic Carbon	mg/L	0.2	2.9	8.2	9.3	10.6	6.3
Tannin & Lignin	mg/L	0.5			0.8	1.1	<0.5
Cyanide (WAD)	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phenolics	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
COD	mg/L	5	<5	23	40	52	29

						KLIOKIK	10. 23-029417 - Rev.
	Cli	ent I.D.	SW3	SW4	SW14	SW18	CP2
		ple I.D.	23-029417-1	23-029417-2	23-029417-3	23-029417-4	23-029417-5
D	Date Co		2023-10-19	2023-10-19	2023-10-19	2023-10-19	2023-10-19
Parameter	Units	R.L.		-		-	-
Aluminum	mg/L	0.01	0.07	0.08	0.06	0.06	0.08
Hardness (as CaCO3)	mg/L	-	395	445	283	291	487
Aluminum (Total)	mg/L	0.01	0.05	0.08	0.07	0.11	0.08
Barium (Total)	mg/L	0.001	0.062	0.063	0.061	0.057	0.077
Boron (Total)	mg/L	0.005	0.025	0.018	0.053	0.230	0.023
Calcium (Total)	mg/L	0.02	133	160	97.8	97.4	173
Iron (Total)	mg/L	0.005	0.138	0.082	0.140	0.648	0.132
Magnesium (Total)	mg/L	0.02	15.0	10.9	9.35	11.7	13.4
Manganese (Total)	mg/L	0.001	0.059	0.020	0.024	0.240	0.186
Phosphorus (Total)	mg/L	0.1	<0.1	<0.1	<0.1	0.4	<0.1
Potassium (Total)	mg/L	0.1	2.6	2.1	10.9	20.3	4.7
Sodium (Total)	mg/L	0.2	76.1	31.2	60.4	82.8	72.3
Strontium (Total)	mg/L	0.001	0.402	0.397	0.285	0.320	0.457
Tin (Total)	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium (Total)	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc (Total)	mg/L	0.005	0.013	0.006	<0.005	0.016	0.005
Antimony (Total)	mg/L	0.0001	0.0004	0.0004	0.0004	0.0004	0.0004
Arsenic (Total)	mg/L	0.0001	0.0002	0.0003	0.0004	0.0005	0.0003
Beryllium (Total)	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cadmium (Total)	mg/L	0.00001 5	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Chromium (Total)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Michelle Dubien

			REPORT No: 23-0						
	Cli	ent I.D.	SW3	SW4	SW14	SW18	CP2		
	Sam	ple I.D.	23-029417-1	23-029417-2	23-029417-3	23-029417-4	23-029417-5		
	Date Co		2023-10-19	2023-10-19	2023-10-19	2023-10-19	2023-10-19		
Parameter	Units	R.L.	-	-	-	-	-		
Cobalt (Total)	mg/L	0.0001	0.0004	0.0004	0.0003	0.0004	0.0005		
Copper (Total)	mg/L	0.0001	0.0004	0.0008	0.0007	0.0007	0.0007		
Lead (Total)	mg/L	0.00002	0.00006	0.00006	0.00005	0.00018	0.00014		
Molybdenum (Total)	mg/L	0.0001	0.0001	0.0001	0.0003	0.0003	0.0002		
Nickel (Total)	mg/L	0.0002	0.0041	0.0005	0.0008	0.0009	0.0010		
Selenium (Total)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001		
Silver (Total)	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		
Thallium (Total)	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005		
Uranium (Total)	mg/L	0.00005	0.00030	0.00086	0.00042	0.00030	0.00081		
Vanadium (Total)	mg/L	0.0001	0.0001	0.0005	0.0005	0.0006	0.0003		
Chromium (VI)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001		
Mercury	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002		
Anion Sum	meq/L	-	11.2	9.77	9.35	9.47	12.9		
Cation Sum	meq/L	-	11.3	10.3	8.57	9.99	13.0		
% Difference	%	-	0.364	2.64	4.37	2.69	0.625		
Ion Ratio	-	-	0.993	0.948	1.09	0.948	0.988		
Sodium Adsorption Ratio	-	-	1.67	0.645	1.56	2.11	1.43		
TDS (Ion Sum Calc)	mg/L	1	599	520	491	534	686		
TDS(calc.)/EC(actual)	-	-	0.587	0.609	0.563	0.595	0.602		
Conductivity Calc	µmho/cm	-	1100	933	904	997	1230		
Conductivity Calc / Conductivity	-	-	1.08	1.09	1.04	1.11	1.08		

Michelle Dubien

CADUCEON Environmental Laboratories Certificate of Analysis

Final Report

REPORT No: 23-029417 - Rev. 0

	Client I.D.			SW4	SW14	SW18	CP2
Sample I.D.		23-029417-1	23-029417-2	23-029417-3	23-029417-4	23-029417-5	
Date Collected		2023-10-19	2023-10-19	2023-10-19	2023-10-19	2023-10-19	
Parameter	Units	R.L.	-	-	-	-	-
Langelier Index(25°C)	-	-	1.34	1.45	1.04	0.911	1.56
Saturation pH (25°C)	-	-	6.87	6.70	7.09	7.16	6.66
pH (Client Data)	pH units	-	8.39	7.94	7.35	7.8	7.83
Temperature (Client Data)	°C	-	8.9	9.9	10.2	11.3	10.8

	Cli	ent I.D.	SW3	SW14	SW18	
	Date Co	Sample I.D. Date Collected		23-029417-3 2023-10-19	23-029417-4 2023-10-19	
Parameter	Units	R.L.	-		-	
Acetone	μg/L	30	<30	<30	<30	
Benzene	μg/L	0.5	<0.5	<0.5	<0.5	
Bromodichloromethane	μg/L	2	<2	<2	<2	
Bromoform	μg/L	5	<5	<5	<5	
Bromomethane	μg/L	0.5	<0.5	<0.5	<0.5	
Carbon Tetrachloride	μg/L	0.2	<0.2	<0.2	<0.2	
Chlorobenzene	μg/L	0.5	<0.5	<0.5	<0.5	
Chloroform	μg/L	1	<1	<1	<1	
Chloromethane (Methyl Chloride)	μg/L	2	<2	<2	<2	
Dibromochloromethane	μg/L	2	<2	<2	<2	
Ethylene Dibromide	μg/L	0.2	<0.2	<0.2	<0.2	
Dichlorobenzene,1,2-	μg/L	0.5	<0.5	<0.5	<0.5	
Dichlorobenzene,1,3-	μg/L	0.5	<0.5	<0.5	<0.5	
Dichlorobenzene,1,4-	μg/L	0.5	<0.5	<0.5	<0.5	
Dichloroethane,1,1-	µg/L	0.5	<0.5	<0.5	<0.5	
Dichloroethane,1,2-	µg/L	0.5	<0.5	<0.5	<0.5	
Dichloroethylene,1,1-	µg/L	0.5	<0.5	<0.5	<0.5	
Dichloroethylene,1,2-cis-	μg/L	0.5	<0.5	<0.5	<0.5	
Dichloroethylene,1,2-trans-	μg/L	0.5	<0.5	<0.5	<0.5	
Dichloropropane,1,2-	μg/L	0.5	<0.5	<0.5	<0.5	
Dichloropropene,1,3-cis-	μg/L	0.5	<0.5	<0.5	<0.5	

	Cli	ent I.D.	SW3	SW14	SW18
	Sam	ple I.D.	23-029417-1	23-029417-3	23-029417-4
	Date Co		2023-10-19	2023-10-19	2023-10-19
Parameter	Units	R.L.	-	-	-
Dichloropropene,1,3-trans-	μg/L	0.5	<0.5	<0.5	<0.5
Ethylbenzene	μg/L	0.5	<0.5	<0.5	<0.5
Dichloromethane (Methylene Chloride)	μg/L	5	<5	<5	<5
Methyl Ethyl Ketone	μg/L	20	<20	<20	<20
Methyl Isobutyl Ketone	μg/L	20	<20	<20	<20
Methyl tert-Butyl Ether (MTBE)	μg/L	2	<2	<2	<2
Styrene	μg/L	0.5	<0.5	<0.5	<0.5
Tetrachloroethane,1,1,1,2-	μg/L	0.5	<0.5	<0.5	<0.5
Tetrachloroethane,1,1,2,2-	μg/L	0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	μg/L	0.5	<0.5	<0.5	<0.5
Toluene	μg/L	0.5	<0.5	<0.5	<0.5
Trichlorobenzene,1,2,4-	μg/L	0.5	<0.5	<0.5	<0.5
Trichloroethane,1,1,1-	μg/L	0.5	<0.5	<0.5	<0.5
Trichloroethane,1,1,2-	μg/L	0.5	<0.5	<0.5	<0.5
Trichloroethylene	μg/L	0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane (Freon 11)	μg/L	5	<5	<5	<5
Vinyl Chloride	μg/L	0.2	<0.2	<0.2	<0.2
Xylene, m,p-	μg/L	1	<1	<1	<1
Xylene, o-	μg/L	0.5	<0.5	<0.5	<0.5

	CI	ient I.D.	SW3
	San	ple I.D.	23-029417-1
	Date Co	ollected	2023-10-19
Parameter	Units	R.L.	-
Poly-Chlorinated Biphenyls (PCB's)	μg/L	0.05	<0.05
Identification Comment	-	-	-



APPENDIX E 2023 Toxicity Testing Laboratory Results



TOXICITY TEST REPORT

Daphnia magna EPS 1/RM/14 Page 1 of 2

Work Order: 251401 Sample Number: 77439

Company: City of Kawartha Lakes Sampling Date: 2023-04-24 Kawartha Lakes ON Sampling Time: 11:00 Location: SW-13 Date Received: Substance: 2023-04-26 Time Received: Sampling Method: Grab 11:45 Sampled By: B. Pettersone Temperature at Receipt: 12 °C 2023-04-26 Sample Description: Cloudy, light brown Date Tested:

Test Method: Reference Method for Determining Acute Lethality of Effluents to Daphnia magna.

Environment Canada EPS 1/RM/14 (Second Edition, December 2000, with February 2016

amendments).

48-HOUR TEST RESULTS									
Substance	Effect	Value							
Control	Mean Immobility	0.0 %							
	Mean Mortality	0.0 %							
100%	Mean Immobility	0.0 %							
	Mean Mortality	0.0 %							

The results reported relate only to the sample tested and as received.

TEST ORGANISM

Species :Daphnia magnaTime to First Brood :9 daysOrganism Batch :Dm23-07Average Brood Size :31.1

Culture Mortality: 0.3% (previous 7 days)

TEST CONDITIONS

Duration of Pre-Aeration: 30 minutes Organism Loading Rate: 15.0 mL/organism

Test Aeration: None Impaired Control Organisms: 0.0% Hardness Adjustment: None Test Method Deviation(s): None

REFERENCE TOXICANT DATA

Toxicant: Sodium Chloride

Date Tested: 2023-04-25 LC50: 6.2 g/LDm23-07 95% Confidence Limits: 6.0 - 6.4 g/LOrganism Batch: Analyst(s): AJS, NM Historical Mean LC50: 6.5 g/LSpearman-Kärber Statistical Method: Warning Limits (\pm 2SD): 5.8 - 7.4 g/L

COMMENTS

All test validity criteria as specified in the test method were satisfied.

Adam Wartman I am approving this document 2023-05-10 14:09-04:00

Approved By: 14:09-04
Project Manager





Daphnia magna EPS 1/RM/14 Page 2 of 2

Work Order: 251401 Sample Number: 77439

TEST DATA

0 HOURS

	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation	Hardness
		(mg/L)	(µmhos/cm)	(°C)	(%)*	(as CaCO ₃)
Initial Chemistry (100%):	8.1	9.2	473	20	107	220 mg/L

Concentration (%) Replicate Dead Immobile pH Dissolved O2 Conductivity Temperature O2 Saturation* 100 A 0 0 8.2 8.8 474 20 101 100 B 0 0 8.2 8.8 474 20 101 100 C 0 0 8.2 8.8 474 20 101 Control A 0 0 8.4 8.6 474 20 100	
100 B 0 0 8.2 8.8 474 20 101 100 C 0 0 8.2 8.8 474 20 101	Hardness
100 C 0 0 8.2 8.8 474 20 101	220
	220
Control A 0 0 84 86 474 20 100	220
	150
Control B 0 0 8.4 8.6 474 20 100	150
Control C 0 0 8.4 8.6 474 20 100	150

			24 HOURS
Date & Time:	2023-04-27	12:15	<u> </u>

Analyst(s): JCS

Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature
100	A	-	0	_	_	-	20
100	В	-	0	_		_	20
100	C	-	0	_	_	_	20
Control	A	-	0	_	_	_	20
Control	В	-	0	_	_	_	20
Control	C	-	0	_	_	_	20

Notes:

Notes:

48 HOURS									
Date & Time : Analyst(s) :	2023-04-28 CFM (SV)	12:15	5						
Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature		
100	A	0	0	8.5	8.3	489	20		
100	В	0	0	8.5	8.3	485	20		
100	C	0	0	8.5	8.3	488	20		
Control	A	0	0	8.4	8.4	501	20		
Control	В	0	0	8.4	8.4	502	20		

Control
Notes:

Number immobile does not include number dead.

8.4

501

20

C

0

0

8.4

Test Data Reviewed By: _____JJ

Date : 2023-05-02

[&]quot;—" = not measured/not required

^{*} adjusted for temperature and barometric pressure



TOXICITY TEST REPORT

Rainbow Trout EPS 1/RM/13 Page 1 of 2

Work Order: 251401 Sample Number: 77439

CANIDIE	IDENTIFICATION
SAMPLE	. IIJK N I IKIC A I ICIN

Company: City of Kawartha Lakes Sampling Date: 2023-04-24 Kawartha Lakes ON Sampling Time: Location: 11:00 Substance: SW-13 Date Received: 2023-04-26 Sampling Method: Grab Time Received: 11:45 Sampled By: Temperature at Receipt: 12 °C B. Pettersone Cloudy, light brown Date Tested: 2023-04-26 Sample Description:

Test Method(s): Reference Method for Determining Acute Lethality of Liquid Effluents to Rainbow Trout.

Environment Canada, EPS 1/RM/13 (2nd Edition, December 2000, with May 2007 and February

2016 amendments).

96-	HOUR TEST RESULTS		
Substance	Effect	Value	
Control	Mean Impairment	0.0 %	
	Mean Mortality	0.0 %	
100%	Mean Impairment	0.0 %	
	Mean Mortality	0.0 %	

The results reported relate only to the sample tested and as received.

TEST ORGANISM

Test Organism: Oncorhynchus mykiss Average Fork Length (± 2 SD): 40.2 mm (± 4.9) Organism Batch: T23-05 Range of Fork Lengths: 36 - 43 mm Control Sample Size: 10 Average Wet Weight (± 2 SD): 0.6 g (± 0.3) Cumulative stock tank mortality rate: 0% (previous 7 days) Range of Wet Weights: 0.4 - 0.8 gControl organisms showing stress: 0 (at test completion) Organism Loading Rate: 0.3 g/L

TEST CONDITIONS

Sample Treatment :	None	Volume Tested (L):	18
pH Adjustment:	None	Number of Replicates:	1
Test Aeration:	Yes	Organisms Per Replicate:	10
Pre-aeration/Aeration Rate:	$6.5 \pm 1 \text{ mL/min/L}$	Organisms Per Test Level:	10
Duration of Pre-Aeration:	120 minutes	Test Method Deviation(s):	None

REFERENCE TOXICANT DATA

Toxicant: Potassium Chloride

T23-05 Organism Batch: LC50: 4328 mg/L 3861 - 4827 mg/L Date Tested: 2023-04-02 95% Confidence Limits: Analyst(s): PG, KR, NM, AJS Historical Mean LC50: 4036 mg/L Statistical Method: Linear Regression (MLE) 3289 - 4953 mg/L Warning Limits (\pm 2SD):

COMMENTS

Ada I ar doc 202

Adam Wartman I am approving this document 2023-05-10 14:10-04:00

Project Manager

Approved By:

[•]All test validity criteria as specified in the test method were satisfied.





Work Order: 251401 Sample Number: 77439

Notes:

Notes:

Rainbow Trout EPS 1/RM/13 Page 2 of 2

TEST DATA

	рН	Dissolved O ₂ (mg/L)	Conductivity (µmhos/cm)	Temperature (°C)	O ₂ Saturation (%) ³
Initial Water Chemistry (100%):	8.0	9.9	504	16	107
After 30 min pre-aeration:	8.0	9.7	503	16	103

			0 H	OURS			
Date & Time Analyst(s): Concentration	2023-04-26 KR (SV) Dead	14:20	рН	Dissolved O.	Conductivity	Temperature	O ₂ Saturation ³
Concentiation	Dead	impaneu	pii	Dissolved O ₂	Conductivity	remperature	O ₂ Saturation
100%	0	0	8.2	9.4	504	15	99
Control	0	0	8.1	9.4	758	15	100
Notes:							

			24 HC	DURS			
Date & Time	2023-04-27	14:20					
Analyst(s):	KR (PG)						
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	
100%	0	0	_	-	_	15	
Control	0	0	_	_	_	15	

48 HOURS								
Date & Time Analyst(s): Concentration	2023-04-28 NM Dead	14:20 Impaired	рН	Dissolved ${\rm O}_2$	Conductivity	Temperature		
100% Control	0 0	0 0	_ _	_ _	_ _	15 15		

72 HOURS								
Date & Time Analyst(s): Concentration	2023-04-29 JCS Dead	14:20 Impaired	pН	Dissolved O ₂	Conductivity	Temperature		
00%	0	0	_	_	_	15		
ontrol	0	0	_	_	_	15		
otes:								

			96 H	OURS		
Date & Time	2023-04-30	14:20				
\nalyst(s):	JCS					
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature
00%	0	0	8.4	9.1	505	15
ontrol	0	0	8.4	9.1	721	15
otes:						

"-" = not measured/not required

Number impaired does not include number dead.

Test Data Reviewed By:_____ ³ adjusted for temperature and barometric pressure Date: 2023-05-03

CHAIN OF CUSTODY RECORD

Sample Storage (prior to shipping): None - shipped immediately **Brad Pettersone** Custody Relinquished by: Brad Pettersone NAUTILUS ENVIRONMENTAL Azimuth Environmental Date/Time Shipped: 23-04-24 / 13:00 P.O. Number: Lindsay OPS Field Sampler Name (print) Affiliation: Signature:

Nautilus Environmental Guelph. B-11 Nicholas Beaver Road Puslinch, Ontario Canada N0B 2J0 (519) 763-4419 City of Kawartha Lakes 12 Peel Street, P.O. Box 9000 Lindsay, Ontario K9V 5R8 Deyonte Levene ext. 1144 Fax: (705) 324-9411 Voice: (519) 763-4412 Shipping Address: Contact: Phone: Client: Fax:

	Sample	Sample Identification					Analyse	Analyses Requested	ted			Sam	ple Met	Sample Method and Volume
Time Collected (e.g. 14:30,	,	Sample Name	Naufilus Sample Number	Temp. on arrival	Rainbow Trout Single Concentration	Rainbow Trout LC50	Concentration Daphnie magna LC50	Fathead Minnow Survival & Growth Certodaphnia dubla	Survival & Reproduction Lemna minor Growth	Pseudokirchneriella subcapitata Growth	Other (please specify below)	Grab	Composite	# of Containers and Volume (eg. 2 x 1L, 3 x 10L, etc.)
2023-04-24 11:00	SW-13			32	>	,						\neg	÷	× 20 L
													-	
													_	
									-				4	
									-			\exists	-	

For Lab Use Only	A35	Please list any special requests or instructions:
	25-40-8505	
	Sh:11	
Storage Location:		
Storage Temp.(°C)		



TOXICITY TEST REPORT

Daphnia magna EPS 1/RM/14 Page 1 of 2

Work Order: 251830 Sample Number: 78110

	SAMPLE ID	ENTIFICATION	
Company:	City of Kawartha Lakes	Sampling Date:	2023-06-08
Location:	Lindsay ON	Sampling Time:	12:00
Substance:	SW-13B	Date Received:	2023-06-09
Sampling Method:	Grab	Time Received:	12:30

Sampling Method: Grab Time Received: 12:30
Sampled By: B. Pettersone Temperature at Receipt: 18 °C
Sample Description: Clear, green. Date Tested: 2023-06-09

Test Method: Reference Method for Determining Acute Lethality of Effluents to Daphnia magna.

Environment Canada EPS 1/RM/14 (Second Edition, December 2000, with February 2016

amendments).

48	3-HOUR TEST RESULTS	
Substance	Effect	Value
Control	Mean Immobility	0.0 %
	Mean Mortality	0.0 %
100%	Mean Immobility	0.0 %
	Mean Mortality	0.0 %

The results reported relate only to the sample tested and as received.

	TEST ORG.	ANISM	
Species:	Daphnia magna	Time to First Brood:	8 days
Organism Batch:	Dm23-10	Average Brood Size:	32.8
Culture Mortality:	1.0% (previous 7 days)		
	TEST COND	OITIONS	
Sample Treatment :	None	Number of Replicates:	3
pH Adjustment:	None	Organisms / Replicate:	10
Pre-aeration Rate:	~30 mL/min/L	Organisms / Test Level:	30
Duration of Pre-Aeration:	30 minutes	Organism Loading Rate:	15.0 mL/organism
Test Aeration:	None	Impaired Control Organisms:	0.0%
Hardness Adjustment:	None	Test Method Deviation(s):	None
	REFERENCE TOX	ICANT DATA	

Toxicant: Sodium Chloride LC50: 6.6 g/LDate Tested: 2023-06-06 Dm23-10 95% Confidence Limits: 6.3 - 6.9 g/LOrganism Batch: Analyst(s): KR, CFM Historical Mean LC50: 6.5 g/LStatistical Method: 5.8 - 7.4 g/LSpearman-Kärber Warning Limits (\pm 2SD):

COMMENTS

Approved By:	
	Project Manager

[•] All test validity criteria as specified in the test method were satisfied.





Daphnia magna EPS 1/RM/14 Page 2 of 2

Work Order: 251830 Sample Number: 78110

TEST DATA

0 HOURS

	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation	Hardness
		(mg/L)	(µmhos/cm)	(°C)	(%)*	(as CaCO ₃)
Initial Chemistry (100%):	8.2	10.7	1379	20	125	280 mg/L

Date & Time:	2023-06-09	14:10)						
Analyst(s):	JW/SSF (PG)								
Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation*	Hardness
100	A	0	0	8.3	9.8	1384	20	115	280
100	В	0	0	8.3	9.8	1384	20	115	280
100	C	0	0	8.3	9.8	1384	20	115	280
Control	A	0	0	8.3	8.6	465	20	100	140
Control	В	0	0	8.3	8.6	465	20	100	140
Control	C	0	0	8.3	8.6	465	20	100	140

			24 HOURS
Date & Time:	2023-06-10	14:10	

Analyst(s): CFM (JW)

Dissolved O₂ Conductivity Temperature Concentration (%) Replicate Dead **Immobile** pН 100 Α 21 100 В 0 21 C 100 0 21 0 Control Α 21 В 0 Control 21 \mathbf{C} Control 21

Notes:

Notes:

			48 HOURS
Date & Time:	2023-06-11	14:10	
Analyst(s):	CFM (JGR)		

Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature
100	A	0	0	8.4	8.1	1374	20
100	В	0	0	8.4	8.1	1375	20
100	C	0	0	8.4	8.1	1377	20
Control	A	0	0	8.3	8.2	474	20
Control	В	0	0	8.4	8.2	475	20
Control	C	0	0	8.4	8.2	474	20

Notes:

Number immobile does not include number dead.

Test Data Reviewed By : _____JJ

Date: 2023-06-14

[&]quot;_" = not measured/not required

^{*} adjusted for temperature and barometric pressure



TOXICITY TEST REPORT

Rainbow Trout EPS 1/RM/13 Page 1 of 2

Work Order: 251830 Sample Number: 78110

		SAMPLE IDE	ENTIFICATION						
Company:	City of Kawaı	tha Lakes	Sampling Date :		2023-06-08				
- ·	Lindsay ON		Sampling Time :	12:00					
Substance:	SW-13B		Date Received:		2023-06-09				
Sampling Method:	Grab		Time Received:		12:30				
Sampled By:	B. Pettersone		Temperature at F	Receipt:	18 °C				
Sample Description:	Clear, green.		Date Tested:		2023-06-09				
, ,		Canada, EPS 1/RM/13	Acute Lethality of Liquid (2nd Edition, December 2						
		96-HOUR TI	EST RESULTS						
	Substance		Effect	Value					
	Control		Mean Impairment	0.0 %					
			Mean Mortality	0.0 %					
	100%		Mean Impairment	0.0 %					
			Mean Mortality	0.0 %					
	The res	ults reported relate only to	o the sample tested and as re	eceived.					
		TEST O	RGANISM						
Test Organism:		Oncorhynchus mykiss	Average Fork Le	ength (± 2 SD):	37.6 mm (±4.1)				
Organism Batch:		T23-10	Range of Fork L		34 - 41 mm				
Control Sample Size :		10	Average Wet We	eight (± 2 SD) :	0.5 g (±0.2)				
Cumulative stock tank	mortality rate	: 0% (previous 7 days)	Range of Wet W	eights:	0.3 - 0.7 g				
Control organisms show	wing stress:	0 (at test completion)	Organism Loadii	ng Rate:	0.2 g/L				
		TEST CO	NDITIONS						
Sample Treatment:		None	Volume Tested (L):	20				
pH Adjustment:		None	Number of Repli	cates:	1				
Test Aeration:		Yes	Organisms Per R	eplicate:	10				
Pre-aeration/Aeration F	Rate:	$6.5 \pm 1 \text{ mL/min/L}$	Organisms Per T	est Level:	10				
Duration of Pre-Aeration	on:	120 minutes	Test Method Dev	viation(s):	None				
		REFERENCE T	OXICANT DATA						
Toxicant:		Potassium Chloride							
Organism Batch:		T23-10	LC50:		3257 mg/L				
Date Tested:		2023-06-01	95% Confidence	Limits:	2991 - 3546 mg/I				
A == a1rrat(a).		AIC ICD ICC	11' 4 ' 134	1.050	2022 /7				

•All test validity criteria as specified in the test method were satisfied.

AJS, JGR, JCS

Spearman-Kärber

Analyst(s):

Statistical Method:

Approved By:	

Historical Mean LC50:

Warning Limits (± 2SD):

3932 mg/L

3027 - 5108 mg/L

COMMENTS





Work Order: 251830 Sample Number: 78110 Rainbow Trout EPS 1/RM/13 Page 2 of 2

TEST DATA

	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation
		(mg/L)	(µmhos/cm)	(°C)	(%) ³
Initial Water Chemistry (100%):	8.3	10.7	1250	16	116
After 30 min pre-aeration:	8.3	10.3	1253	16	112

	0 HOURS											
Date & Time	2023-06-09	16:00										
Analyst(s):	LL											
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation ³					
100%	0	0	8.2	9.5	1244	16	102					
Control	0	0	8.4	9.5	620	14	98					
Notes:												

24 HOURS

				oens		
Date & Time	2023-06-10	16:00				
analyst(s):	JGR					
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature
)%	0	0	_	_	_	15
itrol	0	0	_	_	_	15

Notes:

48 HOURS											
Date & Time	2023-06-11	16:00									
Analyst(s):	JGR										
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature					
100%	0	0		_	_	15					
Control	0	0	_	_	_	15					

Notes:

Notes:

72 HOURS										
Date & Time	2023-06-12	16:00								
Analyst(s):	KR (PG)									
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature				
00%	0	0	_	_	_	16				
ontrol	0	0	_	_	_	16				
otes:										

96 HOURS										
Date & Time	2023-06-13	16:00			-	-				
Analyst(s):	KR (KP)									
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature				
100%	0	0	8.3	9.2	1240	16				
Control	0	0	8.3	9.0	605	16				

[&]quot;_" = not measured/not required

Number impaired does not include number dead.

³ adjusted for temperature and barometric pressure

Test Data Reviewed By : JJ
Date : 2023-06-16

CHAIN OF CUSTODY RECORD





P.O. Number: 23-010 LINKING OPS SW	
Field Sampler Name (print): BLAS POTENSON 3	
Signature: Blff	
Affiliation: AZEMATH ENVERONMENTAL	
Sample Storage (prior to shipping): Sucher Some Day	
Custody Relinquished by: B. Port IRS ON I	
Date/Time Shipped: 23-06-08	

Shipping Address:

Nautilus Environmental Guelph. B-11 Nicholas Beaver Road

Puslinch, Ontario Canada N0B 2J0

Voice: (519) 763-4412

Fax: (519) 763-4419

Client:	CITY OF KANARTHA LAKES
	12 PUELST, 20 BOX 9000 LINDSAY, ON
	LANGAY, ON
Phone:	405-324-9411
Fax:	703-301-1411
Contact	DEYONTE LEVENE ext. 1144

		Sample Identification					Analys	es Reque	ested				Sa	mple	Method and Volume
Date Collected	Time Collected (e.g. 14:30,		Nautilus Temp. on Sample Number arrival	Ranbow Trout Single Concentration	Raismos Trout LC50	Dapama magna Single Concentration	Daphnia magna LC50	Fathead Minnow Survival & Growth	Cenodaphnia dubia Survival & Reproduction	Lemna minor Growth	Pseudokirchneriella subcapitata Growth	Other (please specify below)	Grab	Composite	# of Containers and Volume (eg. 2 x 1L, 3 x 10L, etc.)
(yyyy-mm-dd)	24 hr clock)	Sample Name	78110 18	1	1) &	11/	10						Vx		1×20L
2013-06-68	16.00	20.130	10110 10	Č	1	40							1		, , ,
				-	-	+	-	-			-	-			
				_							-		-	_	
			7												
			DESCRIPTION OF STREET												
				-		+	-								
			117			-									
													_		

For Lab Use Only	
Received By:	
Date: 2023-00 - 09	
Time: 12:30	
Storage Location:	
Storage Temp.(°C)	

Please list any sp	ecial req	vests or ins	ructions:	label.	8V	2023-06-09



TOXICITY TEST REPORT

Daphnia magna EPS 1/RM/14 Page 1 of 2

Work Order: 252440 Sample Number: 79012

SAMIFLE IDENTIFICATION					
City of Kawartha Lakes	Sampling Date :				

CAMBLE IDENTIFICATION

2023-08-16 Company: Location: Lindsay ON Sampling Time: 12:00 SW-13 Date Received: Substance: 2023-08-17 Time Received: Sampling Method: Grab 13:00 Sampled By: B. Pettersone Temperature at Receipt: 22 °C Sample Description: Clear, pale yellow Date Tested: 2023-08-18

Test Method: Reference Method for Determining Acute Lethality of Effluents to Daphnia magna.

Environment Canada EPS 1/RM/14 (Second Edition, December 2000, with February 2016

amendments).

48-HOUR TEST RESULTS						
Substance	Effect	Value				
Control	Mean Immobility	0.0 %				
	Mean Mortality	0.0 %				
100%	Mean Immobility	0.0 %				
	Mean Mortality	0.0 %				

The results reported relate only to the sample tested and as received.

TEST ORGANISM

Species :Daphnia magnaTime to First Brood :8.4 daysOrganism Batch :Dm23-15Average Brood Size :35.1

Culture Mortality: 0.0% (previous 7 days)

TEST	CONDITIONS

Sample Treatment :NoneNumber of Replicates :3pH Adjustment :NoneOrganisms / Replicate :10Pre-aeration Rate :~30 mL/min/LOrganisms / Test Level :30

Duration of Pre-Aeration: 0 minutes Organism Loading Rate: 15.0 mL/organism

Test Aeration: None Impaired Control Organisms: 0.0% Hardness Adjustment: None Test Method Deviation(s): None

REFERENCE TOXICANT DATA

Toxicant: Sodium Chloride

Date Tested: 2023-08-15 LC50: 6.3 g/L Organism Batch: Dm23-15 95% Confidence Limits: 5.8 - 6.8 g/L SSF 6.5 g/LAnalyst(s): Historical Mean LC50: Statistical Method: Linear Regression (MLE) Warning Limits (\pm 2SD): 5.6 - 7.4 g/L

COMMENTS

Approved By:	
	D 1 116

[•] All test validity criteria as specified in the test method were satisfied.





Daphnia magna EPS 1/RM/14 Page 2 of 2

Work Order: 252440 Sample Number: 79012

TEST DATA

0 HOURS

	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation	Hardness
		(mg/L)	(µmhos/cm)	(°C)	(%)*	(as CaCO ₃)
Initial Chemistry (100%):	7.9	8.3	1254	21	100	150 mg/L

Date & Time :	2023-08-18	11:0:	5						
Analyst(s):	JGR								
Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation*	Hardness
100	A	0	0	7.9	8.3	1254	21	100	150
100	В	0	0	7.9	8.3	1254	21	100	150
100	C	0	0	7.9	8.3	1254	21	100	150
Control	A	0	0	8.4	8.6	456	20	100	170
Control	В	0	0	8.4	8.6	456	20	100	170
Control	С	0	0	8.4	8.6	456	20	100	170

			24 HOURS
Date & Time:	2023-08-19	11:05	

Analyst(s): KR (AJS)

Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature
100	A	-	0	_	_	_	20
100	В	-	0	_	_	_	20
100	C	_	0	_	_	_	20
Control	A	_	0	_	_	_	20
Control	В	_	0	_	_	_	20
Control	C	-	0	_	_	_	20

Notes:

Notes:

			48 HOURS
Date & Time:	2023-08-20	11:05	
Analyst(s):	NP (AJS)		

Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature
100	A	0	0	8.4	8.4	1265	20
100	В	0	0	8.5	8.4	1265	20
100	C	0	0	8.5	8.4	1265	20
Control	A	0	0	8.4	8.6	462	20
Control	В	0	0	8.4	8.5	460	20

8.4

0

Control
Notes:

Number immobile does not include number dead.

8.7

477

20

Test Data Reviewed By: JCS

Date : 2023-08-21

[&]quot;_" = not measured/not required

^{*} adjusted for temperature and barometric pressure



TOXICITY TEST REPORT

Rainbow Trout EPS 1/RM/13 Page 1 of 2

Work Order: 252440 Sample Number: 79012

SAMPLE IDENTIFICATION								
Company:	City of Kawartha Lakes	Sampling Date :	2023-08-16					
Location:	Lindsay ON	Sampling Time:	12:00					
Substance:	SW-13	Date Received:	2023-08-17					
Sampling Method:	Grab	Time Received:	13:00					
Sampled By: Sample Description:	B. Pettersone Clear, pale yellow	Temperature at Receipt : Date Tested :	22 °C 2023-08-18					

Test Method(s): Reference Method for Determining Acute Lethality of Liquid Effluents to Rainbow Trout.

Environment Canada, EPS 1/RM/13 (2nd Edition, December 2000, with May 2007 and February

2016 amendments).

96-HOUR TEST RESULTS							
Substance	Effect	Value					
Control	Mean Impairment	0.0 %					
	Mean Mortality	0.0 %					
100%	Mean Impairment	0.0 %					
	Mean Mortality	0.0 %					

The results reported relate only to the sample tested and as received.

TEST ORGANISM

Test Organism: Oncorhynchus mykiss Average Fork Length (± 2 SD): 42.9 mm (± 7.7) T23-16 Range of Fork Lengths: 37 - 48 mm Organism Batch: Control Sample Size: 10 Average Wet Weight (± 2 SD): 0.7 g (± 0.4) Cumulative stock tank mortality rate: 0% (previous 7 days) Range of Wet Weights: 0.4 - 1.0 g0.3 g/LControl organisms showing stress: 0 (at test completion) Organism Loading Rate:

TEST CONDITIONS

Sample Treatment:	None	Volume Tested (L):	20
pH Adjustment:	None	Number of Replicates:	1
Test Aeration:	Yes	Organisms Per Replicate:	10
Pre-aeration/Aeration Rate:	$6.5 \pm 1 \text{ mL/min/L}$	Organisms Per Test Level:	10
Duration of Pre-Aeration:	30 minutes	Test Method Deviation(s):	None

REFERENCE TOXICANT DATA

Toxicant: Potassium Chloride

T23-16 LC50: 3097 mg/L Organism Batch: Date Tested: 2023-08-03 95% Confidence Limits: 2491 - 3508 mg/L Analyst(s): KR, JGR, PG Historical Mean LC50: 3827 mg/L 2925 - 5007 mg/L Statistical Method: Linear Regression (MLE) Warning Limits (\pm 2SD):

COMMENTS

Approved By:	
	D., . i 4 M

[•]All test validity criteria as specified in the test method were satisfied.





Work Order: 252440 Sample Number: 79012 Rainbow Trout EPS 1/RM/13 Page 2 of 2

TEST DATA

	pН		•	•	O ₂ Saturation
		(mg/L)	(µmhos/cm)	(°C)	(%)3
Initial Water Chemistry (100%):	7.9	7.5	1312	15	80
After 30 min pre-aeration:	8.0	8.1	1303	16	87

0 HOURS								
Date & Time	2023-08-18	13:05						
Analyst(s):	KR(LL)							
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation ³	
100%	0	0	8.0	8.1	1303	16	87	
Control	0	0	8.5	9.0	663	16	96	
Notes:								

24 HOURS								
Date & Time	2023-08-19	13:05						
Analyst(s):	AJS							
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature		
100%	0	0	_	_	_	14		
Control	0	0	_	_	_	14		
3.T								

48 HOURS							
Date & Time	2023-08-20	13:05					
Analyst(s):	AJS						
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	
%	0	0	_	_	-	15	
itrol	0	0	_	_	_	15	
ites:							

72 HOURS							
Date & Time	2023-08-21	13:05					
nalyst(s):	KR(LL)						
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	
0%	0	0	_	_	_	15	
ontrol	0	0	_	_	_	15	
otes:							

96 HOURS							
Date & Time	2023-08-22	13:05					
nalyst(s):	DT (PC)						
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	
0%	0	0	8.3	9.3	1302	14	
ntrol	0	0	8.3	9.3	632	14	
otes:							

Number impaired does not include number dead.

³ adjusted for temperature and barometric pressure

Test Data Reviewed By : JCS
Date : 2023-08-23

[&]quot;-" = not measured/not required

CHAIN OF CUSTODY RECORD



	CONTRACTOR OF THE PERSON NAMED IN
P.O. Number: Lindsay OPS	
Field Sampler Name (print): Brad Pettersone	
Signature:	
Affiliation: Azimuth Environmental	
Sample Storage (prior to shipping): None - shipped immediately	
Custody Relinquished by: Brad Pettersone	
Date/Time Shipped: 2023-08-16 16:00	

Shipping Address:

Nautilus Environmental Guelph. B-11 Nicholas Beaver Road Puslinch, Ontario Canada N0B 2J0

Voice: (519) 763-4412

Fax: (519) 763-4419

Client:	City of Kawartha Lakes 12 Peel Street, P.O. Box 9000 Lindsay, Ontario K9V 5R8	
	1.07 0110	

(705) 324-9411 Phone:

Fax:

Deyonte Levene ext. 1144 Contact:

		Sample Identification						Analys	es Requ	uested			· ·	Sa	mple	Method and Volume
Date Collected (yyyy-mm-dd)	Time Collected (e.g. 14:30, 24 hr clock)	Sample Name	Nautilus Sample Number	Temp. on arrival	Rainbow Trout Single Concentration	Rainbow Trout LC50	Daphnia magna Single Concentration	Daphnia magna LC50	Fathead Minnow Survival & Growth	Ceriodaphnia dubia Survival & Reproduction	Lemna minor Growth	Pseudokirchneriella subcapitata Growth	Other (please specify below)	Grab	Composite	# of Containers and Volume (eg. 2 x 1L. 3 x 10L, etc.)
2023-08-16	12:00	SW-13	79012	22°c	1		~									1 x 20 L
	- I															
			1000													
														T		
						 	 		-					†	1	
							 					+		T	T	
							-		 			+	┼	+	t	
						ļ	ļ		<u> </u>	<u> </u>		-	-	+	+	
														<u></u>	<u></u>	

For Lab Use	
Received By:	PG
Date:	2023-08-17
Time:	13:00
Storage Location:	
Storage Temp.(°C)	

Please list any special requests or instructions:	



TOXICITY TEST REPORT

Daphnia magna EPS 1/RM/14 Page 1 of 2

Work Order: 252881 Sample Number: 79680

SAMPLE IDENTIFICATION									
Company:	City of Kawartha Lakes	Sampling Date:	2023-10-05						
Location:	Lindsay ON	Sampling Time:	14:00						
Substance:	SW-13	Date Received:	2023-10-06						

Sampling Method: Grab Time Received: 2023-10-06
Sampled By: B. Pettersone Temperature at Receipt: 21 °C
Sample Description: Clear, yellow. Date Tested: 2023-10-10

Test Method: Reference Method for Determining Acute Lethality of Effluents to Daphnia magna.

Environment Canada EPS 1/RM/14 (Second Edition, December 2000, with February 2016

amendments).

48-HOUR TEST RESULTS								
Substance	Effect	Value						
Control	Mean Immobility	0.0 %						
	Mean Mortality	0.0 %						
100%	Mean Immobility	0.0 %						
	Mean Mortality	0.0 %						

The results reported relate only to the sample tested and as received.

TEST ORGANISM

Species :Daphnia magnaTime to First Brood :10.2 daysOrganism Batch :Dm23-19Average Brood Size :33.7

Culture Mortality: 0.7% (previous 7 days)

TEST CONDITIONS

Sample Treatment :NoneNumber of Replicates :3pH Adjustment :NoneOrganisms / Replicate :10Pre-aeration Rate :~30 mL/min/LOrganisms / Test Level :30

Duration of Pre-Aeration: 30 minutes Organism Loading Rate: 15.0 mL/organism

Test Aeration : None Impaired Control Organisms : 0.0% Hardness Adjustment : None Test Method Deviation(s) : None

REFERENCE TOXICANT DATA

Toxicant: Sodium Chloride

Date Tested: 2023-10-10 LC50: 6.7 g/L Organism Batch: Dm23-19 95% Confidence Limits: 6.4 - 7.0 g/L SSF, MEP Historical Mean LC50: 6.4 g/LAnalyst(s): 5.6 - 7.4 g/L Statistical Method: Spearman-Kärber Warning Limits (\pm 2SD):

COMMENTS

Approved By:	

[•] All test validity criteria as specified in the test method were satisfied.





Daphnia magna EPS 1/RM/14 Page 2 of 2

Work Order: 252881 Sample Number: 79680

TEST DATA

0 HOURS

	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation	Hardness	
		(mg/L)	(µmhos/cm)	(°C)	(%)*	(as CaCO ₃)	
Initial Chemistry (100%):	7.8	8.7	1215	20	103	300 mg/L	

Date & Time : Analyst(s) :	2023-10-10 SSF (JW)	12:40	0						
Concentration (%)) Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation*	Hardness
100	A	0	0	7.9	8.7	1213	20	101	300
100	В	0	0	7.9	8.7	1213	20	101	300
100	C	0	0	7.9	8.7	1213	20	101	300
Control	A	0	0	8.3	8.6	449	20	100	140
Control	В	0	0	8.3	8.6	449	20	100	140
Control	C	0	0	8.3	8.6	449	20	100	140
Notes:									

			24 HOURS
Date & Time:	2023-10-11	12:40	

Date & Time : 2023-10-11 Analyst(s) : MEP (JCS)

Concentration (%) Replicate Dead **Immobile** pН Dissolved O₂ Conductivity Temperature 100 A 20 В 0 20 100 \mathbf{C} 0 100 20 0 Control Α 20 В 0 Control 20 Control \mathbf{C} 20

Notes:

			48 HOURS
Date & Time:	2023-10-12	12:40	
Analyst(s):	JW/JCS		

Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature
100	A	0	0	8.4	8.5	1240	20
100	В	0	0	8.4	8.4	1229	20
100	C	0	0	8.4	8.4	1222	20
Control	A	0	0	8.3	8.4	465	20
Control	В	0	0	8.3	8.5	467	20
Control	C	0	0	8.3	8.7	470	20

Notes:

Number immobile does not include number dead.

Test Data Reviewed By : _____JJ

Date: 2023-10-17

[&]quot;_" = not measured/not required

^{*} adjusted for temperature and barometric pressure



TOXICITY TEST REPORT

Rainbow Trout EPS 1/RM/13 Page 1 of 2

Work Order: 252881 Sample Number: 79680

SAMPLE IDENTIFICATION					
Company:	City of Kawartha Lakes	Sampling Date :	2023-10-05		
Location:	Lindsay ON	Sampling Time:	14:00		
Substance:	SW-13	Date Received:	2023-10-06		
Sampling Method:	Grab	Time Received:	12:05		
Sampled By: B. Pettersone		Temperature at Receipt:	21 °C		
Sample Description :	Clear, yellow.	Date Tested:	2023-10-10		

Test Method(s): Reference Method for Determining Acute Lethality of Liquid Effluents to Rainbow Trout.

Environment Canada, EPS 1/RM/13 (2nd Edition, December 2000, with May 2007 and February

2016 amendments).

96-HOUR TEST RESULTS					
Substance	Effect	Value			
Control	Mean Impairment	0.0 %			
	Mean Mortality	0.0 %			
100%	Mean Impairment	0.0 %			
	Mean Mortality	0.0 %			

The results reported relate only to the sample tested and as received.

TEST ORGANISM

Test Organism : Organism Batch :	Oncorhynchus mykiss T23-20	Average Fork Length (± 2 SD): Range of Fork Lengths:	39.9 mm (±4.5) 37 - 44 mm
Control Sample Size :	10	Average Wet Weight (± 2 SD):	
Cumulative stock tank mortality rate Control organisms showing stress :	4 ,	Range of Wet Weights: Organism Loading Rate:	0.4 - 0.7 g 0.3 g/L

TEST CONDITIONS

None	Volume Tested (L):	20
None	Number of Replicates:	1
Yes	Organisms Per Replicate:	10
$6.5 \pm 1 \text{ mL/min/L}$	Organisms Per Test Level:	10
30 minutes	Test Method Deviation(s):	None
	None Yes 6.5 ± 1 mL/min/L	NoneNumber of Replicates :YesOrganisms Per Replicate : 6.5 ± 1 mL/min/LOrganisms Per Test Level :

REFERENCE TOXICANT DATA

Toxicant: Potassium Chloride

Organism Batch: T23-20 LC50: 3005 mg/L Date Tested: 2023-10-02 95% Confidence Limits: 2492 - 3479 mg/L Analyst(s): DT, PG, ET Historical Mean LC50: 3617 mg/L Statistical Method: Linear Regression (MLE) 2900 - 4512 mg/L Warning Limits (\pm 2SD):

COMMENTS

Approved By : _	
_	Duning Manager

[•]All test validity criteria as specified in the test method were satisfied.





Work Order: 252881 Sample Number: 79680 Rainbow Trout EPS 1/RM/13 Page 2 of 2

TEST DATA

	pН	Dissolved O ₂ (mg/L)	Conductivity (µmhos/cm)	Temperature (°C)	O ₂ Saturation (%) ³
Initial Water Chemistry (100%):	7.8	8.2	1245	14	86
After 30 min pre-aeration:	7.9	9.0	1248	14	93

	0 HOURS						
Date & Time	2023-10-10	13:10					
Analyst(s):	DT (AJS)						
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation ³
100%	0	0	7.9	9.0	1248	14	93
Control	0	0	8.3	9.6	714	15	100
Notes:							

24 HOURS						
Date & Time	2023-10-11	13:10				
Analyst(s):	DT (NM)					
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature
0%	0	0		_	_	15
ntrol	0	0	_	_	_	15
otes:						

48 HOURS						
Date & Time	2023-10-12	13:10				
Analyst(s):	DT (PC)					
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature
100%	0	0	_	_	_	15
Control	0	0	_	_	_	15

72 HOURS						
Date & Time	2023-10-13	13:10				
Analyst(s):	NM					
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature
100%	0	0	_	_	_	15
Control	0	0	_	_	_	15

N	ote	s:

Notes:

96 HOURS							
Date & Time	2023-10-14	13:10					
Analyst(s):	KR						
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	
100%	0	0	8.4	9.4	1263	15	
Control	0	0	8.4	9.3	687	15	
Notes:							

[&]quot;_" = not measured/not required

Number impaired does not include number dead.

³ adjusted for temperature and barometric pressure

Test Data Reviewed By : JJ
Date : 2023-10-20

CHAIN OF CUSTODY RECORD



Neutlin Work Order No: 25288

P.O. Number: Lindsay OPS
Field Sampler Name (print): Brad Pettersone
Signature:
Affiliation: Azimuth Environmental
Sample Storage (prior to shipping): None - shipped immediately
Custody Relinquished by: Brad Pettersone
Date/Time Shipped: 2023-10-05 18:00

Shipping Address:

Nautitus Environmental Guelph. B-11 Nicholas Beaver Road Puslinch, Ontario Canada N0B 2J0

Voice: (519) 763-4412

Fax: (519) 763-4419

Client:	City of Kawartha Lakes 12 Peel Street, P.O. Box 9000 Lindsay, Ontario K9V 5R8	
Phone:	(705) 324-9411	
Fax:		
Contact:	Devonte Levene ext. 1144	

100	53.000-0-0	Sample Identification	Analyses Requested						Sample Method and Volume							
Date Collected	Time Collected (e.g. 14:30, 24 hr clock)	Sample Name	Nairtikis Sample Number	Temp, on	Rainbow Trout Single Concentration	Rainbow Trout LC50	Dephnie megne Single Concentration	Daphnie megne LC50	Faithead Minnow Survival & Growth	Ceriodaphnie dubie Survival & Reproduction	Lemne minor Growth	Pseudokirchneriolle aubcepilale Growth	Other (please specify below)	Grab	Composite	# of Containers and Volume (eg. 2 x 1L, 3 x 10L, etc.)
2023-10-05	14:00	SW-13	79 680	21	1		V					224		*		1 x 20 L
2023-10-03	14.00		F. 1000													
						_						\vdash		\vdash		
					-	-		-		-	-	-	_	-	-	
					_	-	-					-		-		<u> </u>
				1	1	-										
		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						-	1	-		1		\vdash	-	
	-			15.00	-	-	-	-	-	-		-	-	-	-	
				to About		1								L.,		

For Lab Use	Only
Received By:	EF .
Date:	2023-10-06
Time:	12:05
Storage Location:	
Storage Temp.(*C)	

Please list any special requests	or instructions;	label (2)	2023-10-10	
-				
· · · · · · · · · · · · · · · · · · ·		E 1		



APPENDIX F

Borehole Logs

1-90 * I P 50 256.91 9.66 - 8.14 0.46 - 0.0 9.66 - 5.49 3.66 - 0.4 1-90 II S 50 256.96 4.64 - 3.12 0.15 - 0.00 4.64 - 3.66 - 3.66 - 3.66 - 0.2 2-90 * I P 50 256.58 8.77 - 7.25 8.77 - 7.32 1.47 - 0.00 7.32 - 1.47 2-90 II S 50 256.52 4.63 - 3.11 0.59 - 0.0 4.63 - 2.29 2.29 - 0.2 3-90 * I P 50 256.13 6.83 - 5.31 6.96 - 5.61 5.61 - 5.44 5.44 - 3.48 3.48 - 0.2 3-90 * I P 50 256.21 3.79 - 2.27 3.79 - 2.21 0.20 - 0.00 5.44 - 3.48 3.48 - 0.2 4-90 * I P 50 256.29 6.22 - 4.70 6.34 - 5.73 0.76 - 0.00 5.73 - 1.60 1.60 - 0.2 4-90 * I P 50 256.37 3.64 - 2.12 3.76 - 2.06 2.06 - 1.60 1.60 - 0.2 5-90 * I P <td< th=""><th>BOREHOLE NO</th><th>MONITOR NO.</th><th>MONITOR TYPE</th><th>DIAMETER (mm)</th><th>GROUND ELEVATION (m.a.s.l.)</th><th>SCREENED INTERVAL ELEVATION IN. D. G. 1.</th><th>FILTER PACK ELEVATION m.b.g.l.</th><th>SEAL ELEVATION m.b.g.l.</th><th>CAVE-IN ELEVATION m.b.g.l.</th><th>BACKFILL ELEVATION III.b.g.l.</th></td<>	BOREHOLE NO	MONITOR NO.	MONITOR TYPE	DIAMETER (mm)	GROUND ELEVATION (m.a.s.l.)	SCREENED INTERVAL ELEVATION IN. D. G. 1.	FILTER PACK ELEVATION m.b.g.l.	SEAL ELEVATION m.b.g.l.	CAVE-IN ELEVATION m.b.g.l.	BACKFILL ELEVATION III.b.g.l.
1-90	1_90 *	ī	P	50	256.91		m.b.g.r.			
2-90 II S 50 256.52 4.63 - 3.11 0.59 - 0.0 4.63 - 2.29 2.29 - 0.25 2.39 - 0.25 2.39 - 0.25 2.39 - 0.25 2.39 - 0.25 2.39 - 0.25 2.39 - 0.25 2.39 - 0.25 2.39 - 0.25 2.39 - 0.25 2.39 - 0.25 2.39 - 0.25 2.39 - 0.25 2.31 - 2.31 2.31 - 2.31 2.31 - 2.32 2.31 - 2.31 2									ĺ	3.66 - 0.15
3-90 * I P 50 256.13 6.83 - 5.31 6.96 - 5.61 5.61 - 5.44 5.44 - 3.48 3.48 - 0.4 3-90 II S 50 256.21 3.79 - 2.27 3.79 - 2.21 0.20 - 0.00 2.21 - 1.83 1.83 - 0.3 4-90 * I P 50 256.29 6.22 - 4.70 6.34 - 5.73 0.76 - 0.00 5.73 - 1.60 1.60 - 0.3 4-90 II S 50 256.37 3.64 - 2.12 3.76 - 2.06 0.46 - 0.00 2.06 - 1.60 1.60 - 0.3 5-90 * I P 50 256.35 5.93 - 4.41 6.05 - 4.45 0.53 - 0.00 4.45 - 4.04 3.73 - 0.3 5-90 II S 50 256.29 3.95 - 2.43 4.12 - 2.13 0.59 - 0.00 1.60 - 0.3 6-90 * I S 50 261.87 5.96 - 4.44 6.17 - 4.42 0.53 - 0.00 3.05 - 2.06 2.06 - 0.53 - 0.00 4.42 - 4.11 3.00	2-90 *	I	P	50	256.58	8.77 - 7.25	8.77 - 7.32	1.47 - 0.00	7.32 - 1.47	
3-90 * I P 50 256.13 6.83 - 5.31 6.96 - 5.61 5.61 - 5.44 5.44 - 3.48 3.48 - 0.4 3-90 II S 50 256.21 3.79 - 2.27 3.79 - 2.21 2.21 - 1.83 1.83 - 0.4 4-90 * I P 50 256.29 6.22 - 4.70 6.34 - 5.73 0.76 - 0.00 5.73 - 1.60 1.60 - 0.7 4-90 II S 50 256.37 3.64 - 2.12 3.76 - 2.06 2.06 - 1.60 1.60 - 0.7 5-90 * I P 50 256.35 5.93 - 4.41 6.05 - 4.45 4.04 3.73 - 0.4 5-90 II S 50 256.29 3.95 - 2.43 4.12 - 2.13 0.59 - 0.00 2.13 - 1.60 1.60 - 0.5 6-90 * I S 50 261.87 5.96 - 4.44 6.17 - 4.42 0.53 - 0.00 3.05 - 2.06 2.06 - 0.55 6-90 * I S 50 261.87 5.96 - 4.44 6.17 - 4.42 0.53 - 0.00 3.05 - 2.06 2.06 - 0.55 6-90 * I S 50 261.87 5.96 - 4.44 6.17 - 4.42 0.53 - 0.00 3.05 - 2.06 2.06 - 0.55 6-90 * I S 50 261.87 5.96 - 4.44 6.17 - 4.42 0.53 - 0.00 3.05 - 2.06 2.06 - 0.55 6-90 * I S 50 261.87 5.96 - 4.44 6.17 - 4.42 0.53 - 0.00 3.05 - 2.06 2.06 - 0.55 6-90 * I S 50 261.87 5.96 - 4.44 6.17 - 4.42 0.53 - 0.00 3.05 - 2.06 2.06 - 0.55 6-90 * I S 50 261.87 5.96 - 4.44 6.17 - 4.42 0.53 - 0.00 3.05 - 2.06 2.06 - 0.55 6-90 * I S 50 261.87 5.96 - 4.44 6.17 - 4.42 0.53 - 0.00 3.05 - 2.06 2.06 - 0.55 6-90 * I S 50 261.87 5.96 - 4.44 6.17 - 4.42 0.53 - 0.00 3.05 - 2.06 2.06 - 0.55 6-90 * I S 50 261.87 5.96 - 4.44 6.17 - 4.42 0.53 - 0.00 3.05 - 2.06 2.06 - 0.55 6-90 * I S 50 261.87 5.96 - 4.44 6.17 - 4.42 0.53 - 0.00 3.05 - 2.06 2.06 - 0.55 6-90 * I S 50 261.87 5.96 - 4.44 6.17 - 4.42 0.53 - 0.00 3.05 - 2.06 2.06 - 0.55 6-90 * I S 50 261.87 5.96 - 4.44 6.17 - 4.42 0.53 - 0.00 3.05 - 2.06 2.06 - 0.55 6-90 * I S 50 261.87 5.96 - 4.44 6.17 - 4.42 0.55 - 0.00 3.05 - 2.06 3.05 - 0.00 3.05 - 0.0	2-90	11	S	50	256.52	4.63 - 3.11		0.59 - 0.0	4.63 - 2.29	2.29 - 0.59
3-90 II	3-90 *	I	p	50	256.13	6.83 - 5.31	6.96 - 5.61		5.44 - 3.48	3.48 - 0.46
4-90 II S 50 256.37 3.64 - 2.12 3.76 - 2.06 0.46 - 0.00 2.06 - 1.60 1.60 - 0. 5-90 * I P 50 256.35 5.93 - 4.41 6.05 - 4.45 0.53 - 0.00 4.45 - 4.04 3.73 - 0.59 - 0.00 2.13 - 1.60 1.60 - 0.59 - 0.00 2.13 -	3-90	11	S	50	256.21	3.79 - 2.27	3.79 - 2.21	•		1.83 - 0.20
4-90 II S 50 256.37 3.64 - 2.12 3.76 - 2.06 2.06 - 1.60 1.60 - 0. 5-90 * I P 50 256.35 5.93 - 4.41 6.05 - 4.45 0.53 - 0.00 4.45 - 4.04 3.73 - 0.5 5-90 II S 50 256.29 3.95 - 2.43 4.12 - 2.13 0.59 - 0.00 2.13 - 1.60 1.60 - 0.5 6-90 * I S 50 261.87 5.96 - 4.44 6.17 - 4.42 0.53 - 0.00 3.05 - 2.06 4.42 - 4.11 4.11 - 3.0	4-90 *	1	P	50	256.29	6.22 - 4.70	6.34 - 5.73	0.76 - 0.00	5.73 - 1.60	1.60 - 0.76
5-90 * I P 50 256.35 5.93 - 4.41 6.05 - 4.45 4.04 - 3.73 4.45 - 4.04 3.73 - 0.55 5-90 II S 50 256.29 3.95 - 2.43 4.12 - 2.13 0.59 - 0.00 2.13 - 1.60 1.60 - 0.55 6-90 * I S 50 261.87 5.96 - 4.44 6.17 - 4.42 0.53 - 0.00 3.05 - 2.06 4.42 - 4.11 4.11 - 3.00 1.10 1.10 1.10 1.10 1.10 1.10 1.10	4-90	II	S	50	256.37	3.64 - 2.12	3.76 - 2.06			1.60 - 0.4
5-90 II S 50 256.29 3.95 - 2.43 4.12 - 2.13 2.13 - 1.60 1.60 - 0.50 1.60 1.60 - 0.50 1.60 1.60 - 0.50 1.60 - 0.50 1.60 1.60 - 0.50 1.60 1.60 - 0.50 1.60 1.60 - 0.50 1.60 1.60 - 0.50 1.60 1.60 - 0.50 1.60 1.60 1.60 1.60 1.60 1.60 1.60 1.6	5-90 *	1	P	50	256.35	5.93 - 4.41	6.05 - 4.45		4.45 - 4.04	3.73 - 0.53
6-90 * I S 50 261.87 5.96 - 4.44 6.17 - 4.42 4.11 4.11 - 3.0	5-90	11	S	50	256.29	3.95 - 2.43	4.12 - 2.13			1.60 - 0.59
7-90 * I S 50 265.76 7.57 - 6.05 7.57 - 5.31 0.56 - 0.00 5.31 - 4.93 4.93 - 0.5	6-90 *	I	S	50	261.87	5.96 - 4.44	6.17 - 4.42	0.53 - 0.00		$\begin{vmatrix} 2.06 & 0.53 \\ 4.11 & 3.05 \end{vmatrix}$
	7-90 *	1	S	50	265.76	1.57 - 6.05	7.57 - 5.31	0.56 - 0.00	5.31 - 4.93	4.93 - 0.56

P Piezometer S - Standpipe

m.b.g.l. - Metres Below Grade Level m.a.s.l. - Metres Above Sea Level " ins' "ed' lage 'time' 'mit'

JAGGER HIMS LIMITED CONSULTING ENGINEERS

BOREHOLE NO. 1-90

PROJECT NAME LINDSAY LANDFILL SITE	PROJECT NO. 901	79.00
CLIENT HYDROTERRA LIMITED	DATE April 23 to Apri	il 24, 19
BOREHOLE TYPE 83 mm I.D. Hollow Stem Augers and 114 mm Standard Auger	FIELD SUPERVISOR	FB
GROUND ELEVATION Monitor I - 256.91 m.a.s.l. Monitor II - 256.96 m.a.s.l.	ENGINEER	AGH

		,	,							•			~	
ŀ		81	l				AMPL	E		CONE PENETRATION				
DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY		NITOR TAILS	TYPE	'N' VALUE	% WATER	% RECOVERY	RQD (%)	SPT 'N' VALUE 10 20 130 SHEAR STRENGTH	WATER CONTENT %			ARKS
0.1	BLACK SILTY TOPSOIL			Ż									Monitor	II is
\vdash	SILT TILL S 'Mottled brown with grey streaks silt till with some e				-CC)	10	7.4				i		installe separate	
	sand, trace clay, some root fibres at the top;				SSI	10	14				İ		_	
	becoming dark yellowish brown, some gravel at 1										İ			
	± 1.4 m, moist to wet; compact becoming loose		'		SS2	15	12						Mixture o	
	at ±1.5 m		:]			native ma	teria
Н												Y	were adde borehole	
2 ± 2.1	'			· •	SS3	9	9			$\{ \ I \ \ \} $	11		backfill	mate:
2.1					333	71	- 1			\				
	SANDY SILT TILL		:							\				
	Dark yellowish brown with rusty stains fine sandy									$ \cdot \cdot $				
3	slit till with trace to some gravel trace clay, a grey				SS4	26	10				'	$N \sqcup I$		
H	slit layer at ± 2.9 to 3.3 m, less gravel below ± 3.3											V		
П	m, encountering occasional sand and sift seams <1 mm thick, and laminated at ±4.6m, boulder											N		
	at ±5.3m, wet, becoming wet to saturated at 3.1			<u> </u>	SS5	21	20					}		
H	m; compact becoming dense at ±3.8m.		X	1						\				
4	,		N	********										
 			M		SS6	381	9					Y i l		
			M		350	701	-1				\			
			N							/		\		
3			N		SS7	31	12					7		
<u> </u>	·		N									<i> </i> -		
±5.6			\overline{D}	}			+							
	SILTY SAND TILL			Ì										
6	Grey slity fine sand till some gravel, and trace													
	clay; moist to wet; very dense. Increase gravel			}										
H	content at depth.				CCO	100	7				-1/1			
H				ł	330	for				100/150 -			Grain Siz	<u>ze</u> 289
7				Ì		150	mm		_				Sand	34%
													Silt Clay	29 g
				1										
				}							- [] [
8				ł		-								
				Ì	SS9		7			110/100			Grain Siz	
			‡			for				mm.			Gravel Sand	15% 40%
\vdash			• • • • • • • • • • • • • • • • • • • •	,		100	un						Sand Silt Clay	15% 40% 32% 13%
9			‡	}									JJ	
			‡	ł			\dashv							
]	ŀ										
±9.8m			Ŧ	į	S10	52	7			52/150mm			Grain Size	495
10	Borehole terminated at ±9.8 m at auger refusal		•	}		for	nen	_	\Box		•		Gravel Sand Silt Clay	- 495 195
<u> </u>	Personal recommend of EA'S III at suger terusal		<u> </u>	l	1								CIAY	-9 1

JAGGER FILM CONSULTING ENGIN	NEERS DUNCHULE NO2-70	and the second second
PROJECT NAME	LINDSAY LANDFILL SITE	PROJECT NO. 90179.00
CLIENT	HYDROTERRA LIMITED	DATE April 24 and May 23, 19
BOREHOLE TYPE	83 ^{mm} and 108 ^{mm} I.D. HOLLOW STEM AUGERS	FIELD SUPERVISOR _FF
GROUND ELEVATION	Monitor I - 256.58 m.a.s.l. Monitor II - 256.52 m.a.s.	LENGINEER AGH

		T	T			s	AMPL	E		CONE			
		STRATIGRAPHY						*		PENETRATION		VATER	
DEPTH	STRATIGRAPHIC DESCRIPTION	1 a		ITOR	4	.N. VALUE	\$		RQD	SPT		NTENT 4	REMARKS
(m)		PAR	DET	AILS	ТҮРЕ	À	WATER	RECOVERY	€	10, 30, 30	5 1	19 15	_
İ		¥	ı	п		Æ	25	ERY	٣	SHEAR STRENGTH	¥.	WL	
±0.2	BLACK SILTY TOPSOIL		ĹΥ	Ī	1					111	T	11	Monitor II is
	SILT - Dark brown trace gravel and day; some		M										installed in a
±0.6	organic fibres, fine sand seam < 1mm thick, wet		\mathcal{N}	4	SS1	10	17						separate bore
	to saturated, loose.	Λ								1 1 1		- \	
1 ±1.0	Clayey Silt trace fine sand seam < 1mm thick,	 —	\mathcal{U}		SS2	17	19			1 1 1			Mixture of 3M
\vdash	mottled grey, rusty stains,laminated.	l	N		752		13			1 1		1 1	silica sand a
\vdash		J	K							1 \			mative materi.
±1.8	SILTY SAND Dark yellowish brown silty fine sand, trace fine] []		1 1	borehole as
2	gravel, medium to coarse sand layer at ±1.4 to	Γ] [:]		SS3	28	14			1 /		1	backfill mate
	= 1.8m, wet to saturated becoming saturated at	1	1 .							4 \		\	Sample 3 Gravel 31%
Н	±1.5m; compact.				-	-				1 1		1	Sand 48%
\vdash	SILTY SAND TILL				SS4	32	17			1			Silt 18%
3	Dark yellowish brown becoming grey at ±2.7m,				234	22	1			1 1			<u>Cl</u> ay 3%
H	sitty fine sand till some gravel, fine to coarse sand	1								1 /			
	with black specks, and layers of silt with trace of	1	$ \cdot $	‡]			
	sand and fine gravel at ±2.9m to ±3.7m, moist	1		11	SS5	20	17						
	to wet, changing to saturated at ±2.9m,		$ \cdot $	ΙŦ		ļ	<u> </u>] `.	1		
4	becoming moist to wet at ±3.8m; dense to		:	1	:	┼	-			-		<i>Y</i>	
	compact becoming very dense at ±3.8m.				SS6	83	7			83			
H		1		17	: 550	105	 				1 /	/	
 				۰	 	1	1	i		1			
5					SS7	50	4			50/150	. (
						for							1
		}			-	150	m	 		4 1			
		1			-	 	 	l İ	_	-	11		
6					1	\dagger		 	-				
H												$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	
\Box													1
					SS8			 		87/150	!	}	
<u> </u>					-	fo	ri Cirim	ļ		- 10/130		III	
7			1			1 150	1	-	\vdash	-			
Н						+	 	1		1			
H			I								11		
			‡ :]			
8			1					_	<u> </u>	911	H		
			1		SS9	67	1 2	-mm		67/150	 		1
H			‡ :		-	to	r 15	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ 	+-	-	\		
-					SSI	d 52	6	+	+-	- 52 -		$\setminus \setminus$	
9 ±9.0			•		221	7-2	+ -	+	-	- 1	1		
-		+	+	J		1	1		Ĺ				
	Borehole terminated at ±9.0 m at auger refusal on assumed bedrock.	1											``
	on assured bedrock.								-	4 .			
Ш					<u> </u>		+-	+	┼	4 i			
1 1	[1	1		- (1	1	1	1 !!!		11	1

JAGGER HIMS LIMITED CONSULTING ENGINEERS
CONSULTING ENGINEERS

BOREHOLE NO. 5-90

PROJECT NAME	LINDSAY LANDFILL SITE	PROJECT NO. 90179.00
CLIENT		DATE May 24, 1990
BOREHOLE TYPE	108 T.D. HOLLOW STEM AUGERS	FIELD SUPERVISOR FB
	Monitor I - 256.35 m.a.s.l. ★ mitor II - 256.29 m.a.s.l.	ENGINEER AGH

		S		SAMPLE					CONE		
DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	TYPE	.N. AVLUE	% WATER	% RECOVERY	ROD (%)	SPT 10", 20", 30 SHEAR STRENGTH	CONTENT %	REMARKS
±0.4 1 ±1.2 2	BLACK SILTY TOPSOIL CLAYEY SILT Black and dark brown becoming mortied brown at ±0.8 m, rusty stains, clayey silt and silty topsoit at top, clayey silt trace gravet and fine sand, taminated saturated; toose. SILTY GRAVELLY SAND TILL Mortied dark yellowish brown and grey, becoming dark yellowish brown with rusty marks at ±2.3 m, changing to grey at ±3.1 m, sity gravelly sand till, having variable gravet below ±1.4 m, wet, becoming moist-wet at ±1.5 m, compact to dense, becoming very dense at ±2.3 m. Borehole terminated at ±6.1 m at auger refusal on assumed bedrock.			\$\$3 \$\$4 \$\$5 \$\$5		8 6 7			98 → 50/76 Tam 50/76 Tam 55/152 Tam		Monitor II is installed in a separate bore! Mixture of 3M silica sand an native materia were added to borehole as backfill mater. GRAIN SIZE Gravel 34% Sand 34% Silt 23% Clay 9% GRAIN SIZE Gravel 31% Sand 34% Silt 26% Clay 9% GRAIN SIZE Gravel 36% GRAIN SIZE Gravel 36% Silt 23% Clay 9% GRAIN SIZE Gravel 53% Sand 20% Silt 18% Clay 9%

	TIMEAN ISHMETIL COM										
	NAME LINDSAY LANDFILL SITE	<u>:</u>							_ PROJ	ECT NO.	90179.00
LIENT _	HYDROTERRA LIMITED		- <u>.</u>						DATE	May 24	. 1990
OREHOL	E TYPE 108mm I.D. HOLLOW SUFE	n Aus	ms .						FIELD	SUPERV	ISOR F
ROUND	ELEVATION261.87 m .a.s.l.						,			NEER AG	
	y										
		STI		<u> </u>	S	AMPL	E		CONE PENETRATION		
DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS		ž	\$	\$ 3	70	SPT	CONTENT % REMARKS	
		₹	DETAILS	¥ PE	٧	I A W	ECO)	ROD ('N' VALUE		REMARKS
		АРНҮ	DETAILS	TYPE	VALUE	% WATER	₩ RECOVERY	10D (¥)	'N' VALUE	WP WL	
±0.9	FILL: Earth fills mixed with trace to some refuse.	AHAVE	DETAILS	YPE	VALUE	WATER	ECOVERY	Q (₹)	'N' VALUE		

SS1 17 5

:

2

5

6

±5.6^m

±6.6^m

SILTY SAND TILL Dark yellowish brown, silty

Borehole terminated at ±6.6^m in silty sand till.

fine sand till, moist;

compact.

	GGER HIMS LIMITED NSULTING ENGINEERS		TEHOL	_ '							
PROJECT	NAMELINDSAY LANDFILL SIT	ΓE		 -				_ PROJI	ECT	NO.	90179.00
CLIENT _	HYDROTERRA LIMITED		····								
BOREHOL	E TYPE 108mm I.D. HOLLOW S.	rem A	AUGERS					_ FIELD	su	PERV	ISOR FB
GROUND	ELEVATION265.76m.a.s.l.							_ ENGIN	IEEF	AGI	1
		· ·			s	AMPLE		CONE			
DEPTH	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR		ż	\$	\$ D D			ATER	
(m)	STRATIGRAP THE DESCRIPTION	GRAP	DETAILS	TYPE	.N. AVTUE	WATER	ROD (%)	'N' VALUE	ļ <u>i</u>		REMARKS
		1			Æ	35	RY S	SHEAR STRENGTH	w	Wı	
\vdash	FILL Farth fills mixed with some			}							Mixture of 3M silica sand a
	black asbestos at ±0.9 ^m .		7777					- ·			native materi were added to
1											borehole as backfill mate
							-				DackIllI mate
	•										
2 ±2.1 ^m											
==2.1	REFUSE		: ::	-				- ∶ .			
	Mixed and variable garbage.										
3								-			
								7			
4								-			
5				SSI		-	-	-			
6											
			‡		<u> </u>						
			. #	SSZ	<u> </u>	-					
7	2 = 11		 								
±7.1	258,66	+	######################################								
	SILTY SAND TILL Dark yellowish brown with a gre	en.			<u> </u>						
8	hue, silty fine sand till, grav wet; compact.	er 1y	A								
±8.1	Daniel Carrier Carrier			SS	29	5		-			
	Borehole terminated at ±8.1 ^m in silty sand till.			-	-		_	- !			
					ļ			7			
9											
								\mathbf{H}			
i				1	ĺ	! i	-		1 !		

Supit of Bistoct	S CHECK E COM		** *******			• •••	
Victoria		Ops Twp.	(Ho	le#1)	con. 6	SAIL COMPLETED	26
		APONE SA	Lindsay,	Ontario		11 07	90
Town of Lin	dsay			:	•		
		OG OF OVERBURDEN A		MATERIALS		01.01	1661
CEMERAL COLOUR	9061 COMMON MATERIAL	OTHER MAILE	AL>	 	GENERAL DESCRIPTION	/004	10
Brown C	lav	silt, fine grave	1, stones	10000	, soft		17
	lay	milt. fine grave	1, stones	 	eoft		29
<u> </u>	inestone			hard		291	39
							ļ
							ļ
							
							
							
							<u> </u>
							<u> </u>
							
							1
		<u> </u>					
WATER	RECORD	CASING & OF	EN HOLE REC	ORD	Z HATEBALL AND TOPE	9-6-91 14-5	
'AI CALL			DA11 U(P)	1 " 11	O l	00 00 10 10 100 00 100 100 100 100 100	<u>'</u>
- ×:	ten Dautenut Let Daudents	Mareer Oannamee			<u> </u>		****
د نگانس اگر ۱۹ ۱۵	Charles	1 Denococys	188 + 1	291		G & SEALING REC	
	ten Deptembe	Dates:			tout tu	MATCHIAL AND 17PL 1600	4 84 6 8 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9
. u .		Operation		<u> </u>	0 20 F	enseal & Hud	Slurry
		Osteti Descrite Descrite	į.				
. 0 %	T 0	Desta ment Desastric	<u> </u>				
-	P98710L 84		11		LOCATION	OF WELL	
7	9411. [4		30		RAM BLLOW SHOW BISTANC	ES OF WELL FROM ROAD	N
LEVEL	700710s WATER	ti sa montis as montis					. 1
1/9 -/ A -/ -/	1.28. 18.5	4.10.50 20.14	20.34		Post Sil		<u>.</u>
Z if Atomias	7427 10144	27 V	D (1000)		1,111	:\s:""	
S SICOSPINALO PUOP I	i suas		1	l	W. A.	} í	6/5
D salicon	BLLP 1471104	37			10 -1	اندن يستسب	6 ch
FINAL	C watte turrer	D ASSESSMENT (854) (1 2	. :	
STATUS	0 1621 MOLE	D wattersa40	wat.iti		ا حدد ا	•.	
OF WELL	D BOMESTIC	Counte(iat			!	- 000	
WATER	D 110C4	be municipal		ازر		Dirit NA .	\dashv
USE		Cooline on air combit	nste	Incer mi	1	\$ 34	
	M Cant Ion	Ω •ω•ι•-	F		ب	.", *	
METHOD OF	0 001AB1 181VL	166: 1611:106				´ 8'	7092
CONSTRUCTION	D ale PERCHESIO	D B166196	0 01-10	******	s		
	11846144	71C1 = 0	CONTRACTOR 0	>		Borehole	8-90
5 G. Hart	3 Cons Well	Drilling Ltd2	662	סאול		1 231 611016	
Max 850	Rahafil, Fer	olon Falls, Ontar	11	3S			
W Gree int		Lice					
O SERVINGE OF TO	COMICIAN/EDNTRACTO	2 1000000-05 0016		OFFICE	•		

	1 COCCE S COMM	(awater)	-	-	-	(8-90)	C# 01.0	KE TOAK! SWOTE	* 616	1.0	
Victoria		Ops	Twp., Li	ndsey L	andfi	110-707	Con	6	DATE COMPLET		26
			400.64	Lindsa	w. Or	stario			18	. 🛶 👥	93
foun of L	indsay										
			ERBURDEN	AND RED	ROCK	MATERIALS	5 1566 1061	BUCTIONS			
	LC	G OF OV	EKBUKOEN			1		e csceip1104	——————————————————————————————————————	geria -	10
CRAL COLOUR	CER 800 841681M					100		87002)			
		*Previ	ously dri	lled 3	IL	LBCC K	COX W_F	0/472/		39	60
ray	Limestone			 							
		 									
		ļ									
						1					
		ļ									
		 									
		_				+				<u></u>	
		ļ									
	ATER RECORD		CASING &	OPEN HO	LE RE	CORD	Z 10001 0	of ortains.	p-48611	.	.45610
SEE FOUND	SIGN MECOND	===	24140144	0011 Ind 00114	1000	10	SC ******	AL ASS 17PL		MANUEL IN THE	
	D Factor Compress		Ostesi	-			ă _				- 'u'
	O reese Describes		Descritte Descrit Bores note Details		39	60			NG & SEAL		DRD
	D sauty Dess		Deves	1			1804	10		1174 444	
	D sent Dest		Deservers Deservers Deservers								
	D serie Dest		Detter Designation					1			
	D mosse Destant]	Deces set		<u> </u>		<u> </u>				
Page 1631				20	\neg [OF WEL		
STATISE		11 to 1		# Pumping		IN BU	AGRAM BELO	W SHOW DISTA	HCES OF WELL V ARROW		AMD
LEVEL	11 0001		41 0.00		- 11			_		Ŋ	
4.10	25.30 24.8	26	46 <u>28</u>	90. 25	64		1			, it	1
E STORMAN		39.70	0 44	D CL	awer		:	SO	77.4	i	
2		-01.0	second or	••				4.70	~		nr
0	LOW DOLLY SETTING						·				6
FINAL	□ wates sum.		D 444900449 FE		*****				T.	ı	
STATU OF WE	S 8 1131 mar.1		D pariaisats		1			10-0°	1	1	
OF WE	O sentitic	D 6			\neg				,	i	
WATE	I =		IMBICIPAL IMBLIC BUPFLY IMBLIMS MO AIR CI								\dashv
USE	B etuta	۔ ن سیت مین									برا
METHO	D CASA 100A		() eeste			*Packer	test (n 4" hol	e then		101.10
OF	D 901001 1041	1011	D 4111	• 6	1	• Steel	ia bo	at 60	ft.	11	708
CORSTRO	D am rescon		D e-ee-			-	PAT	be a old	DFODE.		
1 1	WELL CONTINCTON	D-4334	į.	2662	-10	ONLY					
S G. H	rt & Sons Well				\neg	اسا			•		
157											
Box Box Char	850, R.R.#1, Fer	nelon F	alls, On	ATIO		FICE US		Bo	rehole	8-90	

OWNER'S COPY

FORM NO. 0505 (11/80; FORM 8

ntario	rironment	IK SPACES PROVINCS			WELL R		
UETT OR BISTRICT	-	COWNSHIP BOROUGH CITY			COM BLUCK INACT SURVEY SIC	i.	01
Victoria	4571	Ops Twp.	(Hole#2)		Con. 6	+ COMPLETED	2ó
lown of L			Lindsay.	mterio		. 12 Jul	, , 9
		LOG OF OVERBURDEN	AND BEDROCK N	ATERIALS	ISEE INSTRUCTIONS		
MERAL COLOUR	MOST COMMON MATERIAL	OTHER MAT	ERIALS		GENERAL DESCRIPTION	Dt 71=	f (() 10
irown	Clay	Silt, Stones,	Boulders	loose		0	18
iray	Clay	Silt, fine gra	vel, stones	loose		18	22
ray	Limestone	Clay		soft		22	29
iray	Limestone			hard		29	32

]	
	TER RECORD		PEN HOLE RECO	RD Z	51/11 21 01 001 001 01 00 0		4610
1 - 1661 1 - 1661	A180 OF BATES	HATER MATERIAL	10 (01) 10 W	,0	WATERIAL AND TYPE	Stein to the	
27 0	FALTY OSULPHUS DAIST OGAS	Deres.			5 !		1111
0	7025- 05412-044	Oconcerte Dopen Hote Optastic	.188 + 1	23	PLUGGING & S	SEALING RECOF	RD.
—	***** <u>O</u> sucenum	Deres			1 N 1 M 1 M 1 M 1 M 1 M 1 M 1 M 1 M 1 M	AL AND ITPE STAR PACE	LAURI LA A I L
	BALTY DANAESALS	Denette Dopen House					
	SALEY DEALS	- Oster			J 20 Dense	- AL OF 1710 1	urry
	POESH CHIPPINS CHIPPINS SALTY DEAS	Déalvanizes Desoucate Dopen mole Oplastic	f l	-			
Pumping 1151 mt1					LOCATION OF W	/ELL	
Q rumr	O SAILER		30	D. B.4.			
STATIC LEVEL	PURPIEL		U#F-RL ELG-LB1	IN DIAGRA	M BELOW SHOW DISTANCES OF VINDICATE HORTH BY ARROW	WELL FROM ROAD AN	°N
	15 0:0016:	5 10 minuits 45 minuits					1

	OCSM DEUTPHUS DOPEN HOLE O	0 20 Benseal & Mud Slurry
- STATIC CO	D SAILER 1 CPS 2	IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND NOTICE.
FINAL STATUS OF WELL WATER USE	WATER SUPPLY ABPRIGURED INJUSTICE ABRINGATION WILL ABANDONED PROFIT ABRINGATION POOR OF COMMENCIAL STOCK OF WATER SINCE OF WAT	Onine Cortes
METHOD OF CONSTRUCTION		B7093
Box 850	& Sons Well Drilling Ltd. 26 R P #1. Fenelon Falls, Ontar ICHELICAL MARCIAN/CONTRACTOR SUBMISSION BALL MARCIAN/CONTRACTOR SUBMISSION BALL	1 1 1

OWNER'S COPY

FORM NO 0506 (11 - 86) FORM \$

JAGGER HIMS LIMITED CONSULTING ENGINEERS
CONSULTING ENGINEERS

BOREHOLE NO. 12-91

PROJECT NAME _	LINDSAY LANDFILL SITE	PROJECT NO. 90179.01
CLIENT	HYDROTERRA LIMITED	DATE MAY 21 to 22, 1991
BOREHOLE TYPE _	108 mm I.D. HOLLOW STEM AUGERS	FIELD SUPERVISORFMB
GROUND ELEVATION	ON262.42 m a.s.1.	ENGINEERAGH

DEPTH (m) STRATIGRAPHIC DESCRIPTION TO BE A STREAM SILTY TOPSOIL SILTY SAND TILL Hottled dark yellowish brown and grey, silty sand with some fine gravel and roots to 2.0.6 m. Becoming silty sand till with some sine clay, rusty stains, roots at top W.T.P.L. matrix from \$1.5\$ to \$2.2.7 m. Loose, becoming compact at 10.8 m, changing to dense below \$2.3 m. SILTY GRAVELLY SAND TILL Yellowish brown, silty gravelly sand till, trace clay, rusty stains, boulder at \$2.1 m. Saturated. Very dense. SILTY SAND TILL TO GRAVELLY SAND TILL TO GRAVELLY SAND TILL Light yellowish brown, becoming grey at \$4.6 m, silty sand till to silt till with trace of clay and gravel, rusty stains to 2.4.3 m. Scomes gravelly sand till with some silt and trace of clay at \$2.5 0 m, silty sand till with some silt and trace of clay at \$2.5 0 m, silty sand till with some gravel SSB 56 6 5 56 55 11 mm SSB 66 1 56/152 mm FEMERARIAN WATER WATER OCNTENT WATER OCNTENT WATER ON TO SET TILL FOR THE STATE OC CONTENT WATER OCNTENT WATER OCH TENT WATER OCNTENT WATER OCNTENT WATER OCNTENT WATER OCNTENT WATER OCNTENT WATER OCNTENT WATER OCNTENT WATER OCNTENT WATER OCHANGE OF STATEMENT WATER OCNTENT WATER OCNTENT WATER OCNTENT WATER OCNTENT WATER OCNTENT WATER OCCURRENT WATER OC			Т		1				1	1		
20.3 DARK BROWN SILTY TOPSOIL SILTY SAND TILL Monitor II is stalled in a arate borehol a gravel and roots to 20.6 m. Becoming silty sand till with some gravel and trace to some clay, rusty stains, roots at top. W.T.P.L. matrix from ±1.5 to ± 2.7 m. Loose, becoming compact at ±0.8 m, changing to dense below ±2.3 m. SILTY GRAVELLY SAND TILL Yellowish brown, silty gravelly sand till, trace clay, rusty stains, boulder at ±3.1 m. Saturated. Very dense. SILTY SAND TILL TO SILT TILL TO GRAVELLY SAND TILL Light yellowish brown, becoming grey at ±4.6 m, silty sand till to silt till with trace of clay and gravel, rusty stains to ±4.3 m. Becomes gravelly sand till with some silt and trace of clay at 15.0 m, silty sand till with some gravelly sand till with some silt and trace of clay at 15.0 m, silty sand till with some gravel sand till with some gravel of clay at 55.0 m, silty sand till with some gravel sand sand sand till with some gravel sand sand sand sand sand sand sand sand		STRATIGRAPHIC DESCRIPTION	STRATIGRAPH		TYPE	ž 3	*	RQD (%)	SPT 'N' VALUE	CONT	ENT %	REMARKS
bottom. ±12 cm thick lense of fine to medium sand, trace silt and gravel fragments at ±5.8 m. Wet to moist at ±5.3 m, changin to saturated at ±6.1 m. Very dense. Borehole terminated at ±6.2 m at auger refusal on assumed bedrock. SS9 80 9 80/152 mm Sol/76 mm Sol/76 mm	±3.0	DARK BROWN SILTY TOPSOIL SILTY SAND TILL Mottled dark yellowish brown and grey, silty sand with some fine gravel and roots to ±0.6 m. Becoming silty sand till with some gravel and trace to some clay, rusty stains, roots at top W.T.P.L. matrix from ±1.5 to ±2.7 m. Loose, becoming compact at ±0.8 m, changing to dense below ±2.3 m. SILTY GRAVELLY SAND TILL Yellowish brown, silty gravelly sand till, trace clay, rusty stains, boulder at ±3.1 m. Saturated. Very dense. SILTY SAND TILL TO SILT TILL TO GRAVELLY SAND TILL Light yellowish brown, becoming grey at ±4.6 m, silty sand till to silt till with trace of clay and gravel, rusty stains to ±4.3 m. Becomes gravelly sand till with some silt and trace of clay at ±5.0 m, silty sand till with some gravel fragments and trace of clay at bottom. ±12 cm thick lense of fine to medium sand, trace silt and gravel fragments at ±5.8 m. Wet to moist at ±5.3 m, changin to saturated at ±6.1 m. Very dense. Borehole terminated at ±6.2 m at auger refusal on assumed		DETAILS	SS1 1 SS2 1 SS3 2 SS4 4 SS5 7 SS6 6 fc SS7 7 fc SS8 5 SS8 5 SS9 8 SS9 8 SS9 8	0 18 6 11 1 10 4 8 7 7 7 5 11 or 152 6 6 6 7 152 6 7 152 6 7 152 6 7 152	RECOVERY	5	SPT 'N' VALUE 1012D RO SMEAR STRENGTH 44 77 5/152 mm 6/152 mm 0/152 mm	S 1	ENT % ρ ኒ5	Monitor II is stalled in a arate borehol a gas monitor Bridging of scause difficular the instal of Monitor I. - bouldery dr - bouldery dr - bouldery dr - bouldery dr SS8 Grain Siz Gravel 34% Sand 37% Silt 20%

JAGGER HIMS LIMITED CONSULTING ENGINEERS

BOREHOLE NO. 1391

PROJECT NAME _ LINDSAY LANDFILL SITE	PROJECT NO. 90179.01
CLIENT HYDROTERRA LIMITED	
BOREHOLE TYPE 108 mm I.D. HOLLOW STEM AUGERS	FIELD SUPERVISOR
GROUND ELEVATION 261.27 m a.s.1.	ENGINEERACH

	·	G			T	:	SAMPL	.E		CONE		
DEPTH (m)	STRATIGRAPHIC DESCRIPTION	TRATIGRAPHY	MONIT DETA	ILS	TYPE	W. VALUE	% WATER	% RECOVERY	ROD (%)	PENETRATION SPT 'N' VALUE 10, 20, 30 SHEAR	WATER CONTENT %	REMARKS
±0.4	BLACK TO BROWN SILTY TOPSOIL		1/1/	M	1					SIRENGIA		
±1.5 2 4.6 ±5.3 ±11.2 ±12.0	BLACK TO BROWN SILTY TOPSOIL SILTY SAND TILL Dark mottled yellowish brown, silty sand till, some gravel, trace clay. Moist to wet. Compact SILTY SAND TILL TO SILTY GRAVELLY SAND TILL Yellowish brown, becoming grey at ±4.6 m, silty gravelly sand till to ±2.2 m. Becoming silty sand till, trace clay, variable gravel content, rusty stains, changing to silty gravelly sand till at ±3.6 m. Becomes silty sand till with fine sand lense ±2.5 cm thick at bottom, boulder at ±5.2 m. Wet becoming saturated at ±3.1 m. Very dense SANDY SILT TILL TO SILTY SAND TIL Grey, fine sandy silt till, some gravel trace clay, becoming silty fine sand till some gravel with a sand lense ±1 cm thick at ±6.6 m, trace to some gravel and trace clay at ±8.4 m. Becoming silty sand till, some gravel, trace clay at ±8.9 m, silty sand to sandy silt till, trace gravel and clay at bottom, fine to medium sand lense with black specks, trace silt becoming siltier with depth from ±8.5 to ±8.9 m. Moist to wet, becoming saturated at ±8.4 m. Very dense. GRAVELLY SAND TILL Grey gravelly sand till. Very dense. Borehole terminated at ±12.0 m at auger refusal on assumed	L			\$\$51 \$\$52 \$\$53 \$\$55 \$\$55 \$\$55 \$\$55 \$\$55 \$\$510 \$\$512 \$\$512 \$\$512 \$\$512 \$\$512 \$\$512	16 66 80 67 50 60 60 60 60 60 60 60 60 60 6	8 11 152 6 6 76 mm 9 11 152 m 176 mm 9 125 mm		7 6 8 8	5MEAR STRENGTH 60 66 0/152 mm 5/152 mm 5/152 mm 5/152 mm 5/152 mm 50/76 mm 50/76 mm 50/76 mm 50/76 mm 50/76 mm 50/76 mm		Monitor II is installed in a separate borehole. - bouldery drill. Monitor I has a gas monitor installed. - bouldery drill: SS7 Grain Size Gravel 47% Sand 33% Silt 20% -difficult li
	pedrock.		·									

IENT _								,	DATE			<u>90179_01</u> to 24, 1991
	E TYPE 108 mm I.D. HOLLOW STEP ELEVATION 258.56 m a.s.1.	AU.										AGH FMB
		s			s	AMPL	E		CONE PENETRATION			
DEPTH (m)	STRATIGRAPHIC DESCRIPTION	TRATIGRAPHY	MONITOR DETAILS	TYPE	.N. AVLUE	% WATER	N RECOVERY	ROD (%)	SPT 'N' VALUE 10:20:30 SMEAR STRENGTH	CON	ATER TENT %	REMARKS
±0.6	FILL: Yellowish brown silty fine sand to fine sand, some silt, trace clay, gravel and roots. MOIST. Very dense. DARK MOTTLED BROWN CLAYEY SILT TOPSOIL			SSI	55 for	6 152	mm	55.	/152 mm			Monitor I has gas monitor 1 led. Heaving sands difficulties
	SILTY SAND TILL TO SAND TILL Mottled yellowish brown and grey, fine sandy silt, with grey silt lenses <1 mm thick to ±1.4m Becoming silty fine sand till to				41			50	41			the installat Monitors I an
	fine sand till with some silt and gravel, occasional rusty stains. Moist becoming wet at ±2.3 m. Dense to very dense.				or	1 mm						- boundery dr
				555	50 for			50)/76 mm -			- bouldery dr

SS6 60 6

SS8 70 7

SS9 | 75

SS10 75

SS11 95

SS12 60 5

for 152 mm SS7 75 11

for | 152 mm

for | 152 mm

for 152 mm

7

for | 152 mm

7

for 152 mm

for 152 mm SS18 50 16

For 25 mm

Grey sandy silt till to silt

till, trace to some sand and

gravel at ±4.5 m, occasional fine sand lenses at ±1 cm thick-

SILTY SAND TILL TO SAND TILL

Grey silty sand till with some clay and gravel, occasional fine sand lenses ±1 cm thick to

±6.6 m. Becoming silty sand to

sandy silt till with some gravel

changing to silty sand till with

some gravel to gravelly at ±7.3m

Becomes sand till with some silt and gravel at ±8.1 m, silty fine sand and gravel fragments at bottom. Moist becoming saturated

Borehole terminated at ±9.1 m

at auger refusal on assumed

bedrock.

at ±9.1 m. Very dense.

±5.0 trace to some sand and some

Wet. Very dense.

gravel. Becomes silt till with

60 152 mm

75/152 mm

70/152 mm

75/152 mm

75 152 mm

95/152 mm

60 152 mm

<u>50</u>/25 mm

SS8 Grain Siz

-bouldery dri

for remainde

Gravel

Sand

Silt

Clay

hole.

19

37

32

Date Drilled: Dec. 10, 2007

Rig: CME 55N

Contractor: Aardvark Drilling Inc.

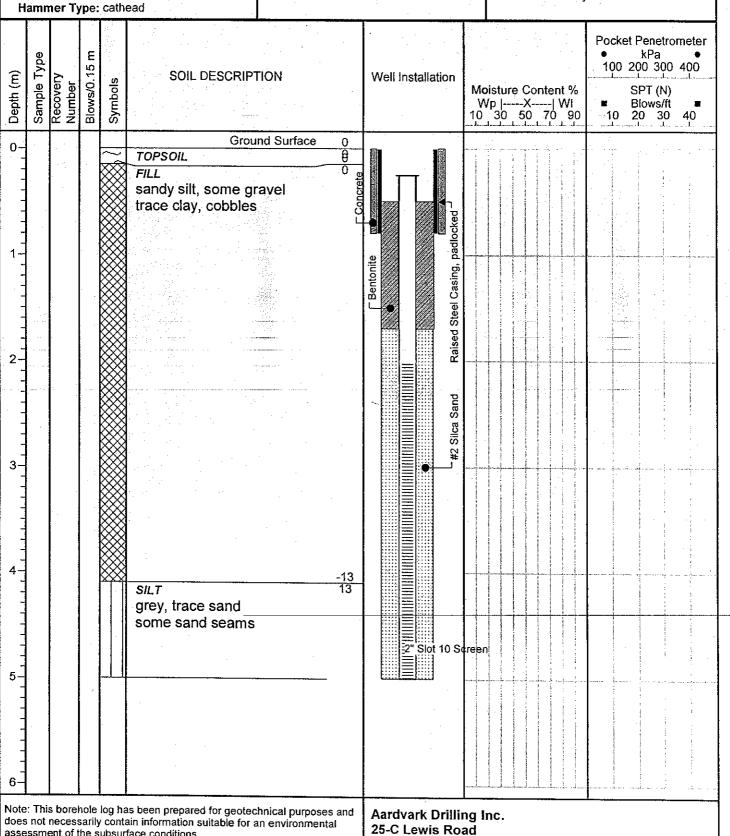
assessment of the subsurface conditions.

Location: Lindsay/Ops Landfill

Elevation:

Co-ord: 683575 E, 4806619 N

Project No. 07-0384-00 Project: Kawartha Lakes Client: City fo Kawartha Lakes



Guelph, Ontario

PROJECT NAME _	LINDSAY LANDFILL SITE	PROJECT NO. 90179.01
CLIENT	HYDROTERRA LIMITED	DATE MAY 27, 1991
BOREHOLE TYPE _	108 mm I.D. HOLLOW STEM AUGERS	FIELD SUPERVISOR _ FMB_
GROUND ELEVATION	N	ENGINEER AGH

CONSULTING ENGINEERS

		STRATIGRAPHY				S	AMPL	E.		CONE PENETRATION		
DEPTH (m)	STRATIGRAPHIC DESCRIPTION		MONITOR DETAILS		TYPE	.N. AVLUE	W WATER	% RECOVERY	ROD (%)	SPT 'N' VALUE 10 40 130 SHEAR STRENGTH	WATER CONTENT 4	REMARKS
	DARK BROWN TO MOTTLED DARK BROWN SILTY TOPSOIL		Z	13	S51	75	9			75		Monitor II is stalled in a s arate borehole
±2.2	SILT TO SILT TILE Mott-led yellow brown and grey, becoming layers of yellow brown				SS2	45				45 -		-bouldery dril
	at ±1.5 m, weathered silt trace clay, grey and rusty stains, becoming layers of blocky fractured silt at ±1.5 m.			X	SS3 SS4	55 41				55 - 41 -		
	Changing to silt to silty sand till at bottom. Moist to wet. Dense to very dense.		N A		SS5	51 34	9			51		SS5 Grain Size Gravel 17 Sand 847
±5.3	VARIABLE SAND AND SILT LAYERS			1	SS6 SS7	35						Silt 9% Clay 6%
	Dark yellowish brown fine sandy silt, occasional silt layers, gravel fragments, till-like. Becoming yellowish brown, silty				SS8	34 74	15			, , , , , , , , , , , , , , , , , , ,		
	fine sand occasional rounded gravel at ±2.8 m, becoming brown fine to medium sand at 3.0 m,				5510					74		SS10 Grain Si: Gravel 24%
	becoming at ±3.5 m yellowish brown silty fine sand becoming siltier at depth,becoming brown fine to medium sand with <±4 cm				5511 5512	for	76 m	n		50/76 mm		Sand 40% Silt 25% Clay 11%
±10.7	thick lenses of silt,occasional gravel fragments,at ±3.7 m. Changing to yellowish brown fine	ı			5513	for	152 10			5/152 mm -		
	sandy silt with silt lenses from K±5 mm to 10 mm thick at ±4.1 m, becoming at ±5.0 m grey silt trace sand, trace clay at depth.				_	50 for 100	76 m			50/76 mm —		-difficult dr:
	Wet becoming saturated at ±3.8 m Dense to very dense, becoming dense at ±3.8 m.					tor	/6 m.	n				
	SILT TILL TO SILTY SAND TILL Grey silt till some clay, trace sand and fine gravel, ±10 cm											
	thick lense at fine sandy silt, becoming fine sandy silt till to silty fine sand till trace clay at ±6.0 m. Changing to gravelly											
	silty sand till with some clay at ±6.8 m. Becomes silty sand till with some gravel at											!
	±8.2 m, gravel fragments at bottom, cobbles from ±6.1 m to ±6.9 m. Saturated. Dense to very dense.											
	Borehole terminated at ±10.7 m at auger refusal on assumed bedrock.											

JAGGER HIMS LIMITED CONSULTING ENGINEERS
CONSULTING ENGINEERS

BOREHOLE NO. 16-91

PROJECT NAME	LINDSAY LANDFILL SITE	PROJECT NO. 90179.01
CLIENT	HYDROTERRA LIMITED	DATEMAY 27 to 28, 1991
BOREHOLE TYPE	108 mm I.D. HOLLOW STEM AUGERS	FIELD SUPERVISORFMB
GROUND ELEVATION _	256.93 m a.s.1.	ENGINEER AGH

		4	σ.		SAMPLE				CONE	,		
DEPTH	STRATIGRAPHIC DESCRIPTION	TRATIC	MONITOR	=	z.	*	¥ RE	RQ	SPT	CONT	ATER	REMARKS
(m)		RAPHY		Ϋ́PE	VALUE	VATER	COVERY	D (%)		1 1		
±1.1	FILL Mottled yellowish brown and grey, silty fine sand to fine sand with some silt with a trace to some gravel, trace roots and organic inclusions. Moist. Dense. SILTY SAND TILL TO SANDY SILT TILL: Grey to yellowish brown silty sand till, some gravel, rusty stains, becoming silty fine sand till to fine sandy silt till at ±1.5 m. Wet. Compact. VARIABLE SAND AND SILT LAYERS AND TILL: Yellowish brown silt, becoming dark grey gravelly sand at ±2.4 m, becoming grey fine sand till trace to some silt with silt lenses <1 mm thick, at ±3.0 m. Becomes silt trace clay, with fine sand lense <2 mm thick at ±3.7 m. Moist to wet becoming saturated at ±3.1 m. Very dense. SANDY SILT TILL TO SILTY SAND TILL: Grey silt till trace to some sand, some gravel, trace clay, becoming sand till to silt till some gravel, trace clay, at ±4.5 m. Becomes a gravelly, silty sand till with some clay at ±5.3 m, changing to silty fine sand till with some gravel at ±6.6 m, gravelly fragments at bottom. Saturated. Compact becoming very dense below ±4.6 m. Borehole terminated at ±7.7 m at auger refusal on assumed bedrock.		DETAILS 1	SS1(20 25 41 45 16 66 50 for 110 for	16 10 19 176 r		10	N. VALUE 10 20 30 SMEARGTH 41		20 30 W	Monitor II is stalled in a se arate borehole SS4 Grain Size Gravel 24% Sand 65% Silt 6% Clay 5% -bouldery and difficult dri for remainder hole SS8 Grain Size Gravel 30% Sand 32% Silt 27% Clay 11%
	1											

CONSULTING ENGINEERS

DUNERULE NU. 1/-71

GROUND ELEVATION	N 259.11 m a.s.1.	ENGINEER AGH
BOREHOLE TYPE _	108 mm I.D. HOLLOW STEM AUGERS	FIELD SUPERVISOR _ MB
CLIENT	HYDROIERRA LIMITED	DATE MAY 28 to 29, 1991
PROJECT NAME _	LINDSAY LANDFILL SITE	PROJECT NO. 90179.01

				\neg		S	AMPL			CONE		
DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITO DETAILS	R S	TYPE	N. VALUE	% WATER	M RECOVERY	ROD (%)	SPT 'N' VALUE 10.120.30	WATER CONTENT %	REMARKS
20.1	DARK BROWN SILTY TOPSOIL		K	11	-			<u> </u>		SHEAR STRENGTH	W. W.	Manufacture 1
	SILTY SAND TILL Dark yellowish brown to mottled yellowish brown, becoming yellowish brown at ±1.5 m, becoming grey at ±4.0 m, silty sand till with some gravel, trace clay, becoming variable gravel at ±3.1 m.Rusty stains from ±0.1 to ±3.8 m. Moist becoming moist to wet at ±1.5 m, changing		/////*********************************	55		33	7					Monitor II is stalled in a s arate borehole I M silica sand used as t fill. Monitor I has a monitor instal
	to wet at ±2.3 m, becoming saturated at ±4.6 m. Compact to dense, changing to compact at ±2.3 m, becoming very dense below ±3.8 m.		***************************************	55		27	10					-bouldery dril
±4.9	VARIABLE SILTY SAND AND SAND			SS	66	67	12			67		-bouldery dril
±5.8	LAYERS: Yellowish brown strat- ified silty fine sands with silt lenses < ±2 mm thick, becoming brown laminated fine sand with some silt at ±5.3 m. Becomes silty fine sands to fine sandy silt with grey silt lense ±2 cm				8	75	14 13 52 m	m	7'	79 —		-bouldery dril SS8 Grain Size Sand 85% Silt 11% Clay 4%
	thick at 25.5 m, stratified silt at bottom. Saturated. Very dense. SILTY SAND TILL TO SAND TILL Grey silt fine sand till with some gravel, becoming sand till trace to some silt, some gravel			SS	‡0 10	75	7 52 m 6 02 m			/152 mm		-difficult dri for remainder hole.
	at ±7.6 m. Becomes gravelly sand till trace to some silt below ±8.2 m. Moist to wet, becoming wet to saturated at ±8.4 m, changing to moist below ±9.1 m. Very dense.				12	r /	6 mm			0/76 mm →		ł
±9.7	Borehole terminated at ±9.7 m			SS	13 f		5 102	men.	7	/102 mm		

٢	JAGGER HIMS LIMITED
ı	CONCULTING ENGINEERS

BOREHOLE NO. 15 -91

PROJECT NAME	LINDSAY LANDFILL SITE	PROJECT NO. 90179.01
CLIENT	HYDROTERRA LIMITED	DATE MAY 24, 1991
BOREHOLE TYPE	108 mm I.D. HOLLOW STEM AUGERS	FIELD SUPERVISORFME
GROUND ELEVATION _	258.67 m a.s.1.	ENGINEER ACH

	1			SAMPLE	CONE		T
DEPTH	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR	# AE	SPT 'N VALUE	WATER CONTENT	REMARKS
(m)		GRAPH	DETAILS	HOD (W)	10/20/30	5, 10 15	
		₹ .		H 1 A A	SHEAR STRENGTH	w . w.	
±0.5 =3.1 =6.7	VARIABLE SAND AND SILT LAYERS Yellowish brown silty sand till with some gravel, trace clay, rusty stains. Hoist to wet. Compact. VARIABLE SAND AND SILT LAYERS Yellowish brown layers of clayey silt with some gravel and sand, fine sand lenses <1 cm thick. Bouldery drilling from 13.1 m to 13.7 m. Hoist to wet. Dense. SANDY SILT TILL TO SILTY SAND TILL: Yellowish brown mottled yellowish brown and grey, becoming grey at 16.1 m, fine sandy silt till with some gravel, trace clay. Becomes silty sand till with some gravel; at 15.5 m, tusty stains at top, boulder at 14.4 m Het. Very dense to compact. Borehole terminated at 26.7 m in silty sand till.			SS1 70 9 SS2 22 16 SS3 31 10 SS4 75 7 for 127 mm	76		Important of the state of the state and hole; were added to the state of the state

JAGGER HIMS LIMITED CONSULTING ENGINEERS

BOREHOLE NO. 19-91

PROJECT NAME	LINDSAY LANDFILL SITE	PROJECT NO 90179.01
CLIENT	HYDROTERRA LIMITED	DATEMAY 29, 1991
BOREHOLE TYPE	108 mm I.D. HOLLOW STEM AUGERS	FIELD SUPERVISOR FM
GROUND ELEVATION _	257.53 m a.s.l.	ENGINEERAGH

			u		I		SAMPL	.E		CONE			
	EPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	TYPE	ž.	*	% REC	ROS	SPT 'N' VALUE	co	WATER NTENT %	REMARKS
			APHY	JE:ALS	2	AN. VALUE	WATER	RECOVERY	ROD (%)	10:20 30	10 20 30		
	±0.2	DARK BROWN SILTY TOPSOIL		IMI						SIMENGIA		1	Mina
-		SILT TO CLAYEY SILT Dark brown becoming mottled ligh		VIXII]		· i	Mixture of IN silica
		and dark brown at ±0.8 m, silt,			SSI	15	23		i	•	i	* :	sand and holeplug
		trace to some sand, trace clay, some roots to trace roots with		(/////			 		 	{ \	i	/;	were added to borehole as back-
	±1.1	depth. Becoming clayey silt at		IIXII						1 \	-	:	fill material.
_	+1.5	±0.6 m. Wet. Compact.		77777	SS8	20	6				/:	į '	
H		SANDY SILT TILL: Dark yellowish									1	1	
\Box		brown, sandy silt till, some gravel, trace clay, rusty stains										(:	
		Moist. Compact.			SS2	18	21		 		İ	\ i	
		VARIABLE SAND AND SILT LAYERS		1.111.7					1		ĺ		
Н		Dark brown fine to medium sand,											*
Н		trace gravel and silt, Yellowish brown elayers of silty fine sand					19		\square				
		to fine sandy silt, trace grayel,			SS3	رد_	191						
\sqcup		<pre><1 cm thick silt lenses, at</pre>											
Н	Î	±2.2 m. Becoming fine sand trace to some silt, changing to fine											
\vdash		sandy silt, light brown silt			SS4	38	19		\Box	<i>></i>	- [1	
	l	lenses <2 cm thick, at ±3.0 m. Becoming clayey silt with some								/	!	1 1	
		sand and trace of gravel					$\overline{}$			/			
		black specks, at ±3.6 m. Becoming		ŀ	SS5	16	22			1	l I)	SS5 Grain Size
\vdash		grey at ±3.8 m, layers of silty fine sand to fine sandy silt to		1		[!				1	/	Gravel 2%
\vdash	±5.2	silt, trace clay and gravel at		1							1/		Sand 12% Silt 65%
		±4.5 m. Saturated. Compact to dense.		<u> </u>	556	23	8	\dashv		1	€		Clay 21%
\square	ľ			Ī [ľ		SS6 Grain Size
-		FINE TO COARSE SAND Grey fine to coarse sand, occ-		Ξļ						1			Gravel 41%
_	±6.1	asional silt seam. Becomes			SS7	60	12			60 -			Sand 47% Silt 12%
	Ì	gravel and sand with some silt			- 		!				i		3111 124
	ľ	at ±5.6 m. Saturated. Very dense.					- i				1		
\dashv	ľ	Borehole terminated at ±6.1 m									i		
\dashv		in gravel and sand.		-		<u> </u>					İ		
				-		-					i		
				ľ			:		$\overline{}$				
_											:		
\dashv					<u>i</u>		<u> </u>	i			i		
			İ	-			<u> </u>	<u>i</u>			1		
				F									
			1					1	\dashv				
_								I					
					1	\Box	i						
\dashv				-	\dashv	\dashv					1		
				+	+	\dashv		+	\dashv				
- 1	1			-	<u> </u>		- 			1	1		

Ontario Er	nvironment	MAT DE SPACES PROFIS		KA 6-1		ا مينا -		••			• •	_ `		• • •
COUNTY DE DATE	cı	l l	P passuls Cill	1000 0014					an au	6				26
Victor:		Ope	******								ì	31	os	<u>. 91</u>
	Lindsey		Lind	ery, C	ter	10_								
														
		LOG OF OV	ERBURDEN	AND BED	ROC	K MA	TERIA	LS is	£€ 1861	RUCTIONS:			01/1=	. //41
GENERAL COLOR	58 COMMON MATERIA			BIALS				64	MERAL (ESCRIPTIO	`		7400	10
	Topsoil												0	- }
Cray	Gravel		boulder										1	4
_	Clay	Grave	_				soft						4	16
Areact	Seed						de T						16	17
bross	Clay	Gran	<u> </u>										17	20
Corev	Gravel						457						20	22
Gray			.1										22	35
Cray	Clay	Grave											35	43
Cray.	Linestone													
			··			\top								
														
													i	
	NATER RECORD		CASING &	PEN HO	LE RE	ECOF	ID .	Z		971 0106			l	****
Walte found				mail restantit	84 8 My 1		10	SCREE	-	400 17PL		- 	HACOLA BAFTO TO HOP DE DECOLAD	
38	D setty Daniel		Eoree					Ĭ.	<u> </u>					
36	D rece Camper	: 6 1	Desisement Desectors Dores sont Dores sont	.188	+ 3	3	35				11		NG RECO	
<u> </u>	D seem Dear		Descentes Descentes				***		term 581	41 1461 10			17PE 1440 P	PE 810 1
	O best Deat		Descents Desce sout Decested						0	12	Bene	<u>- 12-</u>	Had a	lurry
		•••	Devest.					_			╀┯┸			
	D fotse Descri		Descrite Descrite Descrite	<u> </u>				J L			Щ			
Profest 16			00041100 01 P						LO	CATIO	N OF	WELL	<u> </u>	
5 **			<u> </u>	*******			10.0	LIRE	# # E L O W	SHOW DIS		, METF 1	ROM RGAD	ARD
LEVEL	-		<u>.</u>		74.		201							N
2 16.4	0 21.02 1	60. 19.			68.					(K K K 1	(X X X	×		1
2 10.4		er without but at		_						$\frac{L}{I}$				ì
N Stemmen		40	161. O CLEAN		-					ŧ,	دُ هرم، إ	M	*	
D 100		11:04	FEET							į,	10	انكونه	L	1
	, D water					1			~ 1	7	•			
FINA	T		A&ONES PRO						11 (19)	* XXXI	(* * * * *	£.	
OF WI	ELL D eccase	er were (_						1		i	
WAT	D stoce		DERESCIAL REICIPAL POLIC SUPPLY											
USI	D 100051	ener 🐧 en	serine of the Con	0:1:00:06 DT US40										
	G **				\dashv							/	111 111	(·
METH		100L : :COUVERTIONAL: : :DEVENSE:	D 9141094 D 9140991 D 900104											
CONSTR		1 4640 1	D server	_	.		, 	4013					10	3432
1 2001 20	WELL CONTRACTOR				1000				T					
1 1	ert & Sone W	11 D-1111		2662		ONL								
Box	850, R.R.#1,			rio		USEC								
E			1 - 0		147 6			-		-	_	_		_
O Dave	MacDonald	T046T04				OFFICE					Borel	nole	20-9	1
11/-	1 hours	<u>. </u>		<u> </u>	18	0	<u> </u>					F	DAM NO. 060	6 (11/84) FORM
ı OW	NER'S COPY											•		

OWNER'S COPY

FORM NO. 0505 (11/88) FORM 8

Ontario		ronment			VV	•		%	V	,		_				ΚD
-		2 Catca 🖾 ca		IN APPLICABLE IN. BROWER CITY	1000 TILL	***				-	LOCA 1046	8447	11 616		1.	*
	terie		<u> </u>	ADDRESS.						CO	1, 6		10414	COUPLE		26
	mal i	an Lindony	ľ		deey,	Ont	ari	•						03	06	91
											•					
			06.05.01	VERBURDEN	AND RE	DRO	CK I	AATERIA	u s	444 481						
			.0G OF 0	OINER MAI		<u> </u>					DESCRIP				Meta	
SE HEBAL	COLOUB	CONTROL SATISFIES	<u> </u>					-					_		1000	
<u>Pron</u>		Clay	Crav	<u> </u>				æstt						+	0	6
Cerety		Clay	 					moft							6	
Crey		Clay	GERT	4				ber						\dashv	24 32}	<u> 32년</u> 42
Cray		Linestone	- 					<u>.</u>						\dashv	-743	
<u> </u>			 		•									\dashv		
			 											\dashv		
			 			<u>·</u>										
<u> </u>			 					-						_		
		,												\dashv		
-		•	 											\dashv		
			-											\dashv		
			1					<u> </u>						l		
	WAT	TER RECORD		CASING &	DPEN HO	LE R	ECO	RD	Z	1944-1-	or oremet			D-404 144	1.	1044
- MATES 19		4160 OF WATER	STANK STANK PRESENT	MATERIAL			eme .		REEN	-	L ADD 177			1=	106mts	***
37	9	ALLEY DESCRIPTION		Sereel Desisserses		-,,,,			SCR						M4444	****
	. 0	rotae Gaucrous	61	Description Description of the Control of the Contr	-188	+	•	32}			PLU	Gein	G & S	EALIN	G RECO	RD
34		Postan Courses		Detet. Descen	•			_=_	_	100a	10	4	4414434	L AND 17		4 64641 648 61C 1
4		PALET DEAL DESCRIPTION		Dencotts Dores mark Driastic			ļ			0	12	1	ens	al å	Had S	lurry
ļ	0	BALFY DEAS		Danisanisa												
<u> </u>		Posts Dest		Decembers December												
		l.					Г			LO	CATIO) N C) F W	ELL		
11-	\$1 PM PM PM PM PM PM PM PM PM PM PM PM PM	C Santes	10		Pumpins			IM DI	AGRAI	BELOW	1 SHOW DIA	SIANC	LS OF T	IELL FR	OH 8040 A	10
1657	FEAR	PATER PROPERTY TO DESCRIP		1,1	1 ** ***											N
	9.74	16.28 14.				<u>π</u> .										
PUMPING	i dell	PURP INIA	40	D 61644	_					66	2 411					,
3 "	-		H. 6			╗			, 71	(کے د	m2	D(11 - 4.4	L		
	D *******	D scer serves	•	, ees Janse					•	•	ş	1 14 10.	D, ,.	-		00%
F	FINAL .	D				***					Ž.					t of
ST	TATUS	C occupation a	0	**************************************							175	.x x	^ X	* * *	;	
	71100	D seesare		######################################		\dashv									<u> </u>	-{
1 .	VATER	D MOSE 1100	0 ***	BIGIPAL BLIC SUPPLI												
	USE .	☐ inemittaint		N.104 00 AIS COSO □ 00 		- 1									114.1	#3t
<u></u>	ETHOD	TE CABLE 1001		D 800106		\dashv										
	OF TRUCTI	D setast (Cont D setast (Styl)		D 9014100											1 02	124
		D was beforession		D ======	0 01=61				143						TOS	431
1 1		Contenctor		LICE	#Ct =U=01	•	۲									
Š -		t & Sons Well			2662	\dashv	ONLY				$\neg \top$		1			
¥	BOX 85	O, R.R.#1, Fe	nelon F	1000			USE									
	Dave H	incDone1d				<u> </u>	OFFICE					Bor	eho	le	21-91	
	PI	1. Vill	•		·	اا	9									
	OWNER'S COPY													500	4 MO 0505 I	1/80 FORM 8

Enviror Ontario	nment s mer ent e s cess & ces		•	7 47-1				V ELL			
	7 (111.1 (2) (111.1	100010	Typ., Li		1	(21 -9 1)		Con. 6	* #16		26
Victoria			1000E16					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	out 15		~93
Town of Linds	lay		Lind	вау, О	nter	<u>io</u>		•	1=:-		
		20.05.01	CARLIDREN.	AND RE	2080	K MATERIA	LS (
PENERAL COLOUR	w461	OG OF O	OINTE STI					SEMERAL MESCRIPTION		9671 F800	D - FEET
ELMENT COCORE		6 D	ously dri		2 42	6					
			ecord#103								
Gray Li	mestone									42	65
		ļ									
-		-						<u> </u>		†	
											ļ ·
										-	-
		-								+	
						!				 \	
											\
WATE	RECORD		CASING &			ECORD	Z	005-5- OF 0750-05 10601 00 1	.		141
At . FEET		makes Seale seconts	********	toriotic to recent			SCREEN			04 SC0550	· ·
61	Deat Deat		Dereet Destroutes Descrett						Q & SEA	LING REC	
0 *	4177 Deat	4	Deres		4	65		94 P1 a 541 41 4141	-	154	PACEAS SIC :
, ,	Dest.		Describes Describes Describes Describes Describes								
0	4177 Desetant		Detesi Desirantes Desectit						<u> </u>		
0	ALTT Deat		Decestic				L				
by over	D sames			··· <u>30</u>	•••			LOCATION		L FROM ROAD	
1 1						101		INDICATE BORTH ST	ABBOW		Ŋ
10 111	2 88 12 04	1	12 38								1
O III sees	Page 214	39.70	04140 44 400	₩ 1661					Ar II.),	of?
S memory was	1 1	39-70	01.00010010 PURPLOS FAST 0015			1 2 2				<i>J</i>	11-
					\sqsubseteq	[-]					
FINAL	B sertesyties () AMERICAL POP) MATERIAL POP) MOTIONS (1)		~ ```) }		1,	
OF WELL	D seconder are	4 () eterness			1					
WATER	D senstice	D •	BENEGEIGL WEIGE SUPPLY								y"36
USE	O sents	D 44		911 18818 6 97 45 68						/ "	,
METHOD	D CARLE 1001	rt 01:0044 /	D 000:06						/		
OF CONSTRUCTION		201 ·	D 0100100			* Packe	rī	Test on 4" hol	e then	11	7085
			[=0.	CONTRAC	100.				1		
5 C. Hart	L Sons Well	Drillia		2662		ONIC					
Box 850	Real Fon	elon Fe	lle, Onto	[.18		SS					
151	DIPPOR		000000000000000000000000000000000000000	toct num		OFFICE				21-91	
			B41 B			ō		(con	tinue		06 (11/86) FORM

sarr de deserc		TOGOTHIS SECURE TILL IDOR SITTINGS	<u> </u>		com succe touch support	816	26
Victoria		Ope			con. 6	DATE COMPLETED	
Constant	I.indsay	Lindsay, Ontar	io			<u> 04</u> 0	691
THE WA	ر عامیدانید						
	<u> </u>	OG OF OVERBURDEN AND BEDR	OCK MA	TERIAL	S ISEE INSTRUCTIONS:		
	LC				GENERAL BESCRIPTION	7000	10
HERAL COLOU		OIMES MAILSIALS				0	2
areas .	Topasil					2	8
Gray	Clay	Gravel				8	16
Gray	Boulder					16	19
Gray	Cley	Gravel			r bearing	19	23
brees	Shale			WILE	r Bearing	23	
Cray	Limestone						
		<u> </u>					
-			•			prooffile	luetie.
	WATER RECORD	CASING & OPEN HOL	E RECOR	D	S 1771 00 0010000	sac ne	
WATER / 0400	\$100 DF WATES	TOTAL MATERIAL TOTAL	BEPTE - I	10	E BUILDING AND INC.	at 10 to 10 to 10 to 10 to 10 to 10 to	
23	D BALTY CONTROLS	Geren Dansense				IG & SEALING RE	
	D FRESH CONCERNIS D SALTY CASE	61 Deserte .188	+3	23	PLUGGI		Comto: 60001
	D fotos Doutrest	Decembers Description			0 12	Benseal & Hol	
	D salet Deat	Dores more Doyastic			0 12		
	D seres Destant	Destractes Destractes Destractes Destractes					
	D saitt Dess		一		LOCATION	OF WELL	
CX+		5 3	<u></u>		ALLOW SHOW BISTAN	CES OF WELL FROM RO	40 420
\$1410 4474		E LEVELS SUGISES AND SUGISES 1 SO DIGITAL	_	LOI	LINE INDICATE MORTH ST	ABBOW	N
1657	11	10 12.46 12.48 12.6	11			0	$\hat{\gamma}$
	Poor 101	MAG 541 A1 04145 A1 6 MP OF 1851	71		1211144	(fr , , , , ,	
	400 mar 1171 account	OF CLEAN CONTRACTOR				•	
3 4"	MALLOW DISCEPT SETTION	###PFIDE #### delt	=		ger k	1. WBFILL	
		1 D annubout b insufficitut buf	<u> </u>	1		1.	اديا
FINA	LE OCH SUATION			, 1			
OF W	ELL O accused to	CountSCits	\dashv		4		
TAW	D soutstice D stock	D PUBLIC SUPPLY					
US	=	D control on the constituents					1 N 3 h.
	E CARLE 1001	D 600106	$\exists 1$			/ "	• •
METI	F 0 001401 1861	PERSON D JETTING				•	10343
CONSTR	UCTION D and react the	DOIAGING DOTHER			sates		
	D	with contest times and the contest and the con	ONLY				
	Hert & Sons Wel						
¥ Bo	2 850, R.R.#1, P.	enelon Falls, Ontario					
Z De	ve MecDonald	ricture aver	OFFICE		[Borehole 2	2-91
	TORE OF TECHNICIAN/CONTRAC		6	,]			0606 (11/86) FI

Ontario Environment

WNER'S COPY

ntario	nvironn	L FOIRT GELT IS 2 CHECK (2) COM	SPACES PERM	oto									
veti es 9418	-61	1 cates & can	- Investor	oncours citt		4 (2	2-9 1)		Con.	& last), sub-	41 616	i	26
ictoria				Twp., Lin	daay L	and 11	<u> </u>		Loa.	0	DATE COM	24140	
form of		у		Id	ndsay,	Onte	rio				de	<u> 02</u>	93
•			_										
		L.	.0G OF 01	ERBURDEN	AND BE	ROCK	MATER	IALS	15EE 1051	WC11045+			
SCERT COFO	wa .	eet 1	T	01468 8416	eiais				CERTANT S	ESCRIPTION		1000	10
			- D	iously dri	11ed 2	6 ft.	(80	e Re	cordil	03430)			
	1,4-	estone	- ITE	TOWNEY VI								26	60
ray	- M.	BLOGE	 	<u> </u>									
			 									<u> </u>	
	_											ļ	
<u> </u>												ļ	ļ
													<u> </u>
	\dashv											 	ļ
	\dashv											 	
·													
												 	
												<u></u>	
									James .	-	10	4144	140010
	WATER	RECORD		CASING &			CORD	-11	Z			***	.0441
AT - FEET		or water	Section 1	#416##/	100(000) 100(000)	1848	10	41	5 0011000	ABD 1196		at 714 10 007	
27	D 9041		4	Derect Designation Designation		24	60	$\cdot \mid \cdot \mid$		PLUGG	NG & SEA	LING REC	ORD
	D 9001		<u> </u>	Deserve		26	-	┤┼					DEAT GROW!
	D 500			Description Concerns				1					
	D ***]├──	Detes:		-	 	1					
	0 100	Description	11	Description Description of the Control of the Contr									
i manas I	111 mateman	Post Promote	<u> </u>	Deposition 01 *		7			LO	CATION	OF WE	LL	
1	•••• O	84 11.68	5	2	30	╼┧┞		DIAG			mr	7 LGOR GOVE	
LEVE		10 C1047	141 10 000 18 (\$46(2,000		######################################			01 LIA	et immic	A16 HORTH &	_		Ŋ
168	.	U4 8 84	ļ		1	,							1
N N NOON		Poor in	ant 841 at		- 1651	- 11	$\sqcup 1$				\	4,1	,
\$ man	110	- 0100001	25.40	01.00010010			Π		•		, / y	, ^{4,1}	
0.4	C	9667 MITTON					罚		: -	<u> </u>	مستسب		11/2
		D water suppl) 4448900EB +055			1-1						t of
FIN		C container	-				1			T	31/ LL		
OF W	rell.	D MILMON TO								110			
WAT	ER	D seestatic	٠ ۵										┪
US		D 1000510LLL	. 0		9:1: 00:0 6	- 11							<u>ــــــــــــــــــــــــــــــــــــ</u>
		D cases tool	160 110	D 909186								Hand	4 JL
METI		D setast icos		D 1511000			• Pac	ker	Test o	na 4" ho	le		
CONSTR		Q meters (440		D 8011106			the	a.I	persod t	o 6₹".		1.	17090
1 9401 0	M BELL COO			t-c		C104 +	>						
5 C.	Hart &	Sons Vell	D-1111		2662		ONIC						
Box	850.	R.R. #1, Fe	nelom P	alls, Onts	rio		35						
1 5 2495	-	ECHNICIAE								Bot	rehole	22-91	1
2 000	rlie D	10089		Day (2014) 2017			OFFICE				ontinu		=

OWNER'S COPY

FORM NO. 0806 (11/86) FORM 9

BOREHOLE NO. 23-91

PROJECT NAME	Lindsay Landfill	PROJECT NO. 1080
CLIENT	Hydroterra Limited	DATENov 18/19, 1991
BOREHOLE TYPE	108 mm Hollow Stem Augers	FIELD SUPERVISOR KF
GROUND ELEVATION	258.54 mas1	ENGINEER LGB

							AMPL	£		CONE PENETRATION			
DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MOI DET	NITOR FAILS	SS MAL	BUTVA .M.	% WATER	% RECOVERY	700 (%)	SPT 'N' VALUE	J ¥	WL	REMARKS
2	SILTY SAND TILL Yellowish-brown, silty fine sand to sandy silt, occasional boulders; moist to wet; very dense MEDIUM TO COARSE SAND Brown, medium-coarse sand with some silt; saturated; dense to very dense SILTY SAND TILL Grey, silty fine sand with some clay, gravel, occasional boulder; moist to wet; very dense				1 2 3 4 5 6 7	63 31 64 86 94 50 50 50	/100 /100 /100	man man					
9	MEDIUM TO COARSE SAND Grey; very dense; saturated				12	:	/75 /75						

	HOLE # reinstall	23-91 (2008) Location: Linsay/Or	oo I oodfii	Ducinet VI	• • Puge 1 of 1
Date Drilled: D Rig: CME 55N Contractor: Aa Iammer Type	rdvark Drilling Inc.	Elevation: Co-ord: 683575 E, 4		Project: Ka	awartha Lakes ofo Kawartha Lakes
Sample Type Recovery Number Blows/0.15 m	SOIL DESCRIP		ell Installation	Moisture Content % Wp X Wi 1030 50 70 90	Pocket Penetrometer
SS 1 12 SS 2 34 SS 3 26 SS 4 >5	TOPSOIL FILL sandy silt, some g trace clay, cobbles SILT grey, trace sand some sand seams SAND TILL silty, some gravel trace clay	Bentonite	Solot 20		

BOREHOLE NO. 24-91

PROJECT NAME	Lindsay Landfill	PROJECT NO. 1080
CLIENT	Hydroterra Limited	DATE
BOREHOLE TYPE	108 mm Hollow Stem Augers	FIELD SUPERVISOR KF
GROUND ELEVATION	257.62 mas1	ENGINEER LGB

uncone	ELEVATION							•							
							BAMPI	Æ		PENE	ONE				
DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MOI	STOR TAILS	TYPE	M. AVTUE	MATEN #	M RECOVERY	MOD (W)	·M.	BPT VALUE	α	1_1_	NT %	REMARKS
		-	H	1	SS			-		STRE	MOTH	 "	•	Mr.	
-	TOPSOIL									1					
	SILTY SAND TILL		\	(
	Brown, dense to very dense silty sand; moist				 		_	-	-	1					
										1					
	VARIABLE SAND AND SILTY LAYERS				1	58		_		$\ \cdot \ $			-		
	Brown, fine-medium sand at		,		Ė	30				1					
2	<pre>± 2 metres; becoming fine sand and silt; dense to very dense;</pre>		\		<u> </u>	F 7			_						
	moist; wet at 2.4 metres			\	2	57		-							
3	•			(3	31				1					
3										1					
	SANDY TO CLAYEY SILT		l. `		4	66									}
\vdash	Grey, dense to very dense;		\	\ \	4	00									
4	wet .														
	SILTY CLAY				5	35									
\vdash	Grey, dense with gravel sizes			(
					6	30									
5	CTITY CAND TILL				7	50.	125	mm							
	SILTY SAND TILL Grey, silty sand with		\							1					Į
_	gravel; very dense; moist				8	90,	100	mm							
6															
			\		9	100	100	mm		1					
										1					İ
7					,,,	100	1150	_		}					
\vdash			:_	├ : ∙	10	100,	120	TEMP ()		1					
				‡ . •						1					
8	COARSE SAND AND GRAVEL		· -	†. ·											}
	With trace silt, saturated			Ţ. ·	11	50,	775 r			1					
	5, 400 5116, 3400.400		٠ -	+ · ·											
H				Ţ: ·		-				1					
9				- -	12	50,	/50 ı	nm		1					
\vdash															\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
										1					
															i

PROJECT: 961-1529A

RECORD OF BOREHOLE BH-25-96-1

SHEET 1 OF 2

LOCATION: SEE PLAN

BORING DATE: MARCH 20&21/96

DATUM: GEODETIC

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm SAMPLER HAMMER, 63.5kg; DROP, 760mm DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m HYDRAULIC CONDUCTIVITY, SOIL PROFILE SAMPLES ADDITIONAL LAB. TESTING PIEZOMETER STRATA PLOT BLOWS/0.3m OR STANDPIPE TYPE NUMBEF ELEV. DESCRIPTION SHEAR STRENGTH nat V - + Q - ● WATER CONTENT, PERCENT INSTALLATION DEPTH Cu, kPa rem V - ⊕ U - O <u>_w</u> Wp | (m) GROUND SURFACE 258.96 0.00 Loose, dark brown, moist to wet CEMENT & CASING silty topsoil, trace sand, trace clay. (FILL) 50 DO 8 258.50 50 DO 18 Compact to very dense, brown, moist sandy SILT/silty SAND, some gravel, some clay, occ. thin silty clay layers. (TILL) Mar.23/96 50 DO 55 255.30 3.66 BENTONITE GROUT 50 DO 60/ .05 50 DO 60/ .13 Very dense, grey, moist to wet sandy SILT, trace to some gravel, trace to some sand, occ. sand seams, occ. wet sand and gravel layers. (TILL) 6 50 DO 86/ .15 50 DO 82/ .15 7_ 249.03 Continued on Drillhole Log 10 CONTINUED ON NEXT PAGE

DEPTH SCALE

1 to 50

Golder Associates

LOGGED: TM
CHECKED: PMM

PROJECT: 961-1529A

RECORD OF BOREHOLE BH-25-96-1

SHEET 2 OF 2

DATUM: GEODETIC

LOCATION: SEE PLAN INCLINATION: -90

AZIMUTH:

DRILLING DATE: MARCH 21/96

DRILL RIG: CME-75

DRILLING CONTRACTOR: ALL-TERRAIN DRILLING LTD.

The continued from Provious Proce Continued from Sorehole Log		11 11		#1.5t;									661	. sim	XXX.		
Committee Comm	SCALE RES	RECORD	DECORPTION	D LOG	ELEV.	è	ON RATE	COLOUB	FR-FRACTURE CL-CLEAVAGE SH-SHEAR VN-VEIN	J. P	JOINT -POLISHED	R -ROUGH ST-STEPPED	UE-U W-W	NEVEI AVY	N	APL DAD Paj	NOTES
Conditioned from Boreholds (Log 1007 1 8 8 1007 1 8 8 1007 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	DEPTH 8	DHILLING		SYMBOL	DEPTH	RUN	PENETRATI	FLUSH	RECOVERY	8648 %	INDEX DP w.r.t. PER.3 m CORE AXIS	SCONTINUITY DATA TYPE AND SURFACE	CO	YDRA	ULIC TIVITY /sec	POINT LC	WATER LEVELS INSTRUMENTATION
Fresh, modium to dark groy, fine to medium grained, then's to medium grained, then's to medium grained, then's to an adjustment of the standard and agrillisecture to ahaly LIMESTONE. (BEDROCK) 2	- 10	l	CONTINUED FROM PREVIOUS PAGE		248.69	 	ļ-	 - -	-┠┼┼┼┼┼┼┼ ┼┼	-H-H-			-1-1	4-		Ш	
13 FAUE at FFUE at F	- 11				10.07	1	0.089					FR,UE x2 ground, missing core FR,UE x4 B,SM,ground,muddy FR,UE x2 FR,C					BENTONITE SEAL
13 245.82 FNUE of DRILLHOLE 13.14 FNUE of growth rising one PRUE of growth rising one			to medium grained, thinly to medium bedded, nodular textured LIMESTONE and argillaceous to shaly LIMESTONE. (BEDROCK)			2	0.079				414 *** ***	FR,UE x3,ground missing core FR,UE x3 B,UE x3 FR,UE x4					1. 3 T. 2. 3 T.
END OF DRILLHOLE 13.14 Vater fove in monthings and sold sold sold sold sold sold sold sol						3	0.083				400000000000000000000000000000000000000	ground,missing core FR,UE x5 ground,missing core FR,UE x2 ground,missing core					SILICA SAND :: :::
15			END OF DRILL HOLF	+		H	\vdash										
16 17 18 -	- 14		END OF DRILLHOLE														monitoring well at elevation 256.21m on
17 18	15																_
19 20	• 16																-
19 20	17																
20	18																_
	19																-
	20		·														

DEPTH SCALE:

1 to 50

Golder Associates

DATE: MARCH 22/96

CHECKED: PMM

BOREHOLE NO. 26-91

PROJECT NAME	Lindsay Landfill	PROJECT NO. 1080
CLIENT	Hydroterra Limited	DATE Nov 26/27, 1991
BOREHOLE TYPE	108 mm Hollow Stem Augers	FIELD SUPERVISOR KF
GROUND ELEVATION	256.44 mas1	ENGINEER LGB

									,						
		=		<u>_</u>	1	AMPL	£	,	PENE	CONE	ЮН	_			
DEPTH	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR	_	z	*	# 2	2	-	SPT	ᅥ		NTE	ER VT %	REMARKS
(m)		5	DETAILS	TY.	M. AVI UR	% WATER	RECOVERY	700 (%)		VALU	E			1	
		¥		ss	=	5	AW	٤		R		w :	•	WL	
	TOPSOIL								\prod				T		
H	SILTY SILT TILL			⊢								1			
H	Light brown, silty sand with			 					1						
1	<pre>clay, gravel, dry to moist; very dense</pre>												1		
	very dense											ł			
 			1	 -	36		_						-		
\vdash			, ,	1	76						- 1	'			
2				2	51							-			
			\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \								-				
				3	66/1	50 n	m_				-				
<u> </u>			• •	<u> </u>				-							
3	SILTY SAND TILL		, ——,	4	50/1	25 m	_							11	
	Grey, silty sand with clay, gravel; moist; very dense		· ‡ · ;	_	507	23	"								
	gravel; moist; very dense		· ‡.								1				
			+ -	5	64/1	50 m	m								
4			· + .												
			· + .	6	50/7	5 mm									
	SHALE, LIMESTONE														
	(possible boulder)			7	50/1	.00 (n	m								
5															
															:
<u> </u>											l'	ļ			
												-			
$\vdash \vdash \vdash$!					11					
					1		. !								į
						- 		\dashv							
											-				
		i										ļ			
\vdash															
			,			+						Ì			•
			Ì				\dashv								
		ļ													
$\vdash \vdash \mid$!				i	\Box									
					i i		_	\dashv							·
┥					<u>!</u>	-	\dashv	\dashv							
\Box \Box					i										
_					İ										
		- 1	ſ	Ī	i			1		1.	-		1	1	

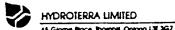


BOREHOLE NO. 27-93

PROJEC	T NAME Lindsay Landfill								_ PRO	JECT NO.	1080	
CLIENT	Hydroterra Limited								_ DAT			
BOREHO	DLE TYPE 150 mm Rotary		-						_ FIEL	D SUPER	VISOR LB	
GROUNE	ELEVATION _ 258.59 mis1									INEER		
		т	T	T-		IAMPI.			Court	T	T	-
		STRATIONAPHY	1	一			3		PEMETRATION	WATER		
DEPTH (m)	STRATIGRAPHIC DESCRIPTION	100	MONITOR	F	M. AWTO	WATER	MICOVER	ğ	W VALUE	CONTENT %	REMARKS	
		3		-	E	ğ	ğ	3	Manage	W. W.		
H												1
口	SAND, STONES (TILL) Brown											
H				<u> </u>								
												i
	- CLAY, STONES (TILL)					\dashv						İ
.	Brown											
											1	
\vdash						-						
	CLAY CTOUTS (TILL)	1				\exists						ı
	CLAY, STONES (TILL) Grey			\dashv				\dashv				l
				\neg		\dashv	\Box					1
					〓			\equiv		111		ı
10			11111	\dashv	\dashv	\dashv	-	\dashv				l
			77777	\dashv		\exists		\Box				
	LIMESTONE Grey							\exists				
-	U. C.)		・主・	-	_	-	\dashv	\dashv				١
				\dashv	\dashv	\rightrightarrows		コ				l
コー					\dashv	\dashv	\dashv	\dashv	1111			l
15					4	1	\dashv	\exists				l
7			E	- 1		士		\exists				l
コー			-	\dashv			\dashv	\Box				l
- 1			1	#			二	ゴ				l
-			E	\dashv	_		\dashv	ᅱ				
			F	\dashv	\dashv	\dashv	\dashv	\exists			_	
-			Ė	士	士		士	ゴ			·	
	İ		}		-	\dashv		\neg				
_				1	丰	1	丰	ゴ			j	
-]			F	+	+	+	\dashv	\dashv				
				_		_	-		1111			ı

#11 04 D410C	2 CHECK 🖾 COM	100010	* ***** CITT			(1-93)	- 1	LOCE 18461. 144		1	 26
ictoria			Twp., Lis	idsay L	andIl	.11	Con	.0	9416 604	*******	
es seems to		<u>·</u>	Lin	dsay, C	ntar	lo			1 16	02	, 93
	L	OG OF O	VERBURDEN	AND BEC	ROCK	MATERIAL	S 1566 10	stauctions.		0000	- 1441
MERAL COLON	0051 C00000 BATERIAL		O1#E# MAT	ERIALS			CERENT	L DESCRIPTION		1000	10
rovn	Top Soil									0	1
LOAD	Send	stope	.8							1	10
rows	Clay	stone	2			<u> </u>				10	21
TRY.	Clay	stone	<u> </u>			- 				36	36 49'4
ray	Limestone									 30	49.4
····						-					
										-	
		-				 					
		 				1					
		-				1					
						 					
											
<u> </u>	VATER RECORD	٦ [CASING &	OPEN HO	LE RE	CORD	2	. ar ortaint as :	•		LE0613
AT FEET	4149 OF WATER	See S	-	macc tool saids soluts	96 P	10	S STEE	DIAL 889 FTPL		00 00 00 00F	
	D sally Deat	1	Morees Destroortes				Ĭ.				7111
37	D recon Stantenes	61	Descrit Dores sous Dougstic	.188	+ 4	36	21 7 7 10			ALING REC	ORD
43	D ress Descrees	┨	Dates				1 800	10		480 1171 1440 1	Pacala (1C)
	O totte Operant	61	Desactor of the control of the contr		36	49'4"	0	20	Benses!		·
	D saift Deas	$\left\{ \right\}$	Dereti Desirentes Oceacotti								
	D sairs Dass	<u></u>	Desce ment		<u> </u>						
	1		3	P##P184				OCATION			
STATIC LEVEL			0			LOT	AGRAM BEL	OW SHOW DIST	THCES OF ME	LL FROM ROAD	
	" ***	ļ			- 11						<i>a</i> .)
10.82	20.40 17.5	4 18.7	19.08	19.50						ł	N r
	679	49	,,, xo		ower					ľ	"1
2 0 0	TT DATE OFFICE OFFICE	10017	**************************************	•				: /	اعدد		
					ᆜ) (M			• (
FINA		-	D 48480019 181		·**L3			' (-	^خ ران
OF WE) D 1251 word		D 968416946					: # 1-72	П	1	4 1
	D stoce		Com M&&C+AL Man+C+FA+								
WATE	R D (man-dation	ō	PUBLIC BUPPLI COBLIDE BD AIR CO		İ		<u> </u>				
	№ 01.000	<u> 14</u>	<u>,, , </u>							لمر	. 574
METH		evi ni mal							•		18 36
CONSTRU	ICTION D PRINT IN	• 1	D ******	•						11	708
	D are rescue	1-0-5	igu	CONTRA	C100 •		****	T			
1 1	en desertions	Def114	h.,	2667	•••	ONIA		<u></u>			
- A						w					
Box	850 R.R. 11. Fe	nelon F	alls. Ont		C-A = 0	OFFICE US					
			i i		1	1 () [

Ontano		1 mart 16 5001	-	M APPLICABLE						\c= -	wa	mantu		1	.o.
	1		ı	Two Lin			3 X.	andfil	11_	Con	6				26
Victoria			· CIDA	000E 64	dsay, (, <u>17</u>	02	93_
Town of L	indsey			1111	usay, v	ALL	10	-							
		LOG	OF OV	/ERBURDEN	AND BE	OROC	K M	ATERIA	us.	SEC 185	everions				· ftt:
EEREBAL COLOU	1200 120 000 001			-	EBIALS				_	-	BESCRIPTIO	•	-	/005	10
B	Top Soil													0	1
Brown	Sand													1_	6_
Вгомп	Sandy Cl	87												6_	19
Gray	Clay		stope	s			\dashv							19	40
Gray	Lineston	•					_							40	59141
							-								-
	-			· -			\dashv								
							\Box						-		
							_								-
W	ATER RECOR			CASING &	OPEN HO				Z	- 1404 - 1-	ortone .		0-4404.74	out set s	.50619
MATER FROMB AT - FEET	4100 OF TAILE			*********	101 001 11 101 001 11	1 (0.4	•	10	1 2	#4140 4	4 AND 1794			on property	
seeps	D recen Concrete D sour Concesses		Gantamentes Ocomesers						<u> </u>				WC DEC	<u> </u>	
	O POESS DAS	1. Pro-US	61	Decestic	.188	+	2	40	╂	B1 P1 H SE		1	SEAL!	NG REC	401 000-1
	D 2000 D 000	-	6 1	Description		4	۵	59*4	łF	1 24/41	10	-		1410	
	O 4844 One	-	-	Gores sous Orinstric	-	_	\dashv		╁├	0	20	Bens			1
	- De			Description Description of the Control of the Contr					JĖ						
Promos III		rvenes mil	rarie	1 200000000						LC	CATIO	N OF	WELL		
\$4 PM		ros	0 1		<u>55</u>			14 6	MAGR	4# BELO1	SHOW DIS	TANCES O		FROM 8040	AMD :
14441	**************************************	10 Greetts													Ň
1.5	··· 59 ····	15.40	23.9	<u> 30. 10.</u>)									1
ON TO STATE OF THE PARTY OF THE	•		56,20	_		~				1		\			
2	10 POOP TYPE	D1 (00000 000 0 PUSP DE 11406		011 0011 0411	Y					:	/ /	<i>```]\</i>			cps.
		1				\square				1	. (1.00)			int
FINAL) A&AMBORES INS) A&AMBORES POO		~``				i	l_		2	.93	
OF WE		1 ***** *******************************	-) verieitett) ocustome			١]	_ *		
	D 800	K4	0 •	po at ocial po icifal											
WATE	D 100	1941104 1951014L		HOLIC SUPPLY HOLIOG GO AIG COM	01 100 0 0 C										
		<u>بناده ب</u>		D 200104											1.1136
METH	OD D ===	1487 (CBGVEST		D 1611100											
CONSTRU	CTION 8			() same		<u>. </u>	_		4445					1.	L708
1 1				1.40			2								
E C. H	ert & Sons	Well Dr	41111	g Ird 1	2662		EONL							:	
CONTRACTO CONTRACTO	850 R.R.		on F		*****		200					reho	2 ما	8-93	
O Char	lie Dungan	CONTRACTOR					OFFICE				υQ	. 2110	، ت ک	در در.	į
17/				<u></u>		n	lo								06 (11/06) FO



BOREHOLE NO. 28-93

1	15 Giorne Piace, thornett, Ontono LST 3G7				110	•						
990 IE	CT NAME Lindsay Landfill								PBO	JECT	NO	1080
OLICHT.	Hydroterra Limited	- : ' -							_ DAT			
CLIENT	OLE TYPE 150 mm Rotary											uson IB
												ISOR LB
GROUN	D ELEVATION 258.64 mas1								_ ENG	INEER		LB
		1.				AMPL	£		CONE			
DEPTH	STRATIGRAPHIC DESCRIPTION	STRATIONANY	MONITOR		4		\$,	SPT	, WA	TER ENT %	REMARKS
(44)		8	DETAILS	3	BITWA AL.	MATE	PROOPER	100 (A)	W VALUE	Щ.		
-		3		<u> </u>	-	3	7	_	SHEAR TH	w	w.'	
	SAND	İ			 							
	brown							-	}		. 1 1	
	SANDY CLAY								1			
\dashv	brown			\vdash		-					. 1 1	
		1									11	
<u>.</u>			1 1	-	\vdash		\dashv					
		┙.									-11	
ゴ	CLAY, STONES (TILL)											
\dashv	Grey			\vdash			\dashv					
												ŕ
ゴ								\exists				
10							-	\Box				
											11	
				\vdash		\dashv						
]				#						
	LUCCTONC		<i>iziiiz</i>				\dashv					
-	LIMESTONE Grey				\dashv	-	\dashv	\dashv		11		
\Box		1 1	.:			二						
15				\vdash		\dashv	\dashv	\dashv				
-			··i·		\exists	_	_					
7						\exists	_	\exists				
					\Box	_		\Box				
		1-1	-			\perp						
コ				-				\dashv				
20	1				_		\dashv		-1111		11	

BOREHOLE NO. 29-93

PROJECT NAME	Lindsay Landfill		_ PRO	JECT NO. 1080
CLIENT	Hydroterra Limited		_ DATE	April 12, 1995
BOREHOLE TYPE	108 mm Hollow Stem Augers		_ FIEL	SUPERVISOR KF
GROUND ELEVATION	258.64 mas1		_ ENGI	NEER LGB
		RAMPI F	CONE	

ļ			ĺ	<u> </u>		AMPL	.E		CONE PENETRATION		= =		
DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SS SS	M. AVTOR	% WATER	% RECOVERY	ROD (%)	SPT 'N' VALUE I I SHEAR STRENGTH	1 '	WATER		REMARKS
	CILTY CAND TILL		X										
1	SILTY SAND TILL												
]	Light brown, silty sand with some clay, gravel; wet; loose to firm												
1	loose to firm		1		-								
1				1	6								
1			$\left \cdot \right $										
4	•			2	10								
닉				-					.				
] .				3	23								
4			· · · · ,					_					
			; ‡ '										
			± :	4	21								
┥┢	MEDIUM TO COARSE SAND		- - '										•
	Grey, medium to coarse sand		上 '										
	with silt and clay traces;		I.T	5	50/	50 m	m						
	wet; firm to very dense		· + ·										
┥													
]													
-								-					
1								i —					
]			i										
-						<u> </u>		ļ					
-													
]													
-													
1													
]													
-	•							<u> </u>					
1								<u> </u>					
													-
-								-					
⊣ [
]													
-													1
-													*,
]													
												1	

BOREHOLE NO. 30-93

PROJECT NAME Lindsay Landfill	PROJECT NO
CLIENT Hydroterra Limited	DATE June 8, 1993
BOREHOLE TYPE 108 mm Hollow Stem Augers	FIELD SUPERVISOR LB
GROUND ELEVATION 248.89 mas)	ENGINEED LB

1			SAMPLE						COME PEMETRATION		
DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIONAMY	MONITOR DETAILS	TAN SS	BUTVA .M.	W WATEN	N RECOVERY	300 (%)	SPT 'H' VALUE \$YAEAGTH	WATER CONTENT to 5 10 15	REMARKS
	TOPSOIL, silty wet										
3	SILTY SAND TILL Yellowish brown, with some gravel, trace clay, rusty staining; compact to dense; moist SILTY SAND TILL Grey, with some gravel, trace clay; very dense; moist to wet at bottom Borehole terminated at 4.6 metres at auger refusal on assumed bedrock			3	71						



BOREHOLE NO. 31-93

PROJECT NAMELindsay Landfill	PROJECT NO. 1080
CLIENT Hydroterra Limited	DATEJune 8, 1993
BOREHOLE TYPE 108 mm Hollow Stem Augers	FIELD SUPERVISOR LB
GROUND ELEVATION 249.21 mas1	ENGINEERLB

	ELEVATION								ENG	INEER	
		817				AMPL		,	COME		
DEPTH (AL)	STRATIGRAPHIC DESCRIPTION	STRATIONAPHY	MONITOR DETAILS	SS MALE	BITTYA AK.	MATAW #	ANTACORN N	M) 000	W VALUE	CONTENT %	REMARKS
	TOPSOIL, silty, wet		1111	1	4		Ì		SYMMOTH I		
-	SILTY SAND TILL Yellowish brown with some gravel, trace clay; dense to very dense; moist			3	23 64 90) 	
	GRAVELLY TO SILTY SAND TILL Grey, with trace clay; dense to very dense; moist			5	55					•	
	Borehole terminated at 4.5 metres at auger refusal on assumed bedrock										
											•

BOREHOLE NO. 32-93

PROJECT NAME	Lindsay Landfill	PROJECT NO
CLIENT	Hydroterra Limited	DATE June 9, 1993
BOREHOLE TYPE	108 mm Hollow Stem Augers	FIELD SUPERVISOR
GROUND ELEVATION		ENGINEER LB

		T	1	1			-				
DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIONAPHY	MONITOR DETAILS	77	BOTVA AL	MIVA N	8	300 %	PEMETRATION SPT 'N' VALUE	CONTENT %	REMARKS
	SILTY SAND TILL Yellowish brown with some gravel, trace clay; to gravelly sand till at depth; dense to very dense; moist SILTY SAND TILL Grey with some gravel, trace clay; very dense; moist to wet at bottom Borehole terminated at 7.0 metres at auger refusal on assumed bedrock		BONTON DETAILS	2 3 4 5 5	8 30 61 60/ 75/	150	RECOVERY	700 (%)	M. VALUE		Monitors installed in separate boreholes



BOREHOLE NO. 33-93

PROJECT NAME	Lindsay Landfill	PROJECT NO
CLIENT	Hydroterra Limited	DATE June 9, 1993
BOREHOLE TYPE	108 mm Hollow Stem Augers	FIELD SUPERVISOR LB
GROUND ELEVATION		ENGINEERLB

		Т	ļ	Т		AMPL			C	Ones	Г			
DEPTH (M)	STRATIGRAPHIC DESCRIPTION		MONITOR DETAILS	7778	BITWA .M.	MATEN #	N MECOVERN	PAS OCOR	PEMETRATION SPT W VALUE		CONTENT O		REMARKS	
3 3 4 4 5 5 6 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	SILTY SAND TILL Yellowish brown, with some gravel, trace clay; rusty staining; dense to very dense at depth; moist SANDY GRAVEL TILL Grey, with some gravel, trace clay, grading to silty sand till at depth; very dense; moist to wet at bottom Borehole terminated at 6.6 metres at auger refusal on assumed bedrock	STRATIONARY		3	30 37 83 55/8								Monitors installed in separate boreholes	

BOREHOLE NO. 34-93

PROJECT NAME _	Lindsay Landfill	PROJECT NO. 1080	30		
CLIENT	Hydroterra i imited	DATE June 9, 1993	_		
	108 mm Hollow Stem Augers	FIELD SUPERVISOR LB			
GROUND ELEVATIO		ENGINEER LB	١		

		STRATIONAPHY		SAMPLE					COME		
DEPTH (m)	STRATIONAPHIC DESCRIPTION		MONITOR DETAILS	22	BITTA A.	MAIN W	W MECOVERY	202	SPT WALUE	WATER CONTENT to s 10 15 W P W L	REMARKS
	TOPSOIL, silty, wet				8						
-	SILTY SAND TILL Yellowish brown with some gravel, trace clay; firm to dense at depth; wet near surface to moist at depth			3	63	150				•	
4	SILTY SAND TILL Grey, with some gravel, trace clay; very dense; moist			5	50,	150	ASSA.			•	
5				6	85						•

EFS

Environmental Field Services

BOREHOLE LOG 35-93

PROJECT NAME: LINDSAY LANDFILL PROJECT No.:
CLIENT: HYDROTERRA LIMITED DATE: OCT 12, 1993
BOREHOLE TYPE: 200 mm O.D. HOLLOW STEM AUGERS GEOLOGIST: EJK

GROUND ELEVATION: ++ 258.06 m A.S.L REVIEWER: LB

	GK	OUND ELEVATION: +	+ 4	20	8.00	0 :	m A.	5.L			RE	VIEWE	R: Lb
DEP	тн	STRATIGRAPHY MONITOR DETAILS				ONITOR SAMPLE TTAILS TYPE WATER VALUE RÉCVRY						WATER	COMMENTS
m					Į,	-		-	-	RECVAI	20 40 60	10 20 30	
	0.2	SANDY SILT TILL: LIGHT BROWN WITH STONES, MOIST TO WET.					1 22	17	45		1	†	
1.0					7		2 53	8	30				
2.0			**				388	7	24				
	2.4	SANDY SILT: BROWN TO GREY FINE TO MEDIUM SAND,		*			4 SS	19	35		\. \ \		CAVE FROM 3.3m TO 5.9 m
3.0		erown, saturated, till – like.					<i>5</i> SS	18	43				
4.0	3.8	SILTY SAND TO SANDY										}	
		SILT TILL GREY, STONIER WITH DEPTH, MOIST, VERY DENSE.					6 SS	9	91		→		STONIER AND DENSER WITH DEPTH
79				7		i	7 S3	7	86		\rightarrow		,
				/	1								
60			年 を 教徒 からい				8 33	6	70 FOF		→		
7.0				-									
			F 6 2 4										MONITORS IN SEPARATE BOREHOLES
80				-			988	9	43				

EFS
Environmental Field Services

BOREHOLE LOG 35 - 93 CONTD

PROJECT NAME:	LINDSAY LANDFILL	PROJECT No.:
CLIENT:	HYDROTERRA LIMITED	DATE: OCT 12, 1993
BOREHOLE TYPE	E: 200 mm HOLLOW STAEM AUGER	RS GEOLOGIST: EJK
GROUND FLEVA	TION: +1- 258.06 m A.S.L.	PEVIEWER: 18

EPTH	STRATIGRAPHY	MONITOR		SAN	PLE	1 1/	VALUE	WATER	COMMENTS
m	bildillolouill	DETAILS	TYPE	WATER	VÄLUE	RÉCVRY	20 40 60	10 20 30	COMMENTS
8.2		•							
	BOREHOLE TERMINATED AT			İ		<u> </u>			
	8.2 m ON ASSUMED BEDROCK								
0.0									
Ĩ.									
\dashv						1	•		
1									
\dashv						 			
			-	 		 			
0.d			-	-		 			
-	1			 		 			
			 	ļ		 			
4			ļ						
4			<u> </u>		ļ				
<u>.d</u>									
4				ļ					
_	·			<u> </u>	<u> </u>	<u> </u>			
						<u> </u>			
	·		L						
2.0									
┪				 		 			
┪		İ	 	 	 				
\dashv			-	 	 				
-				 	 	 			
.0				 					
				 	 	 		•	•
4				 	ļ	ļ			
4				ļ		<u> </u>			•
_						<u> </u>			s:
rd				<u> </u>	<u> </u>	<u> </u>			
								†	
7							1]	
7				1		1	1	1	
5.Q			-	 			1		
7				 	-	 	1	1	
\dashv				 	 	 			
\dashv			-	 		-			
-				<u> </u>		ļ			
_	·					1			
6.D		ļ					1	1	

Environmental Field Services

BOREHOLE LOG 36-93

		* 				
	OJECT NAME: LINDS	Y LANDFILL	PR	OJECT	No.:	-
		TERRA LIMITED			T 12, 1993	-
		m HOLLOW STAEM AUGERS			ST:EJK	-
GR	COUND ELEVATION: _	-\- 257.64 m A.S.L	RE	VIEWE	R: LB	
РТН	CTD ATICD ADITY	MONITOR SAMPLE	И	WATER		=
m m	STRATIGRAPHY	DETAILS TYPE WATERVALUE RECVRY	VALUE	WATER	COMMENTS	
		I ITPE WATERVALUE RECYKI	20 40 60	10 20 30		

FP	TH	STRATIGRAPHY	MON	ITOR		4A2	(PLE		N VALUE	WATER	
m		SIMIOMIII	DET	AILS	TYPE	WATER	VALUE	RÉCVRY	20 40 50	10 20 30	COMMENTS
	0.2	TOPSOIL	1						20 10 00	10 20 30	
		SILTY SAND TILL : LIGHT	\		1 55	19	9		l _t		
_		BROWN, MOIST TO WET,		()] }	_	
_		FINER AT TOP, INCREASE								T	
٥		IN STONE CONTENT WITH DEPTH.						ļ			
4	,	DEI III.			253	10	14	ļ	†		
\dashv								 -	\	1	
4							ļ	ļ	\	1	
					3 SS	10	27		}	1	
۲					2 22	18	21	 		1	
\dashv								 		Į	
┨	2.6				488	10	22			-	
1					-32	-	-		<i>†</i>		
ᇬ	- 1	SAND: GREY FINE SANDY SILT SILTY FINE SAND. COARSER							1	1	
٦		WITHE DEPTH TO MED SAND.							1	}	
٦		WET TO SATURATED.			3 SS	14	8		1	}	
									\	}	
									\		
의									\	1 1	
┙	43	·			6.55	7	52		7		
Ì		SANDY TILL: GREY SANDY 7								1	
4	4.4	SILT TO SILTY SAND TILL /		ļ						•	
4		MOIST TO WET.							į		
4	[BOREHOLE TERMINATED AT							l		
4	1	4.4 m.						·			
4	1			-					ŀ		
4	1		Ė								
+	1										
4											
┨	ı			}							
1				-							
┪	1			}			·		1	1	
				}							
1	1			}						Į	
1				}							
1										[
7				}						1	
				}					l		

BOREHOLE LOG 37-93

Environmental Field Services

PROJECT NAME: LINDSAY LANDFILL

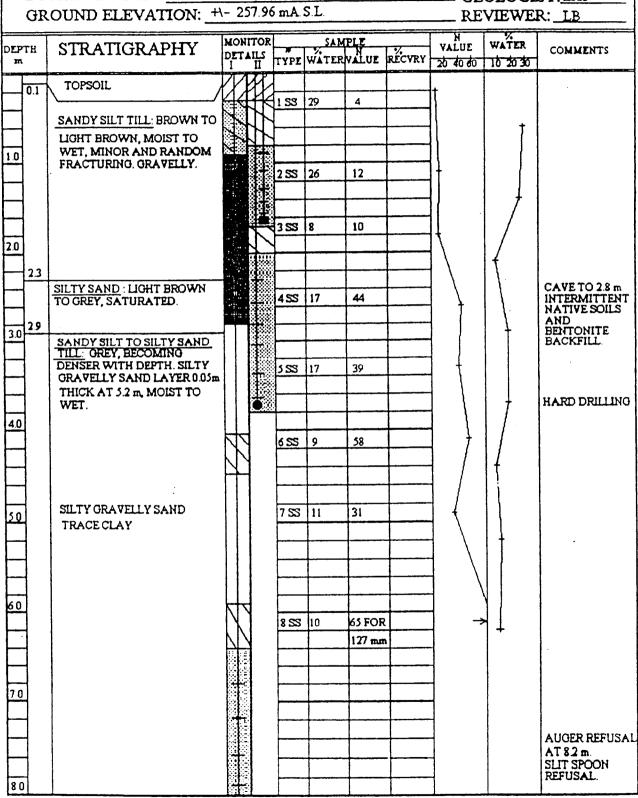
CLIENT: HYDROTERRA LIMITED

BOREHOLE TYPE: 200 mm HOLLOW STAEM AUGERS

PROJECT No.:

DATE: OCT 13, 1993

GEOLOGIST: EJK



EFS
Environmental Field Services

BOREHOLE LOG 37-93 CONTD

	LINDSAY LANDFILL	PROJECT No.:
CLIENT:	HYDROTERRA LIMITED	DATE: OCT 13, 1993
BOREHOLE TYPE	200 mm HOLLOW STAEM AUGERS	GEOLOGIST: EJK
GROIND FLEVA	TION: +1- 257.96 m A.S.L.	DEVIEWED. IN

GROOM ELECTRICAL TO STATE THE REVIEWER.									<u> </u>
DEPTH m	STRATIGRAPHY	MONITOR DETAILS	TVDF	SAN	PLE	RECVEY	VALUE 20 40 80	WATER	COMMENTS
		1	1172	THE LEA		- VKI	20 40 60	10 20 30	
8.2		3	-		 	ļ	1		MONITORS IN SEPARATE
	BOREHOLE TERMINATED AT 8.2 m ON ASSUMED		<u> </u>	ļ		 			BOREHOLES
\vdash	BEDROCK.		 	ļ		 	-		
					<u> </u>	ļ			
9.0						 	-		
\vdash							1		
-									
\vdash							1		
100			<u> </u>		ļ ———		<u> </u>		•
100						 			
11.0									
			ļ						
			<u> </u>						
		-	<u> </u>						
			<u> </u>						
12.0		İ							
\vdash			 				'		
			 -						
			 -						
13.0			-						
14.0									
15 C									
\vdash									
_									
16 C									

Environmental Field Services

BOREHOLE LOG 38-93

PROJECT NAME: LINDSAY LANDFILL PROJECT No.:

CLIENT: HYDROTERRA LIMITED DATE: OCT 13, 1993

BOREHOLE TYPE: 200 mm HOLLOW STAEM AUGERS GEOLOGIST: EJK

GROUND ELEVATION: +\- 258.60 m A.S.L. REVIEWED: IP

DEPTH STRATIGRAPHY DETAILS TYPE WATERVALUE RECVRY VALUE WATER TYPE WATERVALUE RECVRY 20 40 60 10 20 30 COMMENTS 0.3 TOPSOIL 1SS 14 3 VALUE VALU	6	ROUND ELEVATION: _+	1- 23	08.00	m A	.S.L.			RE	VIEWE	R: LB
SANDY SILT TILL: YELLOW BROWN TO LIGHT BROWN, MOIST TO WET BECOMING SATURATED WITH DEPTH. RUST COLOURED STIFF TO VERY STIFF. 26 SANDY SILT TO SILTY SAND GREY, WET, BECOMING MORE DENSE WITH DEPTH, MINOR SAND LAYERS THROUGHOUT		STRATIGRAPHY		ITOR	TYPE	SAI WATEI	MPLE RVALUE	récvry	VALUE	I .	COMMENTS
40 40 BOREHOLE TERMINSTED AT 40 m. 65 SS 5 50 FOR 177 mm 60 60 70	DEPTH 0.3 10 20 30 40 40 40 60 60	STRATIGRAPHY TOPSOIL SANDY SILT TILL: YELLOW BROWN TO LIGHT BROWN MOIST TO WET BECOMING SATURATED WITH DEPTH. RUST COLOURED STIFF TO VERY STIFF. SANDY SILT TO SILTY SAND: GREY, WET, BECOMING MORE DENSE WITH DEPTH, MINOR SAND LAYERS THROUGHOUT TILL UP TO 6 cm THICK.	MON DETA	ITOR ALLS	1 SS 2 SS 3 SS 4 SS	\$AI WATEI 14 12 8 10	10 12 15 55 50 FOR	RÉCVRY	VALUE 20 40 60	WATER	T T T T T T T T T T T T T T T T T T T

Environmental Field Services

BOREHOLE LOG 39 - 93

PROJECT NAME: LINDSAY LANDFILL PROJECT No.:

CLIENT: HYDROTERRA LIMITED DATE: OCT 13, 1993

BOREHOLE TYPE: 200 mm HOLLOW STAEM AUGERS GEOLOGIST: EJK

GROUND ELEVATION: +- 259,08 m A.S.L.

Gi	ROUND ELEVATION: _+	← 259.0)8 m A	LS.L.			RE	VIEWE	R: LB
DEPTH	STRATIGRAPHY	MONITO	R TYPI	SAI WATEI	MPLE VALUE	RÉCVRY	N VALUE 20 40 60	WATER	COMMENTS
1.0 2.0 3.0 4.0 5.0	TOPSOIL SILTY SAND TO SANDY SILT TILL: LIGHT BROWN, TRACE TO SOME CLAY, WET TO MOIST RUST COLOURED STAINING NUMEROUS STONES. SANDY SILT TO SAND TILL: GREY, STONY, MOIST. LAYERED DRILLING FROM TILL TO BOULDERS EVERY 100 TO 150 mm STARTING AT 6.1 m.	7	15S 2 SS 3 SS 4 SS 5 SS 6 SS 7 SS	19 7	8 19 22 22 22 52 52 60 FOR 100 mm 75 FOR 150 mm		→ →		NATURAL CAVE
8.0			9 SS		110 FOR		>	+	

Environmental Field Services

BOREHOLE LOG 41 - 93

PROJECT NAME: LINDSAY LANDFILL PROJECT No.:

CLIENT: HYDROTERRA LIMITED DATE: OCT 14, 1993

BOREHOLE TYPE: 200 mm HOLLOW STAEM AUGERS GEOLOGIST: EJK

GROUND ELEVATION: +1- 257.12 m A.S.L. REVIEWER: LB

	<u> </u>	COUND ELEVATION:	11- 237.	12 m.	ALS.L.			RE	VIEWE	R: LB
DEPT m	H	STRATIGRAPHY	MONITOR DETAILS I II	TYPI	SAI WÂTEI	MPLE RVALUE	récvry	N VALUE 20 40 60	WATER 10 20 30	COMMENTS
3.0 3	1	SANDY SILT TO SILTY SAND TILL: LIGHT BROWN, RUST COLOURED STAINS, BECOMING MOIST TO WET WITH DEPTH. COBBLY. SILTY SAND TILL: GREY, STONY, VERY DENSE, MOIST TO WET.		1 SS 2 SS 3 SS 4 SS 6 SS		18 63 FOR 150 mm 70 FOR 150 mm 150 mm		→ → → → →		COBBLY DIFFICULT DRILLING AUGER REFUSAL AT 6.1 m
70										

Environmental Field Services

BOREHOLE LOG 42-93

PROJECT NAME: LINDSAY LANDFILL PROJECT No.:

CLIENT: HYDROTERRA LIMITED DATE: OCT 18, 1993

BOREHOLE TYPE: 200 mm HOLLOW STAEM AUGERS GEOLOGIST: EJK

GROUND ELEVATION: +\- 256.61 m A S L REVIEWER: LB

61	ROUND ELEVATION:	REVIET	WER: LB
DEPTH m	STRATIGRAPHY	MONITOR SAMPLE VALUE WATER VALUE RECVRY 20 40 60 10 20	I COMMENTS
DEPTH m 0.2		MONITOR SAMPLE VALUE WATER VALUE RECVRY 20 40 60 10 20	ER COMMENTS
6.7	BOREHOLE TERMINATED AT 67 m ON ASSUMED BEDROCK.	7 SS 7 66 8 SS 7 50 FOR 25 mm	AUGER REFUSAL

EFS
Environmental Field Services

BOREHOLE LOG 43 - 93

PROJECT NAME: LINDSAY LANDFILL	PROJECT No.:
CLIENT: HYDROTERRA LIMITED	DATE: OCT 18, 1993
BOREHOLE TYPE: 200 mm HOLLOW STAEM AUGERS	GEOLOGIST: EJK
GROUND ELEVATION: +1- 260 95 m A S I	DEVELOGIST.EX

	ROUND ELEVATION: _+	1- 200	0.95 m 2	4.S.L.			RE	VIEWE.	R: <u>LB</u>
DEPTH m	STRATIGRAPHY	MONIT DETAI I	TOR ILS II TYP	SAI E WATEI	MPLE	RÉCVRY	VALUE 20 40 60	WATER 10 20 30	COMMENTS
0.2	SILTY SAND TO SANDY SILT TILL: LIGHT BROWN, STONY, WET TO SATURATED, COBBLY GRAVELLY. SILTY SAND TILL: GREY, COBBLY, WET TO SATURATED, BECOMING SANDIER WITH DEPTH. STONE CONTENT DECREASING WITH DEPTH. SILT CONTENT INCREASING WITH DEPTH.		355	9 9 6	15 16 16 24 90 66 50 FOR 100 mm		* * * * * * * * * * * * * * * * * * *	†	

EFS Environmental Field Services

BOREHOLE LOG 43 - 93 CONTD

PROJECT NAME: LINDSAY LANDFILL	PROJECT No.:
CLIENT: HYDROTERRA LIMITED	DATE: OCT 18, 1993
BOREHOLE TYPE: 200 mm HOLLOW STAEM AUGERS	GEOLOGIST: EJK
GROUND ELEVATION: +\- 260.95 m A.S.L.	DEVIEWED: ID

	COOLD ELEVATION.			A.D.D.			KE	ATEME	K: TB
DEPTH m	STRATIGRAPHY		TYPE	SAM WATER	PLE N VALUE	récvry	N VALUE 20 40 60	WATER 10 20 30	COMMENTS
8.3	DODDING BOOK								MONITORS IN SEPARATE BOREHOLES
	BOREHOLE TERMINATED AT 8.3 m ON ASSUMED BEDROCK								
9.0									
100									
11.0									
-									
12.0									
13.0	`								
									•
140		·							
150									
160									

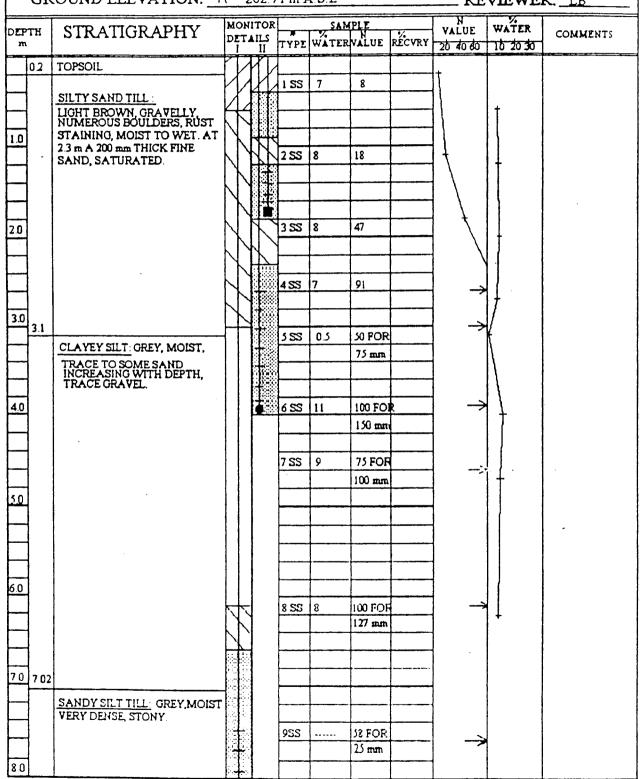
Environmental Field Services

BOREHOLE LOG 44 - 93

PROJECT NAME: LINDSAY LANDFILL PROJECT No.: CLIENT: HYDROTERRA LIMITED DATE: OCT 19, 1993

BOREHOLE TYPE: 200 mm HOLLOW STAEM AUGERS GEOLOGIST: EJK

GROUND ELEVATION: +\- 262.71 m A.S.L REVIEWER: LB



EFS
Environmental Field Services

BOREHOLE LOG 44 - 93 CONTD

PROJECT NAME: LINDSAY LANDFILL	PROJECT No.:
CLIENT: HYDROTERRA LIMITED	DATE: OCT 19, 1993
BOREHOLE TYPE: 200 mm HOLLOW STAEM AUGERS	GEOLOGIST: EJK
GROUND ELEVATION: +\- 262.71 m A.S.L	DEVIEWED: IN

									.R. <u>I.B</u>
DEPTH	STRATIGRAPHY	MONITOR		SAN	PLE		VALUE	WATER	
25%		DETAILS	TYPE	WATER	VALUE	RÉCVRY	30 40 40	11 10 10	COMMENTS
	STRATIGRAPHY BOREHOLE TERMINATED AT 8.8 m ON ASSUMED BEDROCK	MONITOR	TYPE	SAM WATER	PLE	RÉCVRY	VALUE 26 40 60		COMMENTS
13.0									•

Environmental Field Services

BOREHOLE LOG 45 - 93

PROJECT NAME: LINDSAY LANDFILL PROJECT No.:

CLIENT: HYDROTERRA LIMITED DATE: OCT 20, 1993

BOREHOLE TYPE: 200 mm HOLLOW STAEM AUGERS GEOLOGIST: EJK

GROUND ELEVATION: +1-266.12 m A.S.L. REVIEWER: LB

	UN	COND ELEVATION.	<u>` -</u>	00.11	. 111 1				RE	VIEWE	R:_LB
D EP		STRATIGRAPHY		NITOR AILS I	TYPE	SAN WATER	PLE N VALUE	RÉCVRY	N VALUE 20 40 60	WATER 10 20 30	COMMENTS
	<u>ک</u> 0	TOPSOIL			155	27	8		†	1	
1.0		SILTY SAND TO SANDY SILT TILL: LIGHT BROWN, MOIST VERY DENSE, NUMEROUS STONES AND BOULDERS. SAND CONTENT INCREASING WITH DEPTH. RUST COLOURED STAINING.			2 SS	7	41				BOULDERY DRILLING FROM 1.4 m.
2.0					3 SS	9	25				
3.0					4 SS	12	61		+	+	
					3 SS	8	90		→		
4.0			•	-	6 SS	6	93		\rightarrow	-	
5.0		•			7 SS		100 FOR 250 mm		-)		
	5.2 5.3	SILT TILL: GREY, DENSE MOIST, MINOR RUST STAINING.			8 S3	7	117 FOF 250 mm		→		20 L OF WATER ADDED TO
60		BOREHOLE TERMINATED AT 5.3 m.									HYDRATE BENTONITE
70											
80											



BOREHOLE NO. 45-95

PROJECT	NAME	Lindsay Lagoon	Inve	stigation						880	IFOT NO	1080L
CLIENT _		Lindsay/Victor	ia							DAT	JECT NO.	November 30, 1994
BOREHOL	E TYPE	108 mm Hollow S	item;	75 mm Dia	mono	i Dr	111				D SUPER	
GROUND	ELEVATION	251.31 masl									NEER	KF KF
			1 2				SAMPI	Æ		CONE PENETRATION		
DEPTH (m)	STRATIGRAPH	IC DESCRIPTION	MATIC	MONITOR		ż	*	\$ 20	3	SPT	WATER CONTENT %	

						AMPL	E		CONE PENETRATION			
DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	TYPE !	N. AVTUE	W WATER	% RECOVERY	700 (%)	SPT 'N' VALUE	CONTEN	P 46	REMARKS
3 3 4 4 5 5 6 6 7 7 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	SILTY SAND TILL Yellowish to light brown, with some gravel and trace clay; compact to very dense at depth; moist; saturated sand/gravel seams at 1.5, 3.7 and 4.5 metres LIMESTONE BEDROCK Light to medium grey; fine to medium grained; faintly bedded with occasional argillaceous partings; broken rock in upper 0.5 metres and no discernable open fractures at depth Borehole terminated at 7.62 metres. Monitors I and II are installed in separate boreholes			6	25	5 mag			PTRACTH	W		



BOREHOLE NO. 46-95

PR	OJEC	T NAME	Lindsay Lagoon	Inve	sti	gat	ion											1080		
CL	IENT .		Lindsay/Victor	ia										PRO				4	6, 199	
во	REHO	LE TYPE	108 mm Hollow :	Stem;	75	mm	Di	amon	d Dr	111				DAT						
GR	OUND	ELEVATION	254.33 mas1										-					VISOR		
					_								_	ENG	INEE	R			KF	
				STA				-	т	BAMP	T		PENE	CONE						
	EPTH (m)	STRATIGRAPHIC	DESCRIPTION	STRATIGRAPHY		ONIT		JAK.	¥.	*	REC	8	'N'	SPT VALUE	CON	TENT	T %	,	IEMA R KS	
L				1	ı		I I	SS	M. AVTIM	MATER	RECOVERY	3	-	4-	-	1	_	·		
H				┪	h	Ż	 X	33	╁	-	3	-	87%	В атн	WP	V	7.			
口	1	FILL			4	4	4/	厂	\vdash											
	ŀ	Brown, sandy	clay with																	
P		trace gravel;	very dense			1	ı	-	\vdash		-									
口	1							1	44											
2								Ė	-											
\Box	.						5				-									
口	- 1						Graut													
3													İ							
\mathbb{H}		SILTY SAND TIL	1	\Box	1	ı		2	14			\exists								
		Yellowish to 1	ight brown							\dashv		-								
4	1	with some grav	el and trace					3	9	\Box	\neg			!						
		compact to den	se; moist to							\exists		\exists								1
\dashv	1									\dashv	\dashv	\dashv								
3	1						7	4	39	_	\dashv	\exists					1			
							11	5	13			コ								
						K	14	3	13	\dashv	-	\dashv					1			
6						;	$ \cdot $			_	\dashv									
\exists					į			6	35	\dashv	\exists	\exists				İ				
\dashv	·									\perp	\exists									
Z	T	CTITY CAND TO		\Box			 		-	\dashv	\dashv	\dashv							_	
コ		SILTY SAND TILL Grey, with some					-	\exists	1	\dashv	1	\exists							-	
\exists		Seams: compact:	asional sand							士										
•		sand/gravel lay	er at				[⊢		23	+	\dashv	\dashv					1			
コ							ķ.	\dashv	_	7	7	\exists								
\exists								3	14	士	\pm	\exists								
9							<u> </u>	\dashv	+	+	\dashv	\dashv							••	
\exists								-	18	1	\dashv									
\exists						3	では、一般の			士	\pm	\exists								
0					\perp		1	-	+	+	-	-								

BOREHOLE NO. 46-95 (cont'd)

PROJECT NAME	Lindsay Lagoon Investigation	BBO IFOT HE	1080L
CLIENT	Lindsay/Victoria	PROJECT NO.	April 6, 1995
BOREHOLE TYPE	108 mm Hollow Stem; 75 mm Diamond Drill	DATE	
GROUND ELEVATION	254.33 mas1	FIELD SUPERVI	SOR KF

		S	1	1	1	SAMPL	Æ		CONE			
DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SS MALL	N. AYTHE	HETAW #	N RECOVERY	ACD (%)	PENETRATION SPT 'N' VALUE STRENGTH	W.	ATER TENT M	REMARKS
22	LIMESTONE BEDROCK Light to medium grey; fine to medium grained; faintly bedded with occasional argillaceous partings; broken rock in upper 0.3 metres and no discernable open fractures at depth Borehole terminated at 14.93 metres. Monitors I and II are installed in separate boreholes				41				STRENGTH:			

PROJECT: 961-1529A LOCATION: SEE PLAN

1 to 50

RECORD OF BOREHOLE BH-47-96-1

SHEET 1 OF 2

BORING DATE: MARCH 22/96

DATUM: GEODETIC

CHECKED: PMM

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP; 760mm

<u> </u>	HOD	SOIL PROFILE			SA	MPLE		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	1	HYDRAULIC CONDUCTIVITY, k, cm/s	유	PIEZOMETE
METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	SHEAR STRENGTH nat V - rem V -	+ Q.• ⊕ U-O	WATER CONTENT, PERCENT Wp W	ADDITIONAL LAB. TESTING	STANDPIPI INSTALLATIO
0	1	GROUND SURFACE		254.38								Pa Pa
1 2 3	HACK MOUNTED CME, 75 POWEH AUGER 108mm I: D./203mm O.D. H.S.A.	Loose to compact, brown to greyish brown, moist to wet, sandy silt with sand and gravel layers and silty sand, trace clay layers, occ. cobbles, occ. organic matter. (FILL)			3 3 5	50 DO 50 DO	51 9 28 26					CEMENT & CASING & CAS
5	1HAC	Compact, brown, moist to wet, sandy SILT/silty SAND, some gravel, some clay, thin to medium thick layers of silty clay and fine to medium sand at 7.06m to 8.23m. (TILL)		<u>249.35</u> 5.03	9	50 DO 50 DO	117			0	мн	
		·				50 DO						
9		Bedrock inferred Continued on Drillhole Log		245.95 8.48			50/ 10					BENTONITE SEAL
٥		CONTINUED ON NEXT PAGE			-							· · · · · · · · · · · · · · · · · · ·

Golder Associates

RECORD OF BOREHOLE BH-47-96-1

SHEET 2 OF 2

DATUM: GEODETIC

LOCATION: SEE PLAN

DRILLING DATE: MARCH 22/96

Continued from Borehole Log 245.95 9 Fresh, light to medium grey, medium grained, medium to thickly bedded, stylolitic LIMESTONE with occ. slightly fossiliferous horizons. (BEDROCK) 10 3 8 8 Continued from Borehole Log 4 5 6 8 8 8 8 8 8 8 8 8 8 8 8		CONDUCTIVITY k, cm/sec	TYPE AND SURFACE	DIP w.r.t. CORE AXIS	PER.am SPPS	%					, , ,	ו יידסם		DESCRIPTION	H [<u> </u>
Continued from Borehole Log 245.95 1 1 9 0 Fresh, light to medium grey, medium graned, medium to thickly occ. slightly fossiliferous ONE with horizons. (BEDROCK) 3 8 0 4 8 0 242.84 END OF DRILLHOLE 11.54 END OF DRILLHOLE 11.54 END OF DRILLHOLE MIF MF Brokan Care FRUE				1		8848	8848 ORE %	% C	TOT	FLUSH	PENETRA	(m)	SYMBOLIC LOG		DRILLING RECORD	ME
Continued from Borehole Log 245.95 8.43 1 1 5 0 0 Fresh, light to medium grey, medium reined, medium to thickly bedded, shyldite LiMESTONE with occ. slightly fossiliferous horizons. (BEDROCK) 3 8 0 FRUE FRUE FRUE FRUE FRUE FRUE FRUE FRUE	BENTONITE															7
Fresh, light to medium grey, medium grained medium to thickly bedded, stylollis LIMESTONE with coc. slightly fossiliers before, special stylogen before and the stylogen between	BENTONITE		ME											Continued from Borehole Log		в
occ. slightly fossiliterous horizons. (BEDROCK) 3 88	J J J J J J J J J J J J J J J J J J J		MF								0.061					9
3 8 8			FR,UE FR,UE FR,UE				r				0.075			Fresh, light to medium grey, medium grained, medium to thickly bedded, stylolitic LIMESTONE with occ. slightly fossiliferous horizons. (BEDROCK)		٥
242.84 END OF DRILLHOLE 11.54 Water monito at elever 153.58 March	SILICA SAND		MF								0.069					
Water monitor at leave to the control of the contro			FR,UE FR,UE FR,UE	•							0.074					1
6	Water level in monitoring well at elevation 253.56m on March 23,1996.															3

PROJECT: 961-1529A LOCATION: SEE PLAN RECORD OF BOREHOLE BH-47-96-2

SHEET 1 OF 1

DATUM: GEODETIC

SAMPLER HAMMER, 63.5kg; DROP, 760mm

BORING DATE: MARCH 22/96

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm

											1 431 431 441
ł		HOD H	SOIL PROFILE	T		-	MPL		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	PIEZOMETER
DEPTH SCALE METRES		BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	SHEAR STRENGTH nat V - + Q - • rem V - ⊕ U - O	WATER CONTENT, PERCENT WP OW W	A PODITIONAL PIEZOMETER OR STANDPIPE INSTALLATION
			GROUND SURFACE		254.29 0.00						FA ON A A
1 2	GER		·		0.00						CEMENT & CASING
5	TRACK MOUNTED CME 75 POWER AU	108mm I.D./203mm O.D. H.S.A.	No samples collected. Refer to BH-47-96-1 for stratigraphy.								BENTONITE SEAL
7					0.40.00						SILICA : : : : : : : : : : : : : : : : : : :
9			END OF BOREHOLE		<u>246.22</u> 8.07						Water level in monitoring well at elevation 253.58m on March 23,1996.
		TH:	SCALE			1		<u> </u>	Golder Associates		LOGGED: TM

1 to 50

RECORD OF BOREHOLE BH-48-96-1

SHEET 1 OF 2

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm

LOCATION: SEE PLAN SAMPLER HAMMER, 63.5kg; DROP, 760mm BORING DATE: MARCH 21/96

DATUM: GEODETIC

HYDRAULIC CONDUCTIVITY, DYNAMIC PENETRATION SAMPLES SOIL PROFILE BORING METHOD ADDITIONAL LAB. TESTING RESISTANCE, BLOWS/0.3m DEPTH SCALE METRES PIEZOMETER OR STANDPIPE BLOWS/0.3m TYPE ELEV. DESCRIPTION SHEAR STRENGTH nat V - 🛨 WATER CONTENT, PERCENT INSTALLATION <u>w</u>0 DEPTH Cu, kPa rem V - ⊕ U - O Wp | w 15 (m) 20 GROUND SURFACE 254.85 0 Dark brown sandy topsoil, some silt. (FILL) 50 DO CEMENT & CASING 56/ .15 Mar.23/96 50 DO 2 Loose to compact, brown to brownish grey, moist to wet silty sand with pockets of dark brown sandy topsoil, sand and gravel and grey sand, occ. organic matter. (FILL) 50 DO 14 TRACK MOUNTED CME 75 POWER AUGER BENTONITE GROUT 50 DO 50 DO 10 7 Compact, grey, wet sandy SILT, some sand lenses, trace to some gravel, trace to some clay. 0 мн 50 DO 19 246.32 8.53 Very dense, grey, wet silty SAND, some gravel. (TILL) 50 DO 89/ .18 BENTONITE SEAL 7 245.47 Bedrock inferred 9.45 Continued on Drillhole Log CONTINUED ON NEXT PAGE LOGGED: TM **DEPTH SCALE Golder Associates** CHECKED: PMM

RECORD OF BOREHOLE BH-48-96-1

SHEET 2 OF 2

DATUM: GEODETIC

LOCATION: SEE PLAN

INCLINATION: -90 AZIMUTH:

DRILLING DATE: MARCH 22/96

DRILL RIG: CME-75

DRILLING CONTRACTOR: ALL-TERRAIN DRILLING LTD.

METRES DRILLING RECORD	מהטטפה	DESCRIPTION	SYMBOLIC LOG	ELEV.	No.	TION RATE	FLUSH "COLOUR RETURN	FR-F CL-C SH-S VN-V	CLE SHE /EII	4		J. P	FAUL JOIN POLI SLIC	T SHEI KENS	D SIDEI		SM-SMOOTH R-ROUGH ST-STEPPED PL-PLANAR	W-W	LEXU INEVI IAVY URVE	EN D		MPa)	NOTES WATER LEVELS
MET			SYMBOI	DEPTH (m)	NO.	PENETRA1 (m/n	FLUSH		% 0	SOLID ORE %	90	Q.D. %	2 ⁴	Σ 3π 202	DP w.r	r.t AXIS	SCONTINUITY DATA TYPE AND SURFACE DESCRIPTION	- c	HYDR ONDU k, cr	AULIC CTIVI n/sec	\bot	POINT LOAD INDEX (MPa)	INSTRUMENTATIO
8		CONTINUED FROM PREVIOUS PAGE																					
9		Continued from Borehole Log		245.47 9.38													FR;UE						
0		Fresh, light to medium grey, medium grained, medium to thickly bedded, stylolitic LIMESTONE with occ. slightly fossiliferous horizons. (BEDROCK)			1	0.119											FR,UE x2 FR,UE FR,UE,ground FR,UE,ground,missing FR,UE	Сфге					BENTONITE SEAL
2		horizoris. (BEDROCK)		242.39	2	0.128											FR,UE FR,UE,ground FR,UE,x3 Broken Core, ground MF FR,UE						SILICA SAND SAND SAND
3		END OF DRILLHOLE		12.46																			Water level in monitoring well at elevation 253.82tm on March 23,1996.
5																							
6																							
7																							
DEPTH				,																LOG	age]] D:	TM

Golder Associates

DATE: MARCH 22/96

CHECKED: **PMM**

RECORD OF BOREHOLE BH-48-96-2

SHEET 1 OF 1

DATUM: GEODETIC

LOCATION: SEE PLAN

SAMPLER HAMMER, 63.5kg; DROP, 760mm

BORING DATE: MARCH 22/96

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm

 -				<u> </u>	1		<u></u>	DVAL	MIC PEN	ETDAT)N	<u> </u>	HYDRA		ארטו וכד	IVITY		The second of th
ן נַ	오	SOIL PE				SAN	APLES		AMIC PEN STANCE,	BLOWS	0.3m)	niona	k, cm/	ONDUCT 's	IVII 1,	NG IA	PIEZOMETER
METRES	BORING METHOD			STRATA PLOT	LEV.	EB EB	TYPE OWIGING SER				L				1		 ADDITIONAL LAB. TESTING	OR STANDPIPE
ME	RING	DESCRIPTION	1	ATA DE	EPTH	NUMBER	TYPE	SHE/	AR STREN Pa	GTH	natV-+ remrV-⊕	Q-● U-O		TER CC	NTENT,	PERCE	ADD AB.	INSTALLATION
	BO			STR	(m)	۲	ā			,			ļ					
,	Ţ	GROUND SURFACE		2	0.00													o a a
-					0.00													CEMENT & AZA CASING
	1																	444 678 444
	1																	포
1																		Mar.23/96
١																		
		•																
							İ											
2							1											BENTONITE GROUT
1																		GROUT
					- 1													
								l			}							
3																		
1	gg																	
1	AG				I													
		No samples collected. Refer to BH-48-96-1 for stratigraphy.																
1	75 9	for stratigraphy.			1				1		.							
1	CWE	E		1														
١	TRACK MOUNTED CME 75 POWER AUGER	D/20		ł														
5	X ₩	H H H H H H H H H H H H H H H H H H H				1				:								
	TAY:	ÖF				l												
					1													
1					Ì													
6																		BENTONITE SEAL
-																		SEAL
١					l													
1																		
7															:			: : : :
																		SILICA ::: SAND :::
ı																		
					i													:. : :: :
в						ł								-				: : :: :
																		i. : :. :
				2	246.09													
٦	T	END OF BOREHOLE			8.74													Water level in
9																		Water level in monitoring well at elevation 253.97m on March 23,1996.
																		March 23,1996.
10																		
																		<u></u>
DF	PTI	H SCALE															LOG	GED: TM
	o 5							(Golde	r As	sociat	es					CHEC	CKED: PMM
	- •					_											 	

PROJECT: 961-1529A LOCATION: SEE PLAN

RECORD OF BOREHOLE BH-49-96-1

SHEET 1 OF 3

BORING DATE: MARCH 19/96

DATUM: GEODETIC



SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm

	HOD	SOIL PROFILE	T ;	1	S/	MPLI		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, K, cm/s	NG ING	PIEZOMETE
METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	SHEAR STRENGTH nat V - + Q • • rem V - ⊕ U - O	WATER CONTENT, PERCENT WP	ADDITIONAL LAB. TESTING	OR STANDPIPI INSTALLATIO
。		GROUND SURFACE	\mathbb{L}	265,31 0.00							44
		Dark brown silty topsoil, some sand, trace clay, rootlets.		264.98 0.33	1	50 DO	5				CEMENT & CASING
1					2	50 DO	9				
2		Loose to compact, brown, moist to wet sandy SILT/silty SAND, some gravel, some clay. (TILL)			3	50 DO	13				
					4	50 DO	11		0	мн	 Mar.23/96 ¯
3					5	50 DO	24/ .10				
				<u>261.8</u> 0 3.51							
4	A AUGER				6	50 DO	60/ .15				
5	TRACK MOUNTED CME 75 POWER AUGER 108mm I.D./203mm O.D. H.S.A.				7	50 DO	60/ .15				
	Smm I.D./203m				8	50 DO					BENTONITE GROUT
6	TRAC	Very dense, grey, moist to wet sandy SILT, trace to some gravel, trace to some clay, occ. thin lenses of silty fine sand. (TILL)			9	50 DO	60/ .15				
7					10	50 DO	60/ .10				
					11	50 DO	50/ .15				
8					12	50 DO	60/ .15		-		
9		e:			13	50 DO	60/ .15				
0					14_	50 DO	60/ .0 8			мн	
1		CONTINUED ON NEXT PAGE	1							-	

DEPTH SCALE

1 to 50

Golder Associates

LOGGED: TM

CHECKED: PMM

RECORD OF BOREHOLE BH-49-96-1 SHEET 2 OF 3 PROJECT: 961-1529A LOCATION: SEE PLAN BORING DATE: MARCH 19/96 DATUM: GEODETIC PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm SAMPLER HAMMER, 63.5kg; DROP, 760mm DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m HYDRAULIC CONDUCTIVITY, k, cm/s SAMPLES SOIL PROFILE DEPTH SCALE METRES ADDITIONAL LAB. TESTING PIEZOMETER BLOWS/0.3m OR STANDPIPE INSTALLATION STRATA PLOT NUMBER TYPE ELEV. SHEAR STRENGTH nat V - + WATER CONTENT, PERCENT DESCRIPTION DEPTH Cu, kPa rem V - ⊕ U - O Wp | -Jw 15 (m) 20 CONTINUED FROM PREVIOUS PAGE 0 50 60/ DO .08 мн TRACK MOUNTED CME 75 Very dense, grey, moist to wet sandy SILT, trace to some gravel, trace to some clay, occ. thin lenses of silty fine sand. (TILL) 15 50 60/ DO .08 254.47 10.84 Continued on Drillhole Log 15 17 20 CONTINUED ON NEXT PAGE **DEPTH SCALE** LOGGED: TM **Golder Associates** CHECKED: PMM 1 to 50

PROJECT: 961-1529A LOCATION: SEE PLAN

RECORD OF BOREHOLE BH-49-96-1

DRILLING DATE: MARCH 19/96

DRILL RIG: CME-75

SHEET 3 OF 3 DATUM: GEODETIC

INCLINATION: -90 AZIMUTH: DRILLING CONTRACTOR: ALL-TERRAIN DRILLING LTD.

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH	No.	PENETRATION RATE (m/min.)	COLOUR % RETURN	FR-FRACTURE CL-CLEAVAGE SH-SHEAR VN-VEIN RECOVERY	J-JOIN' P-POU S-SLICI	SHED (ENSIDED	SM-SMOOTH R-ROUGH ST-STEPPED PL-PLANAR SCONTINUITY DATA	FL-FLEXURED UE-UNEVEN W -WAVY C -CURVED HYDRAULIC	DIAMETRAL POINT LOAD INDEX (MPa)	NOTES WATER LEVELS
DEPTH ME	DRILLING		SYMBC	(m)	Ę	PENETR/ (m)	FLUSH	TOTAL SOLID CORE % CORE % CORE %		DIP W.r.L	TYPE AND SURFACE DESCRIPTION	CONDUCTIVITY k, cm/sec	NO NO NO NO NO NO NO NO NO NO NO NO NO N	INSTRUMENTATION
- 10		CONTINUED FROM PREVIOUS PAGE Continued from Borehole Log		254.43										
- 11 - 12		Fresh, medium to dark grey, fine to medium grained, thinly to medium bedded nodular textured		10.88	1	0.06					B,UE Broken Core B,UE x2 FR,UE B,W x2 FR,UE			GROUT BENTONITE SEAL
13		THEOLOGY INCLUDIAL REACTER LIMESTONE and argillaceous to shaly LIMESTONE. (BEDROCK)			2	0.037					FR,UE x2 Broken Core FR,UE Broken Core FR,UE B,UE FR,UE FR,UE B,UE,Muddy FR,UE,Muddy			SILICA
- 14				250.29	3	0.052					FR.UE B.Ground FR.UE B.Ground B.C.Ground			
15		END OF DRILLHOLE		15.02										Water level in monitoring well at elevation 262.96m on on March 23,1996.
- 17														
18														-
- 19 - - - - 20														-
	PTH:	SCALE:						Golde	r Associ	 ates_		LOGGI DATE: CHEC		TM MARCH 19/96 PMM

RECORD OF BOREHOLE BH-49-96-2

SHEET 1 OF 2

LOCATION: SEE PLAN

SAMPLER HAMMER, 63.5kg; DROP, 760mm

BORING DATE: MARCH 20/96

DATUM: GEODETIC PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm

5					1, www.st.				TOVNAMIC DEMETER	TION >	HYDRAULIC CONDUCTIVITY -	FT	1 34 5,50 1,50 1
۱	ш	00	SOIL PROFILE			SA	MPL	ES	DYNAMIC PENETRA RESISTANCE, BLOW	/S/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	부호	PIEZOMETER
	DEPTH SCALE METRES	BORING METHOD		Į.		æ		BLOWS/0.3m			_	ADDITIONAL LAB. TESTING	OR STANDPIPE
ı	H S	∑	DESCRIPTION	STRATA PLOT	ELEV.	NUMBER	TYPE	0/9/	SHEAR STRENGTH	natV- + Q-●	WATER CONTENT, PERCENT	-1 68	STANDPIPE INSTALLATION
- 1	EPT	Ē	DESCAII NON	¥	DEPTH	Į	٦	ğ	Cu, kPa	rem V - ⊕ U - O	wp wi	88	
- 1	۵	요		STF	(m)			面					
ŀ		T	GROUND SURFACE	Т	265.31	Г							
ŀ	- 0	_	4.100.1000.101.102	Т	0.00	1				1 1		1	000000 000000
ŀ		1											CEMENT & AVADADA OF AV
Ŀ				1					1 1 1				000000
. [989898
ŀ					1								
•	- 1											1	
F													
· F													
Œ													
· [
F	- 2												
E		.				l						ŀ	모
. [l							Mar.23/96
F													
F				l								1	
F	- 3												
•												1	
F												1	
												1	BENTONITE GROUT
·												1	I dhoo!
ŀ	- 4	63			l								
. [TRACK MOUNTED CME 75 POWER AUGER 108mm I.D./203mm O.D. H.S.A.			1	l							
		EB.				İ							
) [POV H.S.											
ŀ		275 0.0	No samples collected.			İ		ļ					
	- 5	CME	No samples collected. Refer to BH-49-96-1 for stratigraphy.			l							
		TED 203r	Tor stratigraphy.			1				ŀ			
' [원급			1	l							
		Smr 8				1							
		1 PAC			1								
	- 6			ı									-
1		1			l	l							
,						l							
				1		l							
1	•				l					1 1			
	· 7			1									-
	:												
	:	1			1	1							
'					1								
.						1		1					
	- 8			1	1		1						
				1									DENTE:
ı				1		1						1	BENTONITE SEAL
, , ,													
96/8	•												
Ä.	- 9			1									23 1 22
Ω̈́ς						1							
ءٌ ا													
ä					1								SILICA
DATA INPUT: PS JUNE 18/96													SILICA SAND
PAT	- 10		<u> </u>	-	.L	 	 -	<u> </u>	╌┠╌╌┼╌╌┼╌	_++	- -		
[[- 10		CONTINUED ON NEXT PAGE		1							1	
١ <u> </u>	,	Ш		<u> </u>		Ь			1				
- 1	. •											100	GGED: TM

RECORD OF BOREHOLE BH-49-96-2 PROJECT: 961-1529A SHEET 2 OF 2 LOCATION: SEE PLAN BORING DATE: MARCH 20/96 DATUM: GEODETIC SAMPLER HAMMER, 63.5kg; DROP, 760mm PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m SOIL PROFILE HYDRAULIC CONDUCTIVITY, k, cm/s SAMPLES DEPTH SCALE METRES ADDITIONAL LAB. TESTING PIEZOMETER OR STANDPIPE BLOWS/0.3m STRATA PLOT NUMBER ELEV. TYPE DESCRIPTION SHEAR STRENGTH nat V - + Q - ● WATER CONTENT, PERCENT INSTALLATION DEPTH Cu, kPa rem V - ⊕ U - O Wp | (m) TRACK MOUNTED CME 75 POWE CONTINUED FROM PREVIOUS PAGE END OF BOREHOLE Water level in monitoring well at elevation 263.03m on March 23,1996. 12 13 14 16 17 18

DEPTH SCALE

1 to 50

Golder Associates

LOGGED: TM CHECKED: PMM

RECORD OF BOREHOLE BH-49-96-3 SHEET 1 OF 1 PROJECT: 961-1529A LOCATION: SEE PLAN BORING DATE: MARCH 20/96 DATUM: GEODETIC PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm SAMPLER HAMMER, 63.5kg; DROP, 760mm DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m HYDRAULIC CONDUCTIVITY, k, cm/s SAMPLES SOIL PROFILE BORING METHOD DEPTH SCALE METRES ADDITIONAL LAB. TESTING PIEZOMETER STRATA PLOT BLOWS/0.3m OR STANDPIPE NUMBER ELEV. TYPE nat V - + Q - ● rem V - ⊕ U - O SHEAR STRENGTH WATER CONTENT, PERCENT DESCRIPTION INSTALLATION _o<u>w</u>_ DEPTH Cu, kPa Wp | (m) GROUND SURFACE 265.35 0.00 CEMENT & CASING Mar.23/96 BENTONITE GROUT TRACK MOUNTED CME 75 POWER AUGER 108mm I.D./203mm O.D. H.S.A. No samples collected. Refer to BH-49-96-1 for stratigraphy. BENTONITE SEAL SILICA SAND 260.78 4.57 CAVED **END OF BOREHOLE** Water level in monitoring well at elevation 264.71 m on March 23,1996. LOGGED: TM **DEPTH SCALE Golder Associates** CHECKED: PMM 1 to 50

PROJECT: 381-1494

LOCATION: SEE FIGURE 2

SAMPLER HAMMER 63.5kg; DROP, 760mm

F BOREHOLE 50-98

IING DATE: SEPT. 1, 1998

SHEET 1 OF 2

DATUM: GEODETIC



PENETRATION TEST HAMMER 63 5kg: DROP 760mm HYDRAULIC CONDUCTOTO CYNAMIC PENETRATION SOIL PROFILE SAMPLES RESISTANCE, BLOWS/0.3m ADDITIONAL LAB. TESTING DEPTH SCALL METRES PIEZOMETER OR STRATA PLOT BORING ME NUMBER TYPE ELEV. STANDPIPE DESCRIPTION SHEAR STRENGTH natV+ Q.● WATER CONTENT PERCENT INSTALLATION DEPTH rem V - 🕀 U · O (m) GROUND SURFACE TOPSOIL 256.42 50 DO Loose to compact moist brown/ grey sandy SILT with trace to some ciay and gravel. (TILL) SEP 8/98 BENTONITE SEAL 50 00 254 74 : 38 10 CME-75 POWER AUGER BORING Compact to dense, moist, brown sandy SiLT to silty SAND, some graver trace cray. (TILL) 253.57 3.05 50 100 Very dense, moist to wet, grey sandy SILT to silty SAND, some graver, trace clay. (TILL) CUTTINGS 50 60/ 00 42 BENTONITE LIMESTONE (BEDROCK) Interface inferred from auger resistance. For bedrock coring information, see sneet 2.

DEPTH SCALE

Golder Associates

LOGGED: FSB CHECKED: FSB RECORD OF BOREHOLE 51-98

SHEET 1 OF 2

DATUM: GEODETIC

LOCATION: SEE FIGURE

PROJECT: 981-1494

BORING DATE: SEPT. 1, 1998

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm

	_	SOIL PROFILE			SA	MPL	ES	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	ì	HYDRAUUC CONDUCTIVITY, k, cm/s	₹ S	PIEZOMETER
METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	SHEAR STRENGTH nat V - + Cu, kPa rem V - &	Q. ● U-O	WATER CONTENT, PERCENT WP WP W	ADDITIONAL LAB. TESTING	OR STANDPIPE INSTALLATION
-	\top	GROUND SURFACE	Į.	255.69	-	-			ĺ			│
0		TOPSOIL	22	0.00 255.46 0.23	,	50 DO	14					i ‱
1					2	88	37					<u>↓</u> SEP.8/98
3	CME-75 POWER AUGER BORING	Compact to very dense, moist, brown sandy SILT, some gravel, trace clay. (TILL)		<u>252.</u> 0	4 33 66		72					HOLE PLUG & CUTTINGS
5		Very dense, moist, grey sandy SILT, some gravel, trace clay. (TILL)		2497	5		50/					BENTONITE SEAL
	7	LIMESTONE (BEDROCK) Interface inferred from auger resistance. For bedrock coring information, see sheet 2.		249.7 5.8	94							
•	9											

DEPTH SCALE

1 to 50

Golder Associates

CHECKED: FSB

∮e. oj Ci 981-1494

RECORD OF DRILLHOLE: 51-98

DRILLING DATE: SEPT.2/98

SHEET 2 OF 2

DATUM: GEODETIC

UN AHON: SEE FIGURE 1 DRILL RIG: CME-75 POWER AUGER DRILLING CONTRACTOR: ALL TERRAIN DRILLING LTD. AZIMUTH: ME LINATION: -90 FL-FLEXURED BC-BROKEN CORE FR-FRACTURE F-FAULT CL-CLEAVAGE J-JOINT SM-SMOOTH UE-UNEVEN MR-MECH, BREAK J-JOINT P-POUSHED R -ROUGH NOTES B -BEDDING SYMBOLIC LOG ST-STEPPED W-WAVY MOAN SOAD SH-SHEAR PL-PLANAR C -CURVED 10030 S-SLICKENSIDED WATER LEVELS ENETRATION VN-VEIN ELEV. HYDRAULIC DISCONTINUITY DATA FRACT DESCRIPTION RECOVERY INSTRUMENTATION NO. B.Q.D. DEPTH INDEX FLUSH DP W.I.I. TYPE AND SURFACE k, cm/sec ٠, 3 PER com (m) DESCRIPTION 25.50 08.66 0000 0000 0000 CONTINUED FROM SHEET 1 BEDROCK SURFACE 249.7 FR.PLR BENTONITE SEAL FR.PL.A FR,PLR FR.PLR FR.UE,R FR.PL.R Fresh, light to medium grey, medium grained, medium to thickly bedded, stylolitic LIMESTONE with occ. slightly tossiliterous horizons. (BEDROCK) Mech. FR FR.UE.A FRIVER Mech, FR 247.13 8.56 END OF BOREHOLE 1. WATER LEVEL IN MONITORING WELL AT 1.28m DEPTH (ELEV. 254.18m) ON SEPT. 3/98. 2. MONITORING WELL HAND PUMPED TO 6.90m DEPTH (ELEV. 248.79m) ON SEPT. 3/98. 10 3. WATER LEVEL IN MONITORING WELL AT 1.32m DEPTH (ELEV. 254.37m) ON SEPT. 4/98. 4. WATER LEVEL IN MONITORNING WELL AT 1.35m DEPTH (ELEV. 254.34m) ON SEPT. 8/98. 12 13 14

DEPTH SCALE:

1 to 50

15

Golder Associates

FSB LOGGED:

DATE:

FSB CHECKED:

SEPT.2/98

PROJECT: 981-1494

DEPTH SCALE:

1 to 50

RECORD OF DRILLHOLE: 52-98

SHEET 2 OF 2

DATUM: GEODETIC

LOCATION: SEE FIGURE 2

DRILLING DATE: SEPT.2/98 DRILL RIG: CME-75 POWER AUGER

Golder Associates

LOGGED: DKB SEPT.2/98 DATE:

CHECKED: FS**B**

IN	CUNA	ATION: -90 AZIMUTH:							E-75 POWER AUG TRACTOR: ALL T	ger Terpain drilling LTD.		
DEPTH Sunce METRES	DRILLING RECORD	DESCRIPTION .	SYMBOLIC LOG	ELEV. DEPTH m)	ALIN No	PENETRATION RATE (m/min.)	FLUSH . GOLOUR	RECOVERY	JUDINT PROUSHED S S-SUCKENSIDED PROUSHE	ETSTEPPED WINAVY BIBE PLANAR CICURVED I SCONTINUITY DATA CICURAL TYPE AND SURFACE REASS	ROKEN CORE IECH BREAX IDDING HYDRAUUC ONDUCTIVITY K, CITVSSC	NOTES WATER LEVEL INSTRUMENTATION
4		CONTINUED FROM SHEET 1 BEDROCK SURFACE		248 54								_
5				4.72		9.00	80	80		FRUER BROKEN CORE FRUER BROKEN CORE FRUER		BENTONITE SEAL
- 6	86	Fresh, light to medium grey, medium grained, medium to thickly bedded, stylolitic LIMESTONE with occ. slightly fossinferous nonzons. (BEDROCK)		245.9	2	990 0		80:100%		FRPLR FRPLR FRPLR FRPLR FRPLR FRPLR FRPLR FRPLR		SAND FILTER
		END OF BOREHOLE		7 3						Mech, FR		
												1. WATER LEVEL MEASURED IN MONITORING WP AT 0.35m DEPT (ELEV. 252.86m ON SEPT. 1/98. 2. MONITORING WELL HAND PUMPED TO 4.50m DEPTH (ELEV. 248.71m) ON SEPT. 1/98. 3. WATER LEVEL
, , ,	0											MEASURED IN MONITORING WELL AT 0.28m OEPTH (ELEV. 252 93m) ON SEPT. 498.
· • • •	1											WATER LEVEL MEASURED IN MONITORING WELL AT 0.30m DEPTH (ELEV. 252.91m) ON SEPT. 8/98.
	2											
J SIB MARS/VV	13											
0A1,	14										LOGGEE): DKB

PROJECT 981-1494

1 to 50

LOCATION: SEE FIGURE 2

RECORD OF BOREHOLE 53-98

BORING DATE: SEPT. 2-3, 1998

SHEET 1 OF 2

CATUM: GEODETIC

CHECKED: FSB

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER. 53 5kg; DROP, 760mm

g	ī	SOIL PROFILE			SA	MPLES	DYNAMIC PENETRATION PESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTION		
METRES BOHING METHOD		DESCRIPTION	STRATA PLOT	ELEV. DEPTH	NUMBER	TYPE BLOWSA Jan	STEAR STRENGTH Cat V + Q • 0 CU, KPa rem V • 9 U • 0	WATER CONTENT PERCENT WD	ADDITIONAL LAB, TESTING	PIEZOMETE. OR STANDPIPE INSTALLATION
,	Ţ	GROUND SURFACE	Ļ	256 49						
1		Firm, moist, dark brown SILTY CLAY, trace sand, gravel and organics (roots).		25 <u>6</u> 28 0 20		S2 8				
2		NOTE: Artifically high 'N' value for sample 2 probably due to gravei/ cobble pieces in spoon.		254 05	2	50 }41 ∞ }41		Sa2 G'ave:= 3% Sand=29% Sid=47% Clay=21%		<u>▽</u> SEP.8/98
3 04		Compact, moist, brown sandy SILT, bace to some clay, trace gravel. (TILL)		2 44	3	\$2 40/ \$20 84				
CME-75 POWER AUGER BORING	IA HOLLOW STEM AU	NOTE: Artifically high 'N' value for sample 3 probably due to gravel/ cobble pieces in spoon.		252.0						BENTONITE GROUT
6380	203mm [Dense to very dense, wet, grey sandy SILT, trace to some clay and gravel. (TILL)		4.4	4	30 1 500				
9		LIMESTONE (BEDROCK) Interface inferred from auger resistance. For bedrock coring information, see sheet 2.		248.5		50 50				(.

Golder Associates

PROJECT 381-1494 _OCATION: SEE FIGURE 2

HCLINATION: -90

1 to 50

RECORD OF DRILLHC 53-98

SHEET 2 OF 2

DATUM: GEODETIC

AZIMUTH:

DRILLING DATE: SEPT.3/98

DRILL RIG: CME-75 POWER AUGER

DRILLING CONTRACTOR: ALL TERRAIN DRILLING LTD.

St.Att RES	и соно	DESCRIPTION	10 106	ELEV	N _C	IION RATE	COLOUR RETURN		J-JOINT P-POUS		SM-SMOO R-ROUGH ST-STEPF PL PLANA	H DE-UNEVEN N PED W-WAVY B	IC-BROKEN CORE 18-MECH BREAK 3-BEDDING -YOPAUUC		NOTES WATER LEVE
DEPTITSUALT METHIS	DBit LING H		SYMBOLIC	DEPTH TI	RUN	PENETRA 11ON P	FLUSH	TOTAL SOUD CORE CORE %	R.Q.D.	NDEX	OP WILL I	TYPE AND SURFACE DESCRIPTION	CONDUCTIVIT K. CITVERC	W NOON	INSTRUMENTATION
7		CONTINUED FROM SHEET 1													
9	SEP 3/98	Fresn. light to medium grey, medium granned, medium to thickly bedded. stylolitic LIMESTONE with occ. slightly fossiliferous horizons and dolomitic nodules. (BEDROCK)		248 52	1	0 103		#CO1:08				FR.PLR FR.UE.R FR.PLR FR.PLR FR.PLR FR.PLR FR.PLR FR.PLR FR.UE.R FR.PLR FR.UE.R FR.UE.R FR.UE.R			BENTONITE SEAL SAND FILTER SAND FILTER
11		END OF BOREHOLE		225								Mech. FR			1. WATER LEVEL IN MONITORING WELL MEASURED AT 2.11m DEPTH (ELEV. 254.38+ ON SEPT. 3/98. 2. MONITORING WELL HAND PUMPED TO 7.25m DEPTH (ELEV. 249.24m) ON SEPT. 3/98.
1.	3														WATER LEVEL IN MONITORING WELL MEASURED AT 2.13m OEPTH (ELEV. 254.36m) ON SEPT. 4/98.
	4														WATER LEVEL IN MONITORING WELL MEASURED AT 2.21m DEPTH (ELEV, 254, 28m) ON SEPT. 8/98.
	15														
TALLPUT SILL MA	16														
-													[]]	LOGGED	D KB
5) H	DEF	PTH SCALE:						C •	ldor	۸ د د ۸	ciates			DATE:	SEPT.3/98

Golder Associates

CHECKED:

FS**B**

PROJECT. 581-1494

RECORD OF BOREHOLE 54-98

SHEET 1 OF 3

LOCATION: SEE FIGURE 2

BORING DATE: SEPT. 8, 1998

DATUM: GEODETIC

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm

u l	HOD	SOIL PROFILE	· · · · · ·		SAMP		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY K, CMV\$	
DEPTH SCALE	BORING METHOD	CESCRIPTION	ATA DE	LEV. EPTH (m)	NUMBER	BLOWS/0 3m	SHEAR STRENGTH natV + Q • € Cu, xPa rem V · ⊕ U · O	WATER CONTENT PERCENT WP 10 2 20 WATER CONTENT PERCENT S 10 2 20	PIEZOMETER OR STANDPIPE INSTALLATION
2	1 1	GROUND SURFACE	2	259.70					
1		Compact moist brown to mottled brown and grey sandy SILT, some clay and gravei. (TILL)		25 <u>9</u> . <u>88</u> 0 20	2 800			0 1	
2		clay and gravel. (TILL)			3 50 X	22		Sa.2 Graver = 8% Sard = 43% Sitt = 37% Clay = 12%	BENTONITE GROUT
4	CME-75 POWER AUGER BORING 203mm DIA HOLLOW BTEM AUGERS			255.89 3.81	4 50 0x	50/			
5	CME-75	Very dense, moist, grey sandy SILT, trace to some clay and gravel. (TILL)			5 8	50/50			C. (2) (2) (2) (3) (3) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4
5				251.47	6 X	50/ O .17			
. 9		Very dense, wet, grey sandy GRAVEL, trace to some silt.	0,0,0,0,0,0,0	8 23	7 50	50/ O .33			
		Cobble/boulder @ 9.09m depth.	69696969696969696969696969696969696969	249.70					

PROJECT: 981-1494
LOCATION SEE FIGURE 2

RECORD OF BOREHOLE

54-98

SHEET 2 OF 3

SAMPLER HAMMER, 63.5kg; DROP, 760mm

30RING DATE: SEPT. 8, 1998

DATUM: GEODETIC

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm

	SOIL PROFILE				SAMPLES		CYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m				HYDRAULIC CONDUCTIVITY K, cm/s				TI:	₹ Ş	PIEZOMETER
METRES	BOHING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE BLOWS/0.3m	TYPE BLOWS/0 3m	SHEAR STRENGTH naz V		natV- + rem V- ⊕	Q. • U-O	WATER CONTENT PERCENT WP - 2" M 5 '0 '5 20				ADDITIONAL LAB. TESTING	OR STANDPIPE INSTALLATION	
10	CME 75 H S A		000000000	249 70 10.00 249 03 10.67													
11		LIMESTONE (BEDROCK) Interface inferred from auger resistance. For bedrock conng information, see sheet 3.															
12																	
13																	
14											-						
15																	
16																	·
17											:						
11	8																
1																	·
. 2	0																

DEPTH SCALE

1 to 50

Golder Associates

LOGGED: DKB

CHECKED: FSB

INCLINATION: -90

RECORD OF DRILLHOLE: 54-98

DRILLING DATE: SEPT.8/98

SHEET 3 OF 3

DATUM: GEODETIC

LOCATION: SEE FIGURE 2

AZIMUTH:

DRILL RIG: CME-75 POWER AUGER

DRILLING CONTRACTOR: ALL TERRAIN DRILLING LTD.

FR-FRACTURE SM-SMOOTH FL-FLEXURED BC-BROKEN CORE DRILLING RECORD DEPTH SCALE METRES 500 CL-CLEAVAGE SH-SHEAR J-JOINT P-POUSHED R-ROUGH W-WAVY MB-MECH BREAK 3 -BEDDING ST-STEPPED VOTES ¥°A Pos PENETRATION ((m/mln) C -CURVED SYMBOLIC ELEV. VN-VEIN S-SUCKENSIDED PL-PLANAR RUN No. DESCRIPTION MATER LEVELS CEPTH SCONTINUITY DATA RECOVERY FRACT HYDRAULIC R.Q.D 'NDEX | DP #/L FLUSH TOTAL INSTRUMENTATION TYPE AND SURFACE K. CITVSec DESCRIPTION 0000 0000 0000 5000 0000 10 CONTINUED FROM SHEET 2 **BEDROCK SURFACE** 249.03 BENTONITE GROUT BROKEN CORE 10.67-1 BENTONITE SEAL 0.051 Fresh to weathered, medium grey, fine to medium grained, aminated to thinly bedded, fossiliferous, nodular LIMESTONE with occ. shale HARDE, FIR 12 partings. (BEDROCK) 0.019 FR.UE,R は作品 FR. PL. B FR. PL. B FR. PL. B Moch. FR BROKEN CORE 12.80-12 954 FR.UE.B 8 3 86/9 13 0.024 246.31 **END OF BOREHOLE** 14 1.
WATER LEVT
MONITORIN
MEASURED
..
3.21m DEPTH
(ELEY, 256,49m)
ON SEPT, 8/96. Z. MONITORING WEL! HAND PUMPED TO 6.85m DEPTH (ELEV. 252.85m) ON SEPT. 8/96. 15 16 17 18 19 DAIA 20

DEPTH SCALE:

1 to 50 Golder Associates

LOGGED: DKB

DATE: SEPT

SEPT.8/98

INCLINATION -90

RECORD OF DRILLHOLE:

55-98-1

SHEET 1 OF 2

DATUM: GEODETIC

LOCATION: SEE FIGURE 2

AZIMUTH:

DRILLING DATE: SEPT.4/98

DRILL RIG: CME-75 POWER AUGER

DRILLING CONTRACTOR: ALL TERRAIN DRILLING LTD.

											·				
ES L CORD		5010	ELEV.	٥	N BATE	COLOUR RETURN	FR-FRACTURE CU-CLEAVAGE SH-SHEAR VN-VEIN	JUDINT P.POUSI	IED INSIDED	SM-SM R-AOU ST-STE PL-PLA	GH UE-UNEVEN PPED WI-WAVY	BC-BACKE MB-MECH 3-BEDOIN	BREAK		NOTES
METRES DRILLING RECORD	CESCRIPTION	SYMBOLIC LOG	DEPTI-	BUN N	PENETRATION BATE		FECOVERY	300	FRACT INDEX PER 0.3m	OP WITE CORE AXES	SCONTINUITY DATA	—; ≎онок	AUUC UCTIVIT INVSAC	1 × 1	WATER LEVELS
C 1 2 3 3 4 4 9 9	UNSAMPLED OVERBURDEN	SYM	(m) 265.6	54		HSTIJ	TOTAL SOUD CARE & CORE & SEVEN SEVEN SEVEN SEVEN SEVEN SEVEN SEVEN SEVEN SEVEN SEVEN SEVEN SEVEN SEVEN SEVEN SEVEN SEVEN SEVEN SEVEN SEVEN SEVEN SEVEN SEVEN SEVEN SE	00 00 40 40	PER COM	00000000000000000000000000000000000000	TYPE AND SURFACE OESCRIPTION		m/sec	P P P P P P P P P P P P P P P P P P P	SEP. 4/96 BENTONITE GROUT
- 10	CONTINUED ON NEXT PAGE				-	-+		 							

RECORD OF DRILLHOLE:

55-98-1

SHEET 2 OF 2

DATUM: GEODETIC

COCATION: SEE FIGURE 2

AZIMUTH:

HOLINATION: -90

DRILLING DATE: SEPT.4/98

DRILL RIG: CME-75 POWER AUGER

DRILLING CONTRACTOR: ALL TERRAIN DRILLING LTD.

DLFTH SCAL	METAES	DRILLING HECORD	DESCRIPTION	SYMBOLIC LOG	ELEY CEZTH	RUN No.	PENETRATION RATE (m/min.)	TLUSH COLDUR	FR-F CL-C SH-C VN-V	SHE VEII	EAR N VEI	TY PLID	J. P. S.	FAUL JOIN POLI SUCI	SHE KEN	RAC INDE	T. X	SMI-S R -AC ST-S' PL-PI DP =//C	TEPH LAN.	H JE-UNEVEN PED W-WAVY	9 E	HYC	NG.	JUC TIVITY		FOINT LOAD INDEX (MP.)	1	NOTES WATER LEVELS INSTRUMENTATION
	0	-	CONTINUED FROM PREVIOUS PAGE				-		004	~	-	_		1		П.		0000			\pm	<u> </u>	_		+	=	ļ.	
	***		BEDROCK SURFACE INFERRED FROM AUGER RESISTANCE		254 41 11 23									,						Wech FR								BENTONITE GROUT -
	12	ON	Fresh to weathered, medium grey, fine to medium grained, laminated to medium bedded, fossiliferous, nodular LIMESTONE with occ. shale partings. (BEDROCK)			1	0.056													FRUER FRUER FRUER FRUER FRUER FRUER FRUER FRUER FRUER FRUER FRUER								SAND FILTER
1	13	26/4			252.28		0.142													FRUER FRUER FRUER FREEFR Wech FR								
	14		END OF BOREHOLE		13.36														The second secon									1. WATER LEV/ WONITORINK. MEASURED A1 3.22m DEPTH (ELEV. 282.42m) ON SEPT. 4/98.
	15																											2. MONITORING WELL HAND PUMPED TO 8.47m DEPTH (ELEV. 257.17m) ON SEPT. 4/96. 3. WATER LEVEL IN MONITORING WELL MEASURED AT 3.88m DEPTH (ELEV. 261.88m)
	17																											(ELEV. 281.98m) ON SEPT. 8/98.
900	18																											
DAIAIN SIBMAR SAD	19																											(
ړ		L	H SCALE:						_!!-	!!	1	11	11	111	!!	ш	Ш	11!				1_!		LO	GG	ED:	Ц.	DKB

DEPTH SCALE:

1 to 50

Golder Associates

DATE:

SEPT.4/98

INCLINATION: -90

RECORD OF DRILLHOLE: 55-98-2

SHEET 2 OF 2

DATUM: GEODETIC

LOCATION: SEE FIGURE 2

AZIMUTH:

CRILLING DATE: SEPT.3/98 DRILL RIG: CME-75 POWER AUGER

DRILLING CONTRACTOR: ALL TERRAIN DRILLING LTD.

DEPTH SCALL METRES		DAILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (RUN No.	PENETRA 11ON RATE (m/min)	HUSH COLDUR	FR-FRACTURE CL-CLEAVAGE SH-SHEAR VN-VEIN RECOVERY TOTAL SOUD CRE % DORE % 2000 12000	P-POUSI S-SUCKE	FRACT INDEX PER 63-		LE-UNEVEN	BC-BROKEN CORE WB-MECH BREAK B-BEDOING	DIAMETRAL POINT LOAD INDEX (MP4)	NOTES WATER LEVELS INSTRUMENTATION
10	+		ONTINUED FROM PREVIOUS PAGE				-			Hitt					1	
11 T	1		BEDROCK SURFACE		254 82 10 82								FR.UE.R FR.UE.R FR.UE.R			BENTONITE GROUT
17						1	0 0 0	3001 08	A (1) (A)				FRUER FRUER FRUER FRUER FRUER FRUER FRUER			-
1	3		Fresh to weathered, medium grey, fine to medium grained, laminated to medium bedded, fossiliferous, nodular LIMESTONE with occ. shale partings. (BEDROCK)) ii :: : : : : : : : : : : : : : : : :	ELER FRUER FRUER FRUER FRUER FRUER FRUER FRUER			BENTONITE SEAL
	14	NO AC				2	0.051		X 001 08			44.00	FR. B. FR. B. FR. B. FR. B. FR. B. FR. B. FR. B. FR. FR. B. FR. FR. B. FR. B. FR. B. FR. B. FR. B. FR. B. FR. B. FR. B. FR. B. FR. B. FR. B. FR. B. FR. B. FR. B. FR. B. FR. B. FR. B. FR. B. B. FR. B. FR. B. FR. B. B. FR. B. B. FR. B. B. FR. B. B. FR. B. B. FR. B. B. FR. B. B. B. FR. B. B. B. FR. B. B. B. FR. B. B. B. B. B. B. B. B. B. B. B. B. B.			
	16		·				3		60·100%			A. A. A. & A. E. E	FRUER FRUER FRUER FRUER FRUER FRUER FRUER FRUER FRUER FRUER FRPLR FRPLR FRUER FRUER			SAND : : 1 :: FILTER : : : : : : : : : : : : : : : : : : :
	18	SEP 3/98	Fresh, light to medium grey, medium grained, medium to thickly bedded, stylolitic LIMESTONE with occ. slightly fossiliferous horizons. (BEDROCK)		247.9				99				FRUEA FRUEA FRUEA FRUEA			FILTER
SIB MAR 5/VV	19	38	END OF BOREHOLE		18.								Mech. FR			1. WATER LEVEL IN MONITORING WEI MEASURED AT 4.04m DEPTH (ELEV. 261.60m) ON SEPT 4.798. 2. MONITORING WEI HAND PUMPED TO 10.42m DEPTH (ELEV. 255.22m) ON SEPT. 4798. 3. WATER LEVEL IN
DA1A IN	20												-		OGGED	MONITORING WEL MEASURED AT 9.32m DEPTH (ELEV. 258.32m) ON CEPT. 4/08.

DEPTH SCALE:

1 to 50

Golder Associates

DATE: CHECKED.

SEPT.3/98

INCLINATION: -90

1 to 50

RECORD OF DRILLHOLE: 55-98-2

SHEET 1 OF 2

DATUM: GEODETIC

DATE:

CHECKED:

SEPT.3/98

FSB

LOCATION: SEE FIGURE 2

AZIMUTH:

DRILLING DATE: SEPT.3/98

DRILL RIG: CME-75 POWER AUGER

DRILLING CONTRACTOR: ALL TERRAIN DRILLING LTD. FL-FLEXURED BC-BROKEN CORE
UE-UNEVEN MB-MECH. BREAK
W-WAVY B-BEDDING
C-CURVED FR-FRACTURE CL-CLEAVAGE SH-SHEAR F-FAULT J-JCHNT P-POUSHED SM-SMOOTH R-ROUGH DRILLING RECORD DEPTH SCALE METRES SYMBOLIC LOG ST-STEPPED PENETRATION F RUN No. VN-VEIN S-SUCKENSIDED PLPLANAR ELEV. DESCRIPTION WATER LEVEL R.O.D. IFRACT. I DISCONTINUITY DATA HYDRAULIC CONDUCTIVITY k, crivsec RECOVERY DEPTH FLUSH NDEX TOPERS INSTRUMENTATION I TOTAL SOUD TYPE AND SURFACE (m) DESCRIPTION 2848 2848 2000 2000 0000 265.64 0.00 5 **UNSAMPLED OVERBURDEN** BENTONITE GROUT 6 8 DATA INPUT. SIB MAR 5/99 SEP.8/96 10 CONTINUED ON NEXT PAGE LOGGED: OKB **DEPTH SCALE: OCKMVS**

Golder Associates

MIS-BHS 001

RECORD OF BOREHOLE: 56-02-1

SHEET 1 OF 1 DATUM: Geodetic

LOCATION: Refer to Plan SAMPLER HAMMER, 64kg; DROP, 760mm BORING DATE: Jan.29-30, 2002

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

HYDRAULIC CONDUCTIVITY, DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m SOIL PROFILE SAMPLES BORING METHOD DEPTH SCALE METRES PIEZOMETER OR STANDPIPE STRATA PLOT 10⁻⁵ NUMBER SHEAR STRENGTH nat V. + Q - ● rem V. ⊕ U - O ELEV. TYPE WATER CONTENT PERCENT DESCRIPTION INSTALLATION DEPTH -oW-Wp I (m) GROUND SURFACE 263.60 TOPSOIL BACKFILL CONCRETE Stiff, brown sandy SILT, trace to some clay, trace to some gravel. (TILL) 1 50 DO 12 BENTONITE SEAL Dense, brown SAND and GRAVEL, some silt, trace clay. (TILL) 50 DO 2 Very dense, brown to grey silty SAND to sandy SILT, trace to some gravel and clay, occasional cobbles/boulders. (TILL) 50 DO 87 50 DO 56/ .15 BENSEAL GROUT 5 50 5 DO 60/ .15 6 50 DO 021-1306.GPJ GAL-MISS.GDT 4/24/07 PS 50 70/ DO .15 7 BENTONITE SEAL Probable top of bedrock 253.8 9.7 Continued on drillhole log. **DEPTH SCALE** LOGGED: DKB Golder CHECKED: FB 1:50

PROJECT: 021-1306 LOCATION: Refer to Plan

RECORD OF BOREHOLE: 56-02-II

BORING DATE: Jan.29,2002

SHEET 1 OF 1

DATUM: Geodetic

SAMPLER HAMMER, 64kg; DROP, 760mm

ALE 3	Ğ.	1	SOIL PROFILE	<u> </u>	Г	+	AMPL	-	DYNAMIC PE RESISTANCE			, i		k, cm/s				ING ING	PIEZOMETER OR
DEPTH SCALE METRES	BORING METHOD		DESCRIPTION	STRATA PLOT	ELE DEP	TH S	TYPE	BLOWS/0.3m	SHEAR STRE Cu, kPa			80 - Q - • 9 U - O		ATER C	<u> </u>	PERC	10 ⁻³ ENT I WI	ADDITIONAL LAB. TESTING	STANDPIPE INSTALLATION
	1	-	GROUND SURFACE	ST	(m)	+	┼-	퓹	20	40 	60	80 T	1	0 2	0 :	30	40	-	
- 0	П	\dashv	TOPSOIL		263 0	.61 .00	+			-									BACKFILL.
					263	.15													CONCRETE
		Ì	Very stiff, mottled, brown sandy SILT, trace to some clay, trace gravel. (TILL)	W	٥	.46	-												BENTONITE SEAL
						1	50 DO	15											BENTONITE SEAL
- 1			0000 - 4 00 AVE		262	.39	1												
			Very dense, brown SAND and GRAVEL some silt, trace clay, occ. cobbles/boulders below 2.4m depth.	2.2	'														BENSEAL GROUT
			(TILL)			2	50 DO	50					,						
- 2						F	-												
																			22
		ار																	BENTONITE SEAL
	dier	108mm Hollow Stem Augers																	Ţ.
- 3	CME 75 Bombardier	v Stern				\vdash													
	JE 75 E	n Hollo				3	50 DO	76											
	Ö	108m																	
- 4			Van dance grou sith CAND to condy		259	.65 .96													
			Very dense, grey silty SAND to sandy SILT, trace gravel and clay, occ. cobbles/boulders. (TILL)											:					
			,	M		L													#1 SILICA SAND
						4	50 DO	50/ .08											
- 5				M															WELL SCREEN 50mm Dia. Sch. 40 PVC #10
					1														slot 3.0m screen length
					1							:							
- 6					253	.29 5	50	50/ .08											
	Г		END OF BOREHOLE			.32	Ť												
			Approximate depth to groundwater table = 0.27m (Feb.11/02)																Top of Pipe Elev. = 264.46m
- 7			= 0.27m (Feb.11/02)		ŀ														Elev. = 264.46m Stick-up = 0.85m
		ı																	·
- 8																			
- 9		l																	
		l																	
- 10																			:
	<u> </u>			<u> </u>	J	L_	Ш	1		<u> </u>	<u></u>	1	<u> </u>	<u> </u>	L	<u> </u>	1	<u> </u>	
DE	PT	H S	CALE					(olde soci	Ť							L	OGGED: DKB

HYDROTERRA LIMITED 15 Glamis Place, Thomhill, ON L3T 3G7

Log of Borehole: 59-05

Project Name: Lindsay Lagoon

Client: Kawartha Lakes

Date: June 21, 2005

Project No.: 1440

Borehole Type: Soil Auger

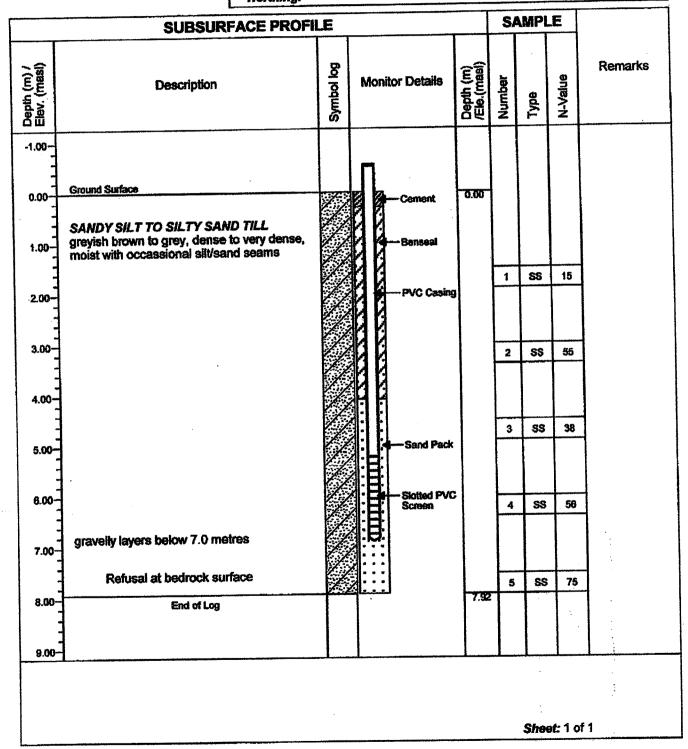
Hole Diameter: 110 mm

Ground Elevation: -

Engineer: LB

Northing: -

Easting: -



HYDROTERRA LIMITED 15 Glamis Place, Thornhill, ON L3T 3G7

Log of Borehole: 60-05

Project Name: Lindsay Lagoon

Borehole Type: Soil Auger

Client: Kawartha Lakes

Date: June 22, 2005

Project No.: 1440

Cherit Manartia raica

Hole Diameter: 110 mm

Ground Elevation: -

Engineer: LB

Northing: -

Easting: -

	SUBSURFACE PROFI	LE			SA	MPI	E	
Depth (m) / Efev. (masl)	Description	Symbol log	Monitor Details	Depth (m) /Ele.(masl)	Number	Туре	N-Value	Remarks
-1.00 - - 0.00	Ground Surface SANDY SILT TO SILTY SAND TILL	35/618	2 - Cement	0.00				
1.00-	greyish brown to grey, dense to very dense, moist with occasional silt/sand seams, boulders near bedrock surface		9—Benseal					·
2.00			PVC Casing		1	SS	32	
3.00			Sand Pack		2	SS	40	
5.00			Slotted PVC Screen		3	SS	27	
6.00					4	SS	91	
7.00-								
9.00-	LIMESTONE grey End of Log			8.50 9.14	5	SS	96	
10.00-	· · · · · · · · · · · · · · · · · · ·		<u> </u>			:		
	•					Shee	<i>t:</i> 1 of	1



Memorandum

To: Mr. Demis Hamilton

From: Darren Juneau

Date: 3/27/2008

Re: Replacement of Monitoring Well on top of Lindsay OPS Landfill

- On December 11, 2007 we overdrilled monitoring well inside of 6" steel casing to 37' below
 ground surface with 6" solid stem augers through refuse. Hit methane pocket and let vent to the
 atmosphere for two hours at which point we then left for the night as it was apparent it would not
 abate that day.
- Aardvark Drilling Inc. returned to site December 12, 2007 with only slight methane venting remaining; pulled solid stem augers out to surface. Methane flow stopped when all augers were out of the ground.
- hole remained open to 32' below ground surface
- installed 2" PVC.sch 40 triloc well casing and 10' x 2" PVC triloc #10 slot screen to a total depth of 35' below ground surface
- methane began to vent through the 2" PVC pipe and continued to vent during installation
- Slotted 2" cap was placed on top of casing to mitigate but not prevent methane flow
- Aluminum locking cover was placed on top of 6" steel casing

The Corporation of the City of Kawartha Lakes

Engineering and Public Works Environmental Services Division

MEMORANDUM

TO:

Bill Pickard, Manager of Solid Waste

FROM:

Dennis Hamilton, Environmental Services Technician

DATE:

January 15, 2007

SUBJECT:

Re: Lindsay/Ops well 7-90, re-drilling December 11, 2007

The City of Kawartha Lakes hired Aardvark Drilling Inc., Guelph, Ontario to drill new wells and decommission others as was required.

Well 7-90 at the closed Lindsay/Ops landfill has not worked for some time and attempts to repair it in August, 2007 were unsuccessful.

This well has been blocked for some time and attempts to take a water or methane sample from this well have been unsuccessful.

The drilling contractor was consulted to establish the best way to deal with this well. It was decided to re-drill this well and to try and re-establish it as a functional water sampling location.

When the drillers removed the 2" PVC pipe from inside the 6" steel casing it was discovered that it was blocked at about 20 feet as shown in figures A and B.

When re-drilling this well, the driller's encountered refuse and interim clay cover materials to a depth of 25 feet.

The drill augers proceeded to drill to a depth of 33 feet where a large pocket of methane gas was encountered.

The pressure of the methane forced a black liquid sludge material upward and out the top of the steel casing as shown in figures C. and D.

The drillers advanced the drill augers about 3 more feet and considerable methane was escaping from the top of the steel casing between the drill auger and the casing.

A Dragger Pac 2 methane meter registered 48% by volume of methane escaping from the top of the casing and the drilling was stopped.

This is above the lower explosive limit for methane gas. (5%)
A noticeable (hissing) of escaping gas was observed and it was decided to leave the augers in the casing until the next day to see if the escaping gas volumes diminished.

The following day the gas volume had not ceased and it was decided to carefully remove the augers and to install and new 2", five foot PVC screen and piping which would reestablish a sampling source for this well.

This installation was successful without incident and samples will be taken from this well when required.

A subsequent visit to well 7-90 January 14, indicated that the volume of methane from this well was 47% by volume.

The water level in this well was just slightly below the top of the steel casing, three feet above ground level and gas bubbles were observed coming out of the water.

It would appear that gas pressure at this well is forcing water up into the steel casing. Further observations will be required.

Dennis Hamilton
Environmental Services Technician

c.c: Roberta Perdue, Regulatory Compliance Officer

ALL-TERRAIN

and the control of th

7-90-11 installation

DRILLING CONTRACTORS

	•	3-661 CC	DLBY DR.,	WATERLO	O, ONT.	N2V 1C2	519-8	886-8810	Gr.
CLIENT: K	AWARTH A	1 LAK	188		DATE	_ OE	c 12	<u> /200</u> 6	
JOB LOCATION	: LINDS	AY OF	PS LANG	SFILL		10.:		1	
DRILLER:	DON	***				NT NO.:			
					FOOTAGE	-			
BOREHOLE	DEF FROM	TO TO	AUGER & SAMPLE	AUGER	CORE	ROTARY	CASED	EASTING	NORTHING
	0	41 '	OKWII CE	47'					
		<u> </u>		71		 			
							· ·		
				· · · · · · · · · · · · · · · · · · ·					
	<u> </u>								
									<u> </u>
						7-			
		·				1			
					 				
/									
TOTALS								<i>*</i>	<u> </u>
				HOUR	LY CHARG	ES			
BOREHOLE	HOURS FROM	то ног	JRS			DESCRI	PTION OF W	/ORK	
	8,30-		"40	. / 6	÷				
<u> </u>	25,30-	1,50	10	01/2 70	1/72	-			
					-				
	12.30-5	530 5	01	ene In	ISTALL	LEACH	ATE W	KIL TO	47'
								-	
	-								
				0 -			~~ w		 :
				8-SA	7V O	·			
·									
								· · · · · · · · · · · · · · · · · · ·	
TOTALS	000000								
		ABLE EXP) , , , , , , , , , , , , , , , , , , ,	_		M	ILEAGE	
	X/b				MOBII ا	LIZATION PO	INT		
SCREEN	(10		AL GROUT	•					
END CAPS_2	-		ASING		ONE W	YY MILEAGE		_ X2=	MILES
J. PLUG			ASING ASING				•		;
HOLE PLUG	4		TRAYS	***	ON-SITE	E MILEAGE		\bigcap	
CLIENT'S REPR	ESENTATIVE		A.O		FOR C	CONTRACTOR	· A	* 1	
			···				· ——	₩ 7	

NOTE: THE INVOICE WILL BE PREPARED FROM THIS SUMMARY. THE CHENTS REPRESENTATIVE WILL BE GIVEN A COPY AND THIS SIGNATURE IS BINDING

RECORD OF BOREHOLE: GP-1

SHEET 1 OF 1

LOCATION: Refer to Plan

BORING DATE: Feb.1,2002

DATUM: Geodetic

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

SEE	BORING METHOD	}	SOIL PROFILE	<u> </u>	_	+	AMPL	$\overline{}$	DYNAMIC PEN RESISTANCE,			30	HYDRA 10	k, cm/s			10 ⁻³	ADDITIONAL LAB. TESTING	PIEZOMETER OR
METRES	ME.		DESCRIPTION	STRATA PLOT	ELE\	_ =	TYPE	BLOWS/0.3m	20 4 SHEAR STREN Cu, kPa		<u> </u>	ī			ONTEN	r PERCI		OITIO TES	STANDPIPE INSTALLATION
7 2	SRIN		DESCRIPTION	TRAT	DEPT (m)	비출	}	SLOW					Wp		— _Ө W		W	용물	
-1		-	GROUND SURFACE	18	258	70	╁	H	20 4	0 - 6	0 8	30	10) 2	20 :	30	40		
0	T	\top	TOPSOIL		0.	00	T												BACKFILL
	75 Bc	108rrrn Hollow Stern Augers	Very stiff to hard, mottled brown to brown sandy SILT, some clay, trace to some gravel, occ. cobbles/boulders below 3m depth. (TILL)		258 0	1 2	50 DO	16:										experiments and a second secon	BENTONITE SEAL
3						3	50 DO	37											WELL SCREEN 50mm Dia. Sch. 40 PVC #50 slot 2.6m screen length
4		-	Compact, grey silty SAND to sandy SILT, occ. silty clay seams/layers (2mm-5mm thick).		255 3	.13 .66													
			(-		254		50 DO	29											
			END OF BOREHOLE		4	42													Top of Pipe Elev. = 259.80m
6			Approximate depth to groundwater table = 2.4m (Feb.11/02)																Stick-up = 1.0m
8				Printer of the first of the fir							10 TO THE TOTAL								
9				The state of the s															
DE:		H S	CALE	1	L		<u> </u>	<u> </u>	JAGG ASS		I r _	1			L		<u>.l</u>		OGGED: DKB ECKED: FB

RECORD OF BOREHOLE: GP-2

SHEET 1 OF 1

DATUM: Geodetic

LOCATION: Refer to Plan

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: Feb.1,2002

щ	ξ	3	SOIL PROFILE			5	AMP	LES	DYNAMIC PE RESISTANCE	NETRATI BLOWS	ON 5/0.3m		HYDR	AULIC (k, cm/s	CONDUC	TIVITY,		₽ Ş Ş	PIEZOMETER
DEPTH SCALE METRES	CONTEM SINION			STRATA PLOT	C . C	, <u>p</u>	í	BLOWS/0.3m				30 ,	L	1	1		10 ⁻³	ADDITIONAL LAB. TESTING	OR STANDPIPE
E F	S S		DESCRIPTION	ATA	ELE\ DEPT	H	TYPE)WS/	SHEAR STRE Cu, kPa	NGTH	nat V. + rem V. ⊕	Q- • U- O		/ATER C	ONTEN	T PERCE	ENT Wi	ABD T	INSTALLATION
5	Š			STR	(m)	2	-	EC.	20	40	60 8	30					40		
- 0		1	GROUND SURFACE		259.	08													V /803
- 0			TOPSOIL		0. 258.														BACKFILL Y
			Firm to stiff, mottled brown to brown		0.	30													
			Firm to stiff, mottled brown to brown CLAYEY SILT, some sand, trace gravel occ. rootlets from 0.3m to 1.1m. (TILL)	M		\vdash	-												CONCRETE
						1	50 DC	6											菱
- 1						H	┨												BENTONITE SEAL
		Ш								İ									
		ر دو				H	┨												[4
	jer	Auger				12	50 DC	15			1								
- 2	CME 75 Bombardier	Stem			1	r	1												
	75 B(원									ŀ								
	S	108mm Hollow Stem Auger	Vanudance grov condu CII T to city		256. 2.	49 59													#3 SILICA SAND
		~	Very dense, grey sandy SILT to silty SAND, trace to some clay and gravel, occ. cobbles/boulders. (TILL)		· ·									ŀ					ki li
- 3			occ. copples/bodiders. (TIEE)			F	-												WELL SCREEN 50mm Dia. Sch. 40 PVC #50
]	1	50 DC	79											
						+	\dashv												2.6m screen length
					1														
- 4					1	H	50	87/					1						
	L	Ц			254	74	50 DC	87/ .22											
			END OF BOREHOLE	İ	4.	34										1			
		- 1	Approximate depth to groundwater table = 0.11m (Feb.11/02)	е		ı													Top of Pipe Elev. = 259.90m
- 5			= 0.11m (Feb.17/02)			ı													Stick-up = 0.82m
						ı													
•						ı													
						ı													
- 6																	1		
	l					ı													
	l																		
- 7						۱							1						
		١																	
													ĺ						
- 8				ŀ															
– 9																			
		ļ																	
																		İ	
- 10																			
_	_	!					-1	·			1	•		·	1		-		
			CALE					1	(F)G	olde	r ates								OGGED: DKB
1:	50								VAS	<u>socia</u>	ates							CH	ECKED: FB

RECORD OF BOREHOLE: GP-3

SHEET 1 OF 1

LOCATION: Refer to Plan

BORING DATE: Feb.1,2002

DATUM: Geodetic

SAMPLER HAMMER, 64kg; DROP, 760mm

SALE		뒫	SOIL PROFILE	۱		╁┈	MPL	_			TION VS/0.3m 60	80	i	k, cm/s			10 ⁻³	TING	PIEZOMETER OR
DEP IN SCALE METRES		BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV.		TYPE	BLOWS/0.3m	20 R STRI 'a	40 ENGTH		+ Q- ● # U- O	N	VATER C	ONTEN	T PERC	ENT	ADDITIONAL LAB. TESTING	STANDPIPE INSTALLATION
2		ğ		STR/	(m)	Ž	Ľ	BLO	20	40		80	1	p I————————————————————————————————————			40	(,)	
. 0	L	\dashv	GROUND SURFACE TOPSOIL	E 22	264.3 0.0	1	-	-	 	_				-	ļ	ļ	-	\vdash	8
					264.0 0.3	1													BACKFILL
			Stiff to very stiff, brown sandy SILT, some clay, trace to some gravel. (TILL)	H	0.3	_													₽
						1	50 DO	9											CONCRETE
1				H	1	L													BENTONITE SEAL
					1														Š.
		او		拙		\vdash													
	rdier	n Auge		排		2	50 DO	18											
2	CME 75 Bombardier	108mm Hollow Stem Augers		1															
	WE 75	n Hollo		11	261.8														
	0	108m	Very dense, grey sandy SILT to sitty SAND, some clay and gravel, occ. cobbles and boulders. (TILL)		2.4	4													#3 SILICA SAND
			cobbles and boulders. (TILL)																WELL SCREEN
3							50												50mm Dia. Sch. 40 PVC #50
						3	50 DO	61											2.6m screen length
		$\ \ $		H															
4				批		\vdash	<u>ا</u>	55/											
	_	Ц		벰	260.0 4.2		50 DO	55/ .15											Z.
		l	END OF BOREHOLE		"-														Top of Pipe
		ı	Approximate depth to groundwater table = 0.54m (Feb.11/02)	1															Top of Pipe Elev. = 265.21m Stick-up = 0.90m
5																			3110k-up = 0.30111
6																			
7		l																	
		ı					İ												
8																			
		1																	
9																			
											}								
10		1			1														
DE	рī	ᄠ	CALE					_										10	OGGED: DKB
1:			V/ 166						ÇG	old	er iates								ECKED: FB

LOCATION: Refer to Plan

RECORD OF BOREHOLE: GP-4

BORING DATE: Jan.31,2002

SHEET 1 OF 1

DATUM: Geodetic

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

SAMPLER HAMMER, 64kg; DROP, 760mm

DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m HYDRAULIC CONDUCTIVITY, SAMPLES SOIL PROFILE BORING METHOD DEPTH SCALE METRES PIEZOMETER 10^{.6} OR 10.5 10⁴ STRATA PLOT BLOWS/0.3m NUMBER STANDPIPE SHEAR STRENGTH nat V. + Q - ● Cu, kPa rem V. ⊕ U - O ELEV. TYPE WATER CONTENT PERCENT INSTALLATION DESCRIPTION -ΘW DEPTH Wp I-(m) GROUND SURFACE 266.8 TOPSOIL BACKFILL Stiff, brown sandy SILT, some clay, trace to some gravel. (TILL) CONCRETE BENTONITE SEA 50 DO 12 50 DO 2 CME 75 Bombardiv #3 SILICA SAND Dense, grey sandy SILT to silty SAND, trace to some gravel and clay, occ. cobbles/boulders. (TILL) WELL SCREEN 50mm Dia. Sch. 40 PVC #50 slot 50 DO 37 3.0m screen length 50 DO END OF BOREHOLE Top of Pipe Elev. = 267.74m Approximate depth to groundwater table = 0.78m (Feb.11/02) Stick-up = 0.86m 7 MIS-BHS 001 021-1306.GPJ GAL-MISS.GDT 4/24/07 PS 10 LOGGED: DKB **DEPTH SCALE**

1:50

Golder Associates

RECORD OF BOREHOLE: GP-5

SHEET 1 OF 1

LOCATION: Refer to Plan

BORING DATE: Jan.31,2002

DATUM: Geodetic

SAMPLER HAMMER, 64kg; DROP, 760mm

S	당	SOIL PROFILE	Τь			PLES	DYNAMIC PENE RESISTANCE, E		80	HYDRAULIC k, cr 10°	n/s	0 ⁻⁴ 10 ⁻³	NAL TING	PIEZOMETER OR
METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH	NUMBER	BLOWS/0.3m	20 40 SHEAR STRENG Cu, kPa		+ Q- ● . ⊕ U- O	WATER	CONTENT	PERCENT	P. TEK	STANDPIPE INSTALLATION
-	BOR		STRA	(m)	3	BLO _	20 40		80	Wp I —		W 30 40		
•		GROUND SURFACE		262.57										180
۱		TOPSOIL		0.00 262.27										BACKFILL
1		Firm to stiff, mottled brown to brown sandy SILT, some clay, trace to some		0.30										CONCRETE :
		gravel. (TILL)												髮
					1 1	50 8								BENTONITE SEAL
														[4
	gers				2	50 11								[4
2	CME 75 Bombardier f08mm Hollow Stem Augers				_			1						
	5 Borr													
I	CME													
	100	Dense to very dense, grey silty SAND t		259.83 2.74										#3 SILICA SAND
3		Dense to very dense, grey silty SAND t sandy SILT, trace to some gravel and clay, occ. cobbles/boulders. (TILL)	1		_									WELL SCREEN 50mm Dia. Sch. 40 PVC #50 slot
					3	50 50 47								slot 3.0m screen length
														3.0m screen length
4														
ŀ			11	258.23 4.34	4	50 60 50 .00	4							
		END OF BOREHOLE												Top of Pipe Elev. = 263.47m
		Approximate depth to groundwater tabl = 0.42m (Feb.11/02)	e											Elev. = 263.47m Stick-up = 0.90m
5									į					Olion up = 0.00m
١				1										
6														
Ĭ										1				
			1											
7														
			ŀ											
]					
8			l											
					.									
9														
10														
		L		1								<u></u>	L	<u> </u>
DE	PTH:	SCALE					(III)Ga	older ociate						OGGED: DKB HECKED: FB

SAMPLER HAMMER, 64kg; DROP, 760mm

RECORD OF BOREHOLE:

GP-6

SHEET 1 OF 1

DATUM: Geodetic

LOCATION: Refer to Plan

BORING DATE: Jan.31,2002

4	ç		SOIL PROFILE			SA	MPL	ES	DYNAMIC PENETR RESISTANCE, BLO	ATION WS/0.3m	H	YDRAULIC k, cr	COND n/s			NG AL	PIEZOMETER
DEPIN SCALE METRES	C SACT	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV.	NUMBER	TYPE	BLOWS/0.3m	20 40 SHEAR STRENGTH Cu, kPa	60 80 I nat V. + Q-	\downarrow	10°6 WATER	10 ⁻⁵ CONT	10° ENT I	 D ⁻³ NT	ADDITIONAL LAB. TESTING	OR STANDPIPE INSTALLATION
Ŗ Ā	900	BORIN	DESCRIPTION	STRAT	DEPTH (m)	NON	7	BLOW	Cu, kPa 20 40	rem V. 69 U -	_	Wp I —	20	W	w w	43	
			GROUND SURFACE TOPSOIL		265.65 0.00								\perp	\dashv			BACKFILL
			Stiff, brown sandy SILT, some to trace clay, trace to some gravel. (TILL)		265.35 0.30	1	50 DO	9									CONCRETE V BENTONITE SEAL
1	_	igers		4 2 4 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		2	50 DO	12									
2	CME 75 Bombardie	108mm Hollow Stem Augers	Very dense, brown to grey sandy SILT t silty SAND, trace to some gravel and clay. (TILL)		263.52 2.13												#3 SILICA SAND
- 3		1				3	50 DO	50/ .15									WELL SCREEN 50mm Dia. Sch. 40 PVC #50 slot 3.0m screen length
- 4				4 C 4 C 4 C 4	261.23	4	50 DO	60/ .15									
- 5			END OF BOREHOLE Approximate depth to groundwater table = 0.75m (Feb.11/02)	*	4.42												Top of Pipe Elev. = 266.56m Stick-up = 0.91m
- 6																	
7																	
- 8																	
. 9																	
· 10																	
DE 1:			CALE					1	Gold	ler ciates							OGGED: DKB

LOCATION: Refer to Plan

RECORD OF BOREHOLE: GP-7

SHEET 1 OF 1

DATUM: Geodetic

SAMPLER HAMMER, 64kg; DROP, 760mm

BORING DATE: Jan.31,2002

» ALE	E C		SOIL PROFILE	1 ⊨		S	MPL		DYNAMIC PENETRA RESISTANCE, BLO		١,		, cm/s			3	ING.	PIEZOMETER
DEPTH SCALE METRES	BORING METHOD		DESCRIPTION	STRATA PLOT	ELEV DEPTI (m)		TYPE	BLOWS/0.3m	20 40 SHEAR STRENGTH Cu, kPa	rem V. 🤁	Q - • U - O	Wp I	TER CO	OW	PERCE	W!	ADDITIONAL LAB. TESTING	OR STANDPIPE INSTALLATION
		+	GROUND SURFACE	S	263.2	-	 	H	20 40	60 80	2	10	20) 3	<u>o</u>	40	1	
۰ ۱	٦	1	TOPSOIL	讍	0.0	0	T											BACKFILL
- 1			Loose, brown silty sand, trace to some gravel, trace clay, occ. topsoil layers. (FILL)		262.9 0.3	1	50 DO	6										CONCRETE D BENTONITE SEAL
	CME 75 Bombardier	108mm Hollow Stem Augers	Compact, brown silty SAND to sandy SILT.	***	262.0 1.2	2 2	50 DO	20										
. 2	CME 7		Very dense, brown sandy SILT to silty SAND, trace to some gravel and clay, occasional cobbles/boulders. (TILL)		260.5 2.7	24		50/ .25										SILICA SAND WELL SCREEN 50mm Dia. Sch. 40 PVC #50 slot 1.5m screen length
-		\dashv	END OF BOREHOLE	11	259.9 3.3	1	ВО	.25										<u> </u>
- 4			Approximate depth to groundwater table = 0.76m (Feb.11/02)															Top of Pipe Elev. = 264.16m Stick-up = 0.90m
5					and a state of a state of a state of the sta													
7																		
- 8																		
9																		
- 10			***************************************															
DEI		H S	CALE					(Gold	er _.								OGGED: DKB ECKED: FB

RECORD OF BOREHOLE: GP-8

SHEET 1 OF 1

LOCATION: Refer to Plan

BORING DATE: Jan.31,2002

DATUM: Geodetic

PENETRATION TEST HAMMER, 64kg; DROP, 760mm SAMPLER HAMMER, 64kg; DROP, 760mm SAMPLES DYNAMIC PENETRATION HYDRAULIC CONDUCTIVITY, ... | 6 SOIL PROFILE

DESCRIPTION DESCRIPTION	Щ	3	} [SOIL PROFILE			SA	MPL	.ES	RESISTANCE, BLO	VS/0.3m	1	אטוה	k, cm/s	JNDOC	IVIII,		βř	PIEZOMETER
GOOLING SURFACE TOPSOIR Very self, trace in some gravet, (TILL) Some city, trace to some gravet, (TILL) Sign of Fig. Sign	SCA				5		<u>~</u>		.3m	20 40	60	30 ,	10) ⁻⁶ 10) ⁻⁵ 1() ⁻⁴ 10)-3	NO	OR
GOOLING SURFACE TOPSOIR Very self, trace in some gravet, (TILL) Some city, trace to some gravet, (TILL) Sign of Fig. Sign	E H	3	2	DESCRIPTION	ΙŽ		MBE	YPE	VS/0	SHEAR STRENGTH	nat V. +	Q- •	W.	ATER CO			VΤ	B. 15	INSTALLATION
GOOLING SURFACE TOPSOIR Very self, trace in some gravet, (TILL) Some city, trace to some gravet, (TILL) Sign of Fig. Sign	<u> </u>	5	5		₹ A		₹	-	31.0									₹₹	
TOPSOIL Very start brown sandy SILT, trace to 1 20 00 15 1		H	4	CPOLIND SLIPEACE	S		┝			20 40	60	30	1	0 2	0 3	0 40	0		
Very dark favour sized, SLT, Trace to Some gravet, (TLL) 2	- 0	H	\dashv		ESS			-	\vdash										
Very date, from sairly SAND to samp grave. (TLL) 2																			BACKFILL
1 1 20 10 10 10 10 10				Van stiff brown and SUT trace to		260.30													CONCRETE
1 1 20 10 10 10 10 10				some clay, trace to some gravel. (TILL)	1] 0.40	⊢												CONCRETE THE
Sent Towns and Page 10 of 10 o							1	50 DO	18										
Very dense, brown sily SAND to sindy 244 245 246 247 2	- 1				体														BENTONITE SEAL
Very dense, brown sily SAND to sindy 244 245 246 247 2		l.	gers		H														
Very dense, brown sily SAND to sindy 244 245 246 247 2		ardie	m Au		11														l li
Very dense, brown sily SAND to sindy 244 245 246 247 2		ě	v Ste																
Very dense, brown sily SAND to sindy 244 245 246 247 2		75	olor		H	1	2	00	15										[3
Very dense, brown sily SAND to sindy 244 245 246 247 2	- 2	S	mms		111														<u> </u>
Very dense troom ally SLND to sarely SLND to sarely concerning these down and state of the same troop on the same troop			100		HH	1					i						1		#3 SILICA SAND
Coc. coobles/boulders. (ILL) Society Coc. Coobles/boulders. (ILL) Society Coc. Coobles/boulders. (ILL) Society Coc. Coobles/boulders. (ILL) Society Coc. Coobles/boulders. (ILL) Society Coc. Coobles/boulders. (ILL) Society Coc. Coobles/boulders. (ILL) Society Coc. Co				Vany donce, brown silby SAND to sandy	1	258.32											1		
END OF BOREHOLE 3.35 207.41 2 00 15 207.41 2 00 15 207.41 2 00 15 207.41 2 00 15 207.41 2 00 15 207.41 2 00 15 207.41 2 00 15 207.41 2 00 15 207.41 2 00 15 207.41 2 00 15				SILT, trace to some gravel, trace clay,	H														50mm Dia. Sch. 40 PVC #50
END OF BOREHOLE Approximate depth to groundwater table 0 62m (Feb 11/02) 8 10 10 10 10 10 10 10 10 10				occ. copples/boulders. (TILL)		1					ł								1.5m screen length
END OF BOREHOLE Approximate depth to groundwater table 0 62m (Feb.11/02) 10	- 3					1					1								4
END OF BOREHOLE Approximate depth to groundwater table = 0.62m (Feb.11/02) Top of Pipe Elini = 281.5m Sick-up = 0.82m					<u>I</u> IN	257.41	3	50 DO	.15										
Approximate depth to groundwater table = 0.62m (Fe0.11/02) Top of Pipe Elev. = 251.5em Stick-up = 0.82m		Γ	T	END OF BOREHOLE	Γ	3.35													
Sick-up = 0.82m		1																	Tan of D'r
5 Slok-up = 0.52m				= 0.62m (Feb.11/02)	1														Top of Pipe Elev. = 261.58m
	- 4																		Stick-up = 0.82m
																	-		
			-								ŧ						- 1		
		l	-														l		
	- 5																		
3 9 10	·																		
3 9 10																			
3 9 10																	1		
3 9 10			-														l		
9	- 6																Ì		
9			١																
9			١											ŀ					
9			1											ļ		}			
9			1														l		
	- 7		-											j	j		i		
		l	ı														- 1		
																- 1	1	1	
	8																		
														l	İ	ľ	į		
															l		İ		
		l							ĺ								1		
	9																		
																	1		
									- 1								ĺ	I	
	. 40		I				-	- 1	-										
DEPTH SCALE LOGGED: DKB	10															1			
DEPTH SCALE LOGGED: DKB					لـــا		1	1			1						L		
THE GORDE	DE	PTI	4 S	CALE					4	CAL)							LC	GGED: DKB
1:50 Associates CHECKED: FB	1:	50							1	ASSOC	ates							CHE	ECKED: FB

PROJECT: 021-1306 LOCATION: Refer to Plan

RECORD OF BOREHOLE: GP-9

BORING DATE: Jan.30,2002

SHEET 1 OF 1

DATUM: Geodetic

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

<u>.</u>	윤		SOIL PROFILE	TE		SA	MPL	-	DYNAMIC PE RESISTANCE			1		k, cm/s			3	IÅF.	PIEZOMETER
METRES	BORING METHOD		DESCRIPTION	STRATA PLOT	ELEV.	NUMBER	TYPE	BLOWS/0.3m	20 SHEAR STRE Cu, kPa	1	1	0 - 0 0 - 0 0 - 0	W/ Wp	ATER C	<u>. </u>	PERCE	IO ³ ENT WI	ADDITIONAL. LAB. TESTING	OR STANDPIPE INSTALLATION
3	Ö			STR	(m)	Ž		BLC	20	40	60	80	1				40	ļ <u>'</u>	
0			GROUND SURFACE TOPSOIL	ESS	257.77 0.00					╁		-				 	\vdash	+-	BACKFILL
1	ardier		Firm to hard, mottled brown to brown sandy SILT, trace to some clay, trace to some gravel. (TILL)		257.47 0.30		50 DO	8											BACKFILL CONCRETE BENTONITE SEAL
2	CME 75 Bombardier		Very dense, brown silty SAND to sandy SILT, trace to some day and gravel, occ cobbles/boulders. (TILL)	4 4 5 4 5 4 5 5 6 6 5 6 6 6 6 6 6 6 6 6	255.33 2.44	2	50 DO	33											#3 SILICA SAND WELL SCREEN 50mm Dia. Sch. 40 PVC #50 slot
3					254.42 3.35	3	50 DO	65/ .15											1.5m screen length
4			END OF BOREHOLE Approximate depth to groundwater table = 0.68m (Feb.11/02))							**************************************						***************************************		Top of Pipe Elev. = 258.65m Stick-up = 0.88m
5																			
6																			
7		:																	
8																			
9																			
10	-																		
DE	PTI	<u>.</u> н s	CALE		<u> </u>	L		-		olde soci	r	 	1	L	.	<u> </u>			OGGED: DKB

PROJECT: 021-1306 LOCATION: Refer to Plan

RECORD OF BOREHOLE: GP-10

SAMPLES

BORING DATE: Jan.31,2002

SHEET 1 OF 1

DATUM: Geodetic

PENETRATION TEST HAMMER, 64kg; DROP, 760mm SAMPLER HAMMER, 64kg; DROP, 760mm

HYDRAULIC CONDUCTIVITY, k, cm/s DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m SOIL PROFILE ADDITIONAL LAB. TESTING DEPTH SCALE METRES BORING METHOD PIEZOMETER OR STRATA PLOT STANDPIPE TYPE ELEV. SHEAR STRENGTH nat V. + Q - ● rem V. ⊕ U - O WATER CONTENT PERCENT INSTALLATION DESCRIPTION DEPTH --0W--Wo I-(m) GROUND SURFACE 255.18 0.00 TOPSOIL BACKFILL Very stiff to hard, mottled brown to brown silty SAND to sandy SILT, trace to some clay, trace to some gravel. (TILL) CONCRETE 25 BENTONITE SEAL 50 DO 2 #3 SILICA SAND WELL SCREEN 50mm Dia. Sch. 40 PVC #50 Very dense, brown silty SAND to sandy SILT, trace to some gravel, trace clay, occ. cobbles/boulders. (TILL) 1.5m screen length 3 50 DO 55/ 3 **END OF BOREHOLE** Approximate depth to groundwater table = 0.15m (Feb.11/02) Top of Pipe Elev. = 255.97m Stick-up = 0.79m 6 021-1306.GPJ GAL-MISS.GDT 4/24/07 PS 10 MIS-BHS 001 LOGGED: DKB

DEPTH SCALE

1:50

Golder Associates

Ontario Ministry of the Environment Measurements are Toronto and Toronto and Toronto are

Master Well Record for Cluster Well Construction

Regulation 903 Ontario Water Resources Act

	Kasulements O	L							Page _	of
Master V		Land Owner's Info	mation Name				E-mail Ad	droce		
Heash	er Van Brui		ry of Kaw	xar Na Lo	illes		L-mail Ad	uiess		
Mailing Ac	Idress (Street Numb ee\ Street	er/Name, RR)	Municipa A	lity		Provir	nce) /\)	Postal Code	Telephone	No. (inc. area code) 3 24 9 4 1 1
		on of the Master We	1 -	1		<u> </u>		1/11/1/	<u> - 0 / 0 2 </u>	<u> </u>
Address o	f Well Location (Stre	et Number/Name, RR)	T	ownship ,				Lot	Concession	on
County/Di	ay 005 Land striet/Municipality,	I fill, Wilson	Road	Lind ?	i				Province	Postal Code
	of Cawarle	n Lakes		L ~050					Ontario	K191V1 1
UTM Coor	dinates Zone Eas	ting Northing		S Unit Make	Model	(ex	Mode of C		Undifferentiated	Averaged
***************************************		8 0 8 8 4 9 1 ck Materials <i>(see inst</i>	11000	<u> </u>	1	. ~/	Differer	ntiated, specify_	Details	
General	Most Common	Other	General	5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	(Metres)	Depth	(Metres)	1919	Diamet	er
Colour	Material	Materials	Description		То	From	To		(Centime:	tres)
Bown	Silt	and, copples, k.	_ 1	0'	41		25		8,2	
Gey	Silt	11	Fill	J.	and the second	25'	35'		4:1	
Grey	Sand	Till (to cobbles	Dense	l h'	201					
Grey	Silt		Hord	20'	25					
Gren	Limestone			25'	35'			Wate	er Use	
<u>0.07</u>		1 -1 -2 -1	71.1	1, ,		☐ Public	In	<u> </u>	Not used	Other, specify
	> Fracture	s at 32' and	34' appro	ximaleij		Domes	_		Dewatering Monitoring	
	2" 1-)	Mickness				☐ Irrigation	_	. —	Cooling & Air Cond	ditioning
	ļ.	oHe 35'					- ,	3000	Construction	. سم
						☐ Cable `☐ Rotary	(Convention	☐ Air Perd nal) ☐ Diamon	nd 🖟 🖾 🕏 o	ring
						☐ Rotary	(Reverse)	☐ Jetting ☐ Driving	Oth	ner, <i>specify</i>
									of Well	
						Test H			oned, Insufficient S	upply
						☐ Replac	ement Well	☐ Abando	ned, Poor Water (Quality
						11—	_		oned, other, specify	/
						No Cas	ing and S	creen Used	Static Wat	er Level Test
						Open Hole			// Me	otres Feet
Inside Dia	meter	Construction De	tails Wa	all Depth	(Metres)				reen	
(Centime		c, fibreglass, concrete, g	alvanized) Thick	ness From	То	Galvan	ized 🔲 S iameter <i>(Ce</i>	Steel Fibre		ete Plastic
2"	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	IC Riser (3'	1" Shdry) 3/1		30	2 3/8	idineter (Ce	illillelles)	Slot No.	
9'	PVC	10 slot Scre	e - 3/1	6" 30'	35			Water Det	ails	
						Water fou	ind at Dept	h Kind of		Sulphur
						Water fou	Metres [at Dept			- Interest
	and the second second second	r Space/Abandonmen	t Sealing Record	3			Metres	∃Gas ∐Fres		Sulphur Minerals
Depth Set a	at (<i>Metres)</i> To	Type of Sealant U (Material and Typ		1	e Used <i>Metres</i>)	H	ind at Dept Metres			Sulphur Minerals
0	29'	Bentonite		4001	b5				de reason: Date N	Master Well Completed
291	35' #a	Well Sand		50	165	Test 1			(yyyy/n	
<u>~ ~ ` </u>		OH @ 35'	<u> </u>			Cluster li	nformation	(Please also fi		nal Cluster Well
						Informati		l Construction	for each parcel	of land and cluster.) Jumber of Cluster Well
						Total VVCI	J. Oldste	1		Sheets Submitted
					······································		Is on this P (NOW)		gradua Add	
							LINUUS		Well Cluster	
					***************************************			e provided as ar s are not allowed		arger than legal size
										per Section 11.1 (3)
									mation concerni	ng the cluster to
							or upon re of Technici	an/Contractor		yyyy/mm/dd)
		tractor and Well Tech				NA==:	JUNU -	// ar = 0	W- 1	010/03/15
Business Na Ont	ame of Well Contrac	tor	Well	Contractor's Lice	ence No.	Signature	eli Owner's	∌r∟and Owner's ∆	Date (Cluster Form /yyy/mm/dd)
	ddress (Street No./N	ame, number, RR)	Municipal	ity ,	1		<u>Vav</u>	Wzrus	22 0	10/05/17
Province	Postal Co	Stiect de Business/E-ma	il A alaba a a	Albert		A 1 of 1 & 1 =			Use Only	
Province		IMO INTO 6	pontild:11	ing. com	`	Audit No.	1 OA	941	Well Contractor No	
Bus.Telepho	one No. (inc. area code	Name of Well Technicia	an (Last Name, Fir			Date Recei	ived (yyyy/m	7 25000	Date of Inspection	(yyyy/mm/dd)
d Ø T 5 Well Technic	3 3 8 8 8 3 9	nature of Techniquen	G eq Date	Submitted (yy)	/y/mm/dd)	Remarks	· .	<u> </u>		



Ministry of the Environment Well Tag No. for Master Well (Print Well Tag No.)

A068996

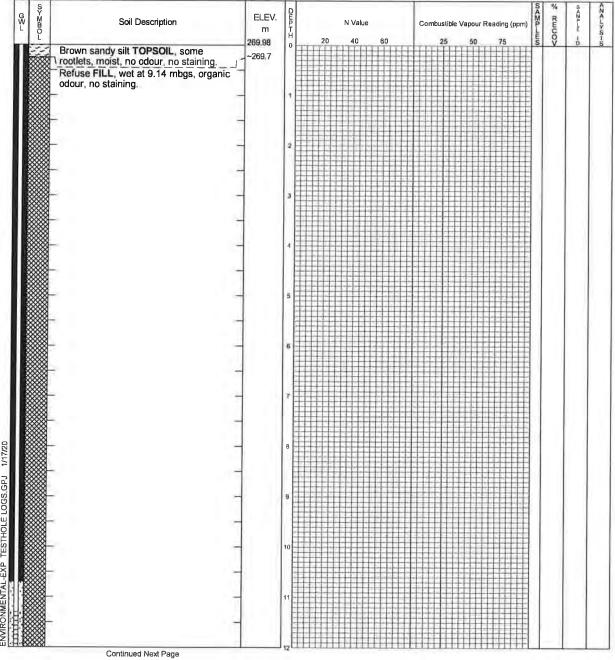
Cluster Well Information for Cluster Well Construction

Regulation 903 Ontario Water Resources Act

Prop	erty Owner'	s Informati	ion													Consent			
First N	lame	Ω		Last	Name	,	11 1	Mailing Ad	dress (Street N		RR)	Munio	cipality			Property Owner's (Consent to	use cluster f	orm
Provir	ather Vo	in Blui	1855e	n ()	ity of	<u>Kawari</u>	Ka Lake	s 12	Peel Si			Tolophono	No. (inc. area	1		Signature			Date (yyyy/mm/dd)
) N		Ľ	9	V 3 4	8	in Addices					7 0	5 3 2	4 9 4 1	/	fl. Vani	6		2010/03/
	ter Well Info														7.0	Consent to release upon request	additiona	information	to the Director
Addre /	ss of Well Locat	ion (Street Nu	mber/Na	ame, RF	R) ○ I	Lot	ı C	oncession	Township			Coun	ty/District/Mun	icipality		Signature of Teghnic	ian/Contra	ctor	Date (yyyy/mm/dd)
City/To	wn/Village	Land Hill	<u>, (e)</u>	Provi	<u>, Rd.</u>	stal Code	G	PS Unit Make	Model Model		de of Opera	tion □ Ur	1 OT Kawb idifferentiated	Na Lakes			And the second		
1	indsay			Ont	ario				ehex	I .	rentiated, s	_				L Wh	\mathcal{N}^{\parallel}		2010/03/15
Well # on Sketch	Zone Easting	JTM Coordinates			Full Depth of Hole (metres)	Hole Diameter	r Method of Construction	Casing Materi	al Casing Length (metres)	Screen Ir	nterval (metres)	Annular Space Sealant Used	Static Water Level (metres)	Abandonment Sealant Used		Com	ments		Date of Completion (yyyy/mm/dd)
			1	1 0	2.71	0 (1)	Hollow	0.17	1 /2 / ::			Bentonite	4		7	81/. 11 - 1 - 1			
)-; <u>2</u>	17680	<u>H Maioi II</u>	1 / 6	000	d06 *	8,5"	Stem Auger	PVC	156	156"	206"	# 2 Well Sand	<u> </u>		5.	19 Stick-L	P		2010/03/1
W/ 102							, and the second								See	P-2-1 Co.	Soi	Address of the Addres	
			1 1 1												3	3'2" Stick-c P-2-1 for aligraphy			
														W. C. V. W. C. W. C. V. V. V. V. V. V. V. V. V. V. V. V. V.	J11	a tigia pay			
																*			
								·				1 13 4.							
												s.		,		***************************************			
																		<u> </u>	
																		142"	
												7							
Wali	Contractor	and Wall To	nobnio	ion In	formation	<u> </u>				<u> </u>					94994	Date 1st Well in Cluster	Constructed	Date Last Wel	l in Cluster Constructed
540 TRU-A 200 APR	ess Name of We		56111116	ian in	TOTTHALION		siness Address (Street Number/I	lame, RR)		Municipal	ity		Province	11.5%	(yyyy/mm/dd)	13/12	(yyyy/mm/aa) -	2010/03/12
	ntil Da	Ming 1	. h.L.			***	1 Wate	SJ.			MI,	Albert		ON		Ministry Use O			111
Postal	Code	Busin	ess Tele 2 a	phone I	No. (inc. area	code)	Well Contracto	r's Licence No. B	usiness E-mail	Address	tih (1)	1:09.10	ban.	, a consideration.		Date Received (yyy)	/mm/dd)	Date Inspec	ted (yyyy/mm/dd)
Name	O G 1 1 of Well Technic	an (First Name	e, Last N	Name)	21011	0120	/ / Well Techniciar	n's Licence No. D	ate Submitted ()	/yyy/mm/do	g) Signature	of Technician				Audit No. 🥱 🥱 🙈	- ^	Remarks	
		<u>Smilh</u>					28	818	2016/03/	115		Jul Jul				C 066	8 0		
1991 (1	1/2006)								/ V	ell Owne	r's Copy							© Queen's P	rinter for Ontario, 2006

Log of Borehole MW6-90-II

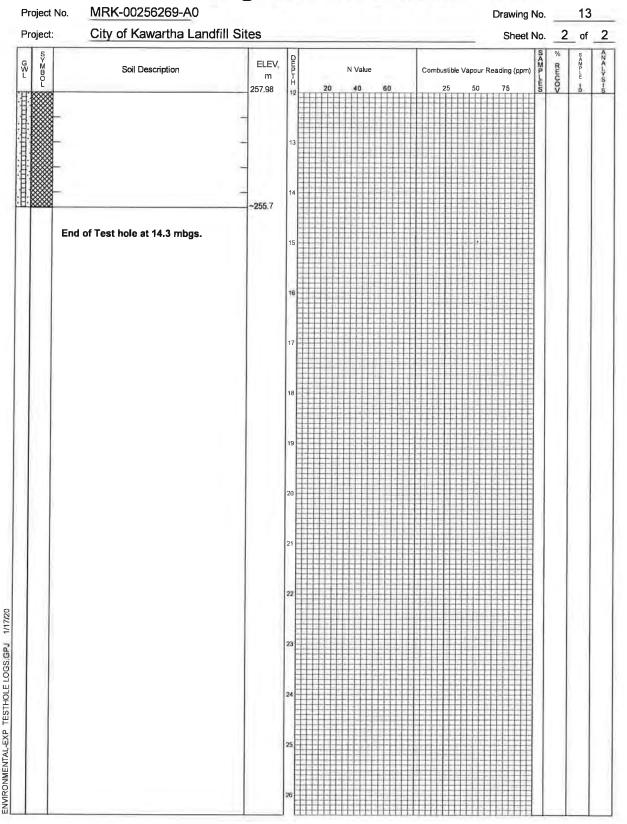
		0				7	-			
Project No.	MRK-00256269-A0						rawing No.		13	
Project:	City of Kawartha Landfill	Sites					Sheet No.	_1_	of	2
Location:	Various Landfill Sites, Ka	awartha L	akes							
	Lindsay Ops Landfill									
Date Drilled:	October 24, 2019		Chem BTEX	ical Analysis Benzene, Toluene	Ethylbenzene and	Xvlenes	* Duplic	ate Sa	mnle	
Drill Type:	CME-75 Track Mount		ING MET	Metals and Inorgan	-	PCB PHC	Polychlorinat	ed Bipl	nenyls	
Datum:	1		PAH PEST	Polycyclic Aromatic Organochlorine Pe	•	voc	Volatile Orga		,	
S Y M M	Soil Description	ELEV.	DEP	N Value	Combustible V	anour Rea	ding (ppm)	% R	S A M	175



exp Services Inc.
Markham, Ontario
Telephone: 905.695.3217

Time	Water Level (m)	Depth to Cave (m)

Log of Borehole MW6-90-II



exp Services Inc.
Markham, Ontario
Telephone: 905.695.3217

	Time	Water Level (m)	Depth to Cave (m)
L			

Log of Borehole MW7-90

Project No.	MRK-00256269-A0					Drawing No			11	
Project:	City of Kawartha Landfill Sit	tes				Sheet No		1	of 2	>
Location:	Various Landfill Sites, Kawa	artha L	ak	es						
	Lindsay Ops Landfill									
Date Drilled:	October 24, 2019			Chemical Analysis BTEX Benzene, Toluene, Ethyl	hanzana and Yvlanas	* 0	dical	e Sar	nnla	
Drill Type:	CME-75 Track Mount			ING Metals and Inorganics	PCB	Polychlori	nated	Biph	enyls	
Datum:				MET Metals PAH Polycyclic Aromatic Hydr	PHC rocarbons VOC	Petroleum Volatile Or				
				PEST Organochlorine Pesticide	es					
SYM BOL	Soil Description	ELEV. m	DHOTH	N Value	Combustible Vapour Re	E	% RECOX		8435 U	
Brov rootl Refu	vn sandy silt TOPSOIL, some ets, moist, no odour, no staining. Jise FILL, wet at 7.62 mbgs, organic ur, no staining.	271.05 -270.9	0 1 2 3 4 5 6 7 8	20 40 50	11111111111		, C			

exp Services Inc.

Markham, Ontario
Telephone: 905.695.3217

ENVIRONMENTAL-EXP TESTHOLE LOGS GPJ 1117/20

Time	Level (m)	Cave (m)

Log of Borehole MW7-90

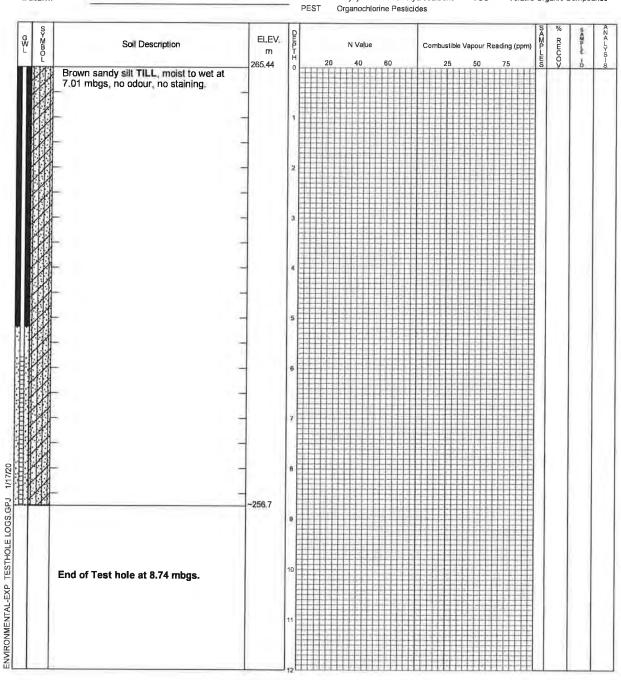
S ELEV. m	P			Is	0/	· c	-
lare or	HAT	N Value	Combustible Vapour Reading (ppm) AMPLE	COOME &	S < 30 Lin	
End of Test hole at 10.7 mbgs.	12	20 40 50	25 50 75	S	V	Ó	
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						
	21						
	22						
	23						
	24						
	25						
	26						

exp Services Inc.
Markham, Ontario
Telephone: 905.695.3217

Time	Water Level (m)	Depth to Cave (m)

Log of Borehole MW48-96-II

Project No.	MRK-00256269-A0			[Drawing No.		12	
Project:	City of Kawartha Landfill Sites				Sheet No.	1	of	1
Location:	Various Landfill Sites, Kawartha	a Lakes						
	Lindsay Ops Landfill							
Date Drilled:	October 23, 2019	Chemica BTEX	al Analysis Benzene, Toluene, Ethylbenzene and	l Xvlenes	* Dupi	icate Sa	mole	
Drill Type:	CME-75 Track Mount	ING MET	Metals and Inorganics Metals	PCB PHC	Polychlorina Petroleum I	ated Bip	henyls	
Oatum:	1	PAH PEST	Polycyclic Aromatic Hydrocarbons Organochlorine Pesticides	VOC	Volatile Org	anic Co	mpour	nds



exp Services Inc.
Markham, Ontario
Telephone: 905.695.3217

Time	Water Level (m)	Depth to Cave (m)



APPENDIX G

2023 Leachate Collection System Video Inspection Report

Phone: 519-748-0311 Fax: 519-740-4242



NIELTECH SERVICES LTD.

2022-23-OQ

Flushing and Video Inspection of Leachate Collection Systems

City of Kawartha Lakes

YEAR 2 (2023): LINDSAY OPS LANDFILL

Date: November 7, 2023



Nieltech Services Ltd.

75 Moorefield Street, Unit # 1 Cambridge, ON N1T 1S2

Contents

1.0	GENERAL INTRODUCTION	2
		_
2.0	SUMMARY OF FINDINGS	2
3.0	TABLE 1: INTERPRETATION OF VIDEOS AND RECOMMENDATIONS	3
3.0	CONCLUSIONS	6



Nieltech Services Ltd. 75 Moorefield Street, Unit # 1 Cambridge, ON N1T 1S2

1.0 GENERAL INTRODUCTION

Nieltech Services Limited (NTS) was retained by the City of Kawartha Lakes for the Flushing and Video Inspection of Leachate Collection Systems for the City Contract No. 2022-23-OQ. After successfully completing the first year or the contract in 2022, Nieltech was requested to proceed with the second year of the contract in 2023. This report is based on the inspections conducted at Lindsay OPS Landfill completed by NTS in the year 2023. The purpose of the inspections was to identify and report any structural and operational defects in sewers and manholes at the landfill. NTS utilized a combination of a flusher truck and a CCTV truck in order to accomplish this task.

2.0 SUMMARY OF FINDINGS

NTS video inspected over 5000 meters of pipes at the Lindsay OPS Landfill. The overall structural condition of the pipes was adequate. There were not any collapsed pipes or pipes that looked structurally unsound. There were also no obvious blockages that were observed. This report should be read in conjunction with the CCTV report as well as CCTV videos provided to the City. NTS has provided a summary of our observations in Table 1 below along with our recommendations.



Nieltech Services Ltd.

75 Moorefield Street, Unit # 1 Cambridge, ON N1T 1S2

3.0 TABLE 1: INTERPRETATION OF VIDEOS AND RECOMMENDATIONS

<u>Pipe ID</u>	INTERPRETATION OF VIDEOS	RECOMMENDATIONS
MHL1 - MHL2 (L1)	Sags potentially holding water at various locations were noted, flow occurring	Monitor sags with annual inspection
MHL1 - MHL2 (L2)	Sags potentially holding water at various locations were noted, flow occurring	Monitor sags with annual inspection
MHL1 - MHL2 (L3)	Sags potentially holding water at various locations were noted, flow occurring	Monitor sags with annual inspection
MHL3 - MHL4 (L4)	Sags potentially holding water at various locations were noted, flow occurring	Monitor sags with annual inspection
MHL3 - MHL4 (L5)	Sags potentially holding water at various locations were noted, flow occurring	Monitor sags with annual inspection
MHL3 - MHL4 (L6)	There is what looks to be an exposed gasket or sealing ring at a joint.	The exposed gasket is at 12 o'clock, so it is not impeding any flow. NTS would recommend monitoring with annual inspection
MHL5 - MHL6 (L7)	Sags potentially holding water at various locations were noted, flow occurring	Monitor sags with annual inspection
MHL5 - MHL6 (L8)	No issues observed	none



Nieltech Services Ltd.

75 Moorefield Street, Unit # 1 Cambridge, ON N1T 1S2

MHL7 - MHL8 (L9)	No issues observed	none
MHL7 - MHL8 (L10)	Sags potentially holding water at various	Monitor sags with annual
	locations were noted, flow occurring	inspection
MHL9 - MHL10 (L11)	No issues observed	none
MHL9 - MHL10 (L12)	No issues observed	none
MHL9 - PLUG (L13)	could not complete inspection due to studs built into pipe for the section we could video there were no issues	none
MHL10 - PLUG (L14)	No issues observed	none
MHL7 - MHL9 (H10)	No issues observed	none
A4117 A4110 (1144)	Core materially helding water at various	Manitar case with annual
MHL7 - MHL9 (H11)	Sags potentially holding water at various locations were noted, flow occurring	Monitor sags with annual inspection
MHL5 - MHL7 (H8)	Sags potentially holding water at various	Monitor sags with annual
	locations were noted, flow occurring	inspection accumulation of debris around sags
	Due to size of pipe no reversal inspection	
	available. Flushing still occurred.	
MHL5 - MHL7 (H9)	Sags potentially holding water at various	Monitor sags with annual
	locations were noted, flow occurring	inspection
NALU 2 NALU 5 (U.C.)	Due to size of pine we inspection available	NI/A
MHL3 - MHL5 (H6)	Due to size of pipe no inspection available. Flushing still occurred.	N/A
	Ğ	
MHL3 - MHL5 (H7)	Sags potentially holding water at various	Monitor sags with annual
	locations were noted, flow occurring	inspection
MULT MULT (UAUT)	Sags potentially holding water at various	Monitor sags with annual
MHL1 - MHL3 (H4H2)	locations were noted, flow occurring	inspection
		·



Nieltech Services Ltd.

75 Moorefield Street, Unit # 1 Cambridge, ON N1T 1S2

MHL1 - MHL3 (H3H5)	Sags potentially holding water at various locations were noted, flow occurring	Monitor sags with annual inspection
MHL1 - PUMP STA.	Due to size of pipe no inspection available. Flushing still occurred.	N/A
	It was noted that this line had submerged conditions as well. Flow occurring.	
MH1-MH2	Could not video – no access due to construction	N/A
МН2-МН3	Sags potentially holding water at various locations were noted, flow occurring	Monitor sags with annual inspection
MH3 - MH4	Sags potentially holding water at various locations were noted, flow occurring	Monitor sags with annual inspection
MH4 - MH5	Sags potentially holding water at various locations were noted, flow occurring	Monitor sags with annual inspection
MH5 - MH6	No issues observed	None
MH7 - MH6	No issues observed	None
MH8 - MH7	No issues observed	None
MH9 - MH8	No issues observed	None
MH10 - MH9	Possible abandoned lateral / lead	N/A
MH11 - MH10	No issues observed	None
MH11 - Landfill	No issues observed	none
MH12 - MH11	No issues observed	none
MH12 - Landfill	No issues observed	none
MH13 - MH12	No issues observed	none
MH14 - MH13	No issues observed	none
MH5 - PUMP STA.	CCTV not available, due to submerged conditions. Flow occurring.	monitor water level with annual inspection
MH11 - Catchbasin	CCTV not available, due to submerged conditions. Flow occurring.	monitor water level with annual inspection



Nieltech Services Ltd. 75 Moorefield Street, Unit # 1 Cambridge, ON N1T 1S2

3.0 CONCLUSIONS

NTS was able to successfully complete the 2023 mobilization to flush and video inspect the leachate collection system within the Lindsay OPS Landfill. The systems were draining effectively with no indication of damage or repairs required at this time. Our recommendation is to continue annual flushing, monitoring and inspections.



APPENDIX H 2023 Performance Report for the Lindsay WPCP

Lindsay Wastewater Treatment Plant

Works # 110000383

Annual Wastewater Performance Report

Prepared For: The City of Kawartha Lakes

Reporting Period of January 1st – December 31st, 2023

Issued: March 28, 2024

Revision: 0

Operating Authorities:



2023 Performance Report for the Lindsay Wastewater Treatment Plant

During 2023, the Lindsay WWTP was licensed under Environmental Compliance Approval (ECA) 1696-BPLL4R. All Sewage Pumping Stations within the Lindsay Sewage Collection System were licensed under a Consolidated Linear Infrastructure ECA #141-W601. Reporting requirements for all ECAs are contained in this Performance Report.

ECA1696-BPLL4R Section 4, requires the Performance Report to contain the following:

- a) a summary and interpretation of all Influent and Imported Sewage monitoring data, and a review of the historical trend of the sewage characteristics and flow rates:
- b) a summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, loading and a comparison to the design objectives and compliance limits in this Approval, including an overview of the success and adequacy of the Works;
- c) a summary of all operating issues encountered and corrective actions taken;
- d) a summary of all normal and emergency repairs and maintenance activities carried out on any major structure, equipment, apparatus or mechanism forming part of the Works;
- e) a summary of any effluent quality assurance or control measures undertaken;
- f) a summary of the calibration and maintenance carried out on all Influent, Imported Sewage and Final Effluent monitoring equipment to ensure that the accuracy is within the tolerance of that equipment as required in this Approval or recommended by the manufacturer;
- g) a summary of efforts made to achieve the design objectives in this Approval, including an assessment of the issues and recommendations for pro-active actions if any are required under the following situations:
 - i. when any of the design objectives is not achieved more than 50% of the time in a year, or there is an increasing trend in deterioration of Final Effluent quality;
 - ii. when the Annual Average Daily Influent Flow reaches 80% of the Rated Capacity;
- h) a tabulation of the volume of sludge generated, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed; a tabulation of the measured volume of sludge accumulated in the lagoon cells in five year intervals and the estimated volume in the interim years and when sludge was disposed of during the reporting period, a summary of disposal locations and volumes of sludge disposed at each location;
- i) a summary of any complaints received and any steps taken to address the complaints;

- j) a summary of all Bypasses, Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events;
- k) a summary of all Notice of Modifications to Sewage Works completed under Paragraph 1.d. of Page 20 NUMBER 1696-BPLL4R Condition 10, including a report on status of implementation of all modification.
- I) a summary of efforts made to achieve conformance with Procedure F-5-1 including but not limited to projects undertaken and completed in the sanitary sewer system that result in overall Bypass/Overflow elimination including expenditures and proposed projects to eliminate Bypass/Overflows with estimated budget forecast for the year following that for which the report is submitted.
- m) any changes or updates to the schedule for the completion of construction and commissioning operation of major process(es) / equipment groups in the Proposed Works.
- n) a summary of any deviation from the monitoring schedule and reasons for the current reporting year and a schedule for the next reporting year.

The Environmental Compliance Approval Number 141-W601 for the City of Kawartha Lakes Wastewater Collection System, including the Lindsay Sewage Collection System, stipulates that the operating authority for the following conditions shall maintain annual records:

Schedule E – Reporting (4.6)

- a) a summary of all required monitoring data along with an interpretation of the data and any conclusion drawn from the data evaluation about the need for future modifications to the Authorized System or system operations.
- b) a summary of any operating problems encountered and corrective actions taken.
- a summary of all calibration, maintenance, and repairs carried out on any major structure, Equipment, apparatus, mechanism, or thing forming part of the Municipal Sewage Collection System.
- d) a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.
- e) a summary of all Alterations to the Authorized System within the reporting period that are authorized by this Approval including a list of Alterations that pose a Significant Drinking Water Threat.
- f) a summary of all Collection System Overflow(s) and Spill(s) of Sewage, including:
 - i. Dates;
 - ii. Volumes and durations'
 - iii. If applicable, loadings for total suspended solids, BOD, total phosphorus, and total Kjeldahl nitrogen, and sampling results for E. coli;
 - iv. Disinfection, if any; and
 - v. Any adverse impact(s) and any corrective actions; if applicable.

- g) a summary of efforts made to reduce Collection System Overflows, Spills, STP Overflows, and/or STP Bypasses, including the following items, as applicable:
 - A description of projects undertaken and completed in the Authorized System that result in overall overflow reduction or elimination including expenditures and proposed projects to eliminate overflows with estimated budget forecast for the year following that for which the report is submitted.
 - ii. Details of the establishment and maintenance of a PPCP, including a summary of project progresses compared to the PPCP's timelines.
 - iii. An assessment of the effectiveness of each action taken.
 - iv. An assessment of the ability to meet Procedure F-5-1 or Procedure F-5-5 objectives (as applicable) and if able to meet the objectives, an overview of next steps and estimated timelines to meet the objectives.
 - v. Public reporting approach including proactive efforts

Environmental Compliance Approval (ECA) 1696-BPLL4R

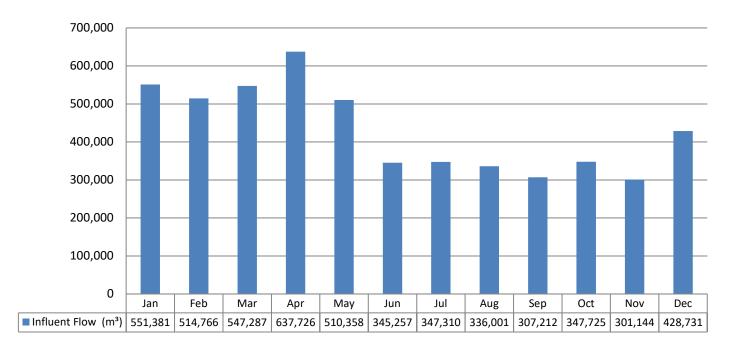
(a) ECA #1696-BPLL4R requires a summary and interpretation of all Influent and Imported Sewage monitoring data, and a review of the historical trend of the sewage characteristics and flow rates.

Attached as **Appendix VII** is a copy of the 2023 Performance Assessment Report (PAR) and loading calculations for the Lindsay WWTP raw and final effluent. The PAR contains: a tabulation of all monthly average raw sewage and final effluent sample results obtained during the reporting period, a tabulation of average daily flows, and monthly volumes for the reporting period, and a tabulation of calculated total loading of BOD/CBOD⁵, suspended solids, total phosphorus, ammonia + ammonium as N (TAN), Total Kjeldahl Nitrogen (TKN), nitrite and nitrate concentrations in the final effluent.

The Lindsay WWTP Phase 1 Upgrade and Expansion was substantially completed on January 31, 2023. Notice was given to the Ministry of Environment, Conservation and Parks (MECP) in writing on February 7, 2023. With the substantial completion of Phase 1, new limits as outlined in ECA 1696-BPLL4R Design Capacity table, Schedule B, and Schedule C came into effect.

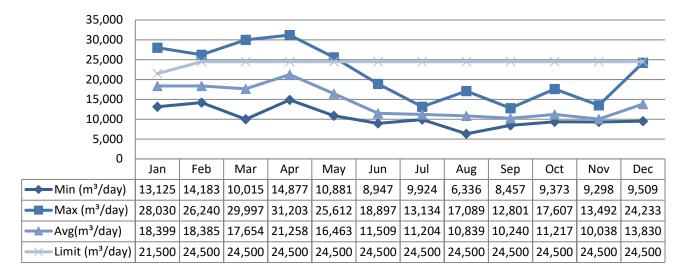
The Lindsay WWTP has a Rated Capacity of 24,500 m³/day and Actiflo rated capacity of 30,100 m³/day under ECA 1696-BPLL4R. ECA 1696-BPLL4R requires that everything practicable be undertaken to operate the Sewage Treatment Plant so that the annual average daily influent is within the Rated Capacity. The Rated Capacity of the Lindsay WWTP is 24,500 m³/day and the 2023 annual average daily influent flow was 14,177.80 m³/day or 57.9% of the Rated Capacity.

The total Influent flow in 2023 was 5,174,898.00 m³.

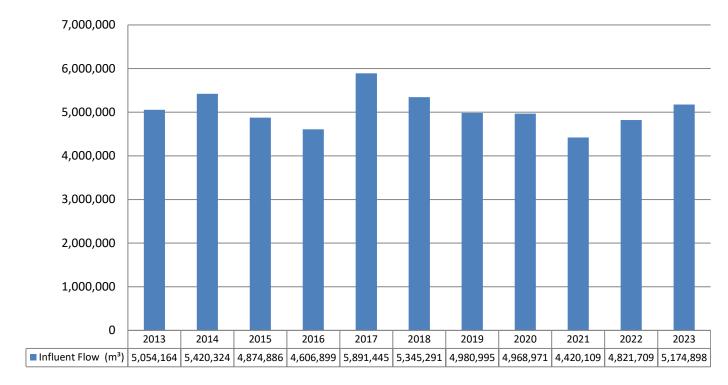


Graph 1: 2023 Influent Flow Monthly Totals

Graph 2: Influent Daily Minimum, Maximum and Average Flows



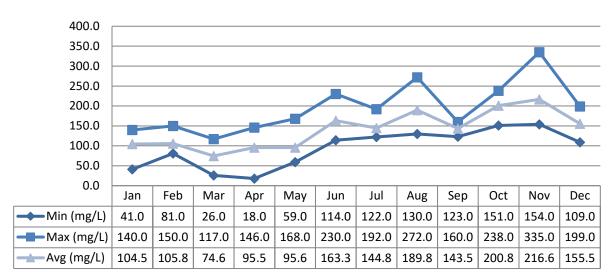
There may be instances where influent flow exceeded the Rated Capacity on a monthly basis. However, Rated Capacity is calculated as an annual average daily flow rate, which was met in 2023. Influent rated capacity increased from 21,500 m³/day to 24,500 m³/day beginning February 2023 after the substantial completion of capital upgrades.



Graph 3: Historical Influent Flows from 2013 to 2023

Biochemical Oxygen Demand (BOD5)

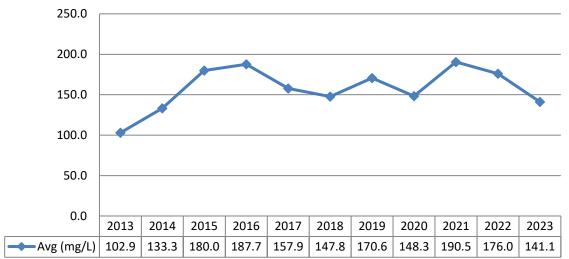
ECA 1696-BPLL4R requires at least one composite sample be collected and analyzed weekly for Biochemical Oxygen Demand (BOD5). The Biochemical Oxygen Demand (BOD5) monthly average results ranged from 18 mg/L to 335 mg/L.



Graph 4: 2023 Monthly BOD5 Influent Concentration Comparisons

Biochemical Oxygen Demand Historical Trends

The Biochemical Oxygen Demand annual average has been increasing steadily between 2013 and 2023. Although not confirmed, increased raw influent concentrations could be related to increased abattoir and septage receiving.

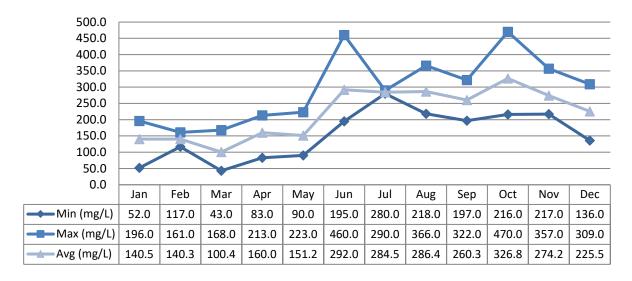


Graph 5: Historical Influent BOD5 Concentration Comparisons

Total Suspended Solids

ECA 1696-BPLL4R requires at least one composite sample be collected and analyzed weekly for Total Suspended Solids. The monthly average results ranged from 100.4 mg/L to 326.8 mg/L.

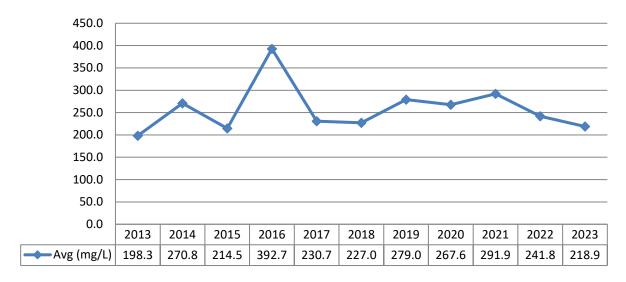
Graph 6: 2023 Monthly Total Suspended Solids Influent Concentration Comparisons



Total Suspended Solids Historical Review

The Total Suspended Solids annual average has remained relatively stable between 2013 and 2023 with the peak annual average in 2016. Although not confirmed, raw influent concentrations could be related to abattoir and septage receiving.

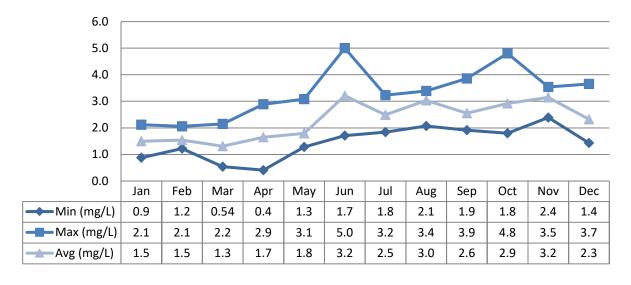
Graph 7: Historical Influent Total Suspended Solids Concentration Comparisons



Total Phosphorus

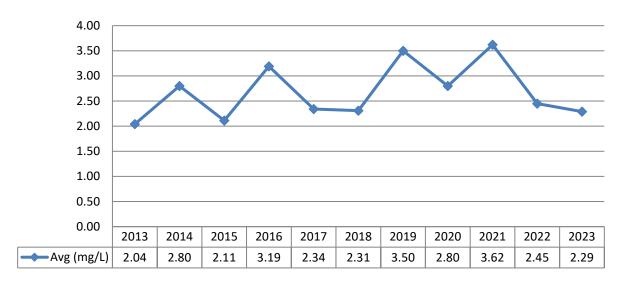
ECA 1696-BPLL4R requires at least one composite sample be collected and analyzed weekly for Total Phosphorus. The monthly average Total Phosphorus results ranged from 1.3 mg/L to 3.2 mg/L.

Graph 8: 2023 Monthly Total Phosphorus Influent Concentration Comparisons



Total Phosphorus Historical Trends

Graph 9: Historical Influent Total Phosphorus Concentration Comparisons

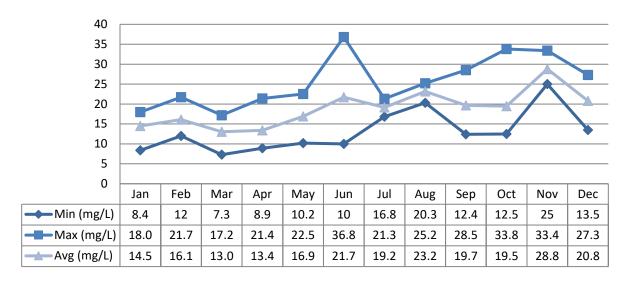


The Total Phosphorus annual average has increased between 2013 and 2023 with the minimum value being 2.04 mg/L and the maximum value being 3.62 mg/L. Although not confirmed, raw influent concentrations could be related to abattoir and septage receiving.

Total Kjeldahl Nitrogen (TKN)

ECA 1696-BPLL4R requires at least one composite sample be collected and analyzed weekly for Total Kjeldahl Nitrogen. The monthly average Total Kjeldahl Nitrogen results ranged from 13 mg/L to 28.8 mg/L.

Graph 10: 2023 Monthly Total Kjeldahl Nitrogen Influent Concentration Comparisons



Total Kjeldahl Nitrogen Historical Review

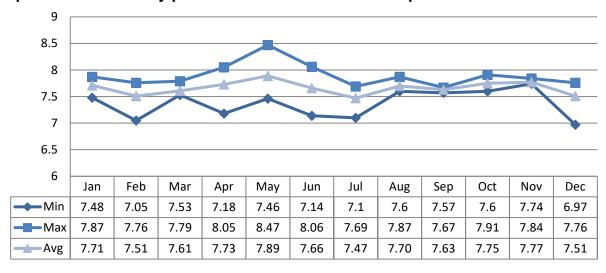
The Total Kjeldahl Nitrogen annual average has remained fairly consistent between 2013 and 2023. The minimum annual average occurred in 2020 and the maximum annual average occurred in 2019.

25 20 15 10 5 0 2013 2014 2020 2021 2022 2015 2016 2017 2018 2019 2023 -Avg (mg/L) 20.3 22.5 19.4 23.3 18.9 19.54 23.54 18.48 18.5 19.3 19.0

Graph 11: Historical Influent Total Kjeldahl Nitrogen Concentration Comparisons

рΗ

ECA 1696-BPLL4R does not require a pH sample be collected nor prescribes the sample frequency on the influent. The monthly average pH results were fairly consistent throughout 2023 ranging from 7.47 to 7.89.

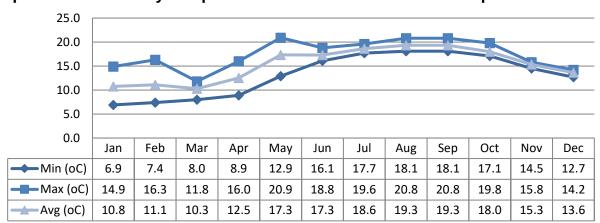


Graph 12: 2023 Monthly pH Influent Concentration Comparisons

Historical pH data is only available from 2016 to 2023 and the pH levels in 2023 fluctuated 6.90 and 8.47.

Temperature

ECA 1696-BPLL4R do not require a temperature sample be collected or prescribe sample frequency on the influent. Samples were collected throughout 2023. Variations in results were consistent with seasonal fluctuations. Historically, the influent water temperature drops in the freezing season (i.e. winter) and raises in the non-freezing season (i.e. summer) and this trend continued throughout 2023. Historical data is only available from 2016 to 2023 and the temperature in 2023 ranged from 6.9° to 20.9°.



Graph 13: 2023 Monthly Temperature Influent Concentration Comparisons

Imported Sewage

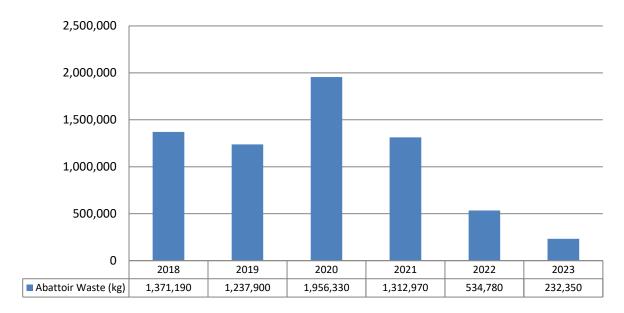
Imported Sewage is sewage that is hauled to the sewage treatment plant by licensed waste treatment system operators. At the Lindsay WWTP Imported Sewage consists of sewage hauled to the Receiving Station at 38 Lagoon St, Lindsay and abattoir waste hauled to the Lindsay WWTP onsite storage lagoon.

ECA 1696-BPLL4R requires monthly sampling of Imported Sewage.

Abattoir Waste

Waste from local Abattoirs is hauled to the Lindsay WWTP and deposited into Lagoon 5 which acts as a storage lagoon. During high flow events, excess raw water from the collection system is diverted into Lagoon 5 where it is stored until the collection system flows subside enough to feed the water in Lagoon 5 back into the facility Inlet. The abattoir waste mixes with the raw water in Lagoon 5 and is returned to the wastewater treatment plant through the Inlet.

Trucks hauling abattoir waste are weighed at the Lindsay Landfill Inbound Scale and the Outbound Scale and the difference between the two readings is the amount of abattoir waste deposited into Lagoon 5. The amount of abattoir waste deposited in 2023 was 232,350.00 kg. This was a decrease in abattoir waste deposited over 2022, equaling a 56% decrease in volume.



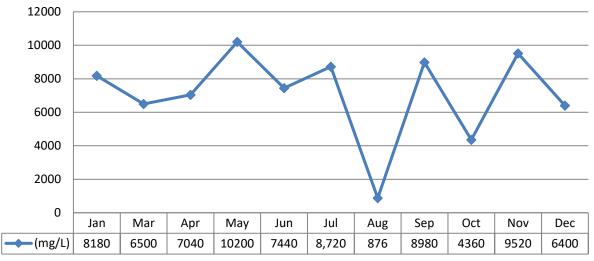
Graph 14: Historical Abattoir Volume Comparisons

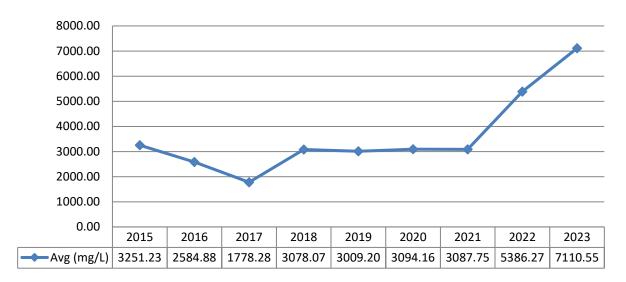
ECA 1696-BPLL4R requires a grab sample be collected monthly and analyzed for BOD5, Total Suspended Solids, Total Phosphorus and Total Kjeldahl Nitrogen for each type of imported sewage. Although not required by the ECA, Total Ammonia Nitrogen was sampled and analyzed monthly in 2023. An Abattoir sample was not collected February 2023. See Section N for further details.

Biochemical Oxygen Demand (BOD5)

ECA 1696-BPLL4R requires one grab sample be collected monthly and analyzed for BOD5. The BOD5 sample results ranged from 876 mg/L to 10,200 mg/L in 2023.

Graph 15: 2023 Monthly BOD5 Abattoir Waste Concentration Comparisons





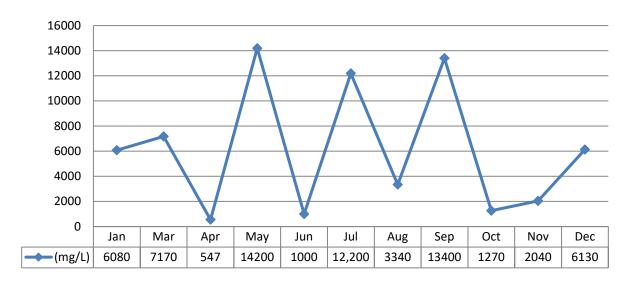
Graph 16: Historical BOD5 Abattoir Waste Concentration Comparisons

The BOD5 annual average has remained fairly consistent between 2015 and 2021. There was a large increase in average BOD in 2022, continuing through 2023. The minimum annual average concentration occurred in 2017 and the maximum annual average concentration occurred in 2023.

Total Suspended Solids

ECA 1696-BPLL4R requires one grab sample be collected monthly and analyzed for Total Suspended Solids. The Total Suspended Solids sample results ranged from 547 mg/L to 14,200 mg/L in 2023.

Graph 17: 2023 Monthly Total Suspended Solids Abattoir Waste Concentration Comparisons



7000.0 6000.0 5000.0 4000.0 3000.0 2000.0 1000.0 0.0 2015 2016 2017 2018 2019 2020 2021 2022 2023 -Avg (mg/L) 1875.5 783.5 470.0 1956.2 1642.3 796.9 1006.9 4216.7 6125

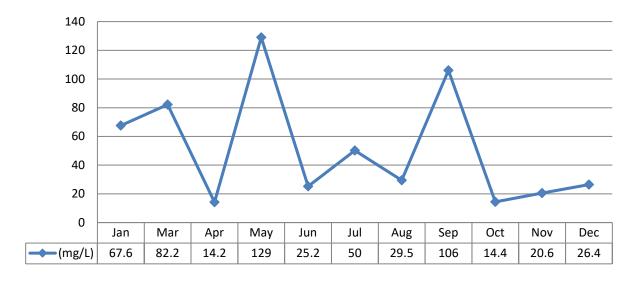
Graph 18: Historical Total Suspended Solids Abattoir Waste Concentration Comparisons

The Total Suspended Solids annual average has remained fairly consistent between 2015 and 2021. There was a significant increase in the annual average in 2022, continuing through 2023. The minimum annual average concentration occurred in 2017 and the maximum annual average concentration occurred in 2023.

Total Phosphorus

ECA 1696-BPLL4R requires one grab sample be collected monthly and analyzed for Total Phosphorus. Results ranged from 14.2 mg/L to 129 mg/L in 2023.

Graph 19: 2023 Monthly Total Phosphorus Abattoir Waste Concentration Comparisons



120.0 100.0 0.08 60.0 40.0 20.0 0.0 2015 2016 2017 2018 2019 2020 2021 2022 2023 -Avg (mg/L) 19.1 14.2 9.3 20.4 16.9 13.4 22.2 99.1 51.4

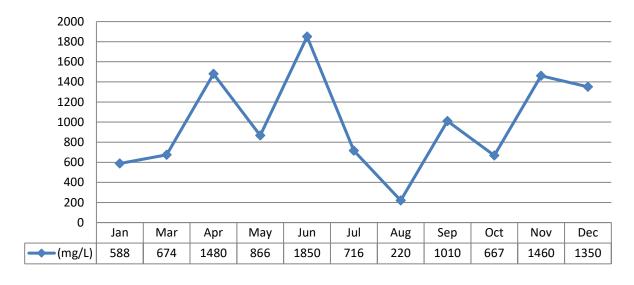
Graph 20: Historical Total Phosphorus Abattoir Waste Concentration Comparisons

The Total Phosphorus annual average has remained fairly consistent between 2015 and 2021. There was a significant increase in the annual average in 2022, but dropping through 2023. The minimum annual average concentration occurred in 2017 and the maximum annual average concentration occurred in 2022.

Total Kjeldahl Nitrogen (TKN)

ECA 1696-BPLL4R requires one grab sample be collected monthly and analyzed for Total Kjeldahl Nitrogen. The Total Kjeldahl Nitrogen results ranged from 220 mg/L to 1,850 mg/L in 2023.

Graph 21: 2023 Monthly TKN Abattoir Waste Concentration Comparisons



1600.0 1400.0 1200.0 1000.0 800.0 600.0 400.0 200.0 0.0 2015 2016 2017 2018 2019 2020 2021 2022 2023 —Avg (mg/L) 617.9 446.5 261.0 605.8 538.8 504.7 698.6 1521.1 989.2

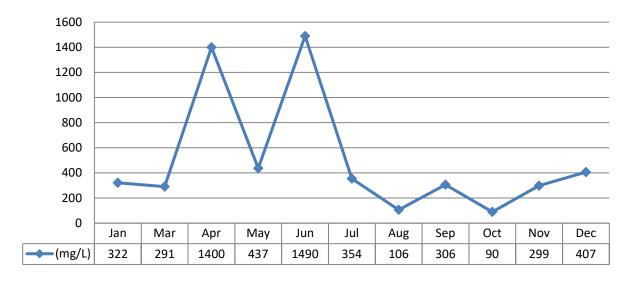
Graph 22: Historical Total Kjeldahl Nitrogen Abattoir Waste Concentration Comparisons

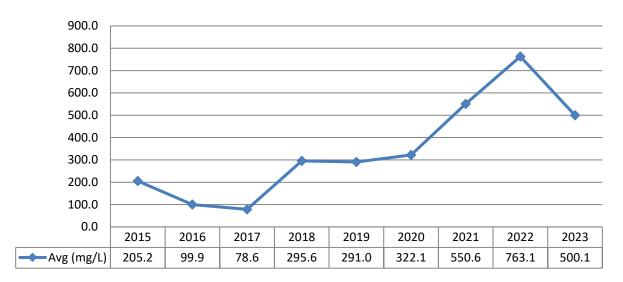
The Total Kjeldahl Nitrogen annual average has ranged between 261.0 mg/L and 1,521.1 mg/L. The minimum annual average concentration occurred in 2017 and the maximum annual average concentration occurred in 2022.

Total Ammonia Nitrogen (TAN)

One grab sample was collected of the Abattoir waste each month in 2023 except February and analyzed for Total Ammonia Nitrogen. The results ranged from 90.0 mg/L to 1,490 mg/L.

Graph 23: 2023 Monthly TAN Abattoir Waste Concentration Comparisons





Graph 24: Historical TAN Abattoir Waste Concentration Comparisons

Since 2015 the Total Ammonia Nitrogen annual average has fluctuated between 78.6 mg/L and 763.1 mg/L. The minimum annual average concentration occurred in 2017 and the maximum annual average concentration occurred in 2022.

Receiving Station

ECA 1696-BPLL4R requires monthly sampling of the Receiving Station testing for BOD5, Total Suspended Solids, Total Phosphorus, and Total Kjeldahl Nitrogen. Although not required by the ECA, Total Ammonia Nitrogen was sampled and analyzed monthly in 2023.

As sampling of the Receiving Station began in November 2018 a historical review of the result is limited. The 2018-2023 results are included below. It should be noted that the sewage from the Receiving Station flows to the Inlet Building where the Inlet (Raw) samples are collected so Receiving Station water would form a portion of the Inlet (Raw) sample results.

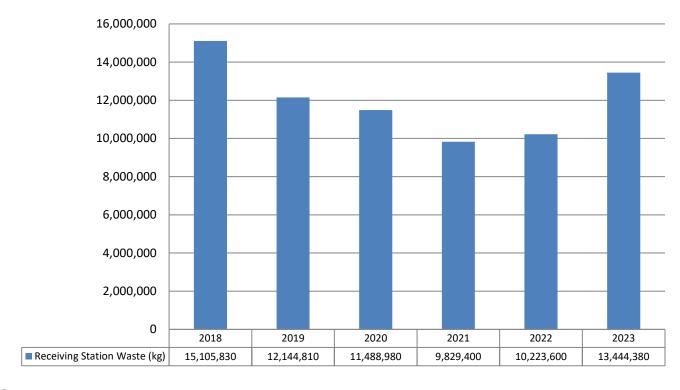
Table 1: Historical Review Receiving Station Sample Results

Parameter	Nov/ Dec 2018	2019 Annual	2020 Annual	2021 Annual	2022 Annual	2023 Annual
BOD5 (mg/L)	3492	3094.2	4549.40	4797.77	5545.17	4408.4
Total Suspended Solids (mg/L)	1810	5397.5	8390.00	7046.85	6165.58	8034.4
Total Phosphorus (mg/L)	18.6	128.75	106.42	132.50	149.72	93.6

Parameter	Nov/ Dec 2018	2019 Annual	2020 Annual	2021 Annual	2022 Annual	2023 Annual
Total Kjeldahl Nitrogen (mg/L)	150	2239.5	1238.40	1148.05	2120.50	1225.7
Total Ammonia Nitrogen (mg/L)	80.25	1417.8	753.74	788.35	1081.24	841.1

Trucks hauling waste are weighed at the Lindsay Landfill Inbound Scale prior to arriving at the Receiving Station and at the Outbound Scale after leaving the Receiving Station. The difference between the two scale readings is the amount of waste deposited into the Lagoon St Receiving Station. The amount of waste deposited into the receiving station in 2023 was 13,444,380 kg. This is a 31.5 % increase in the volume deposited in 2022, and represents an increase after an overall steady trend.

Graph 25: Historical Receiving Station Volume Comparisons



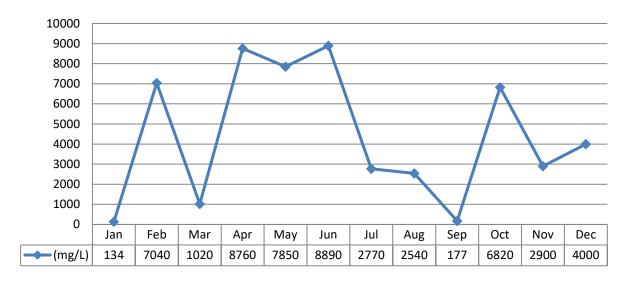
Sample Results

ECA 1696-BPLL4R requires a grab sample be collected monthly and analyzed for BOD5, Total Suspended Solids, Total Phosphorus and Total Kjeldahl Nitrogen. Although not required by the ECA, Total Ammonia Nitrogen was sampled and analyzed monthly in 2023.

Biochemical Oxygen Demand (BOD5)

ECA 1696-BPLL4R requires one grab sample be collected monthly and analyzed for BOD5. The BOD5 sample results ranged from 134 mg/L to 8890 mg/L.

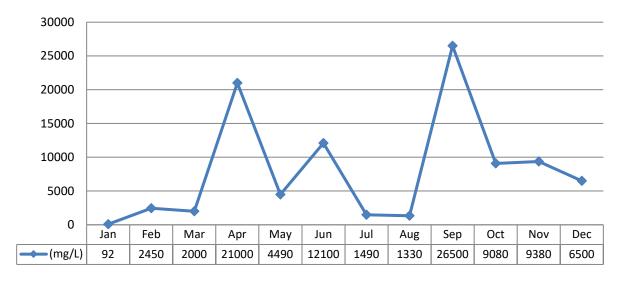
Graph 26: 2023 Monthly BOD5 Receiving Station Waste Concentration Comparisons



Total Suspended Solids

ECA 1696-BPLL4R requires a grab sample be collected monthly and analyzed for Total Suspended Solids. The Total Suspended Solids sample results ranged from 92 mg/L to 26,500 mg/L in 2023.

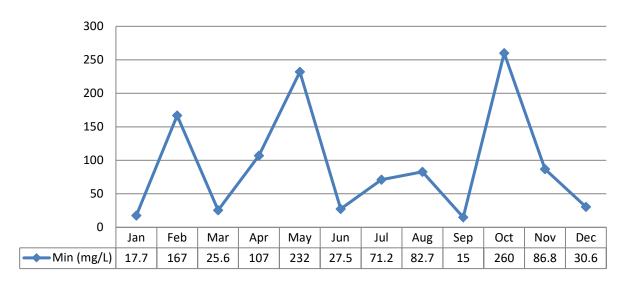
Graph 27: 2023 Monthly Total Suspended Solids Receiving Station Waste Concentration Comparisons



Total Phosphorus

ECA 1696-BPLL4R requires one grab sample be collected monthly and analyzed for Total Phosphorus. Results ranged from 15.0 mg/L to 260 mg/L.

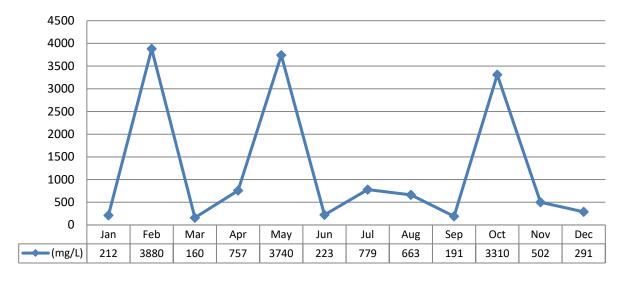
Graph 28: 2023 Monthly Total Phosphorus Receiving Station Waste Concentration Comparisons



Total Kjeldahl Nitrogen (TKN)

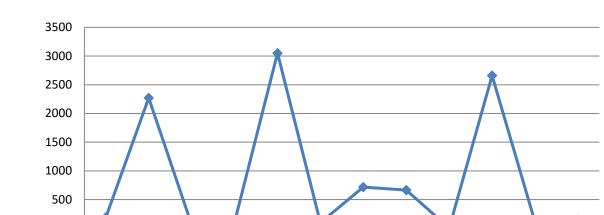
ECA 1696-BPLL4R requires one grab sample be collected monthly and analyzed for Total Kjeldahl Nitrogen. Monthly Total Kjeldahl Nitrogen results ranged from 191 mg/L to 3880 mg/L.

Graph 29: 2023 Monthly TKN Receiving Station Waste Concentration Comparisons



Total Ammonia Nitrogen (TAN)

One grab sample was collected from the Receiving Station waste each month in 2022 and analyzed for Total Ammonia Nitrogen. The monthly average concentration results ranged from 4.5 mg/L to 3,050 mg/L.



Graph 30: 2023 Monthly TAN Receiving Station Waste Concentration Comparisons

(b) Environmental Compliance Approval (ECA) #1696-BPLL4R requires a summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, loading and a comparison to the design objectives and compliance limits, including an overview of the success and adequacy of the works be included in the report.

May

3050

Jun

97.3

Jul

717

Aug

665

Sep

4.5

Oct

2660

Nov

114

Dec

150

The 2023 Lindsay WWTP annual average daily effluent flow was 13,619.80 m³/day and the total Effluent flow in 2023 was 4,971,226.00 m³.

Effluent Flow Monthly Totals

0

(mg/L)

Jan

192

Feb

2270

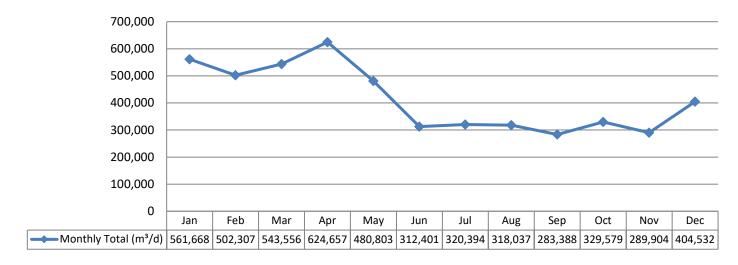
Mar

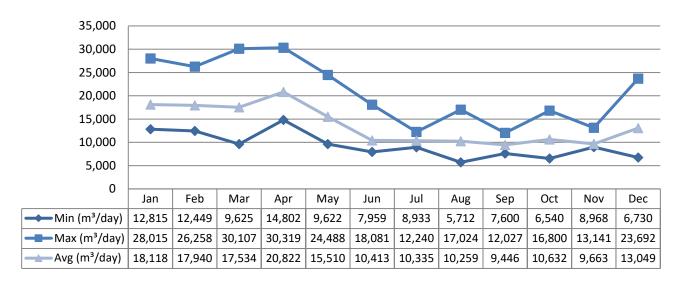
57.9

Apr

115

Graph 31: 2023 Final Effluent Monthly Flows





Graph 32: 2023 Final Effluent Daily Minimum, Maximum and Average Flows

Note: See **Table 8: 2023 Lindsay WWTP Operational Challenges** for information when final effluent totalized daily flow exceeded the limit set out in ECA 1696-BPLL4R

Final Effluent Lab Results

With the substantial completion of Phase 1 Upgrade and Expansion, new limits as outlined in ECA 1696-BPLL4R Schedule B and C came into effect. This resulted in changes to Final Effluent parameters design objectives listed in Schedule B, and compliance limits for the Final Effluent parameters listed in the table(s) included in Schedule C. These changes came into effect February 1, 2023.

<u>Carbonaceous Biochemical Oxygen Demand (CBOD5)</u>

The table below outlines the changes to CBOD5 design objectives and compliance limits set in the ECA 1696-BPLL4R before and after substantial completion of Phase 1 Upgrade and Expansion

Table 2: CBOD5 Objective and Limit Changes

Previous	Objective (mg/l)	7.4 Monthly	
	Limit (mg/L)	11.0 Annual	
	Loadings Limit (kg/d)	238.0 Annual	
Current	Objective (mg/L)	5.0 Monthly	
	Limit (mg/L) 7.2 Monthly		
	Loadings Limit (kg/d)	176.4 Monthly	

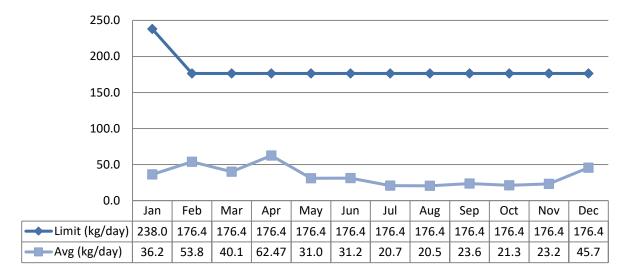
The monthly average concentration results ranged from 2.0 mg/L to 3.5 mg/L in 2023.

The monthly CBOD average concentration results and monthly average waste loading results throughout 2023 were in compliance with the limits outlined in the ECA.

12.0 10.0 8.0 6.0 4.0 2.0 0.0 Jan Mar Apr May Jun Jul Aug Sep Oct Nov Dec Limit (mg/L) 11.0 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 Objective (mg/L) 7.4 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 Avg (mg/L) 2.0 3.0 2.3 3.0 2.0 3.0 2.0 2.0 2.5 2.0 2.4 3.5

Graph 33: 2023 Monthly Final Effluent CBOD5 Concentration Comparisons

Graph 34: 2023 Monthly Final Effluent CBOD5 Average Waste Loading Comparisons



Total Suspended Solids (TSS)

The table below outlines the changes to TSS design objectives and compliance limits set in the ECA 1696-BPLL4R before and after substantial completion of Phase 1 Upgrade and Expansion

Table 3: TSS Objective and Limit Changes

Previous	Objective (mg/l)	7.4 Monthly
	Limit (mg/L)	11.0 Annual
	Loadings Limit (kg/d)	238.0 Annual
Current	Objective (mg/L)	7.4 Monthly
	Limit (mg/L) 11.0 Monthly	
	Loadings Limit (kg/d)	238.0 Monthly

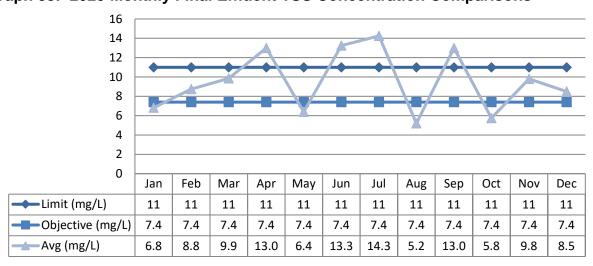
After substantial completion, the only change to TSS in ECA 1696-BPLL4R was the TSS average concentration limit frequency from an annual average to monthly average, the limit concentrations did not change.

The monthly average concentration results ranged from 5.2 mg/L to 14.3 mg/L in 2023

The monthly average waste loading concentration results range from 20.5 kg/day to 62.47 kg/day.

There were several months in 2023 when the limit and objective for TSS were not met as shown in Graph 35. Throughout 2023, the Total Suspended Solids monthly removal rates ranged from 90.2% to 98.2%. Continuous efforts made to meet the Effluent Objectives are discussed in Section H. All exceedances of ECA limits were reported appropriately in accordance with ECA 1696-BPLL4R Section 11. See **Appendix VI - Bypasses**, **Overflows**, **Spills**, **Abnormal Events** for details.

Graph 35: 2023 Monthly Final Effluent TSS Concentration Comparisons



Total (Ammonia+Ammonium) Nitrogen (TAN)

The table below outlines the changes to TAN design objectives and compliance limits set in the ECA 1696-BPLL4R before and after substantial completion of Phase 1 Upgrade and Expansion

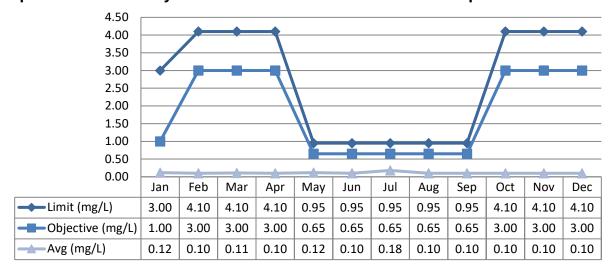
Table 4: TAN Objective and Limit Changes

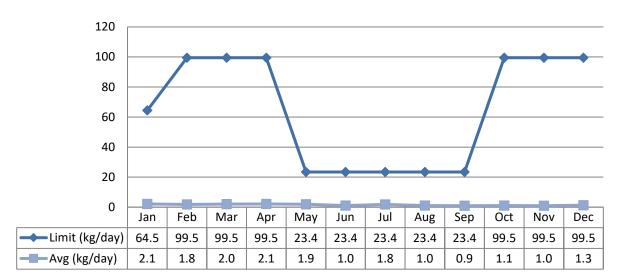
Previous	May 1 – Sept 30	Objective (mg/l)	<1.0 Monthly
	Oct 1 – April 30	Objective (mg/l)	<2.0 Monthly
	May 1 – Sept 30	Limit (mg/L)	1.5 Monthly
	Oct 1 – April 30	Limit (mg/L)	3.0 Monthly
	May 1 – Sept 30	Loadings Limit (kg/d)	32.3 Monthly
	Oct 1 – April 30	Loadings Limit (kg/d)	64.5 Monthly
Current	May 1 – Sept 30	Objective (mg/L)	0.65 Monthly
	Oct 1 – April 30	Objective (mg/L)	3.0 Monthly
	May 1 – Sept 30	Limit (mg/L)	0.95 Monthly
	Oct 1 – April 30	Limit (mg/L)	4.1 Monthly
	May 1 – Sept 30	Loadings Limit (kg/d)	23.4 Monthly
	Oct 1 – April 30	Loadings Limit (kg/d)	99.5 Monthly

Since the installation of diffused aeration, the Lindsay WWTP has seen dramatically improved effluent TAN results, very often receiving individual results less than the laboratory method detection limit of 0.1 mg/L.

The monthly Total (Ammonia + Ammonium) Nitrogen average concentration results and monthly average waste loading results throughout 2023 were in compliance with the limits outlined in the ECA.

Graph 36: 2023 Monthly Final Effluent TAN Concentration Comparisons





Graph 37: 2023 Monthly Final Effluent TAN Average Waste Loading Comparisons

Total Phosphorus (TP)

The table below outlines the changes to TP design objectives and compliance limits set in ECA 1696-BPLL4R before and after substantial completion of Phase 1 Upgrade and Expansion

Table 5: TP Objective and Limit Changes

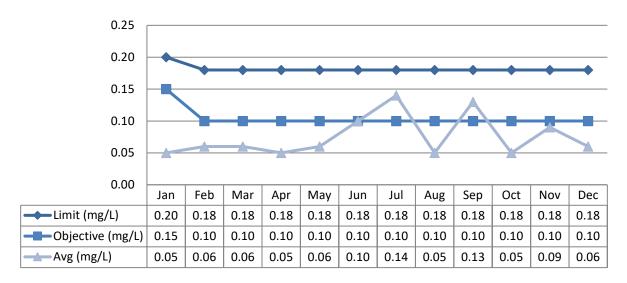
Previous	Objective (mg/l)	0.15 Monthly
	Limit (mg/L)	0.2 Monthly
	Loadings Limit (kg/d)	4.3 Monthly
Current	Objective (mg/L)	<0.1 Monthly
	Limit (mg/L)	0.18 Monthly
	Loadings Limit (kg/d)	4.3 Monthly

There were no changes to the TP loading limit.

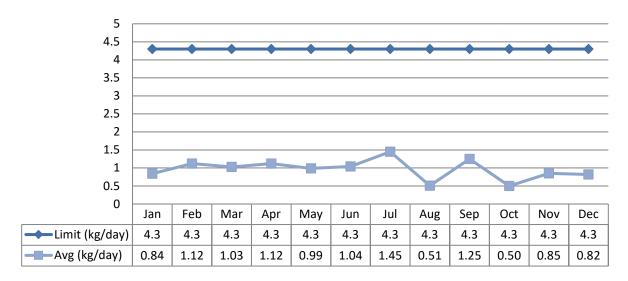
The monthly Total Phosphorus average concentration results throughout 2023 were less than the concentration objectives, with the exception of July and September. Continuous efforts made to meet the Effluent Objectives are discussed in Section H.

The monthly Total Phosphorus average concentration limits and monthly average waste loading limits throughout 2023 were in compliance with the limits outlined in the ECA.

Graph 38: 2023 Monthly Final Effluent Total Phosphorus Concentration Comparisons



Graph 39: 2023 Monthly Final Effluent Total Phosphorus Average Waste Loading Comparisons



E.coli

The table below outlines the changes to E.coli design objectives and compliance limits set in ECA 1696-BPLL4R before and after substantial completion of Phase 1 Upgrade and Expansion

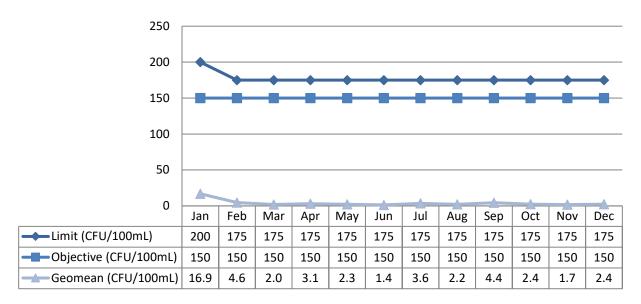
Table 6: E.coli Objective and Limit Changes

Previous	Objective (CFU/100ml)	150 Monthly GMD*	
	Limit (CFU/100ml)	200 Monthly GMD*	
Current	Objective (CFU/100ml)	150 Monthly GMD*	
	Limit (CFU/100ml)	175 Monthly GMD*	

^{*}Geometric Mean Density

The final effluent results were less than the E. coli monthly geometric mean density limit and objective throughout 2023.

Graph 40: 2023 Monthly Final Effluent E. coli Concentration Comparisons



Acute Lethality to Rainbow Trout and Daphnia Magna

Quarterly effluent samples were collected on January 4, April 4, July 5, and October 4, 2023 for analysis for acute lethality to rainbow trout and daphnia magna.

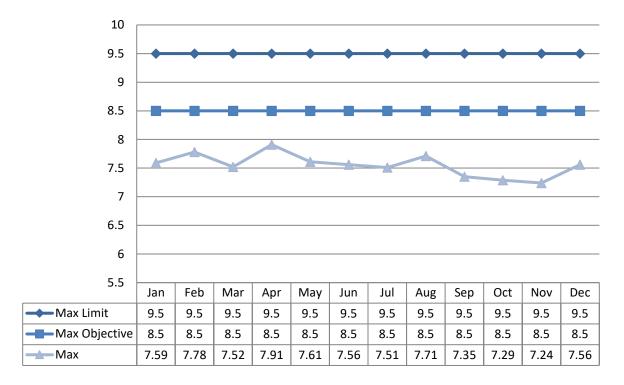
All of the 2023 samples resulted in a 0% mortality rate for Rainbow Trout. The July 5 sample resulted in a 56.7 % mortality to Daphnia Magna only. A resample was collected and retested on July 12, returning a result of 0% mortality. A summary of the results are provided in **Appendix I: Acute Lethality Analysis Results**.

pН

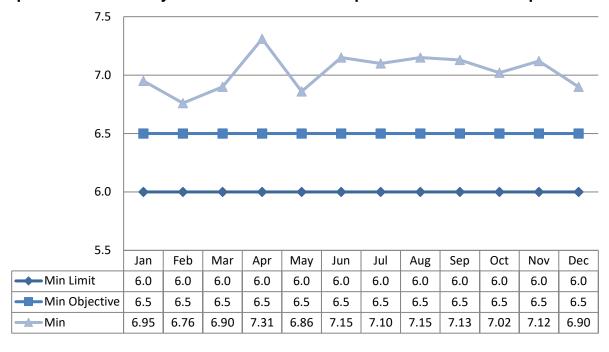
ECA 1696-BPLL4R set a pH compliance limit within the range of 6.0 to 9.5, inclusive, at all times on the effluent. Every pH reading in 2023 was within the compliance limits set by the ECA.

ECA 1696-BPLL4R set the pH objective of each single sample result between 6.5 and 8.5, inclusive, at all times on the effluent. Every pH reading in 2023 was within the compliance objectives set by the ECA.

Graph 41: 2023 Monthly Final Effluent Maximum pH Concentration Comparisons



Graph 42: 2023 Monthly Final Effluent Minimum pH Concentration Comparisons



Unionized Ammonia

Unionized Ammonia is calculated monthly based on the final effluent total ammonia nitrogen results and the field pH and temperature collected at the same time as the TAN

sample. The average monthly results ranged between 0.32 ug/L and 1.21 ug/L. ECA 1696-BPLL4R does not set a Unionized Ammonia limit or objective.

1.40 1.20 1.00 0.80 0.60 0.40 0.20 0.00 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec -Avg (ug/L) 0.44 0.36 0.52 0.55 0.89 0.70 1.21 1.01 0.61 0.47 0.41 0.32

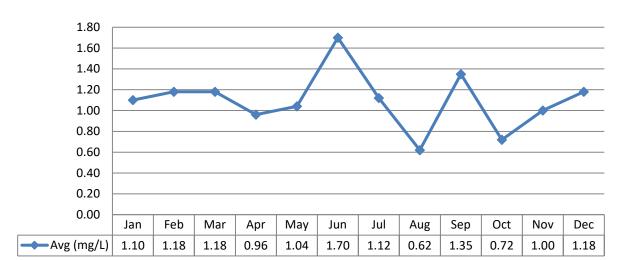
Graph 43: 2023 Monthly Final Effluent Unionized Average Concentration

Additional Parameters

The following parameters are requirements of ECA 1696-BPLL4R, but are not designated average concentration limits or average waste loading limits.

TKN

Total Kjeldahl Nitrogen is sampled weekly and the average monthly results ranged between 0.62 mg/L and 1.70 mg/L.

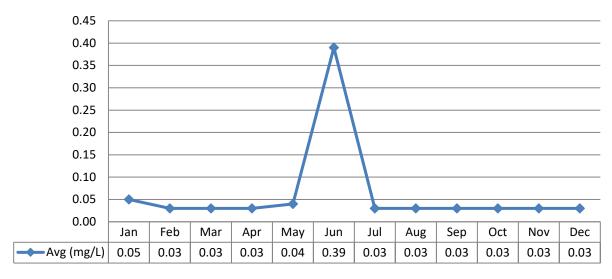


Graph 44: 2023 Monthly Final Effluent TKN Average Concentration

Nitrite as Nitrogen

Nitrite is sampled weekly and the average monthly results ranged between the laboratory method detection limit of <0.03 mg/L and 0.39 mg/L.

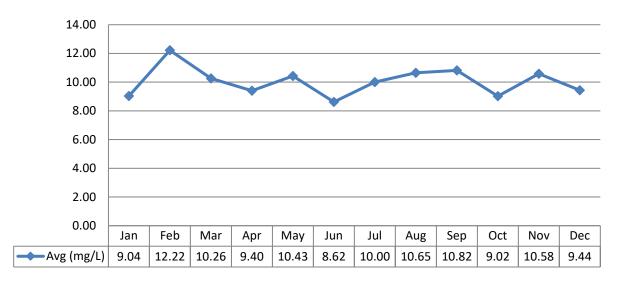
Graph 45: 2023 Monthly Final Effluent Nitrite Average Concentration



Nitrate as Nitrogen

Nitrate is sampled weekly and the average monthly results ranged between 8.62 mg/L and 12.22 mg/L.

Graph 46: 2023 Monthly Final Effluent Nitrate Average Concentration



Nitrite + Nitrate as Nitrogen

Nitrite + Nitrate is sampled weekly and the average monthly results ranged between 0.43 mg/L and 20.94 mg/L.

14 12 10 8 6 4 2 0 Feb May Jun Jul Dec Jan Mar Apr Aug Sep Oct Nov -Avg (mg/L) 9.06 12.22 10.26 9.4 10.46 9.01 10 10.65 10.82 9.02 10.58 9.44

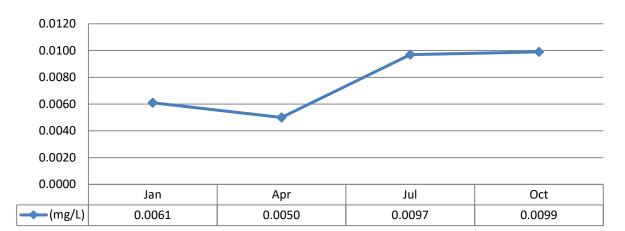
Graph 47: 2023 Monthly Final Effluent Nitrite + Nitrate Average Concentration

Final Effluent Samples Used For Leachate Related Monitoring

Samples are collected of the Final Effluent quarterly for the purpose of Leachate related monitoring for the Lindsay Landfill as a requirements of ECA 1696-BPLL4R.

Copper

Copper was sampled quarterly in 2023 and the results ranged between 0.005 mg/L and 0.0099 mg/L.



Graph 48: 2023 Final Effluent Copper Concentration

Boron

Boron was sampled quarterly in 2023 and the results ranged between 0.09 mg/L and 0.19 mg/L.

0.200 0.180 0.160 0.140 0.120 0.100 0.080 0.060 0.040 0.020 0.000 Jan Jul Oct Apr -(mg/L) 0.090 0.095 0.167 0.190

Graph 49: 2023 Final Effluent Boron Concentration

Aluminum (Total)

Aluminum was sampled quarterly in 2023 and the results ranged between 0.94 mg/L and 2.18 mg/L.

2.50
2.00
1.50
1.00
0.50
0.00
Jan Apr Jul Oct
(mg/L) 1.05 0.94 2.18 1.96

Graph 50: 2023 Final Effluent Aluminum Concentration

Iron (total)

Iron was quarterly in 2023 and the results ranged between 0.02 mg/L and 0.224 mg/L.

0.250
0.200
0.150
0.100
0.050
0.000

Jan Apr Jul Oct
(mg/L) 0.023 0.224 0.052 0.164

Graph 51: 2023 Final Effluent Iron Concentration

Zinc (total)

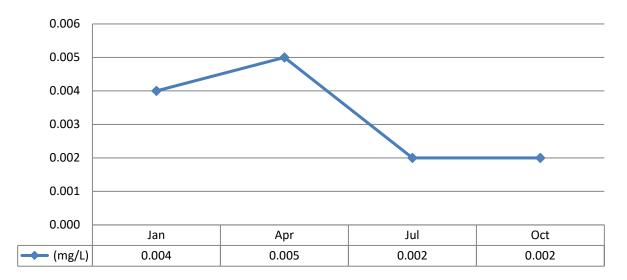
Zinc was sampled quarterly in 2023 and the results ranged between 0.013 mg/L and 0.033 mg/L.

0.035 0.030 0.025 0.020 0.015 0.010 0.005 0.000 Jan Apr Jul Oct -(mg/L) 0.027 0.026 0.033 0.013

Graph 52: 2023 Final Effluent Zinc Concentration

4AAP-Phenolics

4AAP-Phenolics was sampled quarterly in 2023 and the results ranged between 0.002 mg/L and 0.005 mg/L.



Graph 53: 2023 Final Effluent 4AAP-Phenolics Concentration

Benzene

Benzene was sampled quarterly in 2023 and the results were consistent each quarter at <0.5 ug/L, except for the fourth quarter result of <20 ug/L. Information from the accredited laboratory, explained that due to the fourth quarter sample matrix the samples required diluting, which is why the reporting limit is elevated.

<u>Toluene</u>

Toluene was sampled quarterly in 2023 and the results were consistent each quarter at <0.5 ug/L, except for the fourth quarter result of <20 ug/L.

Ethylbenzene

Ethylbenzene was sampled quarterly in 2023 and the results were consistent each quarter at <0.5 ug/L, except for the fourth quarter result of <20 ug/L.

Xylene

Xylene was sampled quarterly in 2023 and the results were consistent each quarter at <0.5 ug/L, except for the fourth quarter result of <20 ug/L

Quarterly Samples

ECA 1696-BPLL4R requires a grab sample be collected at least quarterly and analyzed for Bis (2-ethylhexyl) Phthalate, Cobalt, Magnesium, Manganese, Potassium and Strontium. Limits are not defined in the ECA.

Table 7: 2023 Final Effluent Results for Samples Required by ECA 1696-BPLL4R.

Parameter	January 4, 2022	April 7, 2022	July 4, 2022	October 4, 2022
Bis (2-ethylhexyl)	<2	<2	<2	<2
Phthalate (ug/L)				
Cobalt (mg/L)	0.00017	0.00018	0.000148	0.000168
Magnesium (mg/L)	14.6	14.5	11.5	13.8
Manganese (mg/L)	0.00422	0.00482	0.014	0.00621
Potassium (mg/L)	16.1	9.65	8.21	13.0
Strontium (mg/L)	0.309	0.475	0.395	0.377

(c) The following details describe all operating problems encountered during the reporting period and the corrective actions taken.

Table 8: 2023 Lindsay WWTP Operational Challenges

Month	Challenges	Corrective Actions
January	Capital Construction	Capital construction continued through 2023, with substantial completion January 31, 2023.
	Tertiary Treatment PLC Panel	Replacement of tertiary treatment PLC panel including programming and drawing updates.
	Outside Normal Operating Conditions	Rated flow capacity exceeded on Actiflo Unit 2 (16,778 m³/day) January 1, 2023. See Appendix VI - Bypasses, Overflows, Spills, Abnormal Events for details.
February	Ridout St Sewage Pumping Station	Replace failed soft starter on Pump 2.
	Wellington St Sewage Pumping Station Pump Replacement	Pump 2 failed at end of life cycle. Pump replacement and piping reconfiguration.
March	Outside Normal Operating Conditions	Rated flow capacity exceeded on Actiflo Unit 1 (15,271 m³/day) on March 25 and Total Effluent Flow (30,107 m³/day) and Actiflo Unit 1 (15,573 m³/day) on March 26, 2023. See Appendix VI - Bypasses, Overflows, Spills, Abnormal Events for details.
	Actiflo Train 2 Recirculation Pump Replacement	Replace Actiflo Train 2 recirculation pump.
April	April 2023 Monthly TSS and Loading Limit Exceedance	Environmental Compliance Approval #1696-BPLL4R sets the monthly TSS average concentration effluent limit at 11.0 mg/L and the monthly average waste loading limit at 238 kg/day. The April 2023 TSS average concentration was 13.0 mg/L and loading

Month	Challenges	Corrective Actions
		limit 271.7 kg/day. See Appendix VI - Bypasses, Overflows, Spills, Abnormal Events for details.
	Outside Normal Operating Conditions	Rated flow capacity exceeded on Total Effluent Flow (30,319 m³/day) and Actiflo Unit 2 (16,337 m³/day) on April 6, 2023 See Appendix VI - Bypasses, Overflows, Spills, Abnormal Events for details.
May	Actiflo Train 1. Injection Mixer Gearbox Failure	Initially thought to be a failure of the motor coupler. During repair attempt, found ring gear stripped inside mixer. Replacement mixer gear part ordered and installed.
	Rivera Park Sewage Pumping Station Odour Control Carbon	End of life replacement of carbon media in odour control units.
June	June 2023 Monthly TSS Limit Exceedance	Environmental Compliance Approval #1696-BPLL4R sets the monthly TSS average concentration effluent limit at 11.0 mg/L. The June 2023 TSS average concentration was 13.25 mg/L The loading limit was met in June 2023. See Appendix VI - Bypasses, Overflows, Spills, Abnormal Events for details.
	Ridout St Sewage Pumping Station	Soft starter installed on Pump 2 in February failed again, soft starter replaced on Pump 2.
July	July 2023 Monthly TSS Limit Exceedance	Environmental Compliance Approval #1696-BPLL4R sets the monthly TSS average concentration effluent limit at 11.0 mg/L. The July 2023 TSS average concentration was 14.25 mg/L The loading limit was met in July 2023.See Appendix VI - Bypasses, Overflows, Spills, Abnormal Events for details.
September	September 2023 Monthly TSS Limit Exceedance	Environmental Compliance Approval #1696-BPLL4R sets the monthly TSS average concentration effluent limit at 11.0 mg/L. The September 2023 TSS average concentration was 13.0 mg/L The loading limit was met in July 2023.See Appendix VI - Bypasses, Overflows, Spills, Abnormal Events for details.

Month	Challenges	Corrective Actions
	Logie St Sewage Pumping Station Pump 2	Pull and replace wear rings and impellers on both pumps. Install new hook and chain on
		Pump 1.
October	Rivera Park Sewage	Investigate Pump 3 vibration warning, repair
	Pumping Station Pumps	Pump 3 guide rails, contractor serviced
	Investigation.	Pumps 1 and 3.
December	Wellington St Sewage	Emergency repair of discharge piping.
	Pumping Station	

Operating issues which impacted the Lindsay WWTP meeting the Final Effluent concentration limits, loading limits or concentration objectives are addressed above in Section B.

(d) OCWA uses a Work Maintenance System (WMS) to schedule normal maintenance activities and track repairs. WMS is a maintenance tracking system that can generate work orders as well as give summaries of completed and scheduled work. During the year, the operating authority at the facility generates scheduled work orders on a weekly, monthly and annual basis. The service work is recorded in the work order history. This ensures routine and preventive maintenance is carried out and assets are maintained to manufacturer's and/or industry standards. Emergency and capital repair maintenance is completed and added to the system.

Refer to Appendix III: WMS Work Order Summary.

(e) Effluent quality assurance is maintained in several ways. Laboratory samples are sent to an accredited laboratory (SGS Canada Inc. or AquaTox Testing & Consulting Inc.) for analysis of all effluent parameters. Sampling calendars are issued to the operators denoting frequency of sampling and these calendars are submitted to the Process Compliance Technician at the end of each month. Raw and effluent samples are collected as per the Environmental Compliance Approval and the results are reviewed on a regular basis to ensure compliance with the site's objectives and limits.

Work orders illustrating all scheduled and preventative maintenance to be completed are issued to the operator and/or mechanic. Upon completion staff enter results of the work order into OCWA's WMS system. OCWA conducts internal audits of the facility and develops Action Plans to ensure deficiencies are identified.

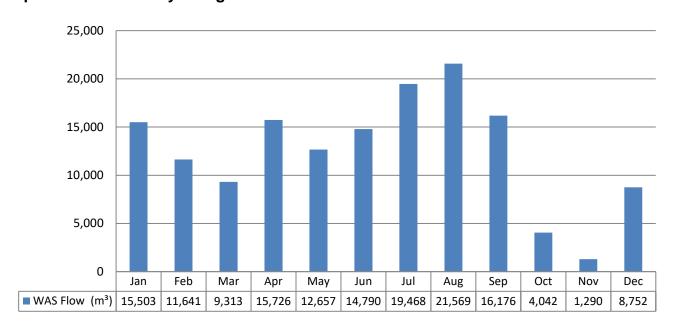
(f) Calibrations on effluent monitoring equipment were performed by Franklin Empire in December 2023 for equipment located at the Lindsay Wastewater Treatment Plant and Pumping Stations. Masstec Weighing Systems completed calibrations on the Inbound and Outbound scales at the Lindsay Landfill on June 14, 2023 and December 7, 2023.

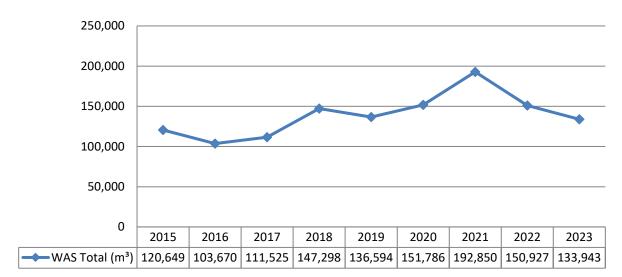
Refer to Appendix IV: Calibration Reports.

(g) Continuous efforts were made to meet the Effluent Objectives in 2023:

- 1. Development of the sampling plan which meets or exceeds the minimum sample requirements as required in the ECA;
- 2. Visual Inspection of the entire process while performing rounds;
- 3. Influent monitoring;
- 4. Ensuring that chemicals are being dosed and adjusting as required;
- 5. Continually optimizing the Actiflo process;
- 6. Calibration of lab equipment:
- 7. Annual calibration of flow meters;
- 8. Performing preventative maintenance activities in accordance with work order schedules;
- 9. Performing in-house lab tests on days that data is collected;
- 10. Monitoring treatment processes by performing regular laboratory analysis and reviewing of lab results;
- 11. Sludge monitoring of primary clarifiers & adjustments to pumping volume based on tank levels to reduce solids carryover to the secondary clarifiers;
- 12. Visual review of microbiological activity of activated sludge to ensure appropriate F/M ratio;
- 13. Aeration blower maintenance
- 14. Pumping lagoon wastewater back to headworks was managed to reduce influent loadings when DO was low.
- **(h)** The total volume of sludge generated in 2023 was 133,943 m³ which was an 11.3 percent decrease over the volume generated in 2022. Sludge is stored in onsite storage lagoons at the Lindsay WWTP and the volume is not expected to be appreciably different in the next reporting period.

Graph 54: 2023 Monthly Sludge Generation Volumes





Graph 55: Historical Sludge Volume Comparisons

Sludge Removal

There was no sludge removed from the Lindsay WWTP in 2023.

(i) A summary of complaints received by the owner and operating authority is provided in the following table.

Table 9: Summary of Community Complaints

Date	Issue	Actions Taken
June 19	Odour	Odour coming from vent
		on forcemain along
		Angeline St. N in Lindsay.
		The odour coincided with
		pump station cleanouts the
		same day. When staff
		attended the site, odour
		was no longer present.
August 16	Odour	Same resident called
		regarding odour again from
		vent along Angeline St. N.
		Staff investigated.
October 8	Odour	Vent for sewer forcemain
		on Angeline St. N at
		Connelly has odour. Staff
		investigated.

(j) Summary of By-passes, Overflows, situations outside Normal Operation Conditions, spills within the meaning of Part X of EPA and abnormal discharge events during 2023.

Bypasses

There were not any bypasses at the Lindsay WWTP in 2023

Overflows

There were not any overflows at the Lindsay WWTP or pumping stations in 2023.

Refer to **Appendix VI: Bypasses, Overflows, Spills or Abnormal Events** for copies of the quarterly Bypass and Overflow reports submitted to the Ministry of the Environment, Conservation and Parks.

Situations outside Normal Operation Conditions

"Normal Operating Condition" means the condition when all unit process(es), excluding Preliminary Treatment System, in a treatment train is operating within its design capacity. In the instances of Situations outside Normal Operation Conditions, ECA 1696-BPLL4R directs to collect daily sample(s) of the Final Effluent, on any day when there is any situation outside Normal Operating Conditions and sample for CBOD, TSS, Total phosphorus, TKN. As a best practice, samples were also tested for TAN, Nitrite, Nitrate and Nitrite + Nitrate.

There were instances of Situations outside Normal Operating Conditions in 2023.

On December 31, 2022 the final flow through the Actiflo units exceeded the rated design capacity of 30,100 m³/day. This was caused due to an unseasonal thaw with rain. The composite sampler was set on December 31, 2022 and samples were collected January 1, 2023. High flow continued and on January 2, 2023 the final flow through the Actiflo Unit 2 exceeded the rated design capacity of 15,050 m³/day. The composite sampler was set on January 1, 2023 and sample collected January 2, 2023.

On March 25, 2023 the final flow through the Actiflo Unit 1 exceeded the rated design capacity of 15,050 m³/day. This was caused by heavy rain. The composite sampler was set on March 25, 2023 and samples were collected March 26, 2023. The following day, March 26, 2023 the final flow through both Actiflo units exceeded the rated design capacity of 30,100 m³/day and Actiflo Unit 1 exceeded the rated design capacity of 15,050 m³/day. The composite sampler was set on March 26, 2023 and samples were collected March 27, 2023.

On April 6, 2023 the final flow through both Actiflo units exceeded the rated design capacity of 30,100 m³/day and Actiflo Unit 2 exceeded the rated design capacity of 15,050 m³/day. The composite sampler was set on April 6, 2023 and samples were collected April 9, 2023.

Refer to **Appendix VI: Bypasses, Overflows, Spills or Abnormal Events** for the Certificate of Analysis.

Spills

There were not any spills at the Lindsay WWTP in 2023.

Abnormal Discharge Events

There were not any abnormal discharge events at the Lindsay WWTP in 2023.

(k) There were not any Notices of Modifications to Sewage Works initiated, worked on or completed in 2023.

A summary of all modifications completed which did not require a Notices of Modifications to Sewage Works are included in **Appendix III: WMS Work Order Summary.**

- (I) During the 2023 reporting period there were no incidents of a bypass or overflow within the sanity sewer system or the WWTP. Therefore no proposed projects to eliminate bypasses or overflows are forecasted for the 2024 reporting period.
- (m) ECA 1696-BPLL4R states that the annual report must contain "any change or updates to the schedule for the completion of construction and commissioning operations of major process(es)/equipment groups in the Proposed Works".

There is work remaining to complete the replacement of the North clarifier column/ scraper, and the South clarifier weir covers. This is estimated to be completed summer 2024.

(n) ECA 1696-BPLL4R states that the annual report must contain "a summary of any deviation from the monitoring schedule and reasons for the current reporting year and a schedule for the next reporting year"

The 2023 sample plan states that weekly samples would be collected on Wednesdays and monthly samples would be collected on the first Wednesday of each month. Annual samples were scheduled to be sampled on July 5, 2023. Weekly sampling occurring on Wednesdays did not need to be considerate of holidays and there was no need to preplan alternate sample dates to accommodate holidays and accredited lab holiday hours in 2023.

As noted in an email from Sargol Okhovatian, Ministry of the Environment, Conservation and Parks – Review Engineer Assistant, dated October 12, 2018, since neither the City of Kawartha Lakes nor the Ontario Clean Water Agency has control of the delivery schedule of Imported Sewage the monthly Imported Sewage samples are not required to be sampled on specific dates. As long as there is a minimum of one sample from each Imported Sewage stream (Abattoir Waste and Receiving Station) each month then there will be no deviation from the Sample Plan.

There were deviations from the Sample Plan in 2023:

Table 10: Deviations from Sample Plan in 2023

Date	Deviation	Reason
February 2023	Monthly – Abattoir sample not collected	Operations staff were not notified by hauler of abattoir waste being delivered. Amount of abattoir waste has decreased significantly (see Graph 14)
April 5, 2023	Quarterly – Final effluent phenols required resampling due to incorrect bottle.	Final effluent phenols sample was collected as scheduled on April 5, 2023. On April 6, 2023, a representative of the accredited laboratory informed OCWA that the bottles provided to us by the laboratory were incorrect and the sample could not be processed. The correct bottles were provided and resample collected on April 27, 2023.
May 17, 2023	Weekly – Samples scheduled for May 17, 2023, sampled on May 19, 2023	Operator error resulted in the composite sampler not being set for May 17, 2023. The sample was unable to be collected on May 18, 2023 due to the composite sampler clogging. The sample was collected on May 19, 2023.
August 2, 2023	Weekly – Samples scheduled for August 2, 2023, sampled on August 3, 2023	Unable to sample due to composite sampler pickup line being plugged.
August 23, 2023	Weekly – Samples scheduled for August 23, 2023, sampled on August 22, 2023	Weekly samples collected one day early due to accommodate PLC replacement scheduled for August 22, 2023.
October 4, 2023	Quarterly - Acute Lethality sampling scheduled for October 4, sample collected October 17, 2023	Staff error resulted in the sample not being collected on the scheduled day. Despite this the sample was still within the sample collection time frame.
December 27, 2023	Weekly – Samples scheduled for December 27, 2023, sampled on December 28, 2023	Unable to sample due to composite sampler pickup line being plugged.

For the Lindsay WWTP 2024 Sample Plan refer to **Appendix II: 2024 Sample Plan**.

Environmental Compliance Approval (ECA) No. 141-W601

4.6 (a) a summary of all required monitoring data along with an interpretation of the data and any conclusion drawn from the data evaluation about the need for future modifications to the Authorized System or system operations.

There are no required monitoring data requirements for the Lindsay Sewage Collection System.

4.6 (b) a summary of any operating problems encountered and corrective actions taken.

A summary of any operating problems encountered at any sewage pumping stations within the Lindsay Sewage Collection System are included in **Table 8: 2023 Lindsay WWTP Operational Challenges** above.

Below is a summary of any operating problems encountered in the rest of the collection system.

Table 11: Summary of Operating Problems in Collection System and Corrective Actions (not including pumping stations)

Date	Operational Issue	Corrective Action Taken
May 24, 2023	Resident at 61 Lindsay St. N	Hired contractor to flush sewer
	reported sewer backup –	main and remove debris, lateral
	sewer main on Lindsay St. N	launch service. Homeowner
	also backed up	repaired private service.

4.6 (c) a summary of all calibration, maintenance, and repairs carried out on any major structure, Equipment, apparatus, mechanism, or thing forming part of the Municipal Sewage Collection System.

Calibrations on effluent monitoring equipment were performed by Franklin Empire in December 2023 for equipment located at the Lindsay Wastewater Treatment Plant and associated Pumping Stations. Refer to **Appendix IV: Calibration Reports**.

Attached is **Appendix III: WMS Work Order Summary**, a Work Order Summary report, showing all preventive and corrective maintenance activities performed at the Lindsay WWTP, including the sewage pumping stations within the collection system, during 2023.

All other collection system repairs are summarized in the table below:

Table 12: Summary of Major Structure & Equipment Calibration, Maintenance and Repair

Major Structure	Work Performed
Manhole General Repair	MH1619 Kirkconnell Rd – Raised manhole frame to finish asphalt grade
Manhole Moduloc, Frame and Cover Repair	MH128 Adelaide St. @ Sanderling Cres. – Replace 8" moduloc, frame and cover
	MH996 41 Victoria Ave N – Replace 11" moduloc, frame and cover
	MH1316 Bond St @ William St. – Replace 12" moduloc, frame and cover
	MH1477 40 Dormer – Replace 6" moduloc, reset frame and cover
	MH236 121 Angeline St. N – replace frame and cover
Manhole Rain Bladder	MH322 Dominion Dr.
Installation	MH1140 Hazel St.
	MH449 Kent St. E
	MH1495 Thurshwood Trail
Sanitary Lateral Cleaning –	100 Pottinger St. – cleared tree roots on City side
Municipal Portion	97 Pottinger St. – cleared tree roots
	31 Adelaide St. N – cleared tree roots
Sanitary Sewer Main/Lateral Repair	MH1371 – MH1297 Peel St. – install 1m x 200 mm CIPP covering displaced/open joint
	9 Redwing St. – install liner for spot repair City portion of lateral.
	25 Adelaide St. N – install liner on City portion of lateral
Manhole Grouting	MH1391 27 Water Street
	MH936 92 Short Ave
	MH583 St. Peter @ Bertie St.
	MH219 82 Short Ave
	MH1436 386 Wallace Dr

Major Structure	Work Performed
	MH159 Mary St. W @ Wilson Ave
	MH1453 8 O'Connell Court
	MH206 5 Jefferson Blvd
	MH440 Green Arbour Way @ Adelaide St.
	MH1497 1 Selena St
	MH428 Auk Trail @ Arena
	MH543 50/52 Maryknoll Ave
	MH653 Moose Rd
	MH636 109 Adelaide St. N

4.6 (d) a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.

A summary of complaints is above in **Table 9: Summary of Community Complaints.**

4.6 (e) a summary of all Alterations to the Authorized System within the reporting period that are authorized by this Approval including a list of Alterations that pose a Significant Drinking Water Threat.

The table below provides a summary of the projects that saw alterations to the collection system in 2023.

Table 13: Summary of Alterations to Authorized System

Alteration to the Authorized System Project Name	Project Details	Does This Project Pose a Significant Drinking Water Threat (SDWT)?
Hillside Drive Reconstruction – sanitary sewer replacement	Replacement of 461 m of 200 mm diameter sanitary sewer and 14.5 m of 450 mm diameter sanitary sewer along Hillside Drive, as well as all sanitary sewer services.	N

- 4.6 (f) a summary of all Collection System Overflow(s) and Spill(s) of Sewage, including:
 - i) Dates:
 - ii) Volumes and durations;
 - iii) If applicable, loadings for total suspended solids, BOD, total phosphorus, and total Kjeldahl nitrogen, and sampling results for E.coli;

- iv) Disinfection, if any; and
- v) Any adverse impact(s) and any corrective actions, if applicable.

The Lindsay Sewage Collection system did not experience any collection system Overflows or Spills in 2023.

- 4.6 (g) a summary of efforts made to reduce Collection System Overflows, Spills, STP Overflows, and/or STP Bypasses, including the following items, as applicable:
 - i) A description of projects undertaken and completed in the Authorized System that result in overall overflow reduction or elimination including expenditures and proposed projects to eliminate overflows with estimated budget forecast for the year following that for which the report is submitted.

Annually manhole inspections are completed by City operations staff within the collection systems to identify any deficiencies that may result in excess flows increasing the risk of potential overflows. In an effort to reduce all excess flows, the City has an annual manhole rehabilitation program which includes but is not limited to grouting, moduloc replacement and frame and cover replacements.

Operationally, where manholes are located in lower lying areas and are at risk of being submerged and contributing to inflow, rain bladders are installed to prevent excess water from entering the system, further reducing the risk of overflow.

During the 2023 reporting period there were no incidents of a bypass or overflow within the sanity sewer system or the WWTP. However, a summary of operational activities that were performed to help reduce overflow potential are summarized in **Table 12: Summary of Major Structure & Equipment Calibration, Maintenance and Repair** above.

There are no proposed projects to specifically eliminate bypasses or overflows forecasted for the 2024 reporting period, however there is an operational budget of \$50,000 available for any necessary operational repairs.

- ii) Details of the establishment and maintenance of a PPCP, including a summary of project progresses compared to the PPCP's timelines. The Lindsay Sewage Collection System does not contain combined sewers and therefore is not required to complete a Pollution Prevention and Control Plan (PPCP)
- iii) An assessment of the effectiveness of each action taken. $\ensuremath{\text{N/A}}$

- iv) An assessment of the ability to meet Procedure F-5-1 or Procedure F-5-5 objectives (as applicable) and if able to meet the objectives, an overview of next steps and estimated timelines to meet the objectives. $\mbox{N/A}$
- v) Public reporting approach including proactive efforts
 SOP WWC02 Waterwater Bypass/Overflow Notification Procedure has been
 developed and has been in practice since 2021, which clearly outlines all
 reporting protocols to both regulatory agencies and the public in various
 situations. This procedure was developed in consultation with Ontario Clean
 Water Agency, Ministry of Environment, Conservation and Parks and Ministry of
 Health.



Appendix I: Acute Lethality Analysis Results



AquaTox Testing & Consulting Inc. B-11 Nicholas Beaver Road Puslinch, ON NOB 2J0 Tel. (519) 763-4412 Fax. (519) 763-4419

TOXICITY TEST REPORT

Daphnia magna EPS 1/RM/14 Page 1 of 2

Work Order: 250524 Sample Number: 76027

SAMPLE IDENTIFICATION

Company: Ontario Clean Water Agency, Lindsay WPCP Sample Date: 2023-01-04 Time Collected: Location: Lindsay ON 10:50 Final Effluent Substance: Date Received: 2023-01-05 Sampling Method: Grab Time Received: 12:45 Sampled By: Preeti Temperature at Receipt: 11 °C Sample Description: Clear, light yellow Date Tested: 2023-01-06

Test Method: Reference Method for Determining Acute Lethality of Effluents to Daphnia magna. Environment

Canada EPS 1/RM/14 (Second Edition, December 2000, with February 2016 amendments).

	48-HOUR TEST	T RESULTS	
Substa	nce Ef	fect	Value
Contro	l Mean	Immobility	0.0 %
	Mean	Mortality	0.0 %
100%	Mean	Immobility	0.0 %
	Mean	Mortality	0.0 %
	The results reported relate only to th	e sample tested and as received.	
	TEST ORG	ANISM	
Species:	Daphnia magna	Time to First Brood:	9.2 days
Organism Batch:	Dm22-26	Average Brood Size:	30.4
Culture Mortality:	0.4% (previous 7 days)		
	TEST CONI	DITIONS	
Sample Treatment :	None	Number of Replicates:	3
pH Adjustment:	None	Organisms / Replicate:	10
Pre-aeration Rate:	~30 mL/min/L	Organisms / Test Level:	30
Duration of Pre-Aeration:	30 minutes	Organism Loading Rate:	15.0 mL/organism
Test Aeration:	None	Impaired Control Organisms:	0.0%
Hardness Adjustment:	None	Test Method Deviation(s):	None
	REFERENCE TOX	CICANT DATA	
Toxicant:	Sodium Chloride		
Date Tested:	2023-01-03	LC50:	6.3 g/L
Organism Batch:	Dm22-26	95% Confidence Limits:	5.8 - 6.8 g/L
Analyst(s):	PG, NM	Historical Mean LC50:	6.5 g/L

COMMENTS

All test validity criteria as specified in the test method were satisfied.

Binomial

Statistical Method:

Approved By:	
	-

Warning Limits (\pm 2SD):

5.9 - 7.1 g/L



TOXICITY TEST REPORT

Daphnia magna EPS 1/RM/14 Page 2 of 2

Work Order: 250524 Sample Number: 76027

TEST DATA

	Initial	l Chemist	ry (100%) :	pH 7.5	Dissolved O ₂ (mg/L) 9.1	Conductivity (µmhos/cm) 1769	Temperature (°C) 20	O ₂ Saturation (%)* 108	Hardness (as CaCO ₃) 370 mg/L
D	2022.04.05	10.00		0 HO	URS				
Date & Time : Analyst(s) :	2023-01-06 NM	10:30)						
Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation*	Hardness
100	A	0	0	7.7	8.8	1778	20	105	370
100	В	0	0	7.7	8.8	1778	20	105	370
100	C	0	0	7.7	8.8	1778	20	105	370
Control	A	0	0	8.2	8.7	520	20	100	140
Control	В	0	0	8.2	8.7	520	20	100	140
Control	C	0	0	8.2	8.7	520	20	100	140
Notes:									
				24 HO	URS				
Date & Time : Analyst(s) :	2023-01-07 SJC	10:30							
Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature		
100	A	-	0	_	_	_	21		
100	В	-	0	_	_	_	21		
100	C	-	0	_	_	_	21		
Control	A	-	0	_	_	_	21		
Control	В	-	0	_	_	_	21		
Control	C	_	0	_	=	_	21		
Notes:									
				48 HO	URS				
Date & Time : Analyst(s) :	2023-01-08 SJC	10:30)						
Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O_2	Conductivity	Temperature		
100	A	0	0	8.2	8.4	1729	21		
100	В	0	0	8.2	8.3	1711	21		
100	C	0	0	8.1	8.2	1710	21		
Control	A	0	0	8.4	8.5	518	21		
Control	В	0	0	8.4	8.4	519	21		
Control	C	0	0	8.3	8.4	517	21		
Notes:									

Number immobile does not include number dead.

Test Data Reviewed By: _____JJ

Date : 2023-01-10

[&]quot;-" = not measured/not required

^{*} adjusted for temperature and barometric pressure



AquaTox Testing & Consulting Inc. B-11 Nicholas Beaver Road Puslinch, ON NOB 2JO Tel. (519) 763-4412 Fax. (519) 763-4419

TOXICITY TEST REPORT

Rainbow Trout EPS 1/RM/13 EPS 1/RM/50 Page 1 of 2

Work Order: 250524 Sample Number: 76027

SAMPLE IDENTIFICATION

Company: Ontario Clean Water Agency, Lindsay WPCP Sample Date: 2023-01-04 Time Collected: Location: Lindsay ON 10:50 Final Effluent Substance: Date Received: 2023-01-05 Sampling Method: Grab Time Received: 12:45 Sampled By: Temperature at Receipt: 11 °C Preeti Sample Description: Clear, light yellow Date Tested: 2023-01-06

Test Method(s): Reference Method for Determining Acute Lethality of Liquid Effluents to Rainbow Trout. Environment

Canada, EPS 1/RM/13 (2nd Edition, December 2000, with May 2007 and February 2016 amendments).

Procedure for pH Stabilization During the Testing of Acute Lethality of Wastewater Effluent to Rainbow

Trout. Environment Canada, EPS 1/RM/50 (March 2008), with deviation(s) as noted.

96-HOUR TEST RESULTS								
Substance	Effect	Value						
Control	Mean Impairment	0.0 %						
	Mean Mortality	0.0 %						
100%	Mean Impairment	0.0 %						
	Mean Mortality	0.0 %						

The results reported relate only to the sample tested and as received.

TEST ORGANISM

Test Organism: Average Fork Length (± 2 SD): 40.7 mm (± 5.7) Oncorhynchus mykiss Organism Batch: T22-30 Range of Fork Lengths: 37 - 44 mm Control Sample Size: Average Wet Weight (± 2 SD): 0.5 g (± 0.3) Range of Wet Weights: 0.3 - 0.7 gCumulative stock tank mortality rate: 0% (previous 7 days) Control organisms showing stress: 0 (at test completion) Organism Loading Rate: 0.4 g/L

TEST CONDITIONS

pH Stabilization Number of Replicates: 1 Sample Treatment: pH Adjustment: Yes (as per EPS 1/RM/50) Organisms Per Replicate: 10 pH Controller pH Stabilization Technique: Organisms Per Test Level: 10

100% CO₂ Gas Mixture Used: Pre-aeration/Aeration Rate: $6.5 \pm 1 \text{ mL/min/L}$

Test Aeration: Yes Total Pre-Aeration Time: 30 minutes

Volume Tested (L): 14 Test Method Deviation(s): Yes (see 'COMMENTS')

REFERENCE TOXICANT DATA

Toxicant: Potassium Chloride

Organism Batch: T22-30 LC50: 3534 mg/L 2023-01-03 95% Confidence Limits: 3197 - 3925 mg/L Date Tested: Analyst(s): AJS, PG, NM Historical Mean LC50: 3741 mg/L Statistical Method: Linear Regression (MLE) Warning Limits (\pm 2SD): 3020 - 4635 mg/L

COMMENTS

- All test validity criteria as specified in the test method were satisfied.
- Noted Deviation: pH controllers are calibrated at the start of the test, and not daily as described in the test method. Extensive internal method validation of this approach has confirmed the accuracy and stability of the pH controllers over the course of the 96h test. Additionally, pH of the test and control solutions is measured daily throughout the test.

Approved By:	
	D



TOXICITY TEST REPORT

Work Order: 250524 Sample Number: 76027 Rainbow Trout EPS 1/RM/13 EPS 1/RM/50 Page 2 of 2

TEST DATA

			pН	(mg/L)	(µmhos/cm)	Temperature (°C)	(%)*	TAN (mg/L) ¹	$\frac{\text{NH3}}{\left(\text{mg/L}\right)^2}$
Initial Water Ch After 30 min pr		:	7.3 7.5	9.6 9.5	1789 1786	16 16	101 100	(mg/L) ¹ 0.07 * Hardness	0.000
			7.5				100		
Date & Time	2023-01-06	13:45		0	HOURS				
Analyst(s):	PG (SV)/SV								
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation*	Hardness (mg/L as CaCO ₃)	Total Chlorine (mg/L)
100%	0	0	7.5	9.5	1786	16	100	370	_
Control Notes:	0	0	7.9	9.5	802	16	100	-	-
				24	HOURS				
Date & Time Analyst(s):	2023-01-07 NM	13:45							
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	TAN (mg/L) ¹	_	
100%	0	0	7.4	_	-	15	_	_	
Control Notes:	0	0	8.1	-	-	15	_	-	
				48	HOURS				
Date & Time Analyst(s):	2023-01-08 SV	13:45							
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	TAN (mg/L) ¹		
100%	0	0	7.5	_	_	15	_	_	
Control Notes:	0	0	7.8	-	_	15	=	_	
				72	HOURS				
Date & Time Analyst(s):	2023-01-09 JCS	13:45							
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	TAN (mg/L) ¹	$NH3 (mg/L)^2$	
100%	0	0	7.5	_	_	15	_	_	
Control Notes:	0	0	8.0	_	_	15	_	_	
				96	HOURS				
Date & Time Analyst(s):	2023-01-10 AJS (NM)	13:45							
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	TAN (mg/L) ¹	NH3 (mg/L)2	Average pH (0 - 96 h)
100%	0	0	7.3	9.1	1790	15	-	-	7.4
Control Notes:	0	0	8.1	9.3	767	15	_	-	8.0

¹ TAN = Total ammonia (as N); analysis conducted by Bureau Veritas S.A., Mississauga ON; MDL = 0.05 mg/L.

Number impaired does not include number dead.

* adjusted for temperature and barometric pressure

Test Data Reviewed By : FS

Date: 2023-01-13

² NH3 = Un-ionized ammonia (calculated from TAN, pH, and temperature according to the test method).

[&]quot;-" = not measured/not required

CHAIN OF CUSTODY RECORD



Aquatox Work Order No:

P.O. Number: 1313 (Kawartha - Lindsay WWTP)	į.
Field Sampler Name (print):	
Signature: Vrest	
Affiliation: Ontario Clean Water Agency	
Sample Storage (prior to shipping): N/A	
Custody Relinquished by:	
Date/Time Shipped:	

Shipping Address: AquaTox Testing & Consulting Inc. B-11 Nicholas Beaver Road

Puslinch, Ontario Canada NOB 2J0

Voice: (519) 763-4412

Fax:

(519) 763-4419

Cilent	Ontario Clean Water Agency Lindsay WWTP 48 Lagoon Street Lindsay, ON K9V4R3	
Phone	(705) 731-9125	[+]
Fax:	(705) 324-9374	
Contac	^{ct:} Julie Mather	

Sample Identification																		
<u> </u>	Sample (unitalication									e Method and Volume								
Date Collected (yyyy-mm-dd)	Time Collected (e.g. 14:30, 24 hr clock)	Sample Name	AquaTox Semple Number	Temp. on	Rainbow Trout Single Concentration	Rainbow Trout LC50	RBT Single Conc. pH Stabilization	RBT LC50 pH Stabilization	Daphnie megne Single Concentration	Daphnia magna LC50	Fathead Minnow Survival & Growth	Ceriodephnia dubia Survival & Reproduction	Pseudokirchneriella subcapitata Growth	Ammonia	Other (please specify below)	Grab	Composite	# of Containers and Volume (eg. 2 x 1L, 3 x 10L, etc.)
04-1-23	1050	Final Effluent	76027		Y]	$ \checkmark $							1		1 x 23L
						Т							T					
																	П	
				nie s														
														İ				
														į				

For Lab Use	Only
Received By:	SN/PG/CFM
Date:	2023-01-05
Time:	12:45
Storage Location:	
Storage Temp.(*C)	

Please list any special requests or instruction	s:					
* Trout pH Stabiliz	ation	testing a	s per	client	email. 202	(N 3-01-05



AquaTox Testing & Consulting Inc. B-11 Nicholas Beaver Road Puslinch, ON NOB 2J0 Tel. (519) 763-4412 Fax. (519) 763-4419

TOXICITY TEST REPORT

Daphnia magna EPS 1/RM/14 Page 1 of 2

Work Order: 251250 Sample Number: 77199

SAMPLE IDENTIFICATION

Company: Ontario Clean Water Agency, Lindsay WPCP Sample Date: 2023-04-05 Location: Lindsay ON Time Collected: 10:45 Substance: Final Effluent Date Received: 2023-04-06 Sampling Method: Grab Time Received: 12:50 Sampled By: P. Preeti Temperature at Receipt: 13 °C Date Tested: 2023-04-06 Sample Description: Clear, pale yellow.

Test Method: Reference Method for Determining Acute Lethality of Effluents to Daphnia magna. Environment

Canada EPS 1/RM/14 (Second Edition, December 2000, with February 2016 amendments).

	48-HOUR TES	T RESULTS	
Substa	nce E	ffect	Value
Contro	l Mean	Immobility	0.0 %
			0.0 %
100%	Mean	Immobility	0.0 %
	TEST ORGANISM cies: Daphnia magna Time to First Brood: Average Brood Size: ture Mortality: 0% (previous 7 days) TEST CONDITIONS TEST CONDITIONS TEST CONDITIONS None Number of Replicates: Adjustment: None Organisms / Replicate: -aeration Rate: ~30 mL/min/L Organisms / Test Level: ation of Pre-Aeration: 30 minutes Organism Loading Rate: t Aeration: None Impaired Control Organisms dness Adjustment: None Test Method Deviation(s): REFERENCE TOXICANT DATA	0.0 %	
	The results reported relate only to the	he sample tested and as received.	
	TEST ORG	GANISM	
Species:	Daphnia magna	Time to First Brood:	10.6 days
Organism Batch:	Dm23-05	Average Brood Size:	33.5
Culture Mortality:	0% (previous 7 days)		
	TEST CON	DITIONS	
Sample Treatment:	None	Number of Replicates:	3
pH Adjustment:	None	Organisms / Replicate:	10
Pre-aeration Rate:	~30 mL/min/L	Organisms / Test Level:	30
Duration of Pre-Aeration:	30 minutes	Organism Loading Rate:	15.0 mL/organism
Test Aeration:	None	Impaired Control Organisms:	: 0.0%
Hardness Adjustment:	None	Test Method Deviation(s):	None
	REFERENCE TO	XICANT DATA	
Toxicant:	Sodium Chloride		
Date Tested:	2023-03-28	LC50:	6.3 g/L

COMMENTS

All test validity criteria as specified in the test method were satisfied.

PC

Dm23-05

Linear Regression (MLE)

Organism Batch:

Statistical Method:

Analyst(s):

Approved By:	

95% Confidence Limits:

Warning Limits (\pm 2SD):

Historical Mean LC50:

5.9 - 6.6 g/L

6.6 g/L 5.9 - 7.4 g/L



TOXICITY TEST REPORT

Daphnia magna EPS 1/RM/14 Page 2 of 2

Work Order: 251250 Sample Number: 77199

TEST DATA

				-	LSI DITII				
	Initial (Chemistı	ry (100%) :	р Н 7.4	Dissolved O ₂ (mg/L) 9.4	Conductivity (µmhos/cm) 1273	Temperature (°C) 20	O ₂ Saturation (%)* 108	Hardness (as CaCO ₃) 380 mg/L
			., (===,=,=,=		, , ,				
Date & Time :	2023-04-06	14:10)	0 HOU	JRS				
Analyst(s):	NP/CFM (SV)		,						
Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation*	Hardness
100	A	0	0	7.5	9.0	1275	20	104	380
100	В	0	0	7.5	9.0	1275	20	104	380
100	C	0	0	7.5	9.0	1275	20	104	380
Control	A	0	0	8.4	8.9	396	19	100	150
Control	В	0	0	8.4	8.9	396	19	100	150
Control	C	0	0	8.4	8.9	396	19	100	150
Notes:									
				24 HO	URS				
Date & Time : Analyst(s) :	2023-04-07 KR (CGR)	14:10)						
Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature		
100	A	_	0	_	_	_	20		
100	В	_	0	_	_	_	20		
100	C	_	0	_	_	_	20		
Control	A	_	0	_	_	_	20		
Control	В	_	0	_	_	_	20		
Control	C	-	0	_	_	_	20		
Notes:									
				48 HO	URS				
Date & Time : Analyst(s) :	2023-04-08 CGR	14:10)						
Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature		
100	A	0	0	8.2	8.7	1243	20		
100	В	0	0	8.2	8.7	1250	20		
100	C	0	0	8.2	8.7	1256	20		
Control	A	0	0	8.4	8.4	404	20		
Control	В	0	0	8.4	8.6	405	20		
Control	C	0	0	8.4	8.6	403	20		
Notes:									

Number immobile does not include number dead.

Test Data Reviewed By : ______JCS

Date : 2023-04-10

[&]quot;_" = not measured/not required

^{*} adjusted for temperature and barometric pressure



AquaTox Testing & Consulting Inc. B-11 Nicholas Beaver Road Puslinch, ON NOB 2J0 Tel. (519) 763-4412 Fax. (519) 763-4419

TOXICITY TEST REPORT

Rainbow Trout EPS 1/RM/13 EPS 1/RM/50 Page 1 of 2

Work Order: 251250 Sample Number: 77199

SAMPLE IDENTIFICAT

Company: Ontario Clean Water Agency, Lindsay WPCP Sample Date: 2023-04-05 Location: Lindsay ON Time Collected: 10:45 Substance: Final Effluent Date Received: 2023-04-06 Sampling Method: Grab Time Received: 12:50 Sampled By: P. Preeti Temperature at Receipt: 13 °C Sample Description: Clear, pale yellow. Date Tested: 2023-04-06

Test Method(s): Reference Method for Determining Acute Lethality of Liquid Effluents to Rainbow Trout. Environment

Canada, EPS 1/RM/13 (2nd Edition, December 2000, with May 2007 and February 2016 amendments).

Procedure for pH Stabilization During the Testing of Acute Lethality of Wastewater Effluent to Rainbow

Trout. Environment Canada, EPS 1/RM/50 (March 2008), with deviation(s) as noted.

96-HOUR TEST RESULTS							
Substance	Effect	Value					
Control	Mean Impairment	0.0 %					
	Mean Mortality	0.0 %					
100%	Mean Impairment	0.0 %					
	Mean Mortality	0.0 %					

The results reported relate only to the sample tested and as received.

TEST ORGANISM

Test Organism:	Oncorhynchus mykiss	Average Fork Length (± 2 SD):	39.0 mm (±7.4)
Organism Batch:	T23-04	Range of Fork Lengths:	33 - 44 mm
Control Sample Size:	10	Average Wet Weight (± 2 SD):	$0.5 g (\pm 0.3)$
Cumulative stock tank mortality rate:	0% (previous 7 days)	Range of Wet Weights:	0.3 - 0.8 g
Control organisms showing stress:	0 (at test completion)	Organism Loading Rate:	0.4 g/L

TEST CONDITIONS

Sample Treatment:	pH Stabilization	Number of Replicates:	1
pH Adjustment:	Yes (as per EPS 1/RM/50)	Organisms Per Replicate:	10
pH Stabilization Technique:	pH Controller	Organisms Per Test Level:	10

Gas Mixture Used : 100% CO₂ Pre-aeration/Aeration Rate : 6.5 ± 1 mL/min/L Test Aeration : Yes Total Pre-Aeration Time : 30 minutes

Volume Tested (L): 14 Test Method Deviation(s): Yes (see 'COMMENTS')

REFERENCE TOXICANT DATA

Toxicant: Potassium Chloride

Organism Batch: T23-04 LC50: 4086 mg/L Date Tested: 2023-04-02 95% Confidence Limits: 3752 - 4449 mg/L Analyst(s): PG, KR, NM, AJS Historical Mean LC50: 3994 mg/L Statistical Method: Warning Limits (\pm 2SD): 3194 - 4993 mg/L Spearman-Kärber

COMMENTS

- All test validity criteria as specified in the test method were satisfied.
- Noted Deviation: pH controllers are calibrated at the start of the test, and not daily as described in the test method. Extensive internal method validation of this approach has confirmed the accuracy and stability of the pH controllers over the course of the 96-h test. Additionally, pH of the test and control solutions is measured daily throughout the test.

Approved By:			



TOXICITY TEST REPORT

Work Order: 251250 Sample Number: 77199 Rainbow Trout EPS 1/RM/13 EPS 1/RM/50 Page 2 of 2

TEST DATA

Initial Water Ch After 30 min pr	•):	рН 7.0 7.0	Dissolved O ₂ (mg/L) 9.8 9.5	Conductivity (µmhos/cm) 1742 1738	Temperature (°C) 14 14	O ₂ Saturation (%) ³ 100 98	TAN (mg/L) ¹ <0.050	NH3 (mg/L) ² 0.000
				0	HOURS				
Date & Time Analyst(s):	2023-04-06 SV	14:40		V	iio ens				
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation ³	Hardness (mg/L as CaCO ₃)	Total Chlorine (mg/L)
100%	0	0	7.0	9.5	1738	14	98	380	_
Control Notes:	0	0	8.1	9.7	777	14	100	_	_
				24	HOURS				
Date & Time Analyst(s):	2023-04-07 CN	14:40							
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	TAN (mg/L) ¹	$ NH3 $ $ (mg/L)^2 $	
100%	0	0	6.9	-	-	15	-	_	
Control Notes:	0	0	8.1	_	_	15	_	_	
				48	HOURS				
Date & Time Analyst(s):	2023-04-08 KR (JW)	14:40							
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	•	TAN (mg/L) ¹	$\frac{\text{NH3}}{(\text{mg/L})^2}$	
100%	0	0	7.0	_	_	15	_	_	
Control Notes:	0	0	8.3	_	_	15	_	_	
				72	HOURS				
Date & Time Analyst(s):	2023-04-09 KR (JW)	14:40							
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	TAN (mg/L) ¹	$\frac{\text{NH3}}{\left(\text{mg/L}\right)^2}$	
100%	0	0	7.2	_	_	16	_	_	
Control Notes:	0	0	8.3	_	_	16	_	_	
				96	HOURS				
Date & Time Analyst(s):	2023-04-10 KR (JCS)	14:40							
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	TAN (mg/L) ¹	$ NH3 $ $ (mg/L)^2 $	Average pH (0 - 96 h)
100%	0	0	7.2	8.9	1745	15	_	_	7.1
Control Notes:	0	0	8.2	8.9	758	15	_	_	8.2

¹ TAN = Total ammonia (as N); analysis conducted by Bureau Veritas S.A., Mississauga ON; MDL = 0.05 mg/L.

Test Data Reviewed By: JJ

Number impaired does not include number dead.

Date: 2023-04-17

² NH3 = Un-ionized ammonia (calculated from TAN, pH, and temperature according to the test method).

³ adjusted for temperature and barometric pressure

[&]quot;_" = not measured/not required

CHAIN OF CUSTODY RECORD



AquaTox Work Order No:
251250

P.O. Number: 1313 (Kawartha - Lindsay WWTP)							
Field Sampler Name (print): PRECTI PRECTI							
Signature: Reeti							
Affiliation: Ontario Clean Water Agency							
Sample Storage (prior to shipping): N/A							
Custody Relinquished by:							
Date/Time Shipped:2023-04-05							

Shipping Address:

AquaTox Testing & Consulting Inc. B-11 Nicholas Beaver Road

Puslinch, Ontario Canada N0B 2J0

Voice: (519) 763-4412

Fax:

(519) 763-4419

Client:	Ontario Clean Water Agency Lindsay WWTP 48 Lagoon Street Lindsay, ON K9V4R3	
Phone:	(705) 731-9125	
Fax:	(705) 324-9374	
Contact:	Julie Mather	

	Sample Identification						A	nalyse	s Requ	ested					Sa	mple	Method and Volume	
Date Collected (yyyy-mm-dd)	Time Collected (e.g. 14:30, 24 hr clock)	Sample Name	AquaTox Sample Number	Temp. on	Rainbow Trout Single Concentration	Reinbow Trout LC50	RBT Single Conc. pH Stabilization	RBT LC50 pH Stabilization	Dephnia magna Single Concentration	Daphnia magna LC50	Fathead Minnow Survival & Growth	Ceriodaphnia dubia Survival & Reproduction	Pseudokirchneriella subcapitata Growth	Ammonia	Other (please specify below)	Grab	Composita	# of Containers and Volume (eg. 2 x 1L, 3 x 10L, etc.)
2023-04-05	0:45	Final Effluent	77199	134	X		V		1							~	\neg	1 x 23L
					7		*											
																П		77.72
				34												П		
																	\neg	
																	_	·
																	\dashv	
																	\dashv	
																H	+	

For Lab Use	Only
Received By:	M/JW
Date:	2023-04-06
Time:	12:50
Storage Location:	
Storage Temp.(*C)	

	any special requests			SW					
	Stubilized				per	client	email.	cN	
,			<i>D</i>			· · · · · ·		2023-04	-06
			 				<u> </u>		



B-11 Nicholas Beaver Road Puslinch, ON NOB 2J0 Tel. (519) 763-4412 Fax. (519) 763-4419

TOXICITY TEST REPORT

Daphnia magna EPS 1/RM/14 Page 1 of 2

Work Order: 252072 Sample Number: 78504

CARIDI			CATION
SAMPL	.H. 11)1	1	CATION

Company: Ontario Clean Water Agency, Lindsay WPCP Sampling Date: 2023-07-06 Location: Lindsay ON Sampling Time: 07:40 Final Effluent Date Received: Substance: 2023-07-07 Sampling Method: Grab Time Received: 13:00 Sampled By: P. Lucas Temperature at Receipt: 24 °C Sample Description: Clear, light yellow/brown. Date Tested: 2023-07-07

Test Method: Reference Method for Determining Acute Lethality of Effluents to Daphnia magna. Environment

Canada EPS 1/RM/14 (Second Edition, December 2000, with February 2016 amendments).

	48-HOUR TEST RESULTS	
Substance	Effect	Value
Control	Mean Immobility	0.0 %
	Mean Mortality	0.0 %
100%	Mean Immobility	0.0 %
	Mean Mortality	56.7 %

The results reported relate only to the sample tested and as received.

TEST ORGANISM

Species :Daphnia magnaTime to First Brood :8.2 daysOrganism Batch :Dm23-12Average Brood Size :36.4

Culture Mortality: 0.3% (previous 7 days)

TEST CONDITIONS

Sample Treatment: None Number of Replicates: 3
pH Adjustment: None Organisms / Replicate: 10
Pre-aeration Rate: ~30 mL/min/L Organisms / Test Level: 30

Duration of Pre-Aeration: 0 minutes Organism Loading Rate: 15.0 mL/organism

Test Aeration : None Impaired Control Organisms : 0.0% Hardness Adjustment : None Test Method Deviation(s) : None

REFERENCE TOXICANT DATA

Toxicant: Sodium Chloride

Date Tested: 2023-07-04 LC50: 6.3 g/LOrganism Batch: Dm23-12 95% Confidence Limits: 5.8 - 6.8 g/LAnalyst(s): SSF Historical Mean LC50: 6.5 g/LStatistical Method: **Binomial** Warning Limits (\pm 2SD): 5.7 - 7.4 g/L

COMMENTS

Approved By:	
	D : .16

[•] All test validity criteria as specified in the test method were satisfied.



TOXICITY TEST REPORT

Daphnia magna EPS 1/RM/14 Page 2 of 2

Work Order: 252072 Sample Number: 78504

TEST DATA

0 HOURS

	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation	Hardness	
		(mg/L)	(µmhos/cm)	(°C)	(%)*	(as CaCO ₃)	
Initial Chemistry (100%):	7.4	8.0	1333	22	96	410 mg/L	

Date & Time : Analyst(s) :	2023-07-07 AJS/NP (NM)	15:10)							
Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation*	Hardness	
100	A	0	0	7.4	8.0	1333	22	96	410	
100	В	0	0	7.4	8.0	1333	22	96	410	
100	C	0	0	7.4	8.0	1333	22	96	410	
Control	A	0	0	8.3	8.6	455	20	100	140	
Control	В	0	0	8.3	8.6	455	20	100	140	
Control	C	0	0	8.3	8.6	455	20	100	140	

Notes:

24 HOURS

Date & Time: 2023-07-08 15:10

Analyst(s): AJS

Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature
100	A	-	0	_	_	_	21
100	В	-	0	_	_	_	21
100	C	-	0	_	_	_	21
Control	A	-	0	_	_	_	21
Control	В	-	0	_	_	_	21
Control	C	-	0	_	_	_	21

Notes:

48 HOURS

Date & Time: 2023-07-09 15:10

Analyst(s): AJS

Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature
100	A	5	0	8.4	8.3	1323	20
100	В	7	0	8.4	8.2	1327	20
100	C	5	0	8.4	8.3	1342	20
Control	A	0	0	8.4	8.4	467	20
Control	В	0	0	8.4	8.5	462	20
Control	C	0	0	8.4	8.5	464	20

Notes: Settled solids stuck to the bodies of test organisms in 100% test concentration.

Number immobile does not include number dead.

Test Data Reviewed By: _____JJ

Date: 2023-07-11

[&]quot; $_$ " = not measured/not required

^{*} adjusted for temperature and barometric pressure



252072

78504

Work Order:

Sample Number:

B-11 Nicholas Beaver Road Puslinch, ON NOB 2J0 Tel. (519) 763-4412 Fax. (519) 763-4419

TOXICITY TEST REPORT

Rainbow Trout EPS 1/RM/13 EPS 1/RM/50 Page 1 of 2

SAMPLE IDENTIFICATION

Company: Ontario Clean Water Agency, Lindsay WPCP Sampling Date: 2023-07-06 Sampling Time: Location: Lindsay ON 07:40 Substance: Final Effluent Date Received: 2023-07-07 Grab Time Received: Sampling Method: 13:00 24 °C Sampled By: P. Lucas Temperature at Receipt: Sample Description: Clear, light yellow/brown. Date Tested: 2023-07-08

Test Method(s): Reference Method for Determining Acute Lethality of Liquid Effluents to Rainbow Trout. Environment

Canada, EPS 1/RM/13 (2nd Edition, December 2000, with May 2007 and February 2016 amendments).

Procedure for pH Stabilization During the Testing of Acute Lethality of Wastewater Effluent to Rainbow

Trout. Environment Canada, EPS 1/RM/50 (March 2008), with deviation(s) as noted.

	96-HOUR TEST RESULTS		
Substance	Effect	Value	
Control	Mean Impairment	0.0 %	
	Mean Mortality	0.0 %	
100%	Mean Impairment	0.0 %	
	Mean Mortality	0.0 %	

The results reported relate only to the sample tested and as received.

TEST ORGANISM

Test Organism:	Oncorhynchus mykiss	Average Fork Length (± 2 SD) :	36.4 mm (±5.2)
Organism Batch:	T23-14	Range of Fork Lengths:	33 - 39 mm
Control Sample Size:	10	Average Wet Weight (± 2 SD):	0.4 g (±0.2)
Cumulative stock tank mortality rate:	0% (previous 7 days)	Range of Wet Weights:	0.3 - 0.5 g
Control organisms showing stress:	0 (at test completion)	Organism Loading Rate:	0.2 g/L

TEST CONDITIONS

Sample Treatment:	pH Stabilization	Number of Replicates:	1
pH Adjustment:	Yes (as per EPS 1/RM/50)	Organisms Per Replicate:	10
pH Stabilization Technique:	pH Controller	Organisms Per Test Level:	10
C MC TI 1	1000/ 00	D .: /4 .: D .	

Gas Mixture Used : 100% CO₂ Pre-aeration/Aeration Rate : 6.5 ± 1 mL/min/L Test Aeration : Yes Total Pre-Aeration Time : 30 minutes

Volume Tested (L): 18 Test Method Deviation(s): Yes (see 'COMMENTS')

REFERENCE TOXICANT DATA

Toxicant: Potassium Chloride

Organism Batch: T23-14 LC50: 3690 mg/L 3171 - 4132 mg/L Date Tested: 2023-07-04 95% Confidence Limits: Analyst(s): JGR, KR, LL Historical Mean LC50: 3870 mg/L 2948 - 5080 mg/L Statistical Method: Linear Regression (MLE) Warning Limits (\pm 2SD):

COMMENTS

- All test validity criteria as specified in the test method were satisfied.
- Noted Deviation: pH controllers are calibrated at the start of the test, and not daily as described in the test method. Extensive internal method validation of this approach has confirmed the accuracy and stability of the pH controllers over the course of the 96-h test. Additionally, pH of the test and control solutions is measured daily throughout the test.

Approved By:	



252072

Work Order:

TOXICITY TEST REPORT

Rainbow Trout EPS 1/RM/13 EPS 1/RM/50

Sample Number	232072 er: 78504							Е	PS 1/RM/50 Page 2 of 2
					ST DATA				1 age 2 01 2
			pН	(mg/L)	Conductivity (µmhos/cm)	Temperature (°C)	(%) ³	TAN (mg/L) ¹	NH3 $(mg/L)^2$
	hemistry (100%)):	7.4	7.7	1426	15	81	0.182	0.001
After 30 min pr	re-aeration:		7.4	7.9	1400	15	84	_	_
				0	HOURS				
Date & Time Analyst(s):	2023-07-08 NM	10:15							
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation ³	Hardness (mg/L as CaCO ₃)	Total Chlorino) (mg/L)
100%	0	0	7.4	7.9	1400	15	84	410	_
Control	0	0	8.2	9.4	628	15	100	_	_
Notes:									
				24	HOURS				
Date & Time Analyst(s):	2023-07-09 NM	10:15							
Concentration	Dead	Impaired	pН	Dissolved O2	Conductivity	Temperature	TAN	NH3	
Concentration	Dead	impancu	pii	Dissolved 02	conductivity	remperature	$(mg/L)^1$	$(mg/L)^2$	
100%	0	0	7.4	_	_	15	_	_	
Control	0	0	8.4	_	_	15	_	_	
Notes:									
				48	HOURS				
Date & Time	2023-07-10	10:15							
Analyst(s):	KR (PC)								
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	TAN (mg/L) ¹	$\frac{\text{NH3}}{\left(\text{mg/L}\right)^2}$	
100%	0	0	7.6	_		15	_	_	
Control	0	0	8.4	_	_	15	_	_	
Notes:									
				72	HOURS				
Date & Time	2023-07-11	10:15							
Analyst(s): Concentration	LL Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	TAN	NH3	
1000/	0	0				1.6	$(mg/L)^1$	$(mg/L)^2$	
100%	0	0	7.5	_	_	16	_	_	
Control Notes:	0	0	8.2	_	_	16	_	_	
				96	HOURS				
Date & Time	2023-07-12	10:15							
Analyst(s):	KR (JGR)								
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	TAN (mg/L) ¹	$\frac{\text{NH3}}{(\text{mg/L})^2}$	Average pH (0 - 96 h)
100%	0	0	7.4	9.2	1563	16	_	_	7.5
C . 1	0	0	0.4	0.0	(12	1.6			0.3

¹ TAN = Total ammonia (as N); analysis conducted by Bureau Veritas S.A., Mississauga ON; MDL = 0.05 mg/L.

8.9

642

16

8.4

0

0

Control Notes:

Test Data Reviewed By:

Number impaired does not include number dead.

Date: 2023-07-18

8.3

² NH3 = Un-ionized ammonia (calculated from TAN, pH, and temperature according to the test method).

³ adjusted for temperature and barometric pressure

[&]quot;_" = not measured/not required

CHAIN OF CUSTODY RECORD



AquaTox Work Order No:

P.O. Number: 1313 (Kawartha - Lindsay WWTP)
Field Sampler Name (print): PAT Was
Signature: Part Lucar
Affiliation: Ontario Clean Water Agency
Sample Storage (prior to shipping): N/A
Custody Relinquished by:
Date/Time Shipped: JULY 06 2023

Shipping Address:

AquaTox Testing & Consulting Inc. B-11 Nicholas Beaver Road

Puslinch, Ontario Canada N0B 2J0

Voice: (519) 763-4412

Fax:

(519) 763-4419

Client:	Ontario Clean Water Agency Lindsay WWTP 48 Lagoon Street Lindsay, ON K9V4R3
Phone:	(705) 731-9125
Fax:	(705) 324-9374
Contact:	Julie Mather

Sample Identification				Analyses Requested						Sample Method and Volume								
Date Collected (yyyy-mm-dd)	Time Collected (e.g. 14:30, 24 hr clock)	Sample Name Final Effluent	AquaTox Sample Number	Temp. on arrival	Rainbow Trout Single Concentration	Rainbow Trout LC50	RBT Single Conc. pH Stabilization	RBT LC50 pH Stabilization	Daphnia magna Single Concentration	Daphnia magna LC50	Fathead Minnow Survival & Growth	Ceriodaphnia dubia Survival & Reproduction	Pseudokirchneriella subcapitata Growth	Ammonia	Other (please specify below)	Grab	Composite	# of Containers and Volume (eg. 2 x 1L, 3 x 10L, etc.) 1 x 23L
2025-01-06	1.70	That Endent	10009	470			-		-									
					-				-				-		-			
			Additional Arthurs and the										_			_	-	
			47.00															
		3																

For Lab Use	Only
Received By:	CL
Date:	2023-07-07
Time:	1300
Storage Location:	
Storage Temp.(°C)	

Please list any special requests or instructions:



B-11 Nicholas Beaver Road Puslinch, ON NOB 2J0 Tel. (519) 763-4412 Fax. (519) 763-4419

TOXICITY TEST REPORT

Daphnia magna EPS 1/RM/14 Page 1 of 2

Work Order: 252126 Sample Number: 78572

	S	AMPLE IDENTIFICA	ATION			
Company	Ontario Clean Water A	ganay Lindsoy WDCD	Sampling Date :	2023-07-12		
Company : Location :	Lindsay ON	igency, Linusay WFCF	Sampling Date: Sampling Time:	07:15		
Substance:	Final Effluent		Date Received:	2023-07-13		
	Grab		Time Received:	13:00		
Sampling Method:	P. Lucas			23 °C		
Sampled By:			Temperature at Receipt : Date Tested :	2023-07-14		
Sample Description :	Clear, yellow.		Date Tested:	2023-07-14		
Test Method:		-	nality of Effluents to Daphnia r	~		
		EPS 1/RM/14 (Second E	dition, December 2000, with F	ebruary 2016		
	amendments).					
		48-HOUR TEST RES	ULTS			
	Substance	Effect		Value		
	Control	Mean Immol	oility	0.0 %		
		Mean Morta	-	0.0 %		
	100%	Mean Immol	•	0.0 %		
	Mean Mortality					
	T1 1, ,		•			
	The results report	ed relate only to the sampl	e tested and as received.			
		TEST ORGANISM	M			
Species:	Daphnia ma	igna	Time to First Brood:	8.2 days		
Organism Batch:	Dm23-12		Average Brood Size:	35.4		
Culture Mortality:	2.0% (previ	ous 7 days)				
		TEST CONDITION	NS			
Sample Treatment :	None		Number of Replicates:	3		
pH Adjustment:	None		Organisms / Replicate :	10		
Pre-aeration Rate:	~30 mL/mir	n/L	Organisms / Test Level:	30		
Duration of Pre-Aera	tion: 0 minutes		Organism Loading Rate:	15.0 mL/organism		
Test Aeration:	None		Impaired Control Organisms	: 0.0%		
Hardness Adjustment	t: None		Test Method Deviation(s):	None		
	RE	FERENCE TOXICAN	T DATA			
Toxicant:	Sodium Chl	oride				
Date Tested:	2023-07-04		LC50:	6.3 g/L		
Organism Batch:	Dm23-12		95% Confidence Limits :	5.8 - 6.8 g/L		
Analyst(s):	SSF		Historical Mean LC50:	6.5 g/L		
Statistical Method:	Binomial		Warning Limits (± 2SD):	5.7 - 7.4 g/L		

•All test validity criteria as specified in the test method were satisfied.

Approved By:					
		_			Π

COMMENTS





Daphnia magna EPS 1/RM/14 Page 2 of 2

Work Order: 252126 Sample Number: 78572

TEST DATA

0 HOURS

	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation	Hardness
		(mg/L)	(µmhos/cm)	(°C)	(%)*	(as CaCO ₃)
Initial Chemistry (100%):	7.4	8.0	1379	20	94	190 mg/L

Date & Time : Analyst(s) :	2023-07-14 SV/JGR	9:10)							
Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation*	Hardness	
100	A	0	0	7.4	8.0	1379	20	94	190	
100	В	0	0	7.4	8.0	1379	20	94	190	
100	C	0	0	7.4	8.0	1379	20	94	190	
Control	A	0	0	8.3	8.7	469	20	100	150	
Control	В	0	0	8.3	8.7	469	20	100	150	
Control	С	0	0	8.3	8.7	469	20	100	150	

24 HOURS

Date & Time: 2023-07-15 9:10

Analyst(s): KP

Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature
100	A	-	0	_	_	_	21
100	В	-	0	_	_	_	21
100	C	_	0	_	_	_	21
Control	A	_	0	_	_	_	21
Control	В	_	0	_	_	_	21
Control	C	_	0	_	_	_	21

Notes:

Notes:

			48 HOURS
Date & Time:	2023-07-16	9:10	

Analyst(s): KR (KP)/KP

Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature
100	A	0	0	8.4	8.2	1382	20
100	В	0	0	8.4	8.2	1387	20
100	C	0	0	8.4	8.2	1377	20
Control	A	0	0	8.3	8.2	476	20
Control	В	0	0	8.3	8.1	474	20
Control	C	0	0	8.3	8.0	475	20

Notes:

Number immobile does not include number dead.

Test Data Reviewed By: JJ

Date: 2023-07-20

[&]quot;_" = not measured/not required

^{*} adjusted for temperature and barometric pressure

CHAIN OF CUSTODY RECORD





P.O. Number: 1313 (Kawartha - Lindsay WWTP)
Field Sampler Name (print): PAT LUCAS
Signature: Pet luces
Affiliation: Ontario Clean Water Agency
Sample Storage (prior to shipping): N/A
Custody Relinquished by:
Date/Time Shipped: 1017 12/23

Shipping Address:

AquaTox Testing & Consulting Inc. B-11 Nicholas Beaver Road

Puslinch, Ontario Canada N0B 2J0

Voice: (519) 763-4412

Fax:

(519) 763-4419

	Client:	Ontario Clean Water Agency Lindsay WWTP 48 Lagoon Street Lindsay, ON K9V4R3
	Phone:	(705) 731-9125
	Fax:	(705) 324-9374
The state of	Contact:	Julie Mather

	Sample Identification					Analyses Requested Sample Method and Volume						e Method and Volume					
Date Collected (yyyy-mm-dd) 2023 ~ 07 - 1 Z	Time Collected (e.g. 14:30, 24 hr clock) 7 ' S	Sample Identification Sample Name Final Effluent	AquaTox Sample Number arrival 23	Rainbow Trout Single Concentration	Rainbow Trout LC50	RBT Single Conc.	RBT LC50 PH Stabilization	Daphnia magna Single Concentration	Daphnia magna LC50	Fathead Minnow Survival & Growth	Ceriodaphnia dubia Survival & Reproduction	Pseudokirchneneila subcapitata Growth	Ammonia	Other (please specify below)	+-	Composite	# of Containers and Volume (eg. 2 x 1L, 3 x 10L, etc.) 1 x 23L

For Lab Us		
Received By:	SULASS	
Date:	2623-07-13	
Time:	13:00	
Storage Location:		
Storage Temp.(°C) <u> </u>	

Please list any special requests or instructions:



B-11 Nicholas Beaver Road Puslinch, ON NOB 2J0 Tel. (519) 763-4412 Fax. (519) 763-4419

TOXICITY TEST REPORT

Daphnia magna EPS 1/RM/14 Page 1 of 2

Work Order: 253010 Sample Number: 79863

SAMPLE IDENTIFICATION								
Company:	Ontario Clean Water Agency, Lindsay WPCP	Sampling Date :	2023-10-17					
Location:	Lindsay ON	Sampling Time:	08:55					
Substance:	Final Effluent (Grab)	Date Received:	2023-10-18					
Sampling Method:	Grab	Time Received:	13:00					
Sampled By:	T. Smith	Temperature at Receipt:	19 °C					
Sample Description:	Clear, pale yellow	Date Tested:	2023-10-20					

Test Method: Reference Method for Determining Acute Lethality of Effluents to Daphnia magna. Environment

Canada EPS 1/RM/14 (Second Edition, December 2000, with February 2016 amendments).

48-HOUR TEST RESULTS								
Substance	Effect	Value						
Control	Mean Immobility	0.0 %						
	Mean Mortality	3.3 %						
100%	Mean Immobility	0.0 %						
	Mean Mortality	0.0 %						

The results reported relate only to the sample tested and as received.										
TEST ORGANISM										
Species:	Daphnia magna	Time to First Brood:	10.2 days							
Organism Batch:	Dm23-19	Average Brood Size:	31.8							
Culture Mortality:	0.7% (previous 7 days)									
TEST CONDITIONS										
Sample Treatment :	None	Number of Replicates:	3							
pH Adjustment:	None	Organisms / Replicate:	10							
Pre-aeration Rate:	~30 mL/min/L	Organisms / Test Level:	30							
Duration of Pre-Aeration:	30 minutes	Organism Loading Rate:	15.0 mL/organism							
Test Aeration:	None	Impaired Control Organisms	: 3.3%							
Hardness Adjustment:	None	Test Method Deviation(s):	None							
	REFERENCE TOX	ICANT DATA								
Toxicant:	Sodium Chloride									
Date Tested:	2023-10-10	LC50:	6.7 g/L							
Organism Batch:	Dm23-19	95% Confidence Limits:	6.4 - 7.0 g/L							
Analyst(s):	SSF, MEP	Historical Mean LC50:	6.4 g/L							
Statistical Method:	Spearman-Kärber	Warning Limits (\pm 2SD):	5.6 - 7.4 g/L							

• All test validity criteria as specified in the test method were satisfied.

Approved By:	
	D : 16

COMMENTS





Daphnia magna EPS 1/RM/14 Page 2 of 2

Work Order: 253010 Sample Number: 79863

TEST DATA

0 HOURS

	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation	Hardness
		(mg/L)	(µmhos/cm)	(°C)	(%)*	(as CaCO ₃)
Initial Chemistry (100%):	7.5	9.4	1328	21	112	280 mg/L

Date & Time:	2023-10-20	12:05	5						
Analyst(s):	FM/SSF/SV (PG)							
Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation*	Hardness
100	A	0	0	7.8	8.7	1324	21	105	280
100	В	0	0	7.8	8.7	1324	21	105	280
100	C	0	0	7.8	8.7	1324	21	105	280
Control	A	0	0	8.3	8.4	479	21	100	150
Control	В	0	0	8.3	8.4	479	21	100	150
Control	C	0	0	8.3	8.4	479	21	100	150

			24 HOURS	
Date & Time:	2023-10-21	12:05	_	

Analyst(s): JW

Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature
100	A	-	0	_	_	_	21
100	В	-	0	_	_	_	21
100	C	_	0	_	_	_	21
Control	A	_	1	_	_	_	21
Control	В	_	0	_	_	_	21
Control	C	-	0	_	_	_	21

Notes:

Notes:

48 HOURS											
Date & Time:	2023-10-22	12:05									
Analyst(s):	SSF (JW)										
Concentration (%)	Replicate	Dead Immobile	pH Dissolved O ₂ Conductivity Temperatur	e							

Concentration (%)	Replicate	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature
100	A	0	0	8.5	8.2	1339	22
100	В	0	0	8.5	8.2	1355	22
100	C	0	0	8.5	8.3	1327	22
Control	A	1	0	8.4	8.3	497	22
Control	В	0	0	8.4	8.3	497	22
Control	C	0	0	8.4	8.3	496	22

Notes:

Number immobile does not include number dead.

Test Data Reviewed By: JCS

Date : 2023-10-25

[&]quot;_" = not measured/not required

^{*} adjusted for temperature and barometric pressure



B-11 Nicholas Beaver Road Puslinch, ON NOB 2J0 Tel. (519) 763-4412 Fax. (519) 763-4419

TOXICITY TEST REPORT

Rainbow Trout EPS 1/RM/13 EPS 1/RM/50 Page 1 of 2

Work Order: 253010 Sample Number: 79863

CAI	MPI	F	IDENTIFICAT	TON
D/A	VIFI	11	IDENTIFICA	

Sampling Date: Company: Ontario Clean Water Agency, Lindsay WPCP 2023-10-17 Location: Sampling Time: Lindsay ON 08:55 Final Effluent (Grab) Substance: Date Received: 2023-10-18 Sampling Method: Grab Time Received: 13:00 Sampled By: T. Smith Temperature at Receipt: 19 °C Sample Description: Clear, pale yellow Date Tested: 2023-10-19

Test Method(s): Reference Method for Determining Acute Lethality of Liquid Effluents to Rainbow Trout. Environment

Canada, EPS 1/RM/13 (2nd Edition, December 2000, with May 2007 and February 2016 amendments).

Procedure for pH Stabilization During the Testing of Acute Lethality of Wastewater Effluent to Rainbow

Trout. Environment Canada, EPS 1/RM/50 (March 2008), with deviation(s) as noted.

96-HOUR TEST RESULTS				
Substance	Effect	Value		
Control	Mean Impairment	0.0 %		
	Mean Mortality	0.0 %		
100%	Mean Impairment	0.0 %		
	Mean Mortality	0.0 %		

The results reported relate only to the sample tested and as received.

TEST ORGANISM

Test Organism: Oncorhynchus mykiss Average Fork Length (± 2 SD): 38.8 mm (± 3.7) Organism Batch: T23-22 Range of Fork Lengths: 37 - 43 mm Average Wet Weight (± 2 SD): 0.4 g (± 0.2) Control Sample Size: Range of Wet Weights: Cumulative stock tank mortality rate: 0% (previous 7 days) 0.3 - 0.7 gOrganism Loading Rate: Control organisms showing stress: 0 (at test completion) 0.3 g/L

TEST CONDITIONS

Sample Treatment :pH StabilizationNumber of Replicates :1pH Adjustment :Yes (as per EPS 1/RM/50)Organisms Per Replicate :10pH Stabilization Technique :pH ControllerOrganisms Per Test Level :10

Gas Mixture Used : 100% CO₂ Pre-aeration/Aeration Rate : 6.5 ± 1 mL/min/L Test Aeration : Yes Total Pre-Aeration Time : 30 minutes

Volume Tested (L): 16 Test Method Deviation(s): Yes (see 'COMMENTS')

REFERENCE TOXICANT DATA

Toxicant: Potassium Chloride

Organism Batch: T23-22 LC50: 3277 mg/L 2023-10-18 95% Confidence Limits: 2932 - 3675 mg/L Date Tested: DT, JGR Historical Mean LC50: 3551 mg/L Analyst(s): Statistical Method: 2852 - 4421 mg/L Linear Regression (MLE) Warning Limits (\pm 2SD):

COMMENTS

- All test validity criteria as specified in the test method were satisfied.
- Noted Deviation: pH controllers are calibrated at the start of the test, and not daily as described in the test method. Extensive internal method validation of this approach has confirmed the accuracy and stability of the pH controllers over the course of the 96-h test. Additionally, pH of the test and control solutions is measured daily throughout the test.

Approved By:			



Sample Number: 79863

253010

Work Order:

TOXICITY TEST REPORT

Rainbow Trout EPS 1/RM/13 EPS 1/RM/50 Page 2 of 2

TEST DATA

				I E	SIDAIA				8
			pН	Dissolved O ₂ (mg/L)	Conductivity (µmhos/cm)	Temperature (°C)	O ₂ Saturation (%) ³	TAN (mg/L) ¹	$\frac{\text{NH3}}{\left(\text{mg/L}\right)^2}$
Initial Water Cl	nemistry (100%)):	7.4	9.3	1127	15	98	< 0.050	0.000
After 30 min pr	e-aeration:		7.4	9.2	1120	15	97	_	_
				0	HOURS				
Date & Time	2023-10-19	14:00							
Analyst(s):	AJS								
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation ³	Hardness (mg/L as CaCO ₃)	Total Chlorine (mg/L)
100%	0	0	7.4	9.2	1120	15	97	280	_
Control	0	0	8.3	9.6	631	15	99		_
Notes:									
				24	HOURS				
Date & Time Analyst(s):	2023-10-20 DT (PG)	14:00							
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	TAN (mg/L) ¹	$\frac{\text{NH3}}{\left(\text{mg/L}\right)^2}$	
100%	0	0	7.5	_	_	14	_	_	
Control Notes:	0	0	8.5	_	_	14	_	_	
inotes.									
				48	HOURS				
Date & Time	2023-10-21	14:00							
Analyst(s):	DT (JGR)								
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	TAN (mg/L) ¹	$\frac{\text{NH3}}{(\text{mg/L})^2}$	
100%	0	0	7.4	_	_	14	_	_	
Control Notes:	0	0	8.2	_	_	14	_	_	
				72	HOURS				
Date & Time	2023-10-22	14:00							
Analyst(s):	JGR								
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	TAN (mg/L) ¹	$ NH3 $ $ (mg/L)^2 $	
100%	0	0	7.6	_	_	15	_	_	
Control	0	0	8.4	_	_	15	_	_	
Notes:									
				96	HOURS				
Date & Time	2023-10-23	14:00							
Analyst(s):	NM								
Concentration	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	TAN (mg/L) ¹	$\frac{\text{NH3}}{\left(\text{mg/L}\right)^2}$	Average pH (0 - 96 h)
100%	0	0	7.4	9.5	1125	15	_	_	7.5
Control	0	0	8.2	9.5	630	15	_	_	8.3
Notes:									

¹ TAN = Total ammonia (as N); analysis conducted by Bureau Veritas S.A., Mississauga ON; MDL = 0.05 mg/L.

Test Data Reviewed By: ______JJ

Date: 2023-10-31

Number impaired does not include number dead.

² NH3 = Un-ionized ammonia (calculated from TAN, pH, and temperature according to the test method).

³ adjusted for temperature and barometric pressure

[&]quot;_" = not measured/not required

CHAIN OF CUSTODY RECORD



AquaTox Work Order No:

P.O. Number: 1313	+		
Field Sampler Name (print): Ty SM, 4h			
Signature: In Smill			
Affiliation: Ontario Clean Water Agency			
Sample Storage (prior to shipping): N/A			
Custody Relinquished by:			
Date/Time Shipped:			

Shipping Address: AquaTox B-11 Nich

AquaTox Testing & Consulting Inc. B-11 Nicholas Beaver Road Puslinch, Ontario Canada N0B 2J0

Voice: (519) 763-4412

Fax: (519) 763-4419

Client:	Ontario Clean Water Agency Lindsay WWTP 48 Lagoon Street Lindsay ON K9V 4R3	
Phone:	(705) 741-6905	
Fax:	(705) 324-9374	
Contact:	Julie Mulligan	

Sample Identification Analyses Requested			is .			Sa	mple	Method and Volume								
Date Collecte (yyyy-mm-dd	, ,	Sample Name	AquaTox Temp Sample Number arriv	p. on ival	Rainbow Trout Single Concentration	Rainbow Trout LC50	Daphnia magna Single Concentration	Daphnia magna LC50	Fathead Minnow Survival & Growth	Ceriodaphnia dubia Survival & Reproduction	Lemna minor Growth	Pseudokirchneriella subcapitata Growth	Other (please specify below)	Grab	Composite	# of Containers and Volume (eg. 2 x 1L, 3 x 10L, etc.)
	7 08:55	Final Effluent (Grab)	79863 19	1	V		V							Х	7	1 x 23L
20371071					(K											
	*															
			20/10											T		
	_							-						T		2
9 3										я				\vdash	1	
				50000												
		/					-							+	+	
						_	-						-	╀	+	
			(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)						93					\perp		

For Lab Use			
Received By:	EK/SSF	PG	
Date:	2023-10-18	2023-	10-19
Time:	13:00		l '
Storage Location:			
Storage Temp.(°C)			

Please list any special requests or instructions:	
(*) Daphnia single concentration testing +	rainbow trout pH
stabilized (EPS 1/RM/50) single concer	ntration lesting
required as per client email 2023-	10-19- CN'
*	



Appendix II: 2024 Sample Plan

	Ontario	Clean Wate	r Ag	ency
7	Agence	Ontarienne	Des	Eau

Sampling Calendar Lindsay WWTP (1313) Works # 110000383

Imported sewage samples can be taken at any point in the month but all other samples must be collected on date indicated.

<u>Weekly</u>	
Raw – Grab	- pH, Temperature
Raw - Comp	-BOD, TSS, TP, TKN, TAN
Final – Comp	- CBOD5, TSS, TP, Total
	(Ammonia+Ammonium) Nitrogen,
	TKN, Nitrite, Nitrate, Nitrate+Nitrite
Final – Grab	-E.Coli, pH, Temperature
Final - Calculated	- Unionized Ammonia

<u>Monthly</u>	
Lagoon Cell 5-	- TSS, CBOD, BOD, TSS, TKN, TAN, TP
Imported Sewage -	-BOD, TSS, TP, Total (Ammonia+
Abattoir (IndW)	Ammonium) /nitrogen, TKN
Imported Sewage -	- BOD, TSS, TP, Total (Ammonia+
Septage Receiving	Ammonium) /nitrogen, TKN
Station (InW2)	

Quarterly	
Final – Grab	 Iron, Magnesium, Manganese, Potassium, Strontium, Bis (2-ethylhexyl) Phthalate, Benzene, Xylene, Phenols
Final – Comp	- Aluminum, Cobalt, Zinc, Copper, Boron, Lead, Toluene, ethyle-Benzene
Acute Lethality	Final - Grab Rainbow Trout & Magna daphnia – Aquatox Testing & Consulting Ltd.

<u>Annual</u>	
Biosolids - Grab	- Total Solids, Total Phosphorus, Total
Lagoon 4	Ammonia Nitrogen, Nitrate as Nitrogen,
	Metal Scan (Arsenic, Cadmium, Cobalt,
	Chromium, Copper, Lead, Mercury, Zinc,
	Molybdenum, Nickel, Potassium, Selenium

Operator Name:	Operator Signature:	Date:	
(all collection and submission complete as per	ECA, WSER, etc. plus any special requirement	s).	
Sampler to initial or	n the date samples are taken and check off the	appropriate sample box	

January 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 Stat Holiday New Year's Day	2	3	Weekly Monthly Quarterly	5	6
7	8	9	10	11 Weekly	12	13
14	15	16	17	18 Weekly	19	20
21	22	23	24	25 Weekly	26	27
28	29	30	31		Sample Collection Time Frames (Days) WSER Sampling Windows (CBOD, TSS, Acute Lethality)	Weekly >5 days since previous sample Monthly >10 days since previous sample Quarterly >60 days since previous sample



Sampling Calendar Lindsay WWTP (1313) Works # 110000383

Imported sewage samples can be taken at any point in the month but all other samples must be collected on date indicated.

Weekly	
Raw – Grab	- pH, Temperature
Raw - Comp	-BOD, TSS, TP, TKN, TAN
Final – Comp	- CBOD5, TSS, TP, Total
	(Ammonia+Ammonium) Nitrogen,
	TKN, Nitrite, Nitrate, Nitrate+Nitrite
Final – Grab	-E.Coli, pH, Temperature
Final - Calculated	- Unionized Ammonia

Monthly	
Lagoon Cell 5-	- TSS, CBOD, BOD, TSS, TKN, TAN, TP
Imported Sewage -	-BOD, TSS, TP, Total (Ammonia+
Abattoir (IndW)	Ammonium) /nitrogen, TKN
Imported Sewage -	- BOD, TSS, TP, Total (Ammonia+
Septage Receiving	Ammonium) /nitrogen, TKN
Station (InW2)	

Final – Grab	- Iron, Magnesium, Manganese, Potassium, Strontium, Bis (2-ethylhexyl) Phthalate, Benzene, Xylene, Phenols
Final – Comp	- Aluminum, Cobalt, Zinc, Copper, Boron, Lead, Toluene, ethyle-Benzene
Acute Lethality	Final - Grab Rainbow Trout & Magna daphnia – Aquatox Testing & Consulting Ltd.

<u>Annual</u>	
Biosolids - Grab	- Total Solids, Total Phosphorus, Total
Lagoon 4	Ammonia Nitrogen, Nitrate as Nitrogen,
	Metal Scan (Arsenic, Cadmium, Cobalt,
	Chromium, Copper, Lead, Mercury, Zinc, Molybdenum, Nickel, Potassium, Selenium

Operator Name:	Operator Signature:	Date:
(all collection and submission complete as p	er ECA, WSER, etc. plus any special requirement	s).
Sampler to initial	on the date samples are taken and check off the	appropriate sample box

February 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				Weekly Monthly	2	3
4	5	6	7	Weekly	9	10
11	12	13	14	15 Weekly	16	17
18	19 Stat Holiday Family Day	20	21	Weekly	23	24
25	26	27	28	Weekly	Sample Collection Time Frames (Days) WSER Sampling Windows (CBOD, TSS, Acute Lethality)	Weekly >5 days since previous sample Monthly >10 days since previous sample Quarterly >60 days since previous sample

Ontario	Clean	Water	Age	ency
Agence	Ontari	enne I)es	Eaux

Sampling Calendar Lindsay WWTP (1313) Works # 110000383

Imported sewage samples can be taken at any point in the month but all other samples must be collected on date indicated.

<u>Annual</u>

<u>Weekly</u>	
Raw – Grab	- pH, Temperature
Raw - Comp	-BOD, TSS, TP, TKN, TAN
Final – Comp	- CBOD5, TSS, TP, Total
	(Ammonia+Ammonium) Nitrogen,
	TKN, Nitrite, Nitrate, Nitrate+Nitrite
Final – Grab	-E.Coli, pH, Temperature
Final - Calculated	- Unionized Ammonia

Monthly	
Lagoon Cell 5-	- TSS, CBOD, BOD, TSS, TKN, TAN, TP
Imported Sewage -	-BOD, TSS, TP, Total (Ammonia+
Abattoir (IndW)	Ammonium) /nitrogen, TKN
Imported Sewage -	- BOD, TSS, TP, Total (Ammonia+
Septage Receiving	Ammonium) /nitrogen, TKN
Station (InW2)	

Quarterly Final – Grab - Iron, Magnesium, Manganese, Potassium, Strontium, Bis (2-ethylhexyl) Phthalate, Benzene, Xylene, Phenols Final - Comp - Aluminum, Cobalt, Zinc, Copper, Boron, Lead, Toluene, ethyle-Benzene **Acute Lethality** Final - Grab Rainbow Trout & Magna daphnia - Aquatox Testing & Consulting Ltd.

7 tilliaai			
Biosolids - Grab	- Total Solids, Total Phosphorus, Total		
Lagoon 4	Ammonia Nitrogen, Nitrate as Nitrogen,		
	Metal Scan (Arsenic, Cadmium, Cobalt,		
	Chromium, Copper, Lead, Mercury, Zinc, Molybdenum, Nickel, Potassium, Selenium		

Operator Name:	Operator Signature:	Date:	
(all collection and sub	mission complete as per ECA, WSER, etc. plus any special requirements).		
	Sampler to initial on the date samples are taken and check off the appropriate samples	ole box	

March 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
Sample Collection Time Frames (Days)	Weekly >5 days since previous sample				1	2
WSER Sampling Windows (CBOD, TSS, Acute	Monthly >10 days since previous sample					
Lethality)	Quarterly >60 days since previous sample					
3	4	5	6	Weekly Monthly	8	9
10	11	12	13	14 Weekly	15	16
17	18	19	20	21 Weekly	22	23
24	25	26	27	28 Weekly	29 Stat Holiday Good Friday	30
31						

Ontario	Clean	Water	Age	ency
Agence	Ontari	enne l	Des	Eaux

Sampling Calendar Lindsay WWTP (1313) Works # 110000383

Imported sewage samples can be taken at any point in the month but all other samples must be collected on date indicated.

Weekly						
Raw – Grab	- pH, Temperature					
Raw - Comp	-BOD, TSS, TP, TKN, TAN					
Final – Comp	- CBOD5, TSS, TP, Total					
	(Ammonia+Ammonium) Nitrogen,					
	TKN, Nitrite, Nitrate, Nitrate+Nitrite					
Final – Grab	-E.Coli, pH, Temperature					
Final - Calculated	- Unionized Ammonia					

<u>Monthly</u>	
Lagoon Cell 5-	- TSS, CBOD, BOD, TSS, TKN, TAN, TP
Imported Sewage -	-BOD, TSS, TP, Total (Ammonia+
Abattoir (IndW)	Ammonium) /nitrogen, TKN
Imported Sewage -	- BOD, TSS, TP, Total (Ammonia+
Septage Receiving	Ammonium) /nitrogen, TKN
Station (InW2)	

<u>Quarterly</u> Final – Grab	- Iron, Magnesium, Manganese, Potassium, Strontium, Bis (2-ethylhexyl) Phthalate,
	Benzene, Xylene, Phenols
Final – Comp	- Aluminum, Cobalt, Zinc, Copper, Boron, Lead, Toluene, ethyle-Benzene
Acute Lethality	Final - Grab Rainbow Trout & Magna daphnia – Aquatox Testing & Consulting Ltd.

<u>Annual</u>	
Biosolids - Grab	- Total Solids, Total Phosphorus, Total
Lagoon 4	Ammonia Nitrogen, Nitrate as Nitrogen,
	Metal Scan (Arsenic, Cadmium, Cobalt,
	Chromium, Copper, Lead, Mercury, Zinc, Molybdenum, Nickel, Potassium, Selenium

Operator Name:	Operator Signature:	Date:
(all collection and submission complete as per E	CA, WSER, etc. plus any special requirements	s).
Sampler to initial on	the date samples are taken and check off the a	appropriate sample box

April 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 Stat Holiday Easter Monday	2	3	Weekly Monthly Quarterly	5	6
7	8	9	10	11 Weekly	12	13
14	15	16	17	18 Weekly	19	20
21	22	23	24	25 Weekly	26	27
28	29	30			Sample Collection Time Frames (Days) WSER Sampling Windows (CBOD, TSS, Acute Lethality)	Weekly >5 days since previous sample Monthly >10 days since previous sample Quarterly >60 days since previous sample

Operator Signature:

(all collection and submission complete as per ECA, WSER, etc. plus any special requirements).

Sampler to initial on the date samples are taken and check off the appropriate sample box

S:\Kawartha\everyone\DWQMS\Facility Files\Sampling\24samcal\Central Cluster\2024 Lindsay WWTP Sampling Calendar Rev 0 .docx

)	Ontario	Clean	Water	Ag	ency
7	Agence	Ontari	enne	Des	Eaux

Sampling Calendar Lindsay WWTP (1313) Works # 110000383

Imported sewage samples can be taken at any point in the month but all other samples must be collected on date indicated.

Weekly	
Raw – Grab	- pH, Temperature
Raw - Comp	-BOD, TSS, TP, TKN, TAN
Final – Comp	- CBOD5, TSS, TP, Total
	(Ammonia+Ammonium) Nitrogen,
	TKN, Nitrite, Nitrate, Nitrate+Nitrite
Final – Grab	-E.Coli, pH, Temperature
Final - Calculated	- Unionized Ammonia

<u>Monthly</u>	
Lagoon Cell 5-	- TSS, CBOD, BOD, TSS, TKN, TAN, TP
Imported Sewage -	-BOD, TSS, TP, Total (Ammonia+
Abattoir (IndW)	Ammonium) /nitrogen, TKN
Imported Sewage -	- BOD, TSS, TP, Total (Ammonia+
Septage Receiving	Ammonium) /nitrogen, TKN
Station (InW2)	

<u>Quarterly</u> Final – Grab	- Iron, Magnesium, Manganese, Potassium, Strontium, Bis (2-ethylhexyl) Phthalate, Benzene, Xylene, Phenols
Final – Comp	- Aluminum, Cobalt, Zinc, Copper, Boron, Lead, Toluene, ethyle-Benzene
Acute Lethality	Final - Grab Rainbow Trout & Magna daphnia – Aquatox Testing & Consulting Ltd.

<u>Annual</u>	
Biosolids - Grab	- Total Solids, Total Phosphorus, Total
Lagoon 4	Ammonia Nitrogen, Nitrate as Nitrogen,
	Metal Scan (Arsenic, Cadmium, Cobalt,
	Chromium, Copper, Lead, Mercury, Zinc, Molybdenum, Nickel, Potassium, Selenium

Date:

Ma	v 2	02	1

Operator Name:

Sun	Mon	Tue	Wed	Thu	Fri	Sat
Sample Collection Time Frames (Days) WSER Sampling Windows (CBOD, TSS, Acute Lethality)	Weekly >5 days since previous sample Monthly >10 days since previous sample Quarterly >60 days since previous sample		1	Weekly Monthly	3	4
5	6	7	8	9 Weekly	10	11
12	13	14	15	16 Weekly	17	18
19	20 Stat Holiday Victoria Day	21	22	Weekly	24	25
26	27	28	29	30 Weekly	31	

Ontario	Clean	Water	Age	ency
Agence	Ontari	enne l	Des	Eaux

Sampling Calendar Lindsay WWTP (1313) Works # 110000383

Imported sewage samples can be taken at any point in the month but all other samples must be collected on date indicated.

Weekly	
Raw – Grab	- pH, Temperature
Raw - Comp	-BOD, TSS, TP, TKN, TAN
Final - Comp	- CBOD5, TSS, TP, Total
	(Ammonia+Ammonium) Nitrogen,
	TKN, Nitrite, Nitrate, Nitrate+Nitrite
Final – Grab	-E.Coli, pH, Temperature
Final - Calculated	- Unionized Ammonia

<u>Monthly</u>	
Lagoon Cell 5-	- TSS, CBOD, BOD, TSS, TKN, TAN, TP
Imported Sewage -	-BOD, TSS, TP, Total (Ammonia+
Abattoir (IndW)	Ammonium) /nitrogen, TKN
Imported Sewage -	- BOD, TSS, TP, Total (Ammonia+
Septage Receiving	Ammonium) /nitrogen, TKN
Station (InW2)	

Quarterly	
Final – Grab	 Iron, Magnesium, Manganese, Potassium, Strontium, Bis (2-ethylhexyl) Phthalate, Benzene, Xylene, Phenols
Final – Comp	- Aluminum, Cobalt, Zinc, Copper, Boron, Lead, Toluene, ethyle-Benzene
Acute Lethality	Final - Grab Rainbow Trout & Magna daphnia – Aquatox Testing & Consulting Ltd.

<u>Annual</u>	
Biosolids - Grab	- Total Solids, Total Phosphorus, Total
Lagoon 4	Ammonia Nitrogen, Nitrate as Nitrogen,
	Metal Scan (Arsenic, Cadmium, Cobalt,
	Chromium, Copper, Lead, Mercury, Zinc, Molybdenum, Nickel, Potassium, Selenium

Operator Name:	Operator Signature:	Date:	
(all collection and submission complete as per ECA, WSER, etc. plus any special requirements).			
	Sampler to initial on the date samples are taken and check off the app	ropriate sample box	

June 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
Sample Collection Time Frames (Days) WSER Sampling Windows (CBOD, TSS, Acute Lethality)	Weekly >5 days since previous sample Monthly >10 days since previous sample	Quarterly >60 days since previous sample				1
2	3	4	5	Weekly Monthly	7	8
9	10	11	12	13	14	15
16	17	18	19	Weekly	21	22
23	24	25	26	Weekly	28	29
30						



Sampling Calendar Lindsay WWTP (1313) Works # 110000383

Imported sewage samples can be taken at any point in the month but all other samples must be collected on date indicated.

Weekly		
Raw – Grab	- pH, Temperature	
Raw - Comp	-BOD, TSS, TP, TKN, TAN	
Final – Comp	- CBOD5, TSS, TP, Total	
	(Ammonia+Ammonium) Nitrogen,	
	TKN, Nitrite, Nitrate, Nitrate+Nitrite	
Final – Grab	-E.Coli, pH, Temperature	
Final - Calculated	- Unionized Ammonia	

Monthly	
Lagoon Cell 5-	- TSS, CBOD, BOD, TSS, TKN, TAN, TP
Imported Sewage -	-BOD, TSS, TP, Total (Ammonia+
Abattoir (IndW)	Ammonium) /nitrogen, TKN
Imported Sewage -	- BOD, TSS, TP, Total (Ammonia+
Septage Receiving	Ammonium) /nitrogen, TKN
Station (InW2)	

Quarterly Final – Grab	- Iron, Magnesium, Manganese, Potassium, Strontium, Bis (2-ethylhexyl) Phthalate, Benzene, Xylene, Phenols
Final – Comp	- Aluminum, Cobalt, Zinc, Copper, Boron, Lead, Toluene, ethyle-Benzene
Acute Lethality	Final - Grab Rainbow Trout & Magna daphnia – Aquatox Testing & Consulting Ltd.

<u>Annual</u>	
Biosolids - Grab	- Total Solids, Total Phosphorus, Total
Lagoon 4	Ammonia Nitrogen, Nitrate as Nitrogen,
	Metal Scan (Arsenic, Cadmium, Cobalt,
	Chromium, Copper, Lead, Mercury, Zinc, Molybdenum, Nickel, Potassium, Selenium

Operator Name:	Operator Signature:	Date:	
(all collection and submissi	on complete as per ECA, WSER, etc. plus any special requirements).	<u> </u>	
	Sampler to initial on the date samples are taken and check off the appropri	ate sample box	

July 2024

Sun	Mon	T ue	Wed	Thu	Fri	Sat
	1 Stat Holiday Canada Day	2	3	Weekly Monthly Quarterly Annual Biosolids	5	6
7	8	9	10	Meekly	12	13
14	15	16	17	18 Weekly	19	20
21	22	23	24	25 Weekly	26	27
28	29	30	31		Sample Collection Time Frames (Days) WSER Sampling Windows (CBOD, TSS, Acute Lethality)	Weekly >5 days since previous sample Monthly >10 days since previous sample Quarterly >60 days since previous sample



Sampling Calendar Lindsay WWTP (1313) Works # 110000383

Imported sewage samples can be taken at any point in the month but all other samples must be collected on date indicated.

Weekly		
Raw – Grab	- pH, Temperature	
Raw - Comp	-BOD, TSS, TP, TKN, TAN	
Final – Comp	- CBOD5, TSS, TP, Total	
	(Ammonia+Ammonium) Nitrogen,	
	TKN, Nitrite, Nitrate, Nitrate+Nitrite	
Final – Grab	-E.Coli, pH, Temperature	
Final - Calculated	- Unionized Ammonia	

<u>Monthly</u>	
Lagoon Cell 5-	- TSS, CBOD, BOD, TSS, TKN, TAN, TP
Imported Sewage -	-BOD, TSS, TP, Total (Ammonia+
Abattoir (IndW)	Ammonium) /nitrogen, TKN
Imported Sewage -	- BOD, TSS, TP, Total (Ammonia+
Septage Receiving	Ammonium) /nitrogen, TKN
Station (InW2)	

<u>Quarterly</u> Final – Grab	- Iron, Magnesium, Manganese, Potassium, Strontium, Bis (2-ethylhexyl) Phthalate, Benzene, Xylene, Phenols
Final – Comp	- Aluminum, Cobalt, Zinc, Copper, Boron, Lead, Toluene, ethyle-Benzene
Acute Lethality	Final - Grab Rainbow Trout & Magna daphnia – Aquatox Testing & Consulting Ltd.

<u>Annuai</u>	
Biosolids - Grab	- Total Solids, Total Phosphorus, Total
Lagoon 4	Ammonia Nitrogen, Nitrate as Nitrogen,
	Metal Scan (Arsenic, Cadmium, Cobalt,
	Chromium, Copper, Lead, Mercury, Zinc, Molybdenum, Nickel, Potassium, Selenium

Operator Name:	Operator Signature:	Date:		
(all collection and submission complete as per ECA, WSER, etc. plus any special requirements).				
Sampler	to initial on the date samples are taken and check off the app	propriate sample box		

August 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
Sample Collection Time Frames (Days)	Weekly >5 days since previous sample			1	2	3
WSER Sampling Windows (CBOD, TSS, Acute	Monthly >10 days since previous sample					
Lethality)	Quarterly >60 days since previous sample					
4	5 Stat Holiday	6	7	8	9	10
	Civic Day			Weekly		
				Monthly		
11	12	13	14	15	16	17
				Weekly		
18	19	20	21	22	23	24
				Weekly		
25	26	27	28	29	30	31
				Weekly		

Ontario	Clean	Water	Agency
Agence	Ontari	enne l	Des Faux

Sampling Calendar Lindsay WWTP (1313) Works # 110000383

Imported sewage samples can be taken at any point in the month but all other samples must be collected on date indicated.

Weekly		
Raw – Grab	- pH, Temperature	
Raw - Comp	-BOD, TSS, TP, TKN, TAN	
Final – Comp	- CBOD5, TSS, TP, Total	
	(Ammonia+Ammonium) Nitrogen,	
	TKN, Nitrite, Nitrate, Nitrate+Nitrite	
Final – Grab	-E.Coli, pH, Temperature	
Final - Calculated	- Unionized Ammonia	

Monthly	
Lagoon Cell 5-	- TSS, CBOD, BOD, TSS, TKN, TAN, TP
Imported Sewage -	-BOD, TSS, TP, Total (Ammonia+
Abattoir (IndW)	Ammonium) /nitrogen, TKN
Imported Sewage -	- BOD, TSS, TP, Total (Ammonia+
Septage Receiving	Ammonium) /nitrogen, TKN
Station (InW2)	

Final – Grab	- Iron, Magnesium, Manganese, Potassium, Strontium, Bis (2-ethylhexyl) Phthalate, Benzene, Xylene, Phenols
Final – Comp	- Aluminum, Cobalt, Zinc, Copper, Boron, Lead, Toluene, ethyle-Benzene
Acute Lethality	Final - Grab Rainbow Trout & Magna daphnia – Aquatox Testing & Consulting Ltd.

<u>Annual</u>	
Biosolids - Grab	- Total Solids, Total Phosphorus, Total
Lagoon 4	Ammonia Nitrogen, Nitrate as Nitrogen,
	Metal Scan (Arsenic, Cadmium, Cobalt,
	Chromium, Copper, Lead, Mercury, Zinc, Molybdenum, Nickel, Potassium, Selenium

Operator Name:	Operator Signature:	Date:
(all collection and submission complete a	s per ECA, WSER, etc. plus any special requirements).
Sampler to initial on the date samples are taken and check off the appropriate sample box		

September 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2 Stat Holiday Labour Day	3	4	Weekly Monthly	6	7
8	9	10	11	12 Weekly	13	14
15	16	17	18	19 Weekly	20	21
22	23	24	25	26 Weekly	27	28
29	30 Stat Holiday T&R				Sample Collection Time Frames (Days) WSER Sampling Windows (CBOD, TSS, Acute Lethality)	Weekly >5 days since previous sample Monthly >10 days since previous sample Quarterly >60 days since previous

	Ontario	Clean	Water	r Ag	ency
=	Agence	Ontari	enne	Des	Eaux

Sampling Calendar Lindsay WWTP (1313) Works # 110000383

Imported sewage samples can be taken at any point in the month but all other samples must be collected on date indicated.

Weekly	
Raw – Grab	- pH, Temperature
Raw - Comp	-BOD, TSS, TP, TKN, TAN
Final – Comp	- CBOD5, TSS, TP, Total
	(Ammonia+Ammonium) Nitrogen,
	TKN, Nitrite, Nitrate, Nitrate+Nitrite
Final – Grab	-E.Coli, pH, Temperature
Final - Calculated	- Unionized Ammonia

<u>Monthly</u>	
Lagoon Cell 5-	- TSS, CBOD, BOD, TSS, TKN, TAN, TP
Imported Sewage -	-BOD, TSS, TP, Total (Ammonia+
Abattoir (IndW)	Ammonium) /nitrogen, TKN
Imported Sewage -	- BOD, TSS, TP, Total (Ammonia+
Septage Receiving	Ammonium) /nitrogen, TKN
Station (InW2)	

Quarterly Final – Grab	- Iron, Magnesium, Manganese, Potassium, Strontium, Bis (2-ethylhexyl) Phthalate, Benzene, Xylene, Phenols
Final – Comp	- Aluminum, Cobalt, Zinc, Copper, Boron, Lead, Toluene, ethyle-Benzene
Acute Lethality	Final - Grab Rainbow Trout & Magna daphnia – Aquatox Testing & Consulting Ltd.

<u>Annual</u>	
Biosolids - Grab	- Total Solids, Total Phosphorus, Total
Lagoon 4	Ammonia Nitrogen, Nitrate as Nitrogen,
	Metal Scan (Arsenic, Cadmium, Cobalt,
	Chromium, Copper, Lead, Mercury, Zinc, Molybdenum, Nickel, Potassium, Selenium

Operator Name:	Operator Signature:	Date:		
(all collection and submission complete as per ECA, WSER, etc. plus any special requirements).				
Sampler t	to initial on the date samples are taken and check off the app	propriate sample box		

October 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	Weekly Monthly Quarterly	4	5
6	7	8	9	10 Weekly	11	12
13	14 Stat Holiday Thanksgiving Day	15	16	17 Weekly	18	19
20	21	22	23	24 Weekly	25	26
27	28	29	30	31 Weekly	Sample Collection Time Frames (Days) WSER Sampling Windows (CBOD, TSS, Acute Lethality)	Weekly >5 days since previous sample Monthly >10 days since previous sample Quarterly >60 days since previous sample



Sampling Calendar Lindsay WWTP (1313) Works # 110000383

Imported sewage samples can be taken at any point in the month but all other samples must be collected on date indicated.

<u>Weekly</u>	
Raw – Grab	- pH, Temperature
Raw - Comp	-BOD, TSS, TP, TKN, TAN
Final – Comp	- CBOD5, TSS, TP, Total
	(Ammonia+Ammonium) Nitrogen,
	TKN, Nitrite, Nitrate, Nitrate+Nitrite
Final – Grab	-E.Coli, pH, Temperature
Final - Calculated	- Unionized Ammonia

<u>Monthly</u>	
Lagoon Cell 5-	- TSS, CBOD, BOD, TSS, TKN, TAN, TP
Imported Sewage -	-BOD, TSS, TP, Total (Ammonia+
Abattoir (IndW)	Ammonium) /nitrogen, TKN
Imported Sewage -	- BOD, TSS, TP, Total (Ammonia+
Septage Receiving	Ammonium) /nitrogen, TKN
Station (InW2)	

<u>Quarterly</u> Final – Grab	- Iron, Magnesium, Manganese, Potassium, Strontium, Bis (2-ethylhexyl) Phthalate, Benzene, Xylene, Phenols
Final – Comp	- Aluminum, Cobalt, Zinc, Copper, Boron, Lead, Toluene, ethyle-Benzene
Acute Lethality	Final - Grab Rainbow Trout & Magna daphnia – Aquatox Testing & Consulting Ltd.

Ailliuai	
Biosolids - Grab	- Total Solids, Total Phosphorus, Total
Lagoon 4	Ammonia Nitrogen, Nitrate as Nitrogen,
	Metal Scan (Arsenic, Cadmium, Cobalt,
	Chromium, Copper, Lead, Mercury, Zinc, Molybdenum, Nickel, Potassium, Selenium

Operator Name:	Operator Signature:	Date:	
(all collection and submission complete as per E	CA, WSER, etc. plus any special requiremen	ts).	
Sampler to initial on t	he date samples are taken and check off the	appropriate sample box	

November 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
Sample Collection Time Frames (Days)	Weekly >5 days since previous sample				1	2
WSER Sampling Windows (CBOD, TSS, Acute	Monthly >10 days since previous sample					
Lethality)	Quarterly >60 days since previous sample					
3	4	5	6	Weekly Monthly	8	9
10	11 Stat Holiday Remembrance Day	12	13	14 Weekly	15	16
17	18	19	20	21 Weekly	22	23
24	25	26	27	28 Weekly	29	30

 $\underline{S: Kawartha \setminus everyone \setminus DWQMS \setminus Facility\ Files \setminus Sampling \setminus 24samca \setminus Central\ Cluster \setminus 2024\ Lindsay\ WWTP\ Sampling\ Calendar\ Rev\ 0\ .docx$

	Ontario	Clean Water	Agency
\approx	Agence	Ontarienne l	Des Eaux

Sampling Calendar

Lindsay WWTP (1313) Works # 110000383

Imported sewage samples can be taken at any point in the month but all other samples must be collected on date indicated.

Weekly	
Raw – Grab	- pH, Temperature
Raw - Comp	-BOD, TSS, TP, TKN, TAN
Final – Comp	- CBOD5, TSS, TP, Total
	(Ammonia+Ammonium) Nitrogen,
	TKN, Nitrite, Nitrate, Nitrate+Nitrite
Final – Grab	-E.Coli, pH, Temperature
Final - Calculated	- Unionized Ammonia

at an other samples ma	st be conceive on date maleuted.
<u>Monthly</u>	
Lagoon Cell 5-	- TSS, CBOD, BOD, TSS, TKN, TAN, TP
Imported Sewage -	-BOD, TSS, TP, Total (Ammonia+
Abattoir (IndW)	Ammonium) /nitrogen, TKN
Imported Sewage -	- BOD, TSS, TP, Total (Ammonia+
Septage Receiving	Ammonium) /nitrogen, TKN
Station (InW2)	

Quarterly	
Final – Grab	 Iron, Magnesium, Manganese, Potassium, Strontium, Bis (2-ethylhexyl) Phthalate, Benzene, Xylene, Phenols
Final – Comp	- Aluminum, Cobalt, Zinc, Copper, Boron, Lead, Toluene, ethyle-Benzene
Acute Lethality	Final - Grab Rainbow Trout & Magna daphnia – Aquatox Testing & Consulting Ltd.

<u>Annual</u>	
Biosolids - Grab	- Total Solids, Total Phosphorus, Total
Lagoon 4	Ammonia Nitrogen, Nitrate as Nitrogen,
	Metal Scan (Arsenic, Cadmium, Cobalt,
	Chromium, Copper, Lead, Mercury, Zinc, Molybdenum, Nickel, Potassium, Selenium

Operator Name:	Operator Signature:	Date:			
(all collection and su	bmission complete as per ECA, WSER, etc. plus any special requirements).				
Sampler to initial on the date samples are taken and check off the appropriate sample box					

December 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	Weekly Monthly	6	7
8	9	10	11	12 Weekly	*Please review SGS's Holiday schedule prior to sampling	14
15	16	17	18 Weekly	19	20	21
22	23 Weekly	24	25 Stat Holiday Christmas Day	26 Stat Holiday Boxing Day	27	28
29	30 Weekly	31			Sample Collection Time Frames (Days) WSER Sampling Windows (CBOD, TSS, Acute Lethality)	Weekly >5 days since previous sample Monthly >10 days since previous sample Quarterly >60 days since previous sample



Appendix III: WMS Work Order Summary

Work Order	Description					
1465033	DEFERRED 1313, North Leachate SPS, Pump and Gate Valve Replacement					
3108754	DEFERRED,1313, Lindsay WWT, ESA Inspection Defects Flexible Cords, Repair/Removal					
3245148	1313, Wellington SPS, Pump Replacement					
3288623	1313, Lindsay WWT, Actiflo Pump Train 2, Replacement					
3383410	1313, Lindsay St. North Leachate SPS, Pump 2, Pump Fault, Overload					
3385543	1313, Rivera Park SPS, Meter Flow FIT 101, No Output to HMI, Repair					
3385936	1313, Lindsay WWTP, Injection Mixer Gearbox, Actiflo Train 1, Repair					
3386809	1313, Lindsay WWTP, Clarifier Alum Pump Issue, Troubleshooting					
3431502	1313, Lindsay WWT, Actiflo Room and Inlet Building Emergency Light Repair					
3431551	1313, Ridout SPS, Fixed Gas Monitor, Installation					
3431552	1313, Lindsay St. North SPS, Fixed Gas Monitors					
3483616	1313, Lindsay WWT, SPS Hardware					
3522702	1313, Mary SPS, Pump 1, Check Valve, Replace					
3525479	1313, Lindsay WWT, Polymer System, Water Leak					
3622369	1313, Lindsay WWT, ESA Inspection Defects, Repairs					
3571724	1313, Lindsay WWT, Landscaping Cleanup					
3573049	1313, Logie SPS, Impeller, Replacement					
3575889	1313, Lindsay St North Leachate SPS, Pump Submersible 1, Rebuild for Spare					
3620932	1313, Lindsay WWT, Blower For Confined Space Ventilation, Purchase					
3624710	1313, Rivera Park SPS, Pump 3, Guide Rail, Repair					
3661429	1313, Lindsay WWT, Polymer Pump Poer Failure, Investigate/repair					
3661498	1313, Lindsay WWT, Facility, Comcor Main Disconnect Tripped, Reset					
3661912	1313, Lindsay WWT, Polymer System, Feed Water, PRV, Replace					
3664530	1313, Lindsay WWT, Lagoon Berm Grass, Cutting					
3664562	1313, Lindsay WWT, Spider Pest Control,					
3664578	1313, Riverview SPS, Road Improvement					
3664689	1313, Lindsay WWT, Clarifier 1 (North), Cleaning by Contractor					
3664972	1313, Lindsay WWT, Site Pole Lights, Repair					
3665499	1313, Ridout SPS, Pump 1, Fault, Repair/Trouble Shoot					
3704070	1313, Lindsay WWT, Composite Sampler, Final Effluent, Replace Tubing on Peristaltic Pump					
3705234	1313, Rivera Park SPS, Submersible Pump 3 RSP-103, Vibration Fault, Repair					
3705351	1313, Rivera Park SPS, Pump 3 Failure, Investigate/Repair					
3705780	1313, Lindsay WWT, Aeration Tank 1 & 2, Anoxic Zone, Surface Cleaning					
3706153	1313, Lindsay WWT, Valve Backflow Preventer DCVA, Repair					
3706155	1313, Lindsay WWT, Valve Backflow Preventer DCVA Tertiary Actiflow , Repair					
3706156	1313, Lindsay WWT, Valve Backflow Preventer DCVA Tertiary Actiflow , Repair					
3706162	1313, Lindsay WWT, Valve, Backflow, Tertiary, Basement Supply, Repair					
3706167	1313, Lindsay WWT, Valve, Backflow, Lab Water Supply, Repair					
3706172	1313, Lindsay WWT, Valve, Backflow, Replace					
3706504	1313, Lindsay WWT, HACH SD900 Sample Tubing, Replacement					
3707349	1313, Lindsay WWT, Inspect FEP101 VFD Display, Investigate					



Appendix IV: Calibration Reports

OCWA Kawartha Lindsay WWTP

2023 Flow Calibrations



LINDSWW Report No.:

> Dec. 13, 2023 Date:

FIT-501

Lindsay WWTP

PROCESS AREA: Actiflo 1 **INSTR. TAG:** FIT-501 MANUFACTURER: Krohne

MODEL: IFC 090 SERVICE DATE: Dec. 13, 2023

TECHNICIAN: M Manley

JOB REFERENCE: LINDSWW 23

SERIAL No.:	A98 18896
INSTR. RANGE:	0000423853

Input	(Test)		Output	(Signal)	(Process)	
Type:	GS 8 (X val)		Type or EGU:	mA	1/s	m3/day
Min:	0.00		Min:	4.00	0.00	
Max:	2.15		Max:	20.00	373.30	32250.00
DN (mm):	450	18				
GK=1 GKL=2	1			coil	118.3	ohms
GK:	3.589			open to ground		
Constant:	4177.44		Before Ca	alibration	After C	alibration
Input (Y pos)	Knob Setting	Calc. O/P (mA)	Output (mA)	%Error	Output (mA)	%Error
0.00	0	4.00	4.00	0.00%	4.00	0.00%
0.50	A	7.73	7.76	0.39%	7.76	0.39%
1.00	В	11.46	11.44	-0.17%	11.44	-0.17%
2.00	С	18.91	18.90	-0.05%	18.90	-0.05%

Calibration Equipment				
Type:	DMM	Simulator		
Manufacturer:	Fluke	Krohne		
2018 Flow Calibrat	Model 87	GS 8B		
Serial No.:	13440128	U1127700020705		
Last Cal. Date:	Feb. 17, 2023	Mar. 27, 2023		

Comments:

Total 40.554 E6m3

AS FOUND: PASS **AS LEFT:** PASS Materulale



LINDSWW Report No.:

> Dec. 13, 2023 Date:

FIT-502

Lindsay WWTP

PROCESS AREA: Actiflo 2 **INSTR. TAG:** FIT-502 MANUFACTURER: Krohne

MODEL: IFC 090 A98 18895 SERIAL No.: **INSTR. RANGE:** 0000423852 SERVICE DATE: Dec. 13, 2023

TECHNICIAN: M Manley

JOB REFERENCE: LINDSWW 23

Input	(Test)		Output	(Signal)	(Process)	
Type:	GS 8 (X val)		Type or EGU:	mA	1/s	m3/day
Min:	0.00		Min:	4.00	0.00	
Max:	2.17		Max:	20.00	373.30	32250.00
DN (mm):	450	18				
GK=1 GKL=2	1			coil	118.0) ohms
GK:	3.548			open to ground		
Constant:	4177.44		Before C	alibration	After C	Calibration
Input (Y pos)	Knob Setting	Calc. O/P (mA)	Output (mA)	%Error	Output (mA)	%Error
0.00	0	4.00	4.00	0.00%	4.00	0.00%
0.50	A	7.69	7.69	0.00%	7.69	0.00%
1.00	В	11.37	11.33	-0.35%	11.33	-0.35%
2.00	С	18.74	18.68	-0.32%	18.68	-0.32%

Calibration Equipment				
Type:	DMM	Simulator		
Manufacturer:	Fluke	Krohne		
2018 Flow Calibrat	Model 87	GS 8B		
Serial No.:	13440128	U1127700020705		
Last Cal. Date:	Feb. 17, 2023	Mar. 27, 2023		

Comments:

41.871 E6 m3

AS FOUND: PASS **AS LEFT:** PASS Whate World



LINDSWW Report No.:

FIT-101

Date:

Dec. 13, 2023

Lindsay WWTP PROCESS AREA: Middle Leachate

FIT-101

MANUFACTURER: Krohne MODEL: IFC 090

A03 29326 SERIAL No.: INSTR. RANGE: 0000423619

Dec. 13, 2023 **SERVICE DATE:**

TECHNICIAN:

M Manley

JOB REFERENCE: LINDSWW 23

Input	(Test)		Output	(Signal)	(Process)	
Type:	GS 8 (X val)		Type or EGU:	mA	1/s	
Min:	0.00		Min:	4.00	0.00	
Max:	6.67		Max:	20.00	25.00	
DN (mm):	80	3 inch				
GK=1 GKL=2	1			coil	62.0	ohms
GK:	2.445			open to ground		
Constant:	4177.44		Before C	alibration	After Ca	libration
Input (Y pos)	Knob Setting	Calc. O/P (mA)	Output (mA)	%Error	Output (mA)	%Error
0.00	0	4.00	4.00	0.00%	4.00	0.00%
0.50	A	5.20	5.20	0.00%	5.20	0.00%
1.00	В	6.40	6.39	-0.16%	6.39	-0.16%
2.00	С	8.79	8.77	-0.23%	8.77	-0.23%
5.00	D	15.99	15.96	-0.19%	15.96	-0.19%

	Calibration Equipment				
Type:	DMM	Simulator			
Manufacturer:	Fluke	Krohne			
2018 Flow Calibrat	Model 87	GS 8B			
Serial No.:	13440128	U1127700020705			
Last Cal. Date:	Feb. 17, 2023	Mar. 27, 2023			

Comments: In Panel outside, fuse marked on instrument. (CB#8 3rd from right) (mA input 2 on RCI 800)

White Wale

226680m3

AS FOUND: PASS **AS LEFT:** PASS



LINDSWW Report No.:

> Dec. 13, 2023 Date:

FIT-201

Lindsay WWTP PROCESS AREA: South Leachate

FIT-201

MANUFACTURER: Krohne **MODEL:** IFC100

S15302427 SERIAL No.: INSTR. RANGE: 0000423730 SERVICE DATE: Dec. 13, 2023

TECHNICIAN: M Manley

JOB REFERENCE: LINDSWW 23

Input	(Test)		Output	(Signal)	(Process)	
Type:	GS 8 (X val)		Type or EGU:	mA	1/s	
Min:	0.00		Min:	4.00	0.00	
Max:	2.74		Max:	20.00	10.00	
DN (mm):	80	3 inch				
GK=1 GKL=2	2			coil	61.8	ohms
GK:	4.757			open to ground	open	
Constant:	4177.44		Before C	alibration	After Ca	llibration
Input (Y pos)	Knob Setting	Calc. O/P (mA)	Output (mA)	%Error	Output (mA)	%Error
0.00	0	4.00	4.00	0.00%	4.00	-0.25%
0.50	A	6.92	6.91	-0.14%	6.91	-0.14%
1.00	В	9.83	9.84	0.10%	9.84	0.10%
2.00	С	15.66	15.68	0.13%	15.68	0.13%
5.00	D	33.15				
10.00	Е	62.31				

Calibration Equipment				
Type:	DMM	Simulator		
Manufacturer:	Fluke	Krohne		
2018 Flow Calibrat	Model 87	GS 8B		
Serial No.:	13440128	U1127700020705		
Last Cal. Date:	Feb. 17, 2023	Mar. 27, 2023		

Comments: Total AF 130559 m3

> S78 123S SWB SRWS

AS FOUND: PASS **AS LEFT:** PASS Whate World



Report No.: LINDSWW

Date: Dec. 13, 2023

FIT-203

SITE: Lindsay WWTP

PROCESS AREA: North / Middle Leachate

INSTR. TAG: FIT-203
MANUFACTURER: Krohne
MODEL: IFC 090
SERIAL No.: A03 21903

INSTR. RANGE: 0000422119

SERVICE DATE: Dec. 13, 2023

TECHNICIAN:

M Manley

JOB REFERENCE: LINDSWW 23

Input	(Test)		Output	(Signal)	(Process)	
Type:	GS 8 (X val)		Type or EGU:	mA	1/s	
Min:	0.00		Min:	4.00	0.00	
Max:	15.22		Max:	20.00	90.00	
DN (mm):	100	4				
GK=1 GKL=2	1			coil	103	ohms
GK:	2.470			open to ground		
Constant:	4177.44		Before Ca	Before Calibration After Calibration		
Input (Y pos)	Knob Setting	Calc. O/P (mA)	Output (mA)	%Error	Output (mA)	%Error
0.00	0	4.00	4.00	0.00%	4.00	0.00%
0.50	A	4.53	4.49	-0.88%	4.49	-0.88%
1.00	В	5.05	5.01	-0.79%	5.01	-0.79%
2.00		6.10	6.08	-0.33%	6.08	-0.33%
2.00	C	0.10	0.06	-0.5570	0.00	0.007.0
5.00	D	9.26	9.20	-0.65%	9.20	-0.65%
5.00	D	9.26	9.20	-0.65%	9.20	-0.65%

Calibration Equipment				
Type:	DMM	Simulator		
Manufacturer:	Fluke	Krohne		
2018 Flow Calibrat	Model 87	GS 8B		
Serial No.:	13440128	U1127700020705		
Last Cal. Date:	Feb. 17, 2023	Mar. 27, 2023		

Comments: Total AF 351035 m3

Display cycles 2Xper second and pushbuttons not working. Noisy signal, somewhat erratic, Consider replacement.

Whate World

AS FOUND: PASS **AS LEFT:** PASS



Output

Type or EGU:

Min:

Max:

(Signal)

mΑ

4.00

20.00

Report No.: LINDSWW

23 FIT-202

Date: Dec. 13, 2023

SITE: Lindsay WW

PROCESS AREA: Reject INSTR. TAG: FIT-202

MANUFACTURER: Greyline Transit Time

MODEL: TTFM 1.0 SERIAL No.: 53787 Type: 0000423880

SERVICE DATE: D

Dec. 13, 2023

TECHNICIAN:

(Process)

m3/day

0

25920.000

M Manley

m3/hr

0 1080

JOB REFERENCE: LINDSWW 23

Input	(Test)
Type:	Simulation
Min:	0
Max:	25920

Pipe OD:	12.75					
Sensor Spacing:	4.5 inch	1 Pass				
Material:	Stainless Steel		Before Ca	alibration	After Ca	alibration
Input	Input %	Calc. m3/day	Output	%Error	Output	%Error
0			0		0	
1400		1400	1350	-3.57%	1350	-3.57%
Simulation	Input %	Calc. mA	Output	%Error	Output	%Error

	Calibration Equipment					
Type:	DMM	Clamp-on Transit time Flowmeter				
Manufacturer:	Fluke	Siemens				
2018 Flow Calibrat	Model 87	FUP1010				
Serial No.:	13440128	Service				
Last Cal. Date:	Feb. 17, 2023					

Comments: Unit was not functional upon arrival, added couplant unit started working.

White Wale

Unsteady flow but seemed to compare with our clamp flowmeter, flow surged from 200 - 1400 m3/d

Adjusted correction factor 1.00

AS FOUND: PASS **AS LEFT:** PASS



LINDSWW Report No.:

> Dec. 8, 2023 Date:

FIT-101

Lindsay WWTP

PROCESS AREA: Ridout SPS FIT-101

INSTR. TAG: MANUFACTURER: Krohne

MODEL: IFC 020D

A0246587 SERIAL No.: INSTR. RANGE: 0000422553

Dec. 8, 2023 **SERVICE DATE:**

TECHNICIAN: M Manley

JOB REFERENCE: LINDSWW 23

3/day
nms
oration
%Error
0.00%
-0.98%
-1.13%
-1.07%
-0.94%

Calibration Equipment				
Type:	DMM	Simulator		
Manufacturer:	Fluke	Krohne		
2018 Flow Calibrat	Model 87	GS 8B		
Serial No.:	13440128	U1127700020705		
Last Cal. Date:	Feb. 17, 2023	Mar. 27, 2023		

Comments: Total 449617.3

> **AS FOUND:** PASS **AS LEFT:** PASS Matermale



Report No.: LINDSWW

SWW FIT-W SPS

Date: Dec. 8, 2023

SITE: Lindsay WW Wellington SPS

PROCESS AREA: Wellington SPS
INSTR. TAG: FIT-W SPS
MANUFACTURER: Greyline Doppler

MODEL: DFM-IV SERIAL No.: 20450

Type: 0000422219

SERVICE DATE:

Dec. 8, 2023

TECHNICIAN:

M Manley

JOB REFERENCE: LINDSWW 23

Input	(Test)	Output	(Signal)	(Process)	
Type:	Simulation	Type or EGU:	mA	m3/s	m3/day
Min:	0.00	Min:	4.00	0	0
Max:	0.024	Max:	20.00	0.024	2074
Pipe ID:	3.96				

Material:	Cast Iron		Before C	alibration	After Ca	alibration
Input	Input %	Calc. m3/day	Output	%Error	Output	%Error
Simulation	Input %	Calc. mA	Output	%Error	Output	%Error
0.000	0.00%	4.00	4.00		4.00	
0.006	25.00%	8.00	8.00		8.00	
0.120	50.00%	12.00	12.00		12.00	
0.018	75.00%	16.00	15.99		15.99	
0.024	100.00%	20.00	20.00		20.00	

Calibration Equipment				
Type:	DMM			
Manufacturer:	Fluke			
2018 Flow Calibrat	Model 87			
Serial No.:	13440128			
Last Cal. Date:	Feb. 17, 2023			

Comments: 2019 Tested pump 2, ran at 0.009 m3/sec

2020 Tested Pump 2, ran at 0.01 m3/sec 2021 Tested Pump 1, ran at 0.010 m3/s 2022 Tested Pump 1, ran at 0.009 m3/s 2023 P1 (new pump), ran at 0.012m3/s

Functional test and mA output check only. This meter was not compared to any reference.

White Warley

AS FOUND: PASS **AS LEFT:** PASS



Report No.: LINDSWW

232 FIT 101

Dec. 13, 2023 Date:

Lindsay WWTP SITE:

PROCESS AREA: Logie St 232 FIT 101 TAG:

MANUFACTURER: Krohne MODEL: IFC 300

S0825543 CG30011100 SERIAL No.:

INSTR. RANGE: 0000421415

SERVICE DATE: Dec. 13, 2023

TECHNICIAN:

M Manley

JOB REFERENCE: LINDSWW 23

Input	(Test)		Output	(Signal)	(Process)	
Type:	GS 8 (X val)		Type or EGU:	mA	1/s	
Min:	0.00		Min:	4.00	0.00	
Max:	3.22		Max:	20.00	200.00	
DN (mm):	250	10 inch				
GK=1 GKL=2	2			coil		
GK:	8.304			open to ground		
Constant:	4177.44		Before C	alibration	After Ca	llibration
Input (Y pos)	Knob Setting	Calc. O/P (l/s)	Output (mA)	%Error	Output (mA)	%Error
0.00	0	4.00	4.00	0.00%	4.00	0.00%
0.50	A	6.48	6.47	-0.15%	6.47	-0.15%
1.00	В	8.97	8.92	-0.56%	8.92	-0.56%
2.00	С	13.94	13.86	-0.57%	13.86	-0.57%

	Calibration Equipment					
Type:	DMM	Simulator				
Manufacturer:	Fluke	Krohne				
2018 Flow Calibrat	Model 87	GS 8B				
Serial No.:	13440128	U1127700020705				
Last Cal. Date:	Feb. 17, 2023	Mar. 27, 2023				

Comments:

AS FOUND: PASS **AS LEFT:** PASS Whate World



LINDSWW Report No.:

> Dec. 8, 2023 Date:

FIT-Fair

Lindsay WW Fairgrounds

PROCESS AREA: Fairgrouds SPS

INSTR. TAG: FIT-Fair

MANUFACTURER: Greyline Doppler

MODEL: DFM-IV 19456 SERIAL No.: Type:

0000421388

SERVICE DATE:

Dec. 8, 2023

TECHNICIAN: M Manley

JOB REFERENCE: LINDSWW 23

Input	(Test)		Output	(Signal)	(Process)	
Type:	Simulation		Type or EGU:	mA	m3/s	m3/day
Min:	0.00		Min:	4.00	0	0
Max:			Max:	20.00	0.056	4838
		programmed				

5.1 Pipe ID:

Material: plastic		Before Calibration		After C	alibration	
Input	Input %	Calc. m3/s	Output	%Error	Output	%Error
0	0.00%	0	0	0.00%	0	0.00%
22.7	1/s	0.023	0.023	1.32%	0.023	1.32%

	Calibration Equipment						
Type:	DMM	Clamp-on Transit time Flowmeter					
Manufacturer:	Fluke	Siemens					
2018 Flow Calibrat	Model 87	FUP1010					
Serial No.:	13440128	Service					
Last Cal. Date:	Feb. 17, 2023						

Comments: Verified with clamp on flowmeter, ALC 81, 1490 fps

AS FOUND: PASS **AS LEFT:** PASS Whate Monles



 Report No.:
 FIT-101

 Date:
 0-Jan-00

SITE: Lindsay WW Riverview SPS

PROCESS AREA: Riverview SPS

INSTR. TAG: FIT-101

MANUFACTURER: Greyline Doppler

MODEL: DFM V5.1 SERIAL No.: 63248

Type: 0000421427

SERVICE DATE:

TECHNICIAN:

JOB REFERENCE:

Input	(Test)		Output	(Signal)	(Process)
Type:	Comparison		Type or EGU:	mA	m3/day
Min:	0.00		Min:	4.00	0
Max:	actual flow		Max:	20.00	3295
Pipe ID:	4.26				
Cal:	1.06000				
			Before Ca	alibration	After Ca
Input	Input %	Calc. O/P	Output	%Error	Output

			Deloie C	andianon	Aitti Ca	norunon
Input	Input %	Calc. O/P	Output	%Error	Output	%Error

	Calibration Equipment						
Type:	DMM	Clamp-on Transit time Flowmeter					
Manufacturer:	Fluke	Siemens					
2018 Flow Calibrat	Model 87	FUP1010					
Serial No.:	13440128	Service					
Last Cal. Date:							

Comments: Not Functional, transducers not accessable.

AS FOUND: AS LEFT:



 Report No.:
 FIT-102

 Date:
 0-Jan-00

SITE: Lindsay WW Riverview SPS

PROCESS AREA: Riverview SPS

INSTR. TAG: FIT-102

MANUFACTURER: Greyline Doppler

MODEL: DFM V5.1

SERIAL No.: 62244 Type: 0000421428 **SERVICE DATE:**

TECHNICIAN:

JOB REFERENCE:

Input	(Test)		Output	(Signal)	(Process)	
Type:	Comparison		Type or EGU:	mA	m3/day	
Min:	0.00		Min:	4.00	0	
Max:	actual flow		Max:	20.00	2905	
Pipe ID:	4.26					
Cal:	0.838					
			Before Ca	alibration	After Ca	llibration
Input	Input %	Calc. O/P	Output	%Error	Output	%Error
Input	Input %	Calc. O/P	Output	%Error	Output	%Error
Input	Input %	Calc. O/P	Output	%Error	Output	%Error
Input	Input %	Calc. O/P	Output	%Error	Output	%Error
Input	Input %	Calc. O/P	Output	%Error	Output	%Error

	Calibration Equipment						
Type:	DMM	Clamp-on Transit time Flowmeter					
Manufacturer:	Fluke	Siemens					
2018 Flow Calibrat	Model 87	FUP1010					
Serial No.:	13440128	Service					
Last Cal. Date:							

Comments: Not Functional, transducers not accessable.

AS FOUND: AS LEFT:



Report No.: LINDSWW

Date: Dec. 8, 2023

FIT 1

SITE: Mary St SPS

PROCESS AREA: Pump 1
INSTR. TAG FIT 1

MANUFACTURER: Krohne MODEL: IFC100

SERIAL No.: S17315264 OCWA Code. 0000423609 SERVICE DATE:

Dec. 8, 2023

TECHNICIAN:

M Manley

JOB REFERENCE: LINDSWW 23

Input	(Test)		Output	(Signal)	(Process)	
Type:	GS 8 (X val)		Type or EGU:	mA	1/s	
Min:	0.00		Min:	4.00	0.00	
Max:	3.69		Max:	20.00	25.00	
DN (mm):	100	4 inch				
GK=1 GKL=2	2			coil	104.6 ohms	
GK:	5.657			to ground	34M ohms	
Constant:	4177.44		Before C	alibration	After Ca	llibration
Input (Y pos)	Knob Setting	Calc. O/P (l/s)	Output (mA)	%Error	Output (mA)	%Error
0.00	0	4.00	3.99	-0.25%	3.99	0.00%
0.50	A	6.17	6.11	-0.97%	6.11	-0.97%
1.00	В	8.33	8.26	-0.84%	8.26	-0.84%
2.00	С	12.67	12.59	-0.63%	12.59	-0.63%
5.00	D	25.67				
10.00	Е	47.33				

	Calibration Equipment					
Type:	DMM	Simulator				
Manufacturer:	Fluke	Krohne				
2018 Flow Calibrat	Model 87	GS 8B				
Serial No.:	13440128	U1127700020705				
Last Cal. Date:	Feb. 17, 2023	Mar. 27, 2023				

Comments: SRB SRWS

34M ohms to ground. These meters have had moisture in the junction boxes. Recommend dry them out in the summer and fill them with potting compound.

AS FOUND: PASS **AS LEFT:** PASS

Whate Warle



Report No.: LINDSWW

Date: Dec. 8, 2023

FIT 2

SITE: Mary St SPS

PROCESS AREA: Pump 2
INSTR. TAG FIT 2

MANUFACTURER: Krohne MODEL: IFC100

SERIAL No.: S17315262 OCWA Code. 0000423611 SERVICE DATE: Dec.

Dec. 8, 2023

TECHNICIAN:

M Manley

JOB REFERENCE: LINDSWW 23

Input	(Test)		Output	(Signal)	(Process)	
Type:	GS 8 (X val)		Type or EGU:	mA	1/s	
Min:	0.00		Min:	4.00	0.00	
Max:	3.73		Max:	20.00	25.00	
DN (mm):	100	4 inch				
GK=1 GKL=2	2			coil	102.9 ohms	
GK:	5.595			to ground	13M ohms	
Constant:	4177.44		Before Calibration		After Calibration	
Input (Y pos)	Knob Setting	Calc. O/P (l/s)	Output (mA)	%Error	Output (mA)	%Error
0.00	0	4.00	3.99	-0.25%	3.99	0.00%
0.50	A	6.14	6.12	-0.33%	6.12	-0.33%
1.00	В	8.29	8.26	-0.36%	8.26	-0.36%
2.00	С	12.57	12.55	-0.16%	12.55	-0.16%
5.00	D	25.43				
10.00	Е	46.86				

Calibration Equipment					
Type:	DMM	Simulator			
Manufacturer:	Fluke	Krohne			
2018 Flow Calibrat	Model 87	GS 8B			
Serial No.:	13440128	U1127700020705			
Last Cal. Date:	Feb. 17, 2023	Mar. 27, 2023			

Comments: SRB SRWS

13 M ohms to ground. These meters have had moisture in the junction boxes. Recommend dry them out in the summer and fill them with potting compound.

AS FOUND: PASS **AS LEFT:** PASS

Whate Warle



LINDSWW Report No.:

FIT 101

Dec. 8, 2023 Date:

Rivera SPS PROCESS AREA: FIT 101 INSTR. TAG FIT 101

MANUFACTURER: Siemens

MODEL: Model 6000 Industry

333901H188 SERIAL No.:

SERVICE DATE: Dec. 8, 2023

TECHNICIAN:

M Manley

JOB REFERENCE: LINDSWW 23

Input	(Test)		Output	(Signal)	(Process)	
Type:	Simulation		Type or EGU:	SCADA	1/s	
Min:	0%		Min:	0.00	0.00	
Max:	100%		Max:	400.00	400.00	
DN (mm):	450	18 inch				
LF Cutoff	1.50%			coil		
Empty Pipe	ON			open to ground		
Cal Factor:	169.7953		Before Calibration After Calibration			libration
Simulation	mA	O/P (l/s)	Scada (l/s)	%Error	Scada (l/s)	%Error
0.00	4.00	0.0	0.0	0.00%	0.0	0.00%
100.00	8.00	100.0				
200.00	12.00	200.0	200.1	0.05%	200.1	0.05%
300.00	16.00	300.0				
400.00	20.00	400.0	399.9	-0.02%	399.9	-0.02%

Calibration Equipment					
Type:	DMM				
Manufacturer:	Fluke				
2018 Flow Calibrat	Model 87				
Serial No.:	13440128				
Last Cal. Date:	Feb. 17, 2023				

Comments: Checked Signal suitability +9

> **AS FOUND:** PASS **AS LEFT:** PASS Whate World



LINDSWW Report No.:

Date:

FIT 201

Dec. 8, 2023

Rivera SPS PROCESS AREA: FIT 201 INSTR. TAG FIT 201

TECHNICIAN:

SERVICE DATE:

M Manley

Dec. 8, 2023

MANUFACTURER: Siemens MODEL:

Model 6000 Industry

333801H188 SERIAL No.:

JOB REFERENCE: LINDSWW 23

Input	(Test)		Output	(Signal)	(Process)	
Type:	Simulation		Type or EGU:	SCADA	1/s	
Min:	0%		Min:	0.00	0.00	
Max:	100%		Max:	400.00	400.00	
DN (mm):	450	18 inch				
LF Cutoff	1.50%					
Empty Pipe	ON					
Cal Factor:	171.2212		Before Calibration After Calibratio		libration	
Simulation	mA	O/P (l/s)	Scada (l/s)	%Error	Scada (l/s)	%Error
0.00	4.00	0.0	0.0	0.00%	0.0	0.00%
100.00	8.00	100.0				
200.00	12.00	200.0	200.4	0.20%	200.4	0.20%
300.00	16.00	300.0				
400.00	20.00	400.0	399.9	-0.02%	399.9	-0.02%

Calibration Equipment					
Type:	DMM				
Manufacturer:	Fluke				
2018 Flow Calibrat	Model 87				
Serial No.:	13440128				
Last Cal. Date:	Feb. 17, 2023				

Comments: Checked Signal suitability +9

> **AS FOUND:** PASS **AS LEFT:** PASS Whate World



Plant operator: OCWA

Device information				
Location	Lindsay WWTP	Heartbea		
Device tag	FIT421	Technolo		
Module name	K323-00	•		
Nominal diameter	DN150 / 6"			
Device name	Promag 400			
Order code	5W4C1F-1H9E4/0			
Serial number	SA25B919000			
Firmware version	02.01.01			
Calibration				
Calibration factor	1.1313			
Zero point	1.0			
Verification information Operating time (counter)	414d19h48m50s			
Date/time (manually recorded)	 13.12.23 09:52			
`				
	Standard verification			
Overall verification result* Passed	Details see next page			
*Result of the complete device functionality test via Heartbeat Tech	nology			
Confirmation				
Heartbeat Verification verifies the function of the flowr total test coverage > 94 %, and complies with the requi (attested by TÜV-SÜD Industrieservices GmbH)				

Date Operator's signature Inspector's signature



Plant operator: OCWA

Device identification and verification identification Serial number SA25B919000 Device tag FIT421 Verification ID 9



Sensor	√ Passed
Shot time symmetry	✓ Passed
Hold voltage symmetry	
Coil current loss	✓ Passed
Coil current stability	√ Passed
Coil resistance	▼ Passed
E1 electrode cable	✓ Passed
E2 electrode cable	✓ Passed
EPD electrode cable	▼ Passed
Sensor electronic module (ISEM)	✓ Passed
Supply voltage	✓ Passed
Internal voltages	✓ Passed
Linearity and reference voltage	▼ Passed
Offset of electrode measuring circuit	✓ Passed
Hold voltage feedback	✓ Passed
Shot voltage feedback	✓ Passed
Electronic current loss	✓ Passed
Coil circuit measurement	✓ Passed
Shot control circuit	✓ Passed
Electrode signal integrity	✓ Passed
System status	✓ Passed
I/O module	✓ Passed
Input/output 1	✓ Passed
Input/output 2	? Not done
Input/output 3	? Not done



Plant operator: OCWA

Device identification and verification identification

Serial number	SA25B919000
Device tag	FIT421
Verification ID	9



Test item with value	Unit	Actual	Min.	Max.	Visualization
Sensor					
Shot time symmetry deviation		1.0007	0.9000	1.1000	
Hold voltage symmetry deviation		1.0000	0.9000	1.1000	
Coil current loss deviation	%	0.0000	-10.0000	10.0000	
Coil current offset	%	-0.008123	-0.1000	0.1000	
Coil current deviation	%	-0.008123	-0.1000	0.1000	
Coil resistance value	Ohm	67.9	50.0	240.0	■00000000
E1 electrode impedance	Ohm	434.29			
E2 electrode impedance	Ohm	430.86			
EPD electrode impedance	Ohm	431.78			
E1/E2 electrode impedance on E1	Ohm	439.23			
E1/E2 electrode impedance on E2	Ohm	435.99			
Sensor electronic module (ISEM)					
Supply voltage 30.0V	V	31.19	27.000	35.000	0000=00000
Linearity and reference voltage 1		0.9995	0.9900	1.0100	
Linearity and reference voltage 2		0.9995	0.9900	1.0100	
Measuring point offset		2.3826	-100.0000	100.0000	
Hold voltage feedback value	%	2.09	-10.0	10.0	
Shot voltage feedback value	%	-0.45	-20.0	20.0	
Electronic current loss deviation	%	-0.34	-10.0000	10.0000	
Coil circuit value	%	0.00	-1.0	1.0	
Shot control circuit value	%	-0.18	-10.0	10.0	□□□□■□□□□□
Electrode signal integrity deviation	%	1.54	-40.0	40.0	0000 = 00000



People for Process Automation

Test item with value	Unit	Actual	Min.	Max.	Visualization
I/O module					
Output 1 value 1	mA	4.0374	3.8600	4.1400	
Output 1 value 2		0.0000	0.0000	0.0000	000000000
Output 2 value 1		0.0000	0.0000	0.0000	000000000
Output 3 value 1		0.0000	0.0000	0.0000	0000000000



Plant operator: OCWA

Device identification and verification identification Serial number SA25B919000 Device tag FIT421 Verification ID 9



Test item with value	Unit	Actual
Process conditions		
Volume flow value verification	m³/d	0.0000
Conductivity value verification	μS/cm	-nan
Electronic temperature	°C	31.4
Current difference potential	V	0.08061
Current potential electrode 1	V	0.001390
Current potential electrode 2	V	-0.07719
Current potential electrode Pipe GND	V	0.003487



Plant operator: OCWA

Device information		
Location	Lindsay WW	+leartbea
Device tag	FIT401	Technolo
Module name	K323-00	•
Nominal diameter	DN450 / 18"	
Device name	Promag 400	
Order code	5W4C4F-7MD6/0	
Serial number	SC22A719000	
Firmware version	02.01.01	
Calibration		
Calibration factor	1.1386	
zero point	-13.0	
Date/time (manually recorded) Verification ID	13.12.23 09:37 	
verification ID 	26 	
Overall verification result*		
▼ Passed	Details see next page	
*Result of the complete device functionality test via Heartbeat Te	echnology	
Confirmation		
	wmeter within the specified measuring tolerance, over quirements for traceable verification according to DIN E	
Notes		

Date Operator's signature Inspector's signature



Plant operator: OCWA

Device identification and verification identification Serial number SC22A719000 Device tag FIT401 Verification ID 26



Sensor	✓ Passed
Shot time symmetry	✓ Passed
Hold voltage symmetry	✓ Passed
Coil current loss	✓ Passed
Coil current stability	▼ Passed
Coil resistance	▼ Passed
E1 electrode cable	✓ Passed
E2 electrode cable	▼ Passed
EPD electrode cable	✓ Passed
Sensor electronic module (ISEM)	✓ Passed
Supply voltage	✓ Passed
Internal voltages	✓ Passed
Linearity and reference voltage	▼ Passed
Offset of electrode measuring circuit	▼ Passed
Hold voltage feedback	▼ Passed
Shot voltage feedback	▼ Passed
Electronic current loss	✓ Passed
Coil circuit measurement	▼ Passed
Shot control circuit	▼ Passed
Electrode signal integrity	▼ Passed
System status	✓ Passed
I/O module	✓ Passed
Input/output 1	✓ Passed
Input/output 2	? Not done
Input/output 3	? Not done



Plant operator: OCWA

Device identification and verification identification

Serial number	SC22A719000
Device tag	FIT401
Verification ID	26



Test item with value	Unit	Actual	Min.	Max.	Visualization
Sensor					
Shot time symmetry deviation		1.0003	0.9000	1.1000	0000=00000
Hold voltage symmetry deviation		1.0000	0.9000	1.1000	
Coil current loss deviation	%	0.06979	-10.0000	10.0000	
Coil current offset	%	0.0000	-0.1000	0.1000	0000 8 00000
Coil current deviation	%	-0.008123	-0.1000	0.1000	
Coil resistance value	Ohm	134.9	50.0	240.0	
E1 electrode impedance	Ohm	529.61			
E2 electrode impedance	Ohm	461.82			
EPD electrode impedance	Ohm	427.44			
E1/E2 electrode impedance on E1	Ohm	514.91			
E1/E2 electrode impedance on E2	Ohm	450.60			
Sensor electronic module (ISEM)					
Supply voltage 30.0V	V	31.15	27.000	35.000	0000800000
Linearity and reference voltage 1		0.9994	0.9900	1.0100	
Linearity and reference voltage 2		0.9995	0.9900	1.0100	
Measuring point offset		3.4844	-100.0000	100.0000	□□□□■□□□□□
Hold voltage feedback value	%	0.75	-10.0	10.0	0000 = 00000
Shot voltage feedback value	%	-0.70	-20.0	20.0	□□□□■□□□□□
Electronic current loss deviation	%	0.23	-10.0000	10.0000	□□□□■□□□□□
Coil circuit value	%	0.00	-1.0	1.0	
Shot control circuit value	%	-0.093	-10.0	10.0	
Electrode signal integrity deviation	%	-0.089	-40.0	40.0	



People for Process Automation

Test item with value	Unit	Actual	Min.	Max.	Visualization
I/O module					
Output 1 value 1	mA	7.0657	6.9358	7.2779	000800000
Output 1 value 2		0.0000	0.0000	0.0000	000000000
Output 2 value 1		0.0000	0.0000	0.0000	000000000
Output 3 value 1		0.0000	0.0000	0.0000	000000000



Plant operator: OCWA

Device identification and verification identification Serial number SC22A719000 Device tag FIT401 Verification ID 26



Test item with value	Unit	Actual
Process conditions		
Volume flow value verification	m³/d	3105.053
Conductivity value verification	μS/cm	-nan
Electronic temperature	°C	31.1
Current difference potential	V	-0.07874
Current potential electrode 1	V	0.1086
Current potential electrode 2	V	0.1863
Current potential electrode Pipe GND	V	0.001118



Inspector's signature

Plant operator: OCWA

Date

Device information					
Location	LINDSAY WWTP	- Heartbea			
Device tag	Promag	Technolo			
Module name	K323-00	•			
Nominal diameter	DN450 / 18"				
Device name	Promag 400				
Order code	5W4C4F-7MD6/0				
Serial number	SC22A819000				
Firmware version	02.01.01				
Calibration					
Calibration factor	1.1444				
Zero point	3.0				
Verification information					
Operating time (counter) 	414d15h05m04s				
Date/time (manually recorded)	13.01.23 09:43	13.01.23 09:43			
Verification ID	3	3			
Verification mode	Standard verification				
Overall verification result*					
√ Passed	Details see next page				
*Result of the complete device functionality test via Heartbeat Tec	hnology				
Confirmation					
Heartbeat Verification verifies the function of the flow total test coverage > 94 %, and complies with the requ (attested by TÜV-SÜD Industrieservices GmbH)					

www.endress.com Web server Page 1

Operator's signature



Plant operator: OCWA

Device identification and verification identification Serial number SC22A819000 Device tag Promag Verification ID 3



Sensor	✓ Passed
Shot time symmetry	✓ Passed
Hold voltage symmetry	✓ Passed
Coil current loss	✓ Passed
Coil current stability	✓ Passed
Coil resistance	✓ Passed
E1 electrode cable	✓ Passed
E2 electrode cable	✓ Passed
EPD electrode cable	▼ Passed
Sensor electronic module (ISEM)	√ Passed
Supply voltage	✓ Passed
Internal voltages	✓ Passed
Linearity and reference voltage	▼ Passed
Offset of electrode measuring circuit	▼ Passed
Hold voltage feedback	▼ Passed
Shot voltage feedback	✓ Passed
Electronic current loss	✓ Passed
Coil circuit measurement	▼ Passed
Shot control circuit	▼ Passed
Electrode signal integrity	✓ Passed
System status	✓ Passed
I/O module	✓ Passed
Input/output 1	✓ Passed
Input/output 2	? Not done
Input/output 3	? Not done



Plant operator: OCWA

Device identification and verification identification Serial number SC22A819000 Device tag Promag Verification ID 3



Test item with value	Unit	Actual	Min.	Max.	Visualization
Sensor					
Shot time symmetry deviation		0.9992	0.9000	1.1000	0000 = 00000
Hold voltage symmetry deviation		0.9984	0.9000	1.1000	
Coil current loss deviation	%	0.1586	-10.0000	10.0000	
Coil current offset	%	-0.008123	-0.1000	0.1000	
Coil current deviation	%	0.0000	-0.1000	0.1000	□□□□■□□□□□
Coil resistance value	Ohm	135.3	50.0	240.0	□□□■□□□□□□
E1 electrode impedance	Ohm	416.25			
E2 electrode impedance	Ohm	399.35			
EPD electrode impedance	Ohm	438.01			
E1/E2 electrode impedance on E1	Ohm	406.57			
E1/E2 electrode impedance on E2	Ohm	390.54			
Sensor electronic module (ISEM)					
Supply voltage 30.0V	V	31.17	27.000	35.000	□□□□■□□□□□
Linearity and reference voltage 1		0.9997	0.9900	1.0100	□□□□■□□□□□
Linearity and reference voltage 2		0.9997	0.9900	1.0100	
Measuring point offset		3.1881	-100.0000	100.0000	
Hold voltage feedback value	%	0.54	-10.0	10.0	
Shot voltage feedback value	%	-0.78	-20.0	20.0	
Electronic current loss deviation	%	0.36	-10.0000	10.0000	
Coil circuit value	%	0.055	-1.0	1.0	□□□□■□□□□□
Shot control circuit value	%	-0.079	-10.0	10.0	
Electrode signal integrity deviation	%	-0.78	-40.0	40.0	



People for Process Automation

Test item with value	Unit	Actual	Min.	Max.	Visualization
I/O module					
Output 1 value 1	mA	7.1062	6.9216	7.2635	
Output 1 value 2		0.0000	0.0000	0.0000	000000000
Output 2 value 1		0.0000	0.0000	0.0000	000000000
Output 3 value 1		0.0000	0.0000	0.0000	000000000



Plant operator: OCWA

Device identification and verification identification Serial number SC22A819000 Device tag Promag Verification ID 3



Test item with value	Unit	Actual	
Process conditions			
Volume flow value verification	m³/d	3091.134	
Conductivity value verification	μS/cm	-nan	
Electronic temperature	°F	86.5	
Current difference potential	V	-0.01197	
Current potential electrode 1	V	0.04741	
Current potential electrode 2	V	0.06216	
Current potential electrode Pipe GND	V	-0.00004353	



Plant operator: OCWA.

Device information					
Location	Lindsay WWTP	+leartbea			
Device tag	Promag	Technolo			
Module name	C300-01	•			
Nominal diameter	DN750 / 30"				
Device name	Promag 500				
Order code	5W5B7F-1K11/0				
Serial number	T10D6919000				
Firmware version	01.01.06				
Calibration					
Calibration factor	1.0939				
zero point	-10				
Operating time (counter) Date/time (manually recorded) Verification ID	13.12.23 11:01				
Date/time (manually recorded)					
Verification mode		Internal verification			
Overall verification result* Passed	Details see next page				
*Result of the complete device functionality test via Heartbeat Te	chnology				
Confirmation					
	wmeter within the specified measuring tolerance, ove juirements for traceable verification according to DIN				
(Accessed by 101 505 moustlesse reces of more)					

Date Operator's signature Inspector's signature



Plant operator: OCWA.

Device identification and verification identification

Serial number	T10D6919000
Device tag	Promag
Verification ID	4



Sensor		√ Passed
Shot time symmetry		✓ Passed
Hold voltage symmetry		✓ Passed
Coil current loss		✓ Passed
Coil current stability		✓ Passed
Coil resistance		✓ Passed
Electrode circuit 1		✓ Passed
Electrode circuit 2		✓ Passed
Electrode circuit EPD		✓ Passed
Sensor electronic module (ISEM)		✓ Passed
Supply voltage		✓ Passed
External reference voltage		✓ Passed
Linearity and reference voltage		✓ Passed
Offset of electrode measuring circui	t	✓ Passed
Hold voltage feedback		✓ Passed
Shot voltage feedback		✓ Passed
Electronic current loss		✓ Passed
Coil circuit measurement		✓ Passed
Shot control circuit		✓ Passed
Electrode signal integrity		✓ Passed
System status		✓ Passed
I/O module		✓ Passed
Input/output 1	26-27 (I/O 1)	✓ Passed
Input/output 2	24-25 (1/0 2)	✓ Passed
Input/output 3	22-23 (I/O 3)	✓ Not plugged
Input/output 4 20-21 (I/O 4)		✓ Not plugged



Plant operator: OCWA.

Device identification and verification identification Serial number T10D6919000 Device tag Promag Verification ID 4



Test item with value	Unit	Actual	Min.	Max.	Visualization
Sensor					
Shot time symmetry deviation		0.9973	0.9000	1.1000	
Hold voltage symmetry deviation		1.0018	0.9000	1.1000	
Coil current loss deviation	%	0.01678	-10.0000	10.0000	0000■00000
Coil current offset	%	-0.0081	-0.1	0.1	0000■00000
Coil current deviation	%	-0.0081	-0.1	0.1	0000=00000
Coil resistance value	Ohm	116.7	50.0	240.0	000=00000
Electrode impedance 1	Ohm	343.50			
Electrode impedance 2	Ohm	325.92			
Electrode EPD impedance	Ohm	389.28			
Electrode impedance E1/E2 on E1	Ohm	334.38			
Electrode impedance E1/E2 on E2	Ohm	317.91			
Sensor electronic module (ISEM)					
External reference voltage 1	V	-nan			
Linearity and reference voltage 1		0.9996			
Linearity and reference voltage 2		0.9997			
Measuring point offset		-2.0470	-100.0000	100.0000	0000=00000
Hold voltage feedback value	%	1.00	-10.0	10.0	00000=0000
Shot voltage feedback value	%	-0.38	-20.0	20.0	0000 0 00000
Electronic current loss deviation	%	0.073	-10.0000	10.0000	
Coil circuit value	%	0.055	-1.0	1.0	0000=00000
Shot control circuit value	 %	-0.013	-10.0	10.0	000000000
Electrode signal integrity deviation	 %	8.19	-40.0	40.0	00000
System status					



People for Process Automation

Test item with value		Unit	Actual	Min.	Max.	Visualization
I/O module						
I/O module 1 terminal numbers	26-27 (I/O 1)					
Output 1 value 1		mA	0.01157	-0.2040	0.2040	
Output 1 value 2			0.0000	0.0000	0.0000	000000000
I/O module 2 terminal numbers	24-25 (I/O 2)					
Output 2 value 1			1.0000	0.9995	1.0005	
Output 2 value 2			0.0000	0.0000	0.0000	000000000



Plant operator: OCWA.

Device identification and verification identification Serial number T10D6919000 Device tag Promag Verification ID 4



Test item with value	Unit	Actual	
Process conditions			
Volume flow value verification	m³/d	14923.54	
Conductivity value verification	μS/cm	-nan	
Electronic temperature	℃	24.4605	

DTM Version: 3.17.00 Page 1/3

Flowmeter Verification Certificate Transmitter

OCWA K	Lindsay WW
Customer	Plant
Jennings	
Order code	Tag Name
PROMAG 10 W DN350	1.0729 - 1.0729
Device type	K-Factor
F809B216000	0
Serial number	Zero point
V1.03.00	
Software Version Transmitter	Software Version I/O-Module
12/05/2023	14:33
Verification date	Verification time

Verification result Transmitter: Failed

Test item	Result	Applied Limits
Amplifier	Passed	Basis: 0.65 %
Current Output 1	Passed	0.05 mA
Pulse Output 1	Not tested	0 P
Test Sensor	Failed	

FieldCheck Details		Simubox Details
550149		
Production number		Production number
1.07.10		1.00.01
Software Version		Software Version
04/2023		04/2023
Last Calibration Date		Last Calibration Date
Date	Operator's Sign	Inspector's Sign



FieldCheck - Result Tab Transmitter

Customer	OCWA K	Plant	Lindsay WW
Order code	Jennings	Tag Name	
Device type	PROMAG 10 W DN350	K-Factor	1.0729 - 1.0729
Serial number	F809B216000	Zero point	0
Software Version Transmitter	V1.03.00	Software Version I/O-Module	
Verification date	12/05/2023	Verification time	14:33

Verification Flow end value (100 %): 384.845 l/s Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
<u> </u>	Amplifier	19.242 l/s (5%)	1.60 %	0.26 %
√		38.485 l/s (10.0%)	1.10 %	0.88 %
√		192.424 l/s (50.0%)	0.70 %	0.04 %
√		384.846 l/s (100%)	0.65 %	-0.03 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	0.011 mA
✓		4.800 mA (5%)	0.05 mA	0.004 mA
<u> </u>		5.600 mA (10.0%)	0.05 mA	0.007 mA
<u> </u>		12.000 mA (50.0%)	0.05 mA	0.018 mA
✓		20.000 mA (100%)	0.05 mA	0.046 mA
_	Pulse Output 1			
		Start value	Limits range	Measured value
	Test Sensor			
✓	Coil Curr. Rise	100.001 ms	23.340100.001 ms	59.479 ms
Х	Coil Curr. Stability			

Legend of symbols

	×	_	?	<u> </u>
Passed	Failed	not tested	not testable	Attention

FieldCheck: Parameters Transmitter

Customer	OCWA K	Plant	Lindsay WW
Order code	Jennings	Tag Name	
Device type	PROMAG 10 W DN350	K-Factor	1.0729 - 1.0729
Serial number	F809B216000	Zero point	0
Software Version Transmitter	V1.03.00	Software Version I/O-Module	
Verification date	12/05/2023	Verification time	14:33

Curent Output	Assign	Current Range	Value 0_4mA	Value 20 mA	
Terminal 26/27	VOLUME FLOW	4-20 mA active	0.0 l/s	300.01 l/s	
Pulse Output	Assign	Pulse Value	Output signal	Pulse width	
Terminal 24/25	VOLUME FLOW	0.114 m3/P	Passive/Positive	100.01 ms	

Actual System Ident.

111.0



VeriMaster - Flow Meter Verification Report

Customer Information

Customer OCWA

Verification Download Wed, Dec 13, 2023

Meter Information

Meter OwnerLindsay St NorthMeter TypeWaterMasterSensor SizeDN300Pipe StatusFluid Present

 Sensor Type
 Fullbore

 Sensor Serial No
 3K620000175045

 Transmitter Serial No
 3K620000175045

 Tag
 ABB Warminster

Location ?

Overall Status: Pass

The flowmeter has passed its internal continuous verification and automatic self calibration. It is working within +/
-1% of its original factory calibration

Summa	ry of Results	Verific	ation History
Coil Group Electrode Group	Passed Passed	OIML Accuracy Alarms	0
Sensor Group Transmitter Signal	Passed Passed	Totalise	r Information
Transmitter Driver	Passed	Forward	8663100.36 m3
Output Group	Passed	Reverse	145051.72 m3
Configuration	Passed	Net	8518048.64 m3
Sensor	Information	Ser	nsor Data
Q3	694.44 I/s	Coil Current	179.9 mA
Calibration Accuracy	OIML Class 2	Coil Inductance	279.6 mH
Sensor Calibration Factors	150.5%; 0.00 mm/s; 11	Coil Inductance Shift	0.0%
Date of Manufacture	2014 Sept 17	Coil / Loop Resistance	36.3 ohm
Run Hours	3184days 14hrs 20mins	Transmitter Data	
Transmitt	er Information	Tx Gain - Adjustment	0.1%
Application Version	V01.05.00 12/07/12	VeriMast	er Information
MSP Version	00.00.04	Version	01.00.03
Date of Manufacture	2014 Sept 17	Limit Version	01.00.01
Run Hours	4207days 13hrs 34mins		
Current Output		Pulse Output	
4mA Value	Pass : 4.000 mA : 0.00%	Output 1: 1200.0Hz	Not tested
12mA Value	Pass: 11.992 mA; 0.07%	Output 1: 600.0Hz	Not tested
	,	Output 2: 1200.0Hz	Not tested
20mA Value	Pass : 20.000 mA ; 0.00%	Output 2: 600.0Hz	Not tested

Installation Comments / Equipment used:	Configuration Settings	
FIT 102 North	Mains Frequency	60 Hz
	Qmax	400.00 l/s
	Pulses/Unit	10.000000
	Pulses Limit Frequency	1200.0 Hz
	Sensor User Span/Zero	100.0%; 0.00 mm/s
	User Flow Cutoff/Hysterisis	1.00%; 20%
	Meter Mode	Normal operation

Date Wed, Dec 13, 2023 Operator Signature Print

ABB Instrumentation World Flow Technology

ABB Limited ABB Automation Inc.
Oldends Lane, Stonehouse 125 East County Line Road
Gloucestershire, GL10 3TA UK Warminster, PA 18974 USA
Tel: +44(0) 1453 826661 Tel: +1 215 674 6000
Fax: +44(0) 1453 821121 Fax: +1 215 674 6394
instrumentation@gb.abb.com instrumentation@gb.abb.com

Bapaune Rd Moorebank, NSW 2170 Tel: +61-2-982 1-0111 Fax: +61-2-9821-0950

ABB Australia Pty Ltd.

ABB Automation GmbH Dransfelder Str.2 37079 Gottingen, GERMANY Tel: +49 (0) 551 905212 Fax: +1 (215) 674 6394

SIEMENS MAGFLO® Verification Certificate

Customer	<u>:</u>
Name	OCWA Kawartha
Address	Lindsay St N
Phone	
Email	

MAGFLO® Identification:			
TAG No./Name	0		
Sensor Code No.	7ME631		
Sensor Serial No.	671540H193		
Converter Code No.	7ME691		
Converter Serial No.	N1E2208822		
Location	Lindsay St N Leachate		

Results:	Verificati Converte	on file name or No.	Lindsay St N Lea Passed
	Sensor	Insulation	Passed
		Magnetic Circuit	Passed

Velocity		Current Output		Frequency Output		
Theoretical	Theoretical	Actual	Deviation	Theoretical	Actual	Deviation
0.5m/s	4.800mA	4.803mA	0.39%	0.500kHz	0.499kHz	-0.16%
1.0m/s	5.600mA	5.607mA	0.41%	1.000kHz	1.002kHz	0.16%
3.0m/s	8.800mA	8.803mA	0.06%	3.000kHz	3.000kHz	0.01%
Current Output 4-20mA				Frequency Ou	tput 0-10kHz	,

Converte	er Settings:	
Basic	Qmax.	6.2 l/s
	Flow Direction	Positive
	Low flow Cut-off	1.50%
	Empty Pipe	OFF
Output		
	Current Output	ON (4-20mA)
	Time Constant	5.0 Sec.
	Relay Output	Error Level
	Digital Output	Pulse
	Frequency Range	N/A
	Time Constant	N/A
	Volume/pulse	0.9999953 US G/p
	Pulse width	0.066 sec.
	Pulse polarity	Positiv
Totalizer	1 value before test	79486.75 m ³
Totalizer	1 value after test	79486.78125 m³
Totalizer 2	2 value before test	7951.90478516 m³
Totalizer 2	2 value after test	7951.90478516 m³

Sensor Details:						
Size	DN 100 4 IN					
Cal. Factor	7.6739769					
Correction Factor	1.0					
Excitation Freq.	7.5Hz					

Verificator Details (083F5060)				
Serial No.	000711N218			
Device No.	90994			
Software Version	1.40			
PC-Software Version	4.02			
Cal. date	2023.11.03			
ReCal. date	2024.11.03			

Comments

These tests verify that the flowmeter is functioning within 2% deviation of the original test parameters.

Verification is traceable to National and International Standards.

Date and signature

887 HWY 7 , Peterborough, ON K9J 6X7 (705) 745-2488 1-800 363-9007 www.masstec.ca

VEHICLE SCALE TEST REPORT

Customer: City of Kawartha Lakes	Address: 51 Wilson Rd			
Lindsay Landfill-Inbound Scale	City: Lindsay	Prov: Ont	Postal Code: K9V 4R3	

Make of Scale:	Model No:	Serial No:	Scale Capacity:	Graduation Size:
Active	CMD-1080-1-100-FD2	033024	70,000kg	10kg
Make of Indicator:	Model No:	Serial No :	Pounds:	Kilograms:
Rice Lake	820	006095		x

SECTION TESTING (Test 1)

A shift test in which the test load is applied over individual sections of the scale.

1 st LOAD	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5
AS FOUND	20120	20040	20110	20090	20150
2 ND LOAD	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5
AS LEFT	20050	20050	20050	20050	20050

Scale house/Indicator (Reference to Platform)

LOAD TESTING (Test 2)

Normal basic performances in which observations are made as increments of test load are successively added to the load receiving elements of the scale.

	TEST LOAD	AS FOUND SCALE INDICATION	AS LEFT SCALE INDICATION
0 Load	0	0	0
	2000	2000	2000
	4000	3990	4000
	6000	5990	6000
	8000	7980	8000
MAX	10000	9980	10000
	8000	7980	8000
	6000	5990	6000
	4000	3990	4000
	2000	2000	2000
0 Load	0	0	0

STRAIN-LOAD (Test 3)

0110 mt 20/12 (19818)					
Indicated weight of empty vehicle	Known standards	Total weight indicated			
10050 kg	10,000kg	20050 kg			

DESCRIPTION OF REPAIR AND ADJUSTMENTS

Adjusted sections at 20050 kg. Calibrated zero and span at 10,000 kg known standards.

WEIGHT IDENTIFICATION NUMBERS: 1418981	
CALIBRATION DATE: June 14, 2023	NEXT CALIBRATION DATE: December 14, 2023

PERFORMED BY: Dana Smith/Lee Alton

887 HWY 7, Peterborough, ON K9J 6X7 (705) 745-2488 1-800 363-9007 www.masstec.ca

VEHICLE SCALE TEST REPORT

Customer: City of Kawartha Lakes	Address: 51 Wilson Rd		
Lindsay Landfill-Outbound Scale	City: Lindsay	Prov: Ont	Postal Code:

Make of Scale:	Model No:	Serial No:	Scale Capacity:	Graduation Size:
Active	CMD-1080-1-100-FD2	033025	70,000kg	10kg
Make of Indicator:	Model No:	Serial No :	Pounds:	Kilograms:
Rice Lake	680 Synergy Plus	1963200145		x

SECTION TESTING (Test 1)

A shift test in which the test load is applied over individual sections of the scale.

1 st LOAD	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5
AS FOUND	20110	20160	20170	20220	20130
2 ND LOAD	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5
AS LEFT	20050	20050	20050	20050	20050

Scale house/Indicator (Reference to Platform)

LOAD TESTING (Test 2)

Normal basic performances in which observations are made as increments of test load are successively added to the load receiving elements of the scale.

	TEST LOAD	AS FOUND SCALE INDICATION	AS LEFT SCALE INDICATION
0 Load	0	0	0
	2000	2000	2000
	4000	4010	4000
	6000	6010	6000
	8000	8010	8000
MAX	10000	10020	10000
	8000	8010	8000
	6000	6010	6000
	4000	4010	4000
	2000	2000	2000
0 Load	0	0	0

STRAIN-LOAD (Test 3)

Indicated weight of en	npty vehicle	Known standards	Total weight indicated
10050	kg	10,000kg	20050 kg

DESCRIPTION OF REPAIR AND ADJUSTMENTS

Adjusted sections at 20050 kg. Calibrated zero and span at 10,000 kg known standards.

WEIGHT IDENTIFICATION NUMBERS:	M1-20 500kg	
cert# 1418981		
CALIBRATION DATE: June 14, 2023		NEXT CALIBRATION DATE: December 14, 2023

PERFORMED BY: Dana Smith/Lee Alton

887 Highway #7 Peterborough, ON K9J 6X7 | phone: (705) 745-2488 | toll-free: 1-800-363-9007 www.masstec.ca

Thursday, December 7, 2023

VEHICLE SCALE TEST REPORT (QF-11.3)

Customer: Address: **51 Wilson Road**

18- City of Kawartha LakesCity:LindsayProvince:OntarioLindsay Inbound SitePostal Code:K9V 4R3Phone: 705-324-9411

Make of Scale:	Model No:	Serial No:	Scale Capacity:	Graduation
				Size:
Active	CMD-1080-1-100-	033024	70,000kg	10 kg
	FD2			

Make of Indicator:	Model No:	Serial No:	Pounds	Kilograms
Rice Lake Weighing	820	006095		X
Systems Inc.				

SECTION TESTING (Test 1)

A shift test in which the test load is applied over individual sections of the scale.

1 st LOAD	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5
AS FOUND	20070	20060	20070	20070	20060
		102 N	Section of the section		
2 ND LOAD	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5
AS LEFT	20070	20060	20070	20070	20060

Scale house/Indicator (Reference to Platform)

LOAD TESTING (Test 2)

Normal basic performances in which observations are made as increments of test load are successively added to the load receiving elements of the scale.

	TEST LOAD (KG)	AS FOUND SCALE INDICATION	AS LEFT SCALE INDICATION
0 Load	0	0	0
	2000	1990	2000
	4000	3990	4000
	6000	5990	6000
	8000	7980	8000
MAX	10000	9980	10000
	8000	7980	8000
	6000	5990	6000
	4000	3990	4000
	2000	1990	2000
0 Load	0	0	0

887 Highway #7 Peterborough, ON K9J 6X7 | phone: (705) 745-2488 | toll-free: 1-800-363-9007 www.masstec.ca

STRAIN-LOAD (Test 3)

Indicated weight of empty vehicle	Known standards	Total weight indicated	
10,070 kg	Plus 10,000 kg	20,070 kg	

DESCRIPTION OF REPAIR AND ADJUSTMENTS

Calibrated zero and span at 10,000 kg known standards

WEIGHT IDENTIFICATION NUMBERS: M1-20
Measurement Canada Certificate #: 1418981

Calibration Date: December 6, 2023

Next Calibration Date: June 6, 2024

INSPECTION AND TESTS PERFORMED BY: Brent Cole & Dana Smith

WEIGHING SYSTEMS



Scale is accurate and approved for use by:



887 Highway #7 Peterborough, ON K9J 6X7 | phone: (705) 745-2488 | toll-free: 1-800-363-9007 www.masstec.ca

Thursday, December 7, 2023

VEHICLE SCALE TEST REPORT (QF-11.3)

Customer: Address: **51 Wilson Road**

18- City of Kawartha LakesCity:LindsayProvince:OntarioLindsay Outbound SitePostal Code:K9V 4R3Phone: 705-324-9411

Make of Scale:	Model No:	Serial No:	Scale Capacity:	Graduation
				Size:
Active	CMD-1080-1-100-	033025	70,000kg	10 kg
	FD2			

Make of Indicator:	Model No:	Serial No:	Pounds	Kilograms
Rice Lake Weighing	680 Synergy Plus	1963200145		Х
Systems Inc.				

SECTION TESTING (Test 1)

A shift test in which the test load is applied over individual sections of the scale.

1 st LOAD	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5
AS FOUND	20070	20070	20060	20060	20050
		1034)	Section of the section		
2 ND LOAD	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5
AS LEFT	20070	20070	20060	20060	20050

Scale house/Indicator (Reference to Platform)

LOAD TESTING (Test 2)

Normal basic performances in which observations are made as increments of test load are successively added to the load receiving elements of the scale.

	TEST LOAD (KG)	AS FOUND SCALE INDICATION	AS LEFT SCALE INDICATION
0 Load	0	0	0
	2000	1990	2000
	4000	3990	4000
	6000	5980	6000
	8000	7980	8000
MAX	10000	9970	10000
	8000	7980	8000
	6000	5980	6000
	4000	3990	4000
	2000	1990	2000
0 Load	0	0	0

887 Highway #7 Peterborough, ON K9J 6X7 | phone: (705) 745-2488 | toll-free: 1-800-363-9007 www.masstec.ca

STRAIN-LOAD (Test 3)

Indicated weight of empty vehicle	Known standards	Total weight indicated
10,070 kg	Plus 10,000 kg	20,070 kg

DESCRIPTION OF REPAIR AND ADJUSTMENTS

Calibrated zero and span at 10,000 kg known standards

WEIGHT IDENTIFICATION NUMBERS: M1-20 [500kg]
Measurement Canada Certificate #: 1418981

Calibration Date: December 6, 2023

Next Calibration Date: June 6, 2024

INSPECTION AND TESTS PERFORMED BY: Brent Cole & Dana Smith

WEIGHING SYSTEMS



Scale is accurate and approved for use by:





Appendix VI: Bypass, Overflows, Spill, Abnormal Events



David Bradley
District Manager
Peterborough District Office
Ministry of Environment, Conservation and Parks
300 Water Street South, 2nd Floor, South Tower
Peterborough ON K9J 3C7

May 8, 2023

Mr. Bradley:

Re: Lindsay WWTP April 2023 Total Suspended Solids (TSS) Exceedance

Further to my voice mail on May 4, 2023, I am submitting written notification of exceedance of the monthly Total Suspended Solids (TSS) mg/L limit and loading limit as required by Environmental Compliance Approval (ECA) #1696-BPLL4R for the Lindsay WWTP.

With the recent substantial completion of the Proposed Works in Amended ECA 1696-BPLL4R, the TSS monthly average concentration effluent limit is 11.0 mg/L and the monthly average waste loading limit is 238 kg/day. The April 2023 TSS average concentration was 13.0 mg/L. The loading limit result was 271.7 kg/day.

There were a number of factors that impacted the effluent quality.

Firstly, the system experienced high flows from spring weather, with one rated capacity exceedance on April 6, and many days that came close to the rate capacity flow limit. Operations staff made efforts to keep the optimal sand and polymer dosage in the Actiflo units but with the high flows, there was a lot of washout.

Secondly, the automatic bar screen was out of service until April 20. There has been ongoing remediation work on the automatic bar screen as part of the capital upgrades. When the automatic bar screen is down it diverts a lot of water to the lagoon. This caused the lagoon level to be high, limiting how much flow we could divert. Since the bar screen has been online, staff have been dropping the lagoon level.

Lastly, with flows being high, and the lagoon being high, staff had to hold off on some Actiflo PMs that require taking the unit offline. Actiflo units were cleaned out on the 24th and 27th, respectively.

The Ontario Clean Water Agency is hopeful that with the continued operation of the automatic bar screen, the lagoon level will be managed as such to buffer future high flow days.

Please contact me if you have any questions. Best regards,

Julie Mather
Process & Compliance Technician
Ontario Clean Water Agency
Kawartha-Trent Regional Hub

(705) 731-9125

CC: B. Martin, Sr. Operations Manager, OCWA Kawartha-Trent

- W. Henneberry, SPC Manager, OCWA Kawartha-Trent
- G. Redden, General Manager, OCWA Kawartha-Trent
- K. Lorente, Regional Manager, OCWA Kawartha-Trent
- P. Lucas, ORO, OCWA Kawartha-Trent
- A. Hayter, Manager Water and Wastewater, Kawartha Lakes
- M. Flaherty, Contract Coordinator, Kawartha Lakes
- J. Fuller, Water Compliance Supervisor, Peterborough MECP (On Leave)
- B. Jackson, Water Compliance Supervisor, Peterborough MECP (Acting)



David Bradley
District Manager
Peterborough District Office
Ministry of Environment, Conservation and Parks
300 Water Street South, 2nd Floor, South Tower
Peterborough ON K9J 3C7

July 13, 2023

Mr. Bradley:

Re: Lindsay WWTP June 2023 Total Suspended Solids (TSS) Exceedance

Further to my voice mail and our discussion on July 11, 2023, I am submitting written notification of exceedance of the monthly Total Suspended Solids (TSS) mg/L limit as required by Environmental Compliance Approval (ECA) #1696-BPLL4R for the Lindsay WWTP.

With the recent substantial completion of the Proposed Works in Amended ECA 1696-BPLL4R, the TSS monthly average concentration effluent limit is 11.0 mg/L and the June 2023 TSS average concentration was 13.25 mg/L.

The monthly average waste loading limit is 238 kg/day and the monthly average waste loading in June 2023 was 138 kg/day.

There were a number of factors that impacted the effluent quality.

Firstly, the hot weather experienced throughout June led to increased algae accumulation in the clarifiers. Operations staff made efforts to reduce the amount of algae in the clarifiers throughout the month but the weather conditions led to the continual increased algae growth. Launder covers have been installed in the North clarifier and are helping reduce the algae growth. Launder covers for the South clarifier are planned to be installed in 2024.

Secondly, the Actiflo units at the Lindsay WWTP require maintenance. The required replacement parts were ordered in April 2023 and the expected delivery date is November 2023.

Thirdly, the Lindsay WPCP experiences large swings in flows. Daily flow totals ranged from below 8000m³ to over 18000m³ in June. This affected the process and requires continual adjustments.

Please contact me if you have any questions.

Best regards,

Julie Mulligan
Safety, Process and Compliance Manager (A)
Ontario Clean Water Agency
Kawartha-Trent Regional Hub
(705) 741-6905

- CC: B. Martin, Sr. Operations Manager, OCWA Kawartha-Trent
 - W. Henneberry, Regional Manager (A), OCWA Kawartha-Trent
 - G. Redden, General Manager, OCWA Kawartha-Trent
 - R. Junkin, VP Operations, OCWA
 - J. Mather, PCT, OCWA Kawartha-Trent
 - P. Lucas, ORO, OCWA Kawartha-Trent
 - A. Hayter, Manager Water and Wastewater, Kawartha Lakes
 - M. Flaherty, Contract Coordinator, Kawartha Lakes
 - J. Fuller, Water Compliance Supervisor, Peterborough MECP (On Leave)
 - B. Jackson, Water Compliance Supervisor, Peterborough MECP (Acting)



David Bradley August 10, 2023

District Manager
Peterborough District Office
Ministry of Environment, Conservation and Parks
300 Water Street South, 2nd Floor, South Tower
Peterborough ON K9J 3C7

Mr. Bradley:

Re: Lindsay WWTP July 2023 Total Suspended Solids (TSS) Exceedance

Further to the verbal reporting to Brad Jackson in your absence on August 9, I am submitting written notification of exceedance of the monthly Total Suspended Solids (TSS) mg/L limit as required by Environmental Compliance Approval (ECA) #1696-BPLL4R for the Lindsay WWTP.

With the recent substantial completion of the Proposed Works in Amended ECA 1696-BPLL4R, the TSS monthly average concentration effluent limit is 11.0 mg/L and the July 2023 TSS average concentration was 14.25 mg/L. The monthly average waste loading limit is 238 kg/day and the monthly average waste loading in July 2023 was within the limit at 147 kg/day.

The hot weather throughout June continued through July along with the increased algae accumulation in the clarifiers. Operations staff made efforts to reduce the amount of algae in the clarifiers but the weather conditions led to the continual increased algae growth.

Secondly, the Actiflo units at the Lindsay WWTP require maintenance. The required replacement parts were ordered in April 2023 and the expected delivery date is November 2023.

The return flow from Lagoon 5 was closed on July 11th to reduce the loading in the process. Additionally, the South clarifier was taken offline on July 26th in favour of the North clarifier, which is equipped with Launder covers. The north clarifier does not experience as much algae growth and produces a better effluent.

A single sample TSS result of 5 mg/L on August 3 indicates the above changes are having a positive effect on the effluent TSS.

Please contact me if you have any questions.

Best regards,

Julie Mather
Process and Compliance Technician
Ontario Clean Water Agency
Kawartha-Trent Regional Hub
(705) 731-9125

- CC: B. Martin, Sr. Operations Manager, OCWA Kawartha-Trent
 - W. Henneberry, Regional Manager (A), OCWA Kawartha-Trent
 - G. Redden, General Manager, OCWA Kawartha-Trent
 - R. Junkin, VP Operations, OCWA
 - J. Mulligan, Safety, Process and Compliance Manager (A), OCWA Kawartha Trent
 - P. Lucas, ORO, OCWA Kawartha-Trent
 - A. Hayter, Manager Water and Wastewater, Kawartha Lakes
 - M. Flaherty, Contract Coordinator, Kawartha Lakes
 - J. Fuller, Water Compliance Supervisor, Peterborough MECP (On Leave)
 - B. Jackson, Water Compliance Supervisor, Peterborough MECP (A)



David Bradley
District Manager
Peterborough District Office
Ministry of Environment, Conservation and Parks
300 Water Street South, 2nd Floor, South Tower
Peterborough ON K9J 3C7

October 6, 2023

Mr. Bradley:

Re: Lindsay WWTP September 2023 Total Suspended Solids (TSS) Exceedance

Further to my voicemail on October 6, 2023, I am submitting written notification of exceedance of the monthly Total Suspended Solids (TSS) mg/L limit as required by Environmental Compliance Approval (ECA) #1696-BPLL4R for the Lindsay WWTP.

With the recent substantial completion of the Proposed Works in Amended ECA 1696-BPLL4R, the TSS monthly average concentration effluent limit is 11.0 mg/L and the October 2023 TSS average concentration was 13.00 mg/L. The monthly average waste loading limit is 238 kg/day and the monthly average waste loading in October 2023 was within the limit at 147 kg/day.

The Actiflo units at the Lindsay WWTP require maintenance. The required replacement parts were ordered in April 2023 and the expected delivery date is November 2023. One maintenance need, the repair of Actiflo #1 injection mixer was completed on October 5, 2023.

After high (16 mg/L and 19 mg/L) TSS single sample results in mid-September, sample collection methods were examined and assessed that a dirty sample collection bottle could be contributing to higher TSS results. The sample collection composite bottle is now being cleaned prior to sample collection.

Please contact me if you have any questions.

Best regards,

Julie Mather
Process and Compliance Technician
Ontario Clean Water Agency
Kawartha-Trent Regional Hub
(705) 731-9125

CC: B. Martin, Sr. Operations Manager, OCWA Kawartha-Trent

- W. Henneberry, Regional Manager (A), OCWA Kawartha-Trent
- G. Redden, General Manager, OCWA Kawartha-Trent
- R. Junkin, VP Operations, OCWA
- J. Mulligan, Safety, Process and Compliance Manager (A), OCWA Kawartha Trent
- P. Lucas, ORO, OCWA Kawartha-Trent
- A. Hayter, Manager Water and Wastewater, Kawartha Lakes

- M. Flaherty, Contract Coordinator, Kawartha Lakes
 B. Jackson, Water Compliance Supervisor, Peterborough MECP (A)

Tel: 705-738-9734 www.ocwa.com

May 1, 2023

David Bradley
District Manager
Peterborough District Office
Ministry of the Environment, Conservation and Parks
300 Water Street, 2nd Floor, South Tower
Peterborough, ON
K9J 3C7

Dear Mr. Bradley:

Re: Lindsay WWTP 2023 Q1 Bypass Event and Overflow Event Summary Report

Amended Environmental Compliance Approval #1696-BPLL4R sections 4(6) and 5(6) issued June 29, 2020 for the Lindsay WWTP requires a Bypass Event and Overflow Event summary report be submitted to the District Manager on a quarterly basis, no later than February 15, May 15, August 15, and November 15 each calendar year.

Amended Environmental Compliance Approval #1328-AN5PBL section 5(3) issued July 4, 2017 for the Rivera PS requires an Overflow Event summary report be submitted to the Water Supervisor on a quarterly basis, no later than February 14, May 15, August 14, and November 15 each calendar year.

There were no incidents of Bypass or Overflow Events at the Lindsay WWTP or Pumping Station during the first quarter of 2023 (January, February, and March).

Please contact me if you have any questions or comments.

Best regards,

Julie Mather Process & Compliance Technician Ontario Clean Water Agency Kawartha Hub (705) 731-9125

CC: Brent Martin, OCWA - Operations Manager
Wesley Henneberry, OCWA - SPC Manager
Geoff Redden, OCWA – General Manager
Amber Hayter, Kawartha Lakes – Manager, Water & Wastewater
Michelle Flaherty, Kawartha Lakes – Contract Coordinator
Jacqueline Fuller, MECP – Water Supervisor (On Leave)
Brad Jackson, MECP – Water Supervisor (A)

Tel: 705-738-9734 www.ocwa.com

August 1, 2023

David Bradley
District Manager
Peterborough District Office
Ministry of the Environment, Conservation and Parks
300 Water Street, 2nd Floor, South Tower
Peterborough, ON
K9J 3C7

Dear Mr. Bradley:

Re: Lindsay WWTP 2023 Q2 Bypass Event and Overflow Event Summary Report

Amended Environmental Compliance Approval #1696-BPLL4R sections 4(6) and 5(6) issued June 29, 2020 for the Lindsay WWTP requires a Bypass Event and Overflow Event summary report be submitted to the District Manager on a quarterly basis, no later than February 15, May 15, August 15, and November 15 each calendar year.

Amended Environmental Compliance Approval #1328-AN5PBL section 5(3) issued July 4, 2017 for the Rivera PS requires an Overflow Event summary report be submitted to the Water Supervisor on a quarterly basis, no later than February 14, May 15, August 14, and November 15 each calendar year.

There were no incidents of Bypass or Overflow Events at the Lindsay WWTP or Pumping Station during the second quarter of 2023 (April, May and June).

Please contact me if you have any questions or comments.

Best regards,

Julie Mather
Process & Compliance Technician
Ontario Clean Water Agency
Kawartha Hub
(705) 731-9125

CC: Brent Martin, OCWA - Operations Manager
Julie Mulligan, OCWA - SPC Manager (A)
Geoff Redden, OCWA – General Manager
Amber Hayter, Kawartha Lakes – Manager, Water & Wastewater
Michelle Flaherty, Kawartha Lakes – Contract Coordinator
Jacqueline Fuller, MECP – Water Supervisor (On Leave)
Brad Jackson, MECP – Water Supervisor (A)

Lindsay WWTP 2023 Q2 Bypass and Plant Overflow Report Page : 1/1

Tel: 705-738-9734 www.ocwa.com

November 7, 2023

David Bradley
District Manager
Peterborough District Office
Ministry of the Environment, Conservation and Parks
300 Water Street, 2nd Floor, South Tower
Peterborough, ON
K9J 3C7

Dear Mr. Bradley:

Re: Lindsay WWTP 2023 Q3 Bypass Event and Overflow Event Summary Report

Amended Environmental Compliance Approval #1696-BPLL4R sections 4(6) and 5(6) issued June 29, 2020 for the Lindsay WWTP requires a Bypass Event and Overflow Event summary report be submitted to the District Manager on a quarterly basis, no later than February 15, May 15, August 15, and November 15 each calendar year.

Amended Environmental Compliance Approval #1328-AN5PBL section 5(3) issued July 4, 2017 for the Rivera PS requires an Overflow Event summary report be submitted to the Water Supervisor on a quarterly basis, no later than February 14, May 15, August 14, and November 15 each calendar year.

There were no incidents of Bypass or Overflow Events at the Lindsay WWTP or Pumping Station during the third quarter of 2023 (July, August and September).

Please contact me if you have any questions or comments.

Best regards,

Julie Mather Process & Compliance Technician Ontario Clean Water Agency Kawartha Hub (705) 731-9125

CC: Brent Martin, OCWA - Operations Manager
Julie Mulligan, OCWA - SPC Manager (A)
Geoff Redden, OCWA - General Manager
Amber Hayter, Kawartha Lakes - Manager, Water & Wastewater
Michelle Flaherty, Kawartha Lakes - Contract Coordinator
Brittney Wielgos, MECP - Water Supervisor

Lindsay WWTP 2023 Q3 Bypass and Plant Overflow Report Page : 1/1

Tel: 705-738-9734 www.ocwa.com

February 1, 2024

David Bradley
District Manager
Peterborough District Office
Ministry of the Environment, Conservation and Parks
300 Water Street, 2nd Floor, South Tower
Peterborough, ON
K9J 3C7

Dear Mr. Bradley:

Re: Lindsay WWTP 2023 Q4 Bypass Event and Overflow Event Summary Report

Amended Environmental Compliance Approval #1696-BPLL4R sections 4(6) and 5(6) issued June 29, 2020 for the Lindsay WWTP requires a Bypass Event and Overflow Event summary report be submitted to the District Manager on a quarterly basis, no later than February 15, May 15, August 15, and November 15 each calendar year.

Amended Environmental Compliance Approval #1328-AN5PBL section 5(3) issued July 4, 2017 for the Rivera PS requires an Overflow Event summary report be submitted to the Water Supervisor on a quarterly basis, no later than February 14, May 15, August 14, and November 15 each calendar year.

There were no incidents of Bypass or Overflow Events at the Lindsay WWTP or Pumping Station during the fourth quarter of 2023 (October, November, and December).

Please contact me if you have any questions or comments.

Best regards,

Julie Mather Process & Compliance Technician Ontario Clean Water Agency Kawartha Hub (705) 731-9125

CC: Brent Martin, OCWA - Operations Manager
Julie Mulligan, OCWA - SPC Manager (A)
Geoff Redden, OCWA - General Manager
Amber Hayter, Kawartha Lakes - Manager, Water & Wastewater
Michelle Flaherty, Kawartha Lakes - Contract Coordinator
Brittney Wielgos, MECP - Water Supervisor

Lindsay WWTP 2023 Q4 Bypass and Plant Overflow Report Page : 1/1



P.O. Box 4300 - 185 Concession St. Lakefield - Ontario - KOL 2HO

Phone: 705-652-2000 FAX: 705-652-6365

10-January-2023

Works #: 110000383

Project: PO#017018

Date Rec.: 04 January 2023 LR Report: CA13052-JAN23

Copy: #1

OCWA-Kawartha (Lindsay WWTF)

Attn : Julie Mulligan

PO Box 279, Boyd St. E Bobcaygeon, ON K0M 1A0, Canada

Phone: 705-887-3596

Fax:

CERTIFICATE OF ANALYSIS Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: t Analysis Completed Date	4: Analysis Completed Time	5: Eff Eff-Final Effluent
Sample Date & Time					01-Jan-23 06:50
Temperature Upon Receipt [°C]					4.0
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	04-Jan-23	17:09	09-Jan-23	13:22	< 2
Total Suspended Solids [mg/L]	05-Jan-23	10:55	06-Jan-23	13:04	9
Phosphorus (total) [mg/L]	05-Jan-23	21:47	06-Jan-23	16:14	< 0.03
Total Kjeldahl Nitrogen [as N mg/L]	04-Jan-23	18:40	05-Jan-23	15:43	1.0
Ammonia+Ammonium (N) [as N mg/L]	05-Jan-23	16:01	06-Jan-23	10:19	< 0.1
Nitrite (as N) [mg/L]	04-Jan-23	20:09	09-Jan-23	17:20	< 0.03
Nitrate (as N) [mg/L]	04-Jan-23	20:09	09-Jan-23	17:20	8.23
Nitrate + Nitrite (as N) [mg/L]	04-Jan-23	20:09	09-Jan-23	17:20	8.23

Carrie Greenlaw Project Specialist,



P.O. Box 4300 - 185 Concession St. Lakefield - Ontario - KOL 2HO

Phone: 705-652-2000 FAX: 705-652-6365

09-January-2023

Works #: 110000383

Project: PO#017018

Date Rec.: 03 January 2023

LR Report: CA12010-JAN23

Copy: #1

OCWA-Kawartha (Lindsay WWTF)

Attn: Julie Mulligan

PO Box 279, Boyd St. E Bobcaygeon, ON K0M 1A0, Canada

Phone: 705-887-3596

Fax:

CERTIFICATE OF ANALYSIS Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: Eff Eff-Final Effluent
Sample Date & Time					02-Jan-23
Temperature Upon Receipt [°C]					5.5
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	04-Jan-23	17:09	09-Jan-23	13:03	< 2
Total Suspended Solids [mg/L]	04-Jan-23	07:46	04-Jan-23	16:26	6
Phosphorus (total) [mg/L]	05-Jan-23	21:47	06-Jan-23	16:10	< 0.03
Total Kjeldahl Nitrogen [as N mg/L]	06-Jan-23	16:14	09-Jan-23	12:47	1.3
Ammonia+Ammonium (N) [as N mg/L]	04-Jan-23	22:18	06-Jan-23	10:11	< 0.1
Nitrite (as N) [mg/L]	04-Jan-23	12:25	06-Jan-23	12:10	< 0.03
Nitrate (as N) [mg/L]	04-Jan-23	12:25	06-Jan-23	12:10	8.90
Nitrate + Nitrite (as N) [mg/L]	04-Jan-23	12:25	06-Jan-23	12:10	8.90

Carrie Greenlaw Project Specialist,



P.O. Box 4300 - 185 Concession St. Lakefield - Ontario - KOL 2HO

Phone: 705-652-2000 FAX: 705-652-6365

03-April-2023

Works #: 110000383

Project: PO#017018

Date Rec.: 27 March 2023 LR Report: CA12707-MAR23

Copy: #1

OCWA-Kawartha (Lindsay WWTF)

Attn: Julie Mulligan

PO Box 279, Boyd St. E Bobcaygeon, ON K0M 1A0, Canada

Phone: 705-887-3596

Fax:

CERTIFICATE OF ANALYSIS Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: Eff Eff-Final Effluent (Comp)
Sample Date & Time					26-Mar-23
Temperature Upon Receipt [°C]					13.0
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	28-Mar-23	15:18	03-Apr-23	11:15	< 2
Total Suspended Solids [mg/L]	28-Mar-23	07:55	28-Mar-23	16:12	11
Phosphorus (total) [mg/L]	28-Mar-23	18:51	29-Mar-23	09:49	0.04
Total Kjeldahl Nitrogen [as N mg/L]	28-Mar-23	19:14	29-Mar-23	13:09	< 0.5
Ammonia+Ammonium (N) [as N mg/L]	28-Mar-23	17:05	29-Mar-23	11:35	< 0.1
Nitrite (as N) [mg/L]	28-Mar-23	15:00	29-Mar-23	11:00	< 0.03
Nitrate (as N) [mg/L]	28-Mar-23	15:00	29-Mar-23	11:00	9.27
Nitrate + Nitrite (as N) [mg/L]	28-Mar-23	15:00	29-Mar-23	11:00	9.27

Hawley Anderson, Hon.B.Sc

Project Specialist,



P.O. Box 4300 - 185 Concession St. Lakefield - Ontario - KOL 2HO

Phone: 705-652-2000 FAX: 705-652-6365

05-April-2023

Works #: 110000383

Project: PO#017018

Date Rec.: 29 March 2023 LR Report: CA15575-MAR23

Copy: #1

OCWA-Kawartha (Lindsay WWTF)

Attn: Julie Mulligan

PO Box 279, Boyd St. E Bobcaygeon, ON K0M 1A0, Canada

Phone: 705-887-3596

Fax:

CERTIFICATE OF ANALYSIS Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: Eff Eff-Final Effluent (Comp)
Sample Date & Time					27-Mar-23 14:00
Temperature Upon Receipt [°C]					6.0
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	30-Mar-23	16:53	04-Apr-23	17:21	< 2
Total Suspended Solids [mg/L]	30-Mar-23	13:25	31-Mar-23	13:08	10
Phosphorus (total) [mg/L]	30-Mar-23	17:07	31-Mar-23	13:31	0.10
Total Kjeldahl Nitrogen [as N mg/L]	30-Mar-23	17:06	31-Mar-23	12:29	1.5
Ammonia+Ammonium (N) [as N mg/L]	30-Mar-23	16:05	31-Mar-23	10:42	< 0.1
Nitrite (as N) [mg/L]	30-Mar-23	14:52	05-Apr-23	13:03	< 0.03
Nitrate (as N) [mg/L]	30-Mar-23	14:52	05-Apr-23	13:03	8.83
Nitrate + Nitrite (as N) [mg/L]	30-Mar-23	14:52	05-Apr-23	13:03	8.83

^{*}Sampling dates used as indicated on sample containers.

Carrie Greenlaw Project Specialist,



P.O. Box 4300 - 185 Concession St. Lakefield - Ontario - KOL 2HO

Phone: 705-652-2000 FAX: 705-652-6365

18-April-2023

Works #: 110000383

Project: PO#017018

Date Rec.: 11 April 2023 LR Report: CA12470-APR23

Copy: #1

OCWA-Kawartha (Lindsay WWTF)

Attn : Julie Mulligan

PO Box 279, Boyd St. E Bobcaygeon, ON K0M 1A0, Canada

Phone: 705-887-3596

Fax:

CERTIFICATE OF ANALYSIS Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: Eff Eff-Final Effluent
Sample Date & Time					09-Apr-23 18:00
Temperature Upon Receipt [°C]					17.0
Carbonaceous Biochemical Oxygen Demand [(CBOD5) mg/L]	12-Apr-23	17:20	17-Apr-23	16:00	3
Total Suspended Solids [mg/L]	13-Apr-23	07:53	14-Apr-23	09:57	8
Phosphorus (total) [mg/L]	13-Apr-23	14:40	14-Apr-23	11:47	< 0.03
Total Kjeldahl Nitrogen [as N mg/L]	14-Apr-23	15:01	17-Apr-23	11:05	< 0.5
Ammonia+Ammonium (N) [as N mg/L]	13-Apr-23	15:47	14-Apr-23	11:00	0.1
Nitrite (as N) [mg/L]	13-Apr-23	08:22	16-Apr-23	08:49	< 0.03
Nitrate (as N) [mg/L]	13-Apr-23	08:22	16-Apr-23	08:49	9.23
Nitrate + Nitrite (as N) [mg/L]	13-Apr-23	08:22	16-Apr-23	08:49	9.23

Hawley Anderson, Hon.B.Sc

Project Specialist,



Appendix VII: Performance Assessment Report

Page 1 of 2



Performance Assessment Report

From 1/1/2023 to 12/31/2023 11:59:59 PM

	1 / 2023	2/ 2023	3/ 2023	4/ 2023	5/ 2023	6/ 2023	7/ 2023	8/ 2023	9/ 2023	10/ 2023	11/ 2023	12/ 2023	<total></total>	<avg></avg>	<max></max>	<-Criteria->
Flows																•
Raw Flow: Total - Raw m³/d	551,381.00	514,766.00	547,287.00	637,726.00	510,358.00	345,257.00	347,310.00	336,001.00	307,212.00	347,725.00	301,144.00	428,731.00	5,174,898.00			0.00
Raw Flow: Avg - Raw m³/d	17,786.48	18,384.50	17,654.42	21,257.53	16,463.16	11,508.57	11,203.55	10,838.74	10,240.40	11,216.94	10,038.13	13,830.03		14,177.80		
Raw Flow: Max - Raw m³/d	28,030.00	26,240.00	29,997.00	31,203.00	25,612.00	18,897.00	13,134.00	17,089.00	12,801.00	17,607.00	13,492.00	24,233.00			31,203.00	0.00
Raw Flow: Count - Raw m³/d	31.00	28.00	31.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00	365.00			0.00
Eff. Flow: Total - Eff m³/d	561,668.00	502,307.00	543,556.00	624,657.00	480,803.00	312,401.00	320,394.00	318,037.00	283,388.00	329,579.00	289,904.00	404,532.00	4,971,226.00			0.00
Eff. Flow: Avg - Eff m³/d	18,118.32	17,939.54	17,534.06	20,821.90	15,509.77	10,413.37	10,335.29	10,259.26	9,446.27	10,631.58	9,663.47	13,049.42		13,619.80		
Eff. Flow: Max - Eff m³/d	28,015.00	26,258.00	30,107.00	30,319.00	24,488.00	18,081.00	12,240.00	17,024.00	12,027.00	16,800.00	13,141.00	23,692.00			30,319.00	0.00
Eff Flow: Count - Eff m³/d	31.00	28.00	31.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00	365.00			0.00
Carbonaceous Biochemical Oxygen Dema	and: CBOD															
Eff: Avg cBOD5 - Eff mg/L	< 2.00 <	3.00	2.29	3.00 <	2.00	3.00	2.00	2.00 <	2.50 <	2.00 <	2.40	3.50		2.44	3.50	7.20
Eff: # of samples of cBOD5 - Eff	6.00	4.00	7.00	5.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	57.00	1		0.00
Loading: cBOD5 - Eff kg/d	< 36.237 <	53.819	40.078	62.466 <	31.020 <	31.240 <	20.671 <	20.519 <	23.616 <	21.263 <	23.192 <	45.673		< 33.21 <	62.47	
Biochemical Oxygen Demand: BOD5		JI	JL	JI		<u> </u>		J	1			'				
Raw: Avg BOD5 - Raw mg/L	104.50	105.75	74.60	95.50	95.60	163.25	144.75	189.80	143.50	200.75	216.60	155.50		140.84	216.60	0.00
Raw: # of samples of BOD5 - Raw	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	52.00			0.00
Total Suspended Solids: TSS																
Raw: Avg TSS - Raw mg/L	140.50	140.25	100.40	160.00	151.20	292.00	284.50	286.40	260.25	326.75	274.20	225.50		220.16	326.75	0.00
Raw: # of samples of TSS - Raw	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	52.00			0.00
Eff: Avg TSS - Eff mg/L	6.83	8.75	9.86	13.00	6.40	13.25	14.25	5.20	13.00	5.75	9.80	8.50		9.40	14.25	11.00
Eff: # of samples of TSS - Eff	6.00	4.00	7.00	5.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	57.00			0.00
Loading: TSS - Eff kg/d	123.809	156.971	172.836	270.685	99.263	137.977	147.278	53.348	122.801	61.132	94.702	110.920		128.07	270.68	
Percent Removal: TSS - Raw %	95.14	93.76	90.18	91.88	95.77	95.46	94.99	98.18	95.00	98.24	96.43	96.23		95.11	98.24	0.00
Total Phosphorus: TP																
Raw: Avg TP - Raw mg/L	1.50	1.54	1.31	1.65	1.79	3.21	2.49	3.03	2.55	2.93	3.15	2.32		2.29	3.21	0.00
Raw: # of samples of TP - Raw	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	52.00	1		0.00
Eff: Avg TP - Eff mg/L	< 0.05	0.06	0.06	0.05 <	0.06	0.10	0.14	0.05	0.13 <	0.05	0.09 <	0.06		< 0.07 <	0.14	0.18
Eff: # of samples of TP - Eff	6.00	4.00	7.00	5.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	57.00	1		0.00
Loading: TP - Eff kg/d	< 0.846	1.121	1.027	1.124 <	0.993	1.041	1.447 <	0.513	1.252 <	0.505	0.850 <	0.816		< 0.99	1.45	
Percent Removal: TP - Raw %	96.88	95.95	95.53	96.72	96.43	96.88	94.38	98.35	94.81	98.38	97.21	97.31		96.57	98.38	0.00

Nitrogen Series



Performance Assessment Report

03/04/2024

From 1/1/2023 to 12/31/2023 11:59:59 PM

Raw: Avg TKN - Raw mg/L	14.50	16.08	13.04	13.43	16.90	21.70	19.15	23.18	19.68	19.48	28.80	20.80		18.89	28.80	0.00
Raw: # of samples of TKN - Raw	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	52.00			0.00
Eff: Avg TAN - Eff mg/L	< 0.12 <	0.10	0.11	0.10	0.12	0.10	0.18	0.10	< 0.10	< 0.10 <	0.10	0.10		< 0.11	< 0.18	4.10
Eff: # of samples of TAN - Eff	6.00	4.00	7.00	5.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	57.00			0.00
Loading: TAN - Eff kg/d	< 2.114	1.794	2.004	2.082	1.861	1.041	1.809	1.026	< 0.945	< 1.063 <	0.966	1.305		< 1.51	< 2.11	
Eff: Avg NO3-N - Eff mg/L	9.04	12.23	10.26	9.40	10.43	8.62	10.01	10.65	10.83	9.03	10.58	9.44		10.04	12.23	0.00
Eff: # of samples of NO3-N - Eff	6.00	4.00	7.00	5.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	57.00			0.00
Eff: Avg NO2-N - Eff mg/L	< 0.05 <	0.03	0.03	0.03	0.04	0.39	0.03	0.03	< 0.03	< 0.03 <	0.03	0.03		< 0.06	< 0.39	0.00
Eff: # of samples of NO2-N - Eff	6.00	4.00	7.00	5.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	57.00			0.00
Disinfection																
Eff: GMD E. Coli - Eff cfu/100mL	16.88	4.56	2.00	3.13	2.30	1.41	3.56	2.17	4.36	2.38	1.74	2.38				175.00
Eff: # of samples of E. Coli - Eff	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	52.00			0.00

Page 2 of 2



APPENDIX I

MECP ECA No.: A323504



Ministry of the Environment, Conservation and Parks Ministère de l'Environnement, de la Protection de la nature et des Parcs

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER A321504

Issue Date: March 11, 2022

City of Kawartha Lakes

322 Kent St W Lindsay, Ontario

K9V 4T7

Site Location: Lindsay - Ops Landfill Site

51 Wilson Road Lindsay, Ontario

K9V 4R3

You have applied under section 20.2 of Part II.1 of the <u>Environmental Protection Act</u>, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

a landfill site with a 21.2 hectare waste fill area within a total site area of 53.9 hectares including buffer area to used for the disposal of Municipal Waste generated within the Owner of Kawartha Lakes.

For the purpose of this environmental compliance approval, the following definitions apply:

"Adverse Effect" means the same as the definition in the EPA;

"Approval" means this entire Environmental Compliance Approval, issued in accordance with Section 20.2 of the EPA, and includes any schedules to it, the application and the supporting documentation listed in schedule "A";

"Director" means any Ministry employee appointed in writing by the Minister pursuant to section 5 of the EPA as a Director for the purposes of Part V of the EPA;

"District Manager" means the District Manager of the local district office of the Ministry in which the Site is geographically located;

"EPA" means the Environmental Protection Act, R.S.O. 1990, c. E.19, as amended;

"Major Works" are those works that have an engineering component;

"Ministry" means the Ontario Ministry of Environment, Conservation and Parks (MECP);

"Municipal Waste" is as defined in Reg. 347;

"North expansion fill area" means the 13.24 hectare expansion waste disposal fill area, as shown on Map 2-1, Property Plan, Earth Tech Canada Inc., dated March 2001 (Item 35(m) in Schedule "A" attached to this Approval);

"NMA" means the Nutrient Management Act, 2002, S.O. 2002, c. 4, as amended;

"Operations and Maintenance Manual" means the most recent approved version of the Operations and Maintenance Manual required by Condition 4.2;

"Owner" means City of Kawartha Lakes;

"OWRA" means the Ontario Water Resources Act, R.S.O. 1990, c. O.40, as amended;

"Partially Composted Leaf and Yard Waste" is leaf and yard waste which has not been composted in strict accordance with Sections 31 to 33 of Regulation 101/94, Part V- Leaf and Yard Waste Composting Sites and can not be defined as Compost;

"PA" means the Pesticides Act, R.S.O. 1990, c. P-11, as amended from time to time;

"PRC" means the Public Review Committee for this landfilling site, as described in the conditions in this Approval;

"Professional Engineer" means an engineer licensed to engage in the practice of professional engineering, as defined in the Professional Engineers Act, R.S.O. 1990, c. P-28, as amended;

"Provincial Officer" means any person designated in writing by the Minister as a provincial officer pursuant to Section 5 of the OWRA or Section 5 of the EPA or Section 17 of PA or Section 4 of NMA or Section 8 of SDWA;

"Reg. 232" means Ontario Regulation 232/98, Landfill Standards, made under the EPA, as amended;

"Reg. 347" means Regulation 347 of Revised Regulations of Ontario, 1990 (General - Waste Management), made under the EPA, as amended;

"Regional Director" means the Regional Director of the local Regional Office of the Ministry in which the Site is located;

"SDWA" means the Safe Drinking Water Act, 2002, S.O. 2002, c. 32, as amended;

"Site" means the entire waste disposal site, including the waste fill area and all buffer lands, including lands used for contaminant attenuation, approved by this Approval and located at 51 Wilson Road, Lindsay, Ontario;

"Waste fill area" means the area on the surface of the landfilling site beneath which or above which waste is disposed of by landfilling, including the existing and north expansion fill areas at this Site;

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

Compliance

- 1.1 The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Site is notified of the Approval and the conditions herein and shall take all reasonable measures to ensure the person complies with the same.
- 1.2 Any person authorized to carry out work on or operate any aspect of the Site shall comply with the conditions of this Approval.

In Accordance

1.3 Except as otherwise provided for in this Approval, the Site shall be designed, developed, constructed, operated and maintained in accordance with the application for this Approval and the supporting documentation listed in Schedule "A".

Other Legal Obligations

- 1.4 The issuance of, and compliance with, this Approval does not:
 - a. relieve any person of any obligation to comply with any provision of the EPA or any other applicable statute, regulation or other legal requirement; or
 - b. limit in any way the authority of the Ministry to require certain steps be taken or to request that any further information related to compliance with this Approval be provided to the Ministry;

unless a provision of this Approval specifically refers to the other requirement or authority and clearly states that the other requirement or authority is to be replaced or limited by this Approval .

Adverse Effect

1.5 The Owner shall remain responsible for any contravention of any other condition of this

Approval or any applicable statute, regulation, or other legal requirement resulting from any act or omission that caused the adverse effect or impairment of air and/or water quality.

Furnish Information

- 1.6 Any information requested by the Director or a Provincial Officer concerning the Site and its operation under this Approval, including but not limited to any records required to be kept by this Approval shall be provided in a timely manner.
- 1.7 The receipt of any information by the Ministry or the failure of the Ministry to prosecute any person or to require any person to take any action, under this Approval or under any statute, regulation or subordinate legal instrument, in relation to the information, shall not be construed as:
 - a. an approval, waiver, or justification by the Ministry of any act or omission of any person that contravenes any condition of this Approval or any statute, regulation or other subordinate legal requirement; or
 - b. acceptance by the Ministry of the information's completeness or accuracy.
- 1.8 Any information related to this Approval and contained in Ministry files may be made available to the public in accordance with the provisions of the Freedom of Information and Protection of Privacy Act, RSO 1990, CF-31.

Interpretation

- 1.9 This Approval revokes and replaces the previous Approval and all subsequent amendments.
- 1.10 Where there is a conflict between a provision of any document, including the application, referred to in this Approval, and the conditions of this Approval, the conditions in this Approval shall take precedence.
- 1.11 Where there is a conflict between the application and a provision in any documents listed in Schedule "A", the application shall take precedence, unless it is clear that the purpose of the document was to amend the application and that the Ministry approved the amendment in writing.
- 1.12 Where there is a conflict between any two documents listed in Schedule "A", other than the application, the document bearing the most recent date shall take precedence.
- 1.13 The conditions of this Approval are severable. If any condition of this Approval, or the application of any condition of this Approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.

Certificate of Requirement

- 1.14 Pursuant to Section 197 of the EPA, no person having an interest in the Site shall deal with the Site in any way without first giving a copy of this Approval to each person acquiring an interest in the Site as a result of the dealing.
- 1.15 In the event any additional land is acquired for the Site, then two (2) copies of a completed Certificate of Requirement, containing a registerable description of the additional lands for the Site, shall be submitted to the Director for the Director's signature within sixty (60) calendar days of any amendment to this Approval that incorporates the land into the Approval.
- 1.16 In the event any additional land is acquired for the Site, then the Certificate of Requirement shall be registered in the appropriate land registry office on title to the Site and a duplicate registered copy shall be submitted to the Director within ten(10) calendar days of receiving the Certificate of Requirement signed by the Director.

No Transfer or Encumbrance

1.17 No portion of this Site shall be transferred or encumbered prior to or after closing of the Site unless the Director is notified in advance and is satisfied with the arrangements made to ensure that all conditions of this Approval will be carried out and that sufficient financial assurance is deposited with the Ministry to ensure that these conditions will be carried out.

Change of Owner

- 1.18 The Owner shall notify the Director, in writing, and forward a copy of the notification to the District Manager, within 30 days of the occurrence of any changes in the following information:
 - a. the ownership of the Site;
 - b. the address of the Owner;
 - d. the partners, where the Owner is or at any time becomes a partnership and a copy of the most recent declaration filed under the Business Names Act, R. S. O. 1990, c. B.17, shall be included in the notification;
 - e. the name of the corporation where the Owner is or at any time becomes a corporation, other than a municipal corporation, and a copy of the most current information filed under the Corporations Information Act, R. S. O. 1990, c. C.39, shall be included in the notification.
- 1.19 In the event of any change in the ownership of the Site, other than a change to a successor municipality, the Owner shall notify in writing the succeeding owner of the existence of this Approval, and a copy of such notice shall be forward to the Director and District Manager.

Inspections

1.20 No person shall hinder or obstruct a Provincial Officer from carrying out any and all

inspections authorized by the EPA or the PA, of any place to which this Approval relates, and without limiting the foregoing:

- a. to enter upon the premises where the approved works are located, or the location where the records required by the conditions of this Approval are kept;
- b. to have access to, inspect, and copy any records required to be kept by the conditions of this Approval;
- c. to inspect the Site, related equipment and appurtenances;
- d. to inspect the practices, procedures, or operations required by the conditions of this Approval; and
- e. to sample and monitor for the purposes of assessing compliance with the terms and conditions of this Approval or the EPA or the PA.

2.0 CONSTRUCTION, INSTALLATION AND PLANNING

Major Works

- 2.1 For the purposes of this Approval the following are considered Major Works:
 - a. gas management system;
 - b. leachate collection system;
 - c. stormwater management system;
 - d. final cover;
 - e. liner system;
 - f. Household Hazardous Waste Facility;
 - g. Re-use Centre; and
 - h. Leaf and Yard Waste Facility.
- 2.2 A final detailed design shall be prepared for each Major Work to be constructed at the Site consistent with the conceptual design of the Site as presented in the Supporting Documentation in Schedule "A".
- 2.3 The final detailed design of each Major Work shall include the following:
 - a. design drawings and specifications;
 - b. a detailed quality assurance / quality control (QA/QC) program for construction of the major work, including necessary precautions to avoid disturbance to the underlying soils; and
 - c. details on the monitoring, maintenance, repair and replacement of the engineered components of the major work, if any.
- 2.4 Any design optimization or modification that is inconsistent with the conceptual design shall be clearly identified, along with an explanation of the reasons for the change.
- 2.5 The final detailed design of each Major Work shall be submitted to the Director for approval

- and copied to the District Manager.
- 2.6 Each major work shall be constructed in accordance with the approved final detailed design and the QA/QC procedures shall be implemented as proposed by the Owner. Any significant variances from the conceptual design for the Site shall be subject to approval by the Director.
- 2.7 As-built drawings for all Major Works shall be retained on site and made available to Ministry staff for inspection.

Compacted Soil Liner

- 2.8 The soil liner in the North expansion fill area (base and sideslopes, except common north slope of existing fill area) shall be placed and compacted to a minimum thickness of **750 mm**, compacted in at least **5 lifts** of no more than **0.15 metres** in compacted thickness each, and to achieve a hydraulic conductivity of **1 x 10**⁻⁷ cm/sec or less, in addition to the design recommendations in Section 4.3.3 in the Design Report, Item 28(b) in Schedule "A", as amended in Items 35 and 37 in Schedule "A" attached to this Approval.
- 2.9 During installation of the compacted soil liner, care shall be taken to:
 - a. control soil properties and water content;
 - b. ensure the break-up of clods;
 - c. control lift thickness and compaction;
 - d. remove stones larger than 100 millimetres in diameter;
 - e. prevent desiccation of the compacted clayey liner;
 - f. prevent damage to the compacted clayey liner due to freezing;
 - g. prevent damage to the compacted clayey liner from vehicular traffic;
 - h. prevent damage to the compacted clayey liner due to rodents; and
 - i. prevent damage to the compacted clayey liner due to differential settlement.
- 2.10 As part of the liner construction protocol, the Owner shall ensure that a soils technician, under the direction of a suitably qualified geotechnical Professional Engineer shall be on the Site full-time during construction of the compacted soil liner. Responsibilities shall include maintaining the quality of the liner in terms of evaluating soil suitability, water content, compaction effort and density, and to verify that the liner is placed according to the technical specifications.
- 2.11 The report of a suitably qualified geotechnical Professional Engineer shall be included in each Site Preparation Report and must confirm that there is no evident cracking in the constructed liner or significant occurrence of clods, stones, branches or other material that could shorten the service life of the constructed liner or significantly increase the hydraulic conductivity of the liner.
- 2.12 In addition to the trial soil liner construction (Item 28(d)(iv) in Schedule "A"), additional test pits shall be excavated during the detailed design stage to estimate the quantity of suitable

liner material available from the excavation of each cell and from the Owner-owned lands south of the existing fill area. Prior to the actual construction of the landfill base liner system in the north expansion fill area at this Site with a new source of liner material, the Owner shall submit a report prepared by a suitably qualified geotechnical Professional Engineer to the Director and District Manager which demonstrates and ensures that the materials and installation/construction procedures will produce a liner system that will meet the liner design specifications and performance objectives.

- 2.13 The Owner shall notify the District Manager in writing prior to placement of the compacted soil liner that a qualified geotechnical Professional Engineer has inspected and approved the native soil sub-grade for placement of the overlying compacted soil liner.
- 2.14 No later than seven (7) days after completion and inspection of the base excavation, the Owner shall submit to the District Office an interim inspection report for the base excavation and preparation. The report shall be prepared by a qualified geotechnical Professional Engineer.

Geosynthetic Clay Liner

- 2.15 Prior to installation of the Geosynthetic Clay Liner (GCL) liner, the Owner shall provide to the Director construction and installation procedures including the following:
 - a. procedures for hydrating the GCL in the field;
 - b. details regarding visual inspection of the suitability of the subgrade;
 - c. methods of protecting the GCL during shipping, storage and handling;
 - d. deployment of the GCL at the construction site, a panel layout plan, seam preparation, seaming methods;
 - e. methods to avoid opening of seams due to movement as overlying layers are placed.
 - f. a description of the inspection, sampling and testing methods and frequencies to be employed to assure that the GCL meets the design requirements;
 - g. a demonstration that adequate shear strength will be provided in the GCL and between the GCL and other components of the liner system so that slippage and sloughing does not occur on the slopes of the landfill.

Geomembrane Liner

- 2.16 (1) The geomembrane must be made of high density polyethylene (HDPE) and must have a thickness of at least 1.5 millimetres.
 - (2) The geomembrane liner shall be installed in direct and uniform contact with a suitable foundation.
 - (3) The geomembrane must be protected against puncturing and load induced damage at all times including during installation.
 - (4) During installation, care must be taken to:

- a. remove wrinkles in the geomembrane;
- b. minimize stress concentrations;
- c. ensure high quality seams;
- d. minimize differential settlement;
- e. minimize exposure to ultraviolet light;
- f. prevent damage due to sliding;
- g. prevent damage due to installation in cold conditions, and
- h. prevent damage due to rodents.

Geosynthetic Clay Liner (GCL) and Geomembrane

2.17 To ensure that the geosynthetic products specified in the design have been supplied and installed in accordance with the design drawings and specifications, a qualified inspector(s) shall be on the Site during construction to sample, test and confirm installation in accordance with the recommendations of the manufacturers, design drawings and specifications, and QA/QC procedures.

Geotechnical Inspection and Assessment

2.18 Excavation within and preparation of the foundation soils underlying the Site and construction of the base liner of the leachate containment system in a new cell shall be inspected by a suitably qualified geotechnical Professional Engineer to ensure that preparation and construction proceeds in accordance with approved detailed design plans, technical specifications and QA/QC activities and procedures. The results of inspections shall be included in the Site Preparation Reports and subsequent inspection reports for the Site. No landfilling of wastes shall occur on any portion of the liner and leachate collection system until the Director and District Manager have received an inspection report from the engineer indicating that the portion of the base liner of the leachate containment system has been constructed as required by this Approval.

Inspections with respect to the base liner system shall include assessment of the following:

- a. The adequacy of extracted till material from the landfill excavation and/or clayey material from the clay borrow pit(s) for base liner construction and leachate/liner compatibility;
- b. The acceptability of foundation conditions to ensure adequate bearing capacity and slope stability, adequate provisions to prevent basal heave or blowout, absence of standing water, and absence of potential conduits for leachate and landfill gas migration; and
- c. Compliance with liner installation specifications and QA/QC procedures related to items such as grain size distribution and clay content of native and borrow materials, clod size limits, removal of stones, Atterberg limits, compaction moisture content, compaction effort, required Standard Proctor Density, lift thickness, scarification between lifts, permeability, and procedures to avoid desiccation of the clayey liner.

2.19 During excavation for landfill base preparation, any intersected granular lenses, interbedded layers, wells, boreholes, agricultural drains, or other possible groundwater conduits encountered in the excavation, shall be adequately mapped, and removed/over-excavated or sealed with appropriately engineered low permeability materials, as necessary, prior to liner construction and landfilling.

Pre-Loading of North Slope

2.20 The north slope of the existing fill area shall be pre-loaded with soil for a minimum of five (5) years to expedite the waste settling process prior to placement of the GCL, geomembrane and leachate collection system for the north expansion fill area on the common north slope, and in accordance with Section 4.3.4 in the Design Report and Section 3.2.4 in the Maintenance & Operations Report, Items 28(b) & 28(c) in Schedule "A", as revised in Items 31 to 37 in Schedule "A" attached to this Approval.

Site Preparation Report

2.21 The Owner shall not commence landfilling in a newly prepared cell in the south expansion fill area of Cell 4 & 5 (south half) until a written report has been submitted to the Director and District Manager documenting all construction, QA/QC activities and procedures, and confirming that the Site conditions and details of the construction of the fill area are in accordance with the approved design plans and specifications for the Site, and including sufficient baseline data from existing and new monitoring installations to support environmental monitoring programs for the Site.

3.0 APPROVED WORKS

Liner System Approval

- 3.1 (1) Approval is hereby granted for the detailed design for the Cells 1, 2, 3, 6, 4 & 5 (south half) base liner and leachate collection system, all in accordance with the following documentation, hereby added to Schedule "A" of this Approval.
 - (2) The Owner shall construct the northern half of Cells 4 and 5, base liner and leachate collection system in accordance with the following Items 88 through 92 in Schedule "A" of this Approval.
 - (3) Alterations to the base liner and collection system connections between Cells 4 and 5 (North Half) Stage 2 and Cells 3 and 6 are approved in accordance with Item 104 of Schedule "A":
 - (4) The Owner shall construct the southern half of Cells 4 and 5, base liner and leachate collection system in accordance with Item 106 in Schedule "A" of this Approval.

Ancillary Features

3.2 Approval is hereby granted for the detailed design of ancillary facilities associated with landfill expansion, including new site entrance and roads, weigh scales and scale house, multi-use operations building (administration, vehicle maintenance, re-use depot and recycling depot), household hazardous waste (HHW) depot, leaf and yard waste composting facility, and public waste drop-off container station, all in accordance with the documentation in Schedule "A" in the Approval.

Landfill Gas Collection System

- 3.3 (1) The landfill gas collection and flaring system shall be constructed and operated in accordance with Items 57 through 59 and 103 in Schedule "A".
 - (2) For the future phases of the landfill gas collection and flaring system, the Owner shall submit the final detailed design to the Director for approval, with copies to the District Manager prior to construction.
- 3.4 Prior to construction of extensions of the landfill gas collection and flaring system, the Owner shall have in place, and available for Ministry's review upon request, the following:
 - a. An odour control plan to minimize odour impacts off-site during the construction phase;
 - b. A monitoring plan for odour and air emissions during the construction phase of the work and post-construction phase;
 - c. A sediment/erosion control plan to be implemented during the construction and post-construction for the installation of the landfill gas collection and flaring system.
 - d. A construction schedule for the installation of the landfill gas collection and flaring system;
- 3.5 Within ninety (90) days of commissioning of extensions to the landfill gas collection and flaring system, the Owner shall submit to the District Manager a construction report detailing the construction activities and any design changes made to the system during construction. This report shall include but not be limited to the following topics:
 - a. "as-built" drawing(s) of the location of the landfill gas collection and flaring system;
 - b. a description of the various construction stages;
 - c. quality assurance/quality control plan for the construction; and
 - d. any changes to the design of the landfill gas collection and flaring system.
- 3.6 (1) In the event a gas well needs replacing due to damage or the well is deemed to be not functioning properly, the Owner may replace the gas well.
 - (2) The Owner shall notify the District Manager in writing that a well is being replaced, no later than fourteen (14) days prior to replacement of the well. The replacement well shall be located at the same location as the replaced well or in the immediate vicinity of the well it is replacing.

(3) For any other major repairs, replacements and/or upsets of the landfill gas collection and flaring system, the Owner shall notify the District Manager in writing within thirty (30) days of the changes. Such changes shall also be included in the landfill annual report.

Leachate Collection and Disposal System

- 3.7 The Leachate Collection and Disposal System consists of the Leachate Pumping Station No. 1; Leachate Pumping Station No. 1; and Sewage Pumping Station, that are described as follows and in accordance with documentation listed in Schedule 'A':
 - a. Leachate Pumping Station No. 1 consists of:
 One (1) 1.8 m diameter x 6.4 m deep concrete pumping station equipped with two (2) stainless steel submersible pumps (one on standby) each rated at 7.0 L/s @ 17.3 m TDH, one (1) 1.8 m wide x 2.4 m long x 2.4 m deep valve chamber, receiving leachate from the existing landfill cells through a 150 mm diameter sewer and discharging through a 75 mm diameter forcemain and a 75 mm magnetic flow meter into the inlet works of the Lindsay WPCP.
 - b. Leachate Pumping Station No. 2 consists of:
 One (1) 1.8 m diameter x 7.3 m deep fibreglass package pumping station equipped with two (2) stainless steel submersible pumps (one on standby) each rated at 7.0 L/s @ 17.5 m TDH, one (1) 2.4 m wide x 3.0 m long x 2.7 m deep valve chamber equipped with 75 mm magnetic flow meter, receiving leachate from the new landfill cells through a 200 mm diameter PVC sewer and discharging through a 100 mm diameter forcemain into a Sewage Pumping Station described below or into the inlet works of the Lindsay WPCP when the need arises.
 - c. Sewage Pumping Station consists of:
 One (1) 3.6 m diameter x 6.7 m deep precast concrete pumping station equipped with
 three (3) stainless steel submersible pumps (two on duty in parallel and one on standby)
 each rated at 7.5 L/s @ 25.5 m TDH, receiving leachate from Leachate Pumping Station
 No. 2, septage from a septage dumping station through a 250 mm diameter sewer and
 sewage from site buildings through a 200 mm diameter sewer, and discharging through a
 150 mm diameter forcemain and a 100 mm magnetic flow meter, into the inlet works of
 the Lindsay WPCP; and
 - d. Including all controls, alarms, and associated appurtenances.

4.0 GENERAL OPERATIONS

Proper Operation

4.1 A. Site Operations:

The Site shall be properly operated and maintained at all times. All waste shall be managed and disposed of in accordance with the EPA and Reg. 347 and the requirements of this Approval. At no time shall the discharge of a contaminant that causes or is likely to cause an Adverse Effect be permitted.

B. Leachate Collection and Disposal System (LCDS) Operations:

- a. The Owner shall exercise due diligence in ensuring that, at all times, the LCDS and the related equipment and appurtenances used to achieve compliance with this Approval; are properly operated and maintained. Proper operation and maintenance shall include effective performance, adequate funding, adequate staffing and training.
- b. The Owner shall ensure that the total maximum flow of leachate from Leachate Pumping Station No.1 and Leachate Pumping Station No.2 into the Lindsay Water Pollution Control Plant does not exceed the peak flow rate of 750 m³/day at any time.
- c. The Owner shall ensure that the total average daily flow of leachate from Leachate Pumping Station No. 1 and Leachate Pumping Station No. 2 into Lindsay Water Pollution Control Plant does not exceed 300 m³/day for any period of time greater than one (1) calendar year.
- d. Any diversion of sewage flow from any portion of the LCDS is prohibited, except:
 - i. where it is unavoidable in preventing loss of life, danger to public health, personal injury or severe property damage; or
 - ii. where it is necessary for the purpose of essential maintenance of the LCDS to assure their efficient operation, and the District Manager has given a prior written approval for the bypass.

Operations Manual

- 4.2 The Operations and Maintenance Manual shall be updated and submitted to the Director for approval, with copies to the District Manager every five years by December 31st, that includes, but is not necessarily limited to, the following information:
 - a. Health and safety;
 - b. Operation and maintenance of the Site and for routine operation of the LCDS;
 - c. Waste acceptance;
 - d. Waste disposal area and development;
 - e. Nuisance management;
 - f. Leachate management;
 - g. Landfill gas management;
 - h. Surface Water/Storm water management;
 - i. Inspections and monitoring programs for the Site and the LCDS, including frequency of inspection, for the LCDS and the methods or tests employed to detect when maintenance is necessary;
 - j. Contingency plans and emergency procedures for the Site and the LCDS. The LCDS plans shall also include a spill prevention control and countermeasures plan, consisting of contingency plans and procedures for dealing with equipment breakdowns, potential

- spills and any other abnormal situations, including notification of the District Manager;
- k. Complaints;
- 1. Reporting and record keeping:
- m. Repair and maintenance programs, including the frequency of repair and maintenance for the LCDS; and
- n. Procedures for the inspection and calibration of monitoring equipment for the LCDS.
- 4.3 The Operations and Maintenance Manual shall be:
 - a. retained at the Site
 - b. reviewed on an annual basis and updated by the Owner as required; and
 - c. be available for inspection by Ministry staff.

Service Area

4.4 Only wastes generated from within the geographic boundaries of the City of Kawartha Lakes may be received for final disposal at this Site. Wastes may be received from outside the geographic boundaries of the City of Kawartha Lakes if it is only for the purposes of temporary storage and is sent off-site for final disposal, reuse or recycling.

Capacity

- 4.5 (1) The total waste disposal capacity of the Site expansion in the north expansion fill area, including waste, daily cover and interim cover, is **1,487,240 cubic metres**. This volume does not include the composite liner, leachate collection system and final cover. The total waste disposal capacity of the Site (existing fill area and the north expansion fill area), including waste, daily cover and interim cover, is approximately 2.34 million cubic metres.
 - (2) The amount of waste and daily and interim cover materials deposited at the Site shall not exceed the Site capacity as defined in Condition 4.5 (1) of this Approval.

Waste Fill Rate

4.6 The maximum rates at which this Site may receive waste are **240 tonnes per day** and **58,200 tonnes per calendar year**. Receipt of waste in excess of the daily maximum fill rate may only be allowed on a limited short-term basis, on no more than two consecutive operating days.

Waste Placement

- 4.7. No waste shall be landfilled outside of the **limit of fill area** for the existing and expansion waste disposal fill areas shown on Map 2-1, Property Plan, dated March 2001 (Item 35(m) in Schedule "A" attached to this Approval).
- 4.8 No waste shall be landfilled below the **base contours** shown on Map 4-5, Proposed Base

- Contours, dated March 2001 (Item 35(m) in Schedule "A" attached to this Approval).
- 4.9 No waste shall be landfilled at any time above the **final contours** shown on Map 4-6, Proposed Final Contours, dated March 2001 (Item 35(m) in Schedule "A" attached to this Approval). The maximum elevation of the north expansion fill area shall be **278 metres above sea level**, including final cover.
- 4.10 No waste shall be landfilled in the contaminant attenuation zone described in Items 23, 24, 25 and 26 in Schedule "A" attached to this Approval.

Waste Inspection Procedures

- 4.11 The Owner shall develop and implement a program to inspect waste to ensure that the waste is of a type approved for acceptance under this Approval.
- 4.12 The Owner shall conduct appropriate inspections and ensure that appropriate controls are in place to prevent the acceptance of liquid industrial waste and hazardous waste and to prevent the acceptance of waste from outside the approved service area. Records of violations by haulers or waste generators shall be recorded in the daily records for the Site operations. The Owner shall forthwith notify the District Manager of any and all waste load refusals at the Site related to requirements in this Approval, including service area and waste types.

Waste Inspection and Deposition

4.13 All loads of waste must be inspected by trained site personnel prior to acceptance at the Site and waste vehicles must be diverted to appropriate areas for waste disposal.

Cell Development

4.14 Waste landfilling operations shall generally move from north to south in the north expansion fill area to accommodate the pre-loading and to allow for settling of the north slope area of the existing fill area. Cell designation and initial development is shown on Map 4-2, Initial Cell Development Plan, dated March 2001 (Item 35(m) in Schedule "A" attached to this Approval), and shall proceed as follows: 1, 2, 3, 6, 4A, 4B, 5A, 5B.

Hours of Operation

- 4.15 The maximum operating hours for the Site for receipt of waste for disposal, Site preparation, Site maintenance and daily cover activities are from **Monday through Saturday** between the hours of **7:00 a.m. and 7:00** p.m.
- 4.16 With prior notification to the PRC and written approval of the District Manager, the time periods may be extended to accommodate seasonal or unusual quantities of waste.
- 4.17 The Owner may provide limited hours of operation provided that the hours are posted at the

landfill gate and that suitable notice is provided to the public of any change in operating hours.

4.18 Upon reasonable notice to the District Manager, contingency actions may take place outside normal hours of operation. Emergency response may occur at any time as required.

Signage

- 4.19 Signs shall be placed at the landfill Site entrance/exit indicating, at a minimum, the following:
 - a. Name of the landfill and name of the owner;
 - b. Ministry Approval Number;
 - c. Days and hours of operation and public use;
 - d. Telephone number/contact at the City of Kawartha Lakes;
 - e. Area served by the landfill;
 - f. Types of waste accepted and prohibited;
 - g. Overview of landfill complaints procedure, including a phone number for registering a complaint;
 - h. Unauthorized entry is prohibited; and
 - i. A warning against dumping wastes outside the Site.
- 4.20 Signs shall also be posted along internal access roads controlling vehicle speed, turning movements and to direct vehicles to the working face and other designated areas and facilities on the Site, as appropriate. All landfill signs shall be kept legible, in good repair, and cleaned when required.

Site Supervision and Security

- 4.21 (1) No waste shall be received, landfilled or removed from the Site unless a Site supervisor or attendant is present and supervises the operations during operating hours. The Owner shall ensure that adequately trained persons are on duty at all times during the operation of the Site to provide proper supervision of all waste management activities. Incoming waste shall be inspected prior to acceptance at the Site to ensure that the Site is approved to accept that type of waste.
 - (2) During non-operating hours, the Owner shall ensure that the Site entrance and exit gates shall be locked and the Site shall be secured against access by unauthorized persons.

On-Site Roads

4.22 On-Site roads shall be provided and maintained in a manner that vehicles hauling waste to and on the Site may travel readily and safely on any operating day. During winter months, when the Site is in operation, roads must be maintained to ensure safe access to the landfill working face. The Owner may establish and use temporary working roads for landfill operating and construction equipment, as needed.

Litter Control, Vermin, Scavenging, Dust, Litter, Odour, Noise, etc.

- 4.23 The Owner shall implement control measures for dust, odour, litter, noise, birds, vector and vermin in accordance with Sections 6.1 to 6.6 in the Operations and Maintenance Manual. Effectiveness of the control measures shall be reviewed and monitored regularly and updated/revised, as required, based on operational experience and complaints.
- 4.24 Controlled removal of reusable material from the Site may only occur in a designated and supervised area of the Site.
- 4.25 (1) Litter from the Site shall be picked up on a daily basis along the Site's perimeter and access roads.
 - (2) Upon the consent of neighbouring residents, the Owner shall, at its own expense, remove landfill-related litter from neighbouring properties on a daily basis.

 Landfill-related litter on municipal or public roads within 500 metres of the Site shall be removed monthly by the Owner, upon the consent of the authorities having jurisdiction over such roads.
- 4.26 Visual screening shall be installed, inspected and maintained as required during the operating life of the landfill Site.
- 4.27 The Owner shall carry out a program to minimize dust, based on dust control measures in Section 6.1 in the Operations and Maintenance Manual. Accurate records shall be kept of the use of any chemical dust suppressants, including date and location of application on the Site. Effectiveness of the dust suppression plan shall be reviewed and monitored regularly and updated/revised, as required, based on operational experience and complaints. Measures shall be taken to prevent mud-tracking off the Site.

Noise Control

- 4.28 Noise shall be controlled in accordance Section 6.4 in the Operations and Maintenance Manual. Noise from or related to the operation of the landfill shall be kept to a minimum and in any event, the Owner shall comply with the criteria set out in the Ministry's "Noise Guidelines for Landfill Sites":
 - a. The limits for sound levels due to the landfilling Site operation at a point of reception are 45 dBA in any hour of the night, 7:00 p.m. 7:00 a.m., and 55 dBA in any hour of the day, 7:00 a.m. 7:00 p.m. These levels are expressed in terms of the One Hour Equivalent Sound Level (Leq).
 - b. For impulsive sound, other than quasi-steady impulsive sound, from a pest control device employed to deter birds from the landfilling Site, the applicable sound level limit at a point of reception expressed in terms of the Logarithmic Mean Impulse Sound Level (LLM) is 70 dBAI.
 - c. For quasi-steady impulsive sound, but not including other impulsive sound from a pest

control device employed to deter birds from the landfilling Site, the applicable sound level limit at a point of reception expressed in terms of the One Hour Equivalent Sound Level (Leq) is 60 dBA.

Gull Control

4.29 The Owner shall implement and carry out the Gull Control Program (Habitat Management, Active and Lethal Control Measures, Contingency Exclusions Measures, Personnel and Training, Monitoring and Reporting) for the landfill Site, in accordance with Item 30 in Schedule "A", as soon as possible following issuance of this Approval, acquisition of required permits and specific equipment, and staff training.

Other Controls

- 4.30 Bare soil surfaces on the landfill Site shall be minimized and vegetated, as necessary, to prevent loafing by gulls. Specifically, bare soil areas that will remain unused for extended periods of time (4 months or more) shall be seeded with a grass/weed seed mixture to establish tall vegetation (> 20 cm).
- 4.31 (1) The Owner shall empty the open-air garbage bins at the Residential Container Station at the Site when they are near capacity No waste materials other than approved by this Approval shall be placed/stored outside of the bin.
 - (2) In the event gulls become a nuisance at the station, the Owner shall implement the approved gull control measures as approved by this Approval.
 - (3) In the event the approved gull control measures are unsuccessful in alleviating gull nuisances at the station, the Owner shall submit to the Director for approval, a plan that provides alternative methods (from those already approved) to minimize nuisance created by gulls at the station.
- 4.32 The Site shall be actively monitored to eliminate pools of standing water and reduce the attraction to gulls for loafing. Areas of standing water shall be regraded or filled with soil as soon as practically possible.
- 4.33 The stormwater management pond for this landfill Site shall be designed and constructed to discourage use of the pond by gulls as a loafing site during the day. Pond design shall consider high perimeter berms and dense planting of trees or tall shrubs on the berms.
- 4.34 Construction of berms on the Site using a mixture of soil and waste shall not use waste that contains food scraps.
- 4.35 Any long-term soil stockpiles on the Site shall be seeded with a grass/weed seed mixture to establish vegetation in order to minimize soil erosion, dust and attraction by gulls for loafing.

- 4.36 The Owner shall ensure that one full-time staff member at the landfill Site shall be designated as the Control Officer responsible for directing daily gull control program activities.
- 4.37 Prior to the implementation of the gull control program and on a regular basis thereafter, all staff directly responsible for daily operation of the landfill shall be trained on all aspects of the program in accordance with Section 5 in Item 30 in Schedule "A" of this Approval, as amended.
- 4.38 The Owner shall make its best efforts to communicate and cooperate with management staff of the Lindsay Airport regarding the effectiveness of the gull control program for the landfill Site. The Annual Report (Condition 15) shall be made available to management staff of the Lindsay Airport.

Paved Roads and Parking Lots

4.39 Use of chloride-based de-icing salts on paved surfaces (on-site roads and parking areas) shall be minimized in order to limit the potential for groundwater contamination and interference with groundwater / leachate monitoring for the Site. Alternative de-icing products may be used to ensure safe vehicle operations during winter conditions. Accurate records of application of de-icing products (type, date, amount, location) shall be prepared and maintained.

Spills

4.40 All spills and upsets shall be immediately reported to the Ministry's Spills Action Centre (SAC) and shall be recorded in a log as to the nature of the spill or upset, and the action taken for clean-up, correction and prevention of future occurrences.

Subsurface Migration of Landfill Gas

- 4.41 The Owner shall ensure that all buildings and structures to be built on the Site shall be situated, constructed and monitored in a manner which minimizes the potential for explosive hazards due to landfill gas. Methane detection and alarm equipment, with active venting or with an effective passive venting system to relieve any possible landfill gas accumulation, shall be installed and maintained for all enclosed buildings on the Site which at times are occupied by people. Routine monitoring for explosive methane gas levels shall be conducted in all buildings on the Site, especially enclosed structures which at times are occupied by people.
- 4.42. The design of the Site and any plans, specifications and descriptions for the control of landfill gas must ensure that the subsurface migration of landfill gas meets the following limits from Section 14(2) of Reg. 232,:
 - a. The concentration of methane gas below the surface of the land at the boundary of the Site must be less than 2.5 per cent by volume;
 - b. The concentration of methane gas must be less than 1.0 per cent by volume in any

- on-Site building or enclosed structure, and in the area immediately outside the foundation or basement floor of the building or structure, if the building or structure is accessible to any person or contains electrical equipment or a potential source of ignition;
- c. Sub-condition (b) does not apply to a leachate collection, storage or treatment facility or a landfill gas collection or treatment facility for which specific health and safety measures and procedures are in place relating to the risk of asphyxiation and the risk of explosion; and
- d. The concentration of methane gas from the Site must be less than 0.05 per cent by volume in any off-Site building or enclosed structure, and in the area immediately outside the foundation or basement floor of the building or structure, if the building or structure is accessible to any person or contains electrical equipment or a potential source of ignition.
- 4.43 The Owner shall follow the landfill gas trigger level and contingency response plan described in the Operations and Maintenance Manual. If the measured gas concentration at a gas probe exceeds the applicable Reg. 232 limit, the reading shall be re-measured immediately and daily for a period of up to 3 consecutive days. If these readings confirm the applicable limit has been exceeded, appropriate control measures shall be implemented as soon as possible thereafter.

Granular Leachate Collection Layer

- 4.44 (1) A thickness of at least five (5) metres of compacted waste and cover material shall be maintained between any landfilled sludge (solid non-hazardous as per Reg. 347) and the granular leachate collection layer.
 - (2) The maximum path of that leachate may travel prior to intercepting a leachate collection pipe shall be not more than 50 metres in length.
 - (3) Pipes must be bedded in a continuous layer of stones that extends completely across the base of the waste fill zone and that has a minimum thickness of 0.3 metres on the base side slopes and a minimum thickness of 0.5 metres elsewhere. The stones must have a D of not less than 37 millimetres, a D_{10} of not less than 19 millimetres, a uniformity coefficient (D_{60}/D_{10}) of less than 2.0 and, when measured by weight, not more than 1.0 per cent of the stones may pass the US #200 sieve.
- 4.45 Heavy equipment, such as the landfill compactor, shall not be allowed to pass over the composite liner and leachate collection system in the north expansion fill area until at least 1.5 metres of waste has been placed over the leachate collection system and liner.

Leachate Treatment

4.46 Leachate generated at this Site shall be collected and treated as long as necessary following closure of this Site for protection of the natural environment. Leachate collection and

treatment may be discontinued following written approval by the Director, based on consultation with the PRC and an application by the Owner to the Director with supporting documentation to confirm that leachate collection and treatment is no longer necessary, including monitoring results which indicate that the levels of contamination in the leachate have decreased to acceptable levels with respect to groundwater and surface water impacts.

Seepages

4.47 The Owner shall thoroughly inspect the landfill Site, at least once per month, for evidence of leachate seepage or leachate springs. Incidences of leachate breakout are to be reported monthly to the PRC and District Manager, and annually to the Regional Director in the Annual Report, together with a description of the remedial action taken.

Leachate Characterization

4.48 Upon commencement of landfilling in the north expansion fill area, the Owner shall conduct a leachate characterization study, based on representative samples of leachate obtained from the leachate collection systems, for the purposes of determining the current and projected leachate quality and quantity generated at this Site, and implementing an appropriate long-term leachate management plan for this Site. The results of the study shall be included in the Annual Report for this Site, as required by this Approval. Loadings to the Lindsay WPCP shall be closely monitored to determine the need for plant upgrades.

Leachate Disposal

4.49 Leachate from the leachate collection system shall be discharged to the Lindsay WPCP, unless prior approval of the Director is obtained for alternative leachate management and disposal.

Surface Water Management

- 4.50 Surface water and stormwater shall be managed in accordance with the stormwater management plan in the Design Report (Section 6.0) and the Maintenance & Operations Report (Section 4.1), Items 28(b) and 28(c) in Schedule "A", as amended by Items 35 and 37 in Schedule "A" attached to this Approval. Prior to construction of the works, the Owner shall submit an application and obtain approval an Approval (sewage works) for surface water management works, including the stormwater management pond.
- 4.51 During the detailed design stage, trigger levels for the stormwater management pond discharge shall be established for closing the pond outlet valve, based on existing water quality monitoring data and the Scugog River background information.
- 4.52 Stormwater runoff generated from the active waste fill area shall be considered contaminated and treated as leachate. Operational methods shall ensure that any precipitation falling onto active waste fill areas, not under final cover, shall be directed to the leachate collection system. If necessary, granular sumps shall be dug into the waste to facilitate drainage of

contaminated stormwater towards the leachate collection system.

Additional Construction Requirements

- 4.53 (1) Groundwater monitors and landfill gas monitors shall be protected from potential damage during construction of the ancillary facilities.
 - (2) Erosion and sediment control measures, including silt fencing and flow check dams, shall be employed and function properly for the construction period. Installation of the erosion and sediment control measures shall be completed prior to commencement of construction. The measures shall be inspected regularly and maintained during construction and decommissioned once the site has been stabilized. Any problems that are found during inspections shall be rectified as soon as practicable. Accumulation of sediment in traps and along silt fences shall be cleared as required.

ON-SITE METEOROLOGICAL STATION

4.54. The Owner shall install an on-site meteorological station to measure weather conditions during the operating life of the Site. Ambient temperature (minimum, mean, maximum), precipitation events, barometric pressure and wind speed and direction shall be recorded daily. Data shall be used to confirm estimates of infiltration and leachate generation, and to correlate with any nuisance complaints and landfill gas monitoring data.

5.0 LANDFILL SITE OPERATIONS

Landfill

5.1 Except as otherwise provided for in this Approval, the Site shall be designed, developed, built, operated and maintained in accordance with the supporting documentation in Schedule "A".

Waste Types

5.2 Only Municipal Waste shall be received for disposal at this Site. No hazardous waste or liquid industrial waste, as defined in Reg. 347 as amended, shall be disposed of at this Site.

Burning of Waste

5.3 Burning of waste is not permitted at the Site.

Waste Placement

- 5.4 Final slopes above grade at the time of Site closure within the waste fill area shall be within the range of 4H:1V (25%) and 20H:1V (5%).
- 5.5 Waste placement shall occur at a minimum 1 meter above the highest groundwater table

elevation at the Site

5.6 The Owner shall deposit waste in a manner that minimizes exposure area at the landfill working face and all waste shall be compacted before cover is applied.

Asbestos Waste

- 5.7 Any waste that is considered asbestos waste shall be handled in accordance with Section 17 of O. Reg. 347 as amended from time to time.
- 5.8 A suitable sized excavation for the asbestos waste shall be made by the Owner in a location away from the active landfilling face.
- 5.9 All asbestos waste shall be inspected to ensure that the asbestos waste is properly bagged or contained and free from puncture, tears or leaks.
- 5.10 The asbestos waste shall be placed in the excavation to avoid damage to the containers and to prevent dust and spillage.
- 5.11 Upon completion of the unloading and deposition of the asbestos in the excavation, at least 125 centimetres of cover or waste material shall be placed over the asbestos.
- 5.12 All asbestos waste shall be deposited to a level no higher that 1.25 metres below the general elevation of the disposal area to ensure that daily cover material removal in the future does not encounter the asbestos waste.

Cover Material

- 5.13 Daily, interim and final cover material shall be applied in accordance with the Operations and Maintenance Manual and as follows:
 - a. Daily Cover By the end of each working day, the entire working face shall be compacted and covered with a minimum thickness of 150 mm of soil cover or an approved thickness of alternative cover material. Prior to placing waste at the start of the next operating day, the existing daily cover material shall be scarified or removed to ensure vertical hydraulic connection is maintained between layers of waste and to promote percolation of leachate downwards to the leachate collection system. The daily soil cover material shall be applied with appropriate wide-track or rubber tire equipment, not the waste compactor. Where weather conditions or operational problems prevent the daily application of cover material, the Owner shall immediately notify the District Manager and the PRC.
 - b. Interim Cover In areas where landfilling has been temporarily discontinued for 3 months or more, a minimum thickness of 300 mm of soil cover or an approved thickness of alternative cover material shall be placed and vegetated, as required.
 - c. Final Cover Shall be applied progressively as areas of the landfill reach final waste

elevations within the existing fill area, subject to Response #66 in Item 37 in Schedule "A", and within the north expansion fill area. All areas of final cover shall be graded and vegetated as soon as practically possible. The final soil cap shall be regularly inspected and maintained following application and during the post-closure period. Without limiting the above, the Owner shall ensure for a minimum of five years after completion of the cap that the Site shall be inspected at least on a quarterly basis to ensure that there is positive drainage along the cap and that during the frost free period of the first two years following completion, such inspections shall be monthly. If any inspection indicates that there is an area of ponding or zero slope, the Owner shall take all steps necessary to provide positive drainage and rehabilitate the final cap as soon as practically possible.

Alternative Daily and Interim Cover Material

- 5.14 (1) Alternative materials to soil may be used as daily and interim cover material, based on an application with supporting information and applicable fee for a trial use or permanent use, submitted by the Owner to the Director, copied to the District Manager and the PRC, and as approved by the Director via an amendment to this Approval. The alternative material shall be non-hazardous according to Reg. 347 and will be expected to perform at least as well as soil in relation to the following functions:
 - a. Control of blowing litter, odours, dust, landfill gas, gulls, vectors, vermin and fires:
 - b. Provision for an aesthetic condition of the landfill during the active life of the Site;
 - c. Provision for vehicle access to the active tipping face; and
 - d. Compatibility with the design of the Site for groundwater protection, leachate management and landfill gas management.
 - (2) The following materials are approved by the Director be used as Alternative Daily Cover (the material thickness with the exception of Item (f) and (i) must be 150 mm in thickness):
 - a. Soil;
 - b. Foundry sand;
 - c. Wood chips;
 - d. Compost;
 - e. Shingles;
 - f. Flexible Membranes (tarps, Enviro Cover); and
 - g. Blasting mats.
 - h Partially Composted leaf and yard waste from onsite composting
 - i Steel plates
 - (3) The Owner for Condition 5.14 (2) Items (a), (b), (c), (d) and (e) shall ensure that if material brought to the Site from outside the City of Kawartha Lake boundaries, no more than a 3 month supply of daily cover is stockpiled a the Site at any time. Any material

- from outside the boundaries of the Owner of Kawartha Lakes must be approved by the District Manager prior to receipt and reviewed by the PRC.
- (4) The Owner shall ensure they have a supply of daily cover (soil) available should any of the alternative daily covers listed in Condition 5.16 (2) fail to meet required specifications outlined in this Approval.
- (5) The Owner shall review with the PRC the effectiveness of the alternative daily cover every two (2) years.

Leachate Monitoring

5.15 Regular monitoring of leachate quantity and quality collected and discharged from the Site shall be conducted to allow the potential impact to the local receiving sewage treatment plant to be closely monitored and any necessary corrective action taken.

Cleaning Leachate Collection System (LCS)

5.16 The leachate collection system piping for the existing fill area and constructed portions of the north expansion fill area shall be cleaned out at least once per year with a high pressure wash, and with video inspections conducted to confirm that the pipes are clean and to determine the need for more frequent cleaning. Assessment of the need to amend the cleaning frequency shall be based on regular inspections of the leachate collection system and monitoring results. Inspection and maintenance of the leachate collection pipes, pumping station and forcemain shall be carried out in accordance with Sections 4.2.1 and 4.2.2 in the Maintenance & Operations Report, Item 28(c) in Schedule "A", and Response #72 in Item 35 in Schedule "A" attached to this Approval.

6.0 OTHER WASTE MANAGEMENT FACILITIES

Recycling Depot

- 6.1 The Recycling Depot shall be operated in accordance with Regulation 101/94, Part III Municipal Waste Recycling Depots, Section 19.
- 6.2 The Owner may establish outdoor storage in bins, bunkers or trailers for the temporary storage of the following:
 - a. Construction and demolition waste including but not limited to wood, drywall, shingles, aggregate and porcelain;
 - b. Material destined for off-site reuse or recycling;
 - c. Textiles: and
 - d. Mattresses.

Leaf and Yard Waste Composting Facility

- 6.3 (1) The relocated Leaf and Yard Composting Facility shall be constructed, maintained and monitored in accordance with the Report listed as item No.76 (Stantec Report January 2015) as amended by items No. 78, 79, 80, 81, 83, 84 and 85 of the Schedule A of this Approval.
 - (2) The relocated Leaf and Yard Composting Facility shall be operated in accordance with Regulation 101/94, Part V Leaf and Yard Waste Composting Sites, Sections 31 to 33.
 - (3) Notwithstanding any of the provisions in Section 31 to 33 of Part V of the Regulation 101/94, the Owner shall operate the relocated Leaf and Yard Composting Facility subject to the following Conditions;
 - a. The maximum amount of the Leaf and Yard waste at the relocated Leaf and Yard Waste Composting Facility (as shown on the drawing listed as item No. 77 of the Schedule A), at any time shall not be greater than 8000 tonnes.
 - b. Leaf and Yard waste segregated fine material may not be stored for more than four days before it is placed in windrows.
 - c. Leaf and Yard waste coarse material that is segregated for grinding shall be ground twice per year at a minimum unless agreed to by the District Manager.
 - d. The maximum quantity of the segregated coarse material at any time at the relocated Leaf and Yard Composting Facility shall not be greater than 750 tonnes.
 - e. On a trial basis, during three years, following the completion of the relocated leaf and yard composting facility construction, the temperature of each composting mass shall be measured and recorded weekly, at a minimum until the requirements in paragraphs 4 and 5 of Section 31 of Part V of the Regulation 101/94 have been satisfied. During the curing phase the temperature shall be measured and recorded weekly.
 - (4) The Owner shall prepare and submit a Report to the District Manager within 3 years following the completion of the relocated leaf and yard composting facility construction , providing results of the monitoring of the relocated Leaf and Yard Composting Facility and compliance with Conditions 6.2(1), 6.2(2) and 6.2(3). The Report shall include at a minimum, the sampling analysis of the finished compost and document recommendations for continuation or amendment of Condition 6.2(3)(e).
 - (5) Approval is hereby granted for the construction and operation of the Infiltration Pond and a Valve Chamber to collect and treat the unsegregated and impacted storm water run off from the relocated compost pad in accordance with Items 94, 95 and 105 of Schedule "A".
 - (6) Water level in the Infiltration Pond shall be recorded on a weekly basis, at a minimum, using a staff gauge. Excess water from the Infiltration Pond shall be discharged via the Valve Chamber into Lagoon 1.

(7) Discharge of water via the spillway shall be minimized by managing the water level with the Valve Chamber. If an overflow does occur from the Infiltration Pond via the spillway, then the event shall be recorded and reported to the Ministry as part of the Annual Monitoring Report.

Septage Waste Drop Off Station

6.4. The manhole(s) for the septage waste drop-off station shall be covered at all times when not in use.

Household Hazardous Waste (HHW) Depot

- 6.5. (1) The HHW depot shall be built and operated in accordance with Items 52 and 53 of Schedule "A". Administrative amendments to Item 52 of Schedule "A" (i.e. HHW Depot Operations Manual) shall be submitted to the District Manager for approval.
 - (2) The operation of the HHW Depot is limited to the receipt and transfer of household hazardous waste consisting of classes 112, 113, 114, 122, 123, 135, 145, 146, 147, 148, 212, 213, 221, 232, 241, 242, 252, 261, 263, 269, 312 and 331 as defined in the "New Ontario Waste Classes" dated January 1986 or as amended.
 - (3) The HHW Depot may receive HHW during the maximum operating hours of 7:00 am. and 7:00 p.m. from Monday through Saturday.
 - (4) The total amount of liquid waste stored at the HHW Depot, at any one time, shall not exceed 5,000 litres (5 cubic metres) or equivalent.
 - (5) The total amount of solid waste stored at the HHW Deport, at any one time, shall not exceed 40 tonnes.
 - (6) No HHW shall be stored at the HHW Depot for a period longer than three (3) months without approval of the District Manager.
- 6.6 (1) The HHW depot shall not receive any pathological waste (class 312) other than syringes, lancets and needles.
 - (2) No radioactive wastes shall be accepted at the HHW depot.
 - (3) No PCBs (class 243) shall be accepted at the HHW depot. Oil and oil-based paints which have been manufactured prior to 1972, or whose manufacturing date cannot be determined, may contain PCBs, and shall be handled in the following manner;
 - a. Oil and oil-based paints shall not be mixed or bulked with other paints prior to testing. Paints which are lab-packed are not considered to be mixed under this Approval.

- b. The oil and oil-based paints shall be tested by a certified laboratory for PCB content. If the oil and oil-based paints are found to contain PCBs at or above levels identified in subcondition 6.5 (c)(iii), it shall be forthwith reported to the District Manager and the PCB waste shall be managed in accordance with Regulation 362/92 and stored or removed from the HHW depot to an approved PCB storage site, in accordance with written instructions from the District Manager.
- c. The oil and oil-based paints shall not be distributed for reuse if they have any measurable PCB content. The oil and oil-based paint is considered to be a PCB waste, if measured levels are equal to or greater than 50 parts per million.
- (4) Except as specified in subcondition 6.5 (c)(iii), paints collected at the HHW depot may be returned or sold to the general public for reuse provided all transactions are recorded by invoice. Information on the type and volume of paint returned to the public through this HHW depot shall be recorded in a log book kept at the HHW depot.
- (5) The Owner shall maintain a log book at the HHW depot which shall record, on each day of operation:
 - a. date of record;
 - b. types, quantities and source of waste received;
 - c. quantities of waste stored at the Depot;
 - d. quantities and destination of waste shipped from the Depot;
 - e. quantities of paints returned or sold to the general public;
 - f. results of routine, visual inspection of the Depot; and
 - g. any reporting of spills or upsets and actions taken to contain and manage.
- 6.7 (1) The HHW Depot shall only operate when under the supervision of staff trained in accordance with Item 52 of Schedule "A", the HHW Depot Operations Manual.
 - (2) Sufficient numbers of drums and lab-packed containers shall be available at the HHW depot such that all HHW, in quantities unanticipated or otherwise, can be safely stored.
 - (3) The Owner shall ensure that the waste are properly handled, packaged, contained or stored in a safe and secure manner so as not to pose any threat to the general public, site personnel and the natural environment, and that the operation of this HHW depot does not interfere with any other activities associated with this waste disposal Site.
 - (4) Emergency response in the event of a spill or upset shall be undertaken in accordance with Item 52 of Schedule "A", the HHW Depot Operations Manual. This Manual shall be kept at the HHW depot at all times and made easily accessible to all staff.
 - (5) The Owner shall ensure that all contingency and emergency response equipment and materials are immediately available at the HHW depot at all times, in a good state of repair and fully operational.

- (6) The Owner shall conduct routine, visual inspections of the entire HHW depot area to unsure its security and to minimize off-site impacts such as odour, dust, litter and other nuisance factors.
- 6.8 Within four (4) months of the scheduled closure of the HHW depot, the Owner shall submit a detailed Closure Plan for approval by the Director. The Plan shall include, as a minimum, description of the work required to close the HHW depot, schedule of works and decommissioning of the HHW area.

7.0 RECORD KEEPING

- 7.1 The Owner shall ensure that daily records of Site operations are made for each operating day during the operation of the Site, in accordance with Section 6.10 in the Maintenance & Operations Report, Item 28(c) in Schedule "A", and that the records are retained at the Site for at least two years after they are made.
- 7.2 Daily records shall be maintained at the Site in a log book and shall include:
 - a. the type, date and time of arrival, hauler, and quantity (tonnes) of all waste and cover material received at the Site, and of all waste refused by the Site;
 - b. the area of the Site in which waste disposal operations are taking place;
 - c. any complaints from the public received by the Owner concerning landfilling operations and a description of the action taken by the Owner in response;
 - d. the amount of any leachate removed, or treated and discharged from the Site;
 - e. a record of litter collection activities and the application of dust suppressants;
 - f. a record of the inspections of any control, treatment, disposal or monitoring facilities; and
 - g. a description of any out-of-service period of any control, treatment, disposal or monitoring facilities, the reasons for the loss of service, and action taken to restore and maintain service.

Record Retention

- 7.3 The Owner shall retain all documentation listed in Schedule "A" for as long as this Approval is valid.
- 7.4 The Owner shall retain employee training records as long as the employee is working at the Site.
- 7.5 The Owner shall make all of the above documents available for inspection upon request of Ministry staff.

8.0 COMPLAINTS PROCEDURE

8.1 The Owner, in conjunction with the PRC, shall establish a public complaints response

procedure for the landfill Site, based on Section 10.1 in the Operations and Maintenance Manual. The Owner shall establish and publicise a day time and after hours telephone number for complaints about the operation and maintenance of the landfill Site. The Owner shall be responsible for responding to a complaint in accordance with the public complaints response procedure.

9.0 EMERGENCY SITUATIONS

- 9.1 In the event of a fire or discharge of a contaminant to the environment, Site staff shall contact the MECP Spills Action Centre (1-800-268-6060) and the District Office of the MECP.
- 9.2 The Owner shall submit to the District Manager a written report within three (3) days of the spill, outlining the nature of the incident, remedial measures taken and measures taken to prevent future occurrences at the Site.
- 9.3 The Owner shall have a Emergency Response Procedures Manual at the Site and shall be available for inspection by Ministry staff.
- 9.4 The Owner shall ensure that adequate fire extinguishers and contingency spill clean up equipment is available and that emergency response personnel are familiar with its use and location.

10.0 ENVIRONMENTAL MONITORING

Groundwater Wells/Monitors

- 10.1. The Owner shall ensure that all groundwater monitoring wells which form part of the monitoring program shall be properly capped, locked and protected from damage.
- 10.2. Where landfilling is to proceed around monitoring wells, suitable extensions shall be added to the wells, and the wells shall be properly re-secured and protected.
- 10.3. Any groundwater monitoring wells included in the ongoing monitoring program that are damaged shall be assessed, repaired, replaced or decommissioned by the Owner, as required.
- 10.4. The Owner shall repair or replace any monitoring well which is destroyed or in any way made to be inoperable for sampling, but still required as part of the monitoring program, such that no more than one regular sampling event is missed.
- 10.5. All monitoring wells which are no longer required as part of the groundwater monitoring program, and have been approved by the District Manager for abandonment, shall be decommissioned by the Owner, as required, in accordance with Ontario Regulation 903. A report on the decommissioning of the well shall be included in the Annual Report for the reporting period during which the well was decommissioned.

Environmental Monitoring Programs

- 10.6. The Owner shall carry out monitoring programs for waste, groundwater, leachate, surface water, and landfill gas, as described in the Operations and Maintenance Manual, as summarized in Schedules "B", "C", "D", "E" and "F" attached to this Approval, and in accordance with any related other Approval approvals issued for this Site. The Owner shall ensure that any proposed changes to the monitoring programs under this Approval shall be approved in advance by the Director via an amendment to this Approval.
- 10.7 Leachate heads acting on the composite liner in the north expansion fill area shall be monitored three (3) times per year using vibrating wire piezometers (VWPs) installed on the liner surface at eight locations shown on Map 7-2, Proposed Leachate Monitoring Locations, Golder Associates, September 2001 (Item 37(a) in Schedule "A"). If failure of a vibrating wire piezometer (shown on Map 7-2, Proposed Leachate Monitoring Locations, dated September 2001 Item 37 in Schedule "A") is detected within the contaminating life span of the landfill, it shall be replaced with a slotted PVC standpipe installed through the waste, or another device or method acceptable to the Director.
- 10.8 Any off site exceedances of parameters for groundwater, surface water, or odour shall be reported to the District Manager within seven (7) days of receiving laboratory test results that indicate an exceedance. In addition, a statement detailing which results are out of compliance with the Ministry's guidelines and objectives shall be provided at the same time as the results.

Compliance Criteria

10.9 The Site shall be operated in such a way to ensure compliance with the MOE's Guideline B-7 Reasonable Use Concept at monitoring points along the property line that have the potential to be impacted by leachate from the Site.

Leachate Collection and Disposal System Monitoring and Recording

The Owner shall carry out the following monitoring program for the LCDS:

- 10.10 All samples and measurements taken for the purposes of this Approval are to be taken at a time and in a location characteristic of the quality and quantity of leachate over the time period being monitored.
- 10.11 Samples shall be collected at sampling points, at the frequency specified, by means of the specified sample type and analyzed for each parameter listed in Tables 1 and 2 of Schedule G of this Approval and all results shall be recorded.
- 10.12 The methods and protocols for sampling leachate, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following:
 - a. The Ministry's Procedure F-10-1, "Procedures for Sampling and Analysis Requirements

- for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only)", as amended from time to time by more recently published editions;
- b. The Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" (January 1999), ISBN 0-7778-1880-9, as amended from time to time by more recently published editions; and
- c. The publication "Standard Methods for the Examination of Water and Wastewater" (21st edition), as amended from time to time by more recently published editions.
- 10.13 The Owner shall install and maintain (a) flow measuring device(s), to measure the flow rate of leachate from the LCDS with an accuracy to within plus or minus 15 per cent (+/- 15%) of the actual flow rate for the entire design range of the flow measuring device in order to measure and record:
 - a. The quantity of leachate being conveyed through Leachate Pumping Station No.1;
 - b. The quantity of leachate being conveyed through the Leachate Pumping Station No.2; and
 - c. The quantity of sewage being conveyed through the Sewage Pumping Station.
- 10.14 The Owner shall retain for a minimum of three (3) years from the date of their creation, all records and information related to or resulting from the monitoring activities required by Conditions 10.10 through 10.13 of this Approval.

11.0 TRIGGER MECHANISMS AND CONTINGENCY PLANS

- 11.1. In the event of a confirmed exceedance of a site-specific trigger level relating to leachate mounding or groundwater or surface water impacts due to leachate, the Owner shall immediately notify the District Manager, and an investigation into the cause and the need for implementation of remedial or contingency actions shall be carried out by the Owner in accordance with the approved trigger mechanisms and associated contingency plans described in the Design Report (Sections 11 and 12) and the Maintenance & Operations Report (Section 7), Items 28(b) and 28(c) in Schedule "A", as amended in Items 7 and 35 to 37 in Schedule "A" attached to this Approval.
- 11.2. The Owner shall ensure that any proposed changes to the site-specific trigger levels for groundwater and surface water impacts due to leachate shall be approved in advance by the Director via an amendment to this Approval.
- 11.3 If monitoring results, investigative activities and implementation criteria indicate the need to implement contingency measures, the Owner shall ensure that the following steps are taken:
 - a. The Director, District Manager and PRC shall be notified by the Owner as soon as possible of the need to implement contingency measures;
 - b. Detailed plans, specifications and descriptions for the design, operation and maintenance of the contingency measures shall be prepared and submitted by the Owner to the

- Director for approval; and
- c. The contingency measures shall be implemented by the Owner upon approval by the Director.

12.0 ADDITIONAL STUDIES

Landfill Assessment and Wetland Impact Study

12.1 Study B in the Landfill Assessment and Wetland Impact Study, Item 21(b) in Schedule "A", shall be reviewed and updated by the Owner every 5 years, starting in 2003, and included with the Annual Report for the Site.

Bio-monitoring

- 12.2 In accordance with Section 11.6 in the Design Report and Section 7.8 in the Maintenance & Operations Report, (Items 28(b) and 28(c) in Schedule "A"), Response #93 in Item 35 in Schedule "A" and the request for amendment (Item 51 in Schedule "A") attached to this Approval, the Owner shall conduct the following monitoring each year during the month of February at a location downstream of the Lindsay WPCP effluent outfall culvert and acceptable to the Regional Director:
 - a. An annual benthic invertebrate community survey consisting of triplicate sampling (to be performed in accordance with the Ministry's BIOMAP protocol). The survey results shall be summarized in a manner suitable for determining the number of taxa, individual taxa abundance and the presence or absence of indicator taxa.
 - b. An annual analysis for bioaccumulation consisting of the collection of two 5 gram samples of each of resident blackfly (larval) population and caddisfly (larval) population shall be undertaken (if available). One 5 gram sample shall be analysed for metals and the other for organics including PCBs (polychlorinated biphenyls) and VOCs. Monitoring parameters to be analyzed shall include, as a minimum:
 - i. Metals aluminium, beryllium, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, silver, thallium, vanadium, zinc, antimony, arsenic, selenium, toluene.
 - ii. Volatile Organic Compounds, Halogenated and Non-Halogenated (refer to Schedule 1 Analytical Test Groups 16 and 17, O. Reg. 695/88).
 - iii. Analytical Test Group 27, O. Reg. 695/88 (PCBs).
 - c. The annual program shall continue for at least the operating life of the landfill. Its continuance and monitoring parameters shall be reviewed periodically based on its effectiveness.

12.3 If either:

a. the number of taxa identified for any year under 12.2(a) above shows a reduction of 1/3

- or more from the number in the most recent five year average from sampling results for the caddisfly in 12.2; or
- b. the bioaccumulation assessment under 12.2 (b) above indicates a 30% or greater increase in metal parameter concentrations and/or organics analyzed for from the concentration in the most recent five year average from sampling for the caddisfly under 12.2 (b); then a further investigation of the cause of the decrease and/or increase shall be undertaken to determine the source and cause of the impact and the degree and area of impairment.
- 12.4 An annual report documenting the findings of biomonitoring under Conditions 12.2 and 12.3 shall be submitted to the Regional Director and the office of the Trent-Severn Waterway per the Annual Report condition in this Approval. The annual report shall include an appropriate statistical comparison of biomonitoring data from the current reporting period with biomonitoring data from previous years.

13.0 PUBLIC REVIEW COMMITTEE (PRC)

- 13.1 The Owner shall forthwith take all reasonable steps to maintain and participate in a landfill Public Review Committee (PRC), which is to function within terms of reference for the PRC, as prepared in consultation with the interested members of the affected public, and as amended from time to time according to appropriate amending procedures. The PRC shall serve as a focal point for dissemination, consultation, review and exchange of information regarding the operation of the landfill Site, including environmental monitoring, maintenance, complaint resolution, and new approvals or amendments to existing approvals related to the operation of this landfill Site.
- 13.2 The membership of the PRC shall include at least one member from the Owner and at least two members from interested parties.
- 13.3 Copies of all reports or other submissions required by the conditions of this Approval shall be made available to the PRC in accordance with the deadlines specified in the Conditions.
- 13.4 The Owner shall provide to members of the PRC and to any neighbouring residents reasonable notice and opportunities to make comments regarding any proposed amendment to this Approval. The Owner shall forward to the Director for consideration any written comments received by the Owner and advise the Director of the essence of any verbal comments received by the Owner regarding such proposed amendment.

14.0 SITE STAFF TRAINING PLAN

- 14.1 The Owner shall develop and maintain a training plan for current and new Site operations employees and shall ensure that all Site operations employees have been adequately trained and receive on-going training with respect to the following, as amended:
 - a. Terms, conditions and operating requirements of this Approval;

- b. The operation, inspection, and maintenance of the Site with respect to the approved design and operations documents;
- c. Relevant waste management legislation and regulations;
- d. Environmental concerns related to waste management at the Site;
- e. Occupational health and safety concerns related to waste management at the Site; and
- f. Emergency procedures and contingency plans in cases of fire, spills, off-site impacts and any other emergency situations.

15.0 ANNUAL REPORT

- 15.1 The Owner shall prepare an Annual Report on the development, operations and monitoring of the Site. The report shall be submitted to the Regional Director, the District Manager and the PRC, by **April 30** each year, and shall cover the preceding calendar year. The report shall include the following:
 - a. The results and an interpretive analysis of the results of all leachate, groundwater, surface water, landfill gas and biology monitoring, including an assessment of the need to amend the monitoring programs and trigger mechanisms or to implement contingency measures. This will include a discussion on the monitoring parameters and locations required by the Approval and the deletion of any parameter or location. In addition, this will include a discussion on the analyse(s) and location(s) on any additional sampling parameter(s) and/or sampling location(s) in which the Owner completed that is not currently required by this Approval.
 - b. Mapping of concentrations of chloride, ammonia-N, phosphorus, toluene and phenols in the upper bedrock aquifer and estimates of contaminant mass loadings to the Scugog River from the landfill via leachate migration and from the WPCP lagoons through the upper bedrock aquifer, for chloride, ammonia-N, phosphorus, toluene and phenols, based on Response #98 in Items 35 and 37 in Schedule "A";
 - c. Review and assessment of the effectiveness of the gull control program, including the following information:
 - i. Implementation and status of habitat management activities;
 - ii. Implementation and effectiveness of active control measures;
 - iii. Summaries of gull activity at the landfill Site;
 - iv. Monthly summaries of the number and species of gulls shot for the lethal gull control program;
 - v. Documentation of complaint records and actions taken in response;
 - vi. Status of required permits; and
 - vii. Changes undertaken, or required, to improve the effectiveness of the gull control program.
 - d. An assessment of the operation and performance of all engineered facilities, the need to amend the design or operation of the Site, and the adequacy of and need to implement the contingency plans;
 - e. Site plans showing the existing contours of the Site; areas of landfilling operation during

the reporting period; areas of intended operation during the next reporting period; areas of excavation during the reporting period; the progress of final cover, vegetative cover, and any intermediate cover application; the progress of liner placement and leachate collection system placement; previously existing site facilities; facilities installed during the reporting period; and site preparations and facilities planned for installation during the next reporting period;

- f. Calculations of the volume of waste, daily and intermediate cover, final cover, and liner and leachate collection system material deposited or placed at the Site during the reporting period and a calculation of the total volume of Site capacity used during the reporting period;
- g. A calculation of the remaining capacity of the Site and an estimate of the remaining Site life:
- h. A summary of wastes accepted and transferred off site for recycling or reuse.
- i. A summary of the quantity of any leachate or pre-treated leachate removed from the Site or leachate treated and discharged from the Site during each operating week;
- j. Summaries of the monthly, maximum daily (as available), and total annual quantity (tonnes) of waste received at the Site;
- k. A summary of any public complaints received by the Owner and the responses made;
- 1. A discussion of any operational problems encountered at the Site and corrective action taken:
- m. The status of compliance with all conditions of this Approval, including the inspection, monitoring and reporting requirements in the conditions of this Approval;
- n. Any other information with respect to the Site which the Regional Director or District Manager may require from time to time; and
- o. A discussion of any operational or performance issues related to the use of alternative daily cover at the Site.

16.0 SITE CLOSURE PLAN

- 16.1 The low permeability final cover system for the completed south area of the landfill shall be completed in accordance with Item 48 in Schedule "A".
- 16.2 At least two (2) years prior to the anticipated date of closure of this Site or the date 90 per cent of the total waste disposal volume is reached, whichever occurs first, the Owner shall submit to the Director for approval, with copies to the District Manager and the PRC, a detailed Site Closure Plan pertaining to the termination of landfilling operations at this Site, post-closure inspection, maintenance and monitoring, and end use, based on Section 13 in the Design Report and Section 9 in the Maintenance & Operations Report, Items 28(b) and 28(c) in Schedule "A", as amended by Items 35 to 37 in Schedule "A". The plan shall include the following:
 - a. A plan showing Site appearance after closure;
 - b. A description of the proposed end use of the Site;
 - c. Descriptions of the procedures for closure of the Site, including:

- i. Advance notification of the public of the landfill closure;
- ii. Posting of a sign at the Site entrance indicating the landfill is closed and identifying any alternative waste disposal arrangements;
- iii. Completion, inspection and maintenance of the final cover and landscaping;
- iv. Site security;
- v. Removal of unnecessary landfill-related structures, buildings and facilities; and
- vi. Final construction of any control, treatment, disposal and monitoring facilities for leachate, groundwater, surface water and landfill gas;
- d. Descriptions of the procedures for post-closure care of the Site, including:
 - i. Operation, inspection and maintenance of the control, treatment, disposal and monitoring facilities for leachate, groundwater, surface water and landfill gas;
 - ii. Record keeping and reporting; and
 - iii. Complaint contact and response procedures;
- e. An assessment of the adequacy of and need to implement the contingency plans for leachate and landfill gas; and
- f. An updated estimate of the contaminating life span of the Site, based on the results of the monitoring programs to date.

SCHEDULE "A"

This Schedule "A" forms part of this Approval. If there is a conflict between documents listed in Schedule "A", the document bearing the most recent date shall apply:

Selected Supporting Documentation - Interim Expansion

- 1. Hydrogeological Investigation and Design Plan of a Proposed Sanitary Landfill, Lot 26, Concession 6, Township of Ops, prepared by Hydrology Consultants Limited, dated August 1978.
- 2. Surface Water Quality Assessment Report, prepared by Senes Consultants Limited, dated March 1991.
- 3. Biological Assessment Report, prepared by Totten Sims Hubicki Associates, dated September 1991.
- 4. Survey attached to letter from W. R. Coe, William R. Coe Limited, to J. Tidball, Miller Thomson, dated December 2, 1991.
- 5. Supplementary Report [Hydrogeology], Town of Lindsay/Township of Ops Interim Landfill Expansion, prepared by Hydroterra Limited, dated May 1993.
- 6. Leachate Impact on Township of Ops Sewage Treatment Plant, prepared by Totten Sims Hubicki Associates, dated May 1993.
 - Conceptual Purge Well System (approved June 24, 1994)
- 7. Document entitled CONCEPTUAL PURGE-WELL SYSTEM, dated February 2, 1994, included as an attachment to the LINDSAY-OPS LANDFILL INTERIM EXPANSION HEARING Outline of Evidence of Leon Bryck and Bob Kearse, shown as Exhibit Number 33 at the Environmental Assessment Board hearing, including Figure entitled Town of Lindsay Lindsay-Ops Landfill Site Conceptual Bedrock Purge Well System, dated February 1994, shown as Exhibit Number 33(a) at the Environmental Assessment Board hearing.
 - Expansion of the Leachate Collection System (approved January 25, 1995)
- 8. Document entitled "Lindsay/Ops Landfill Site Leachate Collection System Expansion", dated September 1994 and prepared by Totten Sims Hubicki Associates.
- 9. Drawing No. G1 (Legend and Abbreviations), dated October 20, 1994 and prepared by Totten Sims Hubicki Associates.
- 10. Drawing No. P1 (Leachate Collector and Forcemain), dated October 20, 1994 and prepared by Totten Sims Hubicki Associates.

- 11. Drawing No. P2 (Leachate Collector Profile), dated October 20, 1994 and prepared by Totten Sims Hubicki Associates.
- 12. Drawing No. P3 (Leachate Collector Profile), dated October 20, 1994 and prepared by Totten Sims Hubicki Associates.
- 13. Drawing No. D1 (Details), dated October 20, 1994 and prepared by Totten Sims Hubicki Associates.
- 14. Letter from I. Parrott, Ministry of Environment and Energy to S. Blakey, Totten Sims Hubicki Associates, dated December 5, 1994, re: Review Comments on Leachate Collection System.
- 15. Letter from S. Blakey, Totten Sims Hubicki Associates to I. Parrott, Ministry of Environment and Energy, dated December 6, 1994, re: Response to Ministry Review Comments of December 5, 1994.

Eastward Extension to Existing Shallow Leachate Collection System along South Side of Landfill Site (approved February 29, 1996)

- 16. Letter dated December 27, 1995, from S. J. Blakey of Totten Sims Hubicki Associates to D. Staseff of MOEE Approvals Branch, including:
 - a. Tender Documents dated December 1995.
 - b. Drawing No. G1 entitled "Leachate Collection System Legend and Abbreviations", dated December 1995.
 - c. Drawing No. 1 entitled "Leachate Collector Profile", dated December 1995.
 - d. Drawing No. 2 entitled "Leachate Collector Profile", dated December 1995.
 - e. Application for Approval of a Waste Disposal Site, signed by P. Jeffrey Seaton, County Engineer, County of Victoria, dated December 19, 1995.
- 17. Letter dated January 4, 1996 from D. Staseff of MOEE Approvals Branch to S. J. Blakey of Totten Sims Hubicki Associates comments on design.
- 18. Letter dated January 11, 1996 from S. J. Blakey of Totten Sims Hubicki Associates to D. Staseff of MOEE Approvals Branch response to comments on design.
- 19. Letter dated January 30, 1996 from S. J. Blakey of Totten Sims Hubicki Associates to D. Staseff of MOEE Approvals Branch, including revised Tender Document, Section 11200, Page 3.
- 20. Letter dated February 2, 1996 from S. J. Blakey of Totten Sims Hubicki Associates to D. Staseff of MOEE Approvals Branch, including revised Drawing No. D1 entitled "Details".

Landfill Assessment and Wetland Impact Study (February 1996)

- 21. Report entitled "Landfill Assessment and Wetland Impact Study, Lindsay/Ops Landfill", prepared by Golder Associates Limited, dated February 1996, including:
 - a. Study A Hydrogeological Assessment of Lindsay/Ops Landfill.
 - b. Study B Assessment of Impacts from Lindsay/Ops Landfill and Lindsay WPCP on Surgen Lake Wetland and Scugog River.

Contaminant Attenuation Zone (approved March 8, 1999)

- 22. Property description and legal survey Plan 57R-7810, dated June 19, 1997, attached to letter dated February 23, 1999, from W. Abbott, P. Eng., County of Victoria, to D. Staseff, P. Eng., Ministry of the Environment.
- 23. Letter dated September 30, 1998, from W. Abbott, P. Eng., County of Victoria, to A. Dominski, Ministry of the Environment.
- 24. Application for Approval of a Waste Disposal Site, signed by W. Abbott, P. Eng., Waste Management Engineer, County of Victoria, dated September 30, 1998.
- 25. Letter dated September 22, 1998, from S. Richardson, Clerk-Treasurer, Corporation of the Township of Ops, to W. Abbott, County of Victoria.
- 26. Letter dated February 23, 1999, from W. Abbott, P. Eng., County of Victoria, to D. Staseff, P. Eng., Ministry of the Environment.

Approval under the Environmental Assessment Act

27. Order in Council dated May 31, 2000, and *Environmental Assessment Act*, Section 9, Notice of Approval to Proceed with the Undertaking, Re: An Environmental Assessment for the Provision of Long Term Waste Disposal Capacity for the County of Victoria - specifically with respect to those matters that are subject to Part V of the *Environmental Protection Act* and for the purposes of Section 12.2(2) in the *Environmental Assessment Act*.

Application under Part V Environmental Protection Act for Continued Use & North Expansion

- 28. Letter and Application for a Certificate of Approval under Part V of the *Environmental Protection Act* for the Continued Use and North Expansion of the Lindsay-Ops Landfill (MOE Ref. #3722-4NPK9T), signed by David Moy, Corporation of the County of Victoria, dated August 25, 2000, including the following supporting documentation dated July 2000 (except were noted otherwise):
 - a. **EPA Summary Report**, prepared by Earth Tech Canada Inc.
 - b. **Design Report**, prepared by Earth Tech Canada Inc.
 - c. Maintenance & Operations Report, prepared by Earth Tech Canada Inc.
 - d. Hydrogeological / Geotechnical Assessment Reports:

- i. Preliminary Modelling for Lindsay/Ops Landfill Expansion Golder Associates Ltd., June 16, 1998.
- ii. Evaluation of Native Till as Potential Landfill Liner Material, Lindsay/Ops Landfill Golder Associates Ltd., July 1998.
- iii. Estimation of Ammonia-N Loadings Due to Leakage from the Sewage Lagoon System, Lindsay/Ops Landfill Site Golder Associates Ltd., December 1998.
- iv. Trial Soil Liner Construction, Lindsay/Ops Landfill Expansion Study Golder Associates Ltd., July 21, 1999.
- v. Letter report dated November 19, 1999 from Frank Barone, Golder Associates Limited, to Julie Preslie, County of Victoria, Re: Revised "Trigger Mechanism", Lindsay/Ops Landfill.
- vi. Geotechnical Assessment of the Proposed Cover System for the Existing Lindsay/Ops Landfill Golder Associates Ltd., February 18, 2000.
- vii. Leachate Generation Rates, Proposed Lindsay/Ops Landfill Expansion Golder Associates Ltd., February 22, 2000.
- viii. Estimated Quantity and Quality of Groundwater Collected from the Proposed Contingency Groundwater Purge Well System, Lindsay/Ops Landfill Golder Associates Ltd., March 17, 2000.
- iv. Hydrogeological Conditions and Assessment of Ammonia-N Loadings, Proposed Lindsay/Ops Landfill Expansion Golder Associates Ltd., June 2000, including Appendix A Site Specific Analysis of Leachate Collection System Service Life [200 years].
- e. **Agricultural Study**, prepared by Stovel and Associates Inc.
- f. **Air Quality Impact Assessment**, prepared by Earth Tech Canada Inc.
- g. **Archaeology Assessment**, prepared by Heritage Quest Inc. (revised July 13, 2000).
- h. **Bird Hazard Assessment**, prepared by Jacques Whitford Environment Limited.
- i. Leachate Disposal Study, prepared by Earth Tech Canada Inc.
- j. **Natural Environment Assessment**, prepared by Earth Tech Canada Inc.
- k. **Noise Impact Assessment**, prepared by Aercoustics Engineering Limited (revised July 25, 2000).
- 1. Surface Water Assessment / Stormwater Management Plan, prepared by Earth Tech Canada Inc.
- m. **Traffic Assessment**, prepared by Earth Tech Canada Inc.
- n. **Visual Impact Assessment**, prepared by Earth Tech Canada Inc.

Gull Control

- 29. Letter dated September 26, 2000, from Greg Taras, Greg Taras Planning Consultants Ltd., to David Staseff, Ministry of the Environment, Re: **Wildlife Control Program** for the Continued Use and North Expansion of the Existing Lindsay-Ops Landfill, including:
 - a. Attachment "A" Letter dated September 19, 2000, from Ron Huizer, Jacques Whitford Environment Limited, to David Moy, County of Victoria, Re: Lindsay-Ops Landfill

- Wildlife Control Program Work Plan.
- b. Attachment "B" Letter dated September 15, 2000, from David Moy, County of Victoria, to Anne Mehnart, Lindsay Airport Authority, Re: Wildlife Awareness & Control Program for Lindsay Airport.
- 30. Final Report, Owner of Kawartha Lakes, Continued Use & North Expansion of the Lindsay-Ops Landfill, **Gull Control Program**, prepared by Jacques Whitford Environment Limited, dated September 2001.

Slope Modifications

- 31. Letter dated February 9, 2001, from Joe Ovcjak, Earth Tech Canada Inc., to Dave Staseff, Ministry of the Environment (response to letter dated February 1, 2001, from Dave Staseff, Ministry of the Environment, to Greg Taras, Greg Taras Planning Consultants Ltd.), including:
 - a. Drawing No. A1-99252-G1, entitled "Revised Final Contour Plan (2001), Existing Lindsay-Ops Landfill", dated February 2001.
 - b. Drawing No. A1-99252-G2, entitled "Cross Section A-A' and B-B' Plan, Existing Lindsay-Ops Landfill", dated February 2001.
- 32. Letter dated March 15, 2001, from J. J. Ovcjak, Earth Tech Canada Inc., to D. Staseff, Ministry of the Environment, Re: Proposed Slope Modifications, Lindsay-Ops Landfill Site (response to letter dated March 2, 2001, from Dave Staseff, Ministry of the Environment, to Joe Ovcjak, Earth Tech Canada Inc.), including attached letter dated March 9, 2001, from Frank S. Barone, Golder Associates Limited, to Joe Ovcjak, Earth Tech Canada Inc., Re: Proposed Slope Modifications, Lindsay-Ops Landfill Site.
- 33. Letters dated April 2 & 17, 2001, from Julie Preslie, Owner of Kawartha Lakes, to Dave Staseff, Ministry of the Environment, Re: Proposed Slope Modifications, Lindsay-Ops Landfill Site, including attachments re: public consultation pursuant to Condition 7 in Certificate of Approval No. A321504 (dated June 24, 1994).

Name Change - Owner of Kawartha Lakes

34. Letter dated March 6, 2001, from Julie Preslie, Owner of Kawartha Lakes, to Dave Staseff, Ministry of the Environment, Re: Confirmation of Amalgamation and Name Change (County of Victoria to Owner of Kawartha Lakes), including attachment (copy of May 6, 2000 edition of Ontario Gazette - Order of the Commission made under the *Municipal Act*, R.S.O. 1990, c. M. 45 re: County of Victoria).

EPA Application - Responses to MOE Comments

35. Letter dated May 2, 2001, from P. Jeffrey Seaton, Owner of Kawartha Lakes, to Dave Staseff, Ministry of the Environment, Re: Response to MOE Comments [January 19, 2001, February 1, 2001, and March 19, 2001] re: Part V EPA Application for Continued Use & North Expansion of

the Lindsay-Ops Landfill, Owner of Kawartha Lakes, including binder with Responses to MOE Comments (pages 1 to 78) and the following attachments:

- a. Attachment A Existing Lindsay-Ops Landfill Perimeter Leachate Collection System Design Drawings.
- b. Attachment B Estimated Service Life of the Existing Perimeter Leachate Collection System for the Existing Lindsay-Ops Landfill, Golder Associates Ltd., April 17, 2001.
- c. Attachment C Legal Survey of Properties (5) Purchased by the Owner of Kawartha Lakes & Compiled Plan of Landfill Property.
- d. Attachment D Settlement Calculations for North Slope, Golder Associates Ltd., April 17, 2001.
- e. Attachment E Inclinometer Locations and Settlement Monitoring for Common North Slope, Golder Associates Ltd. Figure E-1: Location of Settlement Plates over the North Slope of the Existing Landfill (March 2001), Figure E-2: Installation Detail for Settlement Plates on the North Slope of the Landfill (March 2001), Figure E-3: Typical Schematic of Inclinometer Installation along North Slope (February 2001).
- f. Attachment F Owner of Kawartha Lakes Council Resolution No. CW2001-123 Identifying Contaminant Attenuation Zone.
- g. Attachment G Figure G-1: Conceptual Design of a Contingency Leachate Purge Well for the Expansion Area of the Landfill, Golder Associates Ltd., February 2001.
- h. Attachment H Conceptual Design Calculations for Leachate Purge Wells in the Landfill, Golder Associates Ltd., April 17, 2001.
- i. Attachment I Figure 2: Regional Cross-Section A-A', Ops Township, Victoria County, Golder Associates Ltd., February 2000.
- j. Attachment J Figure J-1: Variation in Ammonia-N Source Concentration With Time Landfill Expansion Area, Golder Associates Ltd., April 2001.
- k. Attachment K Groundwater Flow Direction and Monitoring Locations Figure K-1: Overburden Groundwater Flow Direction (October 1999), Figure K-2: Upper Bedrock Groundwater Flow Direction (October 1999), Golder Associates Ltd., April 2000.
- 1. Attachment L Impacts of Projected Leachate Loadings on the Lindsay Water Pollution Control Plant Aeration Requirements: Sample Calculations for Aerator Preference & Power Requirements for Mixing, Tables 4-1b.1 & 4-1b.2 (revised), "Projected Leachate Loadings Impact on the WPCP", Earth Tech Canada Inc., March 2001.
- m. Attachment M Revised Maps and Figures from the Part V EPA Application (August 2000) for the Continued Use and Northerly Expansion of the Existing Lindsay-Ops Landfill Site, Earth Tech Canada Inc., March 2001:

Design Report

Map 1-1	Site Location Plan
Map 1-2	Surrounding Land Use
Map 2-1	Property Plan
Map 2-2	Existing Site Conditions (November 2000)
Map 4-1	Features of the Proposal
Map 4-2	Initial Cell Development Plan

Map 4-3	Cell 2 Development Plan
Map 4-4	Cell 4 Development Plan
Map 4-5	Proposed Base Contours
Map 4-6	Proposed Final Contours
Figure 4-1	Typical Cross Sections of Fill Area
Figure 4-2	Cross Sections and Anchor Trench Details
Map 6-1	Existing Stormwater Ditches and Catchment Areas
Map 6-2	Final Stormwater Ditches, Catchment Areas and Surface Water
Monitoring Locations	
Map 6-3	Proposed Stormwater Facility Conceptual Design
Map 7-1	Existing Leachate Management System
Map 7-2	Proposed Leachate Management System
Figure 7-1	Leachate Underdrain Pipe and Landfill Base Details
Figure 7-2	Leachate Manhole and Sidewall Detail
Map 9-1	Landfill Gas Management and Monitoring System
Figure 9-1	Typical Gas Vent Trench and Gas Monitoring Probe
Map 11-1	Existing and Proposed Groundwater Monitoring Well Locations
Adjacent to the Landfill Expansion Area (Monitoring Plan for Landfill Expansion Area) -	
Golder Associates Ltd.	

Maintenance & Operations Report

Map 7-4 Scugog River Surface Water Sampling Locations

- 36. Letter dated May 9, 2001, from Julie Preslie, Owner of Kawartha Lakes, to Dave Staseff, Ministry of the Environment, Re: Response to MOE Comments re: Part V EPA Application for Continued Use & North Expansion of the Lindsay-Ops Landfill (corrected page 31).
- 37. Letter dated September 17, 2001, from Stan Irwin, Owner of Kawartha Lakes, to Dave Staseff, Ministry of the Environment, Re: Response to Additional MOE Comments [August 27, 2001] on The Owner of Kawartha Lakes Application for a Certificate of Approval Under Part V of the Environmental Protection Act for the Continued Use and Expansion of the Lindsay-Ops Landfill, including responses to MOE comments (pages 1 to 9) and the following attachments:
 - a. Revised Map 7-2: Proposed Leachate Monitoring Locations, Golder Associates Ltd., September 2001.
 - b. Manhole Penetration Detail 'A', Urban & Environmental Management Inc., September 2001.
- 38. Report entitled, "Detailed Design for Cell 1 Base Liner and Leachate Collection System and Overview of Future Design Submissions Lindsay-Ops Landfill Expansion", prepared by Gartner Lee Ltd., in association with Golder Associates and TSH, dated August 2002, including:

Detailed Design Drawings

- 1. Existing Conditions Rev. 1 Aug 07/02
- 2. Facility Layout Rev. 1 Aug 07/02
- 3. Site Preparation Rev. 1 Aug 07/02
- 4. Grading Plan Cell 1 Base Excavation Rev. 1 Aug 07/02
- 5. Grading Plan Cell 1 Top of Clay Liner Rev. 1 Aug 07/02
- 6. Grading Plan Cell 1 Leachate Collection System Layout Rev. 1 Aug 07/02
- 7. Grading Plan Cell 1 Top of Leachate Collection Granular Blanket Rev. 1 Aug 07/02
- 8. Typical Sections and Details Rev. 1 Aug 07/02
- 9. Typical Sections and Details Rev. 2 Aug 22/02
- 10. Typical Sections and Details Rev. 1 Aug 07/02
- 11. Manhole 1 and 2 Details Rev. 1 Aug 07/02

Appendices

- A. Report on Geotechnical and Hydrogeological Data/Analyses for the Detailed Design of the Lindsay/Ops Landfill Expansion [Cell 1], prepared by Golder Associates Ltd., dated August 2002.
- B. Cell 1 Base Liner and Leachate Collection System Construction Specifications, prepared by Gartner Lee Ltd., dated August 8, 2002.
- 39. Letter dated September 27, 2002 from Mark Sungaila, P. Eng., Gartner Lee Ltd., to Dave Staseff, P. Eng., Ministry of the Environment, Re: Response to MOE Comments [September 25, 2002] on Detailed Design of Cell 1, Lindsay-Ops Landfill Site, Certificate of Approval No. A321504.
- 40. Letter dated September 27, 2002 from Frank Barone, P. Eng., Golder Associates Ltd., to Dave Staseff, P. Eng., Ministry of the Environment, Re: Responses to MOE Comments on Detailed Design for Lindsay/Ops Landfill Expansion (MOE Letter dated September 25, 2002).
- 41. Letter dated October 1, 2002 from Frank Barone, P. Eng., Golder Associates Ltd., to Dave Staseff, P. Eng., Ministry of the Environment, Re: Responses to MOE Comments [September 27, 2002] on Construction Specifications for Cell 1 Base Liner and Leachate Collection System, Lindsay/Ops Landfill North Expansion.
- 42. Letter dated October 2, 2002 from Mark Sungaila, P. Eng., Gartner Lee Ltd., to Dave Staseff, P. Eng., Ministry of the Environment, Re: Response to MOE Comments [dated September 27, 2002 on Construction Specifications] on Detailed Design of Cell 1, Lindsay-Ops Landfill Site, Certificate of Approval No. A321504, including:
 - a. Construction Specifications (Section 13) for Geosynthetic Clay Liner (GCL), dated September 3, 2002.
- 43. Letter dated March 24, 2003 from Mark Sungaila, P. Eng., Gartner Lee Limited, to Dave Staseff, P. Eng., Ministry of the Environment, Re: Detailed Design of Site Infrastructure for Lindsay-Ops Landfill Expansion (C of A No. A321504).

44. Report entitled "Detailed Design of Site Infrastructure for Lindsay-Ops Landfill Expansion (C of A No. A321504)", prepared by Gartner Lee Limited, in association with TSH and Golder Associates, dated March 2003, including design brief and the following drawings:

Detailed Design Drawings

- 1. GA1 General Facility Layout Rev. 2 March 12, 2003
- 2. R1 Access Road 'A' Sta. 0+000 to Sta. 0+083.378 Rev. 2 March 12, 2003
- 3. R2 Access Road 'B' Sta. 0+000 to Sta. 0+300 Rev. 2 March 12, 2003
- 4. R3 Access Road 'B' Sta. 0+300 to Sta. 0+600 Rev. 2 March 12, 2003
- 5. R4 Access Road 'B' Sta. 0+600 to Sta. 0+870 Rev. 2 March 12, 2003
- 6. R5 Scale House and Scale By-Pass Area Rev. 2 March 12, 2003
- 7. R6 Typical Sections and Details Rev. 2 March 12, 2003
- 8. CF1 Leaf and Yard Compost Facility Facility Layout Rev. 2 March 12, 2003
- 9. CF2 Leaf and Yard Compost Facility Detailed Facility Layout Rev. 2 March 12, 2003
- 10. CF3 Leaf and Yard Compost Facility Typical Sections and Details Rev. 2 March 12, 2003
- 11. CF4 Leaf and Yard Compost Facility Details Rev. 2 March 12, 2003
- 12. SG-1 Site Grading Plan Buildings Rev. 2 March 12, 2003
- 13. M01 Scale House & Hazardous Waste Depot Plan S Rev. 2 March 12, 2003
- 45. Report entitled "Detailed Design for Cell 2 Base Liner and Leachate Collection System Lindsay-Ops Landfill Site" prepared for the Owner of Kawartha Lakes by Gartner Lee Limited, in association with Golder Associates and TSH, dated June 2004.

Detailed Design Drawings

- 1. Existing Conditions Issued for MOE Approval June 30, 2004;
- 2. Facility Layout/Site Preparation Issued for MOE Approval June 30, 2004;
- 3. Grading Plan Cell 2 Base Excavation Issued for MOE Approval June 30, 2004;
- 4. Grading Plan Cell 2 Top of Soil Liner Issued for MOE Approval June 30, 2004;
- 5. Grading Plan Cell 2 Leachate Collection System Layout Issued for MOE Approval June 30, 2004:
- 6. Grading Plan Cell 2 Top of Leachate Collection Granular Blanket Issued for MOE Approval June 30, 2004;
- 7. Typical Sections and Details Issued for MOE Approval June 30, 2004;
- 8. Typical Sections and Details Issued for MOE Approval June 30, 2004;
- 9. Typical Sections and Details Issued for MOE Approval June 30, 2004; and
- 10. Manhole 3 and 4 Details Issued for MOE Approval June 30, 2004.

Appendices

A. Geotechnical and Hydrogeological Data/Analyses for the Detailed Design of the Lindsay/Ops Landfill Expansion (Cell 2), prepared by Golder Associates Ltd., dated June

- 2004.
- B. Cell 2 Base Liner and Leachate Collection System Construction Specifications, prepared by Gartner Lee Limited and Golder Associated, dated June 30, 2004 and June 15, 2004, respectively.
- 46. Letter dated July 29, 2004 from Mark Sungaila, P.Eng. Gartner Lee Limited to Dale Gable, P.Eng. Ministry of the Environment, Re: 40-504 Responses to Review Comments Owner of Kawartha Lakes, Detailed Design of Lindsay-Ops Landfill Site Cell 2, MOE Reference Number 8240-62LQ9T.
- 47. Report letter entitled "Monitoring Plan for Compost Pad Facility Lindsay/Ops Landfill" and supporting documentation to Mr. Ian Parrott, Ministry of the Environment from Mr. Frank Barone, Golder Associates Ltd. dated February 9, 2005.
- 48. Letter and supporting documentation dated June 12, 2006 addressed to Mr. Dale Gable, Ministry of the Environment from Mr. Frank Barone, Golder Associates Ltd. submitted to satisfy Condition No. 22. The supporting documentation includes the following:
 - i. Report entitled "Detailed Design Brief Low Permeability Final Cover System for Completed South area of Lindsay-Ops Landfill" prepared for the Owner of Kawartha Lakes by Golder Associated Ltd dated June 2006;
 - ii. Construction Specifications Low Permeability Final Cover System for Completed South Area of Lindsay-Ops Landfill prepared by Golder Associated Ltd. dated June 2006;
 - iii. Dwg. No. 1 Title Page Low Permeability Final Cover Construction Lindsay-Ops Landfill prepared by Golder Associated (Project No. 05-1113-162) dated June 8. 2006;
 - iv. Dwg. No. 2 Existing Conditions Low Permeability Final Cover Construction Lindsay-Ops Landfill prepared by Golder Associated (Project No. 05-1113-162) dated June 8. 2006;
 - v. Dwg. No. 3 Cut and fill Depths for Landfill Surface Regrading Low Permeability Final Cover Construction Lindsay-Ops Landfill prepared by Golder Associated (Project No. 05-1113-162) dated June 8. 2006;
 - vi. Dwg. No. 4 Regrading Surface Prior to Geomembrane Placement Low Permeability Final Cover Construction Lindsay-Ops Landfill prepared by Golder Associated (Project No. 05-1113-162) dated June 8. 2006;
 - vii. Dwg. No. 5 Cross Sections Low Permeability Final Cover Construction Lindsay-Ops Landfill prepared by Golder Associated (Project No. 05-1113-162) dated June 8. 2006;
 - viii. Dwg. No. 6 Landfill Gas Venting System Layout Low Permeability Final Cover Construction Lindsay-Ops Landfill prepared by Golder Associated (Project No. 05-1113-162) dated June 8. 2006;
 - ix. Dwg. No. 7 Geocomposite Outlet Tubing Layout Low Permeability Final Cover Construction Lindsay-Ops Landfill prepared by Golder Associated (Project No. 05-1113-162) dated June 8. 2006;
 - x. Dwg. No. 8 Top of Final Cover Surface Low Permeability Final Cover Construction Lindsay-Ops Landfill prepared by Golder Associated (Project No. 05-1113-162) dated June 8. 2006;

- xi. Dwg. No. 9 Details Low Permeability Final Cover Construction Lindsay-Ops Landfill prepared by Golder Associated (Project No. 05-1113-162) dated June 8. 2006;
- xii. Dwg. No. 10 Details Low Permeability Final Cover Construction Lindsay-Ops Landfill prepared by Golder Associated (Project No. 05-1113-162) dated June 8. 2006; and
- xiii. Dwg. No. 11 Details Low Permeability Final Cover Construction Lindsay-Ops Landfill prepared by Golder Associated (Project No. 05-1113-162) dated June 8. 2006.
- 49. Letter to the Ministry of the Environment from Golder Associates Ltd., dated January 29, 2008 which describes the proposed development of the northern half of Cells 3 and 6, which differs from the original plan and explains the operational benefits of this change.
- 50. Construction Specifications Report prepared by Golder Associates Ltd., dated January 2008 and associated Drawings Nos. 1 to 12, Project No. 07-1113-0326.
- 51. Geotechnical and Hydrogeological Data/Analyses for the Detailed Design of the Cells 3 and 6 (Northern Half) Lindsay/Ops Landfill Expansion, prepared by Golder Associates Ltd., dated January 2008.
- 52. Application for a Provisional Certificate of Approval for a Waste Disposal Site dated January 16, 2009 and signed by Andrew Boyd, Supervisor, Solid Waste Services including the Owner of Kawartha Lakes Household Hazardous Waste (HHW) Depot Operations Manual dated January 2009.
- 53. E-mail dated August 21, 2009 (4:08 PM) from Heather Van Bruinessen, Regulatory Compliance Officer to B. Wilkinson, MOE re: storage of batteries (on shelving unit with roof) & oil bins (double-lined walls).
- 54. E-mail dated September 8, 2009 (10:22 AM) from Heather Van Bruinessen, Regulatory Compliance Officer to B. Wilkinson, MOE re: maximum solid waste.
- 52. Application for a Provisional Certificate of Approval for a Waste Disposal Site signed by Andrew Boyd, Supervisor, Solid Waste Division, The Corporation of the Owner of Kawartha Lakes, including all attached supporting information.
- 53. E-mail dated October 1, 2009, from Andrew Boyd, Supervisor, Solid Waste Division, The Corporation of the Owner of Kawartha Lakes, to Cathy Curlew, Senior Environmental Officer, Ministry of the Environment. Re: Use of Rancor Materials for Landfill Cover.
- 54. E-mail dated October 2, 2009, from Andrew Boyd, Supervisor, Solid Waste Division, The Corporation of the Owner of Kawartha Lakes, to David Lee, Senior Review Engineer, Ministry of the Environment. Re: Application for a Provisional CofA Use of Rancor Fines as ADC.
- 55. E-mail dated October 13, 2009, from Heather Van Bruinessen, Regulatory Compliance Officer, The Corporation of the Owner of Kawartha Lakes to David Lee, Senior Review Engineer, Ministry of the Environment. Re: Use of Rancor Fines as ADC.

- 56. E-mail dated October 14, 2009, from Andrew Boyd, Supervisor, Solid Waste Division, The Corporation of the Owner of Kawartha Lakes, to David Lee, Senior Review Engineer, Ministry of the Environment. Re: Application for a Provisional CofA Use of Rancor Fines as ADC.
- 57. Report entitled "Ontario Regulation 347 Design Report Lindsay/OPS Landfill Site Lindsay, Ontario" dated June 26, 2009 prepared by Comcor Environmental Limited.
- 58. Letter dated January 15, 2010 addressed to Rick Li, Ministry of the Environment from Denise Burgess, Comcor Environmental Limited providing a response to the MOE comments on the design report (Item 57).
- 59. Letter dated February 25, 2010 addressed to Rick Li, Ministry of the Environment from Denise Burgess, Comcor Environmental Limited providing a response to the MOE comments on the header pipe trench and liner penetration detail.
- 60. Report entitled "Geotechnical and Hydrogeological Data/Analyses for the Detailed Design of Cells 3 and 6 (Southern Half), Lindsay-Ops Landfill, Lindsay, Ontario" prepared by Golder Associated (Project Number 11-1111-0146) and dated March 2012.
- 61. Report entitled "Construction Specifications Cells 3 and 6 (Southern Half), Lindsay-Ops Landfill, Owner of Kawartha Lakes, Lindsay, Ontario" prepared by Golder Associated (Project Number 11-1111-0146) and dated March 2012.
- 62. Detailed design drawing set entitled "Owner of Kawartha Lakes Cells 3 and 6 (South Half) Construction Lindsay-Ops Landfill" prepared by Golder Associates (Project Number 11-1111-1146). The set includes the following drawings:
 - i. Drawing No. 1 entitled "Title Page" dated March 12, 2012;
 - ii. Drawing No. 2 entitled "Site Boundaries and Existing Facilities" dated March 12, 2012;
 - iii. Drawing No. 3 entitled "Proposed Base Grade Prior to Liner Installation" dated March 12, 2012:
 - iv. Drawing No. 4 entitled "Proposed Base Grade Cross-Sections A-A' and B-B'" dated March 12, 2012;
 - v. Drawing No. 5 entitled "Proposed Top of Soil Liner Contours" dated March 12, 2012;
 - vi. Drawing No. 6 entitled "Proposed Leachate Collection System Pipe Layout" dated March 12, 2012;
 - vii. Drawing No. 7 entitled "Proposed Top of Leachate Collection Granular Blanket Contours" dated March 12, 2012;
 - viii. Drawing No. 8 entitled "Proposed Final Grade Contours Prior to Waste Placement" dated March 12, 2012;
 - ix. Drawing No. 9 entitled "Typical Details" dated March 12, 2012;
 - x. Drawing No. 10 entitled "Typical Details" dated March 12, 2012;
 - xi. Drawing No. 11 entitled "Typical Details" dated March 12, 2012; and
 - xii. Drawing No. 12 entitled "Leachate Collection System Maintenance Hole 7 and 8 Typical

Details" dated March 12, 2012.

- 63. Letter dated April 10, 2012 addressed to Ms. Heather Dzurko, Supervisor Solid Waste Division The Corporation of the Owner of Kawartha Lakes from Mr. Dale Gable, Ministry of the Environment requesting additional information pertaining to liner construction, specifications and leachate collection piping.
- 64. Letter dated May 18, 2012 addressed to Mr. Dale Gable, Ministry of the Environment from Mr. Frank Barone, Golder Associates providing clarification on construction specifications and construction methodology's.
- 65. Letter dated May 29, 2012 addressed to Mr. Dale Gable, Ministry of the Environment from Mr. Frank Barone, Golder Associates providing an additional detail on connecting the new liner to the existing liner.
- 66. Report entitled "Operating Instructions Landfill Gas Collection and Flaring System Lindsay/Ops Landfill Site" prepared for the Owner of Kawartha Lakes by Comcor Environmental Limited dated March 2012.
- 67. Appendix A of the letter dated October 31, 2012 addressed to Mr. Dale Gable, Ministry of the Environment from Ms. Roberta Purdue, Owner of Kawartha-Lakes regarding the specifications for an additional waste oil tank.
- 72. Application for Amendment of the Provisional Environmental Compliance Approval for a Waste Disposal Site dated November 21, 2014, and received on November 24, 2014, and signed by Mr. David Kerr, Manager, Solid Waste Services including the Owner of Kawartha Lakes, regarding change of hours, along with supporting documentation that includes the Report listed as item No. 70 of the Schedule A.
- 73. Application for Amendment of the Provisional Environmental Compliance Approval for a Waste Disposal Site dated March 3, 2014 and received on March 3, 2014, and signed by Mr. David Kerr, Manager, Solid Waste Services to modify conditions listed under Section 6 in the ECA, composting operations.
- 74. Application for Amendment of the Provisional Environmental Compliance Approval for a Waste Disposal Site dated February 20, 2014 and received on March 21, 2014, and signed by Mr. David Kerr, Manager, Solid Waste Services for including the monitoring wells "lagoon Wells" in Schedule B.
- 75. Application for Amendment of the Provisional Environmental Compliance Approval for a Waste Disposal Site dated January 30, 2015 and received on February 4, 2015, and signed by Mr. David Kerr, Manager, Solid Waste Services for the relocation of an existing composting pad and associated stormwater pond to a future landfill disposal cell at the Lindsay-Ops Landfill Site
- 76. Report submitted in support of the Application listed as item No. 73, entitled "Supporting

- Documentation for ECA Amendment (A321504)-Relocation of Existing Leaf and Yard Waste Composting Operations, Lindsay-Ops Landfill Site, Owner of Kawartha Lakes, dated January 2015, prepared by Stantec Consulting Ltd.
- 77. Drawing No. C-100 included in the Report listed as item No. 74 of the Schedule A, showing the proposed Leaf and Yard Composting Facility, monitoring locations and stormwater management works, dated January 30, 2015, prepared by Stantec Consulting Ltd.
- 78. Letter from Ms. Angela Porteou, Owner of Kawartha Lakes, dated July 6, 2015, addressed to Ms. Cathy Curlew, Ministry of the Environment and Climate Change, providing additional information supplementing the Report listed as item No. 74 of the Schedule A.
- 79. Letter from Ms. Angela Porteous, Owner of Kawartha Lakes, dated July 6, 2015, addressed to Mr. Khalid Hussain, Ministry of the Environment and Climate Change, providing additional information supplementing the Report listed as item No. 74 of the Schedule A.
- 80. Letter from Mr. Jim Archibald, Stantec Consulting Inc., dated July 10, 2015, addressed to Mr. Khalid Hussain, Ministry of the Environment and Climate Change, providing additional information supplementing the Report listed as item No. 74 of the Schedule A.
- 81. Letter from Mr. Jim Archibald, Stantec Consulting Inc., dated September 2, 2015, addressed to Mr. Khalid Hussain, Ministry of the Environment and Climate Change, providing additional information supplementing the Report listed as item No. 74 of the Schedule A.
- 82. Consolidated Maintenance and Operations Report, Lindsay-Ops Landfill, Lindsay, Ontario" prepared by UEM Urban and Environmental Management Inc., dated December 2012.
- 83. Email and attachments from Ms. Angela Porteous, S.C., Owner of Kawartha Lakes addressed to Mr. Khalid Hussain, Ministry of Environment and Climate Change, dated September 10, 2015, providing the Owner's comments and other information.
- 84. Email and attachments from Ms. Angela Porteous, S.C., Owner of Kawartha Lakes addressed to Mr. Khalid Hussain, Ministry of Environment and Climate Change, dated September 17, 2015, providing the Owner's comments and map showing monitoring location SW18, and other information.
- 85. Email from Ms. Angela Porteous, Owner of Kawartha Lakes, dated September 28, 2015, addressed to Mr. Khalid Hussain, Ministry of the Environment and Climate Change, providing additional information regarding the landfill site monitoring program.
- 86. Email from Ms.Angela Porteous, Owner of Kawartha Lakes, dated October 2, 2015, addressed to Ms. Cathy Curlew, Ministry of the Environment and Climate Change, providing additional information regarding the proposed stormwater management pond for relocated Leaf and Yard Waste Composting Facility.

- 87. Revised Drawings No. C-100 and C-101, prepared by Stantec Consulting Ltd., included with Email dated October 1, 2015 from Ms. Angela Porteous, Owner of Kawartha Lakes, dated October 1, 2015, addressed to Mr. Khalid Hussain and others, providing these drawings and other information.
- 88. Application for approval dated November 30, 2015 and received on December 1, 2015 and supporting documents
- 89. Report Construction Specifications Cells 4 and 5 (Northern Half) Lindsay/OPS Landfill, Owner of Kawartha Lakes, Lindsay, Ontario (Report Number 1524542) November 2015
- 90. Report Geotechnical and Hydrogeological Data/Analysis for the Detailed Design of Cells 4 and 5 (north half) Lindsay/OPS Landfill, Lindsay, Ontario (Report Number 1524542) November 2015
- 91. Detailed Design Drawings Issued for MOE Approval Lindsay OPS Landfill, Cells 4 and 5 (Northern half) (Project Number 1524542) Stamped November 30, 2015 F. S. Barone
- 92. Correspondence with Frank Barone (see memo to file) regarding clarification of size of waste fill area
- 93. Application for Amendment of the Provisional Environmental Compliance Approval for a Waste Disposal Site dated December 6 2016 and received on December 8,2016 and signed by Mr. David Kerr, Manager, Solid Waste Services including the Owner of Kawartha Lakes, regarding changes to the Cover Materials and Monitoring Requirements.
- 94. Letter dated May 16,2017 regarding the relocation of composting pad and leachate collection pond prepared by Golder Associates.
- 95. Email dated 19th June 2017 from Angela Porteous, Regulatory Compliance Officer, Owner of Kawartha Lakes regarding the Solids and Odour management from the Infiltration Pond.
 - Previous Works Approved on November 15, 2002:
- 96. Application for Approval of Municipal and Private Sewage Works submitted by the Owner of Kawartha Lakes dated August 28, 2002 and design specifications and drawings prepared by Totten Sims Hubicki Associates (1997) Limited, Whitby, Ontario.
- 97. "Lindsay/Ops Landfill Continuing Use and North Landfill Expansion Leachate/Sewage Pumping Stations Design Report" August 2002, prepared by Totten Sims Hubicki.
- 98. "Lindsay/Ops Landfill Continuing Use and North Landfill Expansion Leachate/Sewage Pumping Stations, TSH Project No. 52-27395" August 2002, prepared by Totten Sims Hubicki.
- 99. "Continued Use & North Expansion of Existing Lindsay-Ops Landfill Leachate Disposal Study"

- July 2000, prepared by Earth Tech Canada Inc.
- 100. "Provisional Certificate of Approval Waste Disposal Site Number A321504 Lindsay-Ops Landfill Site" issued May 11, 2001.
 - Previous Works Approved on June 18, 2003:
- 101. Application for approval submitted by the Owner of Kawartha Lakes dated March 3, 2003 and drawings and design specifications prepared by Gartner Lee Limited, Markham, Ontario.
 - Previous Works Approved on October 10, 2008:
- 102. Application for approval submitted by the Owner of Kawartha Lakes dated April 25, 2008 and drawings and design specifications prepared by Golder Associates Ltd., Mississauga, Ontario.
 - Previous Works Approved on November 14, 2008
- 103. Document entitled "2018 Landfill Gas Collection System Detailed Design Report, Lindsay-Ops Landfill Site, Kawartha Lakes, Ontario Amended Compliance Approval Number A321504", dated June 13, 2018 and prepared by Comcor Environmental Limited on behalf of the Owner of Kawartha Lakes.
 - Previous Works Approved on September 3, 2019:
- 104. Application to amend Environmental Compliance Approval A321504, submitted by the Owner of Kawartha Lakes, dated August 16, 2019 re: Change to Cells 4 and 5 (North Half), Stage 2 Design, WSP Project No. 171-1-835-02.
 - Valve Chamber for Compost Infiltration Pond
- 105. Application to amend Environmental Compliance Approval A321504, submitted by the Owner of Kawartha Lakes, dated June 12, 2020 re: Valve Chamber for Compost Pad Infiltration Pond.
- Application to amend Environmental Compliance Approval A321504, submitted by the Owner of Kawartha Lakes, dated December 24, 2021, including technical supporting documents prepared by WSP dated December 14, 2021, re: Lindsay Ops Landfill Cells 4 and 5 (South Half), Design, Environmental Compliance Approval No.A321504.

SCHEDULE "B"

This Schedule "B.1" forms part of this Approval.

GROUNDWATER MONITORING PROGRAM - EXISTING FILL AREA

1. Landfill Monitors: 6-90-R1 and 7-90-R1

Parameters: alkalinity, conductivity, pH, BOD, COD, DOC, barium, chloride, fluoride, iron,

manganese, hardness, calcium, magnesium, potassium, sodium, TKN, nitrate, nitrite, ammonia, phenols, phosphorus, sulphate, benzene, toluene, xylene, aluminium, beryllium,

cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, silver, thallium,

vanadium, zinc, antimony, arsenic, selenium.

Frequency: Two times per year (May and October)

Parameters: Volatile Organic Compounds, Halogenated and Non-Halogenated

Frequency: Once per year (May)

2. Overburden Monitors:

North - 32-93-1/2/3

East -12-91-1/2, 49-96-2/3

West - 15-91-1/2, 16-91-1/2, 17-91-1/2, 19-91

South - 13-91-1/2, 14-07, 18-91, 23-07, 25-91, 29-93, 35-93-1/2, 36-93, 37-93-1/2, 38-93, 39-93-1/2, 61-10-2

Parameters: alkalinity, conductivity, pH, COD, DOC, barium, chloride, fluoride, iron, manganese,

hardness, calcium, magnesium, potassium, sodium, nitrate, nitrite, ammonia, phenols, phosphorus, sulphate, benzene, toluene, xylene, aluminium, beryllium, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, silver, vanadium, zinc.

Frequency: twice per year (May and October)

3. Bedrock Monitors:

20-91-1/2/3, 21-91-1/2/3, 25-96, 27-93, 28-93, 49-96-1, 55-98-1/2, 61-10-1

Parameters: alkalinity, conductivity, pH, COD, DOC, barium, chloride, fluoride, iron, manganese,

hardness, calcium, magnesium, potassium, sodium, nitrate, nitrite, ammonia, phenols, phosphorus, sulphate, benzene, toluene, xylene, aluminum, beryllium, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, silver, vanadium, zinc.

Frequency: twice per year (May and October)

4. Water Levels:

All monitors (excludes Residential Wells, lagoon well and office well) - 4 times per year (February, May, July, October)

5. <u>Lagoon Wells:</u>

- (i) Overburden: 30-93, 31-93, 45-95-2, 46-95-2, 47-96-2, 48-96-2, 59-05, 60-05
- (ii) Bedrock: 45-95-1, 46-95-1, 47-96-1, 48-96-1

Parameters: alkalinity, conductivity, pH, COD, DOC, barium, chloride, fluoride, iron, manganese, hardness, calcium, magnesium, potassium, sodium, nitrate, nitrite, ammonia, phenols, phosphorus, sulphate, benzene, toluene, xylene, aluminium, beryllium, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, silver, vanadium, zinc.

Frequency: twice per year (May and October)

SCHEDULE "B.2"

This Schedule "B.2" forms part of this Approval.

GROUNDWATER MONITORING PROGRAM - LANDFILL EXPANSION

Well Identification (see Map 7-1 in the Operations and Maintenance Manual)	Hydrogeologic Unit Monitored	Sample Parameters (Schedule D)	Sampling Frequency (per year)
32-93-1	silty sand till	Indicator Comprehensive	2 x 1 x
32-93-2	silty sand till	Indicator Comprehensive	2 x 1 x
32-93-3	silty sand till	Indicator Comprehensive	2 x 1 x
43-93-1	overburden	Indicator Comprehensive	2 x 1 x
43-93-2	overburdent	Indicator Comprehensive	2 x 1 x
44-93-1	sandy silt till	Indicator Comprehensive	2 x 1 x
44-93-2	sandy silt till	Indicator Comprehensive	2 x 1 x
45-93	silty sand to sandy silt till	Indicator Comprehensive	2 x 1 x
11-90	limestone bedrock	Indicator Comprehensive	2 x 1 x
53-98	limestone bedrock	Indicator Comprehensive	2 x 1 x
55-98-1/2	limestone bedrock	Indicator Comprehensive	2 x 1 x
58-02-1	Overburden	Indicator Comprehensive	2 x 1 x
57-02-2	Overburden	Indicator	2 x

		Comprehensive 1 x	
61-10-1	Bedrock	Indicator 2 x Comprehensive 1 x	
61-10-2	Overburden	Indicator 2 x Comprehensive 1 x	
61-17-1	Bedrock	Indicator 2 x Comprehensive 1 x	
62-17-1	Bedrock	Indicator 2 x Comprehensive 1 x	
62-17-2	Bedrock	Indicator 2 x Comprehensive 1 x	
62-17-3	Bedrock	Indicator 2 x Comprehensive 1 x	

1. Water levels to be measured at the time of sampling at all monitoring locations.

SCHEDULE "C"

This Schedule "C" forms part of this Approval.

LEACHATE QUALITY AND QUANTITY MONITORING

Existing Fill Area:

Location	Parameters	Frequency
Quality:		1 43 St
Existing Leachate Pumping Chamber	conductivity, chloride, nitrate, nitrite, ammonia, TKN, sulphate, barium, iron, lead, cadmium, chromium, BOD, COD, DOC, phenols, phosphorus, benzene, toluene, xylene	Monthly (unless samples collected in accordance with the Lindsay WPCP OWRA ECA of Approval are available as surrogates)
Existing Leachate Pumping Chamber	arsenic, boron, free cyanide, fluoride, mercury, NTA, pesticides, radionuclides, selenium, silver, trihalomethanes	Twice per year (May and October)
Quantity:		
Existing Leachate Pumping Chamber	flow volume	continuous

North Expansion Fill Area:

Location	Parameters	Frequency
Quality:	330000000000000000000000000000000000000	
North Expansion Leachate Pumping Chamber	Comprehensive List in Schedule "D"	Annual
North Expansion Leachate Pumping Chamber	Indicator List in Schedule "D"	Twice per year
Quantity:		
North Expansion Leachate Pumping Chamber	flow volume	continuous

Leachate heads acting on the composite liner in the north expansion fill area shall be monitored three (3) times per year using vibrating wire piezometers (VWPs) installed on the liner surface at eight locations shown on Map 7-2, Proposed Leachate Monitoring Locations, Golder Associates, September 2001 (Item 37(a) in Schedule "A").

SCHEDULE "D"

This Schedule "D" forms part of this Approval.

GROUNDWATER AND LEACHATE MONITORING PARAMETERS

Comprehensive List	Indicator List
<u>Inorganics</u>	
Alkalinity	Alkalinity
Ammonia-N	Ammonia-N
Arsenic	
Barium	Barium
Boron	Boron
Cadmium	
Calcium	Calcium
Chloride	Chloride
Chromium	
Conductivity (lab)	Conductivity (lab)
Conductivity (field)	Conductivity (field)
Copper	
Iron	Iron
Lead	
Magnesium	Magnesium
Manganese	
Mercury	
Nitrate	Nitrate
Nitrite	
Total Kjeldahl Nitrogen (TKN)	
pH (lab)	pH (lab)
pH (field)	pH (field)
Total Phosphorus	
Potassium	

Sodium	Sodium
Suspended Solids (Leachate Only)	Suspended Solids (Leachate Only)
Total Dissolved Solids (TDS)	Total Dissolved Solids (TDS)
Sulphate	Sulphate
Zinc	
<u>Volatile Organics</u>	
Benzene	
1,4 Dichlorobenzene	
Dichloromethane	
Toluene	
Vinyl Chloride	
Other Organics	
Biochemical Oxygen Demand (BOD ₅)	Biochemical Oxygen Demand (BOD ₅)
Chemical Oxygen Demand (COD)	Chemical Oxygen Demand (COD)
Dissolved Organic Carbon (DOC)	Dissolved Organic Carbon (DOC)
Phenols	
PCBs	

SCHEDULE "E"

This Schedule "E" forms part of this Approval.

SURFACE WATER MONITORING PROGRAM

Stations	Parameters	Frequency
Drainage Ditches:		
SW1, SW2, SW3, SW4,	conductivity, pH, alkalinity, hardness, COD,	Four (4) times per year -
SW14, SW15, SW16,	chloride, fluoride, nitrite, nitrate, total	samples shall be collected
SW18	phosphorus, sulphate, calcium, sodium,	within 12 hours of the first
	potassium, iron, manganese, phenols, DOC,	rainfall greater than 15
	ammonia, in situ dissolved oxygen, in situ	mm, starting from
	temperature, in situ conductivity, in situ pH,	February 1, May 15,
	aluminium, beryllium, cadmium, chromium,	August 1, and October 1
	cobalt, copper, lead, molybdenum, nickel,	
	silver, thallium, vanadium, zinc, antimony,	
	arsenic, selenium, suspended solids, turbidity	
Upgradient and		
Downgradient :	conductivity, pH, alkalinity, hardness, COD,	Four (4) times per year -
SW13, SW14, Scugog	chloride, fluoride, nitrite, nitrate, total	samples shall be collected
River (1 upgradient, 1	phosphorus, sulphate, calcium, sodium,	within 12 hours of the first
downgradient)	potassium, iron, manganese, phenols, DOC,	rainfall greater than 15
	ammonia, in situ dissolved oxygen, in situ	mm, starting from
	temperature, in situ conductivity, in situ pH,	February 1, May 15,
	aluminium, beryllium, cadmium, chromium,	August 1, and October 1
	cobalt, copper, lead, molybdenum, nickel,	
	silver, thallium, vanadium, zinc, antimony,	
	arsenic, selenium, suspended solids, turbidity	
SW3, SW13, SW14,	Volatile Organic Compounds, Halogenated and	Biannual (every two years)
SW18 Scugog River (1	Non-Halogenated (refer to Schedule E.1)	
upgradient, 1		
downgradient)		
CP #1, CP#2	pH (field), Magnesium, Aluminum, pH (lab),	Twice per year during the
	Potassium, Boron, Temperature(field), Sodium,	spring and late
	Cadmium, Conductivity (field), Dissolved	summer/early fall.
	Organic Carbon, Chromium, Conductivity	
	(lab),	
	Thallium, Cobalt, Total Alkalinity (as CaCO ₃),	
	Chemical Oxygen Demand, Copper, Total	
	Dissolved Solids, Ammonia, Iron, Strontium,	
	Phosphorus (Total), Lead, Hardness, Total	
	Kjeldhl Nitrogen, Manganese, Chloride,	
	Phenols	
	Nickel, Sulphate, Mercury, Vanadium, Nitrate,	
1		ı

Arsenic, Zinc, Nitrite, Barium, Antimony,
Calcium, Fluoride, Beryllium, Molybdenum,
Selenium, Silver, Tannins and Lignins

- 1. All surface water monitoring locations, except for CP#1 and CP#2 appearing in Schedule E shall be sampled for total PCBs every three (3) years, with the exception of SW13 and SW3 which shall be sampled for total PCBs Four (4) times per year. Should concentrations of total PCBs at SW3 or SW13 exceed 0.001 mg/L then the Owner shall sample all stations in Schedule E for total PCBs for two (2) consecutive sampling events. Should the Owner find exceedances of 0.001 mg/L total PCB in any samples in the following sampling events the District Office should be notified.
- 2. For surface water sampling station locations, see Map 7-3, Final Stormwater Ditches, Catchment Areas and Surface Water Monitoring Locations, and Map 7-4, Scugog River Surface Water Sampling Stations (from Items 28(c) an 35(m) in Schedule "A")
- 3. Tannins and Lignins are to be included in the analytical parameters for SW14 and SW18.

Schedule E.1

This Schedule "E.1" forms part of this Approval.

Analytical Test Group Name	Parameters
Volatiles, Halogenated	1,1,2,2-Tetrachloroethane
	1,1,2-Trichloroethane
	1,1-Dichloroethane
	1,1-Dichloroethylene
	1,2-Dichlorobenzene
	1,2-Dichloroethane (Ethylene Dichloride)
	1,2-Dichloropropane
	1,3-Dichlorobenzene
	1,4-Dichlorobenzene
	Bromoform
	Bromomethane
	Carbon tetrachloride
	Chlorobenzene
	Chloroform
	Chloromethane
	Cis-1,3-Dichloropropylene
	Dibromochloromethane
	Ethylene Dibromide
	Methylene Chloride
	Tetrachloroethylene (Perchloroethylene)
	Trans-1,2-Dichloroethylene
	Trans-1,3-Dichloropropylene

	Trichloroethylene
	Trichlorofluoromethane
	Vinyl chloride (Chloroethylene)
Volatiles, Non-Halogenated	Benzene
	Styrene
	Toluene
	o-Xylene
	m-Xylene and p-Xylene (Note 1)

Schedule E.1: Analytical Test Groups and Parameters

Note 1: m-Xylene and p-Xylene often co-elute in the analysis. A single combined result may be reported as m-Xylene.

SCHEDULE "F"

This Schedule "F" forms part of this Approval.

LANDFILL GAS MONITORING

Monitoring Probe (see Map 9-1, Landfill Gas Management and Monitoring System - Item 35(m) in Schedule "A")	Parameters	Frequency
Existing: 12- <u>91, 13</u> -91, 14-91, 16-91, 17-91, 6-90-R1, 7-90-R1, 33-93	methane concentration	monthly during frozen ground conditions and quarterly otherwise
Proposed: GP1, GP2, GP3, GP4, GP5, GP6, GP7, GP8, GP9, GP10	methane concentration	monthly during frozen ground conditions and quarterly otherwise

SCHEDULE "G"

This Schedule "G" forms part of this Approval.

LEACHATE COLLECTION AND DISPOSAL SYSTEM MONITORING

For the purposes of this monitoring program, the following definitions apply:

- (a) Monthly means once every month;
- (b) Quarterly means once every three months;
- (c) Semi-annually means once every six months; and
- (d) Annually means once every twelve months.

Table 1 - Leachate Monitoring Sampling Location: Leachate Pumping Station No. 1 Chamber						
Parameters Frequency Parameters Frequency						
(Ammonia + Ammonium) N	Monthly	Arsenic	Semi-annually			
Barium	Monthly	Boron	Semi-annually			
Benzene	Monthly	Cyanide (Free)	Semi-annually			
CBOD5	Monthly	Fluoride	Semi-annually			
Cadmium	Monthly	Mercury	Semi-annually			
Chloride	Monthly	NTA	Semi-annually			
Chromium	Monthly	Pesticides	Semi-annually			
COD	Monthly	Radionuclides	Semi-annually			
Conductivity	Monthly	Selenium	Semi-annually			
DOC	Monthly	Silver	Semi-annually			
Iron	Monthly	Trihalomethanes	Semi-annually			
Lead	Monthly					
Nitrates as N	Monthly					
Nitrites as N	Monthly					
Phenols	Monthly					
Phosphorus	Monthly					
Sulphate	Monthly					
Toluene	Monthly					
Total Kieldahl Nitrogen (TKN)	Monthly					
Xylene	Monthly					

Table 2 - Leachate Monitoring Sampling Location: Leachate Pumping Station No. 2 Chamber				
Parameters	Frequency	Parameters	Frequency	
Arsenic	Annually	Alkalinity	Semi-annually	
Cadmium	Annually	(Ammonia + Ammonium) N	Semi-annually	
Chromium	Annually	Barium	Semi-annually	
Copper	Annually	Boron	Semi-annually	
Lead	Annually	Calcium	Semi-annually	
Manganese	Annually	Chloride	Semi-annually	
Mercury	Annually	Conductivity	Semi-annually	
Nitrite	Annually	Iron	Semi-annually	
Total Kieldahl Nitrogen	Annually	Magnesium	Semi-annually	
Total Phosphorus	Annually	Nitrate	Semi-annually	
Potassium	Annually	pH (Lab)	Semi-annually	
Zinc	Annually	pH (Field)	Semi-annually	
Benzene	Annually	Sodium	Semi-annually	
1,4 Dichlorobenzene	Annually	Suspended Solids	Semi-annually	
Dichloromethane	Annually	Total Dissolved Solids	Semi-annually	
Toluene	Annually	Sulphate	Semi-annually	
Vinyl Chloride	Annually	Biochemical Oxygen Demand (CBOD5)	Semi-annually	
Phenois	Annually	Chemical Oxygen Demand	Semi-annually	
PCBs	Annually	Dissolved Organic Carbon	Semi-annually	

The reasons for the imposition of these terms and conditions are as follows:

The reason for Conditions 1.1 and 1.2 is to ensure that the Site is designed, operated, monitored and maintained in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider.

The reason for Conditions 1.3, 1.4, 1.5, 1.9, 1.10, 1.11, 1.12 and 1.13 is to clarify the legal rights and responsibilities of the Owner under this Approval of Approval.

Conditions 1.6 and 1.7 are included to ensure that the appropriate Ministry staff have ready access to information and the operations of the Site, which are approved under this Approval.

Condition 1.8 has been included in order to clarify what information may be subject to the Freedom of Information Act.

Conditions 1.14 to 1.16 inclusive are included, pursuant to subsection 197(1) of the EPA, to provide that any persons having an interest in the Site are aware that the land has been approved and used for the purposes of waste disposal.

The reasons for Condition 1.17 are to restrict potential transfer or encumbrance of the Site without the approval of the Director and to ensure that any transfer of encumbrance can be made only on the basis that it will not endanger compliance with this ECA of Approval.

The reasons for Conditions 1.18 and 1.19 are to ensure that the Site is operated under the corporate name which appears on the application form submitted for this approval and to ensure that the Director is informed of any changes.

The reason for Condition 1.20 is to ensure that appropriate Ministry staff have ready access to the Site for inspection of facilities, equipment, practices and operations required by the conditions in this ECA of Approval. This condition is supplementary to the powers of entry afforded a Provincial Officer pursuant to the EPA and OWRA.

The reasons for Conditions 2.1 to 2.6 is to ensure that the Site is designed, constructed and operated in an environmentally acceptable manner, based on the conceptual design and operations for the Site.

The reason for Condition 2.7 is to ensure the availability of as-built drawings for inspection and information purposes.

The reasons for Conditions 2.8, 2.9, 2.10, 2.11, 2.12, 2.15, 2,16 and 2.17 are to ensure that the engineered facilities are properly installed and constructed to meet the design specifications and performance objectives.

The reasons for Conditions 2.13 and 2.14 are to ensure the Ministry is updated on construction progress and to ensure the long-tern protection of the health and safety of the public and the environment:

The reasons for Conditions 2.18 and 2.19 are to ensure that preparation and construction within a new landfill cell proceeds in accordance with approved detailed design plans, technical specifications and QA/QC activities and procedures.

The reasons for Conditions 2.20 and 2.21 are to expedite and monitor the waste settling process prior to placement of the GCL, geomembrane and leachate collection system for the north expansion fill area on the common north slope.

The reasons for Conditions 3.1 and 3.2 is for approving the detailed design for Cell 1, Cell 2, Cell3 and Cell 6 and the ancillary facilities associated with landfill expansion and to allow the Owner to develop and operate the landfill site expansion in accordance with the approved final detailed design.

The reason for Condition 3.3 is to ensure the gas collection and flaring system shall be built and operated as per the submission and supporting documentation.

The reasons for Condition 3.4 are to ensure the Owner has plans in place during the construction of the system to address potential off-site impacts and construction timing.

The reason for Condition 3.5 is to ensure the Owner documents the construction activities and provides this information in a report to the District Manager.

The reasons for Condition 3.6 are to ensure the proper maintenance of the gas collection system and the District Manager is informed of any changes to the gas wells.

The reason for Conditon 3.7 is to approve the leachate collection and disposal system.

The reason for Conditions 4.1, 4.2 and 4.3 is to ensure that waste disposal at the site is undertaken in accordance with applicable Ministry regulations, and the approved documents incorporated into this Approval. Compliance with these regulations and guidelines and an organized operation will ensure that the site does not cause and adverse effect on the environment.

The reason for Conditions 4.4, 4.5 and 4.6 is to specify the approved areas from which waste may be accepted at the Site and the types and amounts of waste that may be accepted for disposal at the Site, based on the Owner's application and supporting documentation.

The reason for Conditions 4.7, 4.8, 4.9 and 4.10 is to specify restrictions on the extent of landfilling at this Site based on the Owner's application and supporting documentation. These limits define the approved volumetric capaOwner of the site.

The reason for Conditions 4.11, 4.12 and 4.13 is to ensure only waste approved by this Approval ia

accepted at the Site.

The reasons for Condition 4.14 is to accommodate the pre-loading and to allow for settling of the north slope area of the existing fill area by landfilling in a north-south direction within the north expansion fill area.

The reasons for Conditions 4.15, 4.16, 4.17 and 4.18 are to specify the normal hours of operation for the landfill Site and a mechanism for amendment of the hours of operation.

The reasons for Conditions 4.19 and 4.20 are to ensure that users of the Site are fully aware of important information and restrictions related to Site operations under this ECA of Approval.

The reason for Conditions 4.22, 4.23, 4.24, 4.25, 4.26, 4.27, and 4.28 are to ensure that the Site is operated in an environmentally acceptable manner for protection of the natural environment and public health and safety.

The reasons for Conditions 4.29, 4.30, 4.31, 4.32, 4.33, 4.34, 4.35, 4.36, 4.37 and 4.38 are to minimize and control the use of the landfill Site by gulls with the goal to prevent the potential for gull/aircraft interaction.

The reason for Condition 4.39 is to ensure de-icing operations at the site do not impact the environmental monitoring program.

The reason for Condition 4.40 is to ensure the Owner is aware of their responsibility for ensuring regarding spillages at the Site.

The reason for Conditions 4.41, 4.42 and 4.43 are to ensure that landfill gas generated at this Site is managed in an environmentally acceptable manner.

The reason for Condition 4.45 is to ensure protection of the composite liner and leachate collection system in the north expansion fill area.

The reasons for Condition 4.44 are to minimize the potential for clogging of the leachate drainage layer and to minimize temperature effects on the leachate collection system. Failure to maintain the specified minimum thickness of waste and cover material may result in a decrease in the service life of the drainage layer.

The reason for Condition 4.49 and 4.47 are to ensure that leachate generated at this Site is disposed of in an environmentally acceptable manner.

The reason for Condition 4.46 is to ensure that noise from landfill operations are controlled to minimize any impacts to receptors.

The reason for Condition 4.51 is to determine the current and projected leachate quality and quantity generated at this Site and landfilling proceeds, and to implement an appropriate

long-term leachate management plan for this Site.

The reason for Conditions 4.50, 4.51 and 4.52 is to ensure that surface water and stormwater is managed in an environmentally acceptable manner.

The reason for Condition 4.53 is to ensure procedures are in place to protect features of the landfill are protected during construction of the cells.

The reason for Condition 4.54 is to ensure the Owner can record weather conditions at the Site for the records and to assist in managing nuisances at the Site (Litter Control).

The reason for Condition 5.1 is to ensure that waste disposal at the site is undertaken in accordance with applicable Ministry of the Environment regulations, and the approved documents incorporated into this Approval. Compliance with these regulations and guidelines and an organized operation will ensure that the site does not cause and adverse effect on the environment.

The reason for Condition 5.2 is to specify the approved areas from which waste may be accepted at the Site and the types and amounts of waste that may be accepted for disposal at the Site, based on the Owner's application and supporting documentation.

The reason for Conditions 5.3 is to ensure the Owner is fully aware the burning of waste at the Site is not permitted and that open burning of waste is unacceptable because of concerns with air emissions, smoke and other nuisance affects, and the potential fire hazard.

The reason for Condition 5.4, 5.5 and 5.6 are to specify restrictions on the extent of landfilling at this Site based on the Owner's application and supporting documentation. These limits define the approved volumetric capaOwner of the site. Approval to landfill beyond these limits would require an application with supporting documentation submitted to the Director.

The reasons Conditions 5.7, 5.8, 5.9, 5.10, 5.11, and 5.12 have been included are to ensure asbestos waste is handled and disposed of in accordance with O. Reg. 347 as amended from time to time. Proper handling and disposal of asbestos waste ensures that the asbestos waste does not cause an adverse impact on the environment and also does not affect human health.

The reason for Condition 5.13 is to specify the approval requirements for use of alternative cover material at the Site.

The reason for Condition 5.14 is to approved alternative daily covers for the Site.

The reason for Condition 5.15 is to ensure the Owner monitors leachate at the Site.

The reason for Conditions 5.16 is to ensure the leachate collections system operates in an environmental protection manner.

The reasons for Conditions 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7 and 6.8 are to ensure that these facilities

are operated in an environmentally acceptable manner for the protection of the natural environment and public health and safety.

The reason for Conditions 7.1, 7.2, 7.3, 7.4 and 7.5, are to ensure that accurate waste records are maintained to ensure compliance with the conditions in this ECA of Approval (such as fill rate, site capaOwner, record keeping, annual reporting, and financial assurance requirements), the EPA and its regulations. Record keeping is necessary to determine compliance with this ECA of Approval, the EPA and its regulations.

The reason for Condition 8.1 is to establish a forum for the exchange of information and public dialogue on activities carried out at the landfill Site. Open communication with the public and local authorities is important in helping to maintain high standards for site operation and environmental protection.

The reasons for Conditions 9.1, 9.2, 9.3 and 9.4 are to ensure that the Ministry is informed of any spills or fires at the Site and to provide public health and safety and environmental protection.

The reasons for Conditions 10.1, 10.2, 10.3, 10.4 and 10.5 are to ensure protection of the natural environment and the integrity of the groundwater monitoring network.

The reason for Conditions 10.6, 10.7, 10.8, 10.9, 10.10, 19.11, 10.12, 10.13 and 10.14 are to demonstrate that the landfill site is performing as designed and the impacts on the natural environment are acceptable. Regular monitoring allows for the analysis of trends over time and ensures that there is an early warning of potential problems so that any necessary remedial/contingency action can be taken.

The reason for Conditions 11.1, 11.2 and 11.3 are to ensure that the Owner follows a plan with an organized set of procedures for identifying and responding to unexpected but possible problems at the Site. A remedial action / contingency plan is necessary to ensure protection of the natural environment. A leachate contingency plan is a specific requirement of Reg. 232.

The reason for Conditions 12.1, 12.2, 1.3 and 12.4 are to ensure that monitoring and reporting mechanisms are in place so that the Scugog River wetland and ecosystem are not adversely affected by landfill leachate.

The reason for Conditions 13.1, 13.2, 13.3 and 13.4 are to establish and maintain a forum for the exchange of information and public dialogue on activities to be carried out at the landfill site. Open communication with the public and local authorities is important in helping to maintain high standards for site operation and environmental protection.

The reason for Condition 14.1 is to ensure that the Site is operated by properly trained staff in a manner which does not result in a hazard or nuisance to the natural environment or any person.

The reasons for Condition 15.1 is to ensure that regular review of site development, operations and monitoring data is documented and any possible improvements to site design, operations or

monitoring programs are identified. An annual report is an important tool used in reviewing site activities and for determining the effectiveness of site design.

The reasons for Conditions 16.1 is to ensure that final closure of the Site is completed in an aesthetically pleasing manner and to ensure the long-term protection of the natural environment.

The reason for Condition 16.2 is to ensure proper public consultation about the end use of the Site is undertaken and that the end use activities are consistent with those identified during the EA process.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). A321504 issued on January 8, 2021

In accordance with Section 139 of the *Environmental Protection Act*, you may by written notice served upon me and the Ontario Land Tribunal within 15 days after receipt of this notice, require a hearing by the Tribunal. Section 142 of the *Environmental Protection Act* provides that the notice requiring the hearing ("the Notice") shall state:

- a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
- b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the *Environmental Protection Act*, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

- 1. The name of the appellant;
- 2. The address of the appellant;
- 3. The environmental compliance approval number;
- 4. The date of the environmental compliance approval;
- 5. The name of the Director, and;
- 6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

Registrar*
Ontario Land Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5
OLT.Registrar@ontario.ca

and

The Director appointed for the purposes of Part II.1 of the *Environmental Protection Act*Ministry of the Environment, Conservation and Parks 135 St. Clair Avenue West, 1st Floor Toronto, Ontario
M4V 1P5

* Further information on the Ontario Land Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349 or 1 (866) 448-2248, or www.oltt.gov.on.ca

The above noted activity is approved under s.20.3 of Part II.1 of the *Environmental Protection Act*.

DATED AT TORONTO this 11th day of March, 2022

Most 1

Mohsen Keyvani, P.Eng.

Director

appointed for the purposes of Part II.1 of the *Environmental Protection Act*

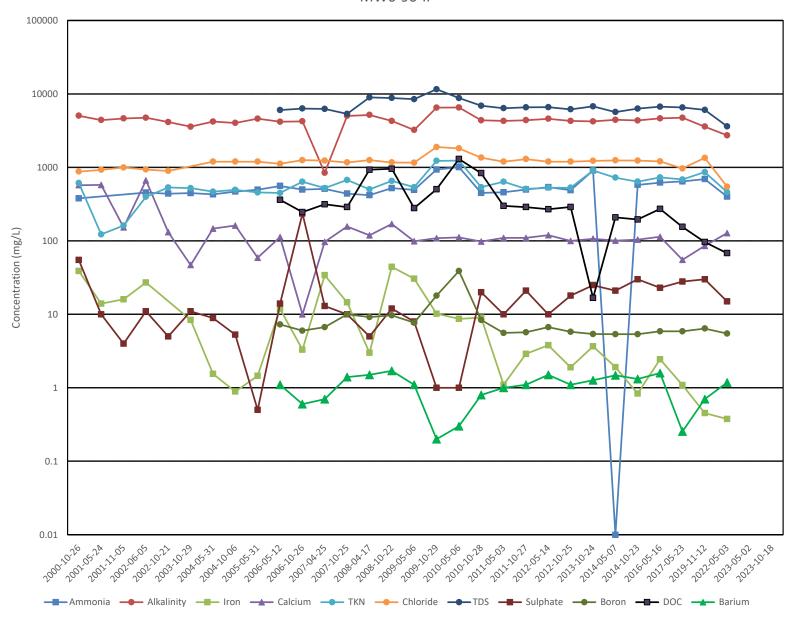
AQ/

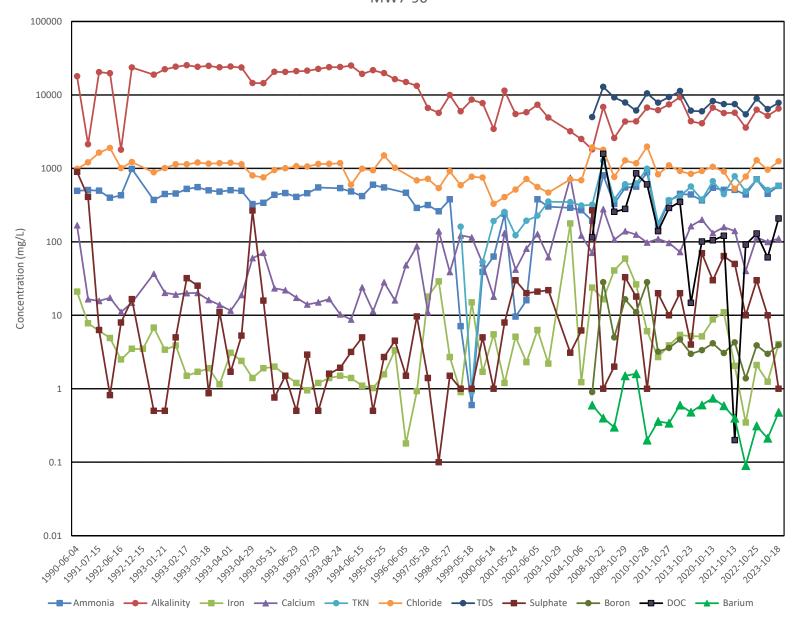
c: District Manager, MECP Peterborough Paul Mulholland, WSP Canada Inc.

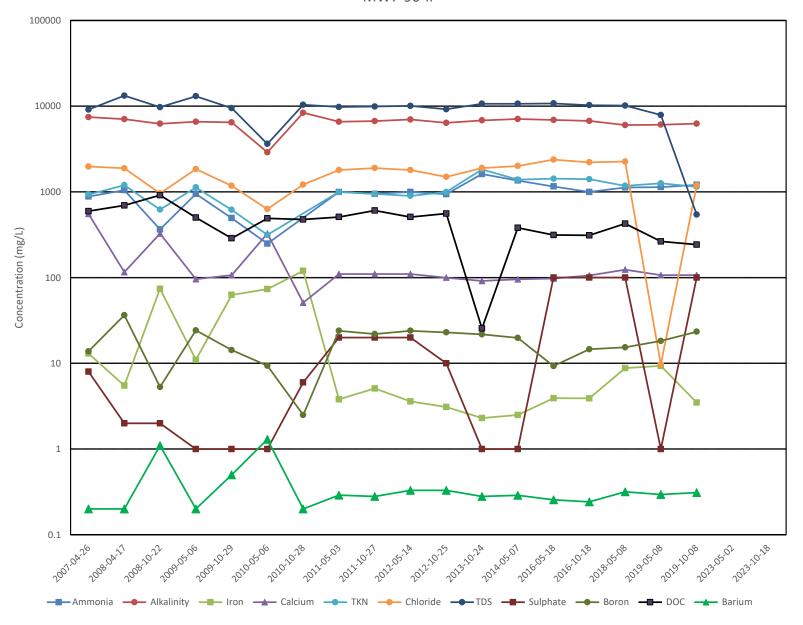


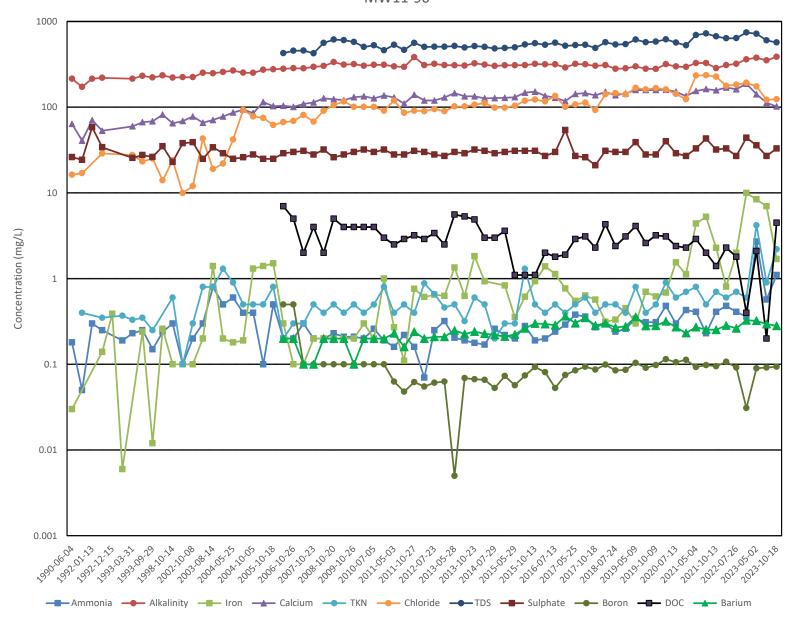
APPENDIX J

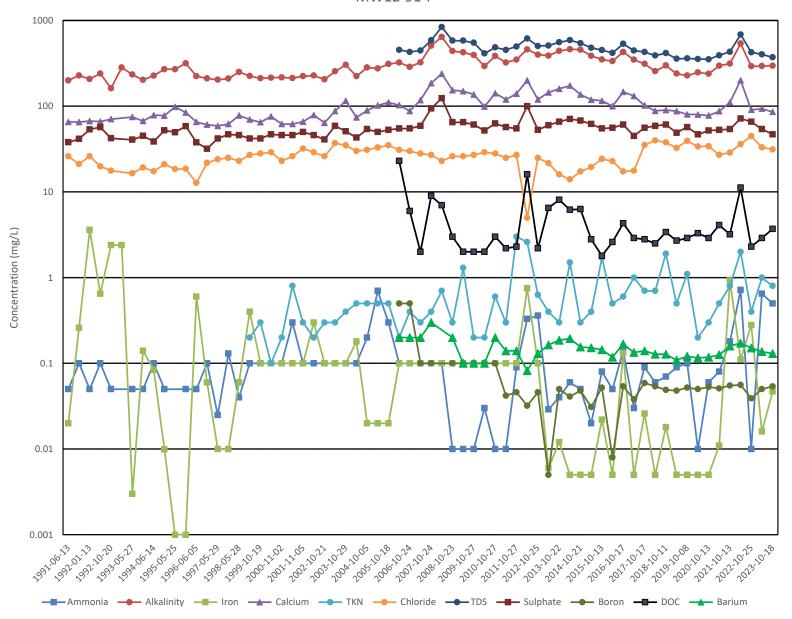
Time Trend Chemistry Graphs

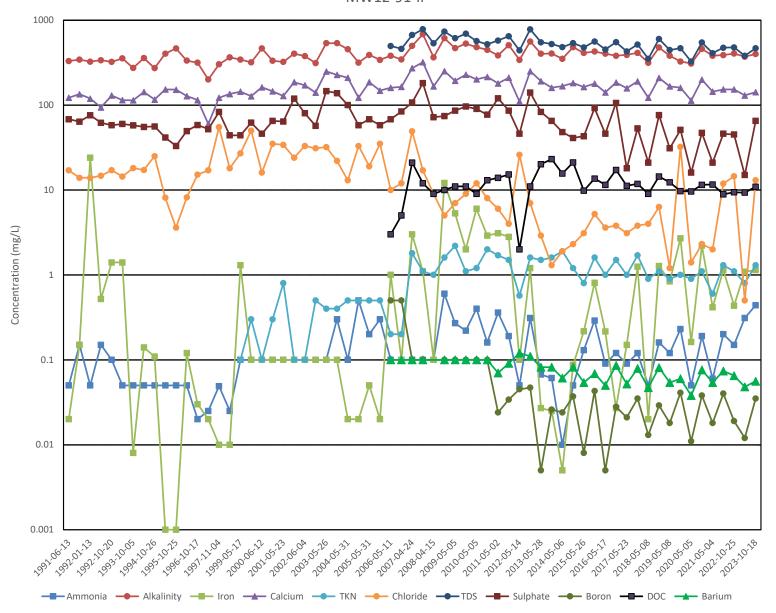


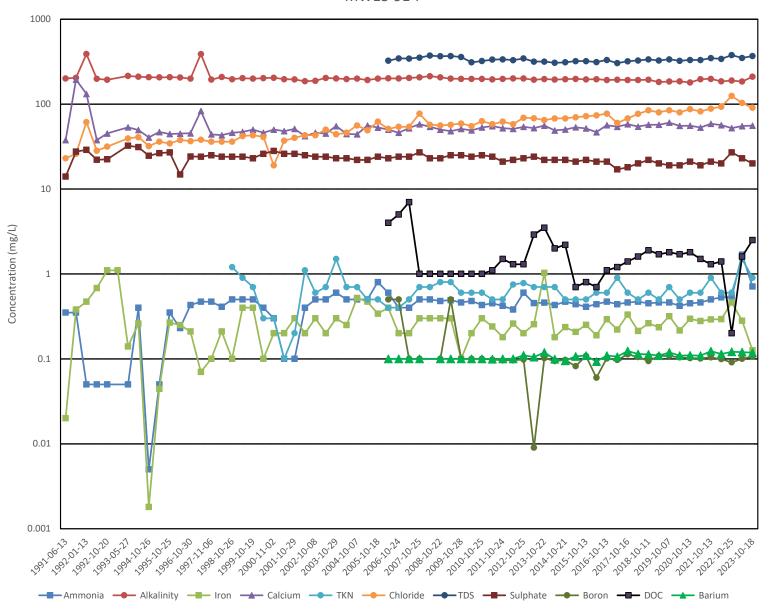


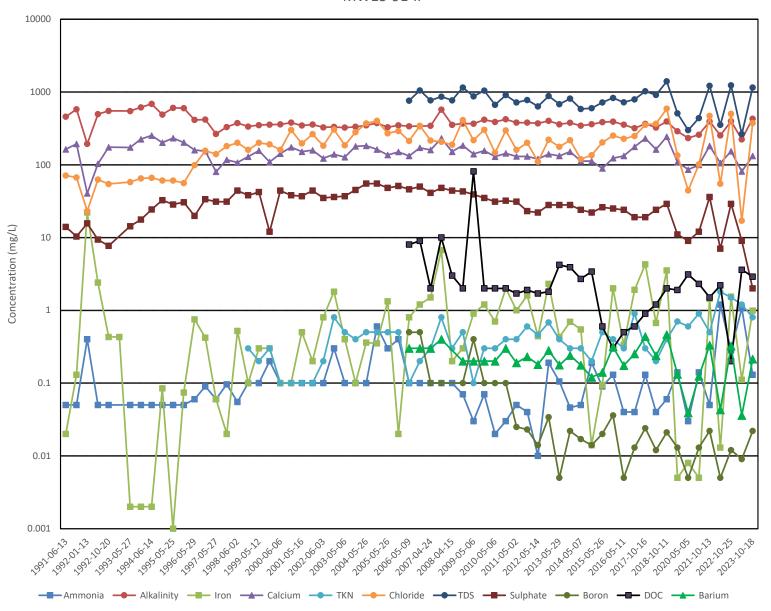




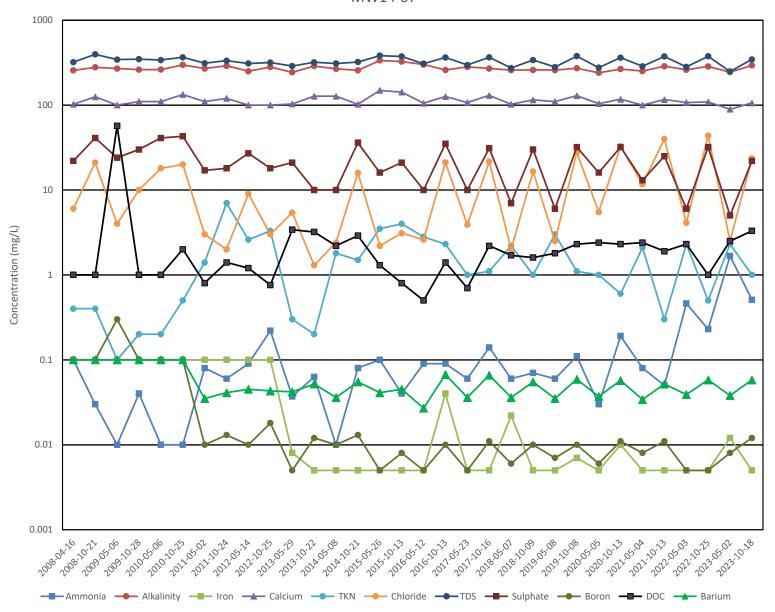




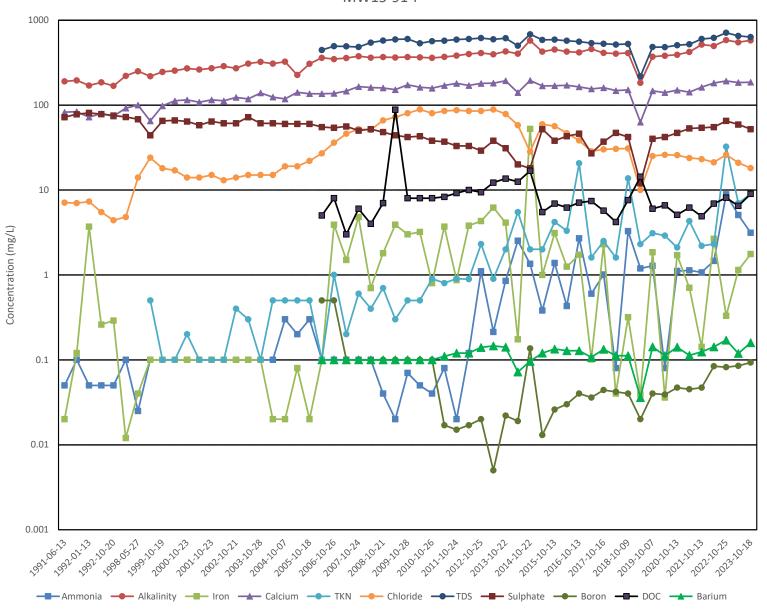


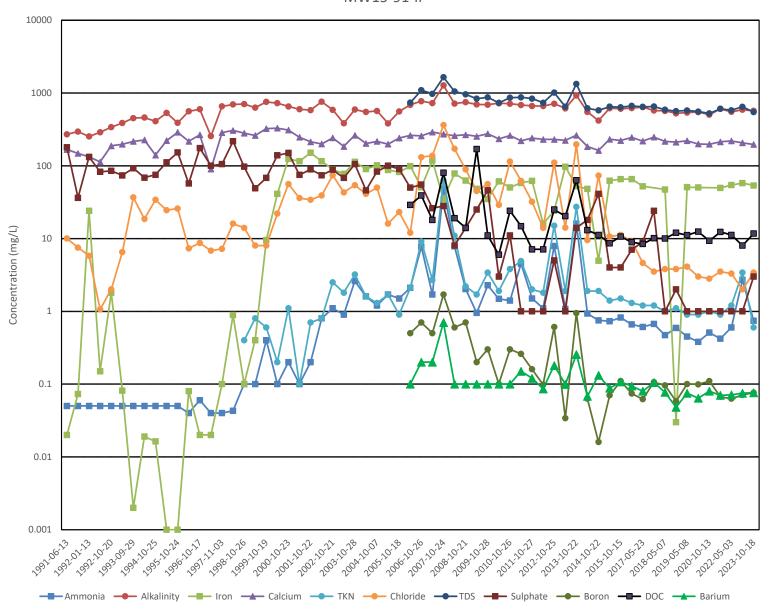


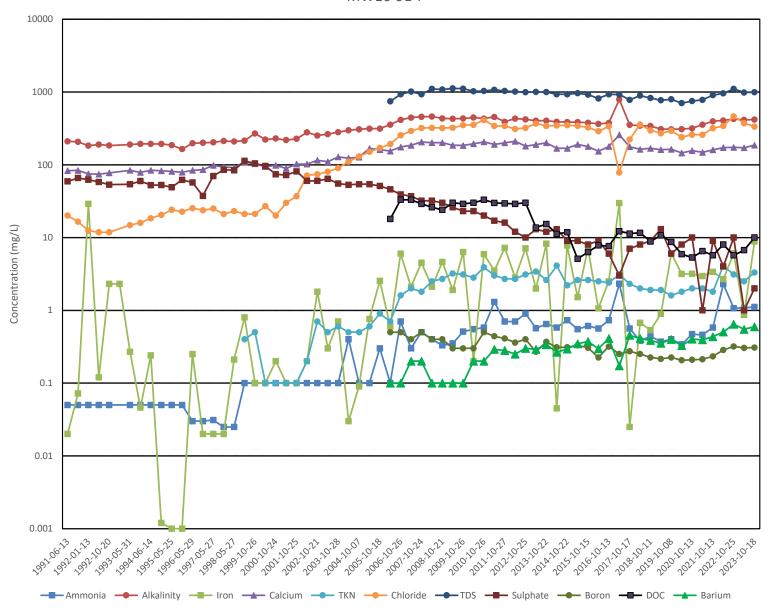


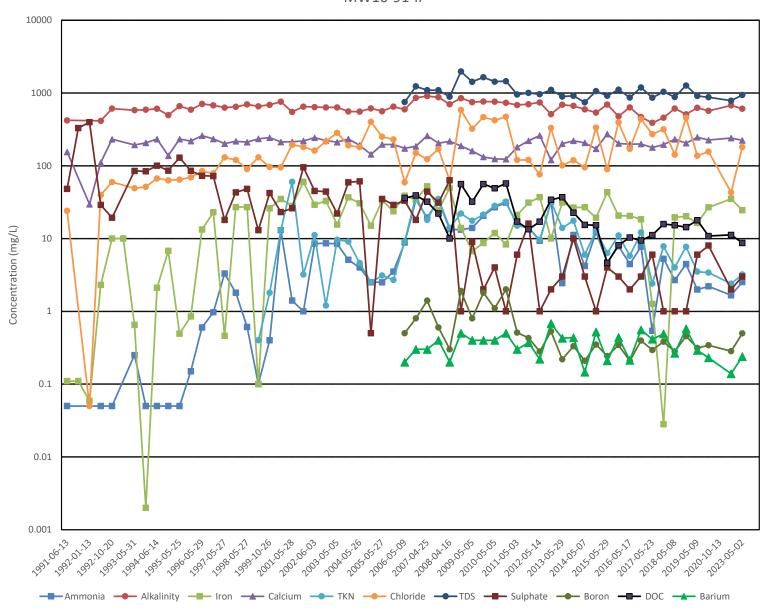


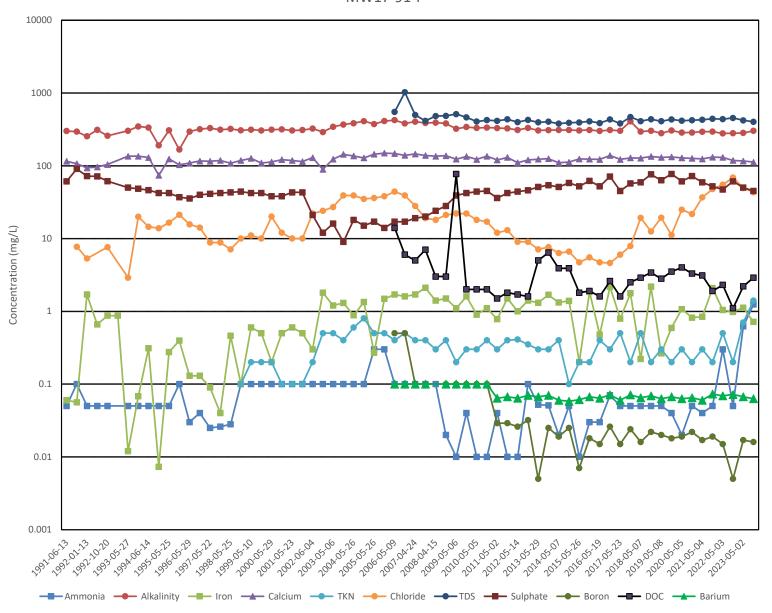


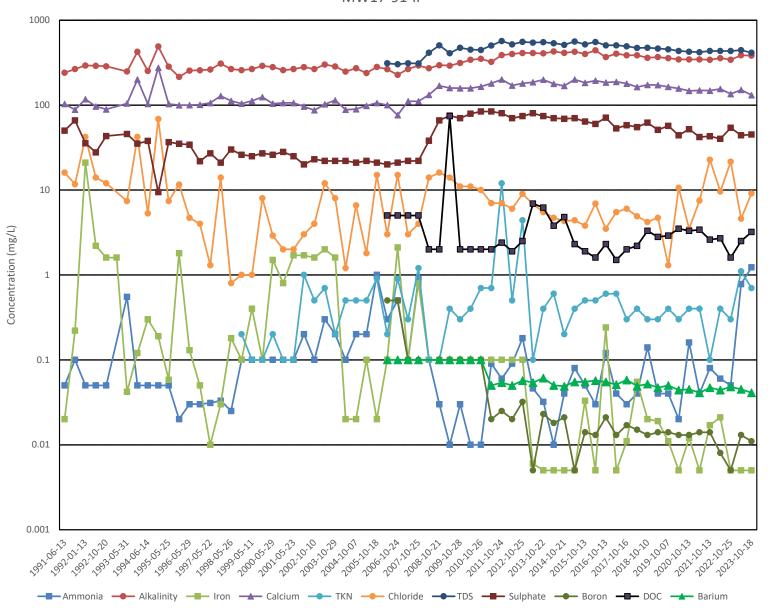




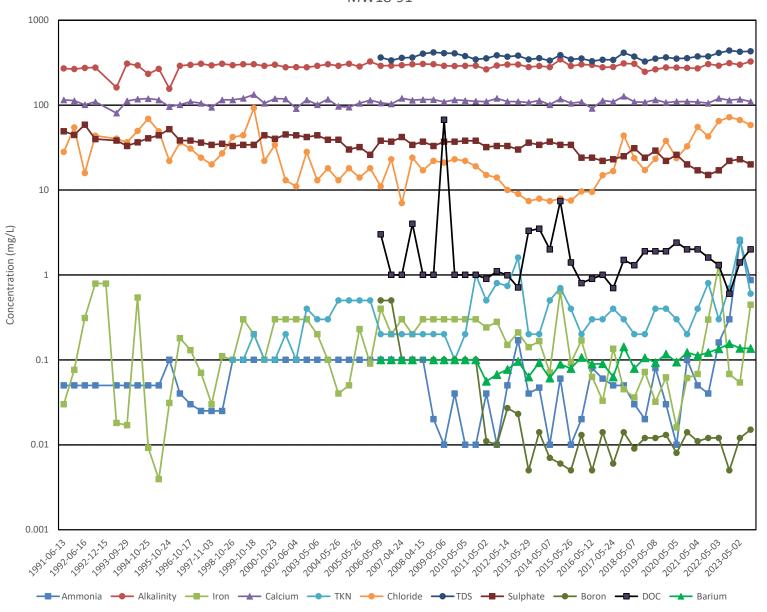




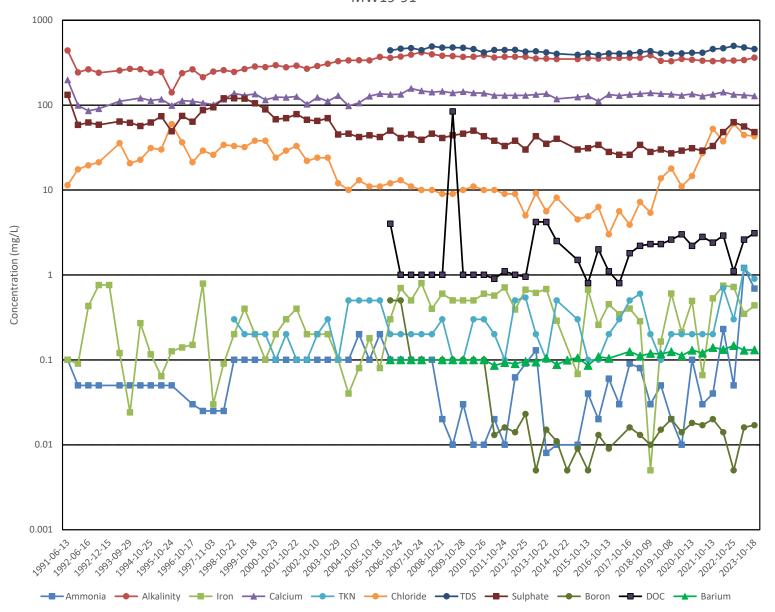




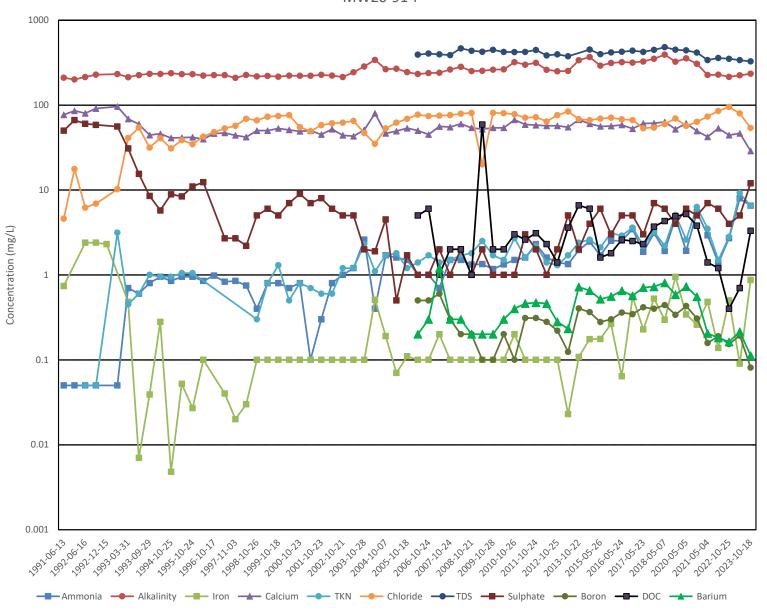




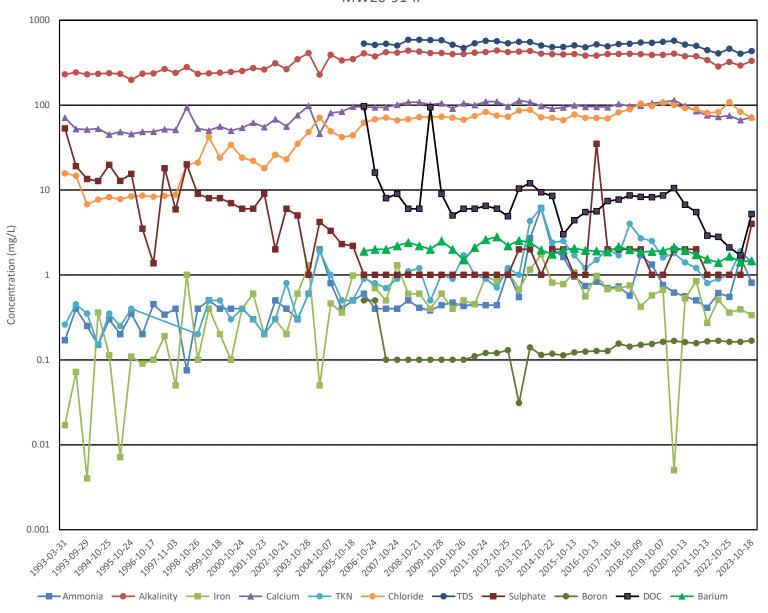


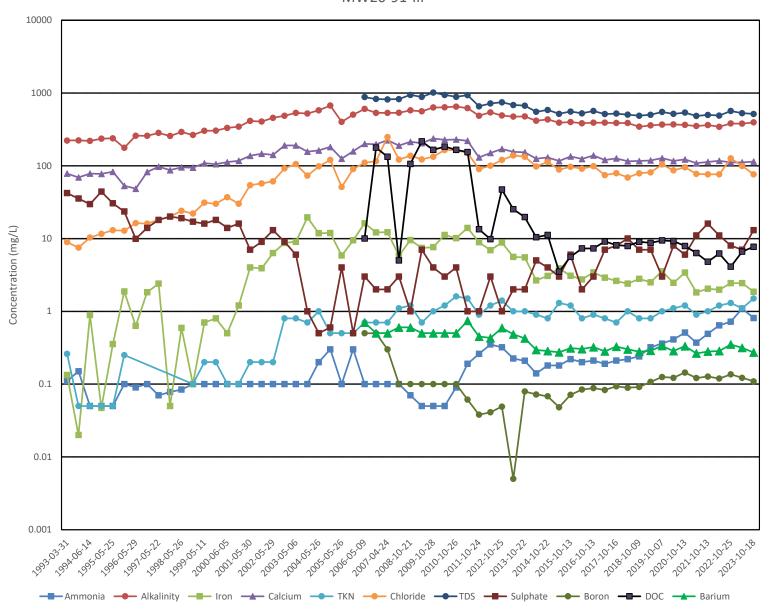


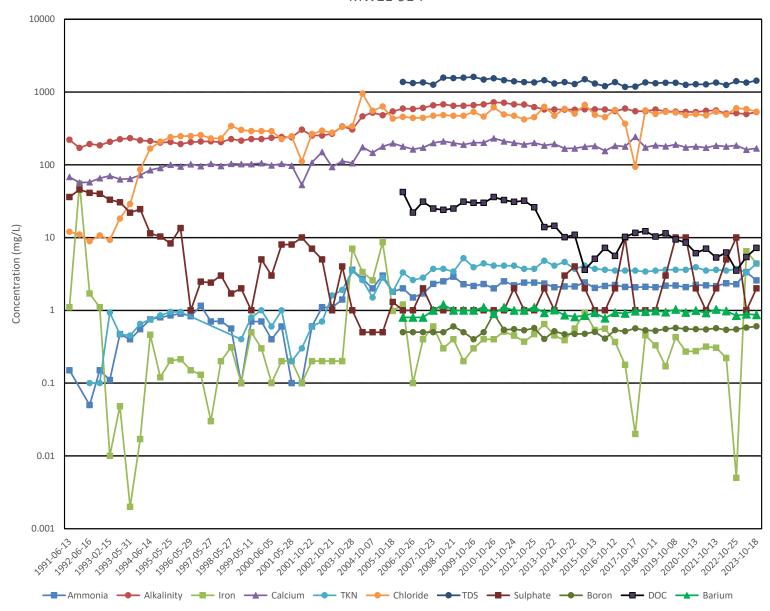




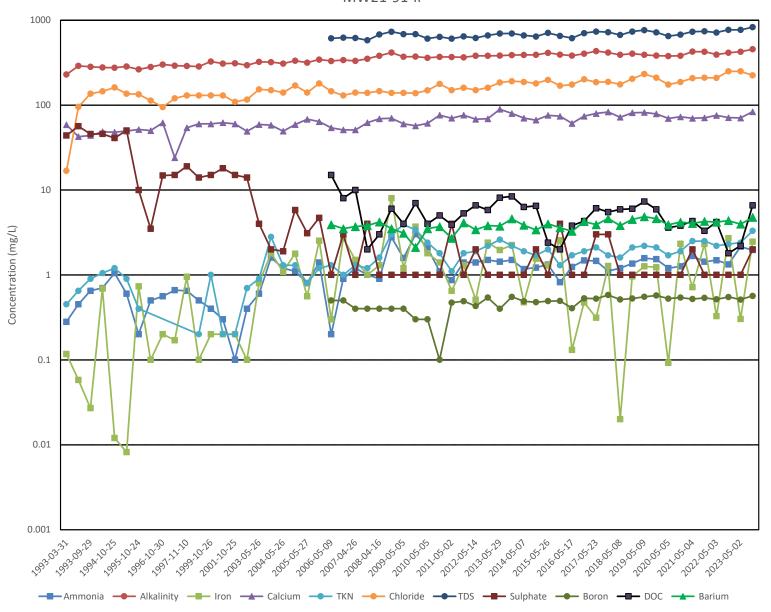


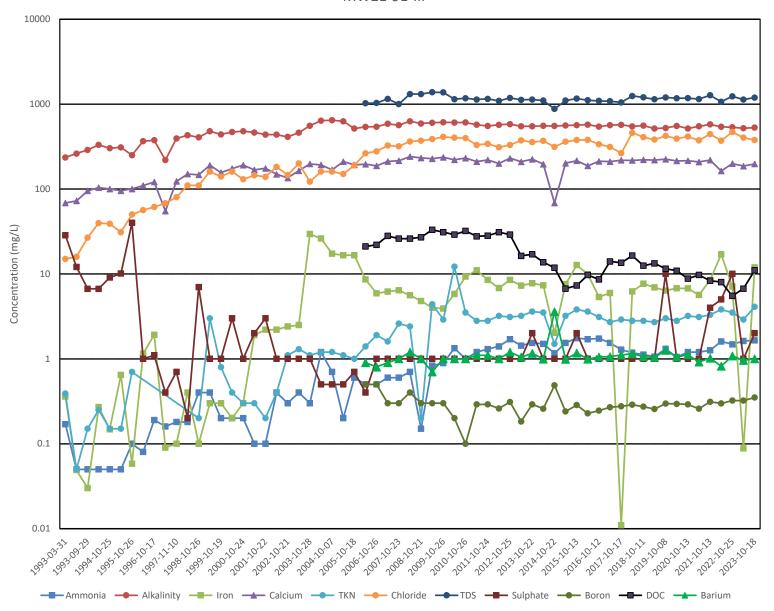




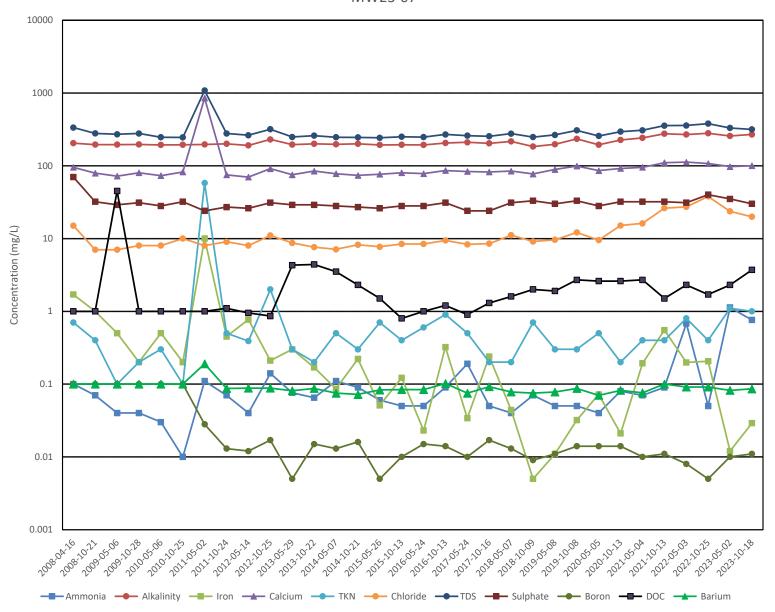




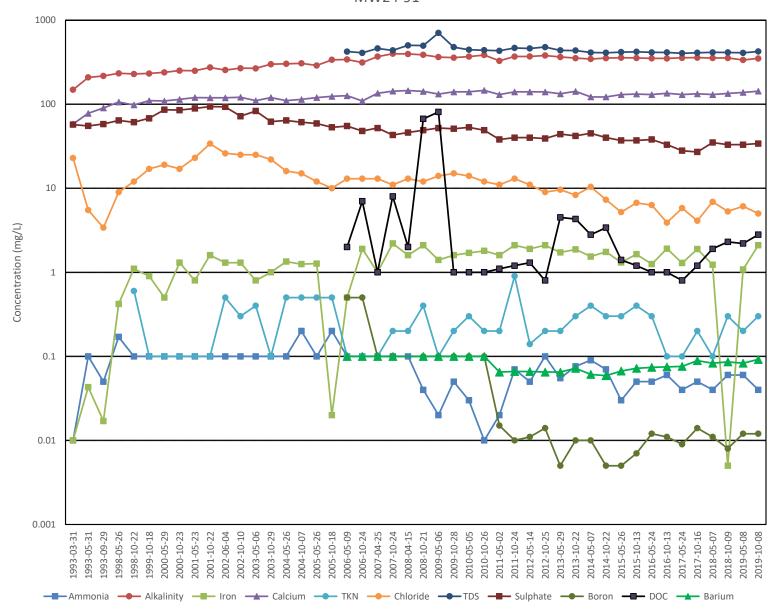




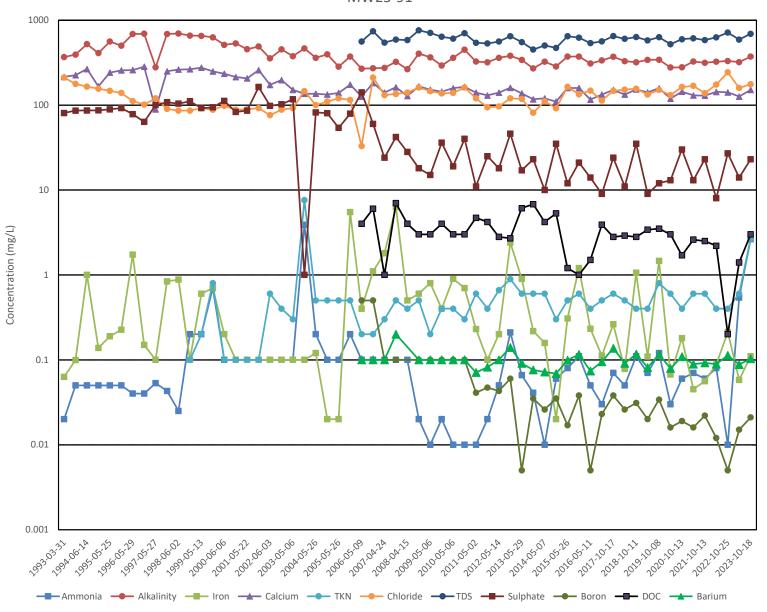




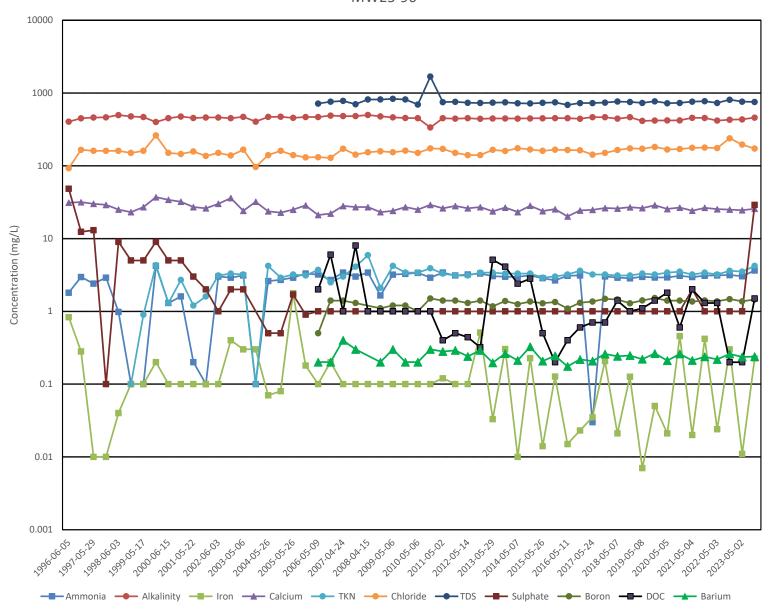




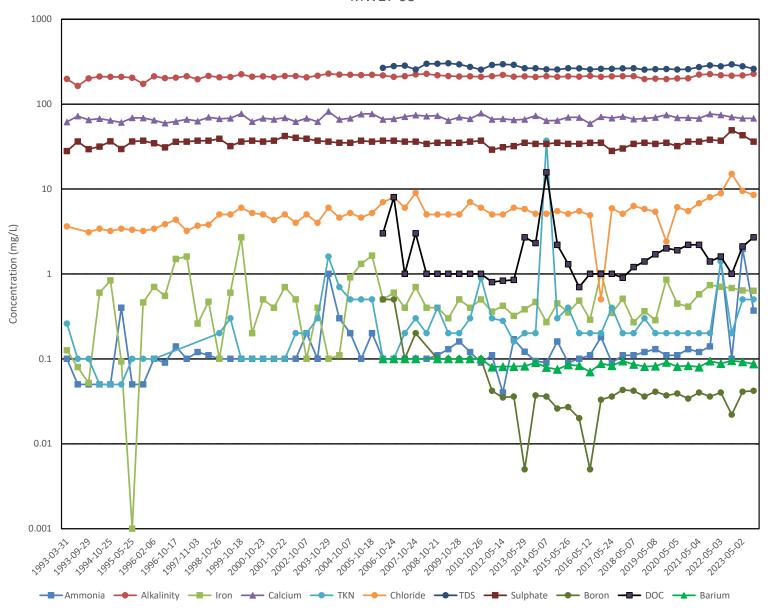


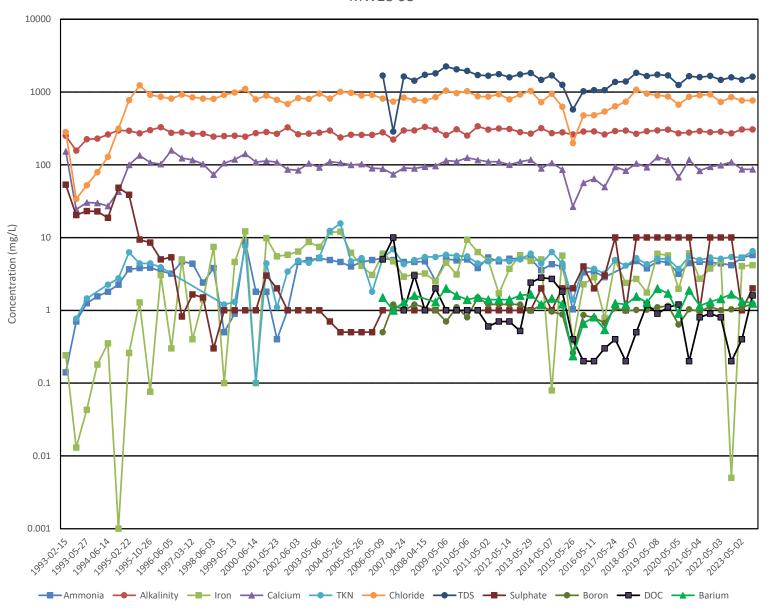




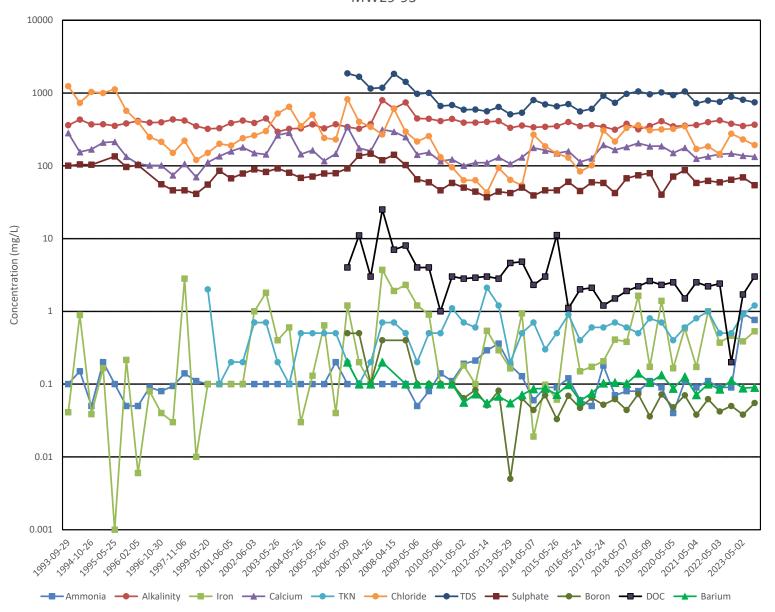


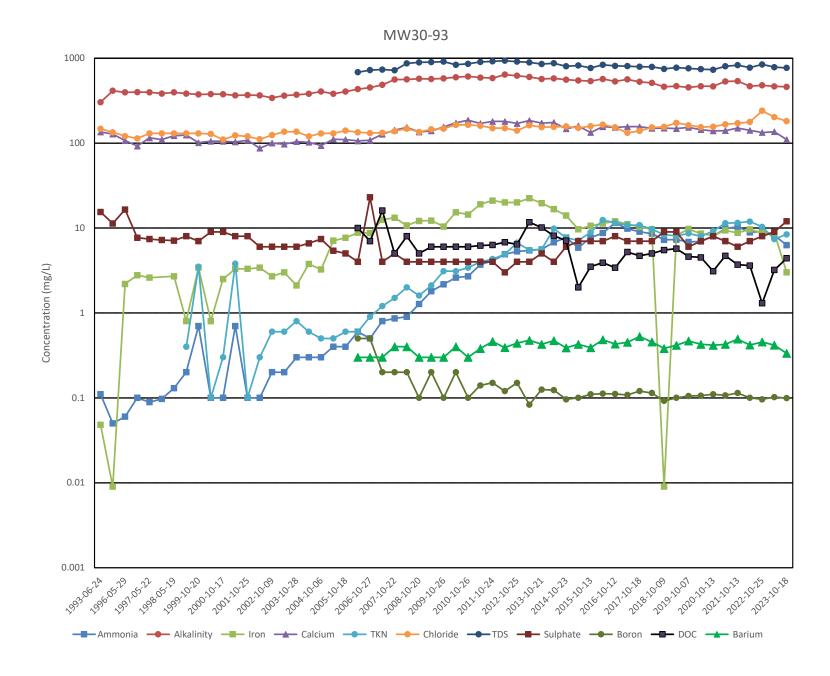




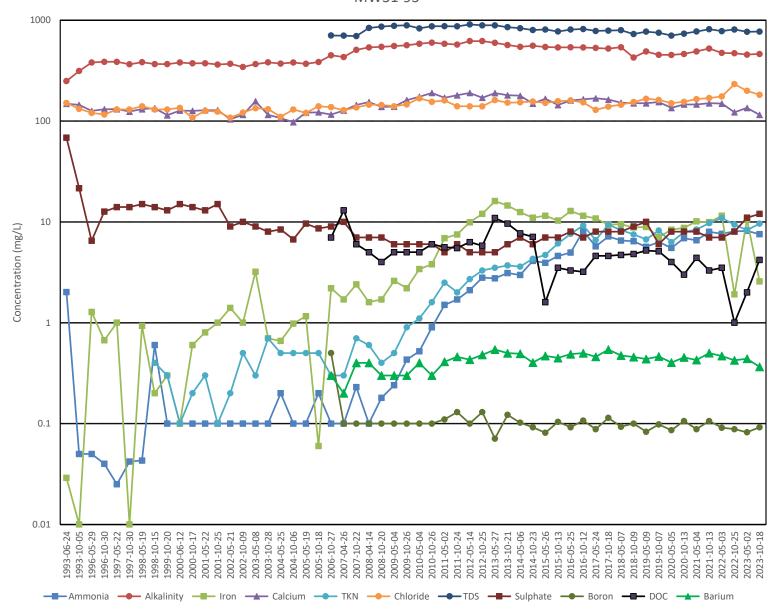




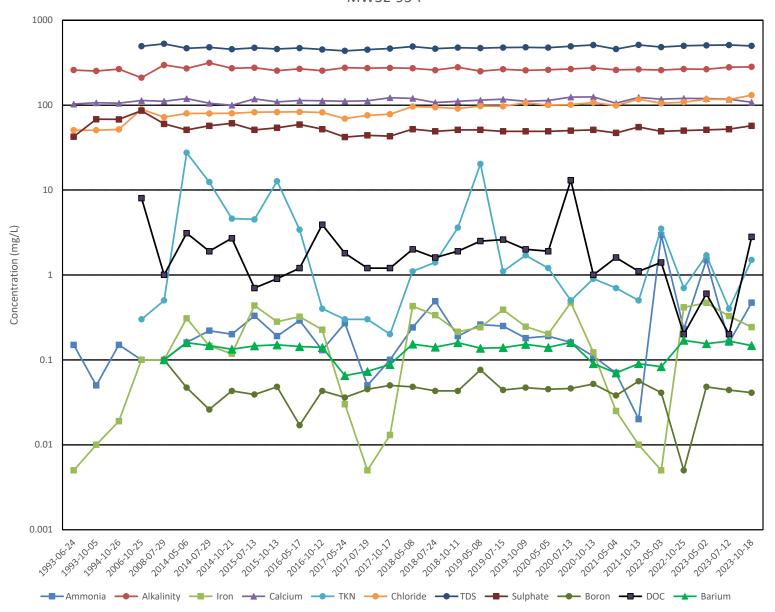




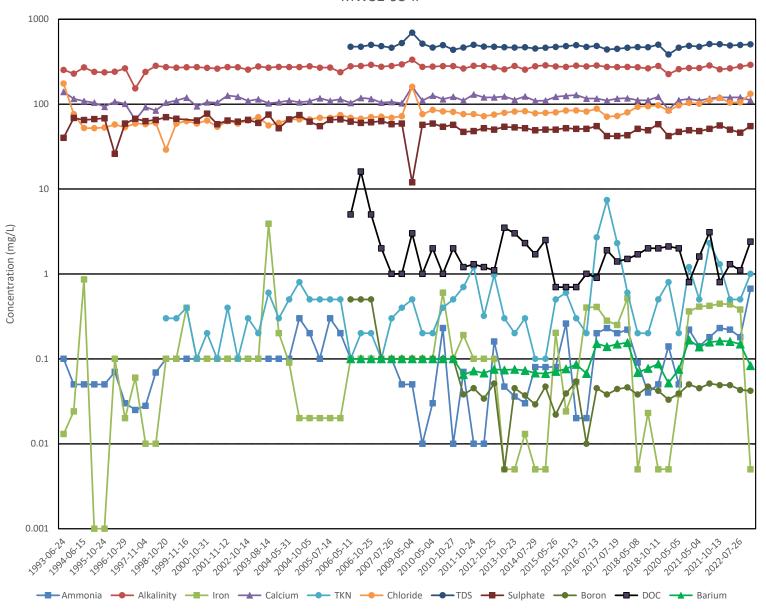


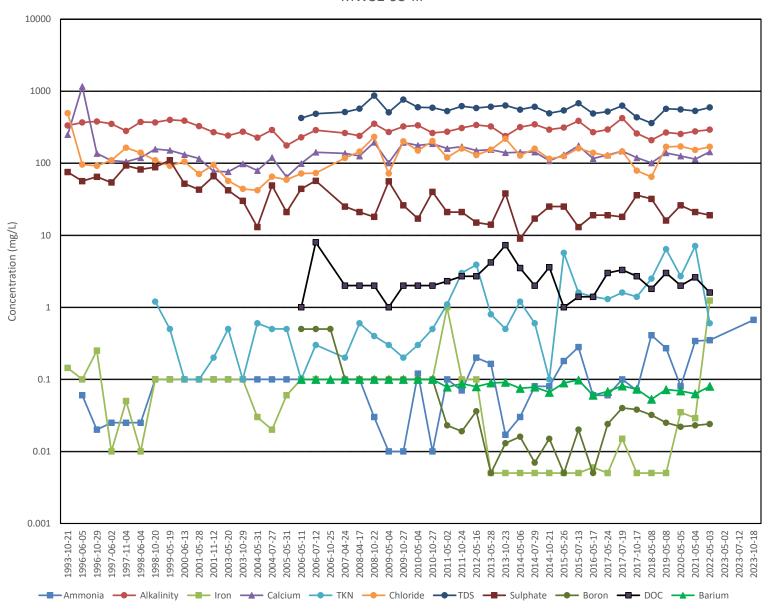


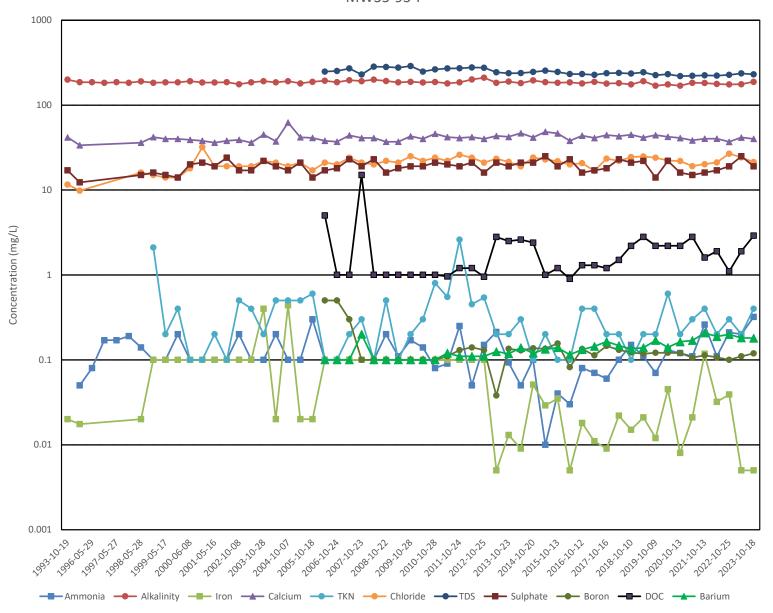




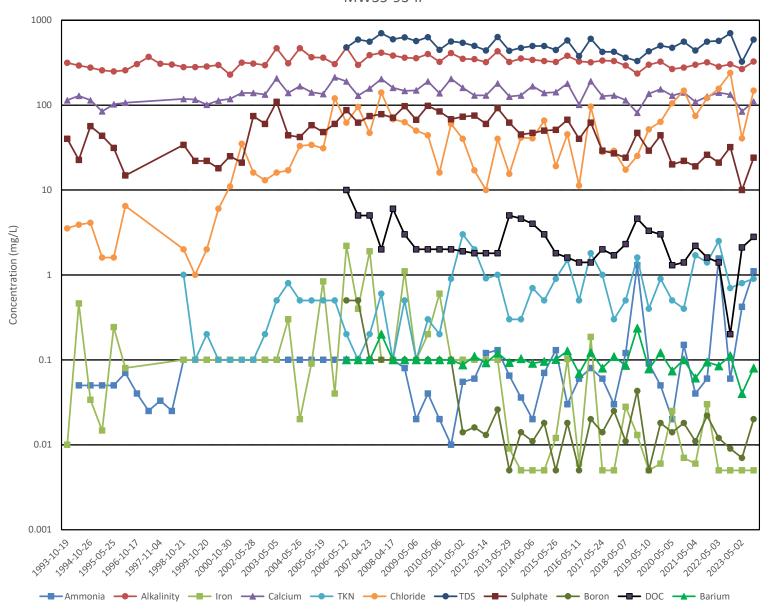




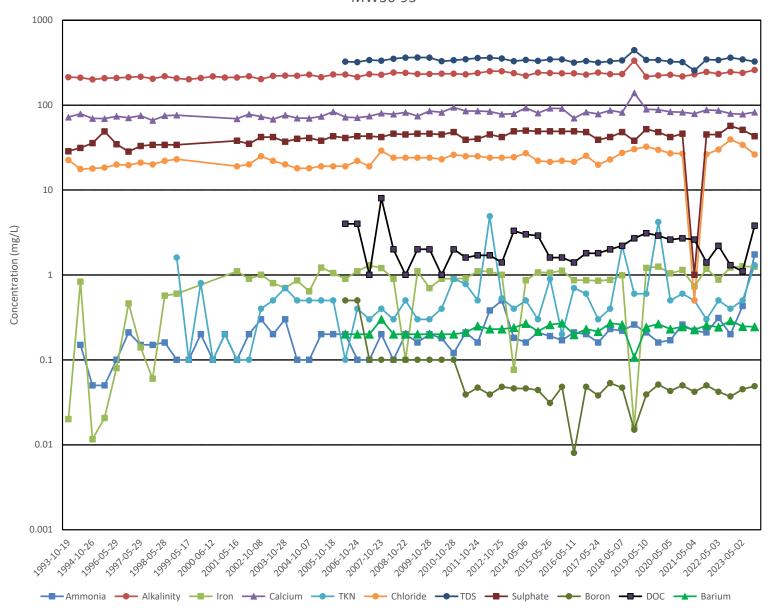




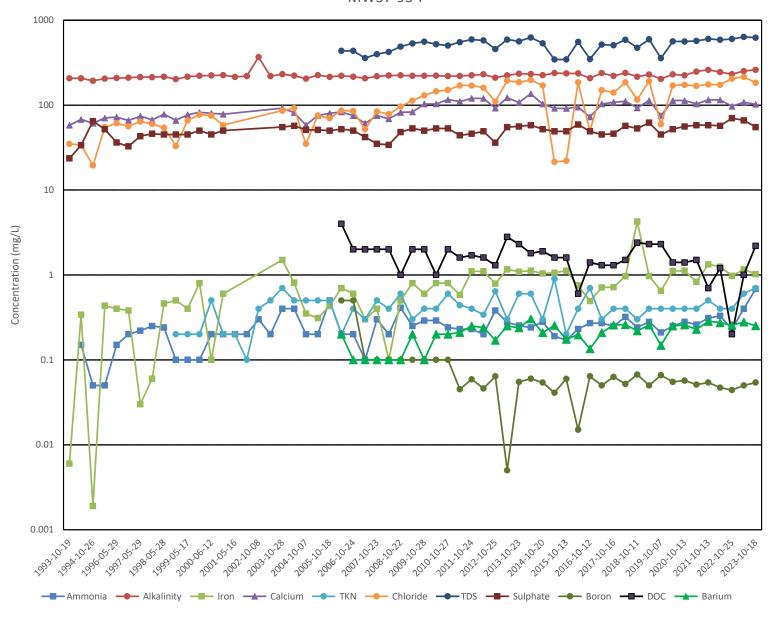


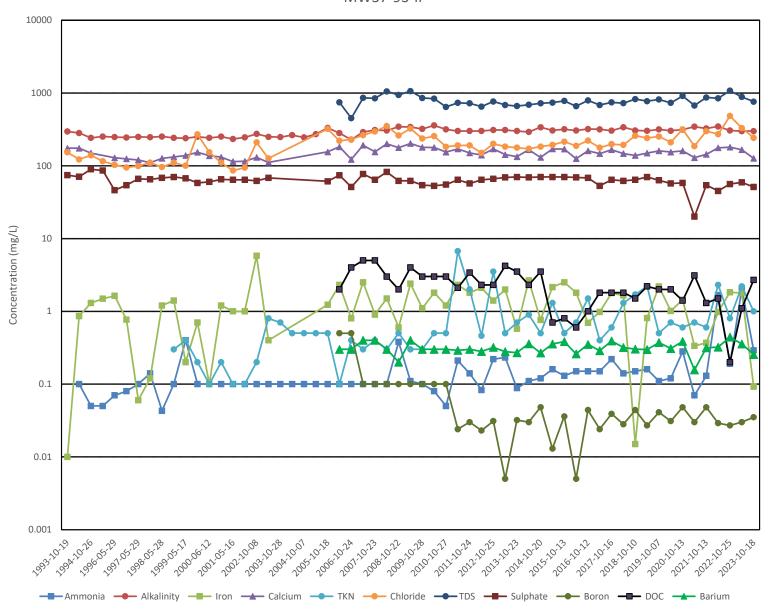




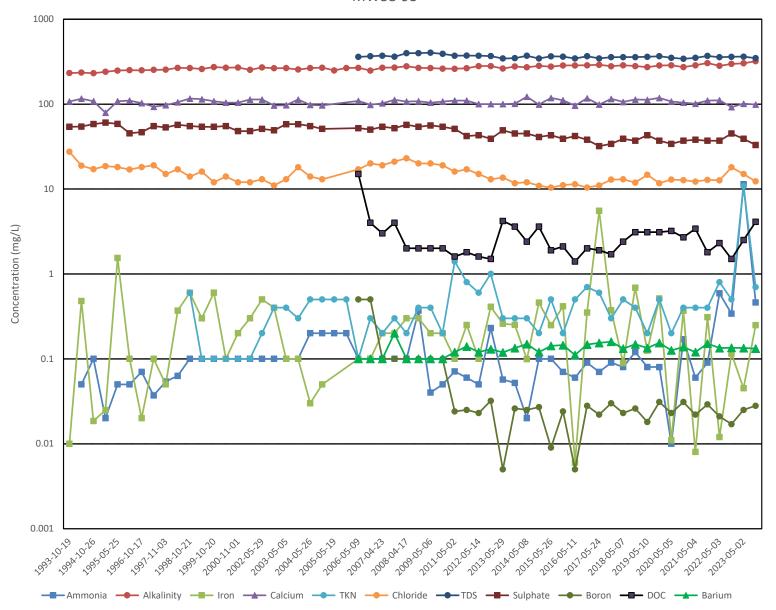




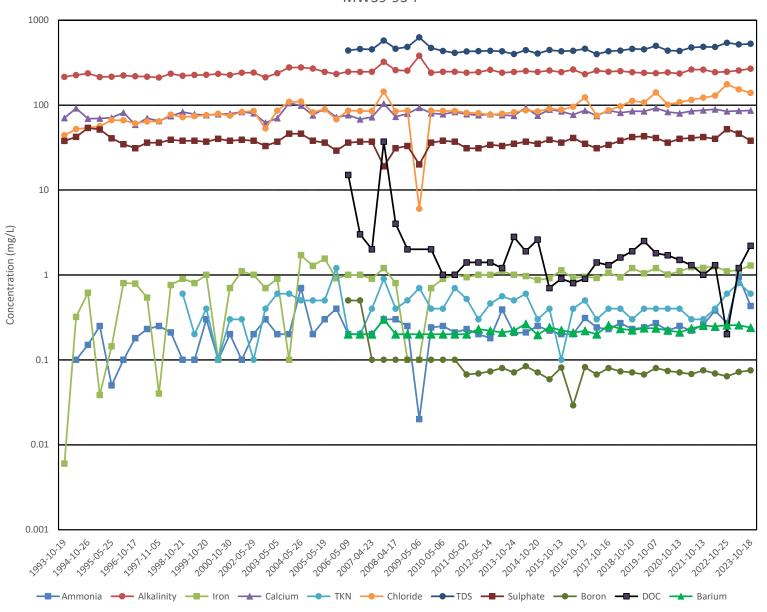


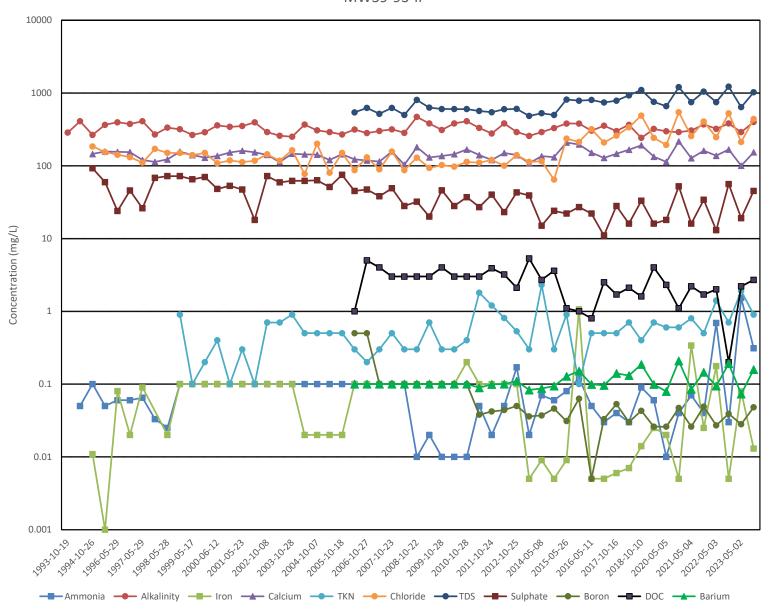


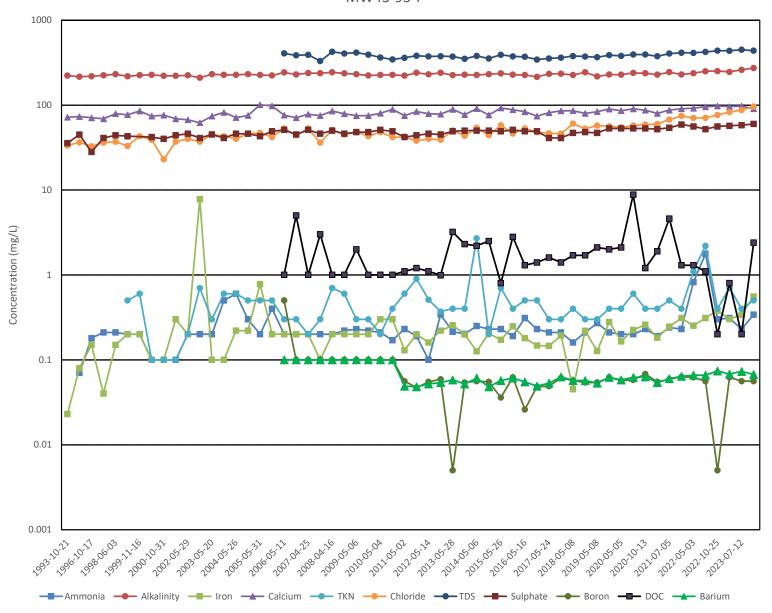


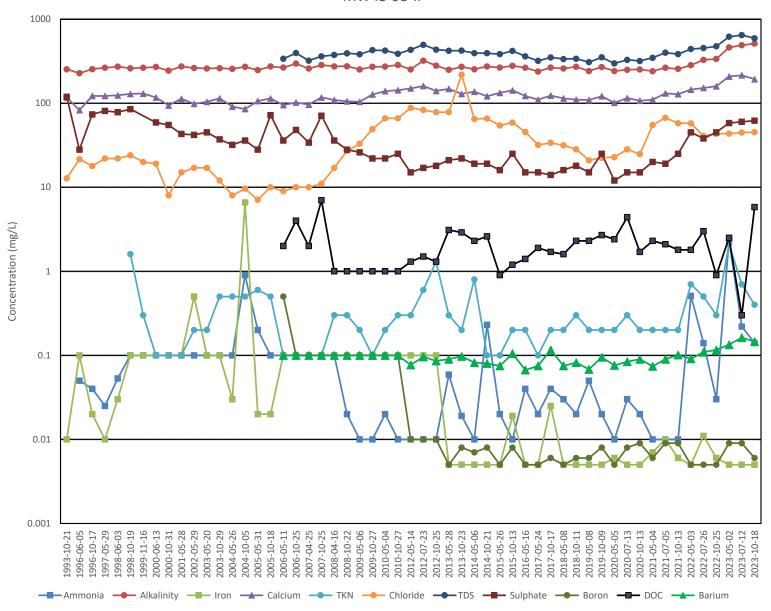


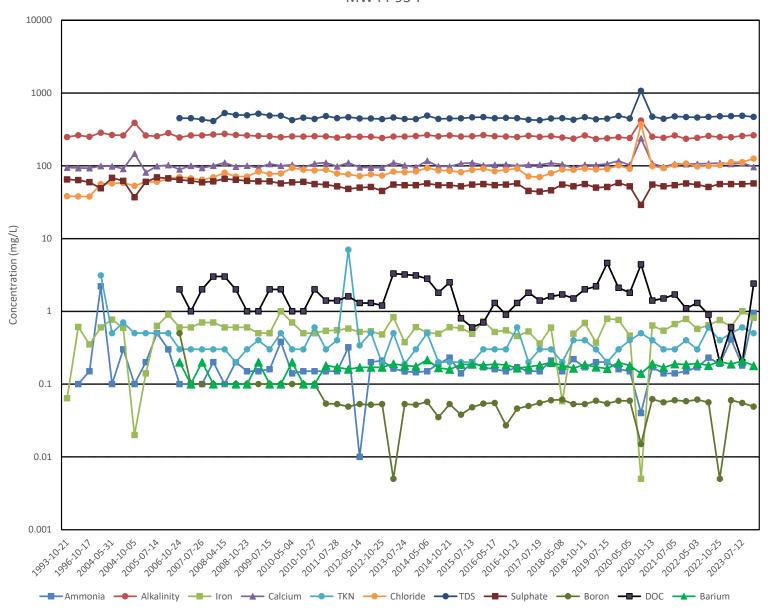


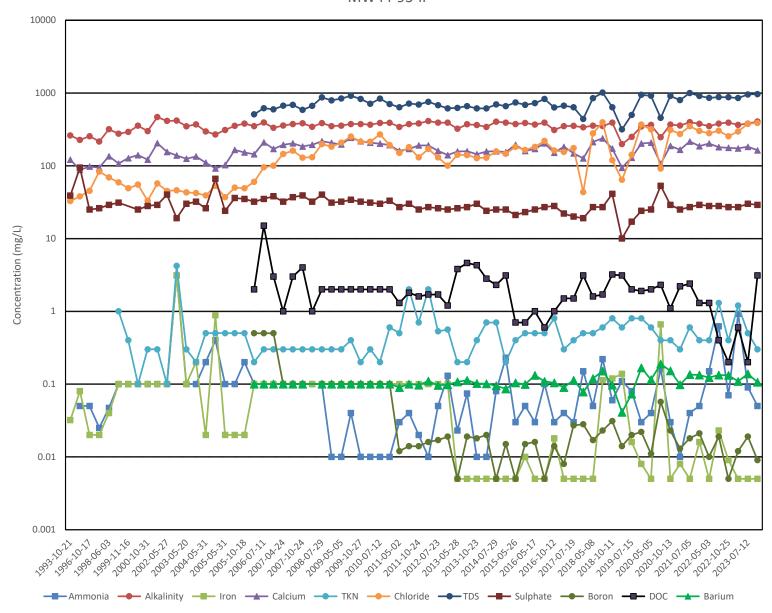




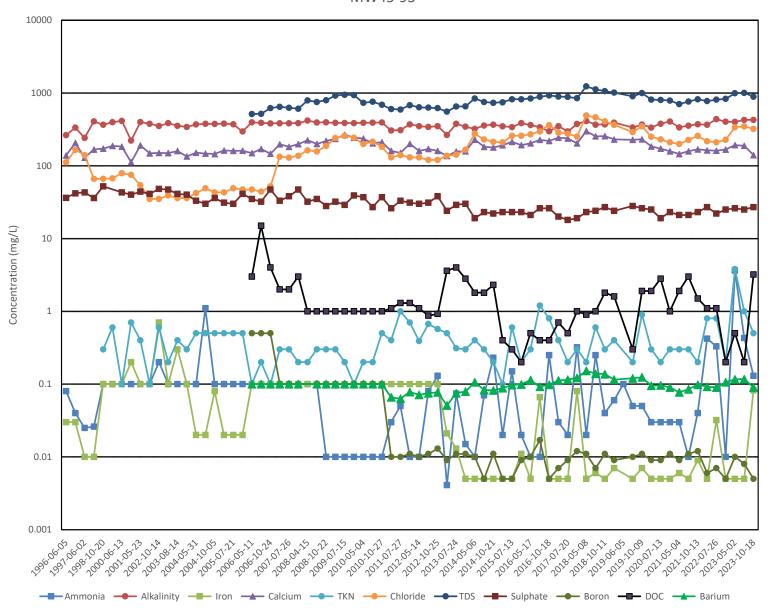




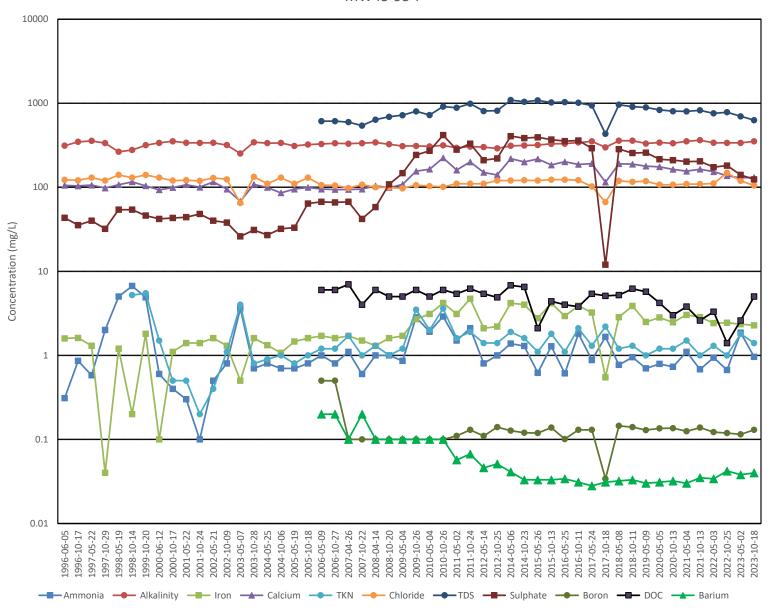




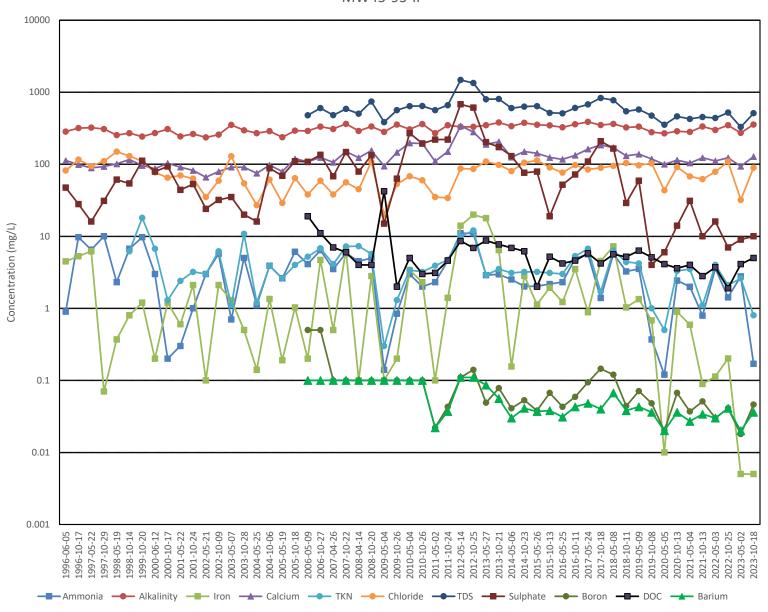




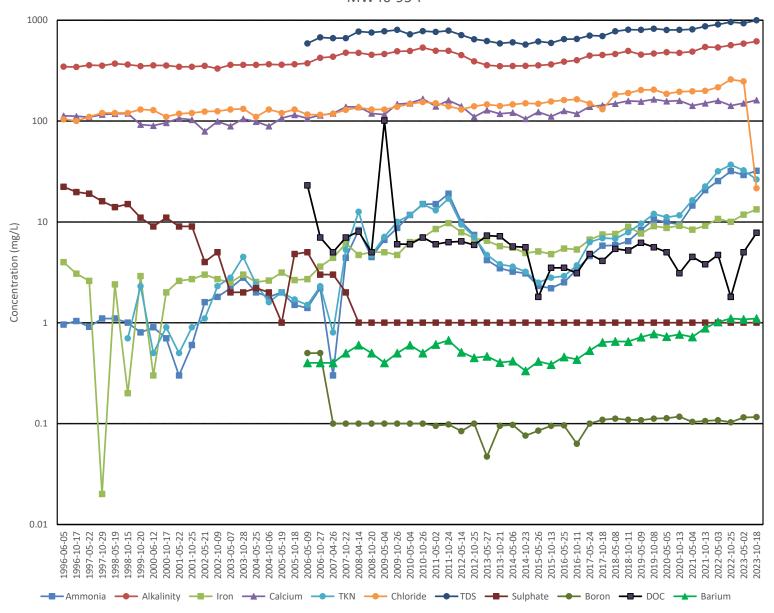




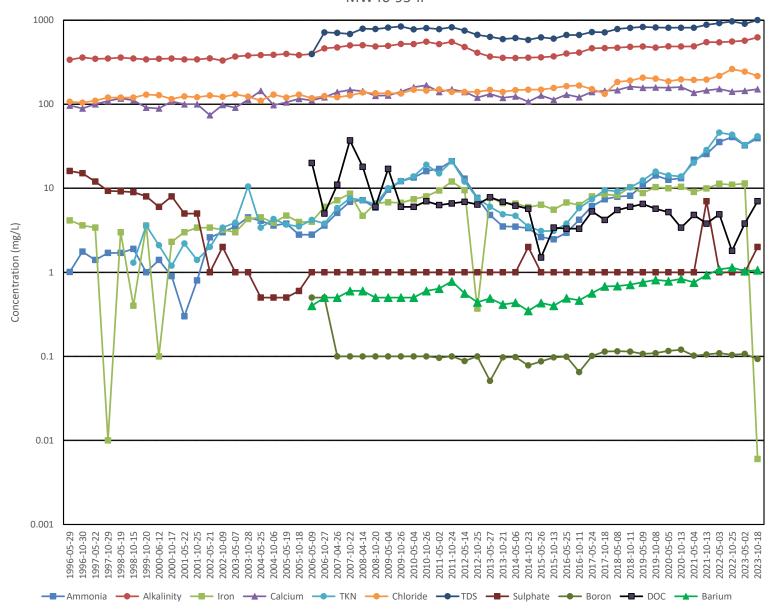




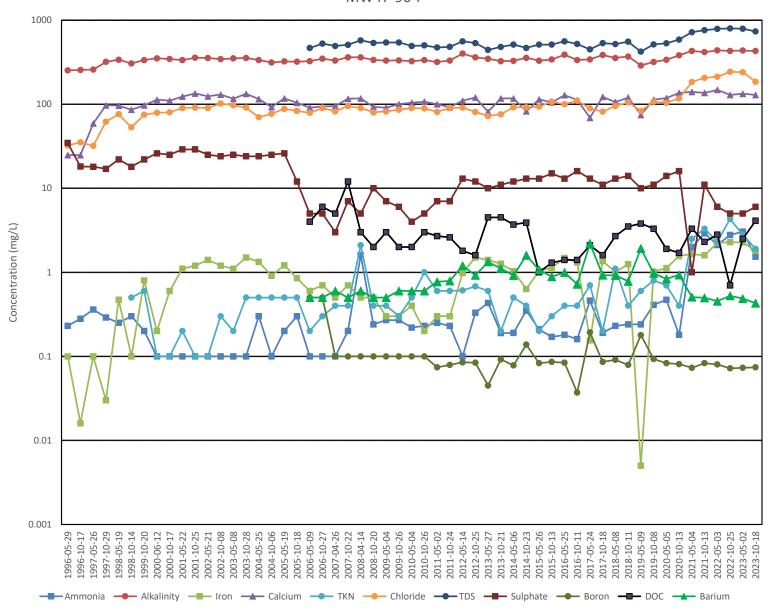




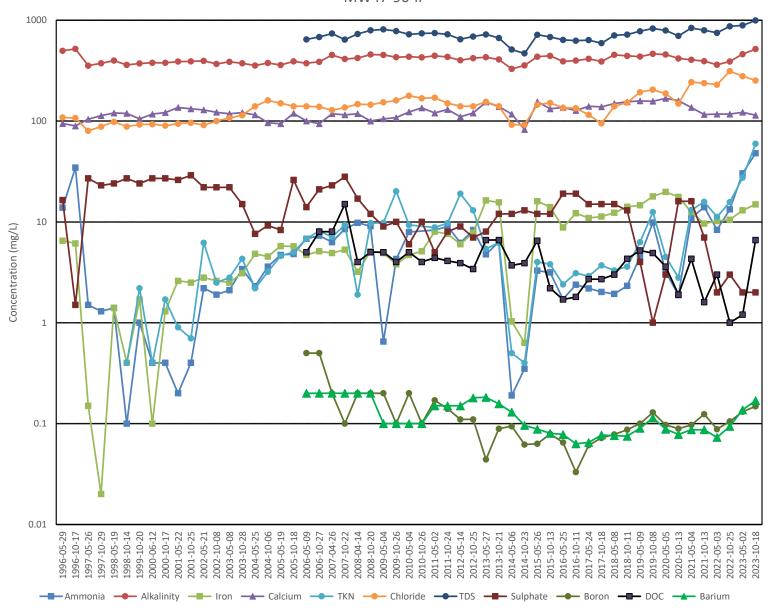




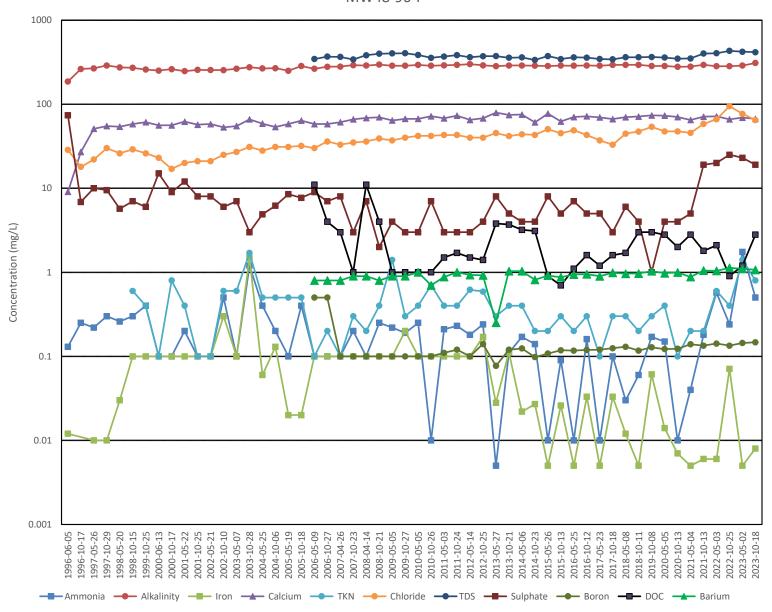




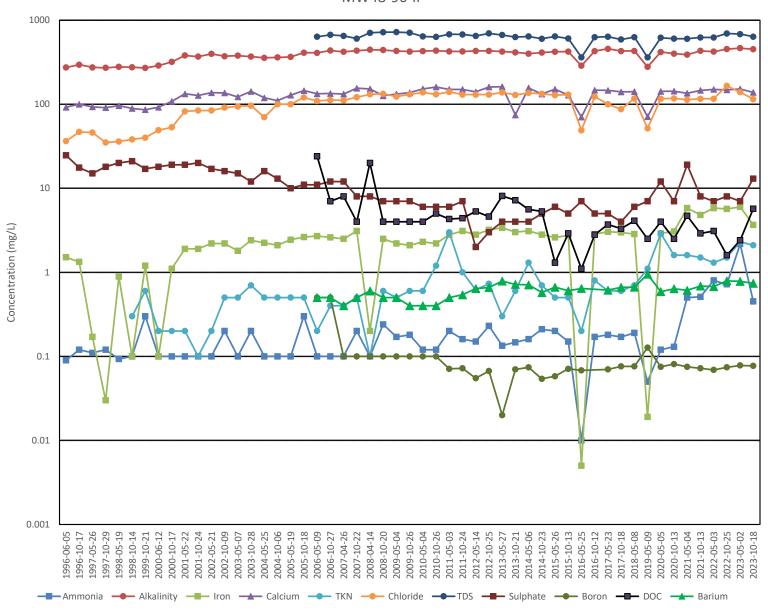




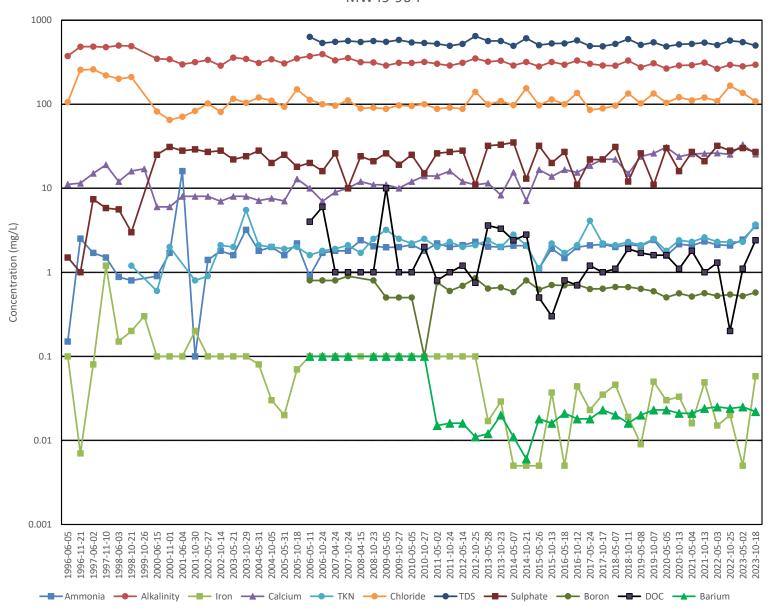




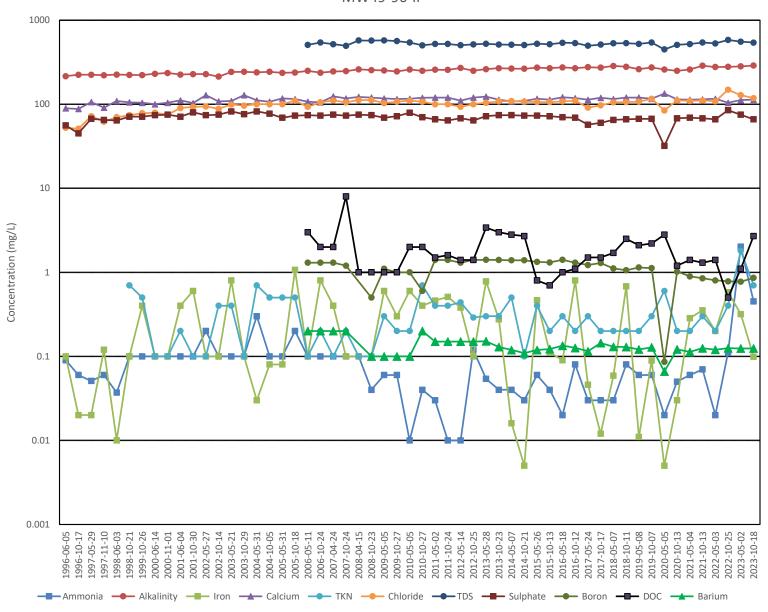




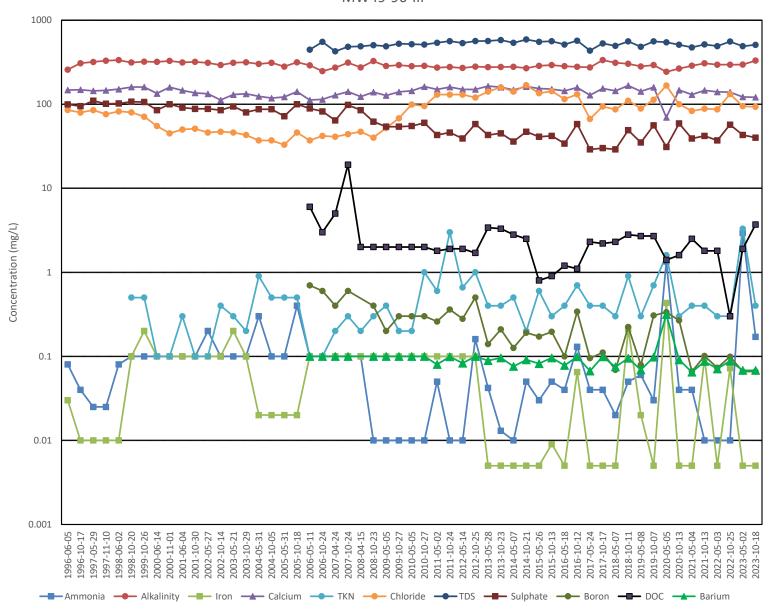




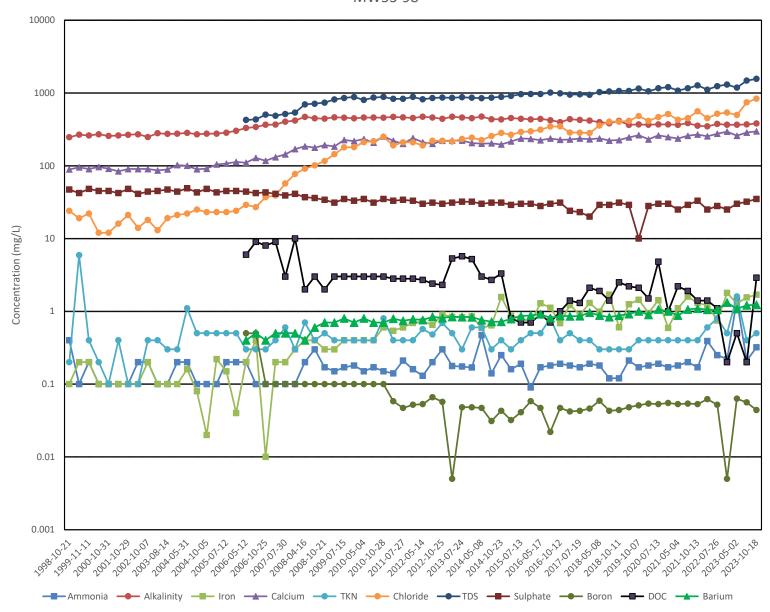




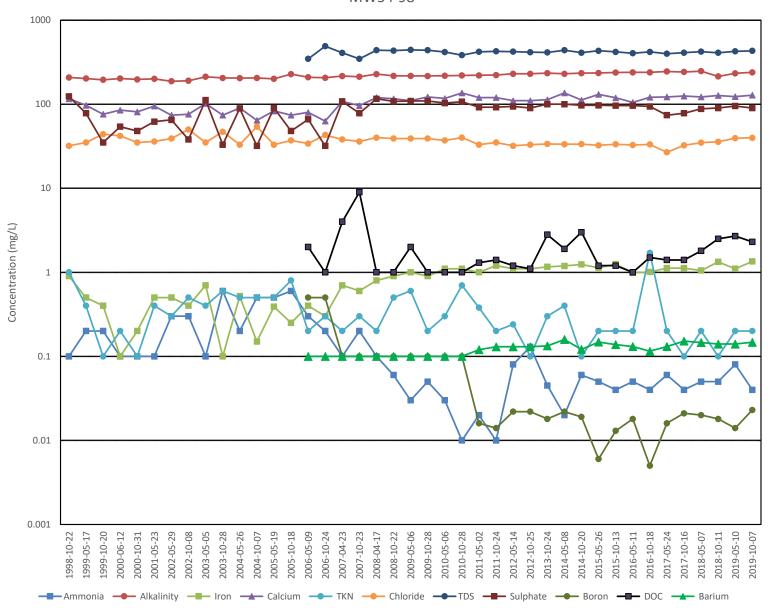




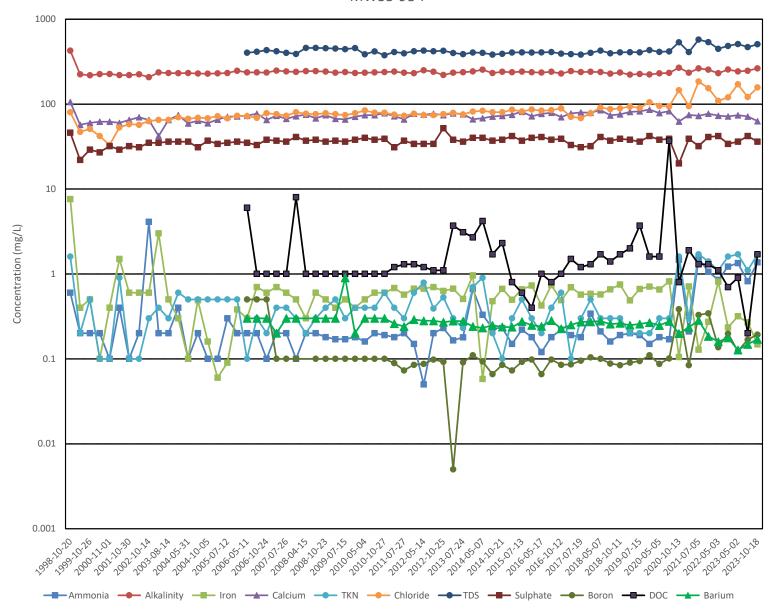


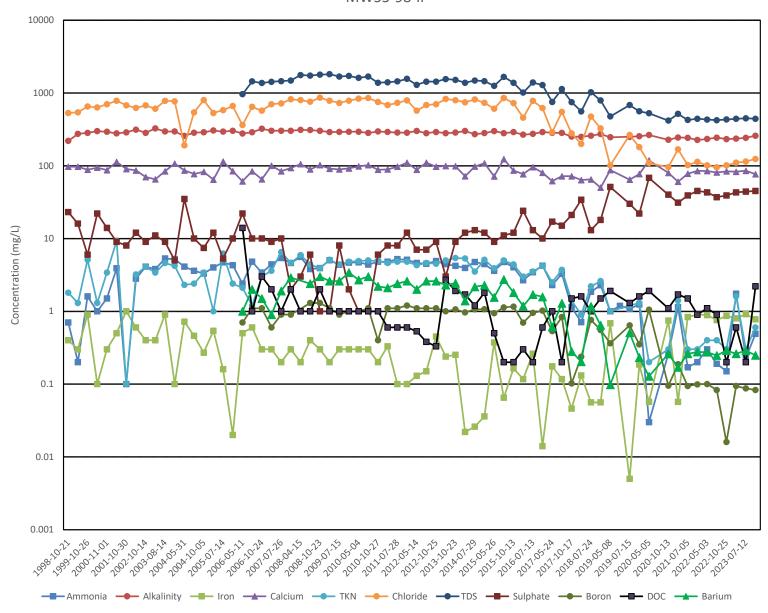


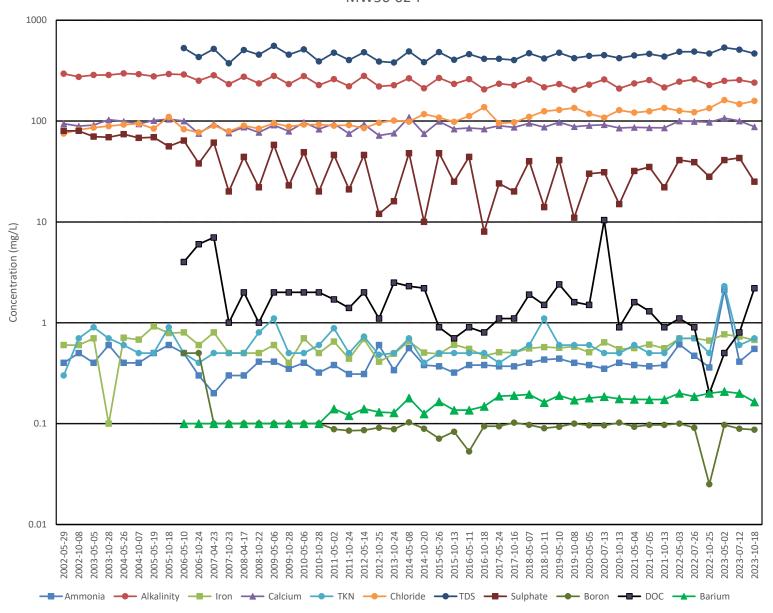




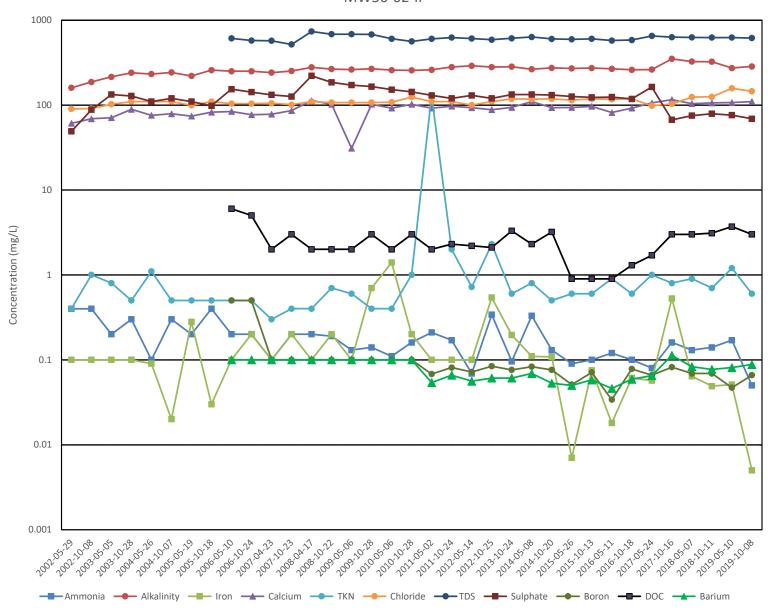


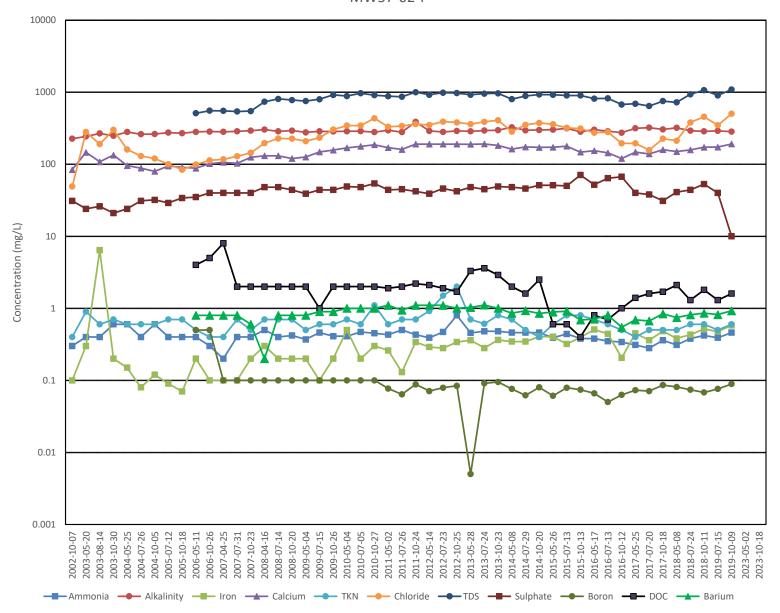


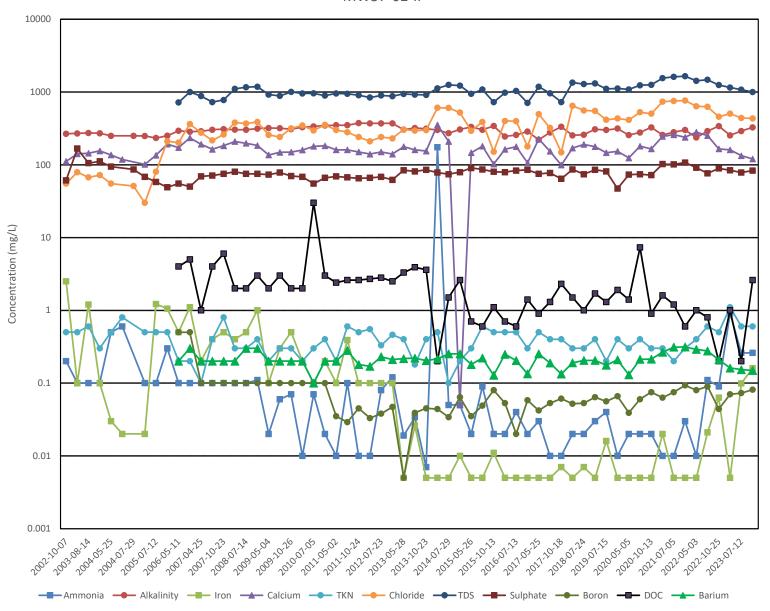


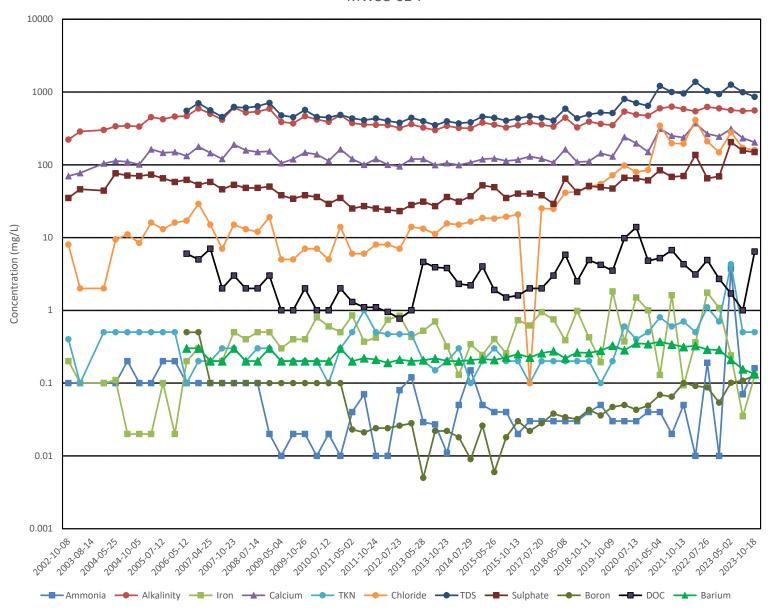


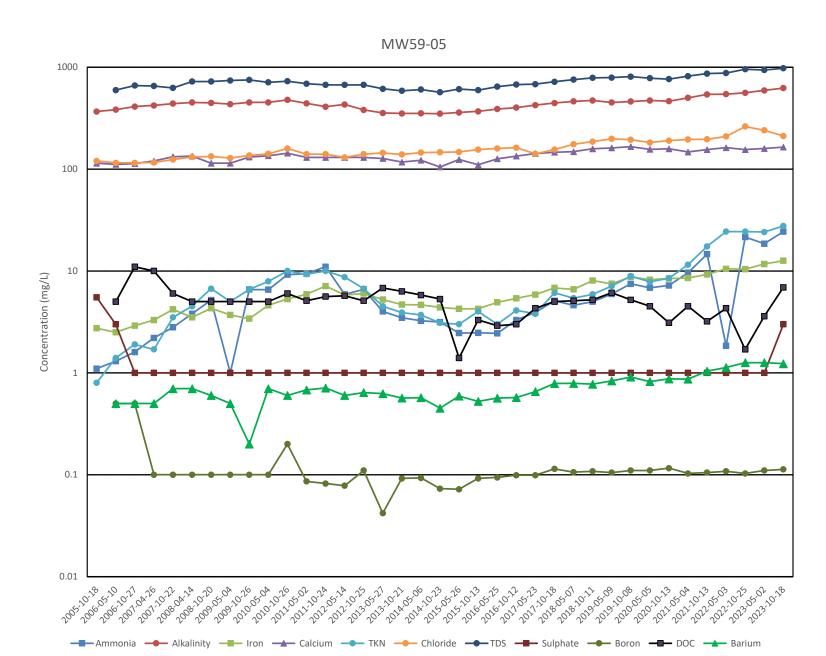




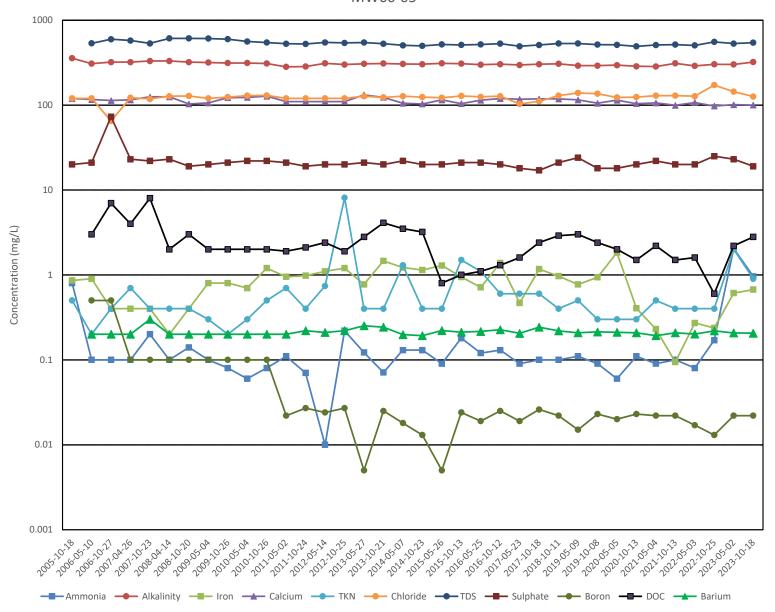




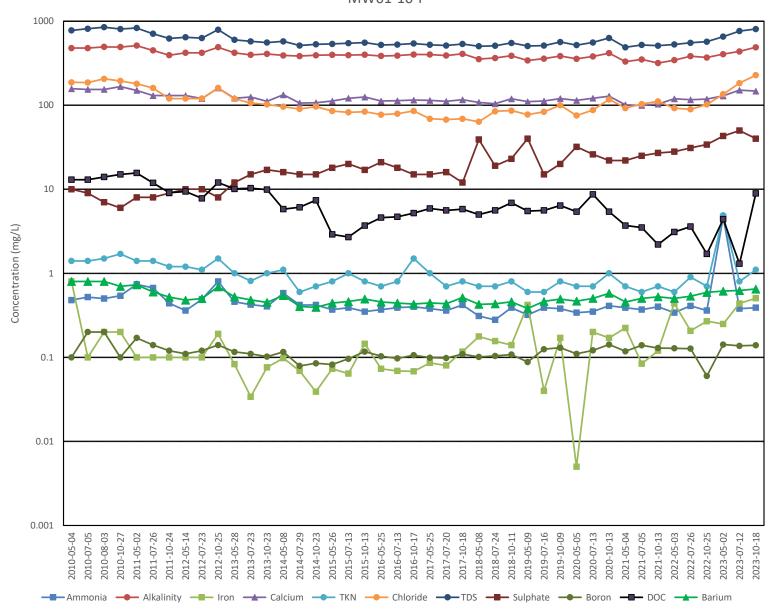




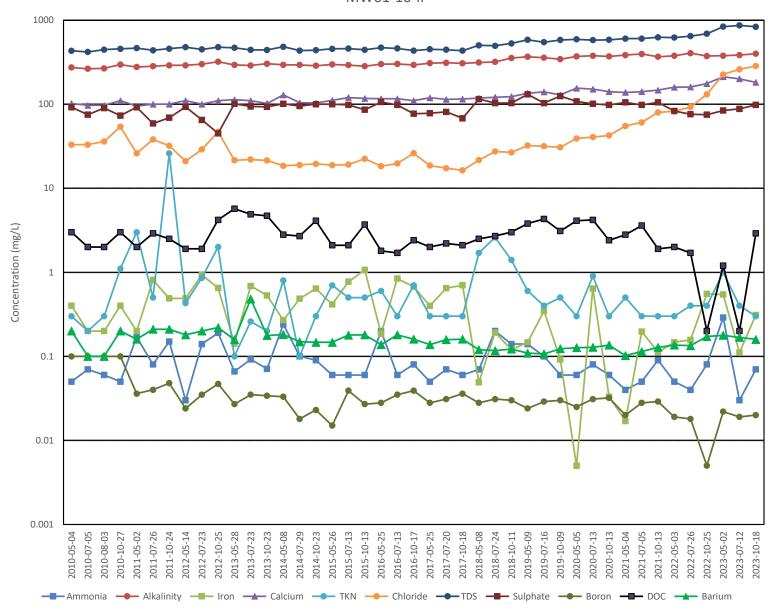




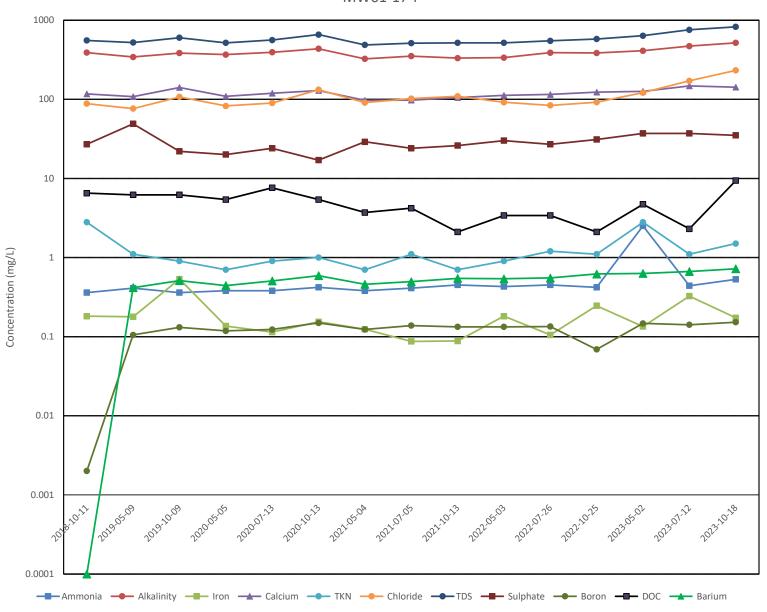


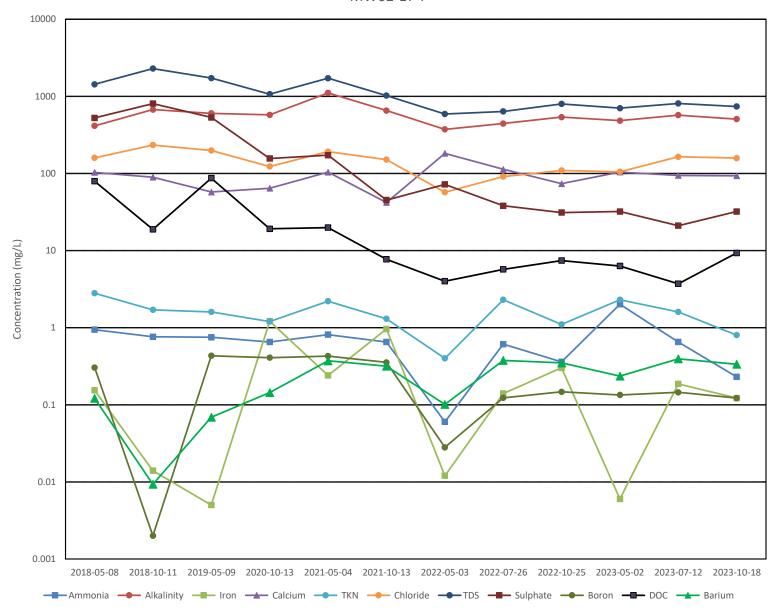




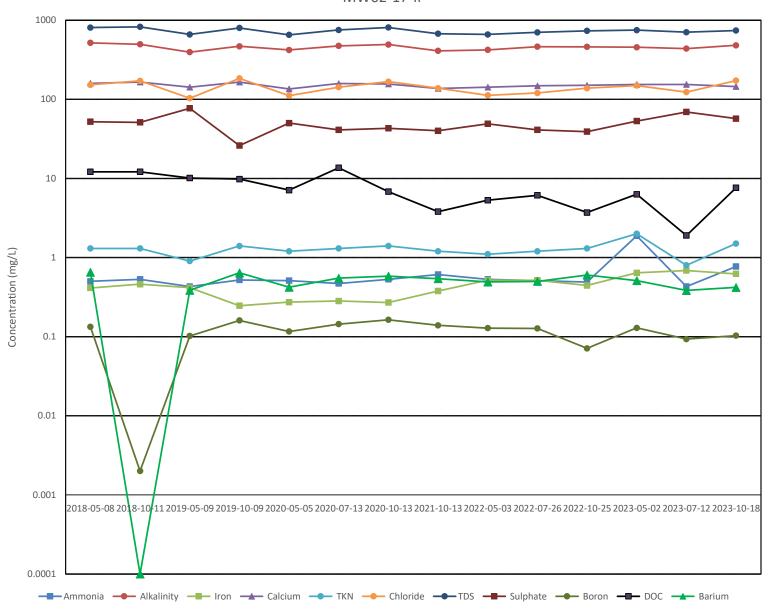




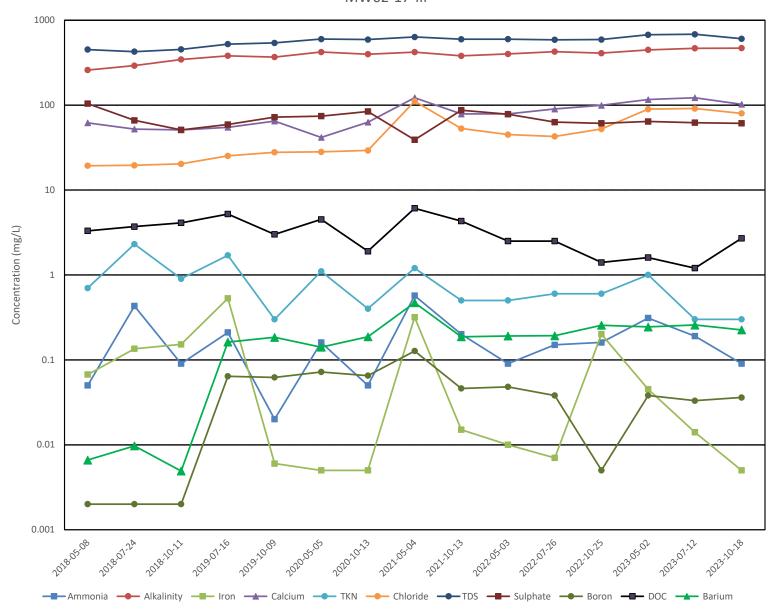




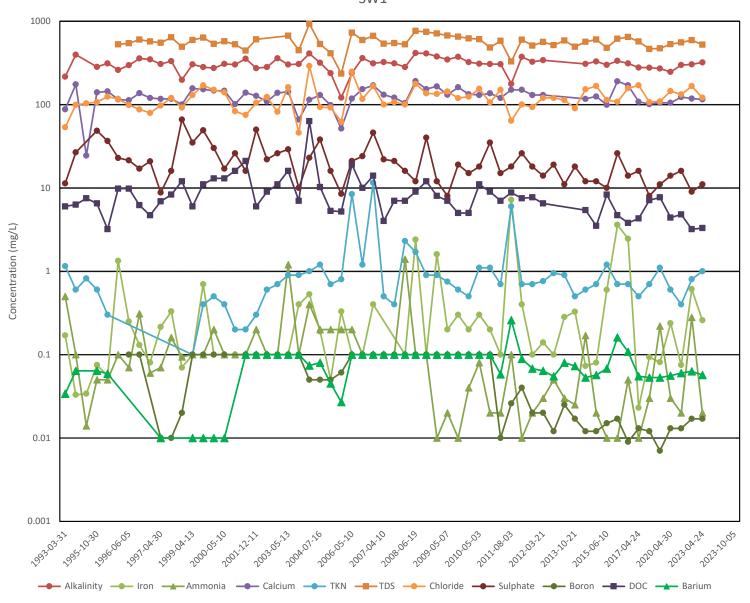


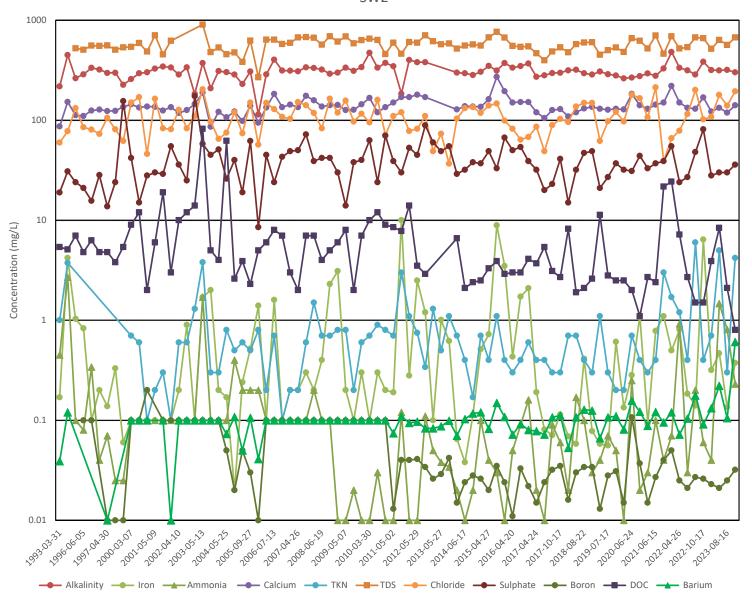


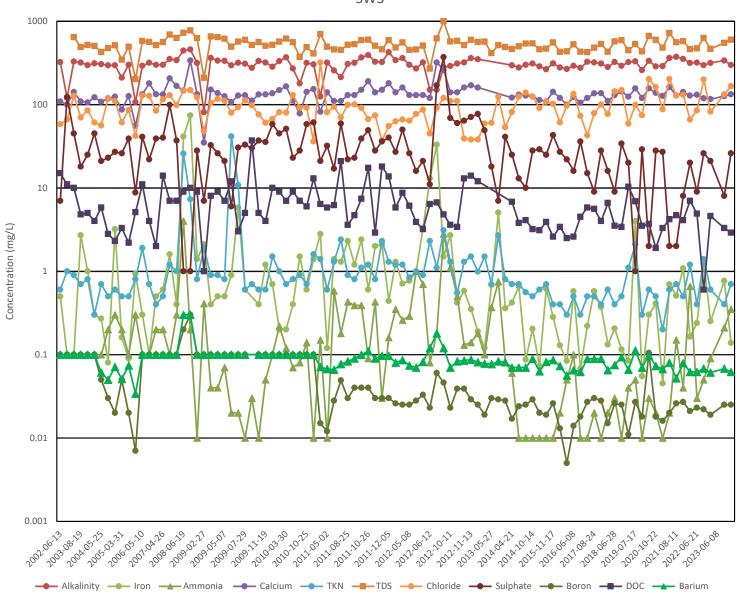


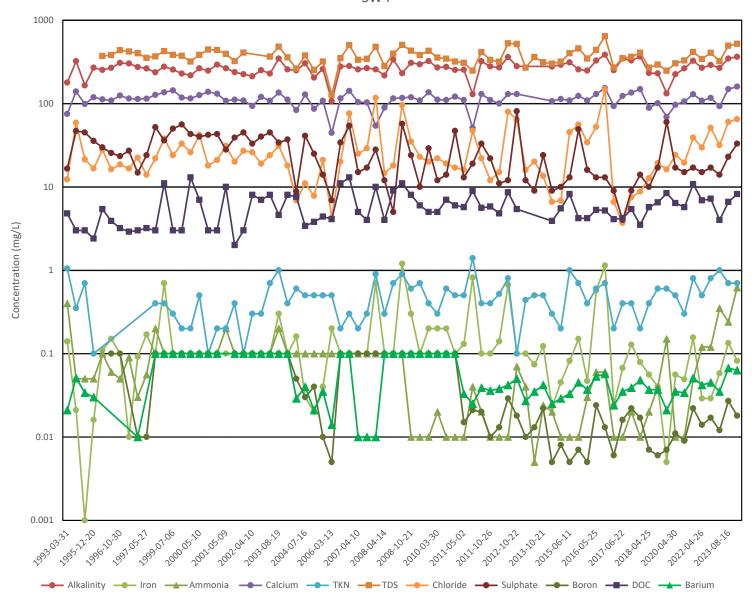


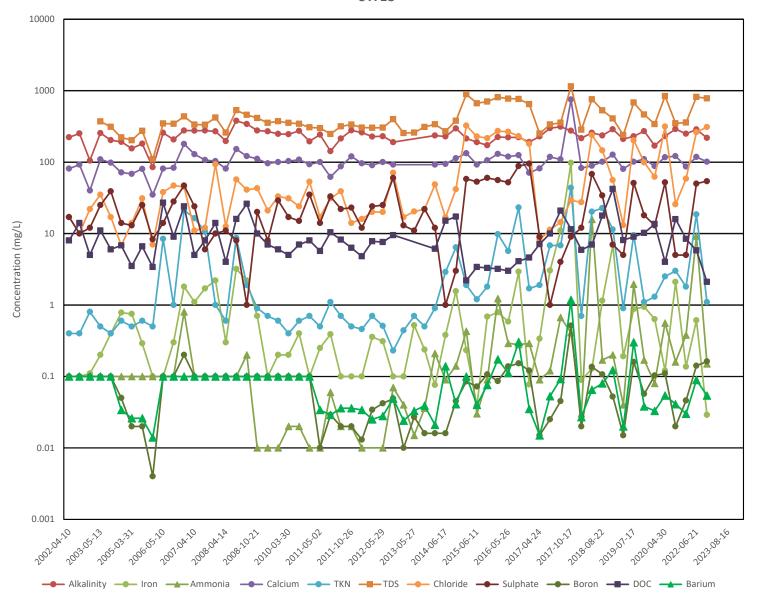


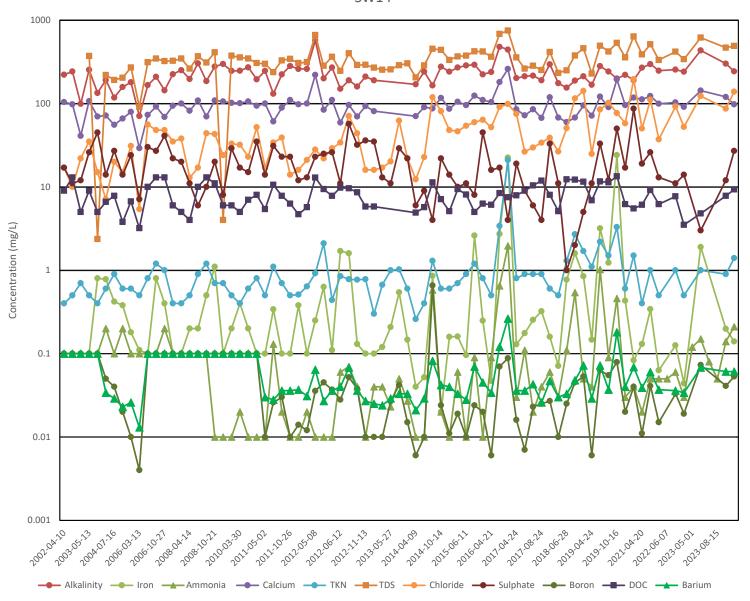


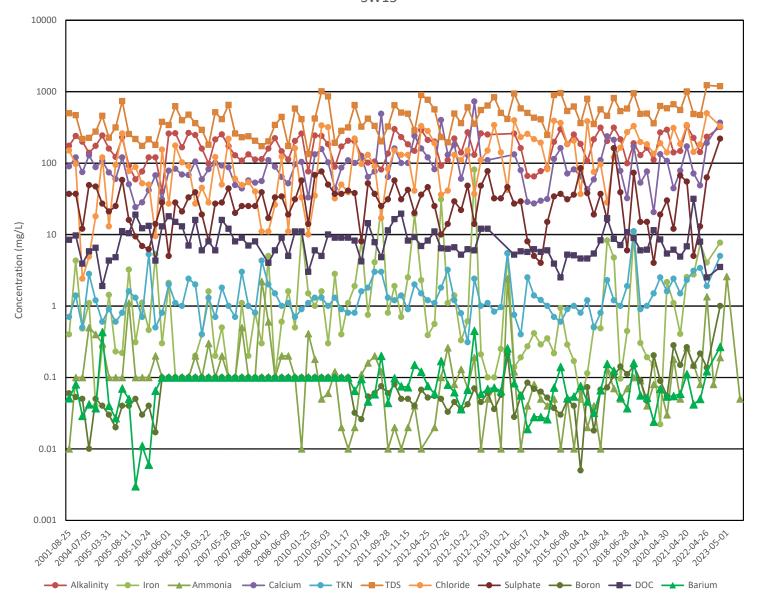




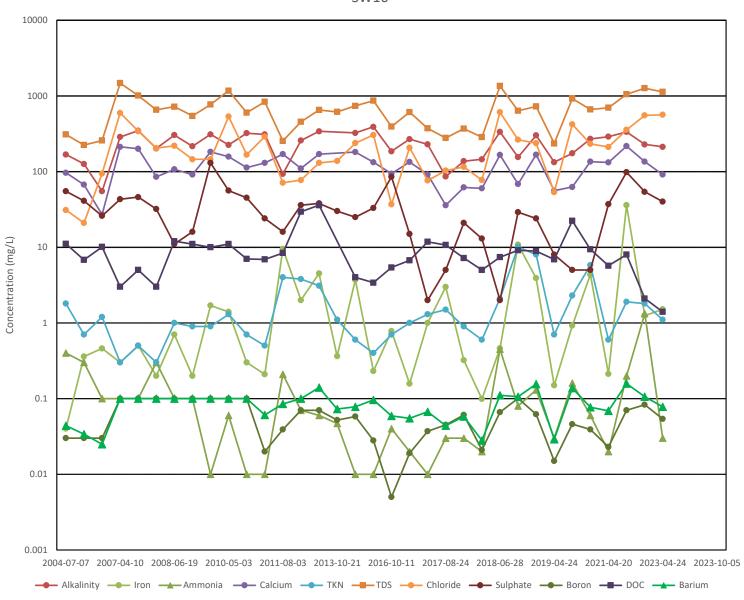


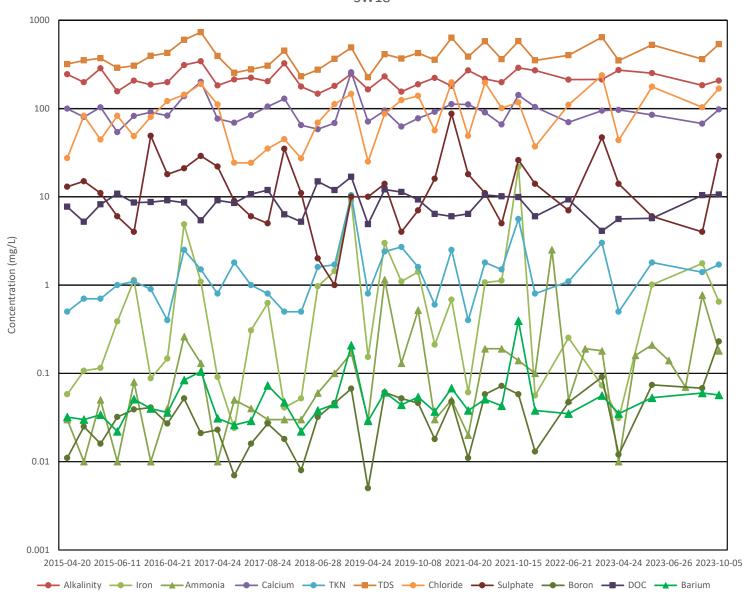




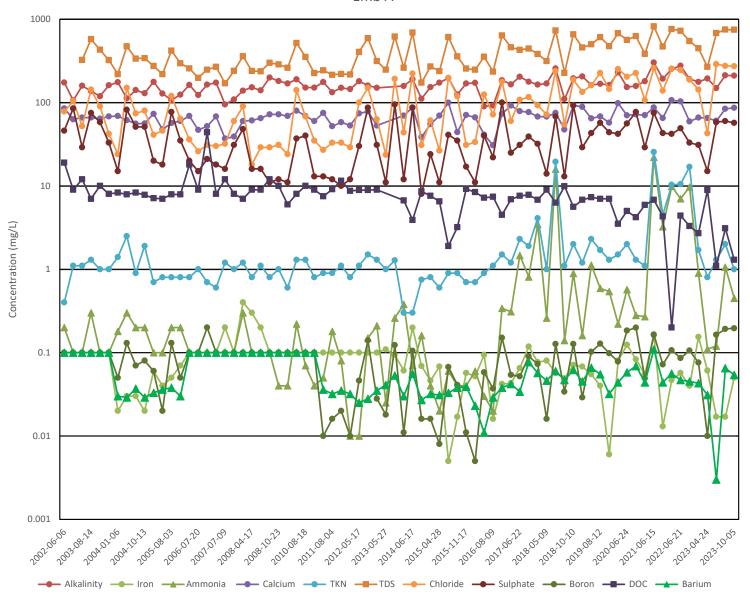




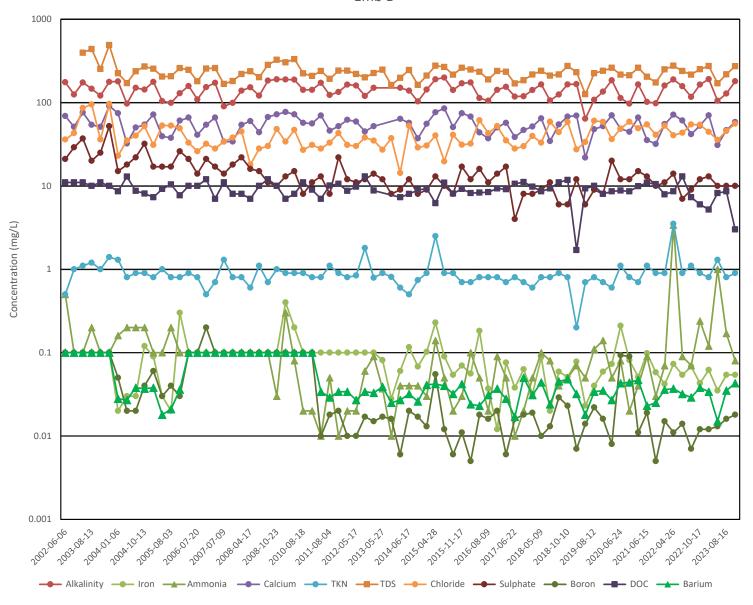




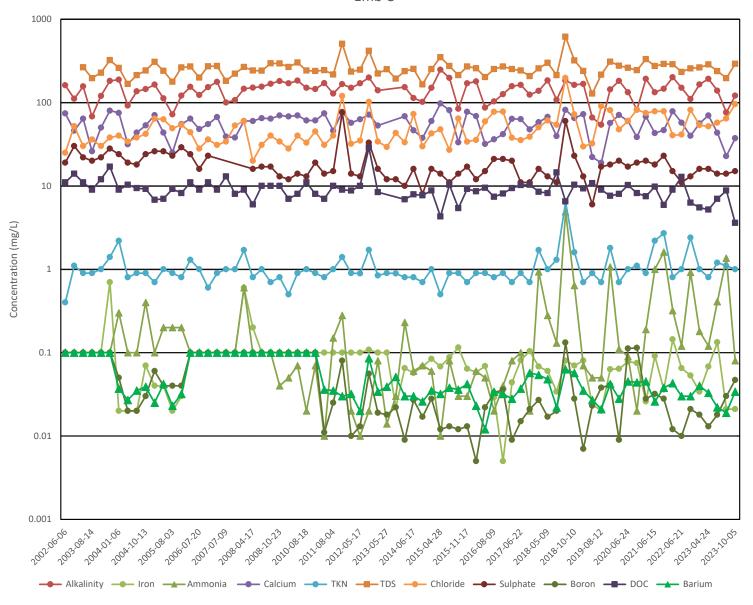




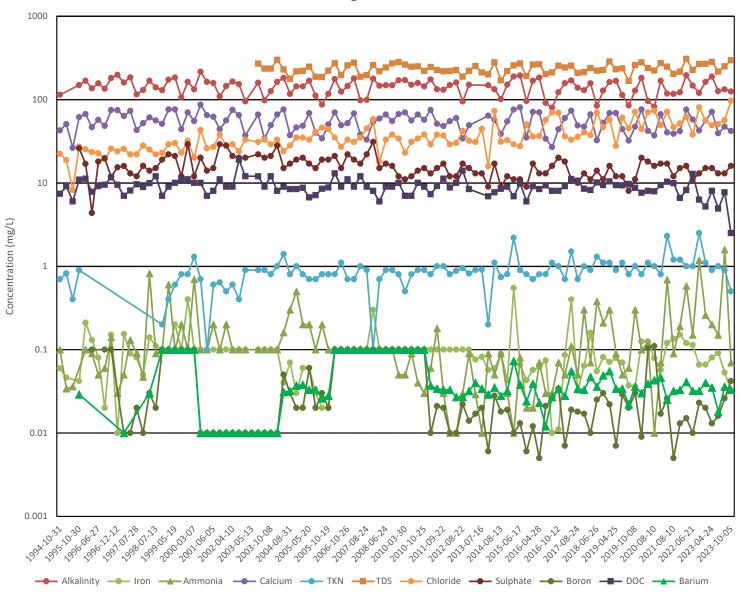




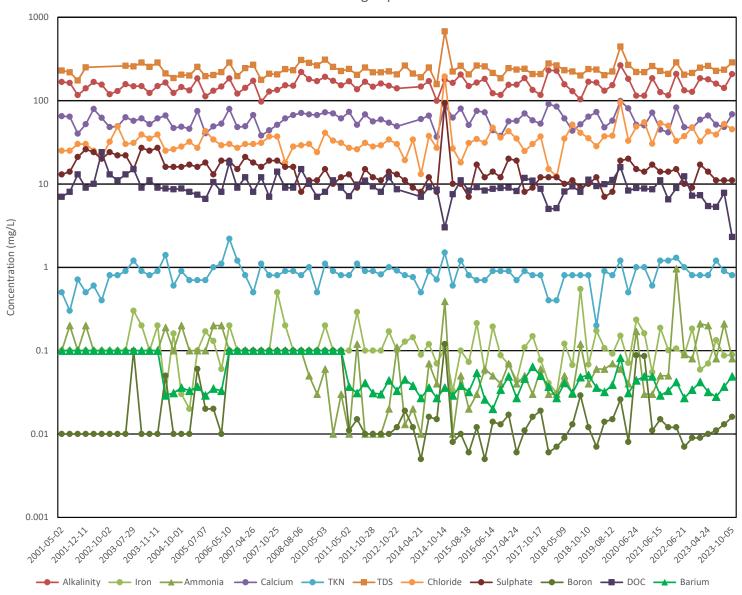


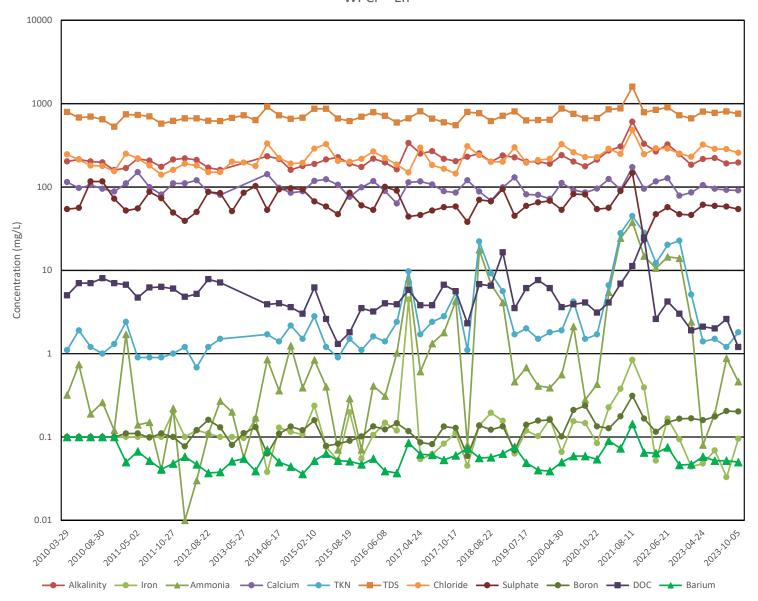


Scg- Down

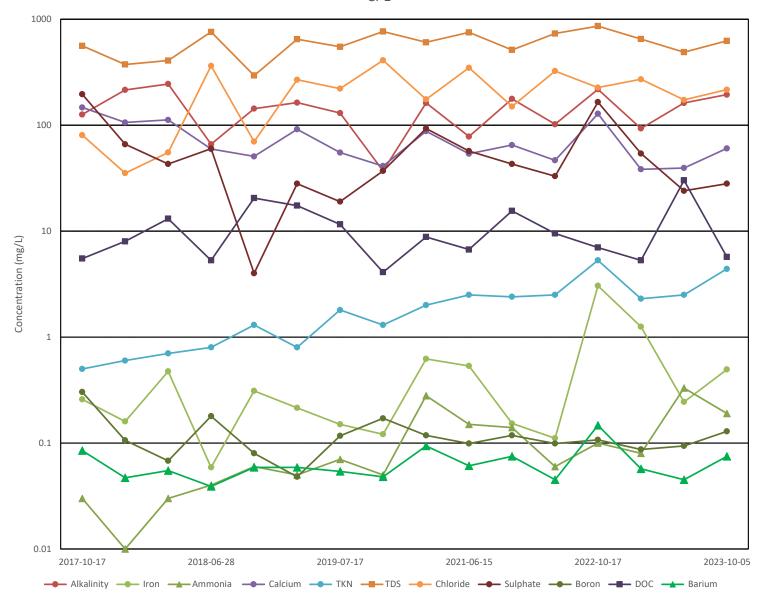


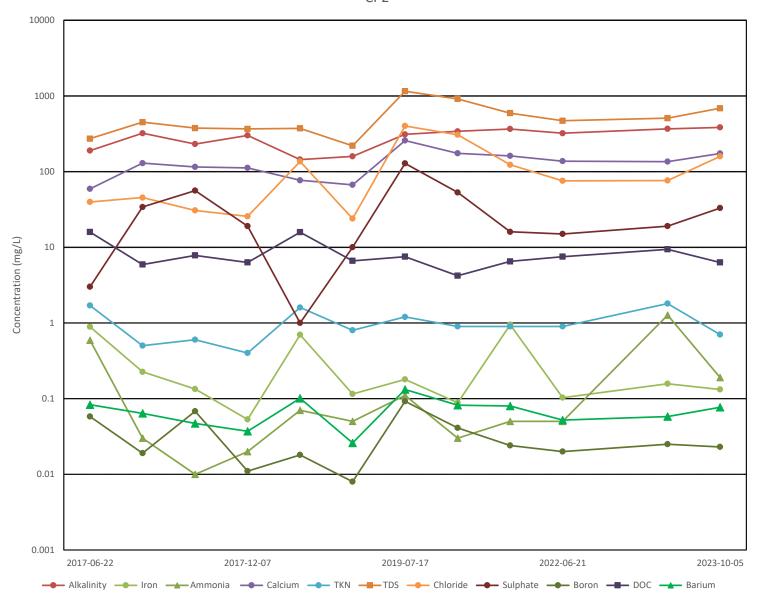














APPENDIX K

MECP Landfill Report Submission Form

Appendix D-Monitoring and Screening Checklist General Information and Instructions

General Information: The checklist is to be completed, and submitted with the Monitoring Report.

Instructions: A complete checklist consists of:

- (a) a completed and signed checklist, including any additional pages of information which can be attached as needed to provide further details where indicated.
- (b) completed contact information for the Competent Environmental Practitioner (CEP)
- (c) self-declaration that CEP(s) meet(s) the qualifications as set out below and in Section 1.2 of the Technical Guidance Document.

Definition of Groundwater CEP:

For groundwater, the CEP must have expertise in hydrogeology and meet one of the following:

- (a) the person holds a licence, limited licence or temporary licence under the *Professional Engineers Act*; or
- (b) the person holds a certificate of registration under the *Professional Geoscientists Act, 2000* and is a practicing member, temporary, member or limited member of the Association of Professional Geoscientists of Ontario. O. Reg. 66/08, s. 2..

Definition of Surface water CEP:

A CEP for surface water assessments is a scientist, professional engineer or professional geoscientist as described in (a) and (b) above with demonstrated experience and post-secondary education, either a diploma or degree, in hydrology, aquatic ecology, limnology, aquatic biology, physical geography with specialization in surface water, and/or water resource management.

The type of scientific work that a CEP performs must be consistent with that person's education and experience. If an individual has appropriate training and credentials in both groundwater and surface water and is responsible for both areas of expertise, the CEP may then complete and validate both sections of the checklist.

Monitoring Report and Site Information		
Waste Disposal Site Name	Lindsay Ops Landfill Site	
Location (e.g. street address, lot, concession)	51 Wlison Road	
GPS Location (taken within the property boundary at front gate/front entry)	680593 / 4917668	
Municipality	City of Kawartha Lakes	
Client and/or Site Owner	City of Kawartha Lakes	
Monitoring Period (Year)	2023	
This N	Ionitoring Report is being submitted under the following:	
Certificate of Approval No.:	Landfill - A 321504	
Director's Order No.:	Type Here	
Provincial Officer's Order No.:	Type Here	
Other:	Type Here	

Report Submission Frequency	AnnualOther	Specify (Type Here):
The site is:	C	Active Inactive Closed
If closed, specify C of A, control or aut	horizing document closure date:	
Has the nature of the operations at the site changed during this monitoring period?		Yes No
If yes, provide details:	See Annual Monitoring Report for	details
Have any measurements been taken since the last reporting period that indicate landfill gas volumes have exceeded the MOE limits for subsurface or adjacent buildings? (i. e. exceeded the LEL for methane)		Yes No

Groundwater WDS Verification: Based on all available information about the site and site knowledge, it is my opinion that:			
Sa	ampling and Monitoring	g Program Status:	
1) The monitoring program continues to effectively characterize site conditions and any groundwater discharges from the site. All monitoring wells are confirmed to be in good condition and are secure:	YesNo	those that have been compromise last few years	ed have been repaired over
2) All groundwater, leachate and WDS gas sampling and monitoring for the monitoring period being reported on was successfully completed as required by Certificate(s) of Approval or other relevant authorizing/control document(s):	YesNoNot Applicable	If no, list exceptions below or attac	ch information.
Groundwater Sampling Location	Description/Explanation for change (change in name or location, additions, deletions)		Date
			Select Date
			Select Date
Type Here	Type Here		Select Date
Type Here	Type Here		Select Date

 a) Some or all groundwater, leachate and WDS gas sampling and monitoring requirements have been established or defined outside of a ministry C of A, authorizing, or control document. b) If yes, the sampling and monitoring identified under 3(a) for the monitoring period being reported on was successfully completed in accordance with established protocols, frequencies, locations, and parameters developed as per the Technical Guidance Document: 		 Yes No Not Applicable 	If no, list exceptions below or attach additional information.
Groundwater Sampling Location	Description/Explanation for cha (change in name or location, add		Date
	Type Here		Select Date
Type Here	Type Here		Select Date
Type Here	Type Here		Select Date
Type Here	Type Here		Select Date
4) All field work for groundwater investigations was done in accordance with standard operating procedures as established/outlined per the Technical Guidance Document (including internal/external QA/QC requirements) (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization):		If no, specify (Type Here):	

Sampling an	nd Monitoring Program	m Results/WDS Conditions	and Assessment:
5) The site has an adequate Contaminant Attenuation (CAZ) and/or contingent place. Design and operameasures, including the configuration of any CA adequate to prevent po human health impacts a impairment of the envir	on Zone cy plan in ational e size and Z, are tential and	If no, the potential design exceptions are as follows	n and operational concerns/ s (Type Here):
6) The site meets complian assessment criteria.	Yes No	RUP values are exceeded sourced to landfill	d however, are not interpreted to be
7) The site continues to per anticipated. There have unusual trends/ change measured leachate and groundwater levels or concentrations.	e been no s in • Yes • No	If no, list exceptions and (Type Here):	explain reason for increase/change
1) Is one or more of the foll risk reduction practices at the site: (a) There is minimal relinatural attenuation leachate due to the of an effective waste and active leachate collection/treatmen (b) There is a predictive monitoring program (modeled indicator concentrations projover time for key low or (c) The site meets the fortwo conditions (typicachieved after 15 years longer of site operations i. The site has develos stable leachate mou and stable leachate geometry/concentrations and ii. Seasonal and annule vels and water quaffluctuations are well understood.	in place iance on of presence e liner at; or e in in-place ected cations); © Yes Ollowing ically ears or tion): oped und(s) plume ations; ual water ality	Note which practice(s):	ズ (a)ズ (b)ズ (c)
9) Have trigger values for contingency plans or sit remedial actions been e (where they exist):	(a) NI a		

Groundwater CEP Declaration: I am a licensed professional Engineer or a registered professional geoscientist in Ontario with expertise in hydrogeology, as defined in Appendix D under Instructions. Where additional expertise was needed to evaluate the site monitoring data, I have relied on individuals who I believe to be experts in the relevant discipline, who have co-signed the compliance monitoring report or monitoring program status report, and who have provided evidence to me of their credentials. I have examined the applicable Certificate of Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended), and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories, or as amended from time to time by the ministry. If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature and will be rectified for the next monitoring/reporting period. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated: 27-Apr-2024 **Recommendations:** Based on my technical review of the monitoring results for the waste disposal site: No changes to the monitoring program are recommended the annual monitoring report outlines general concepts relating to monitoring reductions for the Site.

The following change(s) to the
monitoring program is/are

No Changes to site design and operation are recommended

The following change(s) to the site design and operation is/ are recommended:

Type Here

recommended:

Name:	Colin Ross, B.Sc., P.Geo.		
Seal:	Add Image COLIN ROSS PRACTISING MEMBER 2055		
Signature:		Date:	27-Apr-2024
CEP Contact Information:	Colin Ross		
Company:	Azimuth Environmental Consultin	g lnc.	
Address:	642 Welham Road, Barrie, ON L4N 9A1		
Telephone No.:	705-721-8451	Fax No. :	705-721-8926
E-mail Address:	colin@azimuthenvironmental.com	1	
Co-signers for additional expertise provided:			
Signature:		Date:	Select Date
Signature:		Date:	Select Date

Surface Water WDS Verific	ation:		
Provide the name of surface water waterbody (including the nearest sur			proximate distance to the
Name (s)	Scugog River		
Distance(s)	650 m		
Based on all available information an	d site knowledge, it is my opinio	n that:	
S	ampling and Monitoring	g Program Status:	
1) The current surface water monitoring program continues to effectively characterize the surface water conditions, and includes data that relates upstream/background and downstream receiving water conditions:	YesNo		
2) All surface water sampling for the monitoring period being reported was successfully completed in accordance with the Certificate(s) of Approval or relevant authorizing/control document(s) (if applicable):	 Yes No Not applicable (No C of A, authorizing / control document applies) 	If no, specify below or provide det	ails in an attachment.
Surface Water Sampling Location	-	anation for change tion, additions, deletions)	Date
all surface water locations	many locations were dry and not monitoring events	sampled in summer and fall	Select Date
Type Here	Type Here		Select Date
Type Here	Type Here		Select Date
Type Here	Type Here		Select Date

a) Some or all surface water samp requirements for the monitoring outside of a ministry C of A or auti	period have been established	YesNoNot Applicable	
b) If yes, all surface water samplin under 3 (a) was successfully comp established program from the site frequencies, locations and param Technical Guidance Document:	leted in accordance with the e, including sampling protocols,	YesNoNot Applicable	If no, specify below or provide details in an attachment.
Surface Water Sampling Location		nnation for change ion, additions, deletions)	Date
Type Here	Type Here		Select Date
Type Here	Type Here		Select Date
Type Here	Type Here		Select Date
Type Here	Type Here		Select Date
4) All field work for surface water investigations was done in accordance with standard operating procedures, including internal/external QA/QC requirements, as established/outlined as per the Technical Guidance Document, MOE 2010, or as amended. (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization):	YesNo	If no, specify (Type Here):	

Sampling and Monitoring Program Results/WDS Conditions and Assessment:			
5) The receiving water body meets s i.e., there are no exceedances of c Management Policies, Guidelines criteria (e.g., CWQGs, APVs), as no (Section 4.6):	riteria, based on MOE legislation and Provincial Water Quality Ob	n, regulations, Water Djectives and other assessment	○ Yes
If no, list parameters that exceed crite provide details in an attachment:	eria outlined above and the amo	unt/percentage of the exceedance	e as per the table below o
Parameter	Compliance or Assessment Criteria or Background	Amount by which Compliance of Background Ex	
e.g. Nickel	e.g. C of A limit, PWQO, background	e.g. X% above PWQO	
unionized ammonia phophorus aluminum chromium zinc	0.02 mg/L 0.03 mg/L 0.075 mg/L 0.001 mg/L 0.02 mg/L	>100% 33% >100% 100% 40%	
copper phenols	0.006 mg/L 0.001 mg/L	20% 100%	
Type Here	Type Here	Type Here	
Type Here	Type Here	Type Here	
6) In my opinion, any exceedances listed in Question 5 are the result of non-WDS related influences (such as background, road salting, sampling site conditions)?	YesNo	Concentrations are more likely rela	ated to sewage effluent

7)	All monitoring program surface water parameter concentrations fall within a stable or decreasing trend. The site is not characterized by historical ranges of concentrations above assessment and compliance criteria.	• Yes No	Some variability exists over time with respect to parameter concentrations however, there are no upward trends .
8)	For the monitoring program parameters, does the water quality in the groundwater zones adjacent to surface water receivers exceed assessment or compliance criteria (e.g., PWQOs, CWQGs, or toxicity values for aquatic biota (APVs)):	YesNoNot KnownNot Applicable	
9)	Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):	YesNoNot Applicable	If yes, list value(s) that are/have been exceeded and follow-up action taken (Type Here)

Surface Water CEP Declaration: I, the undersigned hereby declare that I am a Competent Environmental Practitioner as defined in Appendix D under Instructions, holding the necessary level of experience and education to design surface water monitoring and sampling programs, conduct appropriate surface water investigations and interpret the related data as it pertains to the site for this monitoring period. I have examined the applicable Certificate of Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended) and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories, or as amended from time to time by the ministry. If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature or will be rectified for future monitoring events. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated: 27-Apr-2024 **Recommendations:** Based on my technical review of the monitoring results for the waste disposal site: No Changes to the monitoring program are recommended general reductions to the surface water monitoring program are outlined in the annual monitoring report The following change(s) to the monitoring program is/are recommended: No changes to the site design and operation are recommended Type Here The following change(s) to the site design and operation is/are

recommended:

CEP Signature		
Relevant Discipline	Hydrogeology	
Date:	27-Apr-2024	
CEP Contact Information:	Colin Ross	
Company:	Azimuth Environmental Consulting Inc.	
Address:	642 Welham Road, Barrie, ON L4N 9A1	
Telephone No.:	705-721-8451 x 205	
Fax No.:	705-721-8926	
E-mail Address:	colin@azimuthenvironmental.com	
Save As		Print Form



APPENDIX L

Lindsay OPS Landfill Stormwater Management System – Annual Status Report 2023



Lindsay OPS Landfill Stormwater Management System Annual Status Report 2023

Prepared for: City of Kawartha Lakes Waste Management Division

Prepared by: Azimuth Environmental Consulting, Inc.

April 2024

AEC 24-010



Environmental Assessments & Approvals

April 30, 2024 AEC 24-010

City of Kawartha Lakes Waste Management Department 322 Kent St. West Lindsay, ON K9V 4T7

Attention: Ms. Ms. Kayla Pantaleo

Regulatory Compliance Officer

Re: 2023 Annual Monitoring Report – Stormwater Management System Lindsay Ops Waste Disposal Site

Dear Kayla:

Azimuth Environmental Consulting, Inc. (Azimuth) is pleased to provide the 2023 Annual Monitoring Report (AMR) for the Lindsay Ops Waste Disposal Site Stormwater Management System. The data and interpretation included provides a summary of the 2022 monitoring data with comparison to the historical data and accurate assessment of the current state of the Stormwater Management System. This report has been prepared in compliance with the existing Environmental Compliance Approval (ECA) and applicable Provincial standards. This report is completed and included as an addendum to the 2023 AMR for the Lindsay Ops Landfill Site such that the data and interpretation should be completed in conjunction with the landfill AMR.

The data indicates that the facility operates within the design standards with data collected generally matching what has been observed historically.



If there are any questions regarding the content of the report, do not hesitate to contact the undersigned.

Yours truly,

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Colin Ross, B.Sc., P.Geo. Senior Hydrogeologist

PRACTISING MEMBER 2055

Attach:



Table of Contents

		page
Lette	er of T	Fransmittali
1.0	INT	RODUCTION1
2.0	BAG	CKGROUND1
	2.1	Stormwater Management System2
		2.1.1 South Stormwater Management Facility2
	2.2	North Stormwater Management Facility3
	2.3	Stormwater Quality Control Pond Operation3
3.0	STO	DRMWATER MANAGEMENT SYSTEM
	MO	NITORING PROGRAM4
	3.1	Comprehensive Water Quality Monitoring4
	3.2	Operational Stormwater Quality Monitoring7
4.0		PECTION AND MAINTENANCE8
	4.1	Stormwater Management System8
	4.2	MECP Inspection8
5.0		MMARY8
6.0		COMMENDATIONS9
		List of In-Text Tables
Table Table	e 2:	North Stormwater Management System – 2023 Monitoring Program
Figu	re 1	List of Figures Landfill Stormwater Management System Layout
	1.	List of Appendices
11	endix .	
	endix]	· · · · · · · · · · · · · · · ·
	endix (•
	endix]	•
Appe	endix l	E: Sediment Survey Completed by WSP June 2023



1.0 INTRODUCTION

The City of Kawartha Lakes ("the City") has retained Azimuth Environmental Consulting Inc. (Azimuth) to prepare the 2022Annual Monitoring Report (AMR) for the Stormwater Management System (SMS) located at the Lindsay Ops Landfill Site (Site), which is required by Section 8(3) of the Ministry of the Environment, Conservation and Parks ("MECP") Amended Environmental Compliance Approval ("ECA") No. 8401-AFST88 for the stormwater management facility at the Lindsay-Ops Landfill Site ("the Site"). The ECA was issued on May 25, 2017 to replace the December 2012 ECA No. 8668-92MTK7 which covered both the Leachate Collection/Disposal System and the Stormwater Management System. The Leachate Collection/Disposal System has been removed from the new ECA and is now covered under the Lindsay Ops Landfill Waste ECA No. A321504. A subsequent ECA amendment was issued in February, 2022 to allow for the installation of a discharge pipe with flow control (valve) for the outlet of the compost pond into Lagoon 1. This was constructed in 2022.

This report, which follows the format and system description presented in previous years provides environmental performance monitoring data and assessment as well as a summary of inspection / maintenance activities for the SMS for the period of January 1 to December 31, 2023, and includes:

- an overview of the stormwater management facility installed within both the Old Landfill Area and the New Expansion Area of the Site;
- any potential impact or temporary alteration of the facility from adjacent land uses or construction activities;
- a summary and interpretation of the 2023 water quality monitoring data for the stormwater management facility;
- a summary of inspection and maintenance activities; and
- an evaluation of the adequacy of the stormwater management facility.

2.0 BACKGROUND

The Site is located approximately 2.5 km north of Lindsay off of Highway 36, adjacent to the east shore of the Scugog River. The legal description of the Site is Part of Lots 25, 26 and 27, Concession 6, in the former Township of Ops, now the City of Kawartha Lakes. The former Town of Lindsay commenced landfill operations at the Site in 1980. On December 14, 2001, approval for the continued use and north expansion of the Site was granted by the MECP. The Site is approved to receive residential, commercial, institutional and industrial non-hazardous municipal waste, and contaminated excess soils generated within the City, as well as biosolids from the Lindsay Water Pollution and Control Plant ("Lindsay WPCP").



2.1 Stormwater Management System

The stormwater management system receives stormwater runoff from a total drainage area of 35.3 ha and is designed for storm events up to a 1 in 100 year return frequency. The stormwater management system is completely isolated from the adjacent wastewater treatment facility; however, it does receive flows from adjacent agricultural fields along Wilson Road (opened and un-opened road allowance portions).

The components of the stormwater management system are shown on Figure 1. A description of each component is provided below.

2.1.1 South Stormwater Management Facility

This part services the 7.8 ha area including the low permeability final cover area of the closed southern section of the old landfill mound, which consists of:

- one (1) 230 m long stormwater drainage perimeter ditch running along the eastern side of the closed southern portion of the landfill, servicing 1.0 ha of the low permeability final cover drainage area, having a minimum depth of 0.6 m, a base width of 0.6 m, 2H:1V side slopes, a longitudinal slope ranging from 0.9% to 2.5% that drains north and discharges to the Quality Control Ponds via connecting ditches serving the north expansion area of the landfill;
- one (1) 390 m long stormwater drainage perimeter ditch running along the southern side of the closed southern portion of the landfill, serving 4.8 ha of the low permeability cover drainage area, having a minimum depth of 0.6 m, a base width of 0.6 m, 2H:1V side slopes, a longitudinal slope ranging from 0.9% to 3.8%, lined with 1.5 mm (60 mil) HDPE geomembrane and geocomposite drainage layer extending from the low permeability final cover, a non-woven geotextile, and a layer of 100 mm diameter rip-rap, discharging through a common outlet ditch at the southwest corner of the old landfill as described below:
- one (1) 210 m long stormwater drainage perimeter ditch running along the western side of the closed southern portion of the landfill, serving 2.0 ha of the low permeability cover drainage area, having a minimum depth of 0.6 m, a base width of 0.6 m, 2H:1V side slopes, a longitudinal slope ranging from 0.9% to 1.1%, lined with 1.5 mm HDPE geomembrane and geocomposite drainage layer extending from the low permeability final cover, a non-woven geotextile, and a layer of 100 mm diameter rip-rap layer, discharging south through a common outlet ditch described below; and
- one (1) 60 m long stormwater common outlet drainage ditch located at the southwest corner of the closed part of the old landfill mound, having a minimum depth of 0.6 m, a base width of 1.0 m, 2H:1V side slopes, lined with 1.5 mm



HDPE geomembrane, non-woven geo-textile, and 100 mm diameter rip-rap, discharging through two (2) 15 m long x 600 mm diameter corrugated steel culverts to an existing roadside ditch along the north side of Lagoon Road. The roadside ditch crosses Lagoon Road near the Water Pollution Control Plant (WPCP) gate through a 900 mm corrugated steel culvert and connects to a 450 m long ditch that discharges to an embayment of the Scugog River southwest of Lagoon 6.

2.2 North Stormwater Management Facility

This part services the 27.5 ha drainage area of the North Expansion Area of the landfill, consisting of:

- two (2) identical stormwater Quality Control Ponds (one on duty 'Pond A' and the other on standby 'Pond B'), each pond designed for settling of suspended solids under a 25 mm, 4 hour duration storm event. Each pond has a permanent pool storage volume of 3,650 m³ and an extended detention storage volume of 4,000 m³. Each is equipped with a forebay, an inlet structure and an outlet structure which includes a 1,200 mm diameter perforated CSP riser with a 150 mm diameter orifice plate placed on a 300 mm diameter outlet pipe equipped with a gate valve;
- one (1) Quantity Control Lagoon (Lagoon 1) with a surface area of approximately 5.57 ha and a maximum storage capacity of 90,000 m³, equipped with an outlet structure consisting of a headwall with a 750 mm diameter CSP pipe and manually operated stop logs to discontinue the discharge of stormwater into the receiving drainage ditch if required; and
- a series of stormwater collection perimeter ditches.

2.3 Stormwater Quality Control Pond Operation

The two stormwater Quality Control Ponds of the North Stormwater Management Facility serve as settling ponds for suspended solids. Each is designed to provide settling of suspended solids under a 4 hour, 25 mm storm event.

The ponds are operated with flow directed only to the northern Quality Pond (Pond 'A'), while the inlet to the southern Quality Pond (Pond 'B') is temporarily blocked. With this arrangement, the southern quality pond (Pond 'B') is kept on stand-by in the event that the northern pond fills up with sediment and needs to be cleaned.

Under normal operating conditions, the gate valve on the outlet pipe of the Quality Control Ponds remains fully open. However, if surface water quality monitoring indicates contamination in excess of the discharge criteria (total ammonia concentration of >5 mg/L or pH <6.0 or >8.5), then the gate valve is to be closed until the origin of the



contamination has been determined, the problem corrected and sampling undertaken to confirm that the stormwater inflow meets the required discharge criteria discussed in Section 3.2. At that time, the gate valve can be re-opened to allow flow into the Lagoon 1 Quantity Control Pond. The weir on the outlet structure of the Quality Control Ponds controls the discharge rate as it is located downstream of the gate valve noted above. The weir is self operating and not adjustable.

The Lagoon 1 Quantity Control Pond receives outflow from the Quality Control Ponds and serves as a wetland feature for additional water quality improvement. It is not required for attenuation of peak storm flows, but does provide additional storage capacity if required to retain stormwater due to water quality issues. The criterion for stopping flow from this pond at the stop log outlet structure (north end of the pond) is discussed in Section 3.2.

3.0 STORMWATER MANAGEMENT SYSTEM MONITORING PROGRAM

3.1 Comprehensive Water Quality Monitoring

Condition 6 of the Stormwater ECA stipulates comprehensive water quality monitoring and recording requirements for the stormwater management facility in the North Expansion Area. Grab samples are to be collected quarterly at sampling locations SW-15 (located at the entrance to the Quality Control Pond) and SW-14 (located along the north ditch downstream of the outlet of the Lagoon 1 Quantity Control Pond) and analyzed for a comprehensive list of water quality parameters, including conductivity, select major ions, select trace metals, biochemical oxygen demand (BOD), chemical oxygen demand (COD), total suspended solids (TSS), total dissolved solids (TDS), phenols, and nutrients. The sampling locations are shown in Figure 1.

During a Site inspection in 2013, the MECP recommended that the SW-14 location be moved to the outlet structure of Lagoon 1 to ensure that the water quality at SW-14 reflects only the discharge from Lagoon 1 rather than a mixture of the Lagoon 1 effluent and upstream flow in the north ditch. In response to this request, the City added a new station SW18 at the outlet of the Lagoon 1 Quantity Pond in 2015, while maintaining SW-14 at its current location for comparative purposes.

In 2023, four (quarterly) water quality sampling events were completed, but due to dry conditions during some sampling events, samples could not be collected at some of the locations. The following table summarizes when and where samples were collected in 2023.



Table 1: North Stormwater Management System – 2023 Monitoring Program

Pawamataw(a)	Sampling Frequency		
Parameter(s)	SW-14	SW-15	SW-18
Field Parameters (pH, temperature, Conductivity, dissolved oxygen)	April, June, August &	April	April, June, August &
General Chemistry, Major Ions, Trace Metals, Nutrients, BOD, DOC, COD, Phenols	October		October

In addition to the sampling summarized above, SW-14, SW15 and SW-18 were sampled for total ammonia after storm events as summarized in Table 2.

Table 2: North Stormwater Management System – 2023 Storm Event Sampling

Sampling Frequency					
SW-14	SW-15	SW-18			
May, June & August	May & June	June & August			

Sample collection was carried out by Azimuth and City staff throughout 2023. Samples were submitted to Caduceon Environmental Laboratories to perform water quality analyses. The field parameters and analytical results are summarized in Appendix C.

Review of the 2023 comprehensive water quality data for SW-14, SW-15 and SW-18 indicates concentrations slightly greater than PWQO for the following parameters:



Table 3: 2023 PWQO Exceedances for SW-14, SW-15 and SW-18

SW-15 (entrance to the Quality Control Pond A)	SW-18 (outlet Structure of Quantity Control Pond Lagoon 1)	SW-14 (north ditch downstream of the outlet of the Quantity Control Pond Lagoon 1)	SW-4* (background station in north ditch)
Iron (x24)	Iron (x5.9)	Iron (x6.3)	-
Phosphorus (x21)	Phosphorus (x3.3)	Phosphorus (x2)	-
-	Phenols (x4)	-	-
-	Aluminum (x1.5)	Aluminum (x1.3)	Aluminum (x1.9)
Boron (x5)	Boron (x1.1)	-	-
Chromium (x11)	Chromium (x2)	Chromium (x2)	Chromium (x2)
Cobalt (x5)	-	Cobalt (x1.8)	-
Copper (x22)	-	-	-
Lead (x2.1)	-	-	-
Vanadium (x1.4)	-	-	-
Zinc (x8.1)	-	-	-
-	-	-	Unionized Ammonia (1.5)

⁽x 8.0) - denotes the maximum extent to which the PWQO was exceeded in 2023 (e.g. 8 times higher than PWQO)

The exceedances of the PWQO parameters are similar to previous year's results, albeit are most likely related to suspended natural soil/organic particles rather than landfill leachate impacts. This is supported by the fact the most elevated concentrations are found when TSS concentrations are elevated. Similarly, these locations typically have low levels of key leachate parameters such as total ammonia (<0.1 mg/L) historically. These trends continued in 2023 with ammonia concentrations generally falling below 0.2 mg/L, with the most elevated ammonia concentrations observed at the background location SW-4 (0.24 – 0.62 mg/L). The exception to these trends was a more significant value of 2.58 mg/L at SW15 during the May 1st storm sampling event. However, it is noted that

^{* -} SW-4 (background reference from landfill program).



the next sampling event in June indicated an ammonia concentration of <0.05 mg/L. Sporadic elevations for ammonia have been observed historically. It is likely that these localized elevated concentrations are not likely the result of leachate and may be more reflective of localized stagnant conditions within the stormwater management pond in which SW15 is located. This is supported by the lack of sufficient water depth in the ditches throughout the year, (even following storm events) to facilitate sampling. The PWQO exceedances at the quality pond inlet station SW-15, as well as SW-14 and SW-18 are sediment related as this station is prior to sediment deposition in the pond. At SW-14 & SW-18, located along the north ditch downstream of the Quantity Pond (Lagoon 1) outlet, the PWQO exceedances are typically minor, sediment related and generally comparable to the background station (SW-4) historical results.

For a more comprehensive discussion regarding the surface water quality, the reader is referred to Section 2.2.4.5.3 of the landfill AMR.

3.2 Operational Stormwater Quality Monitoring

According to the Stormwater ECA Condition 5(2), additional sampling for pH and total ammonia is required if the total ammonia concentration is greater than 1 mg/L at SW14 and/or SW15. With the addition of Station SW-18 at the outlet of the Lagoon 1 Quantity Pond in 2015 (at the request of the MECP), the City has included this station for the operational stormwater quality monitoring required by Stormwater ECA Condition 5(2). The additional sampling for pH and total ammonia is to be undertaken during each subsequent storm event causing stormwater runoff to the Quality Control Ponds, until four consecutive storm events give total ammonia concentrations of less than 1 mg/L and pH levels between 6.0 and 8.5. The outlet structure (stop log structure) at the Quantity Control Pond (Lagoon 1) is to be closed if the total ammonia level exceeds 5 mg/L and/or the pH falls outside the range of 6.0 to 8.5.

In 2023, the total ammonia levels at all stations (SW-14, SW-15 andSW-18) were less than 1 mg/L with the exception of the May storm monitoring event at SW-15. Lab and field pH values were in the allowable range of 6.0 to 8.5 at SW-14, SW-15 and SW-18. Given the pH values and the fact ammonia concentrations remained below 1 mg/L during the following the subsequent monitoring event in 2023 at SW-15, continued discharge of outflow from the stormwater pond was permitted. It is noted that four storm events were not targeted due a lack of weather events or a lack of water present to facilitate sample collection following a rainfall event in 2023.



4.0 INSPECTION AND MAINTENANCE

4.1 Stormwater Management System

The Stormwater Management System was inspected regularly as part of the monthly landfill site inspections.

The monthly inspections completed by City staff indicated that the ditches were in good condition. The north drainage channel was repaired in April 2020 to maintain proper flows, which included trapping beavers.

Sediment thickness measurements were undertaken in August 2021, where sediment thicknesses were measured in the Quality Control Pond A (north) and Pond B (south). The sediment thickness in Pond A ranged from 25 cm to 49 cm with an average thickness of 36 cm. The sediment thickness in Pond B ranged from 39 cm to 47 cm with an average of 42 cm. Removal of the sediment in the Quality Control Ponds is recommended when the thickness reaches about 30 cm. A Capital Project was created for the sediment removal to be completed in Pond A and Pond B. This work has been tendered and the award is pending Council approval. The latest sludge survey that was completed in June of 2023 is attached as Appendix E.

Overall, the Stormwater Management System was in good operating order.

4.2 MECP Inspection

The MECP carried out an inspection of the storm water management and leachate collection facilities on November 4, 2015. The inspection report was received on February 16, 2016 (Appendix D). The action items and responses from that inspection are provided in Appendix D. The most recent MECP inspection was conducted on June 7, 2019 (Appendix D). The only action items related to the inspection were related to removal of trees from Quality Control Pond A and regarding the compost collection and infiltration pond are not functioning as intended. To date, no tree removals have taken place although are scheduled to be completed in 2024 when the sediment removal program is completed for the pond. The recent ECA amendment has given approval for the installation of a valve between the compost pond and Lagoon 1 to direct flow into the Lagoon 1 from the compost pond without the use of a pump.

5.0 SUMMARY

Based on the results of the 2023 performance assessment for the stormwater management facility, the following summary is provided:

• The stormwater management facility was operated in 2023 in accordance with Amended Environmental Compliance Approval No. 8401-AFST88;



- In 2023, water quality samples were collected from SW-14, SW-15 and SW-18 on a quarterly basis in accordance with ECA requirements;
- Minor exceedances of PWQO were obtained at SW-14 (north ditch downgradient of Lagoon 1) for phosphorus, iron, aluminum and cobalt similar to previous years. At SW-18 (Lagoon 1 Quantity Control Pond outlet) minor exceedances of PWQO were obtained for phosphorous, iron, phenols, aluminum & boron. At SW-15 (Quality Control Pond 'B' inlet) exceedances of PWQO were obtained for phosphorous, iron, boron, chromium, cobalt, copper and zinc similar to previous years. These exceedances are considered to mainly reflect suspended natural soil/organic particles rather than leachate impacts. As well, the boron meets the CWQG, which is considered a more appropriate compliance parameter given the interim nature of the PWQO criteria. Overall, the PWQO exceedances at SW-15 are expected as this station is prior to sediment deposition in the ponds;
- In 2023, the ammonia concentration exceeded the trigger value of 1 mg/L during the May monitoring (2.58 mg/L) event at SW-15; however, the location was only able to be sampled once more in 2023 due to dry conditions, but the concentration during the June event was noted to be below detection limits. Therefore, there were no trigger exceedances with respect to pH or ammonia.

6.0 RECOMMENDATIONS

The following recommendations are made regarding the operation and performance of the Stormwater Management Facility and are similar to what has been included in previous reports:

- Regular inspection of the perimeter of the North Expansion fill area should continue to be carried out to check that run-off from areas having daily and/or interim cover is being contained within the perimeter containment berm and captured by the leachate collection system. This is important in preventing leachate impacts on the perimeter drainage ditches that feed the stormwater quality ponds. Particular attention should be given to the area around entrance ramps along the west side of the active waste fill area where contaminated run-off could potentially flow down the ramp and into the external ditches;
- Given the average sediment thickness in the stormwater quality ponds exceeds 30 cm, it is recommended that these ponds have the sediment removed. The sediment can be disposed of in the landfill provided it is in solid form;
- Follow Condition 6(2) to ensure that surface water samples are collected during and/or following rain events(s); and
- Undertake regular maintenance and grading of the ditches to ensure flow is following the prescribed patterns as indicated in the stormwater management facility design and associated drawings/ plans.



APPENDICES

Appendix A: Figures

Appendix B: MECP Environmental Compliance Approval (ECA)

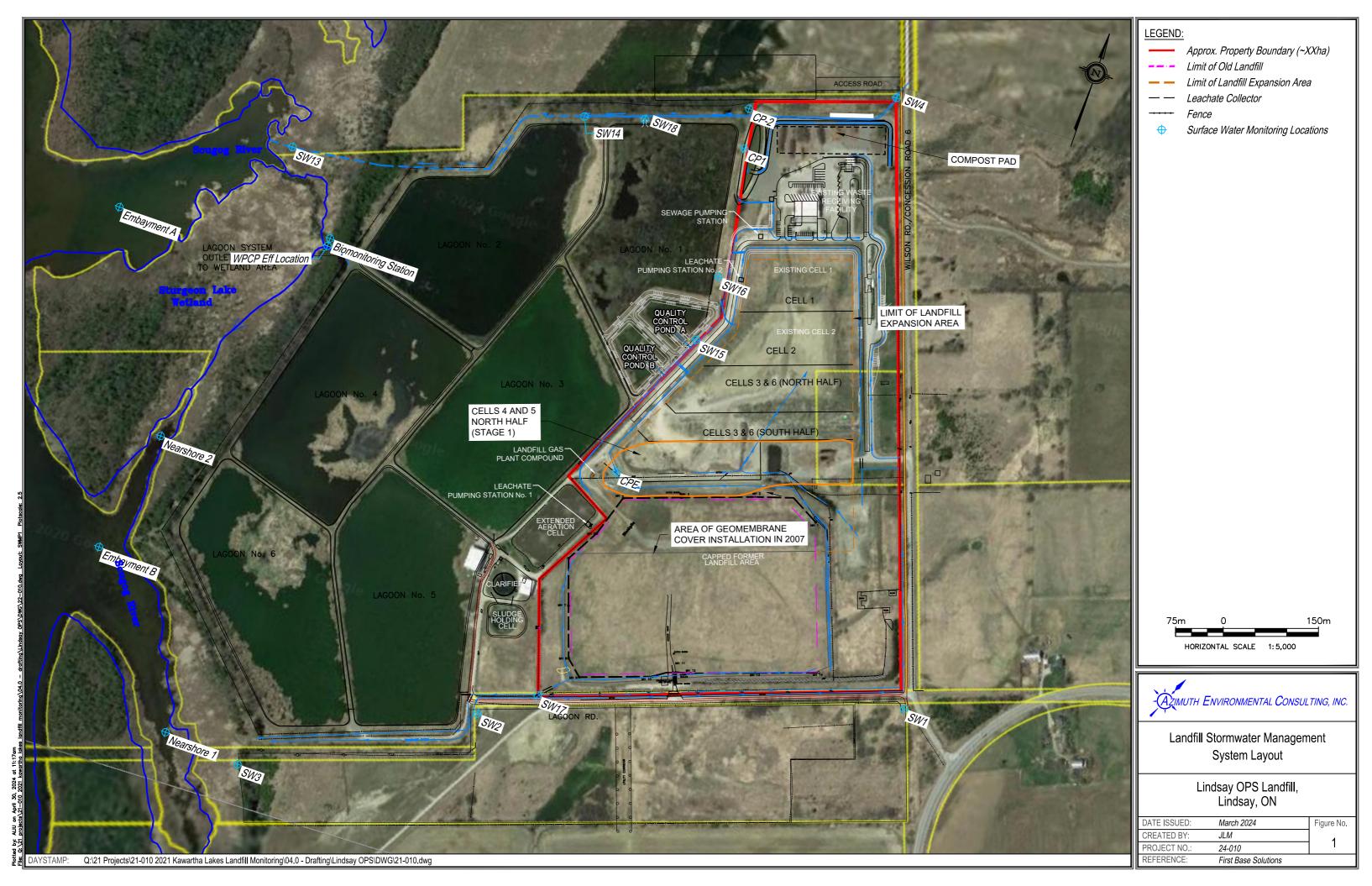
Appendix C: Water Quality Data **Appendix D:** MECP Inspection

Appendix E: Sediment Survey Completed by WSP June 2023



APPENDIX A

Figures





APPENDIX B

MECP Environmental Compliance Approval (ECA)



Ministry of the Environment, Conservation and Parks Ministère de l'Environnement, de la Protection de la nature et des Parcs

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 1812-CBRM4K Issue Date: February 28, 2022

City of Kawartha Lakes 322 Kent Street West Post Office Box 9000 Kawartha Lakes, Ontario

K9V 4T7

Site Location: Lindsay - Ops Landfill Site

51 Wilson Road

Lot 25,26,27, Concession 6, former Ops Township

City of Kawartha Lakes, Ontario

You have applied under section 20.2 of Part II.1 of the <u>Environmental Protection Act</u>, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

usage and operation of the existing stormwater management facility to service Lindsay-Ops Landfill Site, located on Lots 26 and Lots 27, Concession 6, in the City of Kawartha Lakes, receiving stormwater runoff from a total drainage area of 35.3 ha, designed to attenuate storm events up to 1:100 year return frequency as follows:

Proposed Works

• one (1) discharge pipe with flow control to quantity control lagoon (Lagoon 1);

Existing Works

South Stormwater Management Facility

stormwater management facility to service 7.8 ha drainage area of the closed part of the Lindsay-Ops Landfill Site located on the southern part of the site, consisting of the following:

• One (1) 7.8 ha drainage area of the closed part of Lindsay-Ops Landfill Site covered with low permeability final cover consisting of 1.5 mm HDPE textured geomembrane and geocomposite drainage layer, 0.55 m thick loam cover soil, and grass vegetation, discharging to perimeter ditches described below;

- One (1) 230 m long stormwater drainage perimeter ditch running along the eastern part of the closed part of the landfill site, serving 1.0 ha of the drainage area, having a minimum depth of 0.6 m, a base width of 0.6 m, 2H:1V side slopes, a longitudinal slope ranging from 0.9% to 2.5%, draining north and discharging to the quality control ponds via connecting ditches serving the expansion drainage area of the landfill;
- One (1) 390 m long stormwater drainage perimeter ditch running along the southern part of the closed part of the landfill site, serving 4.8 ha of the drainage area, having a minimum depth of 0.6 m, a base width of 0.6 m, 2H:1V side slopes, a longitudinal slope ranging from 0.9% to 3.8%, lined with 1.5 mm HDPE geomembrane and geocomposite drainage layer extending from the final cover of the closed landfill, non-woven geo-textile, and 100 mm diameter rip-rap layer, discharging through a common outlet ditch described below;
- One (1) 210 m long stormwater drainage perimeter ditch running along the western part of the closed part of the landfill site, serving 2.0 ha of the drainage area, having a minimum depth of 0.6 m, a base width of 0.6 m, 2H:1V side slopes, a longitudinal slope ranging from 0.9% to 1.1%, lined with 1.5 mm HDPE geomembrane and geocomposite drainage layer extending from the final cover of the closed landfill, non-woven geo-textile, and 100 mm diameter rip-rap layer, discharging through a common outlet ditch described below;
- One (1) 60 m long stormwater drainage ditch located at the southwest corner of the closed part of the landfill site, having a minimum depth of 0.6 m, a base width of 1.0 m, 2H:1V side slopes, lined with 1.5 mm HDPE geomembrane, non-woven geo-textile, and 100 mm diameter rip-rap layer, discharging through two (2) culverts described below;
- Two (2) 15 m long x 600 mm diameter corrugated steel culverts discharging to an existing roadside ditch along the north side of Lagoon Road crossing Lagoon Road through an existing 900 mm corrugated steel culvert to an existing approximately 450 m long ditch which discharges to an embayment of Scugog River;
- all controls and associated appurtenances;

North Stormwater Management Facility

stormwater management facility to service 27.5 ha drainage area of the Lindsay-Ops Landfill Site expansion area located north of the existing closed part of the site, consisting of the following:

• Two (2) identical stormwater quality control ponds (one on duty, one on standby), each pond designed for a 25 mm 4 hour duration storm event providing a permanent pool storage volume of 3,650 m³ and an extended detention storage volume of 4,000 m³, equipped with a forebay, an inlet structure and outlet structure which includes a 1200 mm diameter perforated CSP riser with a 150 mm diameter orifice plate placed on a 300 mm diameter outlet pipe;

- One (1) quantity control lagoon (Lagoon 1) with a surface area of approximately 5.57 ha and a maximum storage capacity of 90,000 m³, equipped with an outlet structure consisting of a headwall with a 750 mm diameter CSP pipe and manually operated stop logs to discontinue the discharge of stormwater into the receiving drainage ditch if required;
- Series of stormwater collection perimeter ditches;

all in accordance with the submitted supporting documents listed in Schedule A.

For the purpose of this environmental compliance approval, the following definitions apply:

- 1. "Approval" means this environmental compliance approval and any schedules attached to it, and the application;
- 2. "CBOD5" means five day carbonaceous (nitrification inhibited) biochemical oxygen demand measured in an unfiltered sample;
- 3. "Director" means a person appointed by the Minister pursuant to section 5 of the EPA for the purposes of Part II.1 of the EPA;
- 4. "District Manager" means the District Manager of the appropriate local district office of the Ministry where the Works is geographically located;
- 5. "EPA" means the *Environmental Protection Act*, R.S.O. 1990, c.E.19, as amended;
- 6. "Equivalent Equipment" means alternate piece(s) of equipment that meets the design requirements and performance specifications of the piece(s) of equipment to be substituted;
- 7. "Existing Works" means those portions of the Works included in the Approval that have been constructed previously;
- 8. "Limited Operational Flexibility" (LOF) means the conditions that the Owner shall follow in order to undertake any modification that is pre-authorized as part of this Approval;
- 9. "Ministry" means the ministry of the government of Ontario responsible for the EPA and OWRA and includes all officials, employees or other persons acting on its behalf;
- 10. "Notice of Modifications" means the form entitled "Notice of Modifications to Sewage Works";
- 11. "Owner" means City of Kawartha Lakes and its successors and assignees;
- 12. "OWRA" means the Ontario Water Resources Act, R.S.O. 1990, c. O.40, as amended;
- 13. "Professional Engineer" means a person entitled to practice as a Professional Engineer in the Province of Ontario under a license issued under the Professional Engineers Act;

- 14. "Proposed Works" means those portions of the Works included in the Approval that are under construction or to be constructed;
- 15. "Works" means the approved sewage works, and includes Proposed Works, Existing Works and modifications made under Limited Operational Flexibility.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL CONDITIONS

- 1. The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Works is notified of this Approval and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.
- 2. Except as otherwise provided by these Conditions, the Owner shall design, build, install, operate and maintain the Works in accordance with the description given in this Approval, and the application for approval of the Works.
- 3. Where there is a conflict between a provision of any document in the schedule referred to in this Approval and the conditions of this Approval, the conditions in this Approval shall take precedence, and where there is a conflict between the documents in the schedule, the document bearing the most recent date shall prevail.
- 4. Where there is a conflict between the documents listed in Schedule A and the application, the application shall take precedence unless it is clear that the purpose of the document was to amend the application.
- 5. The conditions of this Approval are severable. If any condition of this Approval, or the application of any requirement of this Approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.
- 6. The issuance of, and compliance with the conditions of, this Approval does not:
 - a. relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement, including, but not limited to, the obligation to obtain approval from the local conservation authority/MNRF necessary to construct or operate the sewage works; or
 - b. limit in any way the authority of the Ministry to require certain steps be taken to require the Owner to furnish any further information related to compliance with this Approval.

2. EXPIRY OF APPROVAL

- 1. This Approval will cease to apply to those parts of the Works which have not been constructed within five (5) years of the date of this Approval.
- 2. In the event that completion and commissioning of any portion of the Works is anticipated to be delayed beyond the specified expiry period, the Owner shall submit an application of extension to the expiry period, at least twelve (12) months prior to the end of the period. The application for extension shall include the reason(s) for the delay, whether there is any design change(s) and a review of whether the standards applicable at the time of Approval of the Works are still applicable at the time of request for extension, to ensure the ongoing protection of the environment.

3. CHANGE OF OWNER

- 1. The Owner shall notify the District Manager and the Director, in writing, of any of the following changes within thirty (30) days of the change occurring:
 - a. change of Owner;
 - b. change of address of the Owner;
 - c. change of partners where the Owner is or at any time becomes a partnership, and a copy of the most recent declaration filed under the *Business Names Act*, R.S.O. 1990, c.B17 shall be included in the notification to the District Manager; or
 - d. change of name of the corporation where the Owner is or at any time becomes a corporation, and a copy of the most current information filed under the *Corporations Information Act*, R.S.O. 1990, c. C39 shall be included in the notification to the District Manager.
- 2. In the event of any change in ownership of the Works, other than a change to a successor municipality, the Owner shall notify in writing the succeeding owner of the existence of this Approval, and a copy of such notice shall be forwarded to the District Manager and the Director.
- 3. The Owner shall ensure that all communications made pursuant to this condition refer to the number at the top of this Approval.

4. OPERATION MANUAL

- 1. The Owner shall prepare an updated operations manual for Works within one (1) year of the issuance date of this Approval, that includes, but not necessarily limited to, the following information:
 - a. operating procedures for routine operation of the Works;
 - b. inspection programs, including frequency of inspection, for the Works and the methods or

tests employed to detect when maintenance is necessary;

- c. repair and maintenance programs, including the frequency of repair and maintenance for the Works;
- d. procedures for the inspection and calibration of monitoring equipment;
- e. a spill prevention control and countermeasures plan, consisting of contingency plans and procedures for dealing with equipment breakdowns, potential spills and any other abnormal situations, including notification of the District Manager; and
- f. procedures for receiving, responding and recording public complaints, including recording any follow up actions taken.
- 2. The Owner shall maintain the operations manual current and retain a copy at the location of the Works or operational office of the Owner for the operational life of the Works. Upon request, the Owner shall make the manual available to Ministry staff.
- 3. The Owner shall inspect the Works at least once a year and, if necessary, clean and maintain the Works to prevent the excessive build-up of sediments and/or vegetation.
- 4. The Owner shall maintain a logbook to record the results of the inspections completed under subsection (3) and any cleaning and maintenance operations undertaken, and shall keep the logbook at the site or operational office of the Owner for inspection by the Ministry. The logbook shall include the following:
 - a. the name of the Works; and
 - b. the date and results of each inspection, maintenance and cleaning, including an estimate of the quantity of any materials removed.
- 5. The Owner shall retain for a minimum of five (5) years from the date of their creation, all records and information related to or resulting from the operation and maintenance and monitoring activities required by this Approval.

5. OPERATION AND MAINTENANCE

- 1. The Owner shall exercise due diligence in ensuring that, at all times, the Works and the related equipment and appurtenances used to achieve compliance with this Approval are properly operated and maintained. Proper operation and maintenance shall include effective performance, adequate funding, adequate operator staffing and training, including training in all procedures and other requirements of this Approval.
- 2. The Owner shall collect one (1) stormwater grab sample at sampling locations SW-14 and SW-15 during a storm event causing stormwater runoff from the landfill site such that at least four (4) samples from each sampling location are collected per year covering the spring, summer

and fall seasons. Each collected sample shall be analysed for pH and Total Ammonia, and if measured level of Total Ammonia is higher than 1 mg/L, then the Owner shall commence the following monitoring program:

- 3. For the North Stormwater Management Facility, the Owner shall collect one (1) stormwater sample during each subsequent storm event causing stormwater runoff to the quality control ponds and have it analysed for the trigger parameters pH and Total Ammonia. The Owner shall immediately close the outlet valve (stop logs) of Lagoon 1 to discontinue the discharge of stormwater into the receiving drainage ditch if any of the following conditions arises:
 - a. 6.0 > pH > 8.5
 - b. Total Ammonia > 5.0 mg/L
- 4. The Owner shall ensure that potentially contaminated stormwater collected in Lagoon 1 as a result of subsection (3) is treated as a leachate and sent for treatment to the Lindsay WPCP.
- 5. For the South Stormwater Management Facility, the Owner shall collect one (1) stormwater sample during each subsequent storm event causing stormwater runoff to the perimeter drainage ditches and have it analysed for the trigger parameters pH and Total Ammonia. The Owner shall immediately initiate an investigation to identify the source of potential contamination to facilitate the implementation of a contingency and remedial action plan if any of the following conditions arises:
 - a. 6.0 > pH > 8.5
 - b. Total Ammonia > 5.0 mg/L
- 6. The Owner shall revert back to routine operational monitoring as per subsection (2) if four (4) consecutive monitoring results as per subsection (3) or subsection (5) show that levels of Total Ammonia are less than 1 mg/L and pH levels are between 6.0 and 8.5.
- 7. The Owner shall undertake an inspection of the condition of the stormwater management ponds and ditches, at least once a year, and undertake any necessary cleaning and maintenance to prevent the excessive build up of sediment and/or decaying vegetation.
- 8. The owner shall maintain a logbook to record the results of the stormwater management pond inspections and any cleaning and maintenance operations undertaken and shall keep the logbook at the site for inspection by the Ministry.

6. MONITORING AND RECORDING

- 1. The Owner shall carry out the following monitoring program:
 - a. All samples and measurements taken for the purposes of this Approval are to be taken at a time and in a location characteristic of the quality and quantity of the effluent stream over the time period being monitored.
 - b. The Owner shall ensure that one (1) grab sample is collected at sampling location SW-15 (entrance to the quality control pond) and sampling location SW-14 (discharge to Scugog River) at a quarterly frequency and analysed for the parameters listed in Table 1. Samples shall be collected during the first storm event causing stormwater runoff into the quality control pond and/or Scugog River within each quarterly sampling period.

7	Γable 1 - Stormwater]	Monitoring
Sampling Location: SW-14 at	nd SW-15	_
Para	meter	Filed Parameter
Alkalinity	Arsenic	Conductivity
CBOD5	Barium	Dissolved Oxygen (DO)
Chemical Oxygen Demand (COD)	Boron	рН
Chloride	Cadmium	Temperature
Conductivity (Laboratory)	Chromium	
Iron	Copper	
Nitrate as Nitrogen	Lead	
Nitrite as Nitrogen	Mercury	
pH (Laboratory)	Zinc	
Sulphate		
Total Ammonia Nitrogen		
Total Kjeldahl Nitrogen		
Total Phosphorus		
Total Suspended Solids		
Total Dissolved Solids		
Total Phenols		

- 2. The methods and protocols for sampling, analysis, toxicity testing, and recording shall conform, in order of precedence, to the methods and protocols specified in the following:
 - a. the Ministry's Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only), as amended from time to time by more recently published editions;

- b. the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater Version 2.0" (January 2016), PIBS 2724e02, as amended from time to time by more recently published editions; and
- c. the publication "Standard Methods for the Examination of Water and Wastewater" (21st edition), as amended from time to time by more recently published editions;
- 3. Following review of any of the analytical results required by this Condition or any of the reports required by Condition 8 of this Approval, the District Manager may alter the frequencies and locations of sampling and parameters for analysis required by this Condition if he/she considers it necessary for proper assessment of the operation of the works and its impact on the environment of if he/she is requested to do so by the Owner and considers it acceptable by the evidence of information submitted in support of the request.
- 4. The Owner shall retain for a minimum of five (5) years from the date of their creation, all records and information related to or resulting from the monitoring activities required by this Approval.

7. LIMITED OPERATIONAL FLEXIBILITY

- 1. The Owner may make modifications to the Works in accordance with the Terms and Conditions of this Approval and subject to the Ministry's "Limited Operational Flexibility Criteria for Modifications to Sewage Works", included under Schedule B of this Approval, as amended.
- 2. Sewage works under Limited Operational Flexibility shall adhere to the design guidelines contained within the Ministry's publication "Stormwater Management Planning and Design Manual March 2003", as amended.
- 3. The Owner shall ensure at all times, that the Works, related equipment and appurtenances which are installed or used to achieve compliance are operated in accordance with all Terms and Conditions of this Approval.
- 4. For greater certainty, the following are not permitted as part of Limited Operational Flexibility:
 - a. modifications to the Works that that result in an increase of the approved drainage area serviced by the Works or changes that adversely affect the operational capacity of the Works;
 - b. modifications to the Works that may adversely affect the approved effluent quality criteria or the location of the discharge/outfall;
 - c. modifications to the treatment process technology of the Works, or modifications that involve construction of new reactors (tanks) or alter the treatment train process design;
 - d. modifications to the Works approved under s.9 of the EPA; and

- e. modifications to the Works pursuant to an order issued by the Ministry.
- 5. Implementation of Limited Operational Flexibility is not intended to be used for piecemeal measures that result in major alterations or expansions.
- 6. If the implementation of Limited Operational Flexibility requires changes to be made to the Emergency Response, Spill Reporting and Contingency Plan, the Owner shall, as deemed necessary in consultation with the District Manager, provide a revised copy of this plan to the local fire services authority prior to implementing Limited Operational Flexibility.
- 7. For greater certainty, any modification made under the Limited Operational Flexibility may only be carried out after other legal obligations have been complied with, including those arising from the Environmental Protection Act, Niagara Escarpment Planning and Development Act, Oak Ridges Moraine Conservation Act, Lake Simcoe Protection Act and Greenbelt Act.
- 8. At least thirty (30) days prior to implementing Limited Operational Flexibility, the Owner shall complete a Notice of Modifications describing any proposed modifications to the Works and submit it to the District Manager.
- 9. The Owner shall ensure that an engineering assessment is completed for each Notice of Modifications prior to submitting the Notice of Modifications to the District Manager. The engineering assessment shall be prepared by a Professional Engineer that was not involved in the design of the Proposed Works. The Owner shall abide by the recommendations made under the engineering assessment for the Proposed Works. The engineering assessment shall include, at minimum, the following:
 - a. description of the Proposed Works;
 - b. an assessment of the eligibility of the Proposed Works under Limited Operational Flexibility;
 - c. the documentation and drawings that were reviewed;
 - d. regulatory requirements applicable to the Proposed Works;
 - e. technical criteria used to assess the Proposed Works;
 - f. input from the local conservation authority and/or MNRF office, and the Ministry, as applicable, if the Proposed Works discharge directly to a watercourse;
 - g. any issues that were identified during the engineering review of the Proposed Works;
 - h. design considerations and mitigating measures taken during construction and operation of the Works to protect sources of drinking water; and
 - i. recommendations.

- 10. The design of the Proposed Works must be prepared by a Professional Engineer.
- 11. Upon the completion of the construction of Proposed Works, the Owner shall prepare a statement, certified by a Professional Engineer, that the works are constructed in accordance with the Notice of Modifications, and upon request, shall make the written statement available for inspection by Ministry personnel.
- 12. Within twelve (12) months of the Substantial Completion of Proposed Works, a set of as-built drawings showing the Proposed Works "as constructed" shall be prepared. These drawings shall be kept up to date through revisions undertaken from time to time, and be made available upon Ministry request.

8. REPORTING

- 1. One week prior to the start up of the operation of the Works (Compost Pad), the Owner shall notify the District Manager (in writing) of the pending start up date.
- 2. In addition to the obligations under Part X of the Environmental Protection Act, the Owner shall, within ten (10) working days of the occurrence of any reportable spill as defined on Ontario Regulation 675/98, bypass or loss of any product, by-product, intermediate product, oil, solvent, waste material or any other polluting substance into the environment, submit a full written report of the occurrence to the District Manager describing the cause and discovery of the spill or loss, clean-up and recovery measures taken, preventative measures to be taken and schedule of implementation.
- 3. The Owner shall prepare and submit a performance report to the District Manager on an annual basis by April 30th each calendar year. The first such report shall cover the first annual period following the commencement of operation of the Works and subsequent reports shall be submitted to cover successive annual periods following thereafter. The reports shall contain, but shall not be limited to, the following information:
 - a. a summary and interpretation of all monitoring data and an overview of the success and adequacy of the Works;
 - b. a description of any operating problems encountered and corrective actions taken;
 - c. a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the Works;
 - d. a summary of any effluent quality assurance or control measures undertaken in the reporting period;
 - e. a summary of the calibration and maintenance carried out on all effluent monitoring equipment;
 - f. a copy of all Notice of Modifications submitted to the District Manager as a result of

Schedule B, Section 1, with a status report on the implementation of each modification;

- g. a report summarizing all modifications completed as a result of Schedule B, Section 3; and
- h. any other information the District Manager may require from time to time.

Schedule A

1.	Application for Environmental Compliance Approval submitted by City of Kawartha Lakes received on
	March 17, 2021 for the proposed discharge pipe with flow control to existing quantity control lagoon
	(Lagoon 1), including all additional supporting information and drawings, prepared by WSP Canada Inc.

Schedule B

Limited Operational Flexibility Criteria for Modifications to Sewage Works

1. The modifications to sewage works approved under an Environmental Compliance Approval (Approval) that are permitted under the Limited Operational Flexibility (LOF), are outlined below and are subject to the LOF conditions in the Approval, and require the submission of the Notice of Modifications. If there is a conflict between the sewage works listed below and the Terms and Conditions in the Approval, the Terms and Conditions in the Approval shall take precedence.

A. Stormwater Management Facilities

- a. Modifications of stormwater management facility to service the existing approved drainage area located within the site, provided that there is no increase in the average impervious area established in the original design and the discharges from the site will not exceed the attenuated flows established in the original design.
- b. Installation of new oil grit separators.
- 2. Sewage works that are exempt from section 53 of the OWRA by O. Reg. 525/98 continue to be exempt and are not required to follow the notification process under this Limited Operational Flexibility.
- 3. Normal or emergency operational modifications, such as repairs, reconstructions, or other improvements that are part of maintenance activities, including cleaning, renovations to existing approved sewage works equipment, provided that the modification is made with Equivalent Equipment, are considered pre-approved.
- 4. The modifications noted in sub-section (3) above are <u>not</u> required to follow the notification protocols under Limited Operational Flexibility, provided that the number of pieces and description of the equipment as described in the Approval does not change.

Notice of Modification to Sewage Works

This page contains an image of the form entitled "Notice of Modification to Sewage Works". A digital copy can be obtained from the District Manager.

\mathcal{C}	
Ontario	Notice of Modification to Sewage Works
Ministry of	Notice of Modification to Sewage Works
the Environment	
	PART OF THE ECA AND SEND A COPY TO THE WATER RICT MANAGER (FOR NON-MUNICIPAL SYSTEMS)
Col Eliticoli (i cirmoliloli AE) cir Bioli	not instructed (Formotton Az orotzino)
	Approval (ECA) with Limited Operational Flexibility ice number, which should start with "01" and consecutive numbers thereafter)
	ate (mm/dd/yy) Notice number (if applicable)
501.0	I Martin Pa
ECA Owner	Municipality
Part 2: Description of the modificati (Attach a detailed description of the sewage works)	ions as part of the Limited Operational Flexibility
(Attach a detailed description of the sewage works)	
Description shall include:	
 A detail description of the modifications and/or operation 	ions to the sewage works (e.g. sewage work component, location, size, equipment
type/model, material, process name, etc.) 2. Confirmation that the anticipated environmental effects	
	want technical documents that are affected by the modifications as applicable, i.e. isting of updated documents is (design brief, drawings, emergency plan, etc.)
Part 3 - Declaration by Professiona	al Engineer
	ical aspects of this modification and confirm that the design:
Conforms with the Limited Operational Flexibility as pe	
practices, and demonstrating ongoing compliance with	Guidelines, adhering to engineering standards, industry's best management h s.53 of the Ontario Water Resources Act; and other appropriate regulations. nation and belief the information contained in this form is complete and accurate.
Name (Print)	PEO License Number
Planeton	Date (and delive)
Signature	Date (mm/dd/yy)
Name of Employer	<u> </u>
Part 4 – Declaration by Owner	
I hereby declare that:	
 I am authorized by the Owner to complete this Declara 	ation;
The Owner consents to the modification; and These modifications to the sewage works are proposed	ed in accordance with the Limited Operational Flexibility as described in the ECA.
4. The Owner has fulfilled all applicable requirements of t	
Name of Owner Representative (Print)	Owner representative's title (Print)
Owner Representative's Signature	Date (mm/dd/yy)

The reasons for the imposition of these terms and conditions are as follows:

- 1. Condition 1 is imposed to ensure that the Works are built and operated in the manner in which they were described for review and upon which approval was granted. This condition is also included to emphasize the precedence of Conditions in the Approval and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review.
- 2. Condition 2 is included to ensure that the Works are constructed in a timely manner so that standards applicable at the time of Approval of the Works are still applicable at the time of construction, to ensure the ongoing protection of the environment.
- 3. Condition 3 is included to ensure that the Ministry records are kept accurate and current with respect to approved works and to ensure that subsequent owners of the works are made aware of the Approval and continue to operate the works in compliance with it.
- 4. Conditions 4 and 5 are included to ensure that a comprehensive operations manual governing all significant areas of operation, maintenance and repair is prepared, implemented and kept up-to-date by the Owner and made available to the Ministry. Such a manual is an integral part of the operation of the works. Its compilation and use should assist the owner in staff training, in proper plant operation and in identifying and planning for contingencies during possible abnormal conditions. The manual will also act as a benchmark for Ministry staff when reviewing the owner's operation of the works.
- 5. Condition 6 is included to provide a performance record for future references and to ensure that the Ministry is made aware of problems as they arise, so that the Ministry can work with the Owner in resolving the problems in a timely manner.
- 6. Condition 7 is included to ensure that the Works are operated in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider. These conditions are also included to ensure that a Professional Engineer has reviewed the proposed modifications and attests that the modifications are in line with that of Limited Operational Flexibility, and provide assurance that the proposed modifications comply with the Ministry's requirements stipulated in the terms and conditions of this Approval, policies, guidelines, and industry engineering standards and best management practices.
- 7. Condition 8 is included to provide a performance record for future references, to ensure that the Ministry is made aware of problems as they arise, and to provide a compliance record for all the terms and conditions outlined in this Approval, so that the Ministry can work with the Owner in resolving any problems in a timely manner.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 8401-AFST88 issued on May 25, 2017.

In accordance with Section 139 of the *Environmental Protection Act*, you may by written notice served upon me and the Ontario Land Tribunal within 15 days after receipt of this notice, require a hearing by the Tribunal.

Section 142 of the *Environmental Protection Act* provides that the notice requiring the hearing ("the Notice") shall state:

- a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
- b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the *Environmental Protection Act*, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

- 1. The name of the appellant;
- 2. The address of the appellant;
- 3. The environmental compliance approval number;
- 4. The date of the environmental compliance approval;
- 5. The name of the Director, and;
- 6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

Registrar*
Ontario Land Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5
OLT.Registrar@ontario.ca

and

The Director appointed for the purposes of Part II.1 of the *Environmental Protection Act*Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

* Further information on the Ontario Land Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349 or 1 (866) 448-2248, or www.olt.gov.on.ca

The above noted activity is approved under s.20.3 of Part II.1 of the *Environmental Protection Act*.

DATED AT TORONTO this 28th day of February, 2022

Aziz Ahmed, P.Eng.

H. Ahmed

Director

appointed for the purposes of Part II.1 of the Environmental Protection Act

I.W/

c: District Manager, MECP Peterborough



APPENDIX C

Water Quality Data

General Water Quar	l		SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4
Parameter	UNITS	PWQO	21-Apr-14	27-Apr-15	11-Jun-15	17-Nov-15	20-Apr-16	25-May-16	8-Jun-16	24-Apr-17	22-Jun-17	24-Aug-17	17-Oct-17	25-Apr-18	24-Apr-19	31-Oct-19	30-Apr-20	20-Apr-21
pH -Lab	pH units	6.5-8.5	8.01	8.12	8.14	8.16	8.21	8.16	8.11	8.12	7.83	8	8.24	8.31	8.19	8.01	8.17	8.24
Conductivity	uS/cm	-	551	569	756	800	618	813	1180	501	653	643	720	508	557	447	550	575
BOD	mg/L	-	< 3	< 2	< 2	< 2	3	< 2	< 2	<3	<3	5	<3	< 3	< 3	< 3	< 3	< 3
COD	mg/L	-	8	< 5	13	< 5	11	17	21	8	6	15	9	18	19	22	14	7
Total Dissolved Solids	mg/L	-	301	317	401	458	347	438	639	269	350	363	407	269	293	247	304	328
Total Suspended Solids	mg/L	-	6	58	5	8	5	17	22	3	6	22	<3	5	12	< 3	< 3	< 3
Alkalinity	mg/L	-	278	292	312	256	249	327	385	251	346	328	366	232	230	132	225	264
Hardness	mg/L	-	291	308	305	339	299	362	433	261	347	404	409	246	282	195	265	290
Ammonia	mg/L	-	0.02	< 0.01	< 0.01	0.01	0.03	0.06	0.06	< 0.01	< 0.01	0.02	0.01	0.02	0.04	0.15	< 0.01	0.01
Un-ionized Ammonia	mg/L	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Calcium	mg/L	-	107	113	109	123	109	130	153	93.3	123	135	149	88.6	101	69.1	96.7	106
Chloride	mg/L	-	6.6	6.8	45.4	55.8	34.2	52.5	148	6.6	3.7	7.5	8.8	12.7	19.2	16.2	24.2	19.5
DOC	mg/L	-	3.9	5.5	8.2	4.2	4.2	5.3	5.2	4.1	4.2	5.4	3.5	5.7	6.5	8.4	6.4	5.7
Fluoride	mg/L	-	0.1	0.2	0.1	0.1	0.1	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.1
Iron	mg/L	0.3	0.023	0.045	0.082	0.15	0.047	0.569	1.14	0.024	0.067	0.128	0.079	0.056	0.04	< 0.005	0.056	0.049
Magnesium	mg/L	-	5.54	6.3	7.67	7.5	6.67	8.78	12.3	4.85	6.55	7.95	8.79	5.86	5.25	5.31	5.71	6.13
Manganese	mg/L	-	0.008	0.015	0.037	0.048	0.019	0.375	0.87	0.004	0.065	0.036	0.025	0.01	0.004	0.004	0.02	0.013
Nitrate	mg/L	-	< 0.1	< 0.1	2	6.8	1.6	0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	1.32	2.65	< 0.05	0.85	0.69
Nitrite	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
TKN	mg/L	-	0.3	0.2	1	0.7	0.4	0.6	0.7	0.2	0.4	0.4	0.2	0.4	0.6	0.6	0.5	0.3
Sodium	mg/L	-	5.1	5.3	28.7	36.6	23.1	34.7	78.7	3.8	4.6	5	5.8	10.5	10.6	6	15.2	13
Sulphate	mg/L	-	9	10	13	49	16	13	13	9	4	9	14	10	17	60	17	15
Phenols	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.004	0.004	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	0.03	0.06	< 0.01	0.03	0.06	0.01	0.03	0.05	< 0.01	0.02	0.04	0.02	0.02	0.01	0.03	0.02	0.04
Potassium	mg/L	-	0.7	0.7	0.5	1.5	1.8	0.5	0.4	0.6	0.6	1.3	1.3	1.5	1.8	4.8	1.5	1.2
Aluminum	mg/L	0.075	0.04	0.04	0.05	0.06	0.04	0.1	0.16	0.05	0.06	0.12	0.12	0.08	0.05	0.05	0.06	0.07
Antimony	mg/L	-	< 0.0001	0.0001	0.0002	0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	0.0002	0.0005	0.0001	< 0.0001	0.0003	0.0004	0.0004	< 0.0001
Arsenic	mg/L	0.1	0.0001	0.0002	0.0003	0.0002	0.0002	0.0005	0.0005	0.0001	0.0003	0.0004	0.0002	0.0004	0.0002	0.0003	0.0002	0.0001
Barium	mg/L	-	0.025	0.029	0.033	0.045	0.037	0.053	0.057	0.024	0.035	0.039	0.048	0.037	0.037	0.021	0.035	0.034
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.005	0.008	0.005	0.007	< 0.005	0.024	0.013	0.006	0.016	0.022	0.017	0.007	0.006	0.007	0.011	0.009
Cadmium	mg/L	0.0002	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	0.00012	0.000041	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium	mg/L	0.1	< 0.0002	< 0.0002	0.0004	0.0003	0.0003	0.0003	0.0003	< 0.0015	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001
Cobalt	mg/L	0.0006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	0.0001	0.0003	< 0.0001	< 0.0001	0.0001	0.0003	0.0001	< 0.0001
Copper	mg/L	0.005	< 0.0001	0.0003	0.0012	0.0008	0.0005	0.001	0.0006	< 0.0001	0.0004	0.0103	0.0056	0.0005	0.0008	0.0015	0.0007	0.0006
Lead	mg/L	0.025	0.00019	< 0.00002	0.00044	0.00011	< 0.00002	< 0.00002	0.00023	< 0.00002	0.00002	0.00059	0.00039	0.00005	0.00003	0.00003	0.00006	0.00003
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	< 0.0001	0.0001	0.0002	0.0002	0.0001	0.0002	0.0002	0.0001	0.0001	0.0003	0.0001	0.0001	0.0003	0.0002	0.0002	0.0002
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00026	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-		0.303	0.309	0.332	0.288	0.359	0.439	0.232	0.341	0.347	0.352	0.225	0.234	0.17	0.228	0.261
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.000005	< 0.000005	< 0.000005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	0.0005	0.0002	0.0004	0.0003	0.0002	0.0006	0.0005	0.0002	0.0002	0.0005	0.0004	0.0003	0.0004	0.0004	0.0004	0.0003
Zinc	mg/L	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.091	0.014	0.027	0.016	0.024	0.006	0.012	< 0.005	0.014
Cyanide	mg/L	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Turbidity	NTU	-	3.8	10.2	11.5	7.5	40.7	9.6	26.9	3.1	0.9	4.7	1.2	357	74.8	1.5	3.4	4.3
Tannins & Lignins	mg/L	-											0.6			0.7		
		·	·	·	·		·		L							·		

General Water Qual	i ty		SW4	SW4	SW4	SW4	SW4	SW4	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14
Parameter	UNITS	PWQO	15-Oct-21	26-Apr-22	21-Jun-22	24-Apr-23	16-Aug-23	5-Oct-23	9-Apr-14	21-Apr-14	9-Jul-14	14-Oct-14	28-Apr-15	8-Jun-15	11-Jun-15	15-Jul-15	17-Nov-15	21-Apr-16
pH -Lab	pH units	6.5-8.5	8.16	8.33	8.25	8.23	8.18	8.15	8.06	8.37	7.63	8.12	8.25	8.17	8.12	8.06	8.12	8.2
Conductivity	uS/cm	-	720	638	774	608	837	854	377	533	690	814	635	685	728	769	735	651
BOD	mg/L	-	< 3	< 3	< 3	< 3	<3	<3	< 3	< 3	23	< 3	< 2	< 3	< 2	< 3	2	< 2
COD	mg/L	-	31	6	18	11	24	23	10	12	82	14	19	29	16	26	6	9
Total Dissolved Solids	mg/L	-	415	342	406	322	494	520	206	287	453	440	333	367	375	422	420	363
Total Suspended Solids	mg/L	-	6	< 3	3	4	4	10	< 3	5	611	10	3	3	10	15	7	< 3
Alkalinity	mg/L	-	326	268	290	267	347	363	170	241	165	277	241	270	286	292	224	239
Hardness	mg/L	-	360	300	324	292	414	445	191	248	262	331	244	292	269	349	309	289
Ammonia	mg/L	-	0.05	0.12	0.12	0.35	0.24	0.62	< 0.01	< 0.01	0.58	0.02	0.01	0.06	< 0.01	0.09	< 0.01	0.09
Un-ionized Ammonia	mg/L	0.02	< 0.01	< 0.01	< 0.01	0.03	0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Calcium	mg/L	-	129	108	117	92.8	149	160	70.4	90.5	87.1	117	86.6	105	95.9	124	110	104
Chloride	mg/L	-	39	29.6	51.2	31.7	60.2	64.8	12.3	22.8	119	80.9	48	46.4	54.2	59.6	63.8	51.9
DOC	mg/L	-	10.8	6.9	7.2	4	6.6	8.2	4.9	5.7	11.3	7.1	5.1	9.4	8.1	5	6.3	6.1
Fluoride	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	<0.1	< 0.1	0.1	0.2	0.2	0.2	0.1	0.1	< 0.1	0.1	0.1
Iron	mg/L	0.3	0.156	0.029	0.029	0.058	0.134	0.082	0.04	0.052	0.857	0.02	0.159	0.16	0.096	2.61	0.248	0.047
Magnesium	mg/L	-	9.1	7.2	7.92	5.92	10.1	10.9	3.7	5.34	10.8	9.16	6.72	7.32	7.13	9.3	8.21	7.32
Manganese	mg/L	-	0.022	0.003	0.006	0.012	0.038	0.02	0.015	0.025	0.86	0.023	0.047	0.03	0.039	0.9	0.036	0.028
Nitrate	mg/L	-	< 0.05	1.89	4.24	1.22	0.54	< 0.05	0.4	< 0.1	< 0.1	< 0.1	1.7	0.5	1.2	0.7	3.1	1
Nitrite	mg/L	-	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TKN	mg/L	-	0.8	0.5	0.8	1	0.7	0.7	0.26	0.4	1.3	0.6	0.6	0.7	0.9	1.2	0.8	0.5
Sodium	mg/L	-	22.9	18.6	20.9	16	37.8	31.2	8.1	12.9	78.6	41.5	23.2	32.1	29.6	36.9	40.1	32.6
Sulphate	mg/L	-	17	15	17	14	23	33	6	9	4	22	14	10	11	8	45	16
Phenols	mg/L	0.001	< 0.002	< 0.001	< 0.001	< 0.001	<0.001	<0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	0.03	0.05	0.01	0.03	0.02	0.02	0.03	0.01	0.02	0.62	0.03	0.02	0.02	0.04	0.12	0.06	0.01
Potassium	mg/L	-	1.9	2.1	1.5	1.7	2.8	2.1	1.7	1.4	51.9	2.3	2.6	1.5	0.5	1.9	3.8	2.7
Aluminum	mg/L	0.075	0.04	0.07	0.03	0.03	0.14	0.08	0.07	0.06	0.11	0.06	0.08	0.12	0.07	1.17	0.17	0.04
Antimony	mg/L	-	0.0003	0.0003	0.0004	0.0002	0.0002	0.0004	< 0.0001	< 0.0001	0.0005	0.0002	0.0002	0.0001	0.0002	0.0002	< 0.0001	< 0.0001
Arsenic	mg/L	0.1	0.0004	0.0002	0.0003	0.0002	0.0004	0.0003	0.0028	0.0002	0.0008	0.0005	0.0003	0.0005	0.0003	0.0007	0.0003	0.0002
Barium	mg/L	-	0.051	0.042	0.045	0.035	0.067	0.063	0.021	0.029	0.082	0.042	0.04	0.033	0.028	0.07	0.045	0.034
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.022	0.014	0.017	0.012	0.027	0.018	0.006	0.01	0.657	0.024	0.011	0.019	0.01	0.024	0.02	0.006
Cadmium	mg/L	0.0002	< 0.000015	< 0.000015	< 0.000015	< 0.000015	<0.000015	< 0.000015	< 0.00002	< 0.00002	0.00003	< 0.00002	0.00006	< 0.00002	< 0.00002	0.00016	< 0.00002	< 0.00002
Chromium	mg/L	0.1	< 0.001	< 0.001	< 0.001	0.002	<0.001	<0.001	0.0008	< 0.0002	< 0.0002	0.0003	0.0002	0.0002	< 0.0002	0.0013	< 0.0002	0.0002
Cobalt	mg/L	0.0006	0.0002	0.0001	0.0002	0.0001	0.0004	0.0004	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.005	0.0006	0.0008	0.0007	0.0007	0.0011	0.0008	0.0006	0.0002	0.0015	0.0007	0.0007	0.0009	0.0001	0.0029	0.0007	0.0005
Lead	mg/L	0.025	0.00009	0.00017	0.00004	0.00007	0.00015	0.00006	0.00003	0.00005	0.00069	0.00003	0.00008	< 0.00002	< 0.00002	0.00125	0.0001	< 0.00002
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0002	0.0001	0.0002	0.0001	0.0003	0.0001	0.0002	0.0001	0.0003	0.0001	0.0007	0.0002	0.0001	0.0001	0.0002	0.0002
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	0.001	0.0005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	0.00006	< 0.00002	< 0.00002
Strontium	mg/L	-	0.359	0.307	0.317	0.252	0.418	0.397			0.259	0.353	0.259	0.303	0.27	0.384	0.32	0.293
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	0.0005	0.0004	0.0006	0.0004	0.0007	0.0005	0.0004	0.0007	0.0008	0.0004	0.0002	0.0005	0.0004	0.0019	0.0004	0.0002
Zinc	mg/L	0.03	< 0.005	< 0.005	< 0.005	< 0.005	0.007	0.006	< 0.005	< 0.005	0.05	< 0.005	0.02	< 0.005	< 0.005	0.2	0.044	< 0.005
Cyanide	mg/L	0.005	< 0.005		< 0.005	< 0.005	<0.005	<0.005										
Turbidity	NTU	-	5.4		2.000	3.5	3.7	22.2										
Tannins & Lignins	mg/L	_		†								†						
. aio a Ligimio	mg/L	l	i	I		i	1			l	i	I		i	l	i	l	

General Water Quai	.		SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14
Parameter	UNITS	PWQO	26-May-16	8-Jun-16	24-Apr-17	23-May-17	22-Jun-17	24-Aug-17	17-Oct-17	25-Apr-18	28-Jun-18	17-Jul-18	22-Aug-18	11-Oct-18	24-Apr-19	5-Jun-19	17-Jul-19	6-Aug-19
pH -Lab	pH units	6.5-8.5	7.75	7.82	8.21	7.95	7.91	7.92	8.12	8.24	8.05	7.3	7.68	7.93	8.07	8.15	7.87	7.7
Conductivity	uS/cm	_	1190	1110	683	532	537	498	783	438	457		722	871	449		938	
BOD	mg/L	-	26	>18	<3	<3	<3	<3	17	< 3	< 3		8	10	4		8	
COD	mg/L	_	88	389	26	25	33	32	23	16	34		65	61	30		44	
Total Dissolved Solids	mg/L	_	685	752	358	262	284	252	415	233	250		377	460	229		494	
Total Suspended Solids	mg/L	_	260	3000	6	104	4	6	6	5	16		30	20	16		85	
Alkalinity	mg/L	-	479	444	202	212	216	190	296	175	155		188	212	168		281	
Hardness	mg/L	_	518	725	233	206	225	210	332	190	180		193	253	202		370	
Ammonia	mg/L	_	0.65	1.97	0.03	0.11	0.02	0.04	0.06	0.03	0.11	0.09	0.54	0.05	0.04	0.02	1.02	0.23
Un-ionized Ammonia	mg/L	0.02	< 0.01	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01		< 0.01	
Calcium	mg/L	_	181	260	85.2	72.1	85.4	67.2	119	67.9	59.9		67.8	94.7	71.4		121	
Chloride	mg/L	_	91.2	98.7	75	26.4	29.7	33.9	38.9	26.6	50.6		115	142	24.9		84.8	
DOC	mg/L	-	8.4	7.5	7.9	9	10.4	11.9	8	5.1	12.3		12.2	11.5	6.9		11.6	
Fluoride	mg/L	_	0.2	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1		< 0.1	< 0.1	< 0.1		< 0.1	
Iron	mg/L	0.3	2.73	22.5	0.129	0.176	0.254	0.322	0.159	0.071	0.771		1.6	0.847	0.147		3.18	
Magnesium	mg/L	-	16	18.6	6.11	6.18	7.02	5.76	8.43	4.97	7.48		7.88	11	4.04		10.8	
Manganese	mg/L	-	13.6	3.86	0.041	0.161	0.105	0.047	0.084	0.01	0.075		0.491	0.342	0.019		2.71	
Nitrate	mg/L	_	0.1	0.1	0.7	0.2	0.06	< 0.05	0.63	0.67	0.08		< 0.05	< 0.05	0.66		0.12	
Nitrite	mg/L	-	< 0.1	< 0.1	< 0.1	0.14	< 0.05	< 0.05	0.24	< 0.05	< 0.05		< 0.05	< 0.05	< 0.05		< 0.05	
TKN	mg/L	-	3.4	21	0.8	0.9	0.9	0.9	0.6	0.5	1.3		2.7	1.7	1.1		2.2	
Sodium	mg/L	_	73.3	73.3	44.4	19.1	24.1	24	34.2	16.2	34.7		62.3	83.5	13.9		65	
Sulphate	mg/L	-	17	4	19	9	6	4	33	11	1		2	5	11		33	
Phenols	mg/L	0.001	< 0.001	< 0.001	< 0.001	0.011	0.008	0.009	0.009	< 0.001	< 0.001		0.005	0.004	< 0.002		< 0.002	
Phosphorus	mg/L	0.03	0.31	5.36	0.04	0.05	0.05	0.04	0.03	0.03	0.06		0.31	0.16	0.05		0.13	
Potassium	mg/L	-	2	1.6	2.8	1.7	1.8	2.1	3.6	2	2		6	6.7	2.4		4.4	
Aluminum	mg/L	0.075	0.18	4.59	0.11	0.09	0.1	0.04	0.06	0.07	0.04		0.05	0.09	0.05		0.07	
Antimony	mg/L	-	0.0001	0.0001	< 0.0001	0.0004	0.0005	0.0003	< 0.0001	< 0.0001	0.0002		< 0.0001	0.0001	0.0006		0.0003	
Arsenic	mg/L	0.1	0.0016	0.0023	0.0005	0.0004	0.0006	0.0006	0.0005	< 0.0001	0.0009		0.0006	0.0005	0.0002		0.0011	ĺ
Barium	mg/L	-	0.121	0.263	0.036	0.036	0.043	0.026	0.047	0.03	0.033		0.048	0.072	0.029		0.072	ĺ
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002		< 0.002	< 0.002	< 0.002		< 0.002	1
Boron	mg/L	0.2	0.07	0.088	0.016	0.007	0.023	0.025	0.027	0.01	0.025		0.045	0.053	0.006		0.063	ĺ
Cadmium	mg/L	0.0002	< 0.00002	0.0004	< 0.000014	< 0.000014	< 0.000014	< 0.000014	0.00003	0.000029	< 0.000015		0.000125	0.000042	< 0.000015		< 0.000015	ĺ
Chromium	mg/L	0.1	0.0003	0.0037	< 0.0015	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001		0.001	< 0.001	< 0.001		< 0.001	ĺ
Cobalt	mg/L	0.0006	< 0.005	0.008	< 0.0001	0.0002	0.0001	0.0002	< 0.0001	< 0.0001	0.0003		0.0003	0.0002	< 0.0001		0.0007	ĺ
Copper	mg/L	0.005	0.0017	0.0131	0.0005	0.0008	0.0007	0.0002	0.0051	0.0012	0.0004		0.0063	0.0047	0.0014		0.0008	1
Lead	mg/L	0.025	0.00018	0.0102	< 0.00002	0.00004	0.00005	< 0.00002	0.00038	0.00091	0.00005		0.00074	0.00031	0.00019		0.00009	
Mercury	mg/L	-	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002		< 0.00002	< 0.00002	< 0.00002		< 0.00002	İ
Molybdenum	mg/L	0.04	0.0003	0.0001	0.0004	0.0002	0.0002	< 0.0001	0.0003	0.0002	0.0002		0.0001	0.0001	0.0002		0.0002	İ
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01		< 0.01	
Selenium	mg/L	-	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	< 0.001	< 0.001		< 0.001	1
Silver	mg/L	0.0001	< 0.00002	< 0.00002	0.00046	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00057	< 0.0001		< 0.0001	< 0.0001	< 0.0001		< 0.0001	ĺ
Strontium	mg/L	-	0.494	0.602	0.239	0.219	0.282	0.203	0.295	0.184	0.227		0.262	0.344	0.17		0.373	
Thallium	mg/L	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005		< 0.00005	< 0.00005	< 0.00005		< 0.00005	
Vanadium	mg/L	-	0.0009	0.0146	0.0003	0.0003	0.0003	< 0.0001	0.0002	0.0002	0.0003		0.0002	0.0002	0.0003		0.0006	
Zinc	mg/L	0.03	0.009	0.158	0.023	0.04	0.065	< 0.005	< 0.005	0.013	0.016		0.022	0.021	0.01		0.018	
Cyanide	mg/L	0.005																
Turbidity	NTU	-																
Tannins & Lignins	mg/L	-																İ

	lity		SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14
Parameter	UNITS	PWQO	13-Aug-19	27-Aug-19	2-Oct-19	16-Oct-19	31-Oct-19	30-Apr-20	10-Jun-20	15-Oct-20	22-Oct-20	30-Nov-20	20-Apr-21	4-May-21	8-Jul-21	23-Sep-21	15-Oct-21	25-Oct-21
pH -Lab	pH units	6.5-8.5	8.14	7.47	7.96	7.95	8.01	8.01	7.84	7.64	8.09	8.07	8.32	8.13	8.09	7.91	8.03	7.98
Conductivity	uS/cm	_	749			739		647		-	1150		676				931	
BOD	mg/L	_	< 3			9		< 3			< 3		< 3				< 3	
COD	mg/L	-	50			155		21			27		8				57	
Total Dissolved Solids	mg/L	-	421			535		358			638		389				513	
Total Suspended Solids	mg/L	_	12			1210		16			14		3				44	
Alkalinity	mg/L	_	242			199		221			191		269				297	
Hardness	mg/L	-	261			270		265			339		308				348	
Ammonia	mg/L	_	0.09	0.27	0.09	0.46	0.13	0.03	0.56	0.23	0.04	0.05	0.02	0.03	0.06	0.09	0.05	0.04
Un-ionized Ammonia	mg/L	0.02	< 0.01	0.27	0.00	< 0.01	0.10	< 0.01	0.00	0.20	< 0.01	0.00	< 0.01	0.00	0.00	0.00	< 0.01	0.04
Calcium	mg/L	-	90.4			195		95.6			118		112				123	
Chloride	mg/L	_	102			76.8		57.9			196		50.2				111	
DOC	mg/L		11.3			13.4		6.2			5.5		6.1				9.2	
Fluoride	mg/L	-	< 0.1			< 0.1		< 0.1			< 0.1		< 0.1				< 0.1	
Iron	mg/L	0.3	1.23			24.1		0.431			0.083		0.13				0.341	
Magnesium	mg/L	-	8.52			13.2		6.44			10.7		6.86				9.79	
Manganese	mg/L	-	0.715			2.75		0.44			0.011		0.086				0.275	
Nitrate	mg/L		0.713			0.1		0.56			< 0.05		0.63				< 0.05	
Nitrite	mg/L	-	< 0.05			< 0.05		< 0.05			< 0.05		< 0.05			-	0.07	
TKN		-	1.5			3.3		0.6			1.5		0.03				1	
Sodium	mg/L		55.8			43.4		31			94.2		29.7				56.9	
	mg/L	-	12			50		17			94.2 87		29.7 19				26	
Sulphate	mg/L	0.001	< 0.002			< 0.002		< 0.002			< 0.002		< 0.002				< 0.002	
Phenols	mg/L																	├ ──
Phosphorus	mg/L	0.03	0.13 4.6			0.64 9.8		0.05 2.5			0.12 9.8		0.06 1.7				0.06	
Potassium	mg/L	0.075	0.05			0.06		0.06			0.05		0.07				6.6 0.03	
Aluminum	mg/L																	
Antimony	mg/L	-	< 0.0001			0.0001		0.0004			0.0001		0.0003				0.0003	
Arsenic	mg/L	0.1	0.0008			0.0029		0.0003			0.0005		0.0002				0.0006	
Barium	mg/L	-	0.037			0.181		0.04			0.069		0.039				0.06	
Beryillium	mg/L	1.1	< 0.002			< 0.002		< 0.002			< 0.002		< 0.002				< 0.002	
Boron	mg/L	0.2	0.055			0.079		0.02			0.04		0.011				0.041	
Cadmium	mg/L	0.0002	< 0.000015			0.000256		< 0.000015			< 0.000015		< 0.000015				< 0.000015	
Chromium	mg/L	0.1	< 0.001			0.014		< 0.001			< 0.001		0.001				< 0.001	
Cobalt	mg/L	0.0006	0.0003			0.0064		0.0003			0.0001		0.0002				0.0003	
Copper	mg/L	0.005	0.0009			0.0129		0.0007			0.0011		0.0009				0.0005	
Lead	mg/L	0.025	0.00021			0.00975		0.0001			0.00003		0.00007				0.00008	
Mercury	mg/L	-	< 0.00002			< 0.00002		< 0.00002			< 0.00002		< 0.00002				< 0.00002	
Molybdenum	mg/L	0.04	0.0002			0.0002		0.0002			0.0006		0.0002				0.0003	
Nickel	mg/L	0.025	< 0.01			0.01		< 0.01			< 0.01		< 0.01				< 0.01	
Selenium	mg/L	-	< 0.001			< 0.001		< 0.001			< 0.001		< 0.001				< 0.001	
Silver	mg/L	0.0001	< 0.0001			< 0.0001		< 0.0001			< 0.0001		< 0.0001				< 0.0001	
Strontium	mg/L	-	0.279			0.467		0.241			0.332		0.276				0.374	
Thallium	mg/L	-	< 0.00005			0.00011		< 0.00005			< 0.00005		< 0.00005				< 0.00005	<u> </u>
Vanadium	mg/L	-	0.0006			0.0172		0.0006			0.0005		0.0004				0.0004	l
Zinc	mg/L	0.03	0.01			0.101		< 0.005			0.006		0.013				0.005	l
Cyanide	mg/L	0.005																1
Turbidity	NTU	-																
Tannins & Lignins	mg/L	-																<u> </u>

General Water Quar	l		SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW14	SW15	SW15	SW15	SW15	SW15	SW15
Parameter	UNITS	PWQO	26-Apr-22	7-Jun-22	21-Jun-22	24-Apr-23	1-May-23	8-Jun-23	26-Jun-23	15-Aug-23	16-Aug-23	5-Oct-23	9-Apr-14	21-Apr-14	17-Jun-14	9-Jul-14	13-Aug-14	14-Oct-14
pH -Lab	pH units	6.5-8.5	8.22	8.06	8.08	8.21	8.11	7.93	8.07	7.97	7.95	8.13	7.87	7.17	9.1	7.98	8.43	8.39
Conductivity	uS/cm	-	620		768	624		1150			840	872	1790	1160	1020	865	752	463
BOD	mg/L	-	< 3		< 3	11		< 3			<3	<3	< 3	< 3	8	< 3	< 3	< 3
COD	mg/L	-	22		18	10		14			23	40	23	22	43	34	35	17
Total Dissolved Solids	mg/L	-	333		418	340		617			467	491	939	581	504	431	410	247
Total Suspended Solids	mg/L	-	< 3		7	< 3		4			3	62	13	7	9	35	8	14
Alkalinity	mg/L	-	248		255	241		434			301	243	259	162	66	65	77	85
Hardness	mg/L	-	277		293	260		435			337	283	364	227	98	88	94	98
Ammonia	mg/L	-	0.05	0.05	0.06	0.03	0.12	0.15	0.08	<0.05	0.14	0.21	0.12	< 0.01	0.04	0.08	0.05	0.04
Un-ionized Ammonia	mg/L	0.02	< 0.01		< 0.01	< 0.01		< 0.01			<0.01	<0.01	< 0.01	< 0.01	0.02	< 0.01	< 0.01	< 0.01
Calcium	mg/L	-	99.6		103	91.3		143			120	97.8	132	79.3	28.6	27.2	29.6	31.4
Chloride	mg/L	-	37.2		92.4	52.4		123			86.9	139	397	231	256	216	193	81.7
DOC	mg/L	-	6.2		7.7	3.5		4.8			7.8	9.3	5.2	5.8	5.7	6.2	5.7	6
Fluoride	mg/L	-	< 0.1		< 0.1	< 0.1		0.1			<0.1	<0.1	0.1	0.1	0.2	0.2	0.3	0.2
Iron	mg/L	0.3	0.063		0.126	0.044		1.9			0.198	0.14	0.139	0.19	0.272	0.414	0.289	0.352
Magnesium	mg/L	-	6.84		8.87	6.34		14.4			9.04	9.35	8.31	6.91	6.41	4.91	4.77	4.71
Manganese	mg/L	-	0.021		0.065	0.019		5.47			0.412	0.024	0.025	0.02	0.018	0.027	0.019	0.046
Nitrate	mg/L	-	0.86		1.56	0.46		< 0.05			0.07	0.17	0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrite	mg/L	-	< 0.05		< 0.05	< 0.05		< 0.05			<0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TKN	mg/L	-	0.5		1	0.5		1			0.9	1.4	0.75	0.4	2.5	1.4	1.21	1
Sodium	mg/L	-	25		45.4	28.5		63.8			50.6	60.4	212	133	160	133	126	58.5
Sulphate	mg/L	-	13		11	14		3			12	27	27	29	8	5	4	15
Phenols	mg/L	0.001	< 0.001		< 0.001	< 0.001		< 0.001			<0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	0.03	0.02		0.05	0.03		0.03			0.04	0.06	0.03	0.03	0.18	0.06	0.03	0.05
Potassium	mg/L	-	2.5		3.4	2.9		2.1			7.1	10.9	4.9	4.4	4.9	5.2	6.1	3.5
Aluminum	mg/L	0.075	0.05		0.02	0.02		0.06			0.1	0.07	0.18	0.06	0.04	0.19	0.04	0.14
Antimony	mg/L	-	0.0002		0.0003	0.0003		0.0002			0.0001	0.0004	0.0002	< 0.0001	0.0003	0.0002	0.0002	0.0003
Arsenic	mg/L	0.1	0.0002		0.0004	0.0002		0.0012			0.0006	0.0004	0.0037	0.0005	0.0017	0.0015	0.0018	0.001
Barium	mg/L	-	0.037		0.036	0.034		0.068			0.061	0.061	0.083	0.056	0.019	0.028	0.028	0.026
Beryillium	mg/L	1.1	< 0.002		< 0.002	< 0.002		< 0.002			<0.0001	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2	0.015		0.033	0.019		0.073			0.041	0.053	0.028	0.055	0.084	0.069	0.063	0.052
Cadmium	mg/L	0.0002	< 0.000015		< 0.000015	< 0.000015		< 0.000015			<0.000015	<0.000015	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Chromium	mg/L	0.1	< 0.001		0.001	0.002		< 0.001			<0.001	< 0.001	0.0008	< 0.0002	0.0003	< 0.0002	0.0009	0.0005
Cobalt	mg/L	0.0006	0.0001		0.0001	0.0001		0.0016			0.0004	0.0003	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.005	0.0007		0.0006	0.0005		0.0004			0.0008	0.0007	0.0039	0.0011	0.0016	0.0013	0.0013	0.0008
Lead	mg/L	0.025	0.00003		0.00003	< 0.00002		0.00008			0.00007	0.00005	0.00026	0.00015	0.00009	0.00037	0.00006	0.00027
Mercury	mg/L	-	< 0.00002		< 0.00002	< 0.00002		< 0.00002			<0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0001		0.0002	0.0002		0.0002			0.0002	0.0003	0.0007	0.001	0.0009	0.0005	0.0007	0.0008
Nickel	mg/L	0.025	< 0.01		< 0.01	< 0.01		< 0.01			0.001	0.0008	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	-	< 0.001		< 0.001	< 0.001		< 0.001			<0.001	<0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	< 0.0001		< 0.0001	< 0.0001		< 0.0001			<0.0001	<0.0001	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	-	0.285		0.314	0.254		0.394			0.347	0.285			0.186	0.154	0.173	0.15
Thallium	mg/L	-	< 0.00005		< 0.00005	< 0.00005		< 0.00005			<0.00005	<0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	0.0003		0.0003	0.0002		0.0006			0.0003	0.0005	0.0008	0.0003	0.0005	0.0005	0.0009	0.0004
Zinc	mg/L	0.03	0.007		< 0.005	< 0.005		< 0.005			<0.005	<0.005	0.005	< 0.005	0.009	< 0.005	< 0.005	0.008
Cyanide	mg/L	0.005				< 0.005		< 0.005			<0.005	<0.005						
Turbidity	NTU	-				0.9		12.3			1.6	4						
Tannins & Lignins	mg/L	-				0.6		1.2			0.6	0.8						
	<u> </u>	l		·	l	· · · · · ·	·		l		· · · · · · · · · · · · · · · · · · ·		·					

General Water Qual	inty		SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15
Parameter	UNITS	PWQO	20-Apr-15	27-Apr-15	8-Jun-15	11-Jun-15	11-Oct-16	24-Apr-17	25-May-17	22-Jun-17	24-Aug-17	17-Oct-17	25-Apr-18	28-Jun-18	22-Aug-18	10-Oct-18	24-Apr-19	5-Jun-19
pH -Lab	pH units	6.5-8.5	8.1	7.84	8.22	7.93	8.32	8.4	8.24	8.05	7.62	7.87	8.22	7.73	7.68	7.99	8.09	7.96
Conductivity	uS/cm	-	1700	1840	1030	1210	641	1660	730	1030	536	1360	948	1100	1450	944	958	1
BOD	mg/L	-	< 3	4	< 3	< 2	12	<3	<3	<3	6	<3	< 3	< 3	8	3	< 3	1
COD	mg/L	-	20	12	31	13	11	35	27	29	63	47	42	60	93	33	36	1
Total Dissolved Solids	mg/L	-	897	953	535	619	361	793	351	562	459	814	531	579	948	487	493	1
Total Suspended Solids	mg/L	-	5	874	10	14	40	9	64	28	640	172	7	50	165	6	4	1
Alkalinity	mg/L	-	198	297	184	251	185	107	215	312	203	312	215	99	189	129	163	1
Hardness	mg/L	-	316	461	198	229	200	149	173	273	642	589	230	120	288	171	208	1
Ammonia	mg/L	-	0.05	< 0.01	0.05	< 0.01	0.07	0.02	0.04	< 0.01	0.13	0.07	0.05	0.07	0.1	0.09	0.04	0.45
Un-ionized Ammonia	mg/L	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Calcium	mg/L	-	114	162	71.3	81.6	65	43	58.9	110	237	211	77.9	32.1	171	53.2	76.1	1
Chloride	mg/L	-	390	363	186	206	36.8	385	75.1	95.6	28	120	164	271	330	197	183	
DOC	mg/L	-	3.9	2.5	5.2	5.1	4.6	4.6	5.4	8.3	16.9	8.7	7.1	10.8	8.9	6	6.1	i
Fluoride	mg/L	-	0.2	0.2	0.2	0.2	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	
Iron	mg/L	0.3	0.218	0.929	0.287	0.169	0.048	0.114	0.513	0.486	8.24	4.75	0.096	0.446	9.76	0.302	0.191	
Magnesium	mg/L	-	7.39	13.5	4.71	6.01	11.8	8.82	6.35	10.4	12.4	14.9	8.64	9.6	16.1	9.24	5.84	1
Manganese	mg/L	-	0.063	0.569	0.009	0.011	0.027	0.005	0.106	0.281	0.611	1.98	0.004	0.168	0.754	0.038	0.046	
Nitrate	mg/L	-	0.4	< 0.1	< 0.1	0.1	< 0.1	0.1	0.05	0.05	0.11	0.05	1.01	< 0.05	< 0.05	< 0.05	< 0.05	
Nitrite	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	1
TKN	mg/L	-	0.7	0.6	0.9	1	0.8	1.2	0.5	0.8	2.3	1.2	1	1.9	11.1	0.9	1	
Sodium	mg/L	-	228	197	128	137	49.7	247	61.2	119	14.5	106	98.2	191	232	126	108	
Sulphate	mg/L	-	34	37	31	36	85	38	19	37	16	162	39	6	73	15	15	
Phenols	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.006	0.002	0.002	0.008	0.015	0.004	< 0.001	< 0.001	0.01	0.006	< 0.002	
Phosphorus	mg/L	0.03	0.04	0.03	0.05	0.04	0.05	0.02	0.03	0.05	0.47	0.24	0.03	0.06	0.81	0.03	0.05	i
Potassium	mg/L	-	3.2	1.3	2.5	1.6	1.7	5.9	1.2	1.9	20.4	6.3	15.2	9.4	2.4	5.1	7.3	
Aluminum	mg/L	0.075	0.16	0.06	0.27	0.2	0.04	0.03	0.11	0.24	4.4	0.63	0.1	0.03	2.38	0.04	0.05	1
Antimony	mg/L	-	0.0004	0.0001	0.0008	0.0005	0.0001	0.0003	0.0001	0.0005	0.0003	0.0002	0.0002	0.0002	0.0003	0.0002	0.0002	
Arsenic	mg/L	0.1	0.0004	0.0003	0.0006	0.0004	0.0004	0.0019	0.0006	0.001	0.0025	0.0022	0.0007	0.0012	0.0027	0.0008	0.0005	
Barium	mg/L	-	0.072	0.14	0.051	0.054	0.076	0.046	0.032	0.066	0.155	0.124	0.053	0.037	0.16	0.056	0.052	
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	
Boron	mg/L	0.2	0.037	0.03	0.048	0.04	< 0.005	0.073	0.018	0.067	0.072	0.106	0.142	0.111	0.144	0.09	0.047	
Cadmium	mg/L	0.0002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.000014	< 0.000014	0.000016	0.000157	0.000071	< 0.000015	0.000071	0.000255	0.000037	< 0.000015	
Chromium	mg/L	0.1	0.0003	< 0.0002	0.0007	0.0004	< 0.0002	< 0.0015	< 0.001	< 0.001	0.008	0.001	< 0.001	< 0.001	0.006	< 0.001	0.001	1
Cobalt	mg/L	0.0006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	0.0002	0.0003	0.0005	0.0041	0.0037	0.0001	0.0004	0.0026	0.0001	0.0002	
Copper	mg/L	0.005	0.0031	0.0014	0.0036	0.002	0.0006	0.0023	0.0014	0.0024	0.0174	0.0098	0.0021	0.0096	0.0164	0.0054	0.0021	
Lead	mg/L	0.025	0.0002	0.00006	0.00041	0.00018	0.00225	< 0.00002	0.00018	0.00034	0.00812	0.00161	0.00012	0.0004	0.00479	0.00033	0.00014	1
Mercury	mg/L	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	
Molybdenum	mg/L	0.04	0.001	< 0.0001	0.001	0.0012	0.0002	0.0008	0.0006	0.0007	0.0009	0.0015	0.0007	0.0002	0.0007	0.0004	0.0005	
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	1
Silver	mg/L	0.0001	0.00029	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00043	0.00002	0.00002	0.00004	0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	
Strontium	mg/L	-	0.419	0.898	0.268	0.297	0.216	0.286	0.195	0.417	0.497	0.518	0.252	0.199	0.551	0.247	0.227	i
Thallium	mg/L	-	0.00022	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00008	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	i
Vanadium	mg/L	-	0.0002	< 0.0001	0.0009	0.0004	0.0002	< 0.0001	0.0002	0.0006	0.0082	0.0012	0.0001	0.0002	0.0055	0.0001	0.0002	i
Zinc	mg/L	0.03	0.012	< 0.005	0.006	0.005	< 0.005	< 0.005	0.011	0.103	0.085	0.063	0.005	0.037	0.072	0.032	0.023	
Cyanide	mg/L	0.005														< 0.005	< 0.005	i
Turbidity	NTU	-														2.6	330	
Tannins & Lignins	mg/L	-																
			-	-				-										

General Water Qual	l		SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15	SW15
Parameter	UNITS	PWQO	17-Jul-19	9-Oct-19	31-Oct-19	30-Apr-20	24-Jun-20	22-Oct-20	30-Nov-20	20-Apr-21	4-May-21	15-Jun-21	8-Jul-21	23-Sep-21	15-Oct-21	26-Apr-22	7-Jun-22	24-Apr-23
pH -Lab	pH units	6.5-8.5	7.84	7.87	8.14	7.88	7.73	8.09	7.8	8	8.11	7.7	8.13	8.02	7.72	8.03	7.79	8.06
Conductivity	uS/cm	-	752	1110		1060	1340	1010		1810		854			873	2140		2090
BOD	mg/L	-	12	< 3		5	6	4		< 3		24			5	< 3		22
COD	mg/L	-	83	76		56	65	53		54		101			89	34		147
Total Dissolved Solids	mg/L	-	359	626		585	665	552		1003		484			469	1226		1187
Total Suspended Solids	mg/L	-	80	62		150	340	19		28		89			84	285		3900
Alkalinity	mg/L	-	111	268		293	141	147		331		225			142	233		319
Hardness	mg/L	-	87	386		344	163	239		491		234			161	523		607
Ammonia	mg/L	-	0.08	0.07	0.09	0.03	0.18	0.05	0.12	0.26	1.11	0.15	0.17	0.06	0.08	1.35	0.08	0.19
Un-ionized Ammonia	mg/L	0.02	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01		0.01		< 0.01			< 0.01	0.03		< 0.01
Calcium	mg/L	-	20.6	133		107	44.3	78.3		171		71.3			48.5	191		367
Chloride	mg/L	-	135	190		141	309	185		342		143			182	497		328
DOC	mg/L	-	11.5	8.5		5.4	6.1	4.9		6.8		31.5			7.9	2.5		3.5
Fluoride	mg/L	-	< 0.1	< 0.1		0.1	< 0.1	< 0.1		< 0.1		< 0.1			< 0.1	< 0.1		< 1
Iron	mg/L	0.3	0.15	0.022		2.16	1.1	0.406		2.53		2.75			7.59	4.04		7.69
Magnesium	mg/L	-	7.58	13		18.6	11.8	10.5		15.5		13.6			9.74	11		28.8
Manganese	mg/L	-	0.075	0.003		0.105	0.073	0.044		0.552		0.266			0.219	0.184		0.476
Nitrate	mg/L	-	< 0.05	< 0.05		0.09	0.21	< 0.05		< 0.05		0.1			< 0.05	1.45		14
Nitrite	mg/L	-	< 0.05	< 0.05		< 0.05	< 0.05	< 0.05		< 0.05		< 0.05			0.1	< 0.05		< 0.5
TKN	mg/L	-	1.5	2.5		1.6	2.4	1.5		2.3		3.1			3.4	1.9		5
Sodium	mg/L	-	118	96.9		92	193	109		203		90.1			110	311		167
Sulphate	mg/L	-	4	19		30	12	67		55		5			13	63		219
Phenols	mg/L	0.001	< 0.002	< 0.002		< 0.002	< 0.001	< 0.002		< 0.002		< 0.002			< 0.002	< 0.001		< 0.001
Phosphorus	mg/L	0.03	0.04	0.37		0.22	0.06	0.07		0.21		0.44			0.23	0.39		0.62
Potassium	mg/L	-	8.3	12.9		2.6	7.8	8.1		8.3		9			11.8	7		42.2
Aluminum	mg/L	0.075	0.02	0.09		0.07	0.03	0.02		0.09		0.06			0.01	0.09		0.06
Antimony	mg/L	-	0.0002	0.0001		0.0003	0.0002	0.0001		0.0004		0.0001			0.0005	0.0006		0.0008
Arsenic	mg/L	0.1	0.0008	0.0016		0.0006	0.0023	0.0008		0.0012		0.0016			0.0034	0.0011		0.0024
Barium	mg/L	-	0.024	0.069		0.054	0.055	0.059		0.111		0.042			0.05	0.122		0.267
Beryillium	mg/L	1.1	< 0.002	< 0.002		< 0.002	< 0.002	< 0.002		< 0.002		< 0.002			< 0.002	< 0.002		< 0.002
Boron	mg/L	0.2	0.203	0.089		0.055	0.281	0.149		0.265		0.145			0.215	0.137		0.999
Cadmium	mg/L	0.0002	< 0.000015	0.000049		< 0.000015	< 0.000015	< 0.000015		< 0.000015		< 0.000015			0.000025	0.000069		0.000175
Chromium	mg/L	0.1	< 0.001	< 0.001		< 0.001	< 0.001	0.001		0.001		0.002			0.001	0.003		0.011
Cobalt	mg/L	0.0006	0.0002	0.002		0.0005	0.0002	0.0002		0.0021		0.0003			0.0009	0.0017		0.0045
Copper	mg/L	0.005	0.0017	0.0055		0.0011	0.0007	0.0004		0.001		0.002			0.002	0.0057		0.0182
Lead	mg/L	0.025	0.00012	0.00329		0.00059	0.00023	0.00022		0.00035		0.00036			0.00082	0.00437		0.0104
Mercury	mg/L	-	< 0.00002	< 0.00002		< 0.00002	< 0.00002	< 0.00002		< 0.00002		< 0.00002			< 0.00002	< 0.00002		< 0.00002
Molybdenum	mg/L	0.04	0.0001	0.0005		0.0003	0.0006	0.0005		0.0006		0.0001			0.0005	0.0006		0.0008
Nickel	mg/L	0.025	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01		< 0.01		< 0.01			< 0.01	< 0.01		0.01
Selenium	mg/L	-	< 0.001	< 0.001		< 0.001	< 0.001	< 0.001		0.001		< 0.001			< 0.001	< 0.002		< 0.002
Silver	mg/L	0.0001	< 0.0001	< 0.0001		< 0.0001	< 0.0001	< 0.0001		< 0.0001		< 0.0001			< 0.0001	< 0.0001		< 0.0001
Strontium	mg/L	-	0.131	0.404		0.414	0.237	0.324		0.578		0.308			0.282	0.656		1.1
Thallium	mg/L	-	< 0.00005	< 0.00005		< 0.00005	< 0.00005	< 0.00005		< 0.00005		< 0.00005			< 0.00005	< 0.0001		< 0.0001
Vanadium	mg/L	-	< 0.0001	0.0032		0.0008	0.0005	0.0002		0.0007		0.0006			0.0015	0.003		0.0082
Zinc	mg/L	0.03	0.01	< 0.005		0.01	0.011	< 0.005		0.012		0.021			0.012	0.029		0.162
Cyanide	mg/L	0.005																< 0.005
Turbidity	NTU	-																576
Tannins & Lignins	mg/L	-						1							1			
- End of English	9, -	1	1	L	l	1	L	1	1	L	l	L		L	1	L		

Parameter Wifts	General water Qua	lity		SW15	SW15	SW15	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18
pht-4-ab	Parameter	UNITS	PWQO																
Conductivity	pH -Lab	pH units	6.5-8.5				•		8.19			7.96		•				7.93	
BOO	•					_													
COD			_		1														
Total Discolared Solids					1														
First State mgl.			_		1														
Mailleng			-																
Headmanse mgst -	<u> </u>	·	_		1					156			198					223	
Ammorsis	,		_		1														
Un-horizon/Armonia mg/L 0.02 0.01			_	2.58		<0.05													
Golde			0.02																
Delication mg/L -	Calcium	·	-				99.5	80.1	103	54	82.2	90.7	82.9	138	200	76.5	68.9	84	105
Property Color			_																
Flacelide			-																
Ton			_		1														
Magnesium			0.3																
Manganese mg/L					1														
Narale					1														
Number					1														
TRN			_		1														
Sodium			_		1		0.5	0.7	0.7	1	1.1	0.9	0.4	2.5	1.5		1.8	1	
Sulphate			_		1					42.5								20.3	
Phenoshors mg/L 0.001 0.003 0.005 0.004 0.001 0.001 0.001 0.001 0.001 0.001 0.005 0.008 0.005 0.009 0.005	Sulphate		-		1		13		11	6			18	21	29	22	9	6	
Phosphorus	Phenols		0.001		1		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.005	0.008	0.005	0.009
Potassium	Phosphorus	mg/L	0.03		1 _		0.02	0.04	0.02	0.09	0.07	0.05	0.02	0.43	0.18	0.04	0.01	0.04	0.05
Antimony	Potassium	mg/L	-		Dry		1.6	5.1	1.3	0.9	1.4	8.1	6.9	2.2	2	4	1.3	1.7	2.7
Arsenic	Aluminum	mg/L	0.075				0.06	0.03	0.1	0.02	0.07	0.06	0.03	1.15	0.33	0.04	0.03	0.03	0.22
Barium mg/L -	Antimony	mg/L	-		1		0.0001	0.0001	0.0003	0.0003	0.0003	< 0.0001	0.0001	0.0001	0.0002	< 0.0001	< 0.0001	0.0001	0.0001
Beryillium mg/L 1.1	Arsenic	mg/L	0.1				0.0002	0.0004	0.0003	0.0004	0.0006	0.0005	0.0004	0.001	0.0008	0.0007	0.0003	0.0007	0.0006
Beron mg/L 0.2 0.011 0.025 0.016 0.032 0.039 0.041 0.027 0.052 0.021 0.023 0.007 0.016 0.027 0.052 0.0011 0.0007 0.00007 0	Barium	mg/L	-		1		0.032	0.03	0.034	0.022	0.051	0.04	0.036	0.084	0.105	0.031	0.026	0.029	0.073
Cadmium mg/L 0.0002 0.00012 0.00012 0.00002 0.00002 0.00002 0.00002 0.00006 0.00007 0.000014 0.000014 0.000016 0.000076	Beryillium	mg/L	1.1				< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Chromium	Boron	mg/L	0.2				0.011	0.025	0.016	0.032	0.039	0.041	0.027	0.052	0.021	0.023	0.007	0.016	0.027
Cobalt	Cadmium	mg/L	0.0002				< 0.00002	0.00017	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00006	0.00007	< 0.000014	< 0.000014	< 0.000014	0.000076
Copper	Chromium	mg/L	0.1				< 0.0002	< 0.0002	< 0.0002	0.0003	0.0006	0.0002	0.0003	0.0017	0.0006	< 0.0015	0.012	< 0.001	0.001
Dead	Cobalt	mg/L	0.0006				< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.0001	0.0002	0.0006
Mercury mg/L -	Copper	mg/L	0.005				0.0009	0.0005	0.0006	< 0.0001	< 0.0001	0.0007	0.0007	0.0038	0.0053	0.0004	0.0008	0.0005	0.0059
Molybdenum mg/L 0.04 0.0002 0.0005 0.0002 < 0.0001 0.0006 0.0004 < 0.0001 0.0003 0.0006 0.0002 0.0001 0.0002 0.00002	Lead	mg/L	0.025				0.00003	0.00003	< 0.00002	< 0.00002	< 0.00002	0.00005	0.00002	0.00199	0.00099	< 0.00002	0.00004	0.00003	0.00063
Nickel mg/L 0.025	Mercury	mg/L	-				< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00005	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Selenium mg/L -	Molybdenum	mg/L	0.04				0.0002	0.0005	0.0002	< 0.0001	< 0.0001	0.0006	0.0004	< 0.0001	0.0003	0.0006	0.0002	0.0002	0.0002
Silver mg/L 0.0001 0.00017 0.00002 0	Nickel	mg/L	0.025]		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Strontium mg/L -	Selenium	mg/L	-				< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Thallium mg/L -	Silver	mg/L	0.0001				0.00017	< 0.00002	< 0.00002	< 0.00002	0.00004	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00037	< 0.00002	< 0.00002	< 0.00002
Vanadium mg/L - Zinc mg/L 0.003 0.0001 0.0006 0.0001 0.0003 0.0001 0.0003 0.0001 0.0003 0.0012 0.0002 < 0.0001	Strontium	mg/L	-]		0.264	0.254	0.3	0.172	0.264	0.287	0.279	0.377	0.523	0.223	0.199	0.249	0.298
Zinc mg/L 0.03 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005	Thallium	mg/L	-]					< 0.00005	< 0.00005		< 0.00005	< 0.00005		< 0.00005		< 0.00005	
Cyanide mg/L 0.005 Turbidity NTU - Tannins & Lignins mg/L -	Vanadium	mg/L					0.0003	0.0001	0.0006	0.0001	0.0003	0.0003	0.0001	0.0033	0.0012	0.0002	< 0.0001	0.0002	0.0005
Turbidity NTU - Tannins & Lignins mg/L -	Zinc	mg/L	0.03]		< 0.005	< 0.005	< 0.005	< 0.005	0.017	< 0.005	< 0.005	0.399	0.188	0.046	0.042	0.005	0.63
Tannins & Lignins mg/L -	Cyanide	mg/L	0.005]														
	Turbidity	NTU	-																
	Ü																		

General water Qua	iity		SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18
Parameter	UNITS	PWQO	17-Oct-17	25-Apr-18	28-Jun-18	22-Aug-18	11-Oct-18	24-Apr-19	5-Jun-19	17-Jul-19	6-Aug-19	13-Aug-19	27-Aug-19	10-Sep-19	2-Oct-19	8-Oct-19	16-Oct-19	31-Oct-19
pH -Lab	pH units	6.5-8.5	8.24	8.19	7.96	7.79	7.73	8.14	8.16	7.92	7.76	8.08	7.4	7.84	8	7.74	7.81	8.04
Conductivity	uS/cm	_	847	429	504	690	927	436		819		691				799		
BOD	mg/L	-	<3	< 3	< 3	5	86	< 3		11		4				4		ĺ
COD	mg/L	-	25	20	103	54	244	25		44		68				33		i
Total Dissolved Solids	mg/L	_	451	231	274	365	490	226		411		368				424		í
Total Suspended Solids	mg/L	_	3	5	10	14	400	6		300		20				16		ĺ
Alkalinity	mg/L	_	324	177	147	180	247	164		230		155				188		í
Hardness	mg/L	-	357	179	178	193	246	197		294		190				229		1
Ammonia	mg/L	_	0.03	0.03	0.06	0.1	0.17	0.03	0.02	1.15	0.19	0.13	2.12	1.39	0.16	0.52	0.77	0.05
Un-ionized Ammonia	mg/L	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	7.72	0.02		0.02				0.02		1
Calcium	mg/L	-	129	64.8	58.2	68.3	257	71		94.7		62.3				77.3		1
Chloride	mg/L	_	44.9	27.2	68.9	112	146	25		87		124				139		í
DOC	mg/L	_	6.3	5.2	14.9	11.9	16.8	4.9		12.1		11.3				9.3		1
Fluoride	mg/L	_	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1		< 0.1		< 0.1				< 0.1		1
Iron	mg/L	0.3	0.041	0.052	0.97	1.44	9.12	0.153		2.99		1.1				1.41		1
Magnesium	mg/L	-	8.37	4.14	7.81	7.51	12.4	4.04		8.08		8.27				8.8		1
Manganese	mg/L	-	0.005	0.006	0.26	0.628	1.16	0.023		1.91		0.341				0.748		
Nitrate	mg/L	_	1.78	0.64	< 0.05	< 0.05	< 0.05	0.67		0.05		0.06				< 0.05		(
Nitrite	mg/L	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		0.05		< 0.05				< 0.05		(
TKN	mg/L	-	0.5	0.5	1.6	1.7	10.4	0.8		2.4		2.7				1.6		
Sodium	mg/L	-	37.1	15.3	43.3	60.5	85.4	14		58.7		66.3				69.2		(
Sulphate	mg/L	_	35	11	2	1	10	10		14		4				7		
Phenols	mg/L	0.001	0.002	< 0.001	0.005	0.007	0.007	< 0.002		< 0.002		< 0.002				< 0.002		
Phosphorus	mg/L	0.03	0.02	0.03	0.14	0.18	1.58	0.04		0.14		0.25				0.09		
Potassium	mg/L	-	2	2	4	5.5	7.7	2.4		4.9		9.1				7.2		
Aluminum	mg/L	0.075	0.07	0.06	0.07	0.05	2.56	0.05		0.06		0.03				0.06		
Antimony	mg/L	-	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	0.0001		0.0003		0.0001				0.0002		·
Arsenic	mg/L	0.1	0.0004	0.0002	0.0008	0.0005	0.0013	0.0001		0.0003		0.0005				0.0002		[
Barium	mg/L	-	0.047	0.022	0.038	0.045	0.208	0.029		0.061		0.044				0.054		[
Beryillium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002		< 0.002		< 0.002				< 0.002		[
Boron	mg/L	0.2	0.018	0.008	0.032	0.046	0.067	0.005		0.061		0.052				0.046		
Cadmium	mg/L	0.0002	0.000041	< 0.000015	0.00072	0.000091	0.000315	< 0.000015		< 0.00015		< 0.00015				< 0.000015		
Chromium	mg/L	0.1	< 0.001	< 0.001	0.001	0.001	0.003	< 0.001		< 0.001		< 0.001				0.002		
Cobalt	mg/L	0.0006	< 0.0001	< 0.0001	0.0004	0.0003	0.0023	< 0.0001		0.0006		0.0002				0.0004		(
Copper	mg/L	0.005	0.006	0.0005	0.0068	0.0069	0.0172	0.0011		0.0006		0.0009				0.0029		
Lead	mg/L	0.025	0.00036	0.00004	0.00038	0.00054	0.00375	0.00007		0.0001		0.00026				0.00006		
Mercury	mg/L	-	< 0.00002	< 0.00007	< 0.00002	< 0.00004	0.00002	< 0.00007		< 0.00002		< 0.00020				< 0.00002		
Molybdenum	mg/L	0.04	0.0003	0.0002	0.0001	0.0001	0.0004	0.0002		0.0002		< 0.0001				0.0002		(
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01		< 0.01				< 0.01		
Selenium	mg/L	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001		< 0.001				< 0.001		
Silver	mg/L	0.0001	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001		< 0.0001		< 0.0001				< 0.0001		
Strontium	mg/L	-	0.291	0.158	0.235	0.257	0.53	0.17		0.305		0.26				0.253		
Thallium	mg/L	_	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005		< 0.00005		< 0.00005				< 0.00005		1
Vanadium	mg/L	_	0.0004	0.0003	0.0004	0.0001	0.0073	0.0002		0.0006		0.0007				0.0003		
Zinc	mg/L	0.03	0.0004	< 0.005	0.0004	0.0001	0.228	0.0002		0.026		0.022				0.103		<u> </u>
Cyanide	mg/L	0.005	0.011	- 0.000	0.00	0.02	U.ZZU	0.000		0.020		0.022				0.100		1
Turbidity	NTU	-	—	—		—												ĺ
Tannins & Lignins	mg/L	_	 	 		 												(
PWOO Provincial Water O			L	L	l	L	L	l		l		l .	1	l	l		l	

General Water Qualit	iity		SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18
Parameter	UNITS	PWQO	30-Apr-20	15-Oct-20	22-Oct-20	30-Nov-20	20-Apr-21	4-May-21	15-Jun-21	8-Jul-21	11-Aug-21	23-Sep-21	15-Oct-21	25-Oct-21	26-Apr-22	7-Jun-22	21-Jun-22	5-Jul-22
pH -Lab	pH units	6.5-8.5	7.99	7.83	7.96	7.95	8.31	8.21	7.88	8.14	7.86	8.02	7.86	7.88	8.32	8.12	7.88	7.43
Conductivity	uS/cm	_	643		1140		676		1050		691		912		649		749	i
BOD	mg/L	-	< 3		< 3		< 3		< 3		< 3		14		< 3		< 3	ĺ
COD	mg/L	-	25		< 5		9		55		42		146		23		33	ĺ
Total Dissolved Solids	mg/L	_	355		631		386		576		361		579		351		401	í
Total Suspended Solids	mg/L	_	5		31		< 3		8		8		1400		< 3		10	ĺ
Alkalinity	mg/L	-	222		180		270		216		198		288		270		212	í
Hardness	mg/L	-	254		331		305		274		199		401		288		207	
Ammonia	mg/L	_	0.03	0.07	0.05	0.04	0.02	0.02	0.19	0.03	0.19	0.08	0.14	0.04	0.1	2.51	0.05	0.19
Un-ionized Ammonia	mg/L	0.02	< 0.01		< 0.01		< 0.01		< 0.01		< 0.01		< 0.01		< 0.01		< 0.01	
Calcium	mg/L	-	91.4		112		111		90.2		65.8		142		104		69.8	
Chloride	mg/L	-	56.4		197		49		196		101		117		37		110	í
DOC	mg/L	-	6.4		6		6.4		10.5		10.1		9.9		6		9.3	
Fluoride	mg/L	-	< 0.1		< 0.1		< 0.1		< 0.1		< 0.1		< 0.1		< 0.1		< 0.1	1
Iron	mg/L	0.3	0.211		0.683		0.061		1.07		1.12		21.8		0.056		0.253	
Magnesium	mg/L	-	6.18		12.3		6.79		11.7		8.32		11.3		6.75		7.81	1
Manganese	mg/L	-	0.114		0.243		0.029		0.252		1		22.3		0.011		0.149	1
Nitrate	mg/L	-	0.74		< 0.05		0.69		0.08		0.09		< 0.05		1.23		0.87	
Nitrite	mg/L	-	< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05	
TKN	mg/L	-	0.6		2.5		0.4		1.8		1.5		5.6		0.8		1.1	1
Sodium	mg/L	-	30		96.3		29.3		103		56.6		58.2		23.7		54.9	í
Sulphate	mg/L	-	16		87		18		11		5		26		14		7	
Phenols	mg/L	0.001	< 0.002		< 0.002		< 0.002		0.002		< 0.002		< 0.002		< 0.001		< 0.001	
Phosphorus	mg/L	0.03	0.03		0.25		0.04		0.12		0.1		1.06		0.02		0.06	
Potassium	mg/L	-	2.4		13.4		1.6		5.6		3.3		8.1		2.3		4.3	
Aluminum	mg/L	0.075	0.06		0.04		0.08		0.07		0.03		0.03		0.06		0.02	
Antimony	mg/L	_	0.0004		0.0002		0.0001		0.0001		0.0004		0.0004		0.0003		0.0004	í
Arsenic	mg/L	0.1	0.0002		0.0007		0.0002		0.0009		0.0007		0.005		0.0002		0.0005	
Barium	mg/L	_	0.037		0.068		0.038		0.051		0.043		0.394		0.038		0.035	
Beryillium	mg/L	1.1	< 0.002		< 0.002		< 0.002		< 0.002		< 0.002		< 0.002		< 0.002		< 0.002	
Boron	mg/L	0.2	0.018		0.048		0.011		0.058		0.072		0.058		0.013		0.047	i
Cadmium	mg/L	0.0002	< 0.000015		0.000027		< 0.000015		< 0.000015		< 0.000015		0.000242		< 0.000015		< 0.000015	
Chromium	mg/L	0.1	< 0.001		0.001		< 0.001		0.002		< 0.001		0.006		< 0.001		< 0.001	
Cobalt	mg/L	0.0006	0.0002		0.0002		< 0.0001		0.0003		0.0004		0.0109		0.0001		0.0001	
Copper	mg/L	0.005	0.0007		0.0027		0.0007		0.0007		0.0003		0.0054		0.0009		0.0004	i
Lead	mg/L	0.025	0.00006		0.00013		0.00004		0.00009		0.00006		0.00322		0.00005		0.00002	
Mercury	mg/L	_	< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		0.00002		< 0.00002		< 0.00002	
Molybdenum	mg/L	0.04	0.0002		0.0005		0.0002		0.0002		< 0.0001		0.0004		0.0001		< 0.0001	
Nickel	mg/L	0.025	< 0.01		< 0.01		< 0.01		< 0.01		< 0.01		< 0.01		< 0.01		< 0.01	
Selenium	mg/L	_	< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001	i
Silver	mg/L	0.0001	< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001	i
Strontium	mg/L	-	0.236		0.362		0.277		0.33		0.271		0.436		0.291		0.249	
Thallium	mg/L	-	< 0.00005		< 0.00005		< 0.00005		< 0.00005		< 0.00005		< 0.00005		< 0.00005		< 0.00005	
Vanadium	mg/L	-	0.0004		0.0006		0.0004		0.0007		0.0002		0.0123		0.0004		0.0002	
Zinc	mg/L	0.03	< 0.005		0.053		0.009		0.047		0.059		0.112		< 0.005		< 0.005	
Cyanide	mg/L	0.005																
Turbidity	NTU	-																
Tannins & Lignins	mg/L	-																
PWOO Browingial Water Or		1	1	1		1	1					1	l	1			1	

			SW18	SW18	SW18	SW18	SW18	SW18	SW18	SW18
Parameter	UNITS	PWQO	17-Oct-22	24-Apr-23	1-May-23	8-Jun-23	26-Jun-23	15-Aug-23	16-Aug-23	5-Oct-23
pH -Lab	pH units	6.5-8.5	7.83	8.31	8.19	7.95	8.05	7.52	7.13	8.07
Conductivity	uS/cm	-	1200	643		1030			678	897
BOD	mg/L	-	< 3	< 3		< 3			3	<3
COD	mg/L	-	52	9		44			64	52
Total Dissolved Solids	mg/L	-	641	349		525			362	534
Total Suspended Solids	mg/L	-	6	< 3		64			8	10
Alkalinity	mg/L	-	213	272		251			183	207
Hardness	mg/L	-	306	290		277			195	291
Ammonia	mg/L	-	0.18	0.01	0.16	0.21	0.14	0.07	0.77	0.18
Un-ionized Ammonia	mg/L	0.02	< 0.01	< 0.01		< 0.01			0.02	<0.01
Calcium	mg/L	-	94.4	96.4		84.6			67.3	97.4
Chloride	mg/L	-	237	43.8		176			103	168
DOC	mg/L	-	4.1	5.6		5.7			10.4	10.6
Fluoride	mg/L	-	< 0.1	< 0.1		0.1			<0.1	<0.1
Iron	mg/L	0.3	0.073	0.031		1.01			1.76	0.648
Magnesium	mg/L	_	11.2	6.12		10.3			6.43	11.7
Manganese	mg/L	-	0.023	0.011		0.5			0.82	0.24
Nitrate	mg/L	-	0.1	0.84		< 0.05			0.09	<0.05
Nitrite	mg/L	-	< 0.05	< 0.05		< 0.05			<0.05	<0.05
TKN	mg/L	-	3	0.5		1.8			1.4	1.7
Sodium	mg/L	_	105	23.9		86.5			53.4	82.8
Sulphate	mg/L	-	47	14		6			4	29
Phenols	mg/L	0.001	< 0.001	< 0.001		< 0.001			0.004	<0.001
Phosphorus	mg/L	0.03	0.19	0.04		0.1			0.1	0.09
Potassium	mg/L	-	17.7	2.2		8.6			14.1	20.3
Aluminum	mg/L	0.075	0.04	0.02		0.03			0.03	0.11
Antimony	mg/L	-	0.0004	0.0001		0.0003			0.0001	0.0004
Arsenic	mg/L	0.1	0.0004	0.0002		0.0008			0.0007	0.0005
Barium	mg/L	-	0.056	0.035		0.053			0.06	0.057
Beryillium	mg/L	1.1	< 0.002	< 0.002		< 0.002			<0.0001	<0.0001
Boron	mg/L	0.2	0.091	0.012		0.074			0.068	0.23
Cadmium	mg/L	0.0002	< 0.000028	< 0.000015		< 0.000015			<0.000015	<0.000015
Chromium	mg/L	0.1	< 0.001	0.002		< 0.001			<0.001	<0.001
Cobalt	mg/L	0.0006	< 0.0002	0.0001		0.0003			0.0003	0.0004
Copper	mg/L	0.005	0.0003	0.0006		0.0004			0.0006	0.0007
Lead	mg/L	0.025	0.00011	0.00003		0.0002			0.00006	0.00018
Mercury	mg/L	-	< 0.00002	< 0.00002		< 0.00002			<0.00002	<0.00002
Molybdenum	mg/L	0.04	0.0003	0.0002		< 0.0001			<0.0001	0.0003
Nickel	mg/L	0.025	< 0.01	< 0.01		< 0.01			0.0009	0.0009
Selenium	mg/L	-	< 0.002	< 0.001		< 0.001			<0.001	<0.001
Silver	mg/L	0.0001	< 0.0001	< 0.0001		< 0.0001			<0.0001	<0.0001
Strontium	mg/L	-	0.35	0.255		0.316			0.224	0.32
Thallium	mg/L	-	< 0.0001	< 0.00005		< 0.00005			<0.00005	<0.00005
Vanadium	mg/L	-	< 0.0002	0.0003		0.0006			0.0002	0.0006
Zinc	mg/L	0.03	< 0.005	< 0.005		0.007			<0.005	0.016
Cyanide	mg/L	0.005		< 0.005		< 0.005			<0.005	<0.005
Turbidity	NTU	-		0.9		17.7			6.5	1.7
Tannins & Lignins	mg/L	_	1	0.6		1.5			1.6	1.1



APPENDIX D

MECP Inspection



Ministry of the Environment and Climate Change Ministère de l'Environnement et de l'Action en matière de changement climatique

Industrial Sewage Inspection Report

Client: Inspection Site Address:	Works Mailing Address: 12 Peel St, Li Physical Address: 12 Peel St, Telephone: (705)324-9411, Ext Client #: 4353-78NJW9, Client Lindsay - Ops Landfill Site Lead Address: 51 Wilson Rd Lot 252 City District Office: Peterborough GeoReference: Map Datum: Na Quality GPS, Method: GPS, UT	Kawartha Lakes, City, Ontario, tension: 1143, email: brobinson Type: Municipal Government, Notate Collection System and St 2627 Concession 6 former Ops AD83, Zone: 17, Accuracy Estin Easting: 681075, UTM North JTM Easting: 680577.44, UTM	L8 Canada, K9V 3L8 @city.kawarthalakes.on.ca IAICS: 913910 ormwater Management Facility Township, Kawartha Lakes, nate: 1-10 metres eg. Good ning: 4917997, ,			
Contact Name:	Heather Dzurko	Title:	Operations Supervisor			
Contact Telephone:	(705)324-9411 ext 1133	Contact Fax:	(705)328-3122			
Last Inspection Date:	2013/11/14					
Inspection Start Date:	2015/11/04	Inspection Finish Date:	2015/11/04			
Region:	Eastern					

1.0 INTRODUCTION

The Lindsay-Ops waste disposal site (WDS) is located in the town of Lindsay, Ontario. Lands to the north of the site are agricultural, to the east is Wilson road and agricultural land, to the south is fallow land and City Road 36 (Verulam Road) and to the west is the Lindsay Water Pollution Control Plant (WPCP) the site is approximately 500 metres from the Scugog River. The City of Kawartha Lakes (CKL) owns the land to the north, west and south of the site. The Lindsay-Ops WDS is a fully engineered site with a leachate collection system and leachate treatment completed at the nearby Lindsay WPCP. Lindsay-Ops waste disposal site commenced operations in 1980. The south part of the current site was used for waste disposal from 1980 through to 2001. The south fill area (old landfill area) was closed in 2001 and an impermeable geomembrane liner was installed over the landfill area in 2006 and completed in 2007. The liner was installed to reduce infiltration into the old waste mound area and thereby reducing the generation of landfill leachate. In 2001 the municipality received approval to expand the landfill to the north.

Approvals for a leachate collection system and storm water management facility were issued in 2002 and 2003 respectively. In 2008 these two approvals were consolidated into an Amended Certificate of Approval which was amended again in 2012 in order to change a surface water monitoring location. Amended Environmental Compliance Approval (ECA) #8668-92MTK7 was issued on December 19, 2012. The City of Kawartha Lakes submitted an amendment application on December 17, 2015 for ECA #8668-92MTK7 to include storm water management features associated with the new compost pad location at the site.

The purpose of this proactive inspection is to assess compliance with ECA #866-92MTK7, the Ontario Water Resources Act, the Environmental Protection Act and other applicable provincial environmental legislation. This inspection was completed by Provincial Officer Cathy Curlew along with Heather Dzurko, Supervisor of Landfill Operations, and Angela Porteous, Regulatory Compliance Officer, both with the City of Kawartha Lakes.

2.0 INSPECTION OBSERVATION

Facility MEWS (Works) Number:

no applicable

Sector Type:

Waste Disposal

Effluent Type:

Landfill Leachate, Storm Water

Receiver Type:

Surface Water

Name of Receiver:

Leachate is pumped to the sewage treatment plant and following treatment is discharged to the Scugog River. Storm water is collected in the on-site storm water management ponds and discharged to the Scugog River.

Is there a sensitive receptor on/in the receiver?

Yes

Select the most important type of sensitive receptor.

Receiving Water

The Scugog River is a policy 2 receiver for total Phosphorus as well, ammonia concentrations are a concern.

Certificate of Approval Number(s):

Yes

C of A Number(s): 8668-92MTK7

The original approvals for leachate collection and storm water management were issued in 2002 and 2003 these approvals were amended in 2008 to consolidate the storm water management and leachate collection into one approval. In December 2012 ECA #8668-92MTK7 was amended to remove SW3 from the monitoring program and add SW14 but since that time it has been recommended by the City's consultant and Eastern Region technical support staff to continue to sample at SW3, SW14 and add SW18. SW3 monitors discharges from the south stormwater management facility and SW18 is intended to monitor discharges from the north stormwater management facility.

The current amendment application was submitted (Dec. 17, 2015) to add a storm water management pond for the new compost pad location, add SW18 to the monitoring program, identifying bypass piping in the leachate pump chambers, and clarify the sampling location for condition 5(5) of the current ECA for the south storm water management facility. As a contingency plan the City has proposed in the event of flooding from the storm water pond for the compost pad, an outflow pipe will be connected to the leachate collection system for treatment at the WPCP before discharge to the Scugog River.

The District has also requested to approvals branch to include a description of the ditches for the north stormwater management facility in the ECA similar to the description of the ditches in the south storm water management facility in the ECA. The District office has requested technical support staff review the surface water monitoring programs in ECA #A321504 and ECA #8668-92MTK7 in order to reduce redundancy and improve efficiency. Although this may not be practical as the monitoring required in ECA #A321504 is to determine the potential for impacts due to landfilling waste at the site and the purpose of the monitoring in ECA #8668-92MTK7 is to ensure that storm water impacted by waste is not discharged directly to the river and that leachate is treated without negative impacts.

2.1 WASTEWATER TREATMENT PROCESS DESCRIPTION

Storm Water Management System

The storm water management system is designed to drain clean rainwater (not impacted by waste) to the storm water management ponds for eventual discharge to the Scugog River.

The active north area of the landfill (27.5 ha) is serviced by a series of storm water ditches that carry storm water from

the perimeter of the Site to the north storm water management area located in the northwest corner of the Site. The area consists of two identical storm water retention ponds that are operated alternately, one pond is active while the other pond is kept on stand-by. Each pond is designed for settling suspended solids during a 4 hour duration storm event (approximately 25 mm precipitation). Each pond is equipped with a forebay an inlet structure and outlet structure including gate valve. At the time of the inspection the inlet to the north pond was blocked with sand bags and the south pond was open to receive storm water. The weir in the outlet structure of the quality ponds controls the discharge rate. The weir is self operating and not adjustable. During the previous inspection that was conducted on November 14, 2013, it was noted that the ponds were operated simultaneously, this was not in accordance with the original design documents contained in the original ECA that was issued in 2003. Since 2013, the Operations Manual has been updated (April 2014) and the storm water management facility is being operated as originally designed.

Under normal operating conditions the gate valve on the outlet pipe of the quality pond remains open, and storm water is discharged to lagoon 1 and eventually the north ditch to the Scugog River. If sample results during rain events indicate an exceedance of the effluent limits (6.0>pH>8.5 and/or total ammonia >5 mg/L) the gate valve is closed and discharge to lagoon 1 is stopped until compliant sample results are achieved. Lagoon 1 has a stop log structure which can be closed to prevent discharge from lagoon 1 to the north ditch.

The south storm water management facility consists of a series of perimeter ditches around the east, south and west side of the old landfill area in the south end of the site. On the south side ditch, are culverts that carry storm water to the ditch on the south side of lagoon road and eventually discharge to a bay/wetland area of the Scugog river (SW3). Currently there is no monitoring of storm water that is discharging through the south storm water management facility, I'm uncertain if monitoring is necessary since the old fill area is capped and the storm water ditches are lined with rip rap. I have asked the ministry's approvals branch to consider this during the application amendment review process.

Leachate Collection System

Leachate from the south (old) landfill area is collected by a perimeter leachate collection system and drains to leachate pumping station #1 at the northwest corner of the old fill area. This pumping station was upgraded in 2004. Leachate from the new fill area is collected and drained to leachate pumping station #2 located beside cell 1. Leachate from both pumping stations, sewage from the administrative buildings on site and septage from the RV dump station is pumped to the Lindsay water pollution control plant (WPCP) for treatment. Both leachate pumping stations have flow meters which record the amount of leachate pumped to the WPCP. The pumping stations are inspected by licenced operators from the WPCP once per month. The flow meter readings at the pumping stations are manually recorded by the WPCP operators daily. Storm water that is impacted by waste is directed to the leachate collection system through infiltration (at active working face), and/or containment berms and swales directed to the active working face.

2.2 EFFLUENT SUMMARY REPORT

What are the facility's effluent limits based on?

Certificate of Approval/Permit

Does the facility comply with its limits?

Yes

- 5. (1) The Owner shall exercise due diligence in ensuring that, at all times, the Works and the related equipment and appurtenances used to achieve compliance with this Approval are properly operated and maintained. Proper operation and maintenance shall include effective performance, adequate funding, adequate operator staffing and training, including training in all procedures and other requirements of this Approval.
- (2) The Owner shall collect one (1) stormwater grab sample at sampling locations **SW-14** and **SW-15** during a storm event causing stormwater runoff from the landfill site such that **at least four (4) samples** from each sampling location are collected per year covering the spring, summer and fall seasons. Each collected sample shall be analyzed for pH and Total Ammonia, and if measured level of Total Ammonia is higher than 1 mg/L, then the Owner shall commence the following monitoring program:
- (3) For the North Stormwater Management Facility, the Owner shall collect one (1) stormwater sample during **each subsequent storm event** causing stormwater runoff to the quality control ponds and have it analyzed for the trigger parameters **pH and Total Ammonia**. The Owner shall immediately close the outlet valve (stop logs) of Lagoon 1 to discontinue the discharge of stormwater into the receiving drainage ditch if any of the following conditions arises:
- a) 6.0 > pH > 8.5

- b) Total Ammonia > 5.0 mg/L
- (4) The Owner shall ensure that potentially contaminated stormwater collected in Lagoon 1 as a result of Condition 5 (3) is treated as a leachate and sent for treatment to the Lindsay WPCP.
- (5) For the South Stormwater Management Facility, the Owner shall collect one (1) stormwater sample during **each subsequent storm event** causing stormwater runoff to the perimeter drainage ditches and have it analyzed for the trigger parameters **pH and Total Ammonia**. The Owner shall immediately initiate an investigation to identify the source of potential contamination to facilitate the implementation of a contingency and remedial action plan if any of the following conditions arises:
- a) 6.0 > pH > 8.5
- b) Total Ammonia > 5.0 mg/L
- (6) The Owner shall revert back to **routine operational** monitoring as per Condition 5 (2) if four (4) consecutive monitoring results as per Condition 5 (3) or Condition 5 (5) show that levels of Total Ammonia are less than 1 mg/L and pH levels are between 6.0 and 8.5.

The 2014 annual monitoring report indicates that samples were collected at SW14 four times over the year and at SW15 six times over the year. In 2015 samples were collected four times over the year at each location. There were no exceedances of pH or total ammonia concentrations in 2014 or 2015. The City has the ability to analyse total ammonia concentrations in the lab at the WPCP and pH results are available at the time of sampling. Therefore, actual time results are available while storm water is discharging from the site. This is an improvement over the methods of analysis used during the previous inspection in 2013.

Schedule E of ECA A321504 for the waste disposal site (WDS) requires quarterly sampling for a list of parameters at all surface water monitoring stations relating to the landfill, SW14, SW15, SW18 and SW3 are included in the monitoring program in ECA #A321504. The list of parameters in ECA #A321504 is slightly different than the parameters listed in table 1 of ECA #8668-92MTK7 but there are also several parameters that are repeated in both approvals. I have asked Dana Cruikshank, Surface Water Specialist, to review both approvals and the monitoring programs to determine if a change is necessary.

(7) The Owner shall undertake an inspection of the condition of the stormwater management ponds and ditches, at least once a year, and undertake any necessary cleaning and maintenance to prevent the excessive build up of sediment and/or decaying vegetation.

Sediment deposits in the swm ponds are measured annually to ensure that sediment is less than 0.3 metres. Sediment deposits were measured in 2014 and determined to be approximately 0.14 metres. The ponds have not needed to be excavated since they began operating in 2003. Monthly inspections are conducted at the inlet and outlet of the ponds and lagoon 1 to ensure they are free of debris. Monthly inspections of all storm water ditches are completed at the site. Inspection results are maintained in an electronic log book. Debris and silt build-up is removed from the ditches as necessary. In the summer of 2015 maintenance work was completed on the ditches on the west side of the north storm water management facility. At the time of the inspection it was noted that maintenance work was needed in the ditches on the south west side of the new fill area and the culvert needed to be cleared in order to allow storm water to flow to the north storm water management facility unimpeded by silt and debris.

(8) The owner shall maintain a logbook to record the results of the stormwater management pond inspections and any cleaning and maintenance operations undertaken and shall keep the logbook at the site for inspection by the Ministry.

At the time of the inspection I quickly reviewed the electronic logbook that is maintained for inspection results and maintenance work completed on the storm water management facilities at the site records are being maintained accordingly.

2.3 SEWAGE TREATMENT WORKS CAPACITY ASSESSMENT

Flow (m³/day)	Year 1 2013	Year 2 2014	Year 3 2015
Average daily flow	127.86	130.00	0.00
Maximum daily flow	0.00	0.00	0.00

Capacity Design	300.00	300.00	0.00
% of capacity	42.62	43.33	0.00
(based on average daily			
flow)			

^{**} data for 2015 was not available at the time of writing this report.

Leachate System

In accordance with conditions 7(3) and 7(4) of ECA #8668-92MTK7, the design capacity at the WPCP to account for leachate treatment is $300 \, \text{m}^3$ /day.

The leachate pumping stations and flow meters are inspected monthly by WPCP staff and the flow meters are read and manually recorded by WPCP operators on a daily basis. Qualified operators from the WPCP operate the leachate pumping stations and conduct monthly inspections and maintenance accordingly. The 2014 Annual Monitoring Report indicates that monthly inspections and maintenance is performed and the inspection records were enclosed in appendix F. Appendix F contained three service reports from a company called Xylem not WPCP operators. The April 2014 service report indicates that "pump 1 in LPS 2 should be removed and overhaul completed at the earliest" there is no follow-up report to indicate that work was completed. The monthly inspection reports and all maintenance reports must be submitted with the annual report in accordance with condition 9(3)(d) of ECA #8668-92MTK7.

The ECA for the landfill #A321504, requires that the leachate collection system is cleaned and video inspected annually to view any blockages or necessary repair needs. The 2014 Annual Report informs that in 2014 a video inspection of the north fill area only was completed but the system was not flushed, not cleaned and no maintenance completed. This non-compliance with ECA #A321504 will be addressed in another inspection report specific to ECA A321504 and will be completed by March 31, 2016.

At the time of the inspection I was informed that the leachate collection systems for the north and south areas was flushed and video taped in September 2015. The City has retained Golders to review the tape and provide comments in the annual monitoring report for the site. The landfill is equipped with vibrating wire piezometers so if there is an immediate concern with leachate not draining properly the City staff would be aware. I was informed during the inspection that blockages identified in the leachate piping in cell 3 were successfully removed with flushing during September 2015 when maintenance work was completed on the collection system.

Leachate generated from the south (old) fill area flows into leachate pumping station # 1. Leachate flow into leachate pumping station # 2 consists of leachate generated from the active fill area (cells 1, 2, 3 & 6) and sewage from the RV dump station and sewage from the staff washrooms on-site.

The following table summarizes the annual leachate flows recorded in leachate pumping station # 1 and leachate pumping station #2 over the past four years.

Year	eachate station 1 (m³)	eachate station 2 (m³)
2010	15,927	38,852
2011	28,804	39,328
2012	20,988	24,511
2013	27,324	18,721
	·	•
2014	27,216	19,981
2015	16,090	14,960

It is interesting to note over the years leachate flow to LPS # 1 (which services the capped and covered closed landfill area) has increased but leachate flow to LPS # 2 (which services the open and active fill area) has decreased. The 2014 Annual report indicates that maintenance work completed on the pumps in LPS 1 in 2011 has made them more efficient. The report also explains that the leachate indicator

parameters continue to show low concentrations and suggest that there is no increase in leachate flow but likely an increase in ground water volume collected by the perimeter leachate collection system. At the time of the inspection I was informed that LPS 2 pumps were pulled and cleaned by WPCP staff on Sept. 6, 2015.

The updated Operations Manual for the storm water management facilities and leachate system at the site has a well documented monitoring/inspection plan for monthly, semi annual and annual inspections. Reports are to be completed following each inspection and are maintained electronically at the site. The Operations Manual recommends that the submersible pumps in the leachate pumping stations should have a major overhaul in a service shop at least once every three years. Recommendations for calibrating the flow meters annually are also included. The City has updated the data management software used for trigger exceedances.

2.4 SAMPLING REQUIREMENTS

What are the facility's sampling requirements based on?

Certificate of Approval/Permit

Does the facility meet sampling requirements?

Vac

Storm Water Sampling Requirements

Condition 6 of ECA #8668-92MTK7 requires samples to be collected at SW15 and SW14 on a quarterly basis and analysed for a variety of parameters including field parameters, general chemistry, major ions, trace metals, nutrients, organics, phenols and pcbs. The results of these samples are compared to the provincial water quality objectives (PWQO) to determine if the site is impacting the Scugog River. In 2014 the following parameters exceeded the PWQO at SW15 in 2014: Aluminium, iron and phosphorus. The following parameters exceeded the PWQO at SW15 in 2014: Aluminium, iron, phosphorus, phenols and boron. The Annual Report for 2014 explains the exceedances are likely caused by suspended particles in the samples rather than landfill impacts. Similar exceedances were noted at the background monitoring station SW4. There were no exceedances of the PWQO guideline for other leachate indicators such as chloride or heavy metals such as lead, zinc and cadmium. Monitoring results for 2015 will be submitted with the Annual Report due at the end of April 2016.

Surface Water Specialist, Dana Cruikshank is reviewing the surface water monitoring programs for ECA #8668-92MTK7 and ECA #A321504 for redundancy and will make recommendations to the ministry's approvals branch regarding any changes during the review period of the current application for amendment of ECA #8668-92MTK7. As mentioned in section 2.0 the purpose of the monitoring is different for each ECA and the timing of sample collection may not be appropriate for the purpose of the monitoring.

In the 2014 Annual Monitoring Report for the site one of the recommendations the City's consultant made was that water quality be monitored in the north drainage ditch where the SWM ponds discharge rather than at SW14, as a result, the City established SW18 and included it in the 2015 monitoring program.

Following his review of the 2014 Annual Report for both ECAs, Dana Cruikshank provided recommendations which were sent to City staff in July 2015. The City sent a response to the comments at the end of July 2015. Dana noted that in 2014 average concentrations at SW14 indicated elevated concentrations of TDS, chloride, nitrate, ammonia, total phosphorus and manganese compared to average concentrations at SW14 from 2010-13. It was also noted that the City needs be more diligent in ensuring sampling is completed four times over the year for surface water stations in ECA #A321504 and a minimum of 4 sampling events from SW14 and SW15 during storm events to determine compliance with effluent limits for pH and total ammonia from the north storm water management facility.

Leachate Collection Sampling Requirements

Condition 8 of ECA 8668-92MTK7 specifies the monitoring requirements for the leachate collection system. Leaching Pumping Station (LPS) 1 has a list of parameters for monthly sampling and a separate list of parameters for semi-annually sampling events. LPS 1 collects leachate in the perimeter collection system around the south (old) landfill area. LPS 2 has a list of parameters for semi-annual sampling and another list of parameters for annual sampling. LPS 2 collects leachate from the north (active) landfill area, sewage from the RV dump station and sewage from the staff office at the site. Flow meters are installed in both LPS to record flows and are recorded daily by WPCP staff.

The 2014 Annual Monitoring Report is missing sample results from January, February, March and November 2014. During the inspection these sampling results were submitted to me, it was an oversight by the consultant (Golders) who prepared the 2014 Annual Monitoring Report for the City. City staff should be proof reading annual reports before submitting to the ministry in order to ensure compliance with the reporting requirements stated in the ECA.

2.5 REPORTING REQUIREMENTS

What are the facility's reporting requirements based on?

Certificate of Approval/Permit

Does the facility meet reporting requirements?

Yes

Condition 9 of ECA #8668-92MTK7 lists the reporting requirements for the site. In addition to part 10 of the Environmental Protection Act, within 10 days of any spills or bypasses the owner must submit a written report detailing the occurrence and remedial measures to the District Manager. There were no reportable spills or bypasses related to the storm water management at the site in 2014 or 2015.

Condition 9(3) requires that annual performance report be submitted to the District Manager by April 30 of each year including but not limited to the following information:

- summary of all monitoring data including an overview of the success and adequacy of the works
- a comprehensive interpretation of all monitoring data
- a description of any operating problems and corrective actions
- a summary of all maintenance on any major structure, equipment, apparatus, mechanism
- a summary of the calibration and maintenance on all monitoring equipment
- any other information the District Manager requires

The 2014 Annual Monitoring report was prepared by Golders on behalf of the City. The 2014 report had the following deficiencies:

- monitoring data was missing for leachate sampling in January, February, March and November
- description of operating problems and corrective actions taken no inspection reports or maintenance reports were included for the swm facilities or leachate system
- summary of all maintenance no inspection reports or maintenance reports were included for the swm facilities or leachate collection
- no calibration records were included

City staff must proof-read consultants reports in order to ensure compliance with the reporting requirements before reports are submitted to the ministry. It is the ECA holders responsibility to demonstrate compliance with the approval.

Below is a summary of the recommendations made by the City's consultant, Golders in the 2014 Annual Report, regarding the operation and performance of the Storm Water Management Facility and Leachate Collection System at the site:

- In order to comply with condition 5(2) of the ECA (effluent limits for ammonia and pH) a response protocol in the form of a flow chart (figure 2) has been included in the updated Operations Manual dated April 2014
- remove condition 5(5) from ECA since no longer operational area of landfill
- leachate monitoring at LPS 1 needs to more closely follow the parameter list in and frequency specified in ECA
- regular inspection of the perimeter ditches in the north fill area is necessary to ensure contaminated run-off is not flowing into storm water ditches especially along the west side of the waste fill area
- measure sediment thickness in swm ponds annually
- inspect and clean leachate system annually
- conduct video inspection after jetting rather than before
- clean and video perimeter collection system in old fill area in 2015
- establish SW18 at lagoon 1 outlet structure and discontinue monitoring at SW14 provided that ammonia and pH limits are not exceeded

I suggest that the City follows the recommendations of their consultant. In a letter dated February 5, 2015, the City provided information to me regarding Golder's recommendations and the City's response. The City is responding to the recommendations although in bullet number 4 (above) Golder is referring to leachate outbreaks as well as storm water impacted by waste, the City must ensure impacted storm water does not enter the perimeter ditches on the west side of the waste fill area and that run-off from the active fill area is not travelling down the road ways and ramps to the perimeter storm water ditches. SW18 was established and monitored in 2015.

2.6 FLOW MEASUREMENT

The flow meters in the leachate pumping stations are manually read and recorded by WPCP operators on a daily basis. A total of 47,197 m³ of leachate was pumped to the WPCP in 2014 and a total of 31,050 m³ of leachate was pumped to the WPCP from the landfill in 2015.

The headworks at the WPCP are equipped with high level alarms and the pump capacity at the leachate collection pumping stations do not allow for flows greater than the peak flow rate (300 m³/day)..

No bypasses from the leachate pumping stations were reported in 2014 or 2015. Landfill cells can tolerate storage of leachate in the collection system in case of pump failure or power outage therefore, there should not be any overflows or bypasses at the leachate pumping stations.

2.7 MINISTRY SAMPLE RESULTS

Were Ministry samples collected during the inspection?

No

Reason:

There was no run-off occurring from the site at the time of the inspection. The leachate indicator parameters are well established at this landfill therefore, tech support staff advised that it is not necessary for district staff to collect leachate samples.

2.8 FINANCIAL ASSURANCE

Financial assurance is not required at this point in time.

2.9 SPILL PREVENTION AND CONTINGENCY PLANS

Is the facility required to have a Spill Prevention and Contingency Plan (SPCP) as required by Ontario Regulation 224/07?

No

Has the facility had any spills since the last inspection?

Nο

Were all the spills reported to the ministry?

N/A

Does the facility's operations or spill history suggest that a SPCP be developed?

No

Comments:

Landfill cells can tolerate storage of leachate in the collection system in case of pump failure or power outage therefore, there are no overflows or bypasses at the leachate pumping stations.

3.0 REVIEW OF PREVIOUS NON-COMPLIANCE ISSUES

In accordance with condition 4(1) of Amended Environmental Compliance Approval #8668-92MTK7 the
operations manual for the stormwater facility and leachate collection system must be reviewed and if necessary,
updated within one year of the issuance of the approval (December 19, 2013). By April 30, 2014, provide an
updated copy to the undersigned Provincial Officer and ensure that an updated copy is included in appendix D of

the Maintenance and Operations Report for the landfill as well as ensuring that an updated copy is provided to all WPCP operators.

Status: Completed and dated April 2014

2. By April 30, 2014, prepare and submit a plan to the undersigned Provincial Officer for relocating SW14 in order to ensure sample results are reflective of the storm water quality leaving the site.

Status: SW18 was included in the monitoring program in 2015

3. By April 15, 2014, (weather permitting) measure the depth of sediment in the storm water retention ponds and determine if dredging and cleaning of either pond is necessary before spring run-off conditions. Prepare and implement a regular monitoring plan for sediment control to be conducted as part of the monthly inspection schedule i.e. measure sediment depth in summer and winter.

Status: completed in 2014 depth was 14.5 cm or 0.14 metres. Depth measurements were also completed in 2015 and it was determined that no dredging is necessary at the time.

4. By April 30, 2014, prepare and submit to the undersigned Provincial Officer, a communication protocol between landfill staff, the regulatory compliance officer and all sample collectors (in-house and consultants) to be implemented after each storm event that has caused run-off from the landfill site.

Status: completed, figure 2 in the operations manual contains the protocol to be followed by staff and/or consultants collecting storm water samples during storm events.

5. By April 30, 2014, retain a qualified person to review the video tape reports of the leachate collection system that were completed in June 2012 and October 2013 and prepare and submit to the undersigned Provincial Officer a report indicating any problems noted and recommendations for any repair or maintenance work that may be required.

Status: completed, the City has retained Golders to review and comment on the video inspections annually.

6. By April 30, 2014, and every year following in accordance with condition 8(6)(c) of ECA #8668-92MTK7 report the quantity of sewage being conveyed through the sewage pumping station separately from the leachate being conveyed through leachate pumping station # 2.

Status: completed, the City reports the sewage pumping station flow separately.

7. By April 30, 2014, submit a plan to the undersigned Provincial Officer that details the maintenance work that will be completed on the storm water ditches, pond and lagoon 1 and the staff training that will be conducted in order to ensure that the storm water management facility is operated and maintained in accordance with the approved design as stated in ECA # 8668-92MTK7 and the original approval application that was submitted to the ministry for approval and dated February 2003.

Status: completed, the updated Operations Manual has a comprehensive section that addresses inspections and maintenance.

8. By March 1, 2014, provide documentation to the undersigned Provincial Officer that indicates that lagoon 1 was dredged as required before being used as part of the storm water management facility.

Status: completed, the City provided an invoice and related correspondence indicating this dredging work was completed.

By March 1, 2014, create and maintain a logbook in accordance with condition 5(8) of ECA #8668-92MTK7. The
logbook shall contain completed inspection forms and cross reference any cleaning and maintenance work
completed as a result of the inspections. Routine cleaning and maintenance work must also be recorded.

Status: completed, an electronic log book is maintained.

10. By April 30, 2014, submit as part of the annual monitoring report for ECA # 8668-92MTK7 an interpretation of the trends of the leachate flow volumes from leachate pumping station #1 and leachate pumping station #2 between the years of 2010 - 2013 if appropriate, correlate the findings with the video inspection results and flushing of the

system for 2010 - 2013.

Status: completed, the 2013 and 2014 Annual Reports provide an interpretation of the flow data from the pumping stations.

4.0 SUMMARY OF INSPECTION FINDINGS

Was there any indication of a known or anticipated human health impact during the inspection and/or review of relevant material, related to this Ministry's mandate?

Nο

Specifics:

Was there any indication of a known or anticipated environmental impact during the inspection and/or review of relevant material?

No

Specifics:

Was there any indication of a known or suspected violation of a legal requirement during the inspection and/or review of relevant material which could cause a human health impact or environmental impairment?

Specifics:

Was there any indication of a potential for environmental impairment during the inspection and/or the review of relevant material?

Nο

Specifics:

Was there any indication of minor administrative non-compliance?

Yes

Specifics:

ECA #8668-92MTK7 is currently under review by the ministry's approvals branch to address changes at the site.

5.0 ACTION(S) REQUIRED

- 1. By March 31, 2016, provide written confirmation to the undersigned Provincial Officer that maintenance work has been completed on the storm water ditches on the south west side of the new fill area and that storm water is flowing to the north storm water management facility unimpeded by silt and debris.
- 2. By April 30, 2016, in accordance with condition 9(3)(d) include in the 2015 Annual Report, all monthly inspection reports and maintenance reports that indicate that work/repairs have been completed for the leachate pump stations at the site.
- By April 30, 2016, submit an Annual Performance Report in accordance with condition 9(3) of ECA #8668-92MTK7.
- 4. By March 31, 2016, submit the following information to the undersigned Provincial Officer: most recent date that

- submersible pumps in pumping stations have had a major overhaul in a service shop, calibration records for all flow meters related to the storm water works and leachate collection system at the site.
- 5. The review of the amendment application is underway at the ministry's approvals branch, I request that the City respond to any requests for additional information in a timely manner in order to avoid delays in the approval process.

6.0 OTHER INSPECTION FINDINGS

A solid non-hazardous waste inspection and a compost inspection was also completed at the site this year.

7.0 INCIDENT REPORT

Applicable 8622-A6SSWL

8.0 ATTACHMENTS

PREPARED BY: Environmental Officer:

Name: Cathy Curlew

District Office: Peterborough District Office

Date: 2016/02/11

Signature Curlew

REVIEWED BY: District Supervisor:

Name: Courtney Redmond

District Office: Peterborough District Office

Date: 2016/02/12

CBRedmand.

File Storage Number: SI KL OP WI 410 - LINDSAY-OPS

Note:

Signature:

"This inspection report does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they may apply to this facility. It is, and remains, the responsibility of the owner and/or the operating authority to ensure compliance with all applicable legislative and regulatory requirements"

Public Works Department

12 Peel Street, Lindsay, Ontario, K9V 3L8 Tel: (705) 324-9411 ext. 2360, 1 888-822-2225

Fax: (705) 328-3122 aporteous@city.kawarthalakes.on.ca



Angela Porteous, Regulatory Compliance Officer

March 31, 2016

Ms. Cathy Curlew Senior Environmental Officer Ministry of the Environment Peterborough District Office 300 Water Street, 2nd Floor South Peterborough, ON, K9J 8M5

Dear Ms. Curlew,

Re: 2015 Industrial Sewage Inspection Report for Lindsay Ops Landfill

This letter is in response to recommendations made in your inspection report received on February 16, 2016 for the inspection at the Lindsay Ops landfill that occurred on November 4, 2015. Below is each recommendation made in the inspection report with the City's response following in bolded font.

1. By March 31, 2016, provide written confirmation to the undersigned Provincial Officer that maintenance work has been completed on the storm water ditches on the south west side of the new fill area and that storm water is flowing to the north storm water management facility unimpeded by silt and debris.

During the November 2015 MOECC inspection, the storm water ditch on the south west side of the new fill area was frozen and not flowing. Currently the ditch continues to flow with the warming weather into the storm water management facility. Staff will continue to monitor and if additional grading is needed to enhance flow then it will be undertaken this summer during low flow. Additionally, as soon as sand bags currently placed in the north pond are unfrozen they will be removed and placed in the south storm water management pond as the facility was designed to operate. See attached photos dated March 7 and March 18, 2016.

2. By April 30, 2016, in accordance with condition 9(3)(d) include in the 2015 Annual Report, all monthly inspection reports and maintenance reports that indicate that work/ repairs have been completed for the leachate pump stations at the site.

All monthly inspection reports and maintenance reports that indicate work/ repairs have been completed for the leachate pump stations at Lindsay Ops landfill will be incorporated into the 2015 Annual Report.

3. By April 30, 2016, submit an Annual Performance Report in accordance with condition 9(3) of ECA# 8668-92MTK7.

Agreed. Golder Associates has been retained to prepare this report with City review prior to the April 30, 2016 submission date.

4. By March 31, 2016, submit the following information to the undersigned Provincial Officer: most recent date that submersible pumps in pumping stations have had a major overhaul in a service shop, calibration records for all flow meters related to the storm water works and leachate collection system at the site.

The most recent date that the submersible pumps in the leachate pumping stations have had a major overhaul in a service shop is as follows

Pumping Station #1 (south)-

 On March 20, 2014, experienced a blockage from the pumping station to the inlet building at the WPCP. Pipe Spy came in to suck out and clean the wet well and cleared the blockage

Pumping Station #2 (middle)-

 In April 2014, the pumps were serviced by Xylem which included replacing several components and adding new oil

Sewage Pumping Station (north)-

• In May 2014, a new submersible pump was ordered from Xylem

Attached are the most recent facility work orders (i.e. monthly monitoring/inspections) completed by Ontario Clean Water Agency on December 4, 2015, December 7, 2015 and January 27, 2016 on behalf of the City. Also, 2015 calibration records for the flow meters related to the storm water works and leachate collection system are attached.

5. The review of the amendment application is underway at the ministry's approval branch. I request that the City respond to any requests in a timely manner in order to avoid delays in the approval process.

Agreed. The City will respond to any requests in a timely manner to move the approval process along for this amendment application.

If you have any questions please call me at (705) 324-9411, extension 2360 if you have any questions.

Yours truly,

Angela Porteous, S.C.

Regulatory Compliance Officer

Cc: File

David Kerr, Manager of Environmental Services Heather Dzurko, Waste Management Operations Supervisor Lindsay Ops Landfill Public Review Committee

Photos of the Storm Water Ditch on the South West Side of the New Fill Area March 7, 2016





March 18, 2016









Ministry of the Environment, Conservation and Parks Ministère de l'Environnement, de la Protection de la nature et des Parcs

Industrial Sewage Inspection Report

Client:	The Corporation of the City of Kawartha Lakes Mailing Address: 12 Peel St, Post Office Box, 9000, Lindsay, Ontario, Canada, K9V 5R8 Physical Address: 12 Peel St Lindsay, Kawartha Lakes, City, Ontario, Canada, K9V 5R8 Telephone: (705)324-9411, email: jrotas@kawarthalakes.ca Client #: 4353-78NJW9, Client Type: Municipal Government, NAICS: 913910 Additional Address Info: Lindsay				
Inspection Site Address:	Lindsay-Ops Landfill Site Address: Lot: 25,26,27, Concession: 6, Ops, 51 Wilson Road Lot 252627 Conc. 6 former Ops Township, Geographic Township: LINDSAY, Kawartha Lakes, City, K9V 4R3 District Office: Peterborough GeoReference: Map Datum: NAD83, Zone: 17, Accuracy Estimate: 1-10 metres eg. Good Quality GPS, Method: Map, UTM Easting: 681075, UTM Northing: 4917997, LIO GeoReference: Zone: , UTM Easting: , UTM Northing: , Latitude: 45.0668, Longitude: -81.4664 Site #: 0854-4KDHG6				
Contact Name:	Kerri Snoddy	Title:	Regulatory Compliance Officer		
Contact Telephone:	705-324-9411 ext 2360	705-324-9411 ext2360 Contact Fax:			
Last Inspection Date:					
Inspection Start Date:	2019/06/07	Inspection Finish Date:	2019/06/07		
Region:	Eastern				

1.0 INTRODUCTION

The Lindsay Ops landfill site is located at 51 Wilson Road, Part of Lot 25, 26, 27, Concession 6 (in the former Township of Ops, now in the City of Kawartha Lakes) and is owned by the City of Kawartha Lakes. The site is approximately 500 metres east of the Scugog River, 2.5 km north of Lindsay, and next to the Lindsay Wastewater Treatment facility. Landfill operations began at the site in 1980.

The original landfill at the site is now closed and the currently operating landfill, known as the north expansion area, is located to the north of the closed landfill. The current landfill operation was first approved in 2001. Cells 4 and 5 of the expansion area were being constructed at the time of the inspection.

The site consists of a 21.2 hectare waste fill area within a total site area of 53.9 hectares.

On June 7, 2019 an industrial sewage inspection was completed focussing on the stormwater management works constructed at the landfill site. In attendance during the inspection were Glenn Rutherford, Senior Environmental Officer, Brittney Helm, Environmental Assistant, both from the Ministry of the Environment, Conservation and Parks (MECP/ministry), and Kerri Snoddy, Regulatory Compliance Officer, Waste Management, from the City of Kawartha Lakes.

The inspection was undertaken to determine compliance with the Ontario Water Resources Act (OWRA), Environmental Protection Act (EPA), Environmental Compliance Approvals (ECA), numbers 8401-AFST88 and A321504, and other relevant ministry legislation, policies and guidelines.

The 2018 annual monitoring report (AMR) for the site was reviewed during the inspection file review. Comments from Eastern Region Technical Support on the 2017 AMR were available for surface water but groundwater comments on

the 2017 or 2018 AMR were not available at the time of the inspection.

The Lindsay Ops Landfill Site Stormwater Management System Operations Manual, dated March 2018, was also briefly reviewed.

This inspection report has been scoped to focus primarily on stormwater management operations at the landfill site and is intended to improve the familiarity of the inspection report author with the stormwater works at the site.

INSPECTION NOTE: Changes to the EPA effective October 2011 have resulted in Certificates of Approval (CofA) now being referred to as Environmental Compliance Approvals (ECA). The electronic template for this inspection report form has not been updated to reflect this change, however, the text entered in the report reflects this change in terminology.

2.0 INSPECTION OBSERVATION

Facility MEWS (Works) Number:

This facility is not subject to the Effluent Monitoring and Effluent Limits Regulations. As such the facility does not submit monitoring data through MEWS.

Sector Type:

Waste Disposal

Effluent Type:

Storm Water, Other

Specify Other:

Compost facility runoff

Receiver Type:

Surface Water

Name of Receiver:

Scugog River

Is there a sensitive receptor on/in the receiver?

Yes

Select the most important type of sensitive receptor.

Receiving Water

Aquatic life in the Scugog River would be the most significant receptor.

Certificate of Approval Number(s):

Yes

C of A Number(s):

Stormwater ECA 8401-AFST88 issued May 25, 2017

and

Waste Site ECA A321504 issued March 8, 2013

Including Notices:

Notice 1 - October 5, 2015

Notice 2 - May 26, 2016

Notice 3 - March 27, 2017

Notice 4 - July 11, 2017

Notice 5 - April 19, 2018

Notice 6 - November 14, 2018

ECA 8401-AFST88 was issued for the construction and operation of the stormwater works serving the Lindsay Ops Landfill Site.

ECA A321504 and Notice 1 also contain conditions which pertain to the stormwater works at the site.

Notice 4 contains conditions which pertain to the control of stormwater from the compost facility at the site.

2.1 WASTEWATER TREATMENT PROCESS DESCRIPTION

In brief, stormwater at the site is managed by the following main components of the sewage works. Each of these are briefly described below:

- North Ditch
- South Ditch
- Central Ditches
- Quality Control Ponds A and B
- Lagoon 1 (quantity control lagoon)
- Compost Pad and Infiltration Pond

The North Ditch is primary intended to re-direct stormwater from the east and northeast of the site around the landfill and ancillary operations.

The South Ditch system is intended to convey stormwater from east of the site past the site but also collects surface flow for the south and west side of the closed landfill.

There is a system of "central" ditches that serve to collect surface flows generated from within the landfill operations area and from the ancillary operations on the site with the exception of the compost pad area. Flows from these areas are conveyed to Quality Control Pond A. In general, surface water flows from the east and north side of the closed landfill and flows from the perimeter of the active landfill plus flows from the waste receiving area and operations buildings.

Quality Control Pond A is intended to provide quality control for the stormwater by acting as a settling pond. Quality Control Pond B is intended as a standby pond to be used when maintenance activities are being undertaken at Quality Control Pond A.

Lagoon 1 is intended to provide additional "polishing" and quantity control. Lagoon 1 discharges to the North Ditch at control point SW18. A stop log system is in place to restrict flow from the pond if required due to water quality.

The compost pad and leaf and yard waste collection area were constructed to direct impacted stormwater from the compost operation away from the stormwater collection system and into a separate collection ditch which coveys the water to a specially constructed infiltration pond. See comments in Section 6, below.

2.2 EFFLUENT SUMMARY REPORT

What are the facility's effluent limits based on?

None

Does the facility comply with its limits?

Yes

No formal effluent limits are specified for the effluent from the stormwater works at the site. A number of sampling points are in place to monitor quality of the stormwater found in the system.

ECA 8401-AFST88 contains conditions which specify that the discharge from Lagoon 1 shall be curtailed should water quality in Quality Control Pond A (or B) not meet either of the following criteria: pH between 6 and 8.5 or total ammonia greater than 5.0 mg/L.

2.3 SEWAGE TREATMENT WORKS CAPACITY ASSESSMENT

Flow (m³/day)	Year 1 2019	Year 2	Year 3
Average daily flow	0.00	0.00	0.00
Maximum daily flow	0.00	0.00	0.00
Capacity Design	0.00	0.00	0.00

% of capacity	0.00	0.00	0.00
(based on average daily			
flow)			

An assessment of the capacity of the sewage works was completed, however, the table above cannot be completed for this facility as it does not have a specified treatment capacity in the ECA and flow monitoring is not required. The table cannot be altered in the template for this report.

The stormwater sewage works are designed to serve a 35.3 hectare drainage area and to attenuate storm events up to 1 in 100 year storm.

2.4 SAMPLING REQUIREMENTS

What are the facility's sampling requirements based on?

Certificate of Approval/Permit

Does the facility meet sampling requirements?

Yes

Sampling is conducted as per the ECA. Sampling events are conducted wby the consultant for the City of Kawartha Lakes or by City staff.

It is noted that some sampling events at some sampling locations were not completed due to lack of flow at those locations during 2017. Some sampling events were missed as a result of staffing changes at the City. These issues were addressed in an earlier waste site inspection for the Lindsay Ops Landfill site conducted on February 6, 2019. See additional details in Section 3, below.

2.5 REPORTING REQUIREMENTS

What are the facility's reporting requirements based on?

Certificate of Approval/Permit

Does the facility meet reporting requirements?

Yes

Sample results and discussion of the outcome of the sampling are provided in the AMR as required by the ECA..

A detailed review of the 2017 AMR was completed by ministry Eastern Region Tech Support Section surface water staff. That review included a review of the stormwater management works sampling. The outcome of that was shared with the City of Kawartha Lakes previously and the City responded to the recommendations in the review memo. A groundwater review of the 2018 AMR is underway at the time of this writing of this inspection report.

In brief, the surface water review noted the following with respect to the stormwater works at the site:

- Parameter concentration were noted as much higher in the North Drainage Ditch at the downstream location versus the upgradient location SW4.
- Data suggest that the stormwater management facility (Quality Control Pond A and Lagoon 1) may be having some impacts on water quality in the north drainage ditch. Results in 2017 are similar to past results.
- As with past reviews, there appears to be a significant impact to the water quality in the North Drainage Ditch between SW14 and SW13. The likely cause being seepage from Lagoon 2 or contaminated groundwater.
- Sampling of the South Drainage Ditch showed results similar to past years. In particular, there is a source of
 contaminated water entering the ditch between SW2 and SW3. The likely cause being Lagoons 5 or 6 or
 contaminated groundwater.
- Some form of flow monitoring was requested to help estimate loadings to the Scugog River from SW13 and SW3 discharge points.
- Conclusions on the significance of the discharges to the Scugog River could not be definitively made until loadings estimates are provided.

The City of Kawartha Lakes has already responded to these comments. A meeting is tentatively planned once additional comments are received from Tech Support groundwater staff, and also the ministry's Environmental Monitoring and Reporting Branch's review of the 2018 biomonitoring report. See Section 6, below.

2.6 FLOW MEASUREMENT

Flow measurement is not required by the ECA.

An estimate flow at SW13 and SW3 has been requested as noted ain Section 2.5, above.

2.7 MINISTRY SAMPLE RESULTS

Were Ministry samples collected during the inspection?

No

Reason:

Lagoon 1 was not discharging at the time of the inspection.

It was felt that obtaining samples at a subset of the sampling locations would not yield useful information about site conditions beyond the results already obtained from routine sampling done under the ECA requirements.

NA

2.8 FINANCIAL ASSURANCE

Financial Assurance is not required for this municipally owned facility.

2.9 SPILL PREVENTION AND CONTINGENCY PLANS

Is the facility required to have a Spill Prevention and Contingency Plan (SPCP) as required by Ontario Regulation 224/07?

No

Has the facility had any spills since the last inspection?

Nο

Were all the spills reported to the ministry?

N/A

Does the facility's operations or spill history suggest that a SPCP be developed?

No

Comments:

The stormwater works are not subject to O. Reg. 224/07.

The municipality reports all spills that occur within the landfill operation including any that impact the stormwater works and compost run-off containment system.

3.0 REVIEW OF PREVIOUS NON-COMPLIANCE ISSUES

As noted above, some sampling events at some sampling locations were not completed due to lack of flow at those locations. Some sampling events were missed as a result of staffing changes at the City. These issues were addressed in an earlier waste site inspection for the Lindsay Ops Landfill site conducted on February 6, 2019.

That report required a response by the City of Kawartha Lakes as follows:

• By April 15, 2019, confirm to the undersigned that procedures are now in place to ensure that all sampling events will be completed as per the ECA.

The City of Kawartha Lakes responded by indicating that the City will ensure that if their consultant is unable to schedule sampling as per the ECA then someone from the City will be available to complete the sampling as required. The City will also work with its consultants to review sampling protocol and the ECA requirements to ensure that the best representative samples are being collected.

4.0 SUMMARY OF INSPECTION FINDINGS

Was there any indication of a known or anticipated human health impact during the inspection and/or review of relevant material, related to this Ministry's mandate?

No

Specifics:

None were observed at the time of the inspection.

Was there any indication of a known or anticipated environmental impact during the inspection and/or review of relevant material?

No

Specifics:

None were observed at the time of the inspection.

Was there any indication of a known or suspected violation of a legal requirement during the inspection and/or review of relevant material which could cause a human health impact or environmental impairment?

Specifics:

None were observed at the time of the inspection.

Was there any indication of a potential for environmental impairment during the inspection and/or the review of relevant material?

No

Specifics:

None were observed at the time of the inspection.

Was there any indication of minor administrative non-compliance?

No

Specifics:

None were observed at the time of the inspection.

5.0 ACTION(S) REQUIRED

No actions are required as a result of this inspection.

6.0 OTHER INSPECTION FINDINGS

A number of small trees were noted growing the Quality Control Pond A and trees were noted in and around Pond 1. The Operations and Maintenance Manual for the site indicates that trees should not be allowed to establish in the ponds. Provision should be made for the control and removal of these trees.

The Compost Pad stormwater collection and infiltration pond have not performed as intended. Levels in the pond have required pumping of the impacted stormwater to the WPCP for treatment. As well, there is no permanent structure in place to allow convenient pumping of the lagoon contents to the WPCP. A temporary pump and pipe system has been used. It is understood that the City of Kawartha Lakes is currently developing a longer term plan to address management of stormwater from the compost pad. The plan may require an amendment to ECA A321504.

The City of Kawartha Lakes is asked to convene a meeting to discuss site surface and groundwater quality. It is recommended the meeting be arranged by end of summer 2019, pending staff and consultant availability. The meeting should include staff responsible for the WPCP (sewage lagoons).

7.0 INCIDENT REPORT

Not Applicable

8.0 **ATTACHMENTS**

PREPARED BY:

Environmental Officer:

Name: Glenn M Rutherford

District Office: Peterborough District Office

2019/07/05 Date: Signature

REVIEWED BY: District Supervisor:

File Storage Number:

Name: **Courtney Redmond**

District Office: Peterborough District Office

2019/07/16 Date:

(BRedmand).

KL OPS WI 410 (STORMWATER WORKS)

Slem Ratherford

Note:

Signature:

"This inspection report does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they may apply to this facility. It is, and remains, the responsibility of the owner and/or the operating authority to ensure compliance with all applicable legislative and regulatory requirements"



APPENDIX E

Sediment Survey Completed by WSP June 2023



LINDSAY OPS LANDFILL SEDIMENTATION POND RESTORATION

51 Wilson Road, Lindsay, ON

ISSUED FOR CLIENT REVIEW

WSP Project No: 171-10835-08

Date: June 1, 2023



KEY PLAN

DRAWING INDEX

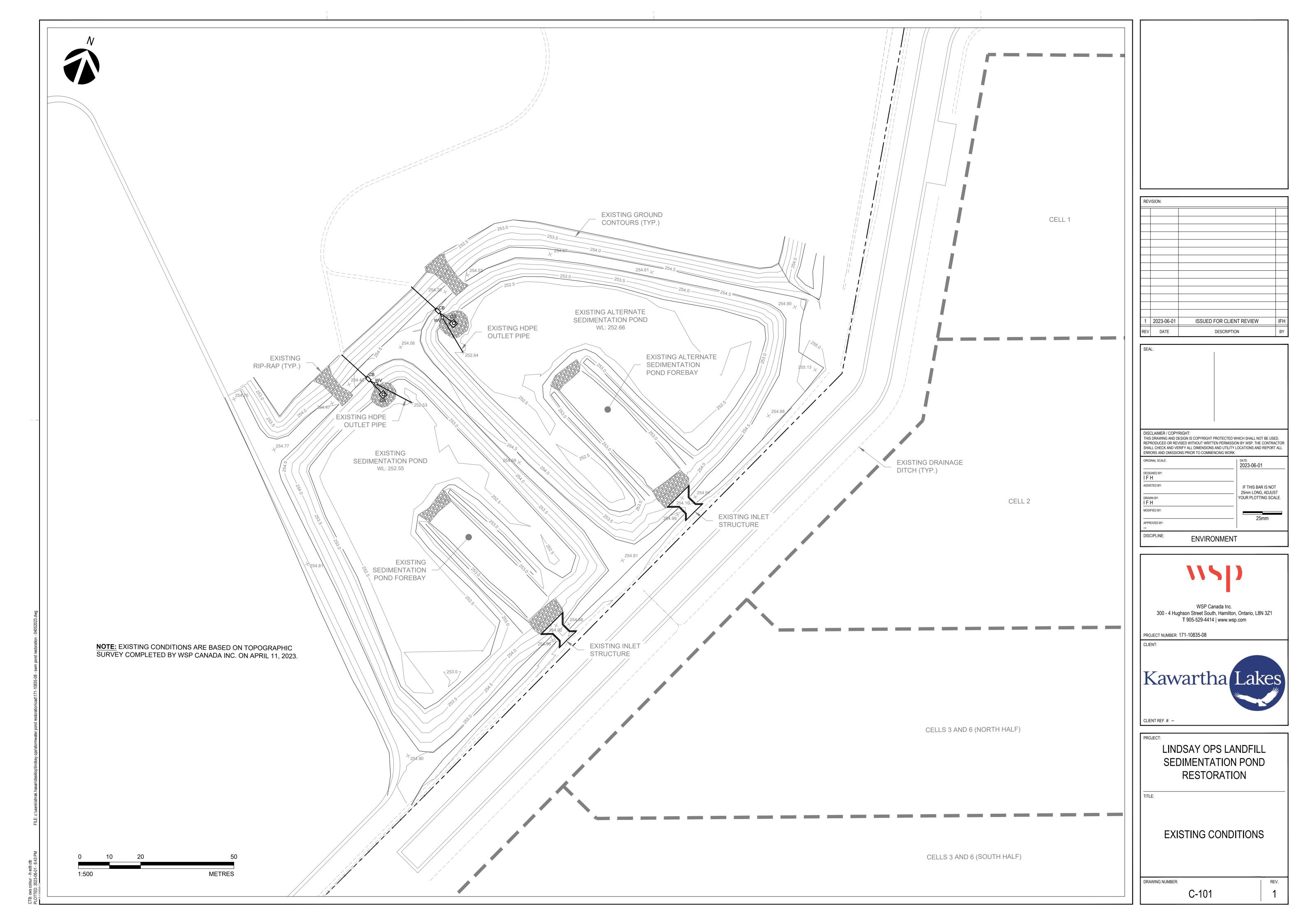
NO.	TITLE
C-101	EXISTING CONDITIONS
C-102	PROPOSED WORK
C-103	CROSS SECTIONS AND TYPICAL DETAILS

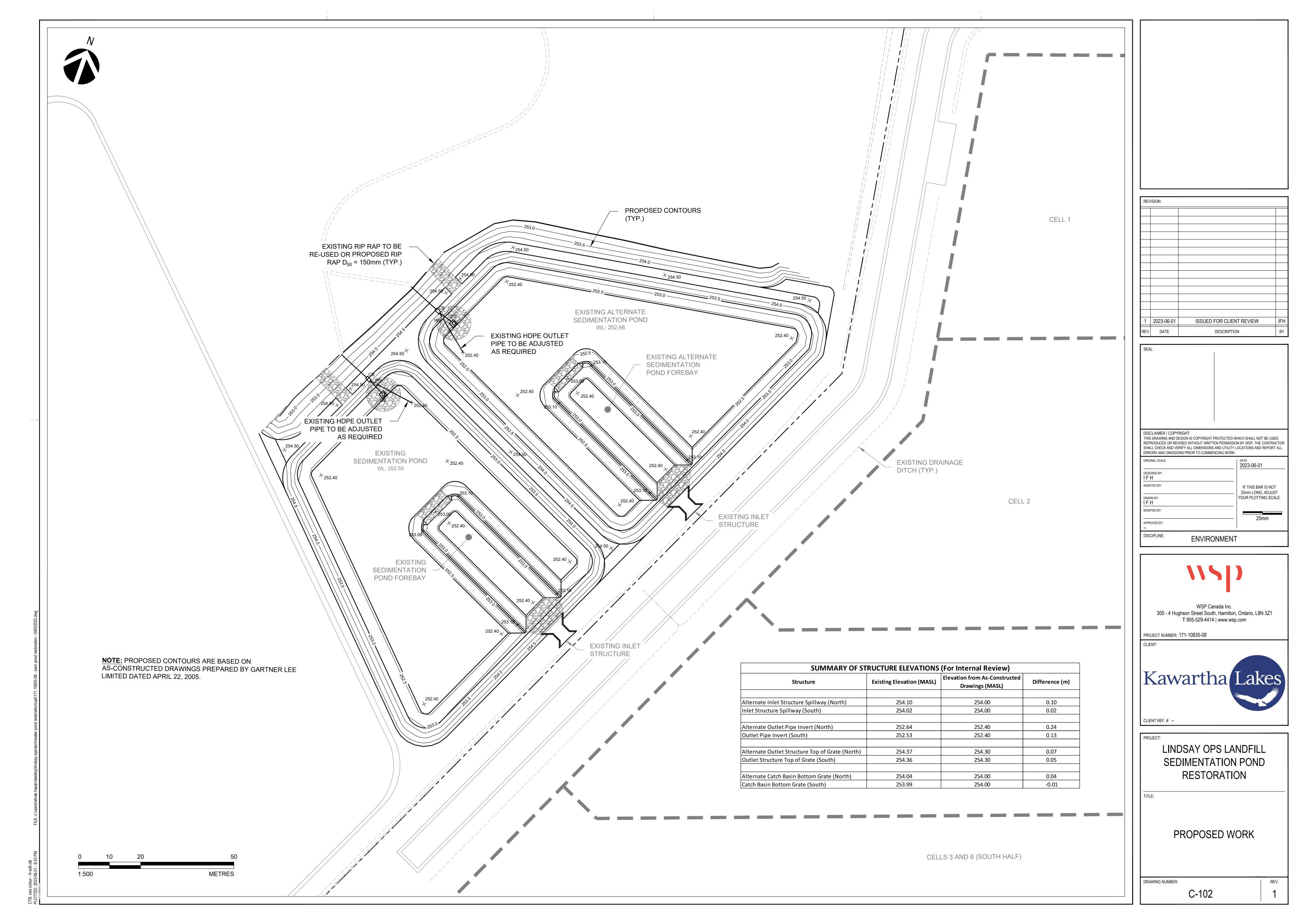
LEGEND

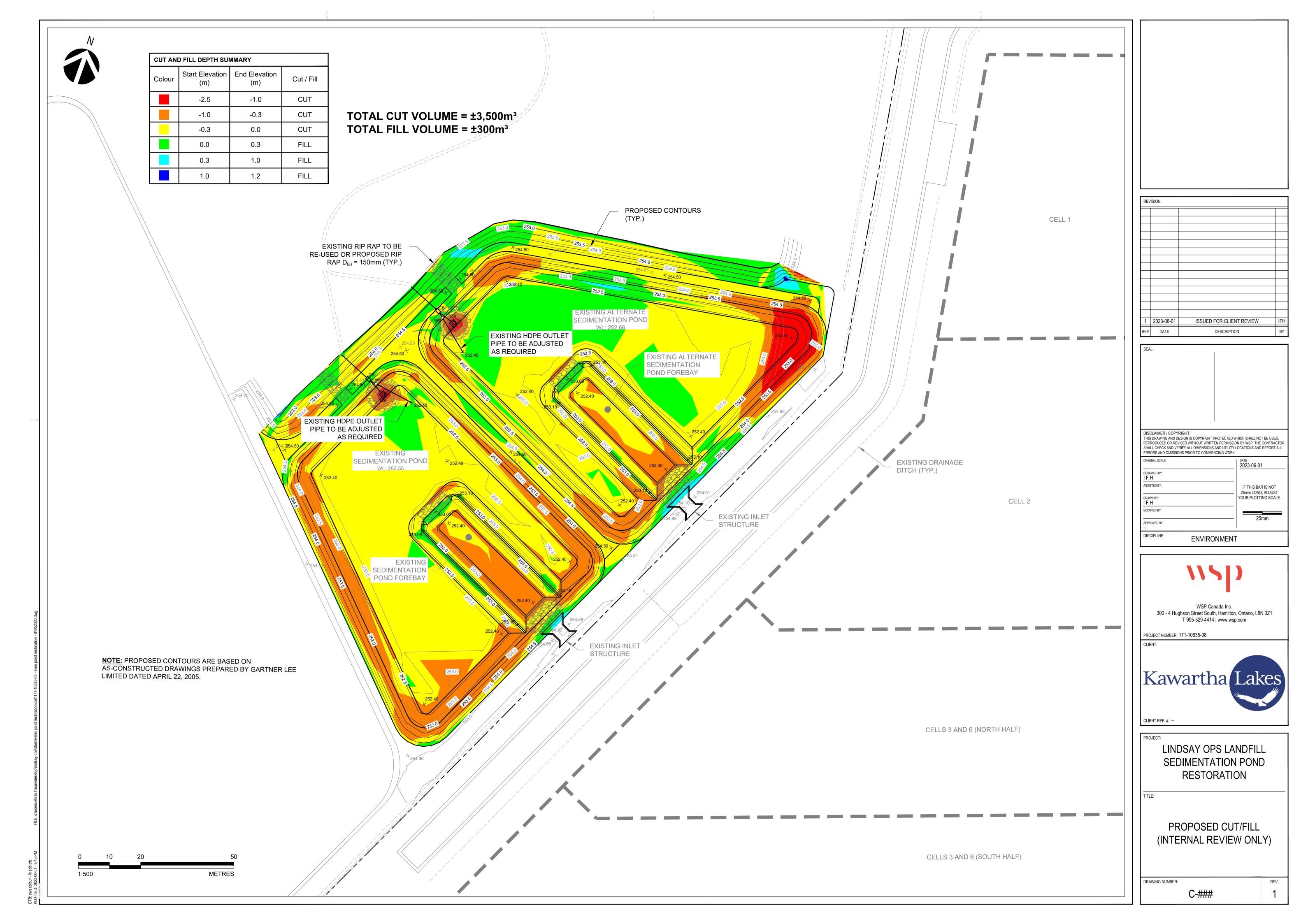
DESCRIPTION	EXISTING	PROPOSED
CELL BOUNDARY / LIMIT OF WASTE		
FENCE -		
CONTOUR LINE	250.5	250.5
SPOT ELEVATION	× 252.53	× 252.53
DRAINAGE DITCH		
CULVERT		
HDPE PIPE -		
OUTLET STRUCTURE		
GATE VALVE	$_{\bigcirc}$ GV	
CATCH BASIN	⊘ CB	
RIP RAP		













APPENDIX M

Old Landfill Perimeter Ground Water Quality Interpretation Tables

Table M1: Inte	rpretation of 2023	<u> Ground Water Quality Data – Overburden Monitoring Wells – We</u>	st Perimeter of Old Landfill
Monitoring Well (Screen Interval)	Indicator Parameters Exceeding Background and/or Showing Increasing Trend	Trend(s)	Ground Water Quality Interpretation
West Perimeter			
15-91-I (9.2 – 10.7* mbgs)	Chloride / Iron / Sulphate	 upward trend in chloride from ~15 mg/L (2004) to 89 mg/L (2010) which flatten to 2013 and then declines ~20 mg/L (2023) sulphate consistent at ~50 past five years iron concentration routinely >1 mg/L since 2006 	 downgradient of the landfill evidence of leachate impact
	Total Ammonia / TKN	 upward trend in total ammonia from <0.1 mg/L (2011) to ~8 mg/L (2018-2023) same upward trend in TKN but more elevated in 2022 (~30 mg/L) due to isolated concentration 	
	Toluene	 since (2008) occasional detections, most recent 0.9 μg/L (May, 2021) 	
	Phenols / DOC	 more numerous phenols detection since 2011 DOC trending from 6 mg/L (2007) to 17 mg/L (2014), below 10 mg/L since 2019 	
15-91-II (3.8 – 5.3 mbgs)	Chloride / Iron / Sulphate	 upward trend in chloride from ~40 mg/L (1994) to ~130 mg/L (2006) and then decline to ~70 mg/L (2014) and then drop to <10 mg/L by 2016. Stable at ~4mg/L since then iron rose above 0.1 mg/L in 1997 to >100 mg/L up to 2007 and then declined to ~50 mg/L since then sulphate declined from ~150 mg/L (1995) to 1 mg/L (2018-2023) 	downgradient of the landfill evidence of leachate impact
	Total Ammonia	 upward trend from <0.01 mg/L (1998) to ~9 mg/L (2006) and then decline to 0.5 mg/L with exception of May 2023 value (2.71 mg/L) 	
	DOC	 at 30 mg/L when monitoring started in 2006 and fluctuated higher and lower through to 2014 and then declined to ~10 mg/L from that point onward 	

Table M1: Interpretation of 2023 Ground Water Quality Data – Overburden Monitoring Wells – West Perimeter of Old Landfill			
Monitoring Well (Screen Interval)	Indicator Parameters Exceeding Background and/or Showing Increasing Trend	Trend(s)	Ground Water Quality Interpretation
16-91-I (6.2 – 7.7* mbgs)	Chloride / Iron / Sulphate / Boron	 upward trend in chloride from ~20 mg/L (2000) to ~400 mg/L (2010) and between 300-500 mg/L since iron rose above 0.1 mg/L in 1997 to ~10 mg/L by 2013 and fluctuates seasonally sulphate declined from ~110 mg/L (1999) to 10 mg/L (2015) and then flattens boron measured at ~0.2-0.3 mg/L over past five years 	downgradient of the landfill evidence of leachate impact
	Toluene Total Ammonia	 consistent BTEX detections from 2006 to 2012, only one in 2022 since upward trend from <0.1 mg/L (1997) to ~1 mg/L (2011) and then decline to 0.6 mg/L (2013) with recent years indicating ~0.5-1 mg/L 	downgradient of the landfill evidence of leachate impact
	Phenols / DOC	 numerous detection from 2006 (start) to 2011 DOC at ~30 mg/L in 2006 (start) to 2012 then declines to ~10 mg/L and more stable since although slow decline still evident 	
16-91-II (3.0 – 4.5 mbgs)	Chloride / Iron / Sulphate / Boron	 upward trend in chloride from ~25 mg/L (1991) to ~500 mg/L (2008) and then fluctuated between 100 mg/L and ~400 mg/L since that time iron rose above 0.1 mg/L in 1992 to ~20 mg/L in 1996 and fluctuates between 50mg/L and 10 mg/L since that time sulphate declined from ~100 mg/L (1995) to between 1 mg/L and 10 mg/L (2008) and has remained within this range since boron measured at ~2 mg/L to 2010 then drops to 0.5 mg/L since then 	downgradient of the landfill evidence of leachate impact
	Toluene	inconsistent BTEX detections from 2016 to 2023	
	Total Ammonia	 upward trend from 0.2 mg/L (1995) to ~30 mg/L (2007) and then declines to ~3 mg/L (2023) with an overall declining trend 	
	Phenols / DOC	 numerous phenols detections from 2006 (start) to 2012 DOC at ~40 mg/L in 2006 (start) to 2010 then declines to ~10-15 mg/L and flattens 	

Table M1: Interpretation of 2023 Ground Water Quality Data – Overburden Monitoring Wells – West Perimeter of Old Landfill			
Monitoring Well	Indicator	Trend(s)	Ground Water Quality
(Screen Interval)	Parameters		Interpretation
	Exceeding		
	Background		
	and/or Showing		
	Increasing		
	Trend		
17-91-I	Chloride / Iron /	 upward trend in chloride from <10 mg/L (1992) to ~40 mg/L 	downgradient of the landfill
(8.2 - 9.7* mbgs)	Sulphate	(2002) and then remains at this level until 2007, declined to	evidence of slight leachate
3 /		~10 mg/L in 2011, with an increase developing in 2017 to	impact
		~100 mg/L by 2022/23	Impact
		 iron has been above 0.1 mg/L in 1991 (start) and rose above 	
		~1 mg/L in 2002 and flattened since then, although seasonal	
		fluctuations exists more recently	
		 sulphate declined from ~100 mg/L (1991) to ~20 mg/L by 2002 	
		and then has increased to ~80 mg/L in 2019 and subtle	
		decline since with 2023 concentrations ~40 mg/L	
	Total Ammonia	 historical results at or below 0.1 mg/L, isolated elevations 	
		>0.1mg/L in 2022/23	
17-91-II	Chloride / Iron /	 downward trend in chloride from ~70 mg/L (1994) to 5 mg/L 	downgradient of the landfill
(5.1 – 6.6 mbgs)	Sulphate	(2019), more variable since 2019	little evidence of leachate
0 /	'	 sulphate trends down from 50 mg/L to ~20 mg/L (2007) and 	impact
		then climbs abruptly to ~75 mg/L (2008) and then slowly	
		declined to ~45mg/L	
		• iron rose above 1 mg/L; but has declined since 2007 and has	
		remained low but variable since	
	Total Ammonia	 historical results at or below 0.1 mg/L, isolated elevations 	
		>0.1mg/L in 2022/23	
19-91	Chloride /	 downward trend in chloride from ~40 mg/L (2000) to 5 mg/L 	downgradient of the landfill
(4.5 – 6.1 mbgs)	Sulphate	(2017) and has risen steadily since up to ~50 mg/L in 2023	little evidence of leachate
3-7	'	 sulphate trends down from 110 mg/L (1999) to ~30 mg/L in 	impact
		2020 but increasing up to ~60mg/L in 2023	
	Total Ammonia	historical results at or below 0.1 mg/L, isolated elevations	
	. c.a. / armiorila	>0.1mg/L in 2022/23	
	Toluene		
	Toluelle	Inconsistent BTEX detections from 20111 to 2023	

Notes: * - bottom hole depth at bedrock contact

		till crimictor or old Editaliii
Indicator	Trend(s)	Ground Water Quality
Parameters		Interpretation
Exceeding		
Background		
and/or Showing		
Increasing		
Trend		
Chloride	 slight upward trend in chloride from ~50 mg/L (1994) to 	upgradient of the landfill
	~100 mg/L (2023)	no significant leachate impact
		3
Phosphorus	sporadic detections above MDL	
Toluene	consistently below MDL except for trace detections between	
	2008 and 2021	
Chloride	 chloride rose after 2008 from ~100 mg/L to ~150 mg/L but has 	 upgradient of the landfill
	been variable but within a predictable range since	no significant leachate impact
Phosphorus	sporadic detections above MDL	
	a few spurious elevated detections	
Toluene	consistently below MDL except for trace detections between	
	2008 and 2021	
	Exceeding Background and/or Showing Increasing Trend Chloride Phosphorus Toluene Chloride Phosphorus	Parameters Exceeding Background and/or Showing Increasing Trend Slight upward trend in chloride from ~50 mg/L (1994) to ~100 mg/L (2023) Phosphorus o sporadic detections above MDL Toluene consistently below MDL except for trace detections between 2008 and 2021 Chloride o chloride rose after 2008 from ~100 mg/L to ~150 mg/L but has been variable but within a predictable range since Phosphorus o sporadic detections above MDL a few spurious elevated detections Toluene o consistently below MDL except for trace detections between

Notes: * - bottom hole depth at bedrock contact

Monitoring Well	Indicator	Trend(s)	Ground Water Quality
(Screen Interval)	Parameters Exceeding Background and/or Showing Increasing Trend	Henu(s)	Interpretation
East Perimeter			
12-91-I (2.8 – 4.2* mbgs)	Total Ammonia / TKN	 ammonia consistent measurement at ~0.1 mg/L TKN remained variable but within predictable range over past 13 years. Both indicated isolated increased variability the past two years but generally still within historical range 	 immediately upgradient of the landfill some variably in the major ion chemistry; but no obvious
	Phosphorus	generally has reported measurements below the MDL occasionally elevated measurements has occurred	trends, barring TKN no significant leachate impact
	Phenolics	 consistently below MDL; but a few detections reported since 2016 	
12-91-II	Chloride	longer term variance, but within a predictable range	immediately upgradient of the
(2.2 - 3.7 mbgs)	Total Ammonia	longer term variance, but within a predictable range	landfill
	Phosphorus	generally has reported measurements below the MDL occasionally detection has occurred including three since 2018	 some variably in the major ion chemistry; but no obvious trends
	Phenolics / DOC	consistently below MDL; but a few detections reported since 2017 DOC consistent at ~10 mg/L	iron fluctuates seasonal no significant leachate impact
49-96-II (9.0 – 10.8* mbgs)	Chloride / Iron / Boron	 choride consistent at ~100 mg/L boron has slow decline in concentrations over time, concentrations now below 1mg/L since 2021 iron concentrations show seasonal fluctuations 	upgradient of the landfillno significant leachate impact
49-96-III (3.6 – 4.6 mbgs)	Chloride / Sulphate	 upward trend in 2008 from 40 mg/L to 130 mg/L in 2011 and then flattens, current concentrations ~100 mg/L sulphate has a downward trend after 2007, but more stable past 5 years 	upgradient of the landfill no significant leachate impact
	Phosphorus	generally has reported measurements below the MDL occasionally detection has occurred	
	Phenolics	consistently below MDL; but a few detections reported	
	Toluene	 consistently below MDL except for sporadic detections, none in past 11 years 	

Monitoring Well	Indicator	Trend(s)	Ground Water Quality
(Screen Interval)	Parameters	Tiona(5)	Interpretation
(Corcert interval)	Exceeding		merpretation
	Background		
	and/or Showing		
	Increasing		
	Trend		
	Tiellu		
South Perimeter			
13-91-I	Chloride / Iron /	 slight upward trend from 26 mg/L (1991) to 100 mg/L (2022) 	 parallel gradient of the
(10.5 – 12.0* mbgs)	Sulphate	 slight downward trend in sulphate from 32 mg/L (1993) to 27 mg/L 	landfill
		(2022)	 no significant leachate
		• iron concentration is constant between 0.1 mg/L and ~0.5 mg/L	impact
	Total Ammonia	 constant at ~0.5 mg/L, although more elevated in 2023 (>1 mg/L) 	-
13-91-II	Chloride /	 chloride increase from ~60 mg/L to 155 mg/L in 1996 then slight upward 	parallel gradient of the
(3.0 – 4.5 mbgs)	Sulphate / Iron	trend to ~250 mg/L (2017) then upward trend to 790 mg/L (2019), more	landfill
(0.0 4.0 111090)	Calphate / Horr	variable past three years	evidence of leachate
		upward trend in sulphate from 33 mg/L (1994) to 55 mg/L (2004) then description of the sulphate from 33 mg/L (1994) to 55 mg/L (2004) then	impact
		downward trend to ~10 mg/L (2018), although variable last two years	
		variable iron concentrations, although within predictable range past 15	
		years	
	Total Ammonia	 variable over time between ~0.1 – 1 mg/L 	
14-07	Chloride / Iron	• upward trend from ~20 mg/L (1991) to ~400 mg/L peaks (1997 – 2004).	 monitoring well
(2.0 - 5.0 mbgs)		 new monitor has oscillating high chloride values ~20 mg/L 	replaced to construct
		iron very low past 15 years (0.01 mg/L))	landfill cap
formerly 14-91	Total ammonia	 increasing peaks above 10 mg/L commencing 1994 to 2005; but 	new well shows no
(3.0 – 4.5 mbgs)		dropped to ~0.1 mg/L in new monitoring well. Concentrations the pat	significant leachate
		three years show increasing trend to ~1 mg/L	impact
decommissioned in	Phosphorus	consistent detection until monitor replaced; 2019 had anomolous data	new well not showing
2006; replaced in	1 Hoophordo	oonsistent detection until monitor replaced, 2010 had anomologo data	significant leachate
2007			impact
			<u> </u>
18-91	Chloride / Iron /	• chloride declined from 2009 (23 mg/L) to 2013 (7 mg/L) but has risen to	parallel gradient to the
(4.5 - 6.0 mbgs)	Sulphate	~70 mg/L by 2022	landfill
	-	• slight downward trend in sulphate from ~50 mg/L (1995) to ~15-20 mg/L	no significant leachate
		(2021 - 2023)	impact
		• iron concentration consistent at ~0.3 mg/L from 1996 to 2011 and then	'
		decreases to ~0.1 mg/L, although variable since within a predictable	
		range	
	1	·=··g=	

		Transfer Water Quality Data - Overburgen Monitoring Wells - Sout	
Monitoring Well (Screen Interval)	Indicator Parameters Exceeding Background and/or Showing Increasing Trend	Trend(s)	Ground Water Quality Interpretation
South Perimeter			
23-07 (5.5 – 8.4 mbgs) formerly 23-91 (6.8 – 8.3 mbgs)	Chloride / Iron Total Ammonia	 increasing trend from 25 mg/L (1993) to ~70 mg/L (2005); but constant at 10 mg/L after new well constructed until 2019 when slow increase began to 40 mg/L (2022) iron concentration elevated variable over time but within a predictable range concentrations below 0.1 mg/L until 2022, where concentrations 	 monitoring well replaced to construct landfill cap new well shows no significant leachate impact detecting anoxic plume
decommissioned in 2006; replaced in 2007		more elevated and variable up to ~1 mg/L	
25-91 (2.4 – 3.9 mbgs)	Chloride / Sulphate / Iron	 elevated from outset ~150 mg/L and staying this level until 2022 when increased to ~250 mg/L sulphate declines from ~110 mg/L to ~10-50 mg/L since 2006 iron fluctuates between ~0.1 mg/L and 1 mg/L 	 parallel gradient of the landfill slight leachate impact
	Total ammonia	 increased from 0.02 (1993) to 0.5 (2004) and then has declined to between 0.01 mg/L and 0.1 mg/L. 2023 concentrations more elevated (~1 mg/L) in 2023 	
	Phosphorus	numerous trace detections up to 2011 and again in 2019 although interpreted to be anomolous as none since then	
	DOC	 elevated at ~5 mg/L since start (2006), slight decreasing trend over past few years 	
29-93 (2.8 – 4.3 mbgs)	Chloride / Iron	 elevated from outset ~1,000 mg/L and varying (100 - 1,000 mg/L). iron concentration exists between 0.1 mg/L and ~3 mg/L 	parallel gradient of the landfillevidence of leachate impact
	Phosphorus	consistent detections since start (1993)	
	DOC	 elevated at ~10 mg/L since start (2006); but declining over time to 2 mg/L (2022) 	
	Total Ammonia	 concentrations below 0.1 mg/L until 2022, where concentrations increased up to ~1 mg/L 	

	•	Town 1/2	
Monitoring Well	Indicator	Trend(s)	Ground Water Quality
(Screen Interval)	Parameters		Interpretation
	Exceeding		
	Background		
	and/or Showing		
	Increasing		
	Trend		
35-93-I	Chloride	 slight upward trend from ~10 mg/L (1993) to ~25 mg/L (2023) 	parallel gradient of the landfill
(6.7 – 8.2* mbgs)	Phosphorus	consistent detections from start to 2011, less frequent after	no significant leachate impact
	Total Ammonia	concentrations variable over time but within a predictable range	
35-93-II	Chloride / Iron	 upward trend from ~2 mg/L (1999) to 120 mg/L (2005) and then 	 parallel gradient of the landfill
(2.5 – 4.0 mbgs)		variable between ∼10 – 150 mg/L until 2018 where an	 no significant leachate impact
		increasing trend has begun up to ~240 mg/L in 2022	
		 upward trend to iron ~0.08 mg/L (1996) to peaks at ~2 mg/L 	
		(2007) and then declining to between ~0.01 – 0.1 mg/L since	
	Total Ammonia	 concentrations below 0.1 mg/L until 2022, where concentrations 	
		increased up to ~1 mg/L	
36-93	Chloride / Iron	 slight upward trend from ~20 mg/L (1994) to 40 mg/L (2022) 	parallel gradient of the landfill
(2.9 – 4.0 mbgs)		• iron concentration consistently at ~1 mg/L	no significant leachate impact
()	Total Ammonia	concentrations below 0.1 mg/L until 2022, where concentrations	detecting anoxic plume
		increased up to ~1 mg/L	
	Toluene	inconsistent BTEX detections from 20111 to 2023	
37-93-I	Chloride / Iron	 upward trend from ~50 mg/L (1995) to ~200 mg/L (2022) 	parallel gradient of the landfill
(6.7 – 8.2* mbgs)		• iron concentration between 0.4 mg/L and 1 mg/L, more	no significant leachate impact
,		consistent at 1 mg/L past ten years	detecting anoxic plume
37-93-II	Chloride / Iron	chloride relatively consistent range past 15 years at 150 –	parallel gradient of the landfill
(2.3 – 3.8 mbgs)		300 mg/L), within slight increasing trend noted in 2021 /2022 up	no significant leachate impact
(· · · · · · · · · · · · · · · · · · ·		to ~500 mg/L	brief detection of anoxic plume
		• iron concentrations generally between 0.7 and 2.5 mg/L past 15	s shar detection of anoxic plante
		vears	
	Total Ammonia	concentrations below 0.1 mg/L until 2021, where concentrations	
		increased up to ~1 mg/L but are variable	
	Toluene	inconsistent BTEX detections from 20111 to 2023	
38-93	Chloride / Iron	chloride relatively consistent range past 10 years at 10 mg/L)	parallel gradient of the landfill
(2.5 - 4.0 mbgs)		• iron concentrations generally between 0.01 and 1 mg/L past 25	no significant leachate impact
		years	 parameters values consistent
	Total Ammonia	 concentrations below 0.1 mg/L until 2021, where concentrations 	over period of record with
	. July William	increased up to ~10 mg/L but are variable	minor exceptions
		I more about up to ingre but are variable	1111131 ONOOPHOTIO

Monitoring Well (Screen Interval)	Indicator Parameters	Trend(s)	Ground Water Quality Interpretation
	Exceeding Background and/or Showing Increasing Trend		
39-93-I (8.9 – 10.4* mbgs)	Chloride / Iron	 slight upward trend from 50 mg/L (1994) to ~175 mg/L (2022) within slight increasing trend past 5 years iron concentration elevated at ~1 mg/L, but consistent 	parallel gradient of the landfillno significant leachate impact
	Total ammonia	 consistent concentration at ~0.2 mg/L until 2022 with 2023 concentrations up to 1 mg/L 	
39-93-II (2.3 – 3.8 mbgs)	Chloride / Sulphate	 Consistent ~100 mg/L (2006-2014) then upward trend to ~500 mg/L (2019 - 2023) Sulphate concentration between ~10 and ~60 mg/L since 2006 	parallel gradient of the landfillslight leachate impact
	Total Ammonia	 essential no detection until (2012) and then consistent trace detection with occasional elevations but <1 mg/L. 2023 slightly higher 	

Notes: * - bottom hole depth at bedrock contact



APPENDIX N

Ground Water Quality Summary Tables – PWQO Comparison

Ground Water - General Water Quality PWQO Comparison

Quality 1 11QO OO			30-93 30-93		31-93	31-93	45-93	45-93	45-93	45-95-I	45-95-I	45-95-II	45-95-II	46-95-I	46-95-I	46-95-II	46-95-II
Parameters	Units	PWQO	2-May-23	18-Oct-23	2-May-23	18-Oct-23	2-May-23	12-Jul-23	18-Oct-23	2-May-23	18-Oct-23	2-May-23	18-Oct-23	2-May-23	18-Oct-23	2-May-23	18-Oct-23
Alkalinity	mg/L		465	459	455	462	400	426	426	337	351	272	356	586	616	570	625
Unionized Ammonia	mg/L	0.02					0.01	< 0.01	<0.01								
Ammonia	mg/L		8.19		8.16		3.63	0.43		1.86		2.77		29.2		32.4	
BOD	mg/L						< 3	< 3									
Calcium	mg/L		136	110	135	115	192	188	140	129	131	93.5	128	150	161	144	151
COD	mg/L		15	23	15	26	< 5	11	8	21	12	17	19	36	44	28	43
Chloride	mg/L		202	181	199	182	338	345	321	119	105	32	89.5	247	21.5	244	216
Conductivity	umhos/cm		1460	1410	1430	1420	1840 < 0.005	1760 < 0.005	1620	1180	1170	644	958	1800	1820	1770	1830
Cyanide DOC	mg/L mg/L		3.2	4.4	2	4.2	0.005	< 0.005	3.2	2.6	5	4.1	5	5	7.8	3.8	7
Fluoride	mg/L		< 0.1	<0.1	< 0.1	<0.1	< 0.1	< 1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.7
Hardness	mg/L		482	414	472	422	542	521	390	440	443	262	358	518	547	497	518
Ion Balance	%		0.801	5.06	1.51	5.7	1.08	2.01	12.3	3.11	1.35	3.3	2.07	5.45	14.7	6.66	5.37
Iron	mg/L	0.3	8.73	3	10.6	2.57	< 0.005	< 0.005	0.082	2.35	2.27	< 0.005	<0.005	11.8	13.3	11.4	0.006
Magnesium	mg/L	0.5	34.7	33.7	32.9	32.7	15.5	12.4	9.76	28.4	28	6.85	9.2	34.5	35.2	33.6	34.3
Manganese	mg/L		0.266	0.144	0.375	0.175	< 0.001	0.001	0.002	0.076	0.046	0.003	0.013	0.083	0.088	0.08	0.083
Nitrate	mg/L		0.09	<0.05	0.070	0.170	0.75	0.89	0.66	< 0.05	0.07	2.18	0.36	0.005	<0.05	< 0.05	<0.40
Nitrite	mg/L		0.05	0.05	0.09	0.66	< 0.05	< 0.5	<0.05	< 0.05	<0.05	< 0.05	<0.05	< 0.05	<0.05	< 0.05	<0.40
Tot Kjel N	mg/L		7.4	8.4	8.3	9.6	3.8	1	0.5	1.8	1.4	2.6	0.8	32.4	26.3	32.6	41.5
pH-Lab	pH unit	8.5	7.7	7.44	7.68	7.43	7.59	7.71	7.59	7.82	7.54	7.93	7.52	7.68	7.5	7.67	7.55
Phenols	mg/L	0.005	< 0.001	<0.001	< 0.001	<0.001	< 0.001	< 0.001	<0.001	< 0.001	<0.001	< 0.001	<0.001	< 0.001	<0.001	< 0.001	<0.001
Phosphorus	mg/L	0.003	< 0.1	<0.001	< 0.001	<0.001	< 0.1	< 0.1	<0.001	< 0.1	<0.001	< 0.1	<0.001	< 0.1	<0.001	< 0.1	<0.001
Potassium	mg/L	0.03	3.6	3.6	3.8	4.1	1.7	1.6	1.2	2.8	2.7	3	5.6	9.3	9	9	10
Sodium	mg/L		109	106	101	101	176	175	146	74.3	72.8	21.7	50.6	127	125	120	122
Sulphate	mg/L		9	12	11	12	26	25	27	14.3	124	9	10	< 1	<1	120	<2
TDS	mg/L		783	767	766	770	989	1003	888	698	628	329	510	931	997	905	1000
TSS	mg/L		700	707	700	770	1590	4680	1060	000	020	020	010	301	331	300	1000
Turbidity	NTU						823	1160	510								
Colour	TCU						< 2	3	<2								
Aluminum	mg/L	0.075	0.03	0.03	0.04	0.04	0.06	0.09	0.08	0.04	0.04	0.02	0.04	0.04	0.06	0.04	0.05
Antimony	mg/L	0.02	< 0.0001	<0.0001	< 0.0001	<0.0001	0.0001	< 0.0001	0.0001	< 0.0001	0.0001	< 0.0001	<0.0001	< 0.0001	<0.0001	< 0.0001	<0.0001
Arsenic	mg/L	0.1	0.0044	0.0021	0.0023	0.001	< 0.0001	< 0.0001	0.0001	0.0003	0.0002	< 0.0001	0.0001	0.0001	0.0001	< 0.0001	0.0001
Barium	mg/L		0.417	0.334	0.44	0.365	0.116	0.117	0.09	0.038	0.04	0.02	0.036	1.08	1.1	1.03	1.06
Beryllium	mg/L	1.1	< 0.002	<0.0001	< 0.002	<0.0001	< 0.002	< 0.002	<0.0001	< 0.002	<0.0001	< 0.002	<0.0001	< 0.002	<0.0001	< 0.002	<0.0001
Boron	mg/L	0.2	0.102	0.099	0.082	0.092	0.01	0.008	<0.005	0.115	0.13	0.018	0.046	0.115	0.116	0.107	0.093
Cadmium	mg/L	0.0005	< 0.000012	<0.000015	< 0.000012	<0.000015	< 0.000012	< 0.000012	0.000114	< 0.000012	<0.000015	< 0.000010	<0.000015	< 0.000012	<0.000015	< 0.000012	<0.000015
Chromium	mg/L	0.001	< 0.001	<0.001	< 0.001	<0.001	< 0.001	< 0.001	<0.001	0.001	<0.001	< 0.001	<0.001	< 0.001	<0.001	< 0.001	<0.001
Cobalt	mg/L	0.0009	0.006	0.0017	< 0.005	0.0008	< 0.005	< 0.005	0.0003	0.006	0.0001	< 0.005	0.0001	< 0.005	0.0005	0.006	0.0005
Copper	mg/L	0.005	0.0003	0.0004	0.0004	0.0005	0.0006	0.0007	0.0008	0.0017	0.0002	0.0013	0.0015	0.0004	0.0003	0.0003	0.0002
Lead	mg/L	0.005	< 0.00004	<0.00002	< 0.00004	<0.00002	< 0.00004	< 0.00004	<0.00004	< 0.00004	<0.00002	< 0.00002	<0.00002	< 0.00004	<0.00002	< 0.00004	<0.00002
Mercury	mg/L	0.0002	< 0.00002	<0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	<0.00002	< 0.00002	<0.00002	< 0.00002	0.00002	< 0.00002	<0.00002
Molybdenum	mg/L	0.04	0.0005	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	0.0001	0.0001	0.0001	0.0001	<0.0001	0.0001	<0.0001
Nickel	mg/L	0.025	< 0.01	0.0061	< 0.01	0.0003	< 0.01	< 0.01	0.0003	< 0.01	0.0001	< 0.01	0.0001	< 0.01	0.0023	< 0.01	0.0021
Selenium	mg/L	0.023	0.002	<0.001	0.002	<0.0047	< 0.001	< 0.001	<0.0010	0.001	<0.002	< 0.001	<0.001	0.002	<0.0023	0.002	<0.0021
Silver	mg/L	0.1	< 0.002	<0.001	< 0.002	<0.001	< 0.001	< 0.0001	0.0006	< 0.001	<0.001	< 0.001	<0.001	< 0.002	<0.001	< 0.002	<0.001
Strontium	mg/L		0.528	0.494	0.51	0.478	0.479	0.439	0.0006	0.433	0.425	0.0001	0.339	0.688	0.704	0.662	0.685
Thallium		0.0003	< 0.00005	<0.00005	< 0.00005	<0.00005	< 0.00005	< 0.00005		< 0.00005	<0.00005	< 0.00005				< 0.0005	<0.0005
	mg/L	0.0003	< 0.00005	<0.00005	< 0.00005	<0.00005	0.00005	0.00005	<0.00005 0.0002	< 0.00005	<0.00005	< 0.00005	<0.00005 <0.0001	< 0.00005 0.0003	<0.00005 0.0004	0.0003	0.0003
Vanadium	mg/L																
Zinc	mg/L	0.03	< 0.005	<0.005	< 0.005	<0.005	< 0.005	< 0.005	<0.005	< 0.005	<0.005	< 0.005	<0.005	< 0.005	<0.005	< 0.005	<0.005

PWQO - Provincial Water Quality Objective Bold & Highlighted - PWQO exceedance

Ground Water - General Water Quality PWQO Comparison

Quality 1 WQO CO			47-96-I	47-96-I	47-96-II	47-96-II	48-96-I	48-96-I	48-96-II	48-96-II	59-05	59-05	60-05	60-05
Parameters	Units	PWQO	2-May-23	18-Oct-23	2-May-23	18-Oct-23	2-May-23	18-Oct-23	2-May-23	18-Oct-23	2-May-23	18-Oct-23	2-May-23	18-Oct-23
Alkalinity	mg/L		435	429	460	516	288	309	464	450	591	624	301	321
Unionized Ammonia	mg/L	0.02												
Ammonia	mg/L		3.05		30.3		1.75		2.17		18.5		2.04	
BOD	mg/L													
Calcium	mg/L		133	129	122	114	69.2	67	152	138	159	164	101	100
COD	mg/L		20	20	31	99	12	23	52	44	33	39	19	15
Chloride	mg/L		240	185	278	252	76.9	64.6	139	115	240	211	144	126
Conductivity	umhos/cm		1480	1350	1730	1810	783	790	1240	1180	1770	1780	1010	1020
Cyanide DOC	mg/L mg/L		2.5	4.1	1.2	6.6	1.2	2.8	2.4	5.7	3.6	6.9	2.2	2.8
Fluoride	mg/L		< 0.1	<0.1	< 0.1	<0.7	0.4	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1
Hardness	_		490	475	412	383	340	325	543	504	549	560	412	406
Ion Balance	mg/L %		2.87	0.639	2.88	5.38	0.0556	1.68	1.32	0.107	3.42	2.99	2.55	2.32
Iron	mg/L	0.3	2.07	1.8	13	14.9	< 0.005	0.008	6.01	3.67	11.7	12.6	0.61	0.671
		0.5	38.2	37	25.7	23.9	40.7	38.4	39.5	38.8	36.6	36.6	38.6	38
Magnesium Manganese	mg/L mg/L		0.132	0.09	0.376	0.286	< 0.001	0.002	0.101	0.064	0.077	0.078	0.03	0.013
Nitrate	mg/L		< 0.05	0.09	< 0.05	<0.40	0.22	0.002	< 0.05	<0.05	< 0.05	<0.05	< 0.05	0.013
Nitrite			< 0.05	<0.07	< 0.05	<0.40	< 0.05	<0.05	< 0.05	<0.05	< 0.05	<0.05	< 0.05	<0.05
Tot Kjel N	mg/L		2.8	1.9	27.4	59.4	1.4	0.8	2.3	2.1	24.1	27.6	2	0.03
pH-Lab	mg/L	8.5	7.82	7.63	7.8	7.67	8.12	7.72	7.67	7.44	7.64	7.47	7.96	7.73
Phenols	pH unit	0.005	< 0.001	<0.001	< 0.001	<0.001	< 0.001	0.001	< 0.001	<0.001	< 0.001	<0.001	< 0.001	<0.001
	mg/L													
Phosphorus	mg/L	0.03	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1
Potassium	mg/L		3.1	2.5	9.2	14.9	3.7	3.6	3.2	3.1	8.4	8.3	2.9	3
Sodium	mg/L		108	93.8	160	157	35.1	34.4	56.1	49.9	128	122	39	38.5
Sulphate TDS	mg/L		5 791	6 733	2 887	<2 995	23 421	19 415	7 682	13 635	< 1 938	3 977	23 530	19 542
TSS	mg/L mg/L		791	733	007	993	421	413	002	033	930	911	330	542
Turbidity	NTU													
Colour	TCU													
Aluminum	mg/L	0.075	0.04	0.04	0.06	0.05	0.02	0.02	0.06	0.04	0.04	0.06	0.04	0.05
Antimony	mg/L	0.02	< 0.0001	<0.0001	< 0.0001	<0.0001	< 0.0001	0.0002	< 0.0001	<0.0001	< 0.0001	<0.0001	< 0.0001	0.0001
Arsenic	mg/L	0.1	< 0.0001	<0.0001	0.0039	0.0052	0.0002	0.0002	0.0003	0.0002	0.0002	<0.0001	< 0.0001	<0.0001
Barium	mg/L	0.2	0.486	0.429	0.137	0.169	1.1	1.07	0.78	0.739	1.26	1.23	0.207	0.206
Beryllium	mg/L	1.1	< 0.002	<0.0001	< 0.002	<0.0001	< 0.002	<0.0001	< 0.002	<0.0001	< 0.002	<0.0001	< 0.002	<0.0001
Boron	mg/L	0.2	0.073	0.074	0.131	0.148	0.144	0.147	0.078	0.077	0.11	0.113	0.022	0.022
Cadmium	mg/L	0.0005	< 0.000012	<0.000015	< 0.000012	<0.000015	< 0.000010	<0.000015	< 0.000012	<0.000015	< 0.000012	<0.000015	< 0.000010	<0.000015
Chromium	mg/L	0.001	< 0.001	<0.001	< 0.001	<0.001	< 0.001	<0.001	< 0.001	<0.001	< 0.001	<0.001	< 0.001	<0.001
Cobalt	mg/L	0.0009	0.006	<0.0001	< 0.005	0.0005	< 0.005	<0.0001	< 0.005	<0.0001	< 0.005	0.0004	0.007	0.0004
Copper	mg/L	0.005	0.0004	0.0002	0.0004	0.0002	0.0006	0.0004	0.0003	0.0002	0.0006	0.0002	0.0009	0.0004
Lead	mg/L	0.005	< 0.00004	<0.0002	0.00012	0.00005	0.00004	<0.0001	0.00007	<0.0002	< 0.00004	<0.0004	0.00003	0.00012
Mercury	mg/L	0.0002	< 0.00004	0.00002	< 0.00012	0.00003	< 0.00004	<0.00002	< 0.00007	<0.00002	< 0.00004	<0.00004	< 0.00002	<0.00012
Molybdenum	mg/L	0.04	0.0001	<0.0001	0.0005	0.0006	0.0002	0.0002	< 0.0001	<0.0001	< 0.0001	<0.0001	0.0001	<0.0001
Nickel	mg/L	0.025	0.02	0.0021	< 0.01	0.0018	< 0.01	0.0002	< 0.001	0.0024	< 0.001	0.002	< 0.01	0.001
Selenium	mg/L	0.023	0.001	<0.001	0.001	<0.001	< 0.001	<0.001	0.002	<0.001	0.003	0.002	< 0.001	<0.001
Silver	mg/L	0.1	< 0.001	<0.001	< 0.001	<0.001	< 0.001	<0.001	< 0.002	<0.001	< 0.003	<0.001	< 0.001	<0.001
Strontium			0.535	0.537	0.535	0.463	1.34	1.28	0.95	0.894	0.751	0.732	0.543	0.534
Thallium	mg/L	0.0002	< 0.00005	<0.00005	< 0.00005	<0.00005	< 0.00005	<0.00005	< 0.00005	<0.00005	< 0.00005	<0.00005	< 0.00005	<0.00005
	mg/L	0.0003		<0.00005	0.00005	0.00005		0.00005	0.00005	<0.00005	0.00005			
Vanadium	mg/L	0.006	< 0.0001				0.0003					0.0005	< 0.0001	<0.0001
Zinc	mg/L	0.03	< 0.005	<0.005	< 0.005	<0.005	< 0.005	<0.005	< 0.005	<0.005	< 0.005	<0.005	< 0.005	<0.005

PWQO - Provincial Water Quality Objective Bold & Highlighted - PWQO exceedance