Appendix C Baseline Surface Water Quality - Golder Associates

REVISED REPORT

November 10, 2014

IAMGOLD CORPORATION

Water Quality Baseline Report Côté Gold Project

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Golder Associates

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1.0 INTRODUCTION

IAMGOLD Corporation (IAMGOLD) is planning to develop the Côté Gold Project (the Project) located approximately 20 kilometres (km) southwest of Gogama, Ontario, 130 km southwest of Timmins, and 200 km northwest of Sudbury (Figure 1).

This document is one of a series of physical, biological and human environment baseline reports to describe the current environmental conditions at the Project site. These baseline reports are written with the intent to support the Environmental Assessment (EA) process.

1.1 Côté Gold Project Overview

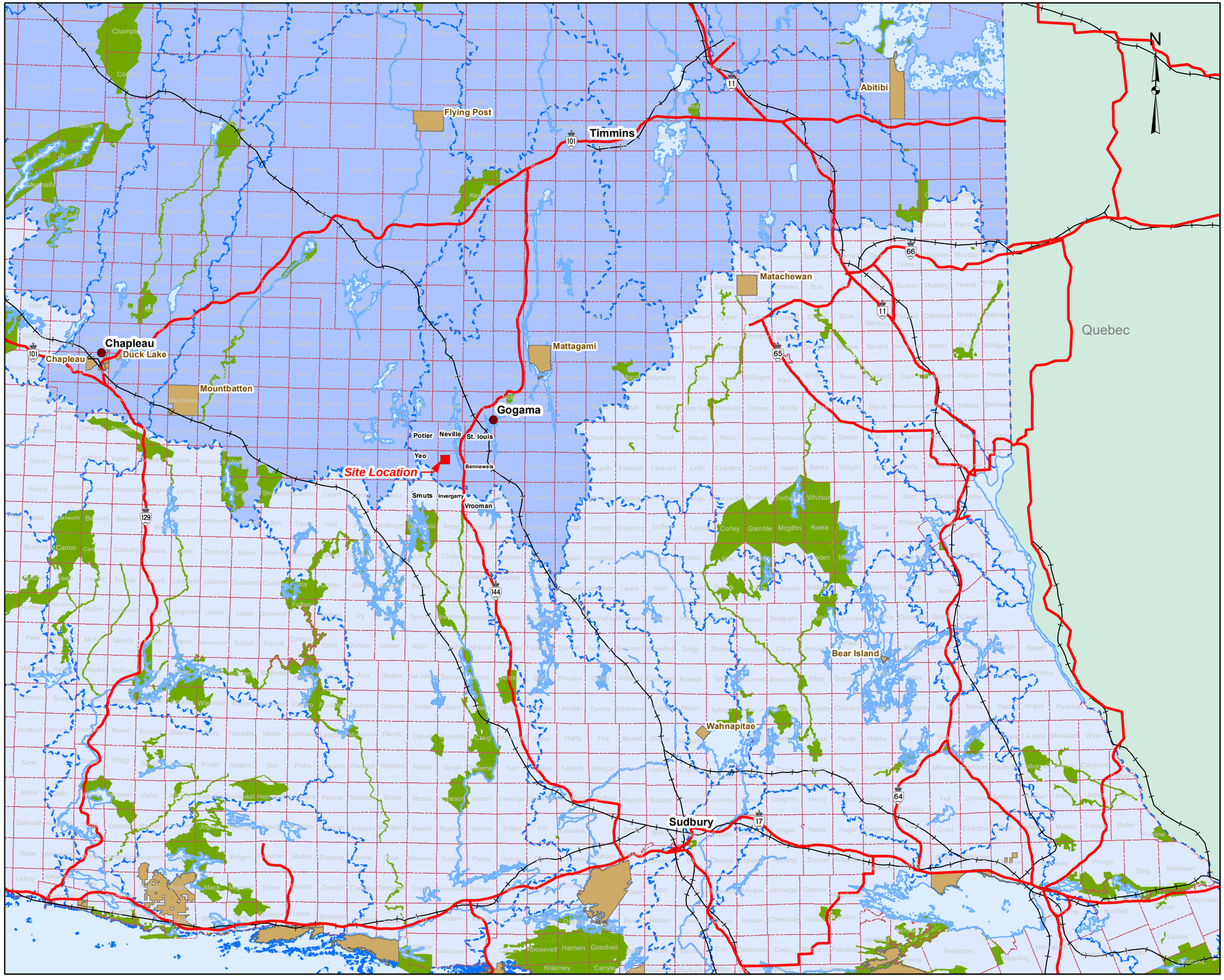
IAMGOLD is planning to construct, operate and eventually reclaim a new open pit gold mine at the Côté Gold Project site.

The proposed site layout places the required mine-related facilities in close proximity to the open pit, to the extent practicable. The proposed site layout is presented in Figure 2 showing the approximate scale of the Côté Gold Project. The site plan will be refined further as a result of ongoing consultation activities, land purchase agreements and engineering studies.

As part of the proposed development of the Project, several water features will be fully or partially overprinted. These include Côté Lake, portions of Three Duck Lakes, Clam Lake, Mollie River/Chester Lake system and Bagsverd Creek. As a consequence, these water features will need to be realigned for safe development and operation of the open pit.

The major proposed Project components are expected to include:

- open pit;
- ore processing plant;
- maintenance garage, fuel and lube facility, warehouse and administration complex;
- construction and operations accommodations complex;
- explosives manufacturing and storage facility (emulsion plant);
- various stockpiles (low-grade ore, overburden and Mine Rock Area (MRA) in close proximity to the open pit;
- aggregate extraction with crushing and screening plants;
- Tailings Management Facility (TMF);
- on-site access roads and pipelines, power infrastructure and fuel storage facilities;
- potable and process water treatment facilities;
- domestic and industrial solid waste handling facilities (landfill);
- water management facilities and drainage works, including watercourse realignments; and
- transmission line and related infrastructure.



LEGEND

- Populated Places
- Major Roads
- Railway
- First Nations Communities
- Townships
- Provincial Park

Primary Watersheds

- Hudson Bay
- Great Lakes

REFERENCE

Base Data - MNR NRVIS, CANMAP v2008.4
Produced by Golder Associates Ltd under licence from
Ontario Ministry of Natural Resources, © Queens Printer 2012
Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17

30,000 0 30,000
SCALE 1:1,250,000 METRES

PROJECT
IAMGOLD CÔTÉ GOLD PROJECT

TITLE
Project Location

Golder Associates
Sudbury, Ontario

PROJECT No. 13-1192-0021			SCALE AS SHOWN	REV. 0
DESIGN	RRD	Dec. 2012	FIGURE: 1	
GIS	RRD	Dec. 2013		
CHECK	NK	Dec. 2013		
REVIEW	MRG	Dec. 2013		

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N

Polishing Pond

Un-named Lake #1

Un-named Lake #2

TMF

Mesomikenda Lake

Schist Lake

Bagsverd Lake

Processing Plant

Weeduck Lake

Emulsion Plant

Little Clam Lake

West Beaver Pond

Low-Grade Stockpiles

Three Duck Lakes (Upper)

Camp Site

Côté Lake

Mine Water Pond

Open Pit

Three Duck Lakes (Middle)

Aggregate Pit

Landfill

Clam Lake

Aggregate Pit

MRA

Three Duck Lakes (Lower)

Chester Lake

Delaney Lake

144

LEGEND

- Realignment Dams
- Transmission Line
- Watercourse Realignment
- Highway 144
- Low-Grade Stockpiles
- Mine Rock Area (MRA)
- Tailings Management Facility (TMF)
- Open Pit
- Polishing Pond
- Reclaim Pond
- Aggregate Pit
- Facilities
- Landfill
- Collection Ponds
- Mine Water Pond
- Waterbodies
- Creek / River
- Surface Water Flow Direction

REFERENCE

Open Pit Shell provided by IAMGOLD, May 2013
Base Data - MNR NRVIS, CANMAP v2008.4
Produced by Golder Associates Ltd under licence from Ontario Ministry of Natural Resources,
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Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17

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PROJECT
IAMGOLD CÔTÉ GOLD PROJECT

TITLE
General Site Plan

Golder Associates
Sudbury, Ontario

PROJECT No. 13-1192-0021			SCALE AS SHOWN	REV. 0
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CHECK	NK	Dec. 2013		
REVIEW	MRG	Dec. 2013		

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2.0 SCOPE OF WORK

The objective of the water quality baseline work is to establish the surface water and groundwater quality conditions within the Project site and receiving environment prior to development of the Côté Gold Project. In the context of this report, the term 'baseline' is used to describe the existing conditions at the Project site, as encountered during the time period of the water quality study.

The scope of work for the water quality baseline study is summarized as follows:

1) Collection of surface water and groundwater samples from monitoring station network established within the Project study area during variable climatic conditions for the purpose of water quality analysis.

2) Compilation of water quality data and evaluation relative to water quality criteria for comparison purposes only.

3) Analysis and interpretation of water quality data to characterize the baseline water quality conditions.

This report provides a factual presentation of the water quality results and highlights parameters that were observed to occur at concentrations greater than or outside of the water quality criteria. The collected baseline water quality information will be used as part of the EA process that evaluates the potential for effects that may occur due to the development of the Côté Gold Project.

3.0 STUDY AREA

The Project is located in Chester Township, southwest of the town of Gogama, Ontario, and just north of the watershed divide that separates the James Bay watershed from the Great Lakes watershed (Figure 1). Located in the Boreal Shield ecozone of Ontario (Natural Resources Canada 2012) the Project study area is characterized by long, cold winters and short, warm summers with annual water input exceeding losses to evaporation (Energy, Mines and Resources Canada 1990). The study area has experienced minor development with some forestry activities, and consists of numerous lakes and rivers that are a result of the geology and annual water surplus conditions.

The study area is characterized by shield terrain (i.e. Canadian Shield geological region), where resistant bedrock outcrops generate irregular drainage patterns, undulating topography and frequent lakes, ponds and wetlands. Bedrock ridges with sparse tree cover dominate the topographic highs with the valleys and lower elevation areas being heavily forested. Overburden thickness is highly variable with only shallow layers overlying the topographic highs and thicker overburden deposits present at the base of valleys and ridges throughout the area. Surficial geology in low-lying areas generally consists of organics (often peat) overlying fine grained morainal deposits and/or granular till and glaciofluvial deposits at depth, often with a considerable cobble and boulder component. The bedrock geology of the area generally consists of mafic metavolcanic rocks, metasedimentary rocks and pyroclastic rocks.

The study area is located within the Mattagami River watershed, which has headwaters to the south at the James Bay/Great Lakes divide and flows north for approximately 420 km to a confluence with the Moose River, which subsequently flows to James Bay. Approximately 18 dams and power generating stations are located along the Mattagami River, which also provides drinking water to the City of Timmins (110 km northeast of the Site; Figure 1). The Project site is within the Mattagami Region Source Water Protection Area, which was

developed to assist with the protection of the drinking water supply for the City of Timmins. The footprint of the Project site spreads across two subwatersheds, referred to as Mesomikenda Lake and Mollie River watersheds, which feed into the Mattagami River system.

4.0 METHODS

4.1 Surface Water Quality Monitoring

4.1.1 Sampling Locations

The surface water baseline monitoring program, initiated in September 2011, was originally established in conjunction with Trelawney Mining and Exploration Inc. (Trelawney). The original surface water baseline program was based on the 2011 proposed mine design, and therefore was initiated prior to IAMGOLD acquiring the property. In the spring of 2012, Golder and IAMGOLD revised the monitoring program with respect to sample locations and frequency. Prior to 2012, all the water quality sampling locations were paired with the hydrological monitoring locations. Since then, the existing network of stations were supplemented with additional water quality locations (not paired with hydrological stations) to better characterize the baseline water quality conditions of the study area.

Surface water sampling has been completed at numerous stations in receiving waters that are located within or adjacent to the Project site boundaries, which included quarterly or monthly sampling at the outflows of surface water features. In 2013, water quality stations were established at Dividing Lake, Delaney Lake, Mesomikenda Lake and Neville Lake, which are located downstream/downgradient of proposed mine site features and were not included in the 2012 sampling program. Additional water quality stations were established in Bagsverd Lake, Chester Lake, Clam Lake, and Three Duck Lakes, which are adjacent to the proposed open pit, MRA and low-grade stockpile. Furthermore, the 2013 additions to the surface water baseline program included water column profile stations within select lakes to evaluate the potential for lake stratification and to collect near-lakebed ("bottom") and near-surface ("top") samples.

Surface water quality is currently monitored by IAMGOLD at a total of 22 stations. An additional 12 water column profile locations were sampled by Golder for surface water quality beginning in May 2013. The surface water quality station locations, sampling period and monitoring frequency are described in Table 1 and shown on Figure 3. Although monthly or quarterly sampling is ongoing and will continue throughout the EA review process, the data presented herein is for the period of September 2011 through May 2013.

Table 1: Summary of Surface Water Quality Monitoring Program

Station	Station Description	Northing (NAD83 Zone 17N)	Easting (NAD83 Zone 17N)	Approximate Monitoring Frequency	Water Quality Station	Water Column Profile Station
Mesomikenda Lake Watershed						
P-6	outlet of wetland to creek upstream of Bagsverd Lake	5268056	427783	monthly	✓	
LCM	Outlet of Little Clam Lake to small watercourse	5267779	428484	monthly	✓	
P-3	watercourse that drains into Bagsverd Lake	5268328	430462	quarterly	✓	

Station	Station Description	Northing (NAD83 Zone 17N)	Easting (NAD83 Zone 17N)	Approximate Monitoring Frequency	Water Quality Station	Water Column Profile Station
SL	bridge crossing upstream of Bagsverd Lake, downstream of Schist Lake	5269771	428496	monthly	✓	
BAG-LS1	Bagsverd Lake (upper)	5270214	429886	quarterly	✓	✓
BAG-LS2	Bagsverd Lake (lower)	5269674	430218	quarterly		✓
BPD	channel-wide rock outcrop on Bagsverd Creek upstream of BL-a subwatershed, downstream of Bagsverd Lake	5270639	431343	monthly	✓	
L-2	culvert road crossing of creek upstream of BL-b subwatershed	5273456	428297	monthly	✓	
BL-a	culvert road crossing of Bagsverd Creek upstream of BL-b subwatershed	5273627	430136	monthly	✓	
BL-b	culvert road crossing of Bagsverd Creek upstream of Neville Lake	5277424	430561	monthly	✓	
WL-1	Wolf Lake	5278209	426646	quarterly	✓	
SR	culvert road crossing of Somme River upstream of Neville Lake	5280153	429894	monthly	✓	
NL	outlet of Neville Lake	5278422	0431497	monthly	✓	
NEV-LS	Neville Lake	5277466	431443	quarterly	✓	✓
MESO-OUT	Mesomikenda Lake dam (upper basin)	5283774	435026	monthly	✓	
MESO-LS1	Mesomikenda Lake (upper basin)	5284838	433043	quarterly		✓
MESO-LS2	Mesomikenda Lake (upper basin)	5281444	433501	quarterly	✓	✓
MESO-LS3	Mesomikenda Lake (upper basin)	5277486	433694	quarterly		✓
MESO-LS4	Mesomikenda Lake (upper/middle basin)	5274044	433428	quarterly	✓	✓
MESO-LS5	Mesomikenda Lake (middle basin)	5272218	433282	quarterly	✓	✓
MESO-LS6	Mesomikenda Lake (middle basin)	5269712	433695	quarterly	✓	✓
MESO-LS7	Mesomikenda Lake (lower basin)	5267851	434288	quarterly		✓
Mollie River Watershed						
CHLK	culvert road crossing at Chester Lake outlet	5265373	429883	monthly	✓	
CHLK-LS	Chester Lake	5263895	429580	quarterly	✓	✓
P-2	watercourse from small beaver impoundment that merges with drainage from Chester Lake	5265587	430358	quarterly	✓	
P-1	intermittent watercourse that drains into	5265572	429420	quarterly	✓	

Station	Station Description	Northing (NAD83 Zone 17N)	Easting (NAD83 Zone 17N)	Approximate Monitoring Frequency	Water Quality Station	Water Column Profile Station
	Clam Lake					
P-5	ponded area between Clam Lake and Côté Lake	5265822	429599	quarterly	✓	
CM	culvert road crossing of Clam Lake	5267121	428624	monthly	✓	
CM-LS1	Clam Lake (upper basin)	5267008	428195	quarterly		✓
CM-LS2	Clam Lake (lower basin)	5266218	428286	quarterly	✓	✓
CL	culvert road crossing of Mollie River, upstream of Three Duck Lakes, downstream of Côté Lake	5267486	430164	monthly	✓	
WD	culvert road crossing at Weeduck Lake outlet, upstream of Three Duck Lakes	5268135	431442	monthly	✓	
MP	culvert road crossing upstream of northern basin of Three Duck Lakes, downstream of ore processing plant pond	5267531	431992	monthly	✓	
P-7	watercourse that drains into central basin of Three Duck Lakes	5266019	432777	quarterly	✓	
3D-LS1	Three Duck Lakes (upper basin)	5267888	431472	quarterly	✓	✓
3D-LS2	Three Duck Lakes (middle basin)	5265870	431875	quarterly	✓	✓
3D-c	narrows in south basin of Three Duck Lakes, near outlet	5263621	432866	monthly	✓	
P-4	watercourse that drains into Moille River, downstream of Three Duck Lakes outlet	5263631	432098	quarterly	✓	
DEL-LS	Delaney Lake	5262415	431333	quarterly	✓	✓
DIV-LS	Dividing Lake	5261248	435197	quarterly	✓	✓

Pebonishewi Lake
MESO-LS1
MESO-OUT (Mesomikenda Lake Dam)
N
MESO-LS2
Somme Lake
SR
Mesomikenda Lake (Upper)
Neville Lake
NL
WL-1
BL-b
NEV-LS
MESO-LS3
Rat Lake
Wolf Lake
Bagsverd Creek
Mesomikenda Lake (Middle/Upper)
144
Un-named Lake #1
MESO-LS4
Un-named Lake #2
L-2
BL-a
Schou Lake
MESO-LS5
Mesomikenda Lake (Middle)
BPD
Schist Lake
BAG-LS1
Bagsverd Lake
SL
MESO-LS6
BAG-LS2
Weeduck Lake
P-3
Little Clam Lake
P-6
LCM
MESO-LS7
3D-LS1
WD
MP
CL
Moore Lake
CM-LS1
CM
Côté Lake
Three Duck Lakes
Clam Lake
CM-LS2
P-5
P-7
P-1
3D-LS2
Mesomikenda Lake (Lower)
CHLK
P-2
CHLK-LS
P-4
3D-c
Chester Lake
Delaney Lake
DEL-LS
DIV-LS
Mollie Lake
Dividing Lake

LEGEND

- Water Column Profile Location (with sample)
- Water Column Profile Location
- Watercourse Quality Monitoring Location (Monthly)
- Watercourse Quality Monitoring Location (Quarterly)
- Flow Direction
- Major Roads
- Railway
- Watercourse Realignment
- Tailings and Reclaim Pipeline
- Realignment Dams
- Polishing Pond
- Tailings Management Facility (TMF)
- Mine Rock Area (MRA)
- Open Pit
- Waterbodies
- Creek / River
- James Bay/Great Lakes Watershed Divide
- Existing Watersheds

REFERENCE

Open Pit Shell provided by IAMGOLD, May 2013
Base Data - MNR NRVIS, CANMAP v2008.4
Produced by Golder Associates Ltd under licence from
Ontario Ministry of Natural Resources, © Queens Printer 2013
Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17

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PROJECT
IAMGOLD
CÔTÉ GOLD PROJECT

TITLE
Water Quality Monitoring Sites

Golder Associates
Sudbury, Ontario

PROJECT No. 13-1192-0021			SCALE AS SHOWN	REV. 0
DESIGN	RRD	Dec. 2012	FIGURE: 3	
GIS	AL	Oct. 2013		
CHECK	NK	Sept. 2014		
REVIEW	MRG	Sept. 2014		

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4.2 Groundwater Quality Monitoring

The groundwater quality baseline monitoring locations were originally established in early 2012; the groundwater monitoring wells were installed at locations based on the 2011 proposed mine design and in the vicinity of potential TMF and MRA alternatives. In 2012, the groundwater quality was monitored at a total of 37 locations consisting of paired or single monitoring wells. In 2013, the preferred TMF and MRA alternatives were selected, and as such, the number of wells sampled was reduced to 27 to focus on the areas adjacent to the preferred TMF and MRA. Overall, the monitoring well network was designed to cover the areas of the Project site where key conceptual mine components are expected to be located; these areas include: the open pit, TMF, and MRA (Figure 4).

The groundwater monitoring locations are described in Table 2.

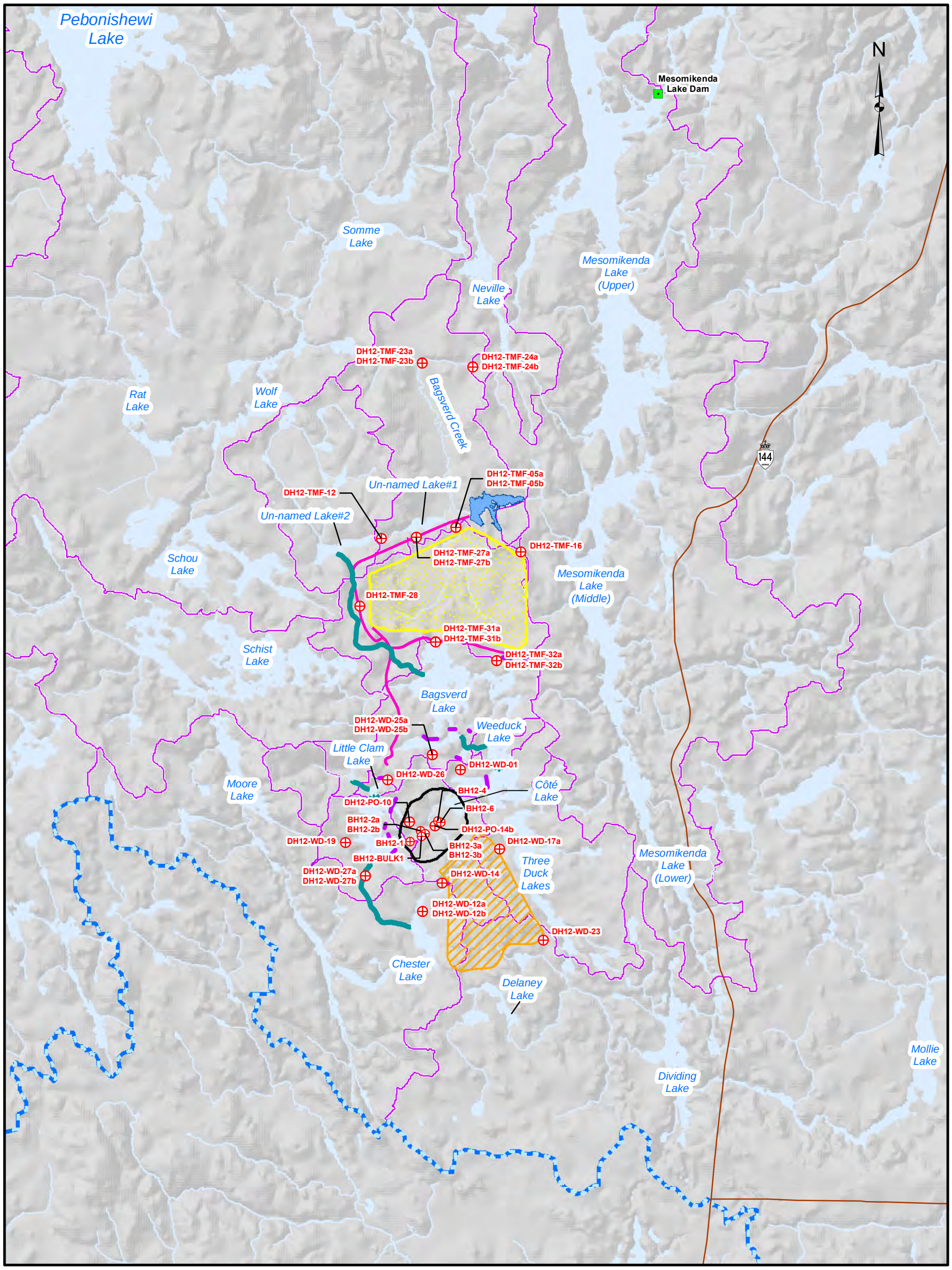
Although groundwater sampling is ongoing and will continue throughout the EA review process, the data presented herein is for the period of May through December 2012. During 2012, groundwater quality was monitored during three sampling events:

- spring (May-June 2012);
- summer (August 2012); and
- fall (November-December 2012).

Table 2: Summary of Groundwater Quality Monitoring Program

Monitor	Location	Northing (NAD83 Zone 17N)	Easting (NAD83 Zone 17N)	Approximate Monitoring Frequency
BH12-1	open pit footprint	5266307	429129	thrice yearly
BH12-2A		5266558	429370	thrice yearly
BH12-2B		5266558	429370	thrice yearly
BH12-3A		5266487	429481	thrice yearly
BH12-3B		5266487	429481	thrice yearly
BH12-4		5266787	429776	thrice yearly
BH12-6		5266757	429846	thrice yearly
BH12-BULK1		5266431	429392	thrice yearly
DH12-PO-10		5266760	429113	thrice yearly
DH12-PO-14B		5266673	429707	thrice yearly
DH12-TMF-05A	TMF footprint	5273640	430191	thrice yearly
DH12-TMF-05B		5273640	430191	thrice yearly
DH12-TMF-12		5273378	428458	thrice yearly
DH12-TMF-16		5273067	431709	thrice yearly
DH12-TMF-27A		5273409	429274	thrice yearly
DH12-TMF-27B		5273409	429274	thrice yearly
DH12-TMF-28		5271799	427955	thrice yearly
DH12-TMF-31A		5270967	429721	thrice yearly
DH12-TMF-31B		5270967	429721	thrice yearly

Monitor	Location	Northing (NAD83 Zone 17N)	Easting (NAD83 Zone 17N)	Approximate Monitoring Frequency
DH12-TMF-32A		5270531	431145	thrice yearly
DH12-TMF-32B		5270531	431145	thrice yearly
DH12-TMF-23A	north of TMF	5277475	429412	thrice yearly
DH12-TMF-23B		5277475	429412	thrice yearly
DH12-TMF-24A		5277385	430594	thrice yearly
DH12-TMF-24B		5277385	430594	thrice yearly
DH12-WD-01	north of open pit	5267985	430301	thrice yearly
DH12-WD-25A		5268335	429647	thrice yearly
DH12-WD-25B		5268335	429647	thrice yearly
DH12-WD-26		428599	5267746	thrice yearly
DH12-WD-12A	adjacent to MRA, south of open pit	5264679	429416	thrice yearly
DH12-WD-12B		5264679	429416	thrice yearly
DH12-WD-14		5265341	429878	thrice yearly
DH12-WD-17A		5266130	431215	thrice yearly
DH12-WD-23		5264002	432240	thrice yearly
DH12-WD-19	west of open pit and Clam Lake	5266286	427617	thrice yearly
DH12-WD-27A		5265508	428082	thrice yearly
DH12-WD-27B		5265508	428082	thrice yearly



LEGEND

- Groundwater Monitoring Well
- Dams
- Major Roads
- Railway
- Watercourse Realignment
- Tailings and Reclaim Pipeline
- Realignment Dams
- Polishing Pond
- Tailings Management Facility (TMF)
- Mine Rock Area (MRA)
- Open Pit
- Waterbodies
- Creek / River
- Arctic/Atlantic Watershed Divide
- Existing Watersheds

REFERENCE

Open Pit Shell provided by IAMGOLD, May 2013
Base Data - MNR NRVIS, CANMAP v2008.4
Produced by Golder Associates Ltd under licence from
Ontario Ministry of Natural Resources, © Queens Printer 2013
Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17

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PROJECT
IAMGOLD CÔTÉ GOLD PROJECT

TITLE
Ground Water Quality Monitoring Locations

Golder Associates
Sudbury, Ontario

PROJECT No. 13-1192-0021			SCALE AS SHOWN	REV. 0
DESIGN	RRD	Dec. 2012	FIGURE: 4	
GIS	AL	Oct. 2013		
CHECK	NK	Oct. 2013		
REVIEW	MRG	Oct. 2013		

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4.3 Sample Collection Methods

4.3.1 Surface Water and Groundwater Samples

Surface water samples were collected as grab samples along the shores or at the outflow culverts of the water bodies. Groundwater samples were collected using dedicated Waterra tubing. Surface water and groundwater samples were placed in laboratory supplied bottles that were pre-charged with preservatives. Samples requiring filtration (dissolved aluminum, dissolved metals, dissolved organic carbon, dissolved mercury) were collected with a sterile syringe and passed through a 0.45 µm filter into individual sample bottles.

Measurements of pH, temperature, electrical conductivity and dissolved oxygen were collected in the field at the time of sampling using a YSI multiparameter meter (YSI). The YSI meter was calibrated by the supplier and, in the field, with calibration solutions provided by the supplier.

4.3.2 Water Column Profile Samples

Surface water samples at the water column profile locations were collected approximately 1 m below the surface ("top" sample) and 1 m above the lakebed ("bottom" sample) using a Kemmerer sampler, tripped by a messenger weight. Measurements of pH, oxygen-reduction potential (ORP), temperature, electrical conductivity and dissolved oxygen were collected using the YSI at regular intervals from the surface of the water column to the lakebed. The intervals of the YSI measurements were chosen depending on the total depth of the lake to produce profiles of pH, oxygen-reduction potential (ORP), temperature, electrical conductivity and dissolved oxygen. The lakes ranged in depths from approximately 2 m to 67 m; lakes shallower than 40 m were typically profiled at 1 m intervals while lakes deeper than 40 m were typically profiled at 3 m increments. The data and water quality samples were collected from an anchored boat at the deepest part of the lake basin, and the UTM coordinates of the sample location were recorded with GPS.

4.3.3 Laboratory Analysis

Samples were shipped under chain-of-custody to AGAT Laboratories Ltd. (AGAT) in Mississauga, Ontario, for chemical analysis. AGAT is accredited by the Canadian Association for Laboratory Accreditation.

4.3.3.1 2012-2013 Surface Water Sampling

Surface water quality samples were submitted for the following analyses:

- **Physical parameters**: pH, alkalinity, acidity, conductivity, total dissolved solids, total suspended solids, hardness, dissolved organic carbon, total organic carbon and chemical oxygen demand.
- **Major ions**: calcium, magnesium, potassium, sodium, chloride, fluoride, sulphate.
- **Metals**: aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, strontium, thallium, titanium, tungsten, uranium, vanadium, zinc and zirconium.
- **Nutrients**: nitrate, nitrite, ammonia (total), total Kjeldahl nitrogen, phosphorus (total), phosphate and soluble reactive phosphorus.

- **Organics**: oil and grease (animal/vegetable, mineral and total).
- **Radionuclides**: radium-226.
- **Other parameters**: cyanide (total) and sulphur.

The analyses were carried out with requested detection limits suitable for comparison to the Ontario Provincial Water Quality Objectives (PWQO). The analytical detection limits for some parameters exceeded the Canadian Water Quality Guidelines (CWQG); therefore, for the August 2013 sampling round, lower detection limits were requested for the following parameters in order to compare to CWQG: cadmium, copper, lead, mercury, selenium, silver and thallium.

4.3.3.2 2013 Water Column Profile Sampling

Additional parameters, including organic contaminant and microbiological parameters, were analyzed as part of the water column profile sampling program to complement the existing water quality dataset and characterize the existing conditions in the potential surface water receivers.

Surface water quality samples from the water column profile locations were submitted for the following analyses:

- **General parameters**: pH, alkalinity, acidity, electrical conductivity, dissolved oxygen, total dissolved solids, total suspended solids, total hardness, total organic carbon and dissolved organic carbon.
- **Major ions**: calcium, magnesium, potassium, sodium, sulphate, chloride, and fluoride.
- **Metals (total and dissolved):** aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, strontium, thallium, titanium, tungsten, uranium, vanadium, zinc and zirconium.
- **Nutrients**: nitrate, nitrite, ammonia (total) and phosphorus (total).
- **Organic contaminants (at select lakes during spring 2013 only)**: oil/grease, phenols, polycyclic aromatic hydrocarbons and polychlorinated biphenyls.
- **Microorganisms**: Escherichia coli and total coliform.
- **Other parameters:** cyanide (total and free).

The analyses were carried out with requested detection limits suitable for comparison to PWQO. The analytical detection limits for some parameters exceeded the CWQG in the May 2013 sampling rounds. For the August 2013 sampling round, lower detection limits were requested for the following parameters in order to compare to CWQG: cadmium, copper, lead, mercury, selenium, silver and thallium.

4.3.3.3 2012 Groundwater Sampling Program

Groundwater quality samples were submitted for the following analyses:

- **Physical parameters**: pH, alkalinity, acidity, conductivity, total dissolved solids, total suspended solids and hardness.

- **Major ions**: calcium, magnesium, potassium, sodium, chloride, fluoride and sulphate.
- **Metals**: aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, strontium, thallium, titanium, tungsten, uranium, vanadium, zinc and zirconium.
- **Nutrients**: nitrate, nitrite, and ammonia (total).
- **Other parameters**: cyanide (free) and sulphur.

4.4 Quality Assurance/Quality Control

A Quality Assurance/Quality Control (QA/QC) program involving the collection of duplicate samples, field blanks and trip blanks was conducted for each sampling event. Approximately two to three duplicate samples and two blank samples were collected. The results of the QA/QC program are presented in Appendix D. These QA/QC procedures are in addition to the internal QA/QC requirements and programs of the analytical laboratory.

5.0 RESULTS

5.1 Comparison Criteria

The results of the baseline surface water and groundwater quality program are compared to the following criteria:

- PWQO (MOE 1999);
- Canadian Council of Ministers of the Environment (CCME) CWQG for the Protection of Aquatic Life (CCME 2013); and
- Ontario Ministry of the Environment (MOE) Ontario Drinking Water Standards (ODWS) (MOE 2003). The federal Guidelines for CDWQ (Health Canada 2012) were not compared as they are the same as the ODWS, with the exception of arsenic (the ODWS for arsenic is 25 µg/L while the CDWQ for arsenic is 10 µg/L).

For parameters where the criteria was dependent on pH and hardness, an assumed pH of 7 and hardness of 30 mg/L as $CaCO_3$ was applied.

The complete analyte list and comparison criteria for surface water and groundwater quality analysis are provided in Appendices A and B, respectively.

It should be noted that these criteria are used in this baseline report for comparison purpose only, and are not related to the impact assessment. Criteria used to assess the magnitude and significance of impact will be developed as part of the EA and provided in subsequent reports; the criteria may include those listed above for the baseline program as well as the actual baseline results.

5.2 Surface Water Quality

Surface water quality analytical results for samples collected by IAMGOLD in 2011 through 2013 are presented in Appendix A and summarized in Table 3. Total metals concentrations were compared to the water quality standards and guidelines, with the exception of aluminum that is presented as dissolved ('clay-free') concentrations. Discussion related to comparisons with the ODWS relates specifically to health-related parameters (Maximum Acceptable Concentration [MAC] or Interim Maximum Acceptable Concentration [IMAC]). Aesthetic Objectives (AO) and Operational Guidelines (OG) are not health-related standards (intended to be applied when considering water quality control practises, water treatment, disinfection and distribution) and are not applicable for the Project site or considered as part of comparisons to ODWS.

Based on the results attained to May 2013, the surface water quality can be characterized as:

- Acidic to near-neutral pH values, with approximately 10% of field pH and 22% of lab pH values not meeting the CWQG (6.5-9) and PWQO (6.5–8.5). The lowest pH (6.07) was observed at LCM in February 2013.
- Approximately 9% of dissolved aluminum concentrations were greater than the CWQG (100 µg/L), and approximately 21% were greater than the PWQO (75 µg/L). The maximum concentration (237 µg/L) was observed at P-2 in February 2013.
- Approximately 8% of copper concentrations were greater than the CWQG (2 µg/L). The maximum concentration (5 µg/L) was observed at MP in December 2012 and January 2013. It should be noted that this station is downstream of a previously existing plant to treat mine water from the dewatered Chester Mine and that surface water quality at MP may be influenced by dewatering activities.
- Approximately 13% of iron concentrations were greater than the CWQG (300 µg/L) and PWQO (300 µg/L). The maximum concentration (4,000 µg/L) was observed at P-2 in February 2013.
- Approximately 27% of total phosphorus concentrations were greater than the CWQG (20 µg/L) and PWQO (20 µg/L). The maximum concentration (90 µg/L) was observed at WD in September 2012. It should be noted that the PWQO for total phosphorus is an interim aesthetic guideline, meant to be applied as a general guideline, and should be supplemented by site-specific studies to develop site-specific criteria.
- Approximately 12% of zinc concentrations were greater than the CWQG (30 µg/L) and approximately 17% were greater than the PWQO (20 µg/L). The maximum concentration (366 µg/L) was observed at LCM in July 2012. It should be noted that there appear to be occasional anomalously high zinc concentrations in the data set, the source of which is unknown but is suspected to be related to laboratory error.
- Cadmium, lead, silver and thallium concentrations were greater than the CWQG (0.058 µg/L for cadmium, 1 µg/L for lead, 0.1 µg/L for silver and 0.8 µg/L for thallium) and/or PWQO (0.1 µg/L for cadmium, 3 µg/L for lead, 0.1 µg/L for silver and 0.3 µg/L for thallium) in only one sample. The maximum concentrations were observed at CL in April 2013.
- Concentrations of other parameters analyzed were less than the PWQOs and CWQGs, and all concentrations of parameters analyzed were less than the ODWS maximum allowable concentration (MACs) and interim maximum allowable concentration (IMACs).

The summary of results with values and percentages greater than the criteria can be found in Table 3. Full water quality results up to May 2013 are presented in Appendix A.

Table 3: Summary of Surface Water Quality Results – Watercourse Stations

Parameter	Criteria (1)		Total Number	Sample Values not Meeting Criteria				Location (2)
	CWQG	PWQO		CWQG		PWQO		
				Number	Percent	Number	Percent	
field pH	6.5-9	6.5-8.5	215	22	10	22	10	LCM, P-3, P-6, BL-a, L-2, BL-b, NL, P-2, P-5, CL, MP, P-7, P-1, P-4
lab pH	6.5-9	6.5-8.5	241	53	22	53	22	LCM, P-3, P-6, BPD, BL-a, L-2, BL-b, SR, NL, MESO-OUT, CM, CHLK, P-2, P-5, CL, WD, MP, 3D-c, P-4
dissolved aluminum	100	75	241	23	9	50	21	P-3, P-6, BL-a, BL-b, SR, NL, MESO-OUT, P-2, P-5, MP, P-4
copper	2	5	241	19	7.9	-	-	BPD, CL, MP
iron	300	300	241	31	13	31	13	P-6, BL-a, BL-b, P-2, P-5, CL, MP, P-7, P-4
total phosphorous	20	20	241	65	27	65	27	LCM, P-6, SL, BPD, BL-a, BL-b, WL, SR, CM, P-2, P-5, CL, WD, MP, P-7
zinc	30	20	241	30	12	41	17	LCM, P-6, SL, BPD, BL-a, SR, NL, CM, P-5, CL, WD, MP, 3D-c, P-4
cadmium	0.058	0.1	241	1	0.41	1	0.41	CL
lead	1	3	241	1	0.41	-	-	CL
silver	0.1	0.1	241	1	0.41	1	0.41	CL
thallium	0.8	0.3	241	-	-	1	0.41	CL

Note:
CWQG - Canadian Water Quality Guidelines
PWQO - Provincial Water Quality Objectives
(1) For guidelines dependent on one or more of pH and hardness, an assumed pH of 7 and hardness of 30 mg/L as $CaCO_3$ was applied.
(2) See Table 1 or Appendix A for sampling period details.

5.2.1 Water Column Profiles

5.2.1.1 Water Column Profile Field Parameter Measurements

Field parameters were measured throughout the water column at 17 locations: Bagsverd Lake (2 locations), Neville Lake, Mesomikenda Lake (7 locations), Chester Lake, Clam Lake (2 locations), Three Duck Lakes (2 locations), Delaney Lake and Dividing Lake. The water column profile results are plotted in Appendix C.

The profile plots of temperature, dissolved oxygen, and to a less extent conductivity, at most locations showed stratification during the May 2013 and August 2013 monitoring rounds; however; the stratification during the May 2013 sampling round was less pronounced, as compared to the August 2013 data. The May 2013 profile data, therefore, suggests that turnover had occurred in the spring and the lakes were, to various degrees, in the process of transitioning from the turnover to fully stratified conditions. The August 2013 profile data shows marked decreases in temperature and dissolved oxygen with depth in the water column, reflecting fully stratified summer conditions. At some locations, conductivity increased with depth and the oxidation-reduction potential typically decreased (i.e. became more reducing) near the lake bottom. The pH was typically more acidic with depth.

5.2.1.2 Water Column Profile Sample Results

Water column profile sampling was conducted in May 2013 at 12 locations. Samples were collected from the top and bottom at each location. The summary of results and number of samples greater than the criteria can be found in Table 4. Detailed profile water quality results are presented in Appendix A.

Based on the results from the May 2013 sampling round, the surface water quality at the water column profile locations can be characterized as:

- Acidic to near-neutral pH values, with approximately 14% of field pH and 73% of lab pH values not meeting the CWQG (6.5-9) and PWQO (6.5-8). The lowest pH (6.25) was observed in the bottom sample at NEV-LS.
- Approximately 14% of dissolved aluminum concentrations were greater than the CWQG (100 µg/L), and approximately 50% were greater than the PWQO (75 µg/L). The maximum concentration (164 µg/L) was observed in the bottom sample at CM-LS.
- Approximately 9% of zinc concentrations were greater than the CWQG (30 µg/L) and approximately 14% were greater than the PWQO (20 µg/L). The maximum concentration (450 µg/L) was observed in the bottom sample at 3D-LS2. It should be noted that there appear to be occasional anomalously high zinc concentrations, the source of which is unknown but may be laboratory or sampling error.
- Cadmium concentrations were greater than the CWQG (0.058 µg/L) in only one sample. The concentration (0.1 µg/L) was observed in the top sample at CM-LS.
- Free cyanide concentrations were greater than the CWQG (5 µg/L) and PWQO (5 µg/L) in only one sample. The concentration (21 µg/L) was observed in the bottom sample at 3D-LS2.
- Concentrations of oil and grease, phenols, polycyclic aromatic hydrocarbons and polychlorinated biphenyls were below detection limits in all samples.
- Concentrations of other parameters analyzed were less than the PWQOs and CWQGs, and all concentrations of parameters analyzed were less than the ODWS MACs and IMACs.

Table 4: Summary of Surface Water Quality Results – Lake Profile Stations

Parameter	Criteria (1)		Total Number	Sample Values not Meeting Criteria				Location (2)
	CWQG	PWQO		CWQG		PWQO		
				Number	Percent	Number	Percent	
field pH	6.5-9	6.5-8.5	22	3	14	3	14	NEV-LS, DEL-LS
lab pH	6.5-9	6.5-8.5	22	16	73	16	73	BAG-LS1, NEV-LS, MESO-LS2, MESO-LS4, MESO-LS5, MESO-LS7, CM-LS, CHLK-LS, 3D-LS1, 3D-LS2
dissolved aluminum	100	75	22	3	14	11	50	NEV-LS, MESO-LS4, CM-LS, CHLK-LS, 3D-LS1, 3D-LS2, DEL-LS
zinc	30	20	22	2	9	3	14	MESO-LS2, 3D-LS2, DEL-LS, DIV-LS
cadmium	0.058	0.1	22	1	4.5	-	-	CM-LS
free cyanide	5	5	22	1	4.5	1	4.5	3D-LS2

Note:
CWQG - Canadian Water Quality Guidelines
PWQO - Provincial Water Quality Objectives
(1) For guidelines dependent on one or more of pH and hardness, an assumed pH of 7 and hardness of 30 mg/L as $CaCO_3$ was applied.
(2) See Appendix A for time period details.

5.3 Groundwater Quality

Groundwater quality analytical results are presented in full in Appendix B and summarized in Table 6. As with the surface water quality results, the discussion related to comparisons between the groundwater quality results and the ODWS relates specifically to health-related parameters (MACs or IMACs). The AOs and OGs are not health-related (intended to be applied when considering water quality control practises, water treatment, disinfection and distribution) and are not applicable for the Project site or considered as part of comparisons to ODWS.

Although groundwater quality results are not directly comparable to CWQG and PWQO, as these are surface water or aquatic quality guidelines, these comparisons provide insights (at a screening level) regarding the magnitude of concentrations present in the groundwater samples and assist with the identification of parameters that may require further consideration in the context of the EA. The dissolved (filtered) metal concentrations, rather than the total concentrations, were measured in the samples of groundwater and were compared to the CWQGs and PWQOs. The dissolved concentrations of metals are more relevant to groundwater because the total concentrations include the proportion of metals present within suspended solids, which do not travel through most subsurface environments.

In general, the groundwater quality up to December 2012 can be characterized as:

- Acidic to near-neutral pH values, with approximately 22% of field pH values not meeting the CWQG (6.5-9) and PWQO (6.5-8.5). The lowest pH (5.5) was observed at DH12-WD-01 and the highest pH (8.86) was observed at BH12-2B.
- Approximately 16% of aluminum concentrations were greater than the CWQG (100 µg/L) and 18% were greater than the PWQO (75 µg/L). The maximum concentration (209 µg/L) was observed at DH12-WD-25B.
- Approximately 1% of arsenic concentrations were greater than the ODWS (25 µg/L) and 6.6% were greater than the CWQG (5 µg/L) and PWQO (5 µg/L). The maximum concentration (179 µg/L) was observed at DH12-TMF-32A.
- Approximately 9% of cadmium concentrations were greater than the CWQG (0.058 µg/L) and 2.8% were greater than the PWQO (0.1 µg/L). The maximum concentration (0.2 µg/L) was observed at DH12-TMF-32B and DH12-WD-01.
- Approximately 2.8% of chromium concentrations were greater than the CWQG (8.9 µg/L) and the PWQO (8.9 µg/L). The maximum concentration (9 µg/L) was observed at DH12-TMF-12.
- Approximately 5.6% of cobalt concentrations were greater than the PWQO (0.9 µg/L). The maximum concentration (3.9 µg/L) was observed at DH12-TMF-05B.
- Approximately 23% of copper concentrations were greater than the CWQG (2 µg/L) and 8.5% were higher than the PWQO (5 µg/L). The highest concentration (16 µg/L) was observed at BH12-4.
- Approximately 22% of iron concentrations were greater than the CWQG (300 µg/L) and PWQO (300 µg/L). The highest concentration (13,800 µg/L) was observed at DH12-TMF-05B.

- Approximately 4.7% of molybdenum concentrations were greater than the CWQG (73 µg/L) and 8.5% were greater than the PWQO (40 µg/L). The highest concentration (179 µg/L) was observed at DH12-TMF-05A.
- Approximately 3.8% of silver concentrations were greater than the CWQG (0.1 µg/L) and PWQO (0.1 µg/L). The highest concentration (0.2 µg/L) was observed at DH12-TMF-16, DH12-TMF-27A and DH12-TMF-31A.
- Approximately 21% of tungsten concentrations were greater than the PWQO (30 µg/L). The highest concentration (677 µg/L) was observed at DH12-WD-17A.
- Approximately 1% of uranium concentrations were greater than the ODWS (20 µg/L), 1.9% were greater than the CWQG (15 µg/L) and 9.4% were greater than the PWQO (5 µg/L). The highest concentration (21 µg/L) was observed at DH12-TMF-23A.
- Approximately 1.9% of vanadium concentrations were greater than the PWQO (6 µg/L). The highest concentration (18 µg/L) was observed at DH12-TMF-24B.
- Approximately 30% of zinc concentrations were greater than the CWQG (30 µg/L) and 37% were higher than the PWQO (20 µg/L). The highest concentration (1,250 µg/L) was observed at DH12-TMF-05B. It should be noted that there appear to be occasional anomalously high zinc concentrations in the data set, the source of which is unknown but is suspected to be laboratory error.
- Un-ionized ammonia concentrations were greater than the CWQG (19 µg/L) and PWQO (20 µg/L) in only one sample. The maximum concentration (30 µg/L) was observed at BH12-2B.
- Approximately 2.8% of free cyanide concentrations were greater than the CWQG (5 µg/L) and PWQO (5 µg/L). The highest concentration (7 µg/L) was observed at DH12-TMF-32B.
- Concentrations of other parameters analyzed were less than the ODWS MACs/IMACs, PWQOs and CWQGs.

Table 5: Summary of Groundwater Quality Results

Parameter	Criteria[1]			Total Number	Sample Values not Meeting Criteria						Locations
	ODWS	CWQG	PWQO		ODWS		CWQG		PWQO		
					Number	Percent	Number	Percent	Number	Percent	
field pH	-	6.5-9	6.5-8.5	105	-	-	23	22	23	22	BH12-1, BH12-2A, BH12-2B, BH12-3A, BH12-4, DH12-PO-10, DH12-TMF-12, DH12-TMF-28, DH12-TMF-24A, DH12-TMF-24B, DH12-WD-01, DH12-WD-12A, DH12-WD-17A, DH12-WD-23, DH12-WD-01, DH12-WD-25A, DH12-WD-25B
total suspended solids	-	25000	-	106	-	-	106	100	-	-	BH12-1, BH12-2A, BH12-2B, BH12-3A, BH12-3B, BH12-4, BH-12-6, BH12-BULK1, DH12-PO-10, DH12-PO-14B, DH12-TMF-05A, DH12-TMF-05B, DH12-TMF-12, DH12-TMF-16, DH12-TMF-27A, DH12-TMF-27A, DH12-TMF-28, DH12-TMF-31A, DH12-TMF-31B, DH12-TMF-32A, DH12-TMF-32B, DH12-TMF-23A, DH12-TMF-23B, DH12-TMF-24A, DH12-TMF-24B, DH12-WD-01, DH12-WD-12A, DH12-WD-12B, DH12-WD-14, DH12-WD-17A, DH12-WD-19, DH12-WD-23, DH12-WD-01, DH12-WD-25A, DH12-WD-25B, DH12-WD-26, DH12-WD-27A, DH12-WD-27B
aluminum	-	100	75	106	-	-	17	16	19	18	BH12-3B, DH12-PO-10, DH12-PO-14B, DH12-TMF-05A, DH12-TMF-05B, DH12-TMF-16, DH12-TMF-32B, DH12-TMF-24A, DH12-TMF-24B, DH12-WD-01, DH12-WD-01, DH12-WD-25B, DH12-WD-27B
arsenic	25	5	5	106	1	0.9	7	6.6	7	6.6	DH12-PO-10, DH12-TMF-32A, DH12-WD-25A, DH12-WD-25B
cadmium	5	0.058	0.1	106	-	-	10	9.4	3	2.8	BH12-BULK1, DH12-TMF-27A, DH12-TMF-32A, DH12-TMF-32B, DH12-WD-01, DH12-WD-14, DH12-WD-17A, DH12-WD-01, DH12-WD-27A
chromium	50	8.9	8.9	106	-	-	3	2.8	3	2.8	DH12-TMF-05B
cobalt	-	-	0.9	106	-	-	-	-	6	5.6	DH12-TMF-05B, DH12-WD-01, DH12-WD-01
copper	-	2	5	106	-	-	25	23	9	8.5	BH12-1, BH12-3A, BH12-3B, BH12-4, BH-12-6, BH12-BULK1, DH12-PO-10, DH12-TMF-16, DH12-TMF-27A, DH12-TMF-32B, DH12-WD-01, DH12-WD-17A, DH12-

Parameter	Criteria[1]			Total Number	Sample Values not Meeting Criteria						Locations
	ODWS	CWQG	PWQO		ODWS		CWQG		PWQO		
					Number	Percent	Number	Percent	Number	Percent	
											WD-01, DH12-WD-27B
iron	-	300	300	106	-	-	23	22	23	22	DH12-TMF-05B, DH12-TMF-24A, DH12-TMF-24B, DH12-WD-01, DH12-WD-23, DH12-WD-01, DH12-WD-25A, DH12-WD-25B, DH12-WD-26
molybdenum	-	73	40	106	-	-	5	4.7	9	8.5	BH12-3A, BH12-BULK1, DH12-PO-10, DH12-TMF-05A
silver	-	0.1	0.1	106	-	-	4	3.8	4	3.8	DH12-TMF-16, DH12-TMF-27A, DH12-TMF-31A
tungsten	-	-	30	106	-	-	-	-	22	21	BH-12-1, BH12-3A, BH12-4, BH12-6, DH12-PO-10, DH12-PO-14B, DH12-TMF-16, DH12-TMF-27A, DH12-TMF-32A, DH12-WD-01, DH12-WD-12B, DH12-WD-14, DH12-WD-17A, DH12-WD-01
uranium	20	15	5	106	1	0.9	2	1.9	10	9.4	BH12-3A, BH12-4, BH12-BULK1, DH12-TMF-05A, DH12-TMF-23A
vanadium	-	-	6	106	-	-	-	-	2	1.9	DH12-TMF-24B
zinc	-	30	20	106	-	-	32	30	39	37	BH12-1, BH12-2B, BH12-3B, BH12-4, DH12-PO-10, DH12-PO-14B, DH12-TMF-05A, DH12-TMF-05B, DH12-TMF-16, DH12-TMF-27A, DH12-TMF-28, DH12-TMF-31A, DH12-TMF-32B, DH12-TMF-23A, DH12-TMF-23B, DH12-TMF-24A, DH12-TMF-24B, DH12-WD-01, DH12-WD-12A, DH12-WD-12B, DH12-WD-14, DH12-WD-17A, DH12-WD-23, DH12-WD-01, DH12-WD-25B, DH12-WD-26, DH12-WD-27A, DH12-WD-27B
un-ionized ammonia	-	19	20	101	-	-	1	1	1	1	BH12-2B
free cyanide	200	5	5	106	-	-	3	2.8	3	2.8	DH12-TMF-32B, DH12-WD-01, DH12-WD-01

6.0 SUMMARY OF EXISTING CONDITIONS

A water quality baseline study was completed as part of the Côté Gold Project EA to establish the surface water and groundwater quality conditions within the Project site and receiving environment prior to Project development. Surface water quality sampling has been completed at 34 locations, including 12 lake profile locations. Groundwater quality sampling has been completed at 37 locations within the vicinity of the proposed open pit, TMF, and MRAs. Samples collected for the water quality baseline study were analyzed for a variety of parameters, including: general or physiochemical parameters, major ions, metals, nutrients, organics (oil and grease, polycyclic aromatic hydrocarbons, polychlorinated biphenyls), radionuclides and microorganisms.

The surface water quality at the stations monitored can be generally characterized as having acidic to near-neutral pH, with occasional concentrations above the CWQG and PWQO for the following parameters: aluminum, copper, iron, phosphorus (total), zinc, cadmium, lead, silver, thallium and cyanide (free). Surface water concentrations of other parameters analyzed were less than the PWQOs and CWQGs, and all concentrations of parameters analyzed were less than the ODWS MACs and IMACs. The occasional surface water concentrations that were observed to be greater than aquatic guidelines, and the general surface water quality observed in the study area, are typical of lakes and watercourses that are present within shield terrain (i.e., Canadian Shield geological region). Generally, within these types of hydrological settings, flow is strongly controlled by bedrock outcrops that generate irregular drainage patterns and the occasional concentrations greater than aquatic guidelines likely reflects the influence on surface water quality by natural bedrock weathering processes.

The groundwater quality can be generally characterized as having acidic to near-neutral pH, with occasional concentrations above the CWQG and PWQO for the following parameters: aluminum, arsenic, cadmium, chromium, cobalt, copper, iron, molybdenum, silver, tungsten, uranium, vanadium, zinc, un-ionized ammonia and free cyanide. The following parameter concentrations were occasionally above the OWDS MAC: arsenic and uranium. Concentrations of other parameters analyzed were less than the ODWS MACs/IMACs, PWQOs and CWQGs. For some metals, the concentrations in the groundwater were greater than those observed for surface water; this is expected as groundwater experiences a greater degree of water-rock interaction, as compared to surface water, and therefore is more influenced by natural weathering processes in the subsurface. The occasional groundwater concentrations that were observed to be greater than aquatic and drinking water guidelines is not uncommon for shield regions, in particular those with known gold mineralization.

The water column profiling was completed in May and August of 2013 to evaluate the potential for thermal and chemical stratification within key lakes across the study area. The profiles of dissolved oxygen, temperature, and to a lesser extent conductivity, indicate that the water column is stratified during mid- to late-spring and throughout the summer months. Comparisons between the profiles collected in May 2013 versus those collected in August show that the stratified conditions were less predominate during May 2013; this suggests that some of the lakes experienced turnover during the spring of 2013 and were in the process of transitioning to the fully stratified conditions that were observed during the summer.

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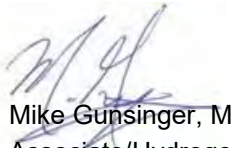

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APPENDIX A
Surface Water Quality Results

APPENDIX A
2011-2013 Surface Water Quality Results

Parameter[1]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		Canadian Water Quality Guidelines[4]	Provincial Water Quality Objective[5]	LCM - Little Clam Lake Outlet											
			MAC	IMAC			21-Feb-12	30-Apr-12	31-May-12	27-Jun-12	18-Jul-12	20-Aug-12	24-Sep-12	23-Oct-12	19-Nov-12	29-Jan-12	24-Feb-13	19-Mar-13
FIELD PARAMETERS																		
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.45	--	6.76	7.29	7.58	7.43	6.6	6.94	6.94	6.8	***6.07***	6.51
Temperature	degrees Celsius	--	--	--	--	-0.25	0.1	--	10	21.7	21.3	19.4	11.6	5.1	1.4	0	-0.3	-0.3
Conductivity	µS/cm	--	--	--	--	--	20.2	--	30.1	33.2	34	32.2	26.7	21.3	19.1	22.7	22	21.2
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	6600	--	4500	7660	6850	7430	8270	10450	1295	13020	2600	2770
GENERAL PARAMETERS																		
pH	pH units	--	--	--	6.5-9	6.5-8.5	6.81	6.56	***6.46***	6.96	6.5	6.63	6.74	***6.48***	***6.39***	***6.22***	***6.13***	***6.19***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	12000	10000	13000	10000	10000	10000	10000	13000	9000	11000	12000	13000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	39	34	39	35	35	36	36	35	37	43	42	44
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	46000	30000	60000	28000	32000	42000	40000	46000	46000	34000	36000	26000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000[6]	--	<10000	<10000	<10000	<10000	<10000	<10000	<1000	2000	6000	<1000	<1000	<1000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	18400	16100	17600	14100	15900		17600	15700	15900	17600	19700	19100
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	13300	8100	8200	12000	9700	7500	10600	9500	12900	10700	10200	10500
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAJOR IONS																		
Calcium (Ca)	µg/L	<50	--	--	--	--	6210	5360	5930	4700	5330	5390	5830	5210	5330	5810	6500	6270
Magnesium (Mg)	µg/L	<50	--	--	--	--	710	650	690	580	640	700	750	650	630	740	840	840
Potassium (K)	µg/L	<50	--	--	--	--	280	260	160	250	330	290	380	290	550	250	280	320
Sodium (Na)	µg/L	<50	--	--	--	--	720	670	680	630	700	690	730	680	830	750	850	800
Chloride (Cl)	µg/L	<100	--	--	--	--	320	270	250	270	260	280	340	310	410	370	430	350
Fluoride (F)	µg/L	<50	1500[7]	--	--	--	<50	<50	<50	<50	<50	<50	100	<50	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	2810	3290	2440	2920	2970	3250	3060	3300	3490	4100	3510	3230
METALS																		
Aluminum (Al)	µg/L	<4	--	--	100[8]	75[9]	40	60	55	31	23	18	16	26	32	49	45	43
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	5	4	4	4	8	4	5	4	4	5	3	4
Beryllium (Be)	µg/L	<1	--	--	--	11[10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500[11]	200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058[12]	0.1[13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9[14]	8.9[14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2[15]	5[16]	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	31	70	135	52	87	34	20	43	40	37	99	84
Lead (Pb)	µg/L	<1	10[17]	--	1[18]	3[19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	8	8	69	7	31	11	11	6	10	6	24	31
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.10	<0.10	<0.10	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25[20]	25	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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
Strontium (Sr)	µg/L	<5	--	--	--	--	13	14	13	12	30	13	15	12	11	16	12	14
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	5	14	<5	<5	***366***	<5	9	<5	6	10	<5	11
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
OTHER PARAMETERS																		
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2	<2	53	<2	<2	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NUTRIENTS																		
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000[21]	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60[22]	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	<20	<20	<20	<20	<20	<20	30	<20	<20	50	<20	<20
Un-ionized Ammonia (NH_3)	µg/L	--	--	--	19[23]	20[23]	<0.052	--	<0.038	<0.28	<0.26	<0.24	0.0207	<0.026	<0.018	0.0415	<0.00166	<0.0052
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Phosphorus (P)	µg/L	<20	--	--	20	20	<20	<20	<20	***50***	***50***	***40***	20	<20	***30***	<20	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ORGANICS																		
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--	--	--	--	--	--	--	--	--
RADIONUCLIDES																		
Radium-226	Bq/L	<0.001	0.6	--	--	1[24]	--	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	<0.001

APPENDIX A
2011-2013 Surface Water Quality Results

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards [2][3]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	P-3 - Inflow to Bagsverd Lake		P-6 - Inflow to Bagsverd Lake												
			MAC	IMAC			19-Nov-12	24-Feb-13	26-Mar-12	30-Apr-12	31-May-12	28-Jun-12	18-Jul-12	20-Aug-12	24-Sep-12	23-Oct-12	19-Nov-12	17-Dec-12	29-Jan-13	24-Feb-13	19-Mar-13	24-Apr-13
FIELD PARAMETERS																					
pH	pH units	--	--	--	6.5-9	6.5-8.5	***6.32***	***6.43***	6.6	7.63	7.07	6.51	7.12	7.12	7	7.21	6.85	7	6.6	6.94	6.98	***6.34***
Temperature	degrees Celsius	--	--	--	--	-0.25	2.7	0.9	3.7	8	16.2	20.6	19.7	16.3	10.8	2.5	4.8	0.4	0.3	-0.1	-0.2	0.4
Conductivity	µS/cm	--	--	--	--	--	23	27.3	23	30	53.6	86.2	73.6	67.3	45.2	31.6	35.8	33.5	55	58.2	51.9	22.8
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	907	5300	7000	1810	5050	1050	4480	3240	9330	11390	1031	870	2800	2310	2920	1152
GENERAL PARAMETERS																					
pH	pH units	--	--	--	6.5-9	6.5-8.5	***6.31***	***6.2***	6.76	6.63	6.89	7.4	6.81	7.05	7.14	6.73	6.91	6.64	6.54	6.53	6.67	***6.43***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	7000	11000	12000	15000	29000	38000	36000	36000	26000	21000	19000	24000	41000	43000	41000	10000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	37	45	42	47	65	80	78	80	61	54	54	62	100	100	98	39
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	72000	60000	32000	40000	94000	60000	62000	80000	58000	58000	66000	70000	120000	56000	68000	54000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<1000	3000	<10000	<10000	<10000	<10000	20000	<10000	<1000	<1000	<1000	<1000	2000	2000	2000	1000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	19200	20400	20100	22400	31700	36900	40400		34000	27000	27100	33000	43300	45200	41300	20400
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	14600	17900	13000	10900	12500	--	13000	9000	11400	11400	10700	12400	13200	11900	8600	15300
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAJOR IONS																					
Calcium (Ca)	µg/L	<50	--	--	--	--	6360	6760	5950	6790	9500	--	12300	12400	10300	8170	8150	9960	13400	14100	12500	6030
Magnesium (Mg)	µg/L	<50	--	--	--	--	810	850	1270	1330	1940	--	2360	2460	2010	1600	1650	1970	2400	2420	2460	1290
Potassium (K)	µg/L	<50	--	--	--	--	320	430	260	160	140	--	200	120	130	150	310	210	360	360	350	410
Sodium (Na)	µg/L	<50	--	--	--	--	1040	880	790	930	1330	--	880	2460	970	990	1170	1090	1190	1150	1110	780
Chloride (Cl)	µg/L	<100	--	--	--	--	400	340	230	320	240	280	330	390	400	340	460	520	640	640	560	300
Fluoride (F)	µg/L	<50	1500 [7]	--	--	--	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	4920	4140	4840	4780	1560	1020	1350	1350	1280	2880	3910	4520	3760	2910	3240	3830
METALS																					
Aluminum (Al)	µg/L	<4	--	--	100 [8]	75 [9]	***106***	***103***	97	50	24	10	15	16	9	25	35	53	74	62	51	***167***
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	4	7	3	3	3	4	229	5	4	3	3	3	11	11	10	3
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1 [13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	0.9	0.7	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	153	153	91	43	166	***339***	***1080***	***434***	101	76	70	113	***1750***	***2680***	***1750***	115
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	4	31	25	14	61	202	675	247	12	13	15	36	2780	1840	1660	43
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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	<0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	13	17	13	14	23	27	33	33	26	18	18	21	28	24	23	13
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	<5	11	14	6	***31***	<5	<5	***38***	15	<5	<5	<5	<5	<5	<5	<5
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
OTHER PARAMETERS																					
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NUTRIENTS																					
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	<20	40	<20	20	<20	40	130	40	<20	<20	<20	<20	180	290	250	<20
Un-ioinized Ammonia (NH_3)	µg/L	--	--	--	19 [23]	20 [23]	<0.01	0.01	<0.0072	0.1	<0.058	0.056	0.52	0.116	<0.04	<0.022	<0.026	<0.0166	0.0468	0.2407	0.2075	--
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Phosphorus (P)	µg/L	<20	--	--	20	20	<20	<20	20	<20	<20	***50***	***70***	***40***	20	<20	<20	<20	<20	<20	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<100	--	--	--	<10
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
ORGANICS																					
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RADIONUCLIDES																					
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	--	<0.001	--	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	--

APPENDIX A
2011-2013 Surface Water Quality Results

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards [2][3]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	SL - Schist Lake Outflow														
			MAC	IMAC			24-Jan-12	21-Feb-12	26-Mar-12	26-Apr-12	31-May-12	26-Jun-12	18-Jul-12	20-Aug-12	24-Sep-12	23-Oct-12	19-Nov-12	17-Dec-12	29-Jan-13	24-Feb-13	19-Mar-13	24-Apr-13
FIELD PARAMETERS																					
pH	pH units	--	--	--	6.5-9	6.5-8.5	--	7.24	7.05	7.17	7.4	6.93	6.94	7.41	7.36	6.96	7.16	7.08	6.81	7.52	7.18	6.77
Temperature	degrees Celsius	--	--	--	--	-0.25	--	1.4	3.4	8.5	15.3	21.5	20.1	19.8	9.8	3.2	3.8	0.9	0.7	1	0.7	1.5
Conductivity	µS/cm	--	--	--	--	--	--	36.5	33.7	35.5	46	53.2	55.6	54.8	42.8	35.2	37.1	35.2	38.9	42.1	40.1	41.9
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	--	9660	4780	2550	7700	6050	4670	6520	8000	9740	1131	1123	11940	9310	8520	9150
GENERAL PARAMETERS																					
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.19	7.2	7.1	6.95	6.82	7.28	6.74	6.87	7.02	6.68	6.89	6.81	6.66	6.54	6.75	6.72
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	27000	29000	24000	22000	24000	23000	24000	27000	23000	22000	23000	25000	28000	28000	29000	26000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	67	68	58	54	57	58	59	60	58	59	58	61	72	73	76	70
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	32000	44000	48000	56000	56000	50000	48000	52000	62000	50000	52000	52000	44000	22000	44000	22000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<1000	3000	<1000	1000	13200	3000	<1000	<1000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	30900	31800	27700	26300	26700	24400	28700	28900	29400	27400	26400	28600	29800	32200	32700	35500
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	9900	12300	8500	8500	8900	10300	9500	7500	9400	9800	9500	8400	8500	8200	8500	10900
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAJOR IONS																					
Calcium (Ca)	µg/L	<50	--	--	--	--	10100	10300	9030	8510	8580	7840	9230	9250	9430	8730	8430	9100	9460	10400	10500	11200
Magnesium (Mg)	µg/L	<50	--	--	--	--	1390	1480	1260	1230	1280	1180	1370	1410	1430	1360	1290	1430	1490	1520	1580	1840
Potassium (K)	µg/L	<50	--	--	--	--	360	330	290	280	260	240	340	310	270	270	340	290	270	360	390	440
Sodium (Na)	µg/L	<50	--	--	--	--	710	770	650	660	710	640	720	730	730	730	820	770	730	780	760	860
Chloride (Cl)	µg/L	<100	--	--	--	--	380	320	370	310	370	240	380	380	410	370	390	370	380	340	340	400
Fluoride (F)	µg/L	<50	1500 [7]	--	--	--	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	2610	2690	2880	2950	2960	3080	2810	2970	2590	3320	3450	3500	3190	3030	2920	3420
METALS																					
Aluminum (Al)	µg/L	<4	--	--	100 [8]	75 [9]	8	10	21	23	14	7	9	5	9	19	23	12	19	7	21	50
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	6	6	6	4	5	4	5	5	7	6	5	6	7	8	10	8
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1 [13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	<10	14	29	32.4	14	38	34	44	33	66	38	24	41	95	77	73
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	16	24	28	9	29	30	33	16	17	13	8	6	23	39	56	33
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.10	<0.10	<0.1	<0.10	<0.10	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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	<0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	25	25	21	19	24	23	23	24	27	21	19	21	25	24	30	27
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	8	6	<5	<5	***61***	<5	<5	<5	7	<5	<5	<5	<5	8	6	<5
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
OTHER PARAMETERS																					
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2	<2	4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NUTRIENTS																					
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	70	50	50	<20	190	<20	<20	<20	50	370	510	610	700	520	420	290
Un-ionized Ammonia (NH_3)	µg/L	--	--	--	19 [23]	20 [23]	--	0.045	0.055	<0.034	1.634	<0.092	<0.08	<0.24	0.295	0.407	0.612	0.549	0.63	1.456	0.378	--
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Phosphorus (P)	µg/L	<20	--	--	20	20	<20	<20	<20	20	<20	***50***	<20	***30***	***30***	<20	<20	<20	<20	<20	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<100	--	--	--	<10
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ORGANICS																					
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RADIONUCLIDES																					
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	--

APPENDIX A
2011-2013 Surface Water Quality Results

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		Canadian Water Quality Guidelines[4]	Provincial Water Quality Objective [5]	BPD - Bagsverd Creek, near Bagsverd Lake Outflow												
			MAC	IMAC			26-Mar-12	26-Apr-12	31-May-12	28-Jun-12	18-Jul-12	20-Aug-12	24-Sep-12	23-Oct-12	19-Nov-12	17-Dec-12	29-Jan-13	24-Feb-13	19-Mar-13
FIELD PARAMETERS																			
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.1	7.77	7.4	7.25	7.51	7.54	7.21	7.2	7.27	7.1	6.96	7.13	7.25
Temperature	degrees Celsius	--	--	--	--	-0.25	3.3	8.3	17.4	21.7	21.4	18.5	11.4	5.4	3.4	1.9	1	1	0.9
Conductivity	µS/cm	--	--	--	--	--	29.2	355	48	54.2	56.3	54.4	44.7	35.4	33.5	34.2	36.8	36.5	36.5
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	5570	2000	8580	7780	7540	8000	9230	10310	1246	1211	12410	11100	9900
GENERAL PARAMETERS																			
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.11	6.99	6.7	7.34	6.83	6.99	7.16	6.88	6.88	6.8	6.68	***6.47***	6.76
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	20000	22000	22000	23000	24000	25000	23000	23000	22000	24000	25000	25000	26000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	50	53	57	56	58	61	60	56	54	58	67	66	68
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	44000	52000	80000	44000	44000	62000	54000	60000	50000	58000	38000	38000	48000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<10000	<10000	<10000	<10000	<10000	<10000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	24000	25700	26800	24700		29800	33000	27900	27900	31000	31300	31000	30400
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	8100	8500	8200	11000	8300	6700	8100	8500	7900	7900	8700	8900	8600
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAJOR IONS																			
Calcium (Ca)	µg/L	<50	--	--	--	--	7720	8260	8530	7870	9450	9520	10600	8930	9010	9870	9970	9910	9730
Magnesium (Mg)	µg/L	<50	--	--	--	--	1150	1230	1340	1220	1440	1460	1590	1350	1300	1540	1550	1510	1490
Potassium (K)	µg/L	<50	--	--	--	--	280	260	290	280	330	330	360	270	220	310	300	330	320
Sodium (Na)	µg/L	<50	--	--	--	--	620	695	910	650	770	710	800	710	860	760	780	780	770
Chloride (Cl)	µg/L	<100	--	--	--	--	210	300	340	240	350	310	440	340	350	370	320	410	390
Fluoride (F)	µg/L	<50	1500[7]	--	--	--	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	2790	2950	3000	2880	2760	2930	2750	2950	3130	3340	3570	3350	3210
METALS																			
Aluminum (Al)	µg/L	<4	--	--	100[8]	75[9]	19	24	14	15	9	7	6	10	11	9	8	8	7
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	4	5	4	4	5	5	6	5	5	5	5	6	7
Beryllium (Be)	µg/L	<1	--	--	--	11[10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500[11]	200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058[12]	0.1[13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9[14]	8.9[14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2[15]	5[16]	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	***4***	<2
Iron (Fe)	µg/L	<10	--	--	300	300	<10	40	<10	23	<10	29	<10	<10	23	52	21	22	<10
Lead (Pb)	µg/L	<1	10[17]	--	1[18]	3[19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	12	13	22	29	37	48	32	30	14	14	11	9	12
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.1	<0.10	<0.10	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25[20]	25	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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
Strontium (Sr)	µg/L	<5	--	--	--	--	17	20	19	21	22	24	26	21	18	22	24	21	24
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	<5	***33***	6	<5	13	<5	<5	16	<5	<5	<5	<5	<5
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
OTHER PARAMETERS																			
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NUTRIENTS																			
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	<20	<20	<20	<20	<20	<20	<20	<20	<20	30	210	250	210
Un-ioinized Ammonia (NH_3)	µg/L	--	--	--	19 [23]	20 [23]	<0.022	<0.32	<0.2	<0.28	<0.26	<0.24	<0.04	<0.026	<0.068	0.0294	0.189	0.225	0.588
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Phosphorus (P)	µg/L	<20	--	--	20	20	<20	20	<20	***50***	***40***	***30***	***30***	<20	<20	<20	<20	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	<100	--	--	--
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ORGANICS																			
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--	--	--	--	--	--	--	--	--	--
RADIONUCLIDES																			
Radium-226	Bq/L	<0.001	0.6	--	--	1[24]	--	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001

APPENDIX A
2011-2013 Surface Water Quality Results

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards [2][3]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [6]	BL-a - Bagsverd Creek														
			MAC	IMAC			24-Jan-12	21-Feb-12	26-Mar-12	26-Apr-12	23-May-12	26-Jun-12	18-Jul-12	20-Aug-12	24-Sep-12	30-Oct-12	19-Nov-12	17-Dec-12	29-Jan-13	24-Feb-13	19-Mar-13	24-Apr-13
FIELD PARAMETERS																					
pH	pH units	--	--	--	6.5-9	6.5-8.5	--	7.14	6.58	7.37	6.91	7.42	6.71	6.71	***6.35***	***6.4***	6.74	7.01	6.93	7.08	7.33	***6.39***
Temperature	degrees Celsius	--	--	--	--	-0.25	--	-0.1	2.1	8.7	7.77	20.2	20.5	14.9	7.4	2.3	3.5	0.5	-0.3	-0.3	-0.4	3
Conductivity	µS/cm	--	--	--	--	--	--	32.6	21.8	31.6	45.4	52.1	51.4	53.4	36	27.5	29	30	30.1	34.7	34.4	21.4
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	--	5590	840	1020	16200	7910	6600	6060	6700	10550	1086	1150	12580	12570	12360	1180
GENERAL PARAMETERS																					
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.08	7.19	6.84	6.85	6.87	7.29	6.68	6.91	6.76	***6.09***	6.57	6.53	***6.44***	***6.18***	6.71	***6.31***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	24000	26000	11000	16000	23000	23000	21000	28000	15000	15000	16000	21000	14000	24000	26000	10000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	63	63	39	47	54	57	54	66	53	48	47	54	50	65	67	36
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	20000	<20000	56000	56000	38000	44000	42000	66000	90000	72000	66000	60000	64000	36000	42000	36000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<1000	2000	<1000	<1000	<1000	<1000	<1000	<1000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	29400	30200	19200	23200	27300		28100	32900	33300	25900	24900	29000	20200	31100	30400	19400
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	10900	12600	10500	10400	10300	10800	11400	7400	25500	19900	15200	10200	9200	8800	8900	16400
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAJOR IONS																					
Calcium (Ca)	µg/L	<50	--	--	--	--	9410	9720	6010	7370	8660	7760	8860	10400	10400	8030	7840	9140	6570	9920	9650	5940
Magnesium (Mg)	µg/L	<50	--	--	--	--	1430	1450	1020	1170	1380	1250	1440	1690	1790	1430	1300	1510	910	1540	1520	1120
Potassium (K)	µg/L	<50	--	--	--	--	370	320	290	250	280	190	280	310	270	190	330	280	340	350	350	550
Sodium (Na)	µg/L	<50	--	--	--	--	740	760	620	680	740	650	800	750	880	850	910	780	830	800	780	620
Chloride (Cl)	µg/L	<100	--	--	--	--	360	320	270	350	320	280	340	350	420	360	350	370	1040	370	360	270
Fluoride (F)	µg/L	<50	1500 [7]	--	--	--	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	3290	2960	2860	2770	2720	2790	3020	2550	2890	2960	3150	3280	3120	3500	3200	2360
METALS																					
Aluminum (Al)	µg/L	<4	--	--	100 [8]	75 [9]	12	13	41	40	18	5	20	7	***109***	87	62	28	21	12	20	89
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	5	6	4	4	5	4	6	5	7	4	4	5	6	6	7	5
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1 [13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	13	45	63	72	101	43	88	103	***327***	182	125	69	44	45	18	113
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	9	11	5	11	69	25	24	19	24	13	10	13	11	13	15	44
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.10	<0.10	<0.1	<0.10	<0.10	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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	<0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	21	23	15	16	19	20	29	24	25	19	16	20	24	23	22	13
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	7	21	***35***	<5	<5	<5	***131***	<5	8	14	<5	<5	7	17	<5	<5
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
OTHER PARAMETERS																					
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	2	<2	<2	<2	<2	<2	<2	<2	--
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NUTRIENTS																					
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	30	200	210	210	60
Un-ionized Ammonia (NH_3)	µg/L	--	--	--	19 [23]	20 [23]	--	<0.0166	<0.0062	<0.108	<0.032	<0.24	<0.028	<0.0174	<0.0092	<0.0062	<0.0072	0.027	0.166	0.1743	0.546	
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Phosphorus (P)	µg/L	<20	--	--	20	20	***30***	<20	20	<20	20	***50***	***40***	***30***	20	<20	<20	<20	<20	<20	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<100	--	--	--	<100
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ORGANICS																					
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RADIONUCLIDES																					
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	--

APPENDIX A
2011-2013 Surface Water Quality Results

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards [2][3]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	(BAG-LS1) - Bagsverd Lake		
			MAC	IMAC			21-May-2013 (T)	21-May-2013 (T Dup)	21-May-2013 (B)
FIELD PARAMETERS									
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.14	7.14	7.09
Temperature	degrees Celsius	--	--	--	--	-0.25	11.4	11.4	10.08
Conductivity	µS/cm	--	--	--	--	--	50	50	52
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	--	--	--
ORP	mV		--	--	--	--	204.3	204.3	208.4
GENERAL PARAMETERS									
pH	pH units	--	--	--	6.5-9	6.5-8.5	***6.49***	***6.43***	6.83
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	19000	19000	23000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	<5000	<5000	<5000
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	55	55	58
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	52000	56000	40000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<10000	<10000	<10000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	26100	26000	26700
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	8900	8900	9000
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	9500	9300	9300
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--
MAJOR IONS									
Calcium (Ca)	µg/L	<50	--	--	--	--	8390	8320	8600
Magnesium (Mg)	µg/L	<50	--	--	--	--	1250	1260	1280
Potassium (K)	µg/L	<50	--	--	--	--	330	370	310
Sodium (Na)	µg/L	<50	--	--	--	--	670	680	680
Chloride (Cl)	µg/L	<100	--	--	--	--	240	270	300
Fluoride (F)	µg/L	<50	1500 [7]	--	--	--	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	3020	3040	3080
METALS									
Aluminum (Al)	µg/L	<4	--	--	100 [8]	75 [9]	53	47	36
Antimony (Sb)	µg/L	<6	--	6	--	20	<3	<3	<3
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	5	5	5
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1 [13]	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	<10	<10	10
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	29	29	34
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.1	<0.1	<0.1
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4
Silver (Ag)	µg/L	<0.1	--	--	0.1	0.1	<0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	19	19	19
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	<5	<5	<5
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4
OTHER PARAMETERS									
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2
Free Cyanide	µg/L	<2	--	--	5	5	<2	<2	<2
Phenols	µg/L	<1	--	--	--	--	<1	<1	--
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)									
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	160	150	180
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	<50	<50	<50
Total Phosphorus (P)	µg/L as N	<20	--	--	6980	--	70	70	70
Un-ioinized Ammonia (NH_3)	µg/L	--	--	--	19 [23]	20 [23]	--	--	--
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--
Total Phosphorus (TP)	µg/L	<20	--	--	20	20	<20	20	20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--
ORGANICS									
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	<500	<500	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	<500	<500	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	<500	<500	--
Polychlorinated Biphenyls	µg/L	<0.1	--	0.003	--	0.001	<0.1	<0.1	--
Naphthalene	µg/L	<0.2	--	--	1.1	7	<0.2	<0.2	--
Acenaphthylene	µg/L	<0.2	--	--	--	--	<0.2	<0.2	--
Acenaphthene	µg/L	<0.2	--	--	5.8	--	<0.2	<0.2	--
Fluorene	µg/L	<0.2	--	--	3	0.2	<0.2	<0.2	--
Phenanthrene	µg/L	<0.1	--	--	0.4	0.03	<0.1	<0.1	--
Anthracene	µg/L	<0.1	--	--	0.012	0.0008	<0.1	<0.1	--
Fluoranthene	µg/L	<0.2	--	--	0.04	0.0008	<0.2	<0.2	--
Pyrene	µg/L	<0.2	--	--	0.025	--	<0.2	<0.2	--
Benz(a)anthracene	µg/L	<0.2	--	--	0.018	0.0004	<0.2	<0.2	--
Chrysene	µg/L	<0.1	--	--	--	0.0001	<0.1	<0.1	--
Benzo(b)fluoranthene	µg/L	<0.1	--	--	--	--	<0.1	<0.1	--
Benzo(k)fluoranthene	µg/L	<0.1	--	--	--	0.0002	<0.1	<0.1	--
Benzo(a)pyrene	µg/L	<0.01	--	--	0.015	--	<0.01	<0.01	--
Indeno(1,2,3-cd)pyrene	µg/L	<0.2	--	--	--	--	<0.2	<0.2	--
Dibenz(a,h)anthracene	µg/L	<0.2	--	--	--	0.002	<0.2	<0.2	--
Benzo(g,h,i)perylene	µg/L	<0.2	--	--	--	0.00002	<0.2	<0.2	--
2-and 1-methyl Naphthalene	µg/L	<0.2	--	--	--	--	<0.2	<0.2	--
RADIONUCLIDES									
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	--	--	--
MICROBIOLOGICAL									
Escherichia coli	CFU/100mL	1	--	--	--	100	2	ND	--
Total Coliforms	CFU/100mL	1	--	--	--	--	33	48	--

APPENDIX A
2011-2013 Surface Water Quality Results

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		Canadian Water Quality Guidelines[4]	Provincial Water Quality Objective[5]	L-2 - Inflow to Bagsverd Creek													
			MAC	IMAC			26-Mar-12	26-Apr-12	23-May-12	26-Jun-12	18-Jul-12	20-Aug-12	24-Sep-12	30-Oct-12	19-Nov-12	17-Dec-12	29-Jan-13	24-Feb-13	19-Mar-13	24-Apr-13
FIELD PARAMETERS																				
pH	pH units	--	--	--	6.5-9	6.5-8.5	6.5	7.5	7.02	6.98	6.91	6.82	6.92	6.81	7.04	7.01	***6.48***	6.77	6.56	***6.35***
Temperature	degrees Celsius	--	--	--	--	-0.25	3.1	9.8	17.3	20.6	23.4	18.5	9.4	4	4.3	1.4	0.5	0.6	0.5	1.3
Conductivity	µS/cm	--	--	--	--	--	20.3	22.7	27.2	33.7	37.1	33.5	26	22.5	23.3	22.7	23.6	24	24.4	19.2
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	2420	2000	8800	8050	7610	7180	9320	10700	1183	1236	10300	9130	8010	1154
GENERAL PARAMETERS																				
pH	pH units	--	--	--	6.5-9	6.5-8.5	6.61	6.81	6.61	6.91	6.54	***6.33***	6.78	***6.22***	6.57	6.59	***6.42***	***6.08***	6.63	***6.16***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	9000	9000	10000	10000	11000	11000	11000	11000	11000	11000	12000	13000	25000	7000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	35	33	34	36	37	39	37	37	37	40	44	44	66	35
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	50000	52000	42000	38000	38000	52000	44000	34000	48000	62000	52000	20000	48000	58000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<10000	<10000	<10000	<10000	<10000	<10000	<1000	3000	1000	1000	<1000	<1000	<1000	3000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	16800	15500	16600	15800	17500		19900	18300	19000	20900	21000	21600	21300	17400
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	13900	12500	12700	14400	11900	9200	11200	12700	12500	12700	14100	13900	14200	16000
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAJOR IONS																				
Calcium (Ca)	µg/L	<50	--	--	--	--	4560	4210	4520	4280	4770	5020	5410	5020	5300	5690	5740	5940	5840	4650
Magnesium (Mg)	µg/L	<50	--	--	--	--	1310	1210	1300	1230	1360	1450	1540	1410	1390	1620	1630	1650	1640	1410
Potassium (K)	µg/L	<50	--	--	--	--	280	240	260	250	280	250	290	240	330	260	240	310	270	520
Sodium (Na)	µg/L	<50	--	--	--	--	820	860	850	800	880	860	950	900	1070	970	950	1020	950	870
Chloride (Cl)	µg/L	<100	--	--	--	--	320	310	280	250	310	280	370	350	360	400	380	350	380	350
Fluoride (F)	µg/L	<50	1500[7]	--	--	--	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	3130	2660	2500	2630	2740	2730	2600	2730	3180	3230	3060	2890	2740	2860
METALS																				
Aluminum (Al)	µg/L	<4	--	--	100[8]	75[9]	***121***	***114***	89	62	38	31	38	67	80	88	***104***	96	94	***185***
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	4	4	4	3	3	3	4	4	4	4	4	4	5	5
Beryllium (Be)	µg/L	<1	--	--	--	11[10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500[11]	200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058[12]	0.1[13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9[14]	8.9[14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2[15]	5[16]	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	***320***	202	189	120	132	150	183	296	283	256	254	259	257	***327***
Lead (Pb)	µg/L	<1	10[17]	--	1[18]	3[19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	33	12	21	19	26	30	16	16	11	9	12	17	30	27
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.1	<0.10	<0.10	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25[20]	25	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	13	12	15	16	15	15	16	14	13	15	18	15	16	13
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	3
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	<5	7	***54***	***58***	<5	<5	6	<5	<5	<5	20	<5	<5	11
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
OTHER PARAMETERS																				
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NUTRIENTS																				
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60[22]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	<20	<20	<20	<20	<20	<20	60	<20	20	30	20	20	20	60
Un-ioinized Ammonia (NH_3)	µg/L	--	--	--	19[23]	20[23]	<0.0068	<0.118	<0.064	<0.086	<0.098	<0.074	0.102	<0.024	0.024	0.027	0.0056	0.018	0.0056	--
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Phosphorus (P)	µg/L	<20	--	--	20	20	20	20	***30***	***40***	***40***	***30***	***30***	<20	<20	<20	<20	<20	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	<100	--	--	--	<100
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ORGANICS																				
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RADIONUCLIDES																				
Radium-226	Bq/L	<0.001	0.6	--	--	1[24]	--	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	--

APPENDIX A
2011-2013 Surface Water Quality Results

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		Canadian Water Quality Guidelines[4]	Provincial Water Quality Objective [5]	BL-b - Bagsverd Creek, near Neville Lake Inflow														
			MAC	IMAC			24-Jan-12	21-Feb-12	26-Mar-12	26-Apr-12	23-May-12	26-Jun-12	18-Jul-12	20-Aug-12	24-Sep-12	30-Oct-12	19-Nov-12	17-Dec-12	29-Jan-13	24-Feb-13	19-Mar-13	24-Apr-13
FIELD PARAMETERS																					
pH	pH units	--	--	--	6.5-9	6.5-8.5	--	7.17	***6.43***	7.7	6.81	7.15	6.89	6.7	6.77	6.66	6.8	6.8	6.61	6.92	6.95	***6.35***
Temperature	degrees Celsius	--	--	--	--	-0.25	--	-0.1	1	4.9	7.18	20.3	20.4	15.3	8.4	3.9	2.6	0.5	-0.3	-0.3	-0.4	1.1
Conductivity	µS/cm	--	--	--	--	--	--	31.6	16.4	25	43.6	55.4	58.6	52	36	25.9	24.3	27	33.9	34	34.1	16.5
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	--	9670	3380	4500	16700	7160	6050	7250	7600	10200	1070	1040	10800	10860	10160	1246
GENERAL PARAMETERS																					
pH	pH units	--	--	--	6.5-9	6.5-8.5	6.96	7.07	***6.47***	6.73	6.85	7.29	6.78	6.85	6.65	***5.75***	***6.42***	6.58	6.55	***6.26***	6.63	***6.1***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	23000	25000	8000	13000	22000	25000	25000	25000	15000	12000	11000	16000	24000	24000	25000	7000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	61	61	30	41	51	60	61	63	52	45	40	49	64	64	66	30
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	28000	36000	56000	56000	50000	42000	50000	86000	92000	94000	76000	64000	72000	46000	48000	46000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<1000	<1000	<1000	<1000	<1000	2000	<1000	3000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	29000	29600	14700	20300	26300		30200	33200	33400	24600	23300	26600	27900	30200	30100	15900
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	12300	13600	12800	11900	12400	13200	9700	12600	27000	28100	19400	12500	10700	10000	10400	16200
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAJOR IONS																					
Calcium (Ca)	µg/L	<50	--	--	--	--	9050	9280	4310	6210	8080	8180	9360	10000	9980	7330	7070	8070	8640	9420	9360	4620
Magnesium (Mg)	µg/L	<50	--	--	--	--	1560	1560	960	1170	1490	1450	1650	1990	2070	1540	1360	1570	1540	1630	1640	1070
Potassium (K)	µg/L	<50	--	--	--	--	380	310	270	240	270	270	240	230	280	190	200	220	240	330	350	490
Sodium (Na)	µg/L	<50	--	--	--	--	820	830	630	710	810	770	870	880	930	880	980	850	800	850	840	620
Chloride (Cl)	µg/L	<100	--	--	--	--	400	410	250	300	350	430	520	760	550	450	370	420	420	360	380	280
Fluoride (F)	µg/L	<50	1500[7]	--	--	--	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	3000	2890	2820	2740	2420	2510	2860	2320	1850	2780	2920	3270	3460	3120	3070	2220
METALS																					
Aluminum (Al)	µg/L	<4	--	--	100[8]	75 [9]	30	32	83	70	40	26	11	52	***140***	***149***	***113***	70	34	31	49	***121***
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	5	5	3	3	4	4	5	6	8	5	4	4	5	6	6	5
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1 [13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	101	112	133	122	150	133	97	265	***570***	***371***	262	186	128	141	141	211
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	10	12	6	8	41	50	43	45	45	27	13	19	16	16	20	66
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.10	<0.10	<0.1	<0.10	<0.10	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3	<3	<3	<3	3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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	<0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	21	22	10	14	19	23	24	26	26	18	16	19	22	21	23	11
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	2	2	<2	<2	<2	<2	<2	2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	***32***	23	5	<5	<5	6	12	<5	9	<5	<5	<5	<5	<5	<5	<5
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
OTHER PARAMETERS																					
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NUTRIENTS																					
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	30	<20	<20	<20	<20	<20	<20	<20	<20	<20	30	30	180	210	140	70
Un-ionized Ammonia (NH_3)	µg/L	--	--	--	19 [23]	20 [23]	--	<0.0166	<0.0056	<0.078	<0.03	<0.08	<0.08	<0.0174	<0.032	<0.0072	0.033	0.027	0.0468	0.1743	0.1162	--
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Phosphorus (P)	µg/L	<20	--	--	20	20	***30***	<20	<20	20	***40***	***40***	***40***	***50***	***30***	<20	<20	<20	<20	<20	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<100	--	--	--	<100
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ORGANICS																					
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RADIONUCLIDES																					
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	--

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards [2][3]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	WL-1 - Wolf Lake Outlet			
			MAC	IMAC			23-May-12	20-Aug-12	19-Nov-12	24-Feb-13
FIELD PARAMETERS										
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.21	7.66	7.64	6.95
Temperature	degrees Celsius	--	--	--	--	-0.25	17.3	17.8	3	-0.1
Conductivity	µS/cm	--	--	--	--	--	34.6	38.9	25.9	29.1
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	8080	7520	1195	12600
GENERAL PARAMETERS										
pH	pH units	--	--	--	6.5-9	6.5-8.5	6.77	6.87	6.62	6.54
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	24000	16000	14000	18000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	41	46	43	56
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	36000	62000	56000	26000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<10000	<10000	<1000	<1000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	19000	21100	22200	26100
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	8700	7000	13500	8600
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--
MAJOR IONS										
Calcium (Ca)	µg/L	<50	--	--	--	--	5240	5790	6310	7320
Magnesium (Mg)	µg/L	<50	--	--	--	--	1430	1610	1570	1890
Potassium (K)	µg/L	<50	--	--	--	--	330	280	420	390
Sodium (Na)	µg/L	<50	--	--	--	--	880	870	1140	1040
Chloride (Cl)	µg/L	<100	--	--	--	--	470	370	480	500
Fluoride (F)	µg/L	<50	1500 [7]	--	--	--	50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	3230	2980	2850	4040
METALS										
Aluminum (Al)	µg/L	<4	--	--	100 [8]	75 [9]	36	11	66	36
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	4	4	4	5
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1 [13]	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	72	79	160	138
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	13	17	11	8
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	--	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4
Silver (Ag)	µg/L	<0.1	--	--	0.1	0.1	<0.1	<0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	13	16	14	16
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	14	<5	<5	<5
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4
OTHER PARAMETERS										
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--
NUTRIENTS										
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	<20	<20	20	30
Un-ioinized Ammonia (NH_3)	µg/L	--	--	--	19 [23]	20 [23]	<0.064	<0.22	0.068	0.0249
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--
Total Phosphorus (P)	µg/L	<20	--	--	20	20	20	***40***	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	--
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--
ORGANICS										
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--
RADIONUCLIDES										
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	--	--	<0.001	<0.001

APPENDIX A
2011-2013 Surface Water Quality Results

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		Canadian Water Quality Guidelines[4]	Provincial Water Quality Objective [5]	SR - Somme River										
			MAC	IMAC			24-Jan-12	21-Feb-12	26-Mar-12	23-May-12	20-Aug-12	19-Nov-12	17-Dec-12	29-Jan-13	24-Feb-13	19-Mar-13	24-Apr-13
FIELD PARAMETERS																	
pH	pH units	--	--	--	6.5-9	6.5-8.5	--	7.48	6.68	6.99	7.71	7.29	7.35	6.72	7.09	7.62	6.52
Temperature	degrees Celsius	--	--	--	--	-0.25	--	0.4	2.6	17.3	19	2.9	--	0.2	0.1	0.2	1.4
Conductivity	µS/cm	--	--	--	--	--	--	27.1	16.8	34.9	42.7	25.4	24.8	28	28.8	29	22.8
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	--	10290	4600	8260	7170	1212	1150	12100	12550	11680	11.5
GENERAL PARAMETERS																	
pH	pH units	--	--	--	6.5-9	6.5-8.5	6.78	6.97	6.5	6.77	6.83	6.63	6.51	6.52	6.54	***6.49***	***6.44***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	15000	17000	8000	13000	16000	13000	13000	16000	18000	21000	12000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	51	52	30	41	49	42	43	52	54	56	41
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	34000	32000	58000	28000	50000	56000	58000	88000	28000	48000	46000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<10000	<10000	<10000	<10000	<10000	1000	1000	<1000	<1000	<1000	<1000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	24100	23300	13800	18900	22400		23800	--	--	--	21100
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	11300	11800	10600	8700	6500	11500	13100	11000	10000	8600	12500
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAJOR IONS																	
Calcium (Ca)	µg/L	<50	--	--	--	--	6740	6580	3820	5280	6240	6020	6560	6660	7230	6820	5880
Magnesium (Mg)	µg/L	<50	--	--	--	--	1760	1680	1040	1380	1650	1460	1810	1790	1900	1780	1550
Potassium (K)	µg/L	<50	--	--	--	--	370	350	290	320	390	360	250	300	360	330	370
Sodium (Na)	µg/L	<50	--	--	--	--	1030	980	680	880	970	1130	1030	1020	1070	1000	890
Chloride (Cl)	µg/L	<100	--	--	--	--	390	480	330	330	430	410	480	470	430	430	350
Fluoride (F)	µg/L	<50	1500[7]	--	--	--	<50	<50	<50	60	<50	<50	<50	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	3970	4020	3230	3250	3190	3000	3270	3760	3640	3570	2990
METALS																	
Aluminum (Al)	µg/L	<4	--	--	100[8]	75[9]	54	43	***110***	37	10	57	93	79	57	43	91
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	5	4	3	4	3	3	4	5	5	6	5
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1 [13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	160	134	197	90	51	178	191	170	178	151	208
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	13	11	23	15	19	10	9	10	11	17	29
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.10	<0.10	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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
Strontium (Sr)	µg/L	<5	--	--	--	--	20	16	10	13	18	14	16	18	17	18	14
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	***200***	<5	7	<5	5	<5	<5	<5	18	<5	<5
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
OTHER PARAMETERS																	
Total Cyanide	µg/L	<2	--	--	--	--	3	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NUTRIENTS																	
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	--	--	--	--	--	--	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	<20	<20	<20	<20	<20	<20	20	40	40	30	30
Un-ionized Ammonia (NH_3)	µg/L	--	--	--	19 [23]	20 [23]	--	<0.052	<0.0068	<0.064	<0.24	<0.068	--	0.0104	0.0332	0.078	--
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Phosphorus (P)	µg/L	<20	--	--	20	20	20	<20	<20	20	***40***	<20	<20	<20	<20	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	--	--	--	--	<100	--	--	--	<100
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ORGANICS																	
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--	--	--	--	--	--	--	--
RADIONUCLIDES																	
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	--	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	--

APPENDIX A
2011-2013 Surface Water Quality Results

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards [2][3]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	NL - Neville Lake			
			MAC	IMAC			29-Jan-13	24-Feb-13	19-Mar-13	20-May-13
FIELD PARAMETERS										
pH	pH units	--	--	--	6.5-9	6.5-8.5	6.76	7.25	7.06	6.55
Temperature	degrees Celsius	--	--	--	--	-0.25	0.3	0.1	0.3	10.5
Conductivity	µS/cm	--	--	--	--	--	28	31.3	3	22.5
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	12630	11250	11160	1118
GENERAL PARAMETERS										
pH	pH units	--	--	--	6.5-9	6.5-8.5	6.53	***6.49***	6.56	***6.14***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	16000	21000	20000	8000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	51	59	58	32
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	52000	42000	34000	44000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<1000	<1000	<1000	1000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	23600	28100	25900	15900
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	11900	10700	10000	11600
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--
MAJOR IONS										
Calcium (Ca)	µg/L	<50	--	--	--	--	6650	8380	7400	4530
Magnesium (Mg)	µg/L	<50	--	--	--	--	1690	1740	1800	1110
Potassium (K)	µg/L	<50	--	--	--	--	240	340	330	300
Sodium (Na)	µg/L	<50	--	--	--	--	970	960	1000	710
Chloride (Cl)	µg/L	<100	--	--	--	--	460	380	390	200
Fluoride (F)	µg/L	<50	1500 [7]	--	--	--	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	3710	3330	3510	2800
METALS										
Aluminum (Al)	µg/L	<4	--	--	100 [8]	75 [9]	90	51	64	87
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	5	5	6	4
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1 [13]	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	234	169	145	133
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	11	13	16	13
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.10	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4
Silver (Ag)	µg/L	<0.1	--	--	0.1	0.1	<0.1	<0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	20	19	23	13
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	2	<2	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	<5	<5	***64***	<5
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4
OTHER PARAMETERS										
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--
NUTRIENTS										
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	50	100	70	<20
Un-ionized Ammonia (NH_3)	µg/L	--	--	--	19 [23]	20 [23]	0.0415	0.26	0.0581	
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--
Total Phosphorus (P)	µg/L	<20	--	--	20	20	<20	<20	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	<10
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--
ORGANICS										
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--
RADIONUCLIDES										
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	<0.001	<0.001	<0.001	<0.001

APPENDIX A
2011-2013 Surface Water Quality Results

Parameter[1]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		Canadian Water Quality Guidelines[4]	Provincial Water Quality Objective[5]	NEV-LS - Neville Lake	
			MAC	IMAC			28-May-2013 (T)	28-May-2013 (B)
FIELD PARAMETERS								
pH	pH units	--	--	--	6.5-9	6.5-8.5	***6.38***	***6.25***
Temperature	degrees Celsius	--	--	--	--	-0.25	14.64	11.42
Conductivity	µS/cm	--	--	--	--	--	36	33
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	7780	8120
ORP	mV	--	--	--	--	--	126.8	133.2
GENERAL PARAMETERS								
pH	pH units	--	--	--	6.5-9	6.5-8.5	***6.16***	***6.21***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	12000	10000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	<5000	<5000
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	40	37
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	104000	152000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000[6]	--	<10000	<10000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	19900	17800
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	12600	12300
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	13200	13200
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--
MAJOR IONS								
Calcium (Ca)	µg/L	<50	--	--	--	--	6070	5440
Magnesium (Mg)	µg/L	<50	--	--	--	--	1160	1030
Potassium (K)	µg/L	<50	--	--	--	--	250	240
Sodium (Na)	µg/L	<50	--	--	--	--	770	730
Chloride (Cl)	µg/L	<100	--	--	--	--	260	270
Fluoride (F)	µg/L	<50	1500[7]	--	--	--	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	2640	2680
METALS								
Aluminum (Al)	µg/L	<4	--	--	100[8]	75[9]	79	89
Antimony (Sb)	µg/L	<6	--	6	--	20	<3	<3
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	4	4
Beryllium (Be)	µg/L	<1	--	--	--	11[10]	<1	<1
Boron (B)	µg/L	<10	--	5000	1500[11]	200	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058[12]	0.1[13]	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9[14]	8.9[14]	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2[15]	5[16]	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	90	250
Lead (Pb)	µg/L	<1	10[17]	--	1[18]	3[19]	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	14	36
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.1	<0.1
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25[20]	25	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4
Silver (Ag)	µg/L	<0.1	--	--	0.1	0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	17	13
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	16	18
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4
OTHER PARAMETERS								
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2
Total Cyanide	µg/L	<2	--	--	--	5	<2	<2
Free Cyanide	µg/L	<2	--	--	--	5	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)								
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000[21]	--	<50	80
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60[22]	--	<50	<50
Total Phosphorus (P)	µg/L as N	<20	--	--	6980	--	<20	70
Un-ioinized Ammonia (NH_3)	µg/L	--	--	--	19[23]	20[23]	<0.013	0.026
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--
Total Phosphorus (TP)	µg/L	<20	--	--	20	20	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--
ORGANICS								
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--
Polychlorinated Biphenyls	µg/L	<0.1	--	0.003	--	0.001	--	--
Naphthalene	µg/L	<0.2	--	--	1.1	7	--	--
Acenaphthylene	µg/L	<0.2	--	--	--	--	--	--
Acenaphthene	µg/L	<0.2	--	--	5.8	--	--	--
Fluorene	µg/L	<0.2	--	--	3	0.2	--	--
Phenanthrene	µg/L	<0.1	--	--	0.4	0.03	--	--
Anthracene	µg/L	<0.1	--	--	0.012	0.0008	--	--
Fluoranthene	µg/L	<0.2	--	--	0.04	0.0008	--	--
Pyrene	µg/L	<0.2	--	--	0.025	--	--	--
Benz(a)anthracene	µg/L	<0.2	--	--	0.018	0.0004	--	--
Chrysene	µg/L	<0.1	--	--	--	0.0001	--	--
Benzo(b)fluoranthene	µg/L	<0.1	--	--	--	--	--	--
Benzo(k)fluoranthene	µg/L	<0.1	--	--	--	0.0002	--	--
Benzo(a)pyrene	µg/L	<0.01	--	--	0.015	--	--	--
Indeno(1,2,3-cd)pyrene	µg/L	<0.2	--	--	--	--	--	--
Dibenz(a,h)anthracene	µg/L	<0.2	--	--	--	0.002	--	--
Benzo(g,h,i)perylene	µg/L	<0.2	--	--	--	0.00002	--	--
2-and 1-methyl Naphthalene	µg/L	<0.2	--	--	--	--	--	--
RADIONUCLIDES								
Radium-226	Bq/L	<0.001	0.6	--	--	1[24]	--	--
MICROBIOLOGICAL								
Escherichia coli	CFU/100mL	1	--	--	--	100	--	--
Total Coliforms	CFU/100mL	1	--	--	--	--	--	--

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		Canadian Water Quality Guidelines[4]	Provincial Water Quality Objective[5]	MESO-OUT - Mesomikenda Lake Outflow			
			MAC	IMAC			29-Jan-13	24-Feb-13	19-Mar-13	24-Apr-13
FIELD PARAMETERS										
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.9	8.03	7.61	--
Temperature	degrees Celsius	--	--	--	--	-0.25	-0.2	0.7	1	--
Conductivity	µS/cm	--	--	--	--	--	34.1	33.9	34	--
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	8850	13300	12790	--
GENERAL PARAMETERS										
pH	pH units	--	--	--	6.5-9	6.5-8.5	6.66	6.63	6.71	***6.44***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	21000	23000	22000	18000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	60	62	64	58
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	90000	34000	52000	20000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<1000	<1000	1000	<1000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	28800	29100	28300	28300
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	14500	9500	9800	8400
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--
MAJOR IONS										
Calcium (Ca)	µg/L	<50	--	--	--	--	8220	8420	8160	8310
Magnesium (Mg)	µg/L	<50	--	--	--	--	2020	1960	1920	1840
Potassium (K)	µg/L	<50	--	--	--	--	370	310	320	420
Sodium (Na)	µg/L	<50	--	--	--	--	1320	1230	1330	1470
Chloride (Cl)	µg/L	<100	--	--	--	--	710	770	1070	1310
Fluoride (F)	µg/L	<50	1500[7]	--	--	--	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	4060	3660	3340	3180
METALS										
Aluminum (Al)	µg/L	<4	--	--	100[8]	75[9]	91	48	45	48
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	5	4	5	4
Beryllium (Be)	µg/L	<1	--	--	--	11[10]	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500[11]	200	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058[12]	0.1[13]	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9[14]	8.9[14]	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2[15]	5[16]	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	172	109	60	46
Lead (Pb)	µg/L	<1	10[17]	--	1[18]	3[19]	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	11	6	6	9
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.10	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25[20]	25	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4
Silver (Ag)	µg/L	<0.1	--	--	0.1	0.1	<0.1	<0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	21	17	18	16
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	12	<5	<5	<5
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4
OTHER PARAMETERS										
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--
NUTRIENTS										
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000[21]	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60[22]	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	60	40	30	<20
Un-ionized Ammonia (NH_3)	µg/L	--	--	--	19[23]	20[23]	0.492	0.356	0.084	--
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--
Total Phosphorus (P)	µg/L	<20	--	--	20	20	***30***	<20	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	<10
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--
ORGANICS										
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--
RADIONUCLIDES										
Radium-226	Bq/L	<0.001	0.6	--	--	1[24]	<0.001	<0.001	<0.001	<0.001

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards [2][3]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	MESO-LS2 - Mesonikenda Lake (Upper)			MESO-LS4 - Mesomikenda Lake (Middle)		MESO-LS5 - Mesomikenda Lake (Middle)		MESO-LS7 - Mesomikenda Lake (Lower)	
			MAC	IMAC			28-May-2013 (T)	28-May-2013 (T Dup)	28-May-2013 (B)	30-May-2013 (T)	30-May-2013 (B)	30-May-2013 (T)	30-May-2013 (B)	29-May-2013 (T)	29-May-2013 (B)
FIELD PARAMETERS															
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.04	7.04	7.01	7.23	7.06	7.3	7.17	7.43	7.25
Temperature	degrees Celsius	--	--	--	--	-0.25	9.77	9.77	7.97	11.58	4.99	11.02	7.88	11.02	7.76
Conductivity	µS/cm	--	--	--	--	--	50	50	56	73	75	74	90	127	128
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	10870	10870	10990	11800	11630	11990	12670	13790	13510
ORP	mV	--	--	--	--	--	113.8	113.8	101.7	74.2	69.4	52.7	7	100.7	96.3
GENERAL PARAMETERS															
pH	pH units	--	--	--	6.5-9	6.5-8.5	***6.36***	***6.35***	***6.36***	***6.32***	***6.32***	6.54	***6.34***	6.81	***6.35***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	18000	20000	21000	21000	23000	23000	23000	29000	32000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	56	56	62	80	83	83	83	130	128
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	56000	84000	64000	82000	92000	60000	52000	76000	86000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	25600	24700	26500	28100	29900	29100	29800	38400	45500
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	7900	7800	7700	8400	8900	8600	8300	6700	5900
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	8500	8500	7700	9000	8800	9000	8000	6600	6100
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--
MAJOR IONS															
Calcium (Ca)	µg/L	<50	--	--	--	--	7530	7300	7870	8400	9000	8720	8930	12000	14200
Magnesium (Mg)	µg/L	<50	--	--	--	--	1640	1570	1670	1720	1810	1790	1830	2040	2440
Potassium (K)	µg/L	<50	--	--	--	--	360	330	330	410	430	430	400	470	530
Sodium (Na)	µg/L	<50	--	--	--	--	1370	1340	1590	4100	4270	4330	4250	8690	9620
Chloride (Cl)	µg/L	<100	--	--	--	--	1140	1120	1560	7200	7440	7470	7460	15800	16000
Fluoride (F)	µg/L	<50	1500 [7]	--	--	--	<50	<50	<50	<50	<50	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	3240	3330	3440	4130	4230	4110	4660	4310	4310
METALS															
Aluminum (Al)	µg/L	<4	--	--	100 [8]	75 [9]	57	54	45	54	89	44	43	29	33
Antimony (Sb)	µg/L	<6	--	6	--	20	<3	<3	<3	<3	<3	<3	<3	<3	<3
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	4	4	3	3	4	3	3	3	3
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1 [13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2	<2	<2	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	20	30	<10	<10	<10	20	20	<10	30
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	8	10	10	3	3	5	5	6	11
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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
Strontium (Sr)	µg/L	<5	--	--	--	--	15	18	17	17	21	17	17	18	20
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	<5	***48***	11	18	<5	<5	<5	<5	<5
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4
OTHER PARAMETERS															
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2
Free Cyanide	µg/L	<2	--	--	5	5	<2	<2	<2	<2	<2	<2	<2	<2	<2
Phenols	µg/L	<1	--	--	--	5	1	<1	--	<1	--	<1	--	--	--
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)															
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	100	70	90	100	130	90	110	<50	80
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	<50	<50	<50	<50	<50	<50	<50	<50	<50
Total Phosphorus (P)	µg/L as N	<20	--	--	6980	--	<20	<20	<20	<20	<20	30	<20	110	90
Un-ionized Ammonia (NH_3)	µg/L	--	--	--	19 [23]	20 [23]	<0.040	<0.040	<0.032	<0.071	<0.029	0.12	<0.046	0.592	0.248
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Phosphorus (TP)	µg/L	<20	--	--	20	20	<20	<20	<20	<20	<20	20	20	20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	--	--	--	--	--	--
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--	--	--	--	--	--
ORGANICS															
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	<500	<500	--	<500	--	<500	--	<500	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	<500	<500	--	<500	--	<500	--	<500	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	<500	<500	--	<500	--	<500	--	<500	--
Polychlorinated Biphenyls	µg/L	<0.1	--	0.003	--	0.001	<0.1	<0.1	--	<0.1	--	<0.1	--	<0.1	--
Naphthalene	µg/L	<0.2	--	--	1.1	7	<0.2	<0.2	--	<0.2	--	<0.2	--	<0.2	--
Acenaphthylene	µg/L	<0.2	--	--	--	--	<0.2	<0.2	--	<0.2	--	<0.2	--	<0.2	--
Acenaphthene	µg/L	<0.2	--	--	5.8	--	<0.2	<0.2	--	<0.2	--	<0.2	--	<0.2	--
Fluorene	µg/L	<0.2	--	--	3	0.2	<0.2	<0.2	--	<0.2	--	<0.2	--	<0.2	--
Phenanthrene	µg/L	<0.1	--	--	0.4	0.03	<0.1	<0.1	--	<0.1	--	<0.1	--	<0.1	--
Anthracene	µg/L	<0.1	--	--	0.012	0.0008	<0.1	<0.1	--	<0.1	--	<0.1	--	<0.1	--
Fluoranthene	µg/L	<0.2	--	--	0.04	0.0008	<0.2	<0.2	--	<0.2	--	<0.2	--	<0.2	--
Pyrene	µg/L	<0.2	--	--	0.025	--	<0.2	<0.2	--	<0.2	--	<0.2	--	<0.2	--
Benz(a)anthracene	µg/L	<0.2	--	--	0.018	0.0004	<0.2	<0.2	--	<0.2	--	<0.2	--	<0.2	--
Chrysene	µg/L	<0.1	--	--	--	0.0001	<0.1	<0.1	--	<0.1	--	<0.1	--	<0.1	--
Benzo(b)fluoranthene	µg/L	<0.1	--	--	--	--	<0.1	<0.1	--	<0.1	--	<0.1	--	<0.1	--
Benzo(k)fluoranthene	µg/L	<0.1	--	--	--	0.0002	<0.1	<0.1	--	<0.1	--	<0.1	--	<0.1	--
Benzo(a)pyrene	µg/L	<0.01	--	--	0.015	--	<0.01	<0.01	--	<0.01	--	<0.01	--	<0.01	--
Indeno(1,2,3-cd)pyrene	µg/L	<0.2	--	--	--	--	<0.2	<0.2	--	<0.2	--	<0.2	--	<0.2	--
Dibenz(a,h)anthracene	µg/L	<0.2	--	--	--	0.002	<0.2	<0.2	--	<0.2	--	<0.2	--	<0.2	--
Benzo(g,h,i)perylene	µg/L	<0.2	--	--	--	0.00002	<0.2	<0.2	--	<0.2	--	<0.2	--	<0.2	--
2-and 1-methyl Naphthalene	µg/L	<0.2	--	--	--	--	<0.2	<0.2	--	<0.2	--	<0.2	--	<0.2	--
RADIONUCLIDES															
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	--	--	--	<0.001	--	--	--	--	--
MICROBIOLOGICAL															
Escherichia coli	CFU/100mL	100	--	--	--	100	1	ND	--	1	--	ND	--	ND	--
Total Coliforms	CFU/100mL	--	--	--	--	--	34	38	--	33	--	21	--	28	--

APPENDIX A
2011-2013 Surface Water Quality Results

Parameter[1]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		Canadian Water Quality Guidelines[4]	Provincial Water Quality Objective[5]	CM - Culvert Road Crossing of Clam Lake															
			MAC	IMAC			24-Jan-12	21-Feb-12	26-Mar-12	30-Apr-12	23-May-12	25-Jun-12	18-Jul-12	20-Aug-12	24-Sep-12	30-Oct-12	19-Nov-12	17-Dec-12	29-Jan-13	24-Feb-13	19-Mar-13	24-Apr-13
FIELD PARAMETERS																						
pH	pH units	--	--	--	6.5-9	6.5-8.5	--	6.99	6.82	8	7.41	7.33	7.35	7.6	7.2	7.21	7.13	7.43	6.98	7.55	8.48	6.8
Temperature	degrees Celsius	--	--	--	--	-0.25	--	0.3	3.1	8.3	18.1	18.9	24	17.8	13.8	3.7	1.6	1.3	0.7	0.3	1.5	2
Conductivity	µS/cm	--	--	--	--	--	--	22.4	21.7	25.5	33.7	36.1	41.8	36.1	32.5	24.7	24.8	24.8	25.9	24.7	24.8	24.2
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	--	9040	1580	3900	6740	5910	5810	6610	8090	11670	1204	1340	14000	12530	11400	12660
GENERAL PARAMETERS																						
pH	pH units	--	--	--	6.5-9	6.5-8.5	6.81	6.93	6.88	6.86	6.72	7.08	6.57	6.75	6.93	6.69	6.53	***6.35***	6.54	***6.41***	6.54	***6.45***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	14000	15000	12000	14000	13000	13000	12000	13000	13000	13000	14000	13000	15000	14000	14000	11000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	43	43	38	39	39		40	43	41	41	44	42	48	45	47	42
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	30000	<20000	48000	26000	22000	26000	28000	48000	48000	30000	48000	44000	86000	<20000	22000	44000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000[6]	--	<10000	<10000	<10000	<10000	<10000	575000	<10000	<10000	<1000	2000	<1000	<1000	<1000	<1000	<1000	5000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	18900	19100	16500	17800	17600	15800	17400	18800	20400	18400	19300	21000	20300	20500	19900	20300
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	8600	10700	7100	7700	7900	8500	7600	5700	7200	6700	7300	6800	7700	7000	7200	8600
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAJOR IONS																						
Calcium (Ca)	µg/L	<50	--	--	--	--	6070	6180	5310	5700	5650	5050	5580	6000	6540	5940	6220	6730	6480	6590	6370	6560
Magnesium (Mg)	µg/L	<50	--	--	--	--	910	900	780	860	860	770	850	920	980	860	920	1020	990	990	960	940
Potassium (K)	µg/L	<50	--	--	--	--	440	370	340	360	460	360	400	470	420	390	320	370	360	410	400	440
Sodium (Na)	µg/L	<50	--	--	--	--	670	680	620	650	700	600	690	690	720	670	690	740	700	740	720	700
Chloride (Cl)	µg/L	<100	--	--	--	--	290	290	290	290	350	290	340	360	400	350	380	360	350	290	380	340
Fluoride (F)	µg/L	<50	1500[7]	--	--	--	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	2510	2610	3140	3240	2870	3040	3310	3180	3180	3430	4010	3970	4080	3870	3910	4480
METALS																						
Aluminum (Al)	µg/L	<4	--	--	100[8]	75[9]	10	10	22	21	16	7	13	4	6	7	5	6	15	7	8	52
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	3	4	4	4	3	3	4	3	4	4	3	4	4	4	5	5
Beryllium (Be)	µg/L	<1	--	--	--	11[10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500[11]	200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058[12]	0.1[13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9[14]	8.9[14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2[15]	5[16]	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	80	90	93	37	54	46	36	48	85	23	21	34	22	21	<10	100
Lead (Pb)	µg/L	<1	10[17]	--	1[18]	3[19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	8	11	16	14	10	16	21	17	36	12	7	5	6	3	4	17
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25[20]	25	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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	<0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	13	13	11	11	10	12	11	13	15	12	12	15	17	13	13	13
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	7	9	8	<5	<5	<5	<5	<5	<5	<5	<5	<5	***36***	<5	<5	<5
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
OTHER PARAMETERS																						
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NUTRIENTS																						
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000[21]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60[22]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	40	80	30	20	<20	<20	<20	<20	20	<20	<20	<20	30	40	40	50
Un-ionized Ammonia (NH_3)	µg/L	--	--	--	19[23]	20[23]	--	0.07	0.03	0.32	<0.22	<0.24	<0.34	<0.22	0.05	<0.02	<0.02	<0.06	0.03	0.1	1.2	<0.02
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Phosphorus (P)	µg/L	<20	--	--	20	20	***30***	<20	***30***	<20	20	***40***	***40***	***40***	***30***	<20	<20	<20	<20	<20	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<100		--	--	<100
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ORGANICS																						
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RADIONUCLIDES																						
Radium-226	Bq/L	<0.001	0.6	--	--	1[24]	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	--

2011-2013 Surface Water Quality Results

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	CM-LS - Clam Lake	
			MAC	IMAC			23-May-2013 (T)	23-May-2013 (B)
FIELD PARAMETERS								
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.06	7.01
Temperature	degrees Celsius	--	--	--	--	-0.25	10.79	9.29
Conductivity	µS/cm	--	--	--	--	--	38	38
Dissolved Oxygen	µg/L	--	--	--	--	--	11630	11760
ORP	mV	--	--	--	--	--	-2.2	12.6
GENERAL PARAMETERS								
pH	pH units	--	--	--	6.5-9	6.5-8.5	***6.32***	***6.38***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	12000	12000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	<5000	<5000
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	42	42
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	36000	40000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<10000	<10000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	21000	20600
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	11200	9400
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	12700	10200
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--
MAJOR IONS								
Calcium (Ca)	µg/L	<50	--	--	--	--	6800	6650
Magnesium (Mg)	µg/L	<50	--	--	--	--	980	980
Potassium (K)	µg/L	<50	--	--	--	--	440	470
Sodium (Na)	µg/L	<50	--	--	--	--	750	760
Chloride (Cl)	µg/L	<100	--	--	--	--	310	310
Fluoride (Fl)	µg/L	<50	1500[7]	--	--	--	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	3580	3610
METALS								
Aluminum (Al)	µg/L	<4	--	--	100[8]	75 [9]	44	***164***
Antimony (Sb)	µg/L	<6	--	6	--	20	<3	<3
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	6	4
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1[13]	***0.1***	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	40	40
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	21	18
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4
Silver (Ag)	µg/L	<0.1	--	--	0.1	0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	15	12
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	14	8
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4
OTHER PARAMETERS								
Total Cyanide	µg/L	<2	--	--	--	--	<2	3
Free Cyanide	µg/L	<2	--	--	5	5	<2	3
Phenols	µg/L	<1	--	--	--	5	--	--
Sulphur (S)	µg/L	<50	--	--	--	--	--	--
NUTRIENTS								
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	50	60
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	<50	<50
Total Ammonia (NH_3)	µg/L as N	<20	--	--	6980	--	<20	<20
Un-ioinized Ammonia (NH_3)	µg/L	--	--	--	19 [23]	20 [23]	<0.045	<0.036
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--
Total Phosphorus (TP)	µg/L	<20	--	--	20	20	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--
ORGANICS								
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--
RADIONUCLIDES								
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	--	--

APPENDIX A
2011-2013 Surface Water Quality Results

Parameter[1]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		Canadian Water Quality Guidelines[4]	Provincial Water Quality Objective[5]	CHLK - Chester Lake Outlet															
			MAC	IMAC			24-Jan-12	21-Feb-12	26-Mar-12	18-Apr-12	23-May-12	25-Jun-12	25-Jun-12 (DUP)	18-Jul-12	20-Aug-12	24-Sep-12	23-Oct-12	19-Nov-12	17-Dec-12	29-Jan-13	24-Feb-13	19-Mar-13	24-Apr-13
FIELD PARAMETERS																						
pH	pH units	--	--	--	6.5-9	6.5-8.5	--	6.7	6.8	6.9	7.27	7.21	7.21	7.68	7.53	6.87	7.2	7.21	7.12	6.56	6.87	6.69	6.75
Temperature	degrees Celsius	--	--	--	--	-0.25	--	1.6	2.5	5.4	19.5	23.5	23.5	21.8	19.6	10.5	2.8	4.2	1.6	1.6	1.2	0.9	1.3
Conductivity	µS/cm	--	--	--	--	--	--	26.4	19.7	21.1	34.4	43.2	43.2	39.6	39.1	30.77	23.1	24.8	24	28.6	27.7	27.6	27
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	--	6960	2470	3630	8150	6960	6960	8420	8480	10060	12390	1227	1233	10580	9450	7800	7750
GENERAL PARAMETERS																						
pH	pH units	--	--	--	6.5-9	6.5-8.5	6.74	6.88	6.74	6.68	6.69	6.98	6.97	6.69	6.78	6.85	6.6	6.67	***6.43***	***6.17***	***6.36***	6.51	***6.41***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	15000	15000	10000	10000	12000	12000	12000	13000	14000	12000	12000	11000	12000	17000	15000	15000	14000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	49	48	35	34	38		40	41	43	42	40	40	41	50	50	51	48
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	44000	<20000	<20000	36000	32000	42000	38000	42000	54000	52000	46000	54000	54000	58000	<20000	36000	46000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000[6]	--	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<1000	4000	1000	1000	<1000	<1000	<1000	<1000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	23500	23100	16300	16200	18000	17000	17200	20000	20800	22300	19800	21400	21800	24500	24300	23300	24800
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	14300	16000	11200	11400	11600	13300	13700	11000	8300	13300	12700	12400	11600	13500	12700	12200	12900
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAJOR IONS																						
Calcium (Ca)	µg/L	<50	--	--	--	--	7370	7300	5050	5050	5530	5200	5270	6210	6420	6900	6150	6750	6730	7580	7590	7250	7700
Magnesium (Mg)	µg/L	<50	--	--	--	--	1230	1190	900	870	1020	970	980	1100	1160	1230	1080	1110	1220	1350	1290	1270	1350
Potassium (K)	µg/L	<50	--	--	--	--	340	310	350	300	350	310	360	320	290	360	290	290	270	260	300	260	350
Sodium (Na)	µg/L	<50	--	--	--	--	890	870	690	700	790	770	760	820	830	880	840	1000	860	940	920	880	860
Chloride (Cl)	µg/L	<100	--	--	--	--	410	370	330	340	330	330	300	320	330	400	350	360	380	320	380	540	390
Fluoride (F)	µg/L	<50	1500[7]	--	--	--	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	2730	2700	2810	2680	2950	3130	3160	2820	2710	2610	3130	3210	3370	3770	3520	3370	3580
METALS																						
Aluminum (Al)	µg/L	<4	--	--	100[8]	75[9]	58	62	68	72	47	45	42	32	24	42	47	53	47	68	64	67	56
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	4	6	4	4	4	5	5	4	4	5	4	4	5	5	8	5	5
Beryllium (Be)	µg/L	<1	--	--	--	11[10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500[11]	200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058[12]	0.1[13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9[14]	8.9[14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2[15]	5[16]	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	***310***	***325***	207	163	105	135	145	187	116	216	141	176	145	176	254	211	187
Lead (Pb)	µg/L	<1	10[17]	--	1[18]	3[19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	34	43	28	21	23	55	53	65	26	21	17	11	10	18	34	33	48
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.10	<0.10	<0.1	<0.10	<0.10	<0.10	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25[20]	25	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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	<0.1	<0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	14	16	11	10	13	13	13	17	14	16	12	11	13	17	25	14	15
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	7	***34***	9	10	12	<5	16	***55***	<5	25	6	<5	<5	21	***208***	<5	<5
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
OTHER PARAMETERS																						
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NUTRIENTS																						
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000[21]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60[22]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	40	<20	<20	<20	<20	<20	<20	<20	<20	40	<20	<20	30	50	40	30	20
Un-ionized Ammonia (NH_3)	µg/L	--	--	--	19[23]	20[23]	--	<0.0062	<0.022	<0.026	<0.24	<0.106	--	<0.28	<0.24	0.08	<0.022	<0.024	0.0294	0.049	0.036	0.0084	--
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Phosphorus (P)	µg/L	<20	--	--	20	20	***30***	<20	<20	20	***40***	***50***	***60***	***40***	***40***	***30***	<20	<20	<20	<20	<20	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<100	--	--	--	<100
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ORGANICS																						
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RADIONUCLIDES																						
Radium-226	Bq/L	<0.001	0.6	--	--	1[24]	--	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	--

2011-2013 Surface Water Quality Results

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards [2][3]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	CHLK-LS
			MAC	IMAC			22-May-2013 (T)
FIELD PARAMETERS							
pH	pH units	--	--	--	6.5-9	6.5-8.5	6.84
Temperature	degrees Celsius	--	--	--	--	-0.25	11.51
Conductivity	µS/cm	--	--	--	--	--	29
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	9760
ORP	mV	--	--	--	--	--	259.1
GENERAL PARAMETERS							
pH	pH units	--	--	--	6.5-9	6.5-8.5	***6.22***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	8000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	<5000
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	32
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	40000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<10000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	15800
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	11400
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	124000
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--
MAJOR IONS							
Calcium (Ca)	µg/L	<50	--	--	--	--	4940
Magnesium (Mg)	µg/L	<50	--	--	--	--	840
Potassium (K)	µg/L	<50	--	--	--	--	310
Sodium (Na)	µg/L	<50	--	--	--	--	870
Chloride (Cl)	µg/L	<100	--	--	--	--	190
Fluoride (F)	µg/L	<50	1500 [7]	--	--	--	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	2860
METALS							
Aluminum (Al)	µg/L	<4	--	--	100 [8]	75 [9]	83
Antimony (Sb)	µg/L	<6	--	6	--	20	<3
Arsenic (As)	µg/L	<3	--	25	5	5	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	4
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1 [13]	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2
Iron (Fe)	µg/L	<10	--	--	300	300	120
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	19
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.1
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4
Silver (Ag)	µg/L	<0.1	--	--	0.1	0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	10
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	<5
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4
OTHER PARAMETERS							
Total Cyanide	µg/L	<2	--	--	--	--	<2
Free Cyanide	µg/L	<2	--	--	5	5	<2
Phenols	µg/L	<1	--	--	--	5	1
Sulphur (S)	µg/L	<50	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)							
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	<50
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	<50
Total Phosphorus (P)	µg/L as N	<20	--	--	6980	--	<20
Un-ioinized Ammonia (NH_3)	µg/L	--	--	--	19 [23]	20 [23]	--
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--
Total Phosphorus (TP)	µg/L	<20	--	--	20	20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--
ORGANICS							
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	<500
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	<500
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	<500
Polychlorinated Biphenyls	µg/L	<0.1	--	0.003	--	0.001	<0.1
Naphthalene	µg/L	<0.2	--	--	1.1	7	<0.2
Acenaphthylene	µg/L	<0.2	--	--	--	--	<0.2
Acenaphthene	µg/L	<0.2	--	--	5.8	--	<0.2
Fluorene	µg/L	<0.2	--	--	3	0.2	<0.2
Phenanthrene	µg/L	<0.1	--	--	0.4	0.03	<0.1
Anthracene	µg/L	<0.1	--	--	0.012	0.0008	<0.1
Fluoranthene	µg/L	<0.2	--	--	0.04	0.0008	<0.2
Pyrene	µg/L	<0.2	--	--	0.025	--	<0.2
Benz(a)anthracene	µg/L	<0.2	--	--	0.018	0.0004	<0.2
Chrysene	µg/L	<0.1	--	--	--	0.0001	<0.1
Benzo(b)fluoranthene	µg/L	<0.1	--	--	--	--	<0.1
Benzo(k)fluoranthene	µg/L	<0.1	--	--	--	0.0002	<0.1
Benzo(a)pyrene	µg/L	<0.01	--	--	0.015	--	<0.01
Indeno(1,2,3-cd)pyrene	µg/L	<0.2	--	--	--	--	<0.2
Dibenz(a,h)anthracene	µg/L	<0.2	--	--	--	0.002	<0.2
Benzo(g,h,i)perylene	µg/L	<0.2	--	--	--	0.00002	<0.2
2-and 1-methyl Naphthalene	µg/L	<0.2	--	--	--	--	<0.2
RADIONUCLIDES							
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	--

APPENDIX A
2011-2013 Surface Water Quality Results

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards [2][3]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	P-2 - Drainage from Beaver Pond		P-5 - Seasonal Pond	
			MAC	IMAC			19-Nov-12	24-Feb-13	23-May-12	19-Nov-12
FIELD PARAMETERS										
pH	pH units	--	--	--	6.5-9	6.5-8.5	***6.43***	6.51	6.98	***6.31***
Temperature	degrees Celsius	--	--	--	--	-0.25	2.7	-0.1	19.5	3.5
Conductivity	µS/cm	--	--	--	--	--	30.2	65.8	37.4	28.7
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	887	6130	6000	941
GENERAL PARAMETERS										
pH	pH units	--	--	--	6.5-9	6.5-8.5	***6.43***	6.64	6.55	***6.18***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	13000	52000	16000	10000
Acidity	µg/L as CaCO3	<5000	--	--	--	--		--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	49	118	44	47
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	72000	108000	62000	82000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	4000	5000	<10000	2000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	25200	60400	20700	25600
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	26300	30700	23100	25900
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--
MAJOR IONS										
Calcium (Ca)	µg/L	<50	--	--	--	--	7980	19300	6410	8060
Magnesium (Mg)	µg/L	<50	--	--	--	--	1280	2960	1140	1340
Potassium (K)	µg/L	<50	--	--	--	--	380	720	620	900
Sodium (Na)	µg/L	<50	--	--	--	--	1000	1190	900	1020
Chloride (Cl)	µg/L	<100	--	--	--	--	340	540	350	750
Fluoride (F)	µg/L	<50	1500 [7]	--	--	--	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	4000	1960	300	3370
METALS										
Aluminum (Al)	µg/L	<4	--	--	100 [8]	75 [9]	***143***	***237***	37	93
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	7	19	6	7
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1 [13]	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	2.2	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	***707***	***4000***	***302***	298
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	33	577	67	44
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.10	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4
Silver (Ag)	µg/L	<0.1	--	--	0.1	0.1	<0.1	<0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	19	43	14	17
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	3	6	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	20	7	***67***	***45***
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4
OTHER PARAMETERS										
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	3	<2
Sulphur (S)	µg/L	<50	--	--	--	--		--	--	--
NUTRIENTS										
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	60	550	<20	80
Un-ionized Ammonia (NH_3)	µg/L	--	--	--	19 [23]	20 [23]	0.02	0.14	<0.08	0.03
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--
Total Phosphorus (P)	µg/L	<20	--	--	20	20	<20	***40***	***50***	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	--
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--
ORGANICS										
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--
RADIONUCLIDES										
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	<0.001	<0.001	--	<0.001

APPENDIX A
2011-2013 Surface Water Quality Results

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	CL - Côté Lake Outlet																	
			MAC	IMAC			23-Sep-11	19-Oct-11	28-Nov-11	22-Dec-11	24-Jan-12	21-Feb-12	26-Mar-12	11-May-12	31-May-12	28-Jun-12	19-Jul-12	22-Aug-12	24-Sep-12	30-Oct-12	19-Nov-12	17-Dec-12	29-Jan-13	24-Feb-13	19-Mar-13	24-Apr-13
FIELD PARAMETERS																								
pH	pH units	--	--	--	6.5-9	6.5-8.5	--	--	--	--	--	6.68	***6.2***	--	7.52	7.25	6.94	7.4	7.03	7.04	6.88	6.94	6.74	7.17	7.45	***6.44***
Temperature	degrees Celsius	--	--	--	--	-0.25	--	--	--	--	--	0.5	3.2	--	17.8	23.5	21.3	19.2	11.8	4.7	4.2	0.3	0.1	0	0.1	2.9
Conductivity	µS/cm	--	--	--	--	--	--	--	--	--	--	27.1	20.8	--	35.9	44.1	43.8	44.3	37.7	29.7	27.5	25.2	29.3	29.4	29.3	27.9
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	--	--	--	--	--	8920	940	--	8400	7680	4930	6860	9150	10950	1170	1180	10810	9900	9420	10470
GENERAL PARAMETERS																								
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.45	7.08	6.71	6.56	***6.25***	6.89	6.69	6.62	6.67	7.16	6.61	6.83	6.97	6.66	6.68	6.67	***6.1***	***5.79***	6.71	6.63
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	17000	15000	12000	12000	12000	17000	11000	11000	13000	15000	15000	16000	16000	13000	13000	13000	15000	14000	20000	14000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--	--	--	--	--	--	<5000	<5000	<5000	--	--	--	--	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	44	45	41	43	51		36	36	41	45	46	50	50	48	44	45	54	54	57	50
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	54000	74000	48000	42000	68000	36000	44000	54000	64000	524000	56000	58000	58000	40000	72000	56000	28000	54000	44000	86000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	1000	3000	2000	1000	<1000	4000	<1000	2000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	21100	20600	19800	21400	23100	23800	16700	17400	19500	20900	23300	23200	25600	22300	22200	24100	26500	26200	26500	24100
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	26700	11700	12300	11300	13000	16400	11500	11600	12600	15900	12700	11900	11700	13300	12900	11400	13000	11800	11700	14800
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	13300	16400	13500	12800	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--	--	--	--	--	39000	39000	32000	35000	--	--	--	--	--	--	--	--
MAJOR IONS																								
Calcium (Ca)	µg/L	<50	--	--	--	--	6440	6320	6150	6700	7270	7510	5190	5400	5980	6440	7130	7100	7870	6900	7010	7450	8220	8170	8240	7480
Magnesium (Mg)	µg/L	<50	--	--	--	--	1230	1180	1080	1140	1190	1220	910	960	1100	1160	1330	1340	1450	1220	1150	1330	1440	1400	1440	1310
Potassium (K)	µg/L	<50	--	--	--	--	335	390	330	390	390	380	400	330	330	310	300	220	290	340	430	310	380	390	400	450
Sodium (Na)	µg/L	<50	--	--	--	--	836	1030	860	890	930	1020	850	790	900	990	1140	1050	1270	1120	1150	960	1040	990	1010	1010
Chloride (Cl)	µg/L	<100	--	--	--	--	470	680	540	590	670	780	590	370	610	690	740	860	1130	1290	830	610	660	620	670	720
Fluoride (F)	µg/L	<50	1500[7]	--	--	--	--	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	1850	1750	2310	2940	2510	2800	2620	2700	2490	2440	2300	2420	2230	3380	3570	3720	3730	3640	3440	3510
METALS																								
Aluminum (Al)	µg/L	<4	--	--	100[8]	75 [9]	39	34	77	39	45	54	72	64	54	29	16	15	20	54	68	51	63	50	68	75
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	6	5	5	4	6	6	5	4	4	4	4	3	5	5	5	5	6	7	7	6
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1[13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	***0.3***
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	***3***	<2	<2	<2	<2	<2	***3***
Iron (Fe)	µg/L	<10	--	--	300	300	***406***	***309***	273	177	***359***	***366***	280	128	137	95	104	105	144	156	196	149	205	***337***	274	278
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	***3***
Manganese (Mn)	µg/L	<2	--	--	--	--	57	36	40	26	64	73	47	12	34	19	33	27	23	27	19	18	39	113	60	68
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	--	<0.10	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	***0.2***
Strontium (Sr)	µg/L	<5	--	--	--	--	16	15	14	13	16	15	12	11	13	13	16	17	18	15	12	14	17	15	21	15
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.5
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	2	<2	<2	<2	3	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	3	<2	2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	10	<5	<5	<5	12	6	<5	12	<5	8	10	<5	<5	<5	<5	<5	14	21	***106***	***49***
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
OTHER PARAMETERS																								
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--	--	--	1090	1040	--	1020	--	--	--	--	--	--	--	--
NUTRIENTS																								
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	--	--	--	--	--	--	--	--	<50	<50	<50	<50	--	--	--	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	--	--	--	--	--	--	--	--	<50	<50	<50	<50	--	--	--	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	20	<20	60	60	30	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	40	60	50	30	60
Un-ionized Ammonia (NH_3)	µg/L	--	--	--	19 [23]	20 [23]	--	--	--	--	--	<0.0056	<0.0022	--	<0.22	<0.34	<0.086	<0.24	<0.044	<0.026	0.024	0.0332	0.0156	0.0415	0.078	--
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--	--	--	--	--	520	1260	570	940	--	--	--	--	--	--	--	--
Total Phosphorus (P)	µg/L	<20	--	--	20	20	<20	<20	<20	<20	***30***	<20	***30***	***30***	<20	***60***	<20	***30***	20	<20	<20	<20	<20	<20	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	<100	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	<100	--	--	--	<100
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--	--	--	--	--	<20	<20	<20	<20	--	--	--	--	--	--	--	--
ORGANICS																								
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	<500	<500	800	<500	1100	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	<500	<500	<500	<500	<500	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--	--	--	--	--	<500	<500	900	<500	1400	--	--	--	--	--	--	--
RADIONUCLIDES																								
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	--

APPENDIX A
2011-2013 Surface Water Quality Results

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards [2][3]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [6]	WD - Weeduck Lake Outlet																	
			MAC	IMAC			23-Sep-11	19-Oct-11	28-Nov-11	22-Dec-11	24-Jan-12	21-Feb-12	26-Mar-12	18-Apr-12	23-May-12	25-Jun-12	18-Jul-12	20-Aug-12	24-Sep-12	30-Oct-12	19-Nov-12	17-Dec-12	29-Jan-12	24-Feb-13	19-Mar-13	24-Apr-13
FIELD PARAMETERS																								
pH	pH units	--	--	--	6.5-9	6.5-8.5	--	--	--	--	--	7.5	6.99	7.23	8	7.19	7.31	7.52	6.9	7.32	7.53	8.14	6.59	7.3	7.71	6.76
Temperature	degrees Celsius	--	--	--	--	-0.25	--	--	--	--	--	0.5	3	6.1	18.2	21.8	23.3	19.6	12.4	6	2.4	1.6	0.7	0	-0.2	0.4
Conductivity	µS/cm	--	--	--	--	--	--	--	--	--	--	22	22	23.2	32.1	33	37.3	35.5	30.2	24.9	22.6	22.8	25.9	23.8	22.6	16
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	--	--	--	--	--	7400	5500	4330	7390	8340	6910	6950	8340	10700	1193	1290	13000	12400	11110	11010
GENERAL PARAMETERS																								
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.26	7.09	6.97	6.83	6.57	6.93	6.82	6.98	6.75	7.11	6.94	6.71	6.92	6.71	***6.1***	***6.13***	***5.87***	***5.8***	6.54	***6.4***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	14000	14000	13000	15000	13000	14000	13000	13000	13000	13000	13000	13000	13000	13000	12000	13000	13000	14000	14000	7000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	39	39	38	42	42		38	37	38	37	37	39	40	39	41	43	45	44	44	26
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	36000	54000	30000	46000	32000	<20000	56000	42000	24000	24000	34000	44000	44000	44000	28000	44000	82000	<20000	34000	<20000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	1000	3000	<1000	1000	<1000	<1000	<1000	<1000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	18000	17400	17500	19700	18300	18900	16900	16600	17100	15200	17300	18000	20300	17500	17700	21100	19000	19900	18900	11800
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	8800	7800	8200	9800	9900	11400	7800	6900	8000	9900	15900	7100	7700	7800	7100	8100	8500	8600	8000	6100
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAJOR IONS																								
Calcium (Ca)	µg/L	<50	--	--	--	--	5300	5110	5170	5760	5400	5610	5030	4910	5030	4450	5070	5280	6000	5190	5310	6150	5540	5840	5540	3470
Magnesium (Mg)	µg/L	<50	--	--	--	--	1150	1120	1120	1290	1170	1200	1060	1050	1110	990	1130	1160	1300	1110	1080	1390	1260	1300	1220	770
Potassium (K)	µg/L	<50	--	--	--	--	369	380	360	460	410	390	340	340	520	330	410	350	400	340	450	510	440	510	450	310
Sodium (Na)	µg/L	<50	--	--	--	--	652	630	660	760	690	710	640	650	780	620	740	640	720	660	790	850	830	820	770	540
Chloride (Cl)	µg/L	<100	--	--	--	--	290	290	200	320	310	320	330	330	410	200	340	260	320	320	490	510	520	460	500	360
Fluoride (F)	µg/L	<50	1500[7]	--	--	--	--	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	2340	2250	2070	2840	2410	2490	2410	2460	2290	2340	2370	2250	2100	2220	2290	2640	2650	2760	2510	1700
METALS																								
Aluminum (Al)	µg/L	<4	--	--	100[8]	75 [9]	<4	4	8	5	6	9	15	13	8	4	9	<4	5	7	<4	7	15	6	13	23
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	6	5	5	5	5	5	6	5	4	4	4	4	6	5	4	5	5	6	6	3
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1[13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	10	90	89	46	25	85	82	16	<10	21	<10	<10	53	37	24	34	25	24	<10	<10
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	52	93	39	27	15	27	112	61	10	20	26	43	119	39	18	11	7	5	4	13
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.10	<0.10	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	15	13	14	13	14	16	11	11	11	12	12	14	15	13	11	13	15	13	14	8
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	10	10	<5	<5	25	***103***	5	9	<5	22	<5	<5	<5	<5	<5	<5	20	6	6	15
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
OTHER PARAMETERS																								
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NUTRIENTS																								
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	<20	<20	50	40	20	<20	<20	<20	<20	<20	<20	<20	<20	20	50	50	70	30	<20	50
Un-ionized Ammonia (NH_3)	µg/L	--	--	--	19 [23]	20 [23]	--	--	--	--	--	<0.056	<0.022	<0.028	<0.66	<0.092	<0.3	<0.24	<0.044	0.086	0.155	0.485	0.0196	0.078	<0.052	--
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Phosphorus (P)	µg/L	<20	--	--	20	20	<20	<20	<20	<20	20	<20	20	<20	20	***50***	***30***	***40***	***90***	<20	<20	<20	<20	<20	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	<100	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	<100	--	--	--	<100
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ORGANICS																								
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RADIONUCLIDES																								
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	--

APPENDIX A
2011-2013 Surface Water Quality Results

Parameter [5]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [6]	MP - Inflow to Three Duck Lakes																
			MAC	IMAC			23-Sep-11	19-Oct-11	28-Nov-11	22-Dec-11	24-Jan-12	21-Feb-12	26-Mar-12	18-Apr-12	23-May-12	25-Jun-12	18-Jul-12	25-Aug-12	24-Sep-12	30-Oct-12	19-Nov-12	17-Dec-12	29-Jan-13	24-Apr-13
FIELD PARAMETERS																							
pH	pH units	--	--	--	6.5-9	6.5-8.5	--	--	--	--	--	6.92	***6.28***	7.01	7.79	6.68	***6.29***	--	6.7	6.81	6.62	6.65	***6.26***	***6.19***
Temperature	degrees Celsius	--	--	--	--	-0.25	--	--	--	--	--	-0.1	1.3	5.7	19.4	21.2	21	--	7.6	2.8	2.9	0	-0.3	-0.2
Conductivity	µS/cm	--	--	--	--	--	--	--	--	--	--	43.1	28.9	32.5	51.7	64.5	81.7	--	48.8	39.9	41.2	41.4	51.4	26.4
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	--	--	--	--	--	7470	6100	2890	7520	4620	7090	--	7200	10660	1078	1072	4300	10570
GENERAL PARAMETERS																							
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.23	6.99	6.87	6.7	6.87	7.03	6.76	6.71	6.77	7.17	6.6	7.18	6.92	6.63	6.7	6.64	***5.93***	***6.21***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	26000	22000	18000	22000	28000	31000	15000	14000	21000	27000	21000	29000	21000	16000	15000	21000	23000	9000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	69	65	65	72	83		53	50	57	66	84	74	78	67	66	74	97	52
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	78000	80000	78000	78000	56000	42000	64000	52000	50000	54000	68000	86000	78000	56000	76000	78000	100000	48000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	2000	2000	<1000	1000	<1000	1000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	30600	27900	30800	32500	35100	36700	23400	22900	26800	27600	37800	33100	39500	29000	30100	35100	40200	24700
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	16600	16100	21000	19300	18900	21400	14400	13400	14300	17100	14400	17100	14100	15300	16400	14200	20000	16600
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAJOR IONS																							
Calcium (Ca)	µg/L	<50	--	--	--	--	9630	8740	9570	10100	11100	11700	7340	7230	8520	8790	11980	10500	12500	9060	9490	10900	12100	7690
Magnesium (Mg)	µg/L	<50	--	--	--	--	1580	1480	1670	1780	1790	1810	1220	1170	1340	1370	1910	1670	2010	1560	1550	1920	2420	1340
Potassium (K)	µg/L	<50	--	--	--	--	773	860	750	760	830	780	660	570	640	510	520	720	730	630	710	630	830	580
Sodium (Na)	µg/L	<50	--	--	--	--	2610	2530	2420	2530	2490	2390	1630	1490	1680	1690	2070	2660	2420	2240	2450	2220	2510	1090
Chloride (Cl)	µg/L	<100	--	--	--	--	2180	3760	1690	2050	2190	1960	1410	1130	1130	1300	1210	1990	1860	2650	3130	3270	4010	3550
Fluoride (F)	µg/L	<50	1500[7]	--	--	--	--	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	2960	3450	4240	4860	3720	3890	4260	4660	3270	1910	13800	1560	7540	6650	7180	7610	8300	3860
METALS																							
Aluminum (Al)	µg/L	<4	--	--	100[8]	75 [9]	79	83	***141***	99	84	91	***123***	***120***	86	68	76	75	72	84	99	91	***135***	***192***
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	9	7	7	7	8	7	5	5	7	8	11	11	8	6	6	7	9	6
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	13	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1[13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	***3***	***3***	***4***	***4***	***3***	***3***	***3***	***4***	***4***	2	***4***	<2	***3***	***4***	***4***	***5***	***5***	***4***
Iron (Fe)	µg/L	<10	--	--	300	300	***345***	242	201	147	***374***	***498***	***545***	167	234	***528***	***329***	***714***	228	100	80	112	203	218
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	78	30	8	6	14	28	8	5	19	90	57	93	38	4	2	5	19	41
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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	<0.1	<0.1	<0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	21	19	21	20	22	23	14	14	18	19	25	23	23	17	19	20	26	15
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	3	2	<2	<2	<2	<2	<2	2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	***119***	***55***	21	17	***36***	***66***	10	19	24	6	7	***112***	***95***	7	5	10	8	25
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
OTHER PARAMETERS																							
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NUTRIENTS																							
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	40	<20	110	<20	60	60	30	<20	<20	70	<20	50	<20	<20	<20	--	20	50
Un-ionized Ammonia (NH_3)	µg/L	--	--	--	19 [23]	20 [23]	--	--	--	--	--	0.0498	0.0084	<0.028	<0.72	0.098	<0.028	--	<0.01	<0.022	<0.0068	--	0.0052	--
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Phosphorus (P)	µg/L	<20	--	--	20	20	<20	<20	<20	<20	20	<20	20	***30***	20	***50***	***50***	20	***50***	<20	<20	--	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	<100	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<100
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ORGANICS																							
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RADIONUCLIDES																							
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	--

Parameter[1]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		Canadian Water Quality Guidelines[4]	Provincial Water Quality Objective[5]	P-7 - Inflow to Three Ducks Lakes			
			MAC	IMAC			23-May-12	20-Aug-12	19-Nov-12	24-Feb-13
FIELD PARAMETERS										
pH	pH units	--	--	--	6.5-9	6.5-8.5	6.84	***6.45***	6.81	6.94
Temperature	degrees Celsius	--	--	--	--	-0.25	20.2	15.5	3.8	0.1
Conductivity	µS/cm	--	--	--	--	--	43.5	66	30.2	32.9
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	7090	8260	11400	7550
GENERAL PARAMETERS										
pH	pH units	--	--	--	6.5-9	6.5-8.5	6.75	6.83	6.64	7.17
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	16000	29000	15000	28000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	47	70	49	62
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	42000	64000	66000	32000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000[6]	--	<10000	13000	<1000	1000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	22300	34800	24700	29200
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	12100	6900	13000	13200
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--
MAJOR IONS										
Calcium (Ca)	µg/L	<50	--	--	--	--	6700	10600	7600	8830
Magnesium (Mg)	µg/L	<50	--	--	--	--	1360	2020	1400	1740
Potassium (K)	µg/L	<50	--	--	--	--	380	320	470	460
Sodium (Na)	µg/L	<50	--	--	--	--	1010	1090	1270	1160
Chloride (Cl)	µg/L	<100	--	--	--	--	710	860	1320	1160
Fluoride (F)	µg/L	<50	1500[7]	--	--	--	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	2950	2300	3530	3340
METALS										
Aluminum (Al)	µg/L	<4	--	--	100[8]	75[9]	54	17	69	70
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	4	7	5	6
Beryllium (Be)	µg/L	<1	--	--	--	11[10]	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500[11]	200	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058[12]	0.1[13]	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9[14]	8.9[14]	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2[15]	5[16]	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	189	***449***	170	273
Lead (Pb)	µg/L	<1	10[17]	--	1[18]	3[19]	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	21	144	7	24
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	--	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25[20]	25	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4
Silver (Ag)	µg/L	<0.1	--	--	0.1	0.1	<0.1	<0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	15	20	13	15
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	13	<5	7	<5
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4
OTHER PARAMETERS										
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--
NUTRIENTS										
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000[21]	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60[22]	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	<20	<20	<20	70
Un-ionized Ammonia (NH_3)	µg/L	--	--	--	19[23]	20[23]	<0.08	<0.02	--	0.06
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--
Total Phosphorus (P)	µg/L	<20	--	--	20	20	***30***	***30***	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	--
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--
ORGANICS										
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--
RADIONUCLIDES										
Radium-226	Bq/L	<0.001	0.6	--	--	1[24]	--	--	<0.001	<0.001

APPENDIX A
2011-2013 Surface Water Quality Results

Parameter[1]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		Canadian Water Quality Guidelines[4]	Provincial Water Quality Objective[6]	P-4 - Inflow to Mollie River		
			MAC	IMAC			23-May-12	19-Nov-12	24-Feb-13
FIELD PARAMETERS									
pH	pH units	--	--	--	6.5-9	6.5-8.5	***6.4***	***6.4***	6.95
Temperature	degrees Celsius	--	--	--	--	-0.25	17	2.8	0
Conductivity	µS/cm	--	--	--	--	--	32.3	24.5	20.5
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	6540	1241	12850
GENERAL PARAMETERS									
pH	pH units	--	--	--	6.5-9	6.5-8.5	6.55	***6.43***	***6.19***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	11000	13000	8000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	8	49	38
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	54000	72000	54000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000[6]	--	<10000	4000	4000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	20400	25200	20800
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	18200	26300	21500
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--
MAJOR IONS									
Calcium (Ca)	µg/L	<50	--	--	--	--	6250	7980	6350
Magnesium (Mg)	µg/L	<50	--	--	--	--	1160	1280	1190
Potassium (K)	µg/L	<50	--	--	--	--	350	380	230
Sodium (Na)	µg/L	<50	--	--	--	--	810	1000	830
Chloride (Cl)	µg/L	<100	--	--	--	--	290	340	320
Fluoride (F)	µg/L	<50	1500[7]	--	--	--	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	1900	4000	2870
METALS									
Aluminum (Al)	µg/L	<4	--	--	100[8]	75[9]	***126***	***138***	***136***
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	6	7	5
Beryllium (Be)	µg/L	<1	--	--	--	11[10]	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500[11]	200	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058[12]	0.1[13]	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9[14]	8.9[14]	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2[15]	5[16]	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	***466***	***707***	242
Lead (Pb)	µg/L	<1	10[17]	--	1[18]	3[19]	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	80	33	21
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25[20]	25	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4
Silver (Ag)	µg/L	<0.1	--	--	0.1	0.1	<0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	19	19	14
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	3	3	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	***160***	20	12
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4
OTHER PARAMETERS									
Total Cyanide	µg/L	<2	--	--	--	--	3	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--
NUTRIENTS									
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000[21]	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60[22]	--	--	--	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	<20	60	30
Un-ionized Ammonia (NH_3)	µg/L	--	--	--	19[23]	20[23]	<0.02	0.02	0.02
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--
Total Phosphorus (P)	µg/L	<20	--	--	20	20	***30***	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--
ORGANICS									
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--

2011-2013 Surface Water Quality Results

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards [2][3]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	P-1
			MAC	IMAC			24-Feb-13
FIELD PARAMETERS							
pH	pH units	--	--	--	6.5-9	6.5-8.5	6.87
Temperature	degrees Celsius	--	--	--	--	-0.25	-0.1
Conductivity	µS/cm	--	--	--	--	--	26.1
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	8130
GENERAL PARAMETERS							
pH	pH units	--	--	--	6.5-9	6.5-8.5	***6.42***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	16000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	51
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	28000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<1000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	24400
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	16400
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--
MAJOR IONS							
Calcium (Ca)	µg/L	<50	--	--	--	--	7610
Magnesium (Mg)	µg/L	<50	--	--	--	--	1300
Potassium (K)	µg/L	<50	--	--	--	--	320
Sodium (Na)	µg/L	<50	--	--	--	--	710
Chloride (Cl)	µg/L	<100	--	--	--	--	330
Fluoride (F)	µg/L	<50	1500[7]	--	--	--	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	2780
METALS							
Aluminum (Al)	µg/L	<4	--	--	100[8]	75 [9]	40
Antimony (Sb)	µg/L	<6	--	6	--	20	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	9
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1[13]	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2
Iron (Fe)	µg/L	<10	--	--	300	300	243
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	72
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4
Silver (Ag)	µg/L	<0.1	--	--	0.1	0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	16
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	<5
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4
OTHER PARAMETERS							
Total Cyanide	µg/L	<2	--	--	--	--	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--
NUTRIENTS							
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	340
Un-ionized Ammonia (NH_3)	µg/L	--	--	--	19 [23]	20 [23]	0.28
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--
Total Phosphorus (P)	µg/L	<20	--	--	20	20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--
ORGANICS							
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--
RADIONUCLIDES							
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	<0.001

APPENDIX A
2011-2013 Surface Water Quality Results

Parameter[1]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		Canadian Water Quality Guidelines[4]	Provincial Water Quality Objective[5]	3D-c - Three Ducks Lakes, near Outlet											
			MAC	IMAC			21-Feb-12	26-Mar-12	11-May-12	31-May-12	28-Jun-12	18-Jul-12	20-Aug-12	24-Sep-12	30-Oct-12	19-Nov-12	29-Jan-13	24-Feb-13	19-Mar-13
FIELD PARAMETERS																			
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.2	7.5	--	7.19	7	7.21	7.29	7.12	7.8	7.15	7.5	6.89	7.83
Temperature	degrees Celsius	--	--	--	--	-0.25	1.1	2.5	--	17.9	21.5	21.5	19.3	10.7	4.6	3	0.1	-0.1	0.1
Conductivity	µS/cm	--	--	--	--	--	22.2	21.3	--	33.8	38.7	40.4	38.5	24.6	25.6	24.7	29	27	24.5
Dissolved Oxygen (DO)	µg/L	--	--	--	--	--	7500	1210	--	8710	7530	7050	7960	9070	11100	1196	12250	9860	9600
GENERAL PARAMETERS																			
pH	pH units	--	--	--	6.5-9	6.5-8.5	6.74	6.75	6.85	6.58	7.06	6.6	6.93	6.91	6.7	6.6	6.57	***6.38***	***6.41***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	12000	12000	12000	12000	12000	13000	14000	13000	12000	12000	16000	15000	13000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	40	38	38	39	41	42	46	42	42	42	54	51	49
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	38000	78000	56000	62000	48000	48000	50000	58000	50000	52000	<20000	<20000	42000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000[6]	--	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<1000	2000	1000	<1000	<1000	<1000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	18700	18100	18400	18100	17300	20100	20200	21400	19800	20800	24700	24200	21100
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	15500	12100	11500	9800	14600	10900	8500	10400	11800	11800	13300	12800	12200
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAJOR IONS																			
Calcium (Ca)	µg/L	<50	--	--	--	--	5780	5600	5660	5560	5300	6150	6190	6590	6100	6530	7580	7440	6490
Magnesium (Mg)	µg/L	<50	--	--	--	--	1030	990	1040	1030	990	1150	1160	1210	1100	1080	1390	1360	1180
Potassium (K)	µg/L	<50	--	--	--	--	410	380	380	400	360	450	440	430	390	500	400	410	430
Sodium (Na)	µg/L	<50	--	--	--	--	880	760	800	890	790	960	860	910	850	1040	1110	1090	1100
Chloride (Cl)	µg/L	<100	--	--	--	--	510	430	590	590	510	570	590	590	580	680	990	880	930
Fluoride (F)	µg/L	<50	1500[7]	--	--	--	<50	<50	<50	<50	<50000	<50	<50	<50	<50	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	2510	2510	2660	2600	2680	2600	2630	2490	2910	2970	3620	3250	3140
METALS																			
Aluminum (Al)	µg/L	<4	--	--	100[8]	75[9]	55	58	55	45	43	18	11	13	40	42	54	52	60
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	4	4	4	4	4	4	4	4	4	4	5	6	6
Beryllium (Be)	µg/L	<1	--	--	--	11[10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500[11]	200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058[12]	0.1[13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9[14]	8.9[14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2[15]	5[16]	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	155	227	114	93	104	128	84	132	96	106	97	107	99
Lead (Pb)	µg/L	<1	10[17]	--	1[18]	3[19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	18	38	12	12	22	36	20	20	13	11	10	9	9
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25[20]	25	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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
Strontium (Sr)	µg/L	<5	--	--	--	--	12	11	13	11	12	14	14	15	13	12	17	15	14
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	6	<5	***32***	<5	***24***	20	<5	<5	<5	7	17	***43***	5
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
OTHER PARAMETERS																			
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NUTRIENTS																			
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000[21]	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60[22]	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	80	<20	<20	<20	<20	<20	<20	<20	<20	<20	40	40	<20
Un-ionized Ammonia (NH_3)	µg/L	--	--	--	19[23]	20[23]	0.072	<0.068	--	<0.068	<0.092	<0.092	<0.24	<0.04	<0.24	<0.022	0.104	0.0332	<0.164
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Phosphorus (P)	µg/L	<20	--	--	20	20	<20	<20	20	<20	***50***	***40***	<20	***30***	<20	<20	<20	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ORGANICS																			
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--	--	--	--	--	--	--	--	--	--
RADIONUCLIDES																			
Radium-226	Bq/L	<0.001	0.6	--	--	1[24]	--	--	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	<0.001

APPENDIX A
2011-2013 Surface Water Quality Results

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	3D-LS1 - Three Duck Lakes (Upper)		3D-LS2 - Three Duck Lakes (Lower)	
			MAC	IMAC			23-May-2013 (T)	23-May-2013 (B)	24-May-2013 (T)	24-May-2013 (B)
FIELD PARAMETERS										
pH	pH units	--	--	--	6.5-9	6.5-8.5	6.7	6.77	6.87	6.9
Temperature	degrees Celsius	--	--	--	--	-0.25	11.04	10.77	9.93	9.51
Conductivity	µS/cm	--	--	--	--	--	32	32	33	33
Dissolved Oxygen	µg/L	--	--	--	--	--	10660	10900	10350	10590
ORP	mV	--	--	--	--	--	147.9	143.0	123.4	103.4
GENERAL PARAMETERS										
pH	pH units	--	--	--	6.5-9	6.5-8.5	***6.16***	***6.2***	***6.15***	***6.16***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	8000	9000	9000	9000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	<5000	<5000	<5000	<5000
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	34	35	36	36
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	56000	46000	40000	58000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<10000	<10000	<10000	<10000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	17800	18100	18600	18500
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	14100	13400	13400	13600
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	14300	14500	13700	14100
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--
MAJOR IONS										
Calcium (Ca)	µg/L	<50	--	--	--	--	5530	5630	5760	5720
Magnesium (Mg)	µg/L	<50	--	--	--	--	970	980	1030	1030
Potassium (K)	µg/L	<50	--	--	--	--	420	420	440	470
Sodium (Na)	µg/L	<50	--	--	--	--	800	790	820	810
Chloride (Cl)	µg/L	<100	--	--	--	--	390	380	410	470
Fluoride (Fl)	µg/L	<50	1500[7]	--	--	--	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	2880	2810	2810	2780
METALS										
Aluminum (Al)	µg/L	<4	--	--	100[8]	75 [9]	98	99	95	***101***
Antimony (Sb)	µg/L	<6	--	6	--	20	<3	<3	<3	<3
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	4	4	4	7
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1[13]	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	140	150	140	230
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	25	26	27	41
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.1	<0.1	<0.1	<0.1
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4
Silver (Ag)	µg/L	<0.1	--	--	0.1	0.1	<0.1	<0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	9	10	10	24
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	3
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	<5	10	<5	***450***
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4
OTHER PARAMETERS										
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2	21
Free Cyanide	µg/L	<2	--	--	5	5	<2	<2	<2	21
Phenols	µg/L	<1	--	--	--	5	<1	--	<1	--
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--
NUTRIENTS										
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	<50	60	<50	60
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	<50	<50	<50	<50
Total Ammonia (NH_3)	µg/L as N	<20	--	--	6980	--	<20	<20	<20	<20
Un-ioinized Ammonia (NH_3)	µg/L	--	--	--	19 [23]	20 [23]	<0.027	<0.028	<0.027	<0.028
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--
Total Phosphorus (TP)	µg/L	<20	--	--	20	20	<20	<20	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	--
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--
ORGANICS										
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	<500	--	<500	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	<500	--	<500	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	<500	--	<500	--
Polychlorinated Biphenyls	µg/L	<0.1	--	0.003	--	0.001	<0.1	--	<0.1	--
Naphthalene	µg/L	<0.2	--	--	1.1	7	<0.2	--	<0.2	--
Acenaphthylene	µg/L	<0.2	--	--	--	--	<0.2	--	<0.2	--
Acenaphthene	µg/L	<0.2	--	--	5.8	--	<0.2	--	<0.2	--
Fluorene	µg/L	<0.2	--	--	3	0.2	<0.2	--	<0.2	--
Phenanthrene	µg/L	<0.1	--	--	0.4	0.03	<0.1	--	<0.1	--
Anthracene	µg/L	<0.1	--	--	0.012	0.0008	<0.1	--	<0.1	--
Fluoranthene	µg/L	<0.2	--	--	0.04	0.0008	<0.2	--	<0.2	--
Pyrene	µg/L	<0.2	--	--	0.025	--	<0.2	--	<0.2	--
Benz(a)anthracene	µg/L	<0.2	--	--	0.018	0.0004	<0.2	--	<0.2	--
Chrysene	µg/L	<0.1	--	--	--	0.0001	<0.1	--	<0.1	--
Benzo(b)fluoranthene	µg/L	<0.1	--	--	--	--	<0.1	--	<0.1	--
Benzo(k)fluoranthene	µg/L	<0.1	--	--	--	0.0002	<0.1	--	<0.1	--
Benzo(a)pyrene	µg/L	<0.01	--	--	0.015	--	<0.01	--	<0.01	--
Indeno(1,2,3-cd)pyrene	µg/L	<0.2	--	--	--	--	<0.2	--	<0.2	--
Dibenz(a,h)anthracene	µg/L	<0.2	--	--	--	0.002	<0.2	--	<0.2	--
Benzo(g,h,i)perylene	µg/L	<0.2	--	--	--	0.00002	<0.2	--	<0.2	--
2-and 1-methyl Naphthalene	µg/L	<0.2	--	--	--	--	<0.2	--	<0.2	--
RADIONUCLIDES										
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	--	--	--	--
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	1	--	--	--	100	3	--	2	--
Total Coliforms	CFU/100mL	1	--	--	--	--	80	--	57	--

2011-2013 Surface Water Quality Results

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	DEL-LS - Delaney Lake
			MAC	IMAC			29-May-2013 (T)
FIELD PARAMETERS							
pH	pH units	--	--	--	6.5-9	6.5-8.5	***6.26***
Temperature	degrees Celsius	--	--	--	--	-0.25	16.08
Conductivity	µS/cm	--	--	--	--	--	25
Dissolved Oxygen	µg/L	--	--	--	--	--	9890
ORP	mV	--	--	--	--	--	--
GENERAL PARAMETERS							
pH	pH units	--	--	--	6.5-9	6.5-8.5	6.53
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	7000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	<5000
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	25
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	58000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<10000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	14800
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	17300
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	19100
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--
MAJOR IONS							
Calcium (Ca)	µg/L	<50	--	--	--	--	4470
Magnesium (Mg)	µg/L	<50	--	--	--	--	880
Potassium (K)	µg/L	<50	--	--	--	--	310
Sodium (Na)	µg/L	<50	--	--	--	--	670
Chloride (Cl)	µg/L	<100	--	--	--	--	250
Fluoride (Fl)	µg/L	<50	1500[7]	--	--	--	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	2240
METALS							
Aluminum (Al)	µg/L	<4	--	--	100[8]	75 [9]	***137***
Antimony (Sb)	µg/L	<6	--	6	--	20	<3
Arsenic (As)	µg/L	<3	--	25	5	5	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	4
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1[13]	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2
Iron (Fe)	µg/L	<10	--	--	300	300	110
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	15
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.1
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4
Silver (Ag)	µg/L	<0.1	--	--	0.1	0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	13
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	2
Tungsten (W)	µg/L	<10	--	--	--	30	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	23
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4
OTHER PARAMETERS							
Total Cyanide	µg/L	<2	--	--	--	--	<2
Free Cyanide	µg/L	<2	--	--	5	5	<2
Phenols	µg/L	<1	--	--	--	5	--
Sulphur (S)	µg/L	<50	--	--	--	--	<2
NUTRIENTS							
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	<50
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	<50
Total Ammonia (NH_3)	µg/L as N	<20	--	--	6980	--	<20
Un-ioinized Ammonia (NH_3)	µg/L	--	--	--	19 [23]	20 [23]	<0.011
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--
Total Phosphorus (TP)	µg/L	<20	--	--	20	20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--
ORGANICS							
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--
RADIONUCLIDES							
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	--

2011-2013 Surface Water Quality Results

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	DIV-LS - Dividing Lake	
			MAC	IMAC			23-May-2013 (T)	23-May-2013 (B)
FIELD PARAMETERS								
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.19	7.34
Temperature	degrees Celsius	--	--	--	--	-0.25	9.22	3.82
Conductivity	µS/cm	--	--	--	--	--	55	103
Dissolved Oxygen	µg/L	--	--	--	--	--	10700	13190
GENERAL PARAMETERS								
pH	pH units	--	--	--	6.5-9	6.5-8.5	6.63	7.17
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	18000	41000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	<5000	<5000
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	60	115
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	60000	84000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<10000	<10000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	30600	53800
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	12900	8500
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	13600	8600
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--
MAJOR IONS								
Calcium (Ca)	µg/L	<50	--	--	--	--	9410	16600
Magnesium (Mg)	µg/L	<50	--	--	--	--	1730	3000
Potassium (K)	µg/L	<50	--	--	--	--	490	660
Sodium (Na)	µg/L	<50	--	--	--	--	1720	3180
Chloride (Cl)	µg/L	<100	--	--	--	--	2360	5830
Fluoride (Fl)	µg/L	<50	1500[7]	--	--	--	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	3120	4080
METALS								
Aluminum (Al)	µg/L	<4	--	--	100[8]	75 [9]	79	22
Antimony (Sb)	µg/L	<6	--	6	--	20	<3	<3
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	4	4
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1[13]	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	120	50
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	25	370
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.1	<0.1
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4
Silver (Ag)	µg/L	<0.1	--	--	0.1	0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	13	20
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	9	***31***
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4
OTHER PARAMETERS								
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2
Free Cyanide	µg/L	<2	--	--	--	--	<2	<2
Phenols	µg/L	<1	--	--	--	--	--	--
Sulphur (S)	µg/L	<50	--	--	--	--	<2	<2
NUTRIENTS								
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [23]	--	60	140
Nitrite (NO_2^-)	µg/L as N	<50	10000	--	13000 [21]	--	<50	<50
Total Ammonia (NH_3)	µg/L as N	<20	1000	--	60 [22]	--	<20	<20
Un-ioinized Ammonia (NH_3)	µg/L	--	--	--	6980	--	<0.054	<0.049
Total Kjeldahl Nitrogen	µg/L	<100	--	--	19 [23]	20 [23]	--	--
Total Phosphorus (TP)	µg/L	<20	--	--	--	--	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	20	20	--	--
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--
ORGANICS								
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--
RADIONUCLIDES								
Radium-226	Bq/L	<0.001	0.6	--	--	1 [26]	--	--

APPENDIX A
Table Notes for Surface Water Quality Results

NOTES ON COMPARISONS TO WATER QUALITY STANDARDS AND GUIDELINES:

Values in GREY exceed the ODWSs MACs or IMACs
Values in ***bold italics*** exceed the CCME CWQGs
Values underlined exceed the PWQOs
-- indicates no value available

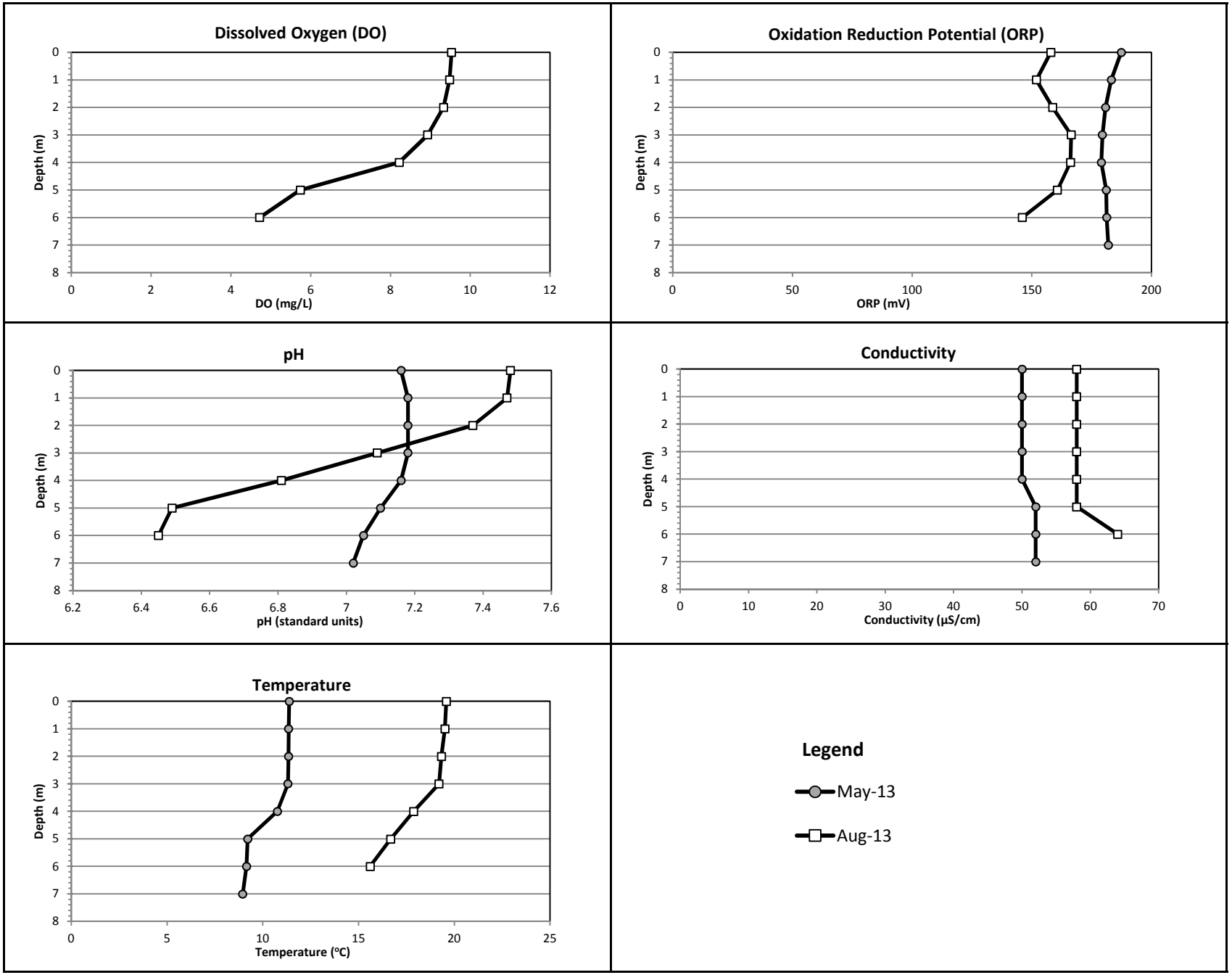
NOTES ON WATER QUALITY STANDARDS AND GUIDELINES:

(1) Total concentrations are assumed, unless stated otherwise.
(2) Ontario Regulation (O.Reg.) 169/03: Ontario Drinking Water Standards (ODWS). Last amendment: O.Reg. 327/08.
http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_030169_e.htm.
(3) MAC: Maximum Acceptable Concentration; IMAC: Interim Maximum Acceptable Concentration
(4) Canadian Council of Ministers of the Environment (CCME), Canadian Water Quality Guidelines (CWQGs) for the Protection of Aquatic Life, Update 7.1 (December 2007).
(5) Provincial Water Quality Objectives, Ministry of Environment and Energy (1994, Revised 1999).
(6) TSS (CWQG) Under clear flow: + 25 mg/L from background levels for any short-term exposure (e.g., 24-h period).
average + 5 mg/L from background levels for longer term exposures (24 h<discharge<30 d).
TSS (CWQG) Under high flow: + 25 mg/L from background levels at any time when background levels between 25 and 250 mg/L.
+ 10% of background levels when background is >250 mg/L.

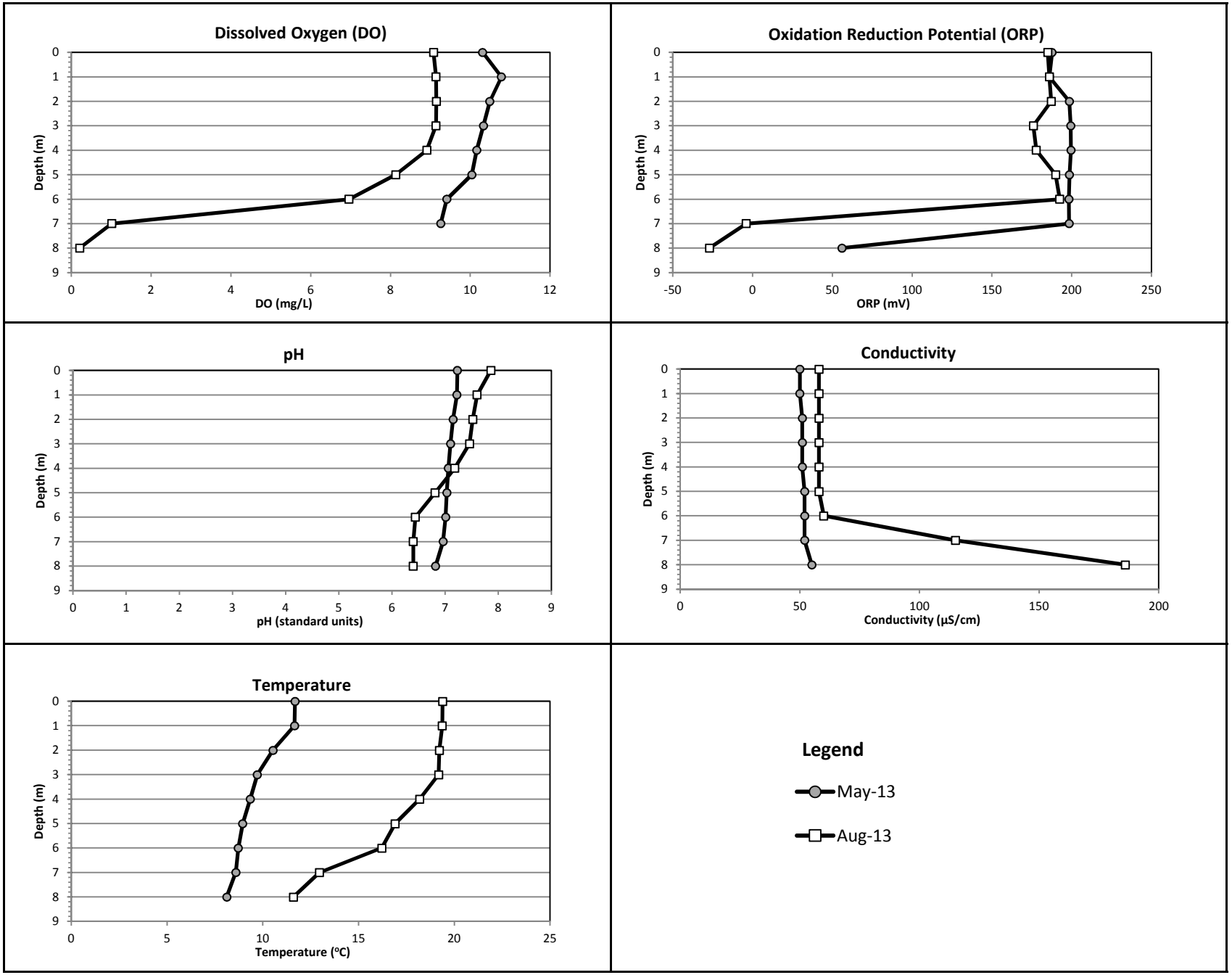
(7) Where fluoride is added to drinking water, it is recommended that the concentration be adjusted to 0.5-0.8 mg/L the optimum level for control of tooth decay. Where supplies contain naturally occurring fluoride at levels higher than 1.5 mg/L but less than 2.4 mg/L the Ministry of Health and Long Term Care recommends an approach through local boards of health to raise public and professional awareness to control excessive exposure to fluoride from other sources.
(8) Aluminium guideline (CWQG) is calculated assuming a pH of 7.0.
(9) Aluminium guideline (PWQO) is calculated assuming a pH of 7.0.
(10) Beryllium guideline (PWQO) is calculated assuming a hardness of 30 mg/L as $CaCO_3$.
(11) Boron guideline (CWQG) is based on long-term exposure.
(12) Cadmium guideline (CWQG) is based on the Draft Scientific Criteria Document for the Development of the Canadian Water Quality Guidelines for the Protection of Aquatic Life: Cadmium, October 2012, and calculated using an assumed hardness of 30 mg/L as $CaCO_3$.
(13) Cadmium guideline (PWQO) is calculated assuming a hardness of 30 mg/L as $CaCO_3$.
(14) No guidelines for total chromium. Guidelines for trivalent chromium used: CWQG and PWQO guidelines for Cr(III) are both 8.9 µg/L.
(15) Copper guideline (CWQG) is calculated assuming a hardness of 30 mg/L as $CaCO_3$.
(16) Copper guideline (PWQO) is calculated assuming a hardness of 30 mg/L as $CaCO_3$.
(17) This standard applies to water at the point of consumption. Since lead is a component in some plumbing systems, first flush water may contain higher concentrations of lead than water that has been flushed for five minutes.
(18) Lead guideline (CWQG) is calculated assuming a hardness of 30 mg/L as $CaCO_3$.
(19) Lead guideline (PWQO) is calculated assuming a hardness of 30 mg/L as $CaCO_3$.
(20) Nickel guideline (CCME) is calculated assuming a hardness of 30 mg/L as $CaCO_3$.
(21) For protection from direct toxic effects, the guidelines do not consider indirect effects due to eutrophication.
(22) Guideline is expressed as µg nitrite-nitrogen/L. This value is equivalent to 197 µg nitrite/L.
(23) Un-ionized ammonia is calculated using the equation: $f = 1/(10^{pKa-pH} +1)$, where f is the fraction of NH_3; $pKa = 0.09018 + 2729.92/T$; T = ambient water temperature in Kelvin (K = °C + 273.16) (Emerson et al., 1975)
(24) The PWQO for Ra-226 is based on drinking water requirements, which are derived from dose-response relationships as recommended by the International Commission on Radiological Protection (ICRP) in Publication 26.

APPENDIX B
Water Column Profile Plots

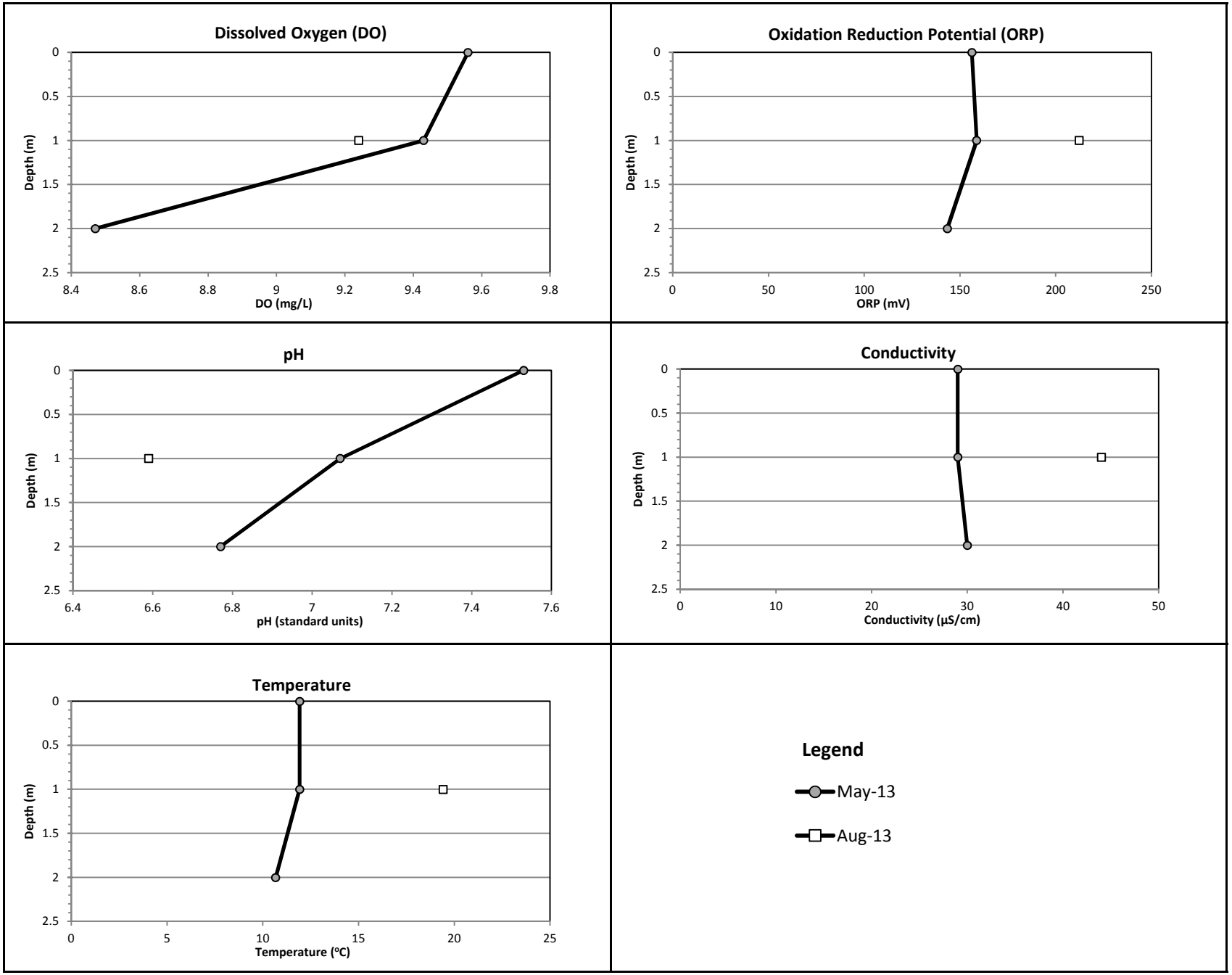
Water Column Profile Plots - Bagsverd Lake (BAG-LS1)



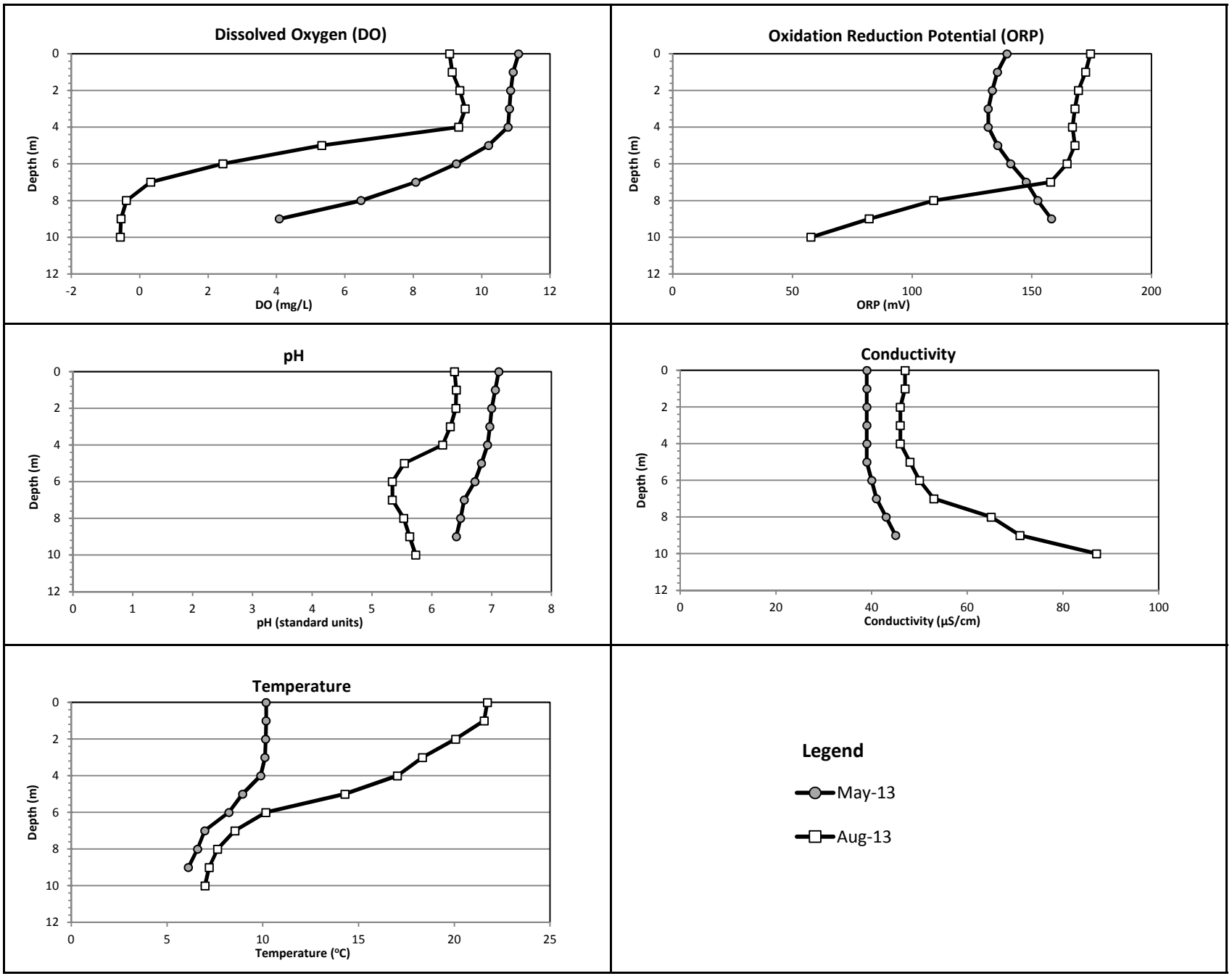
Water Column Profile Plots - Bagsverd Lake (BAG-LS2)



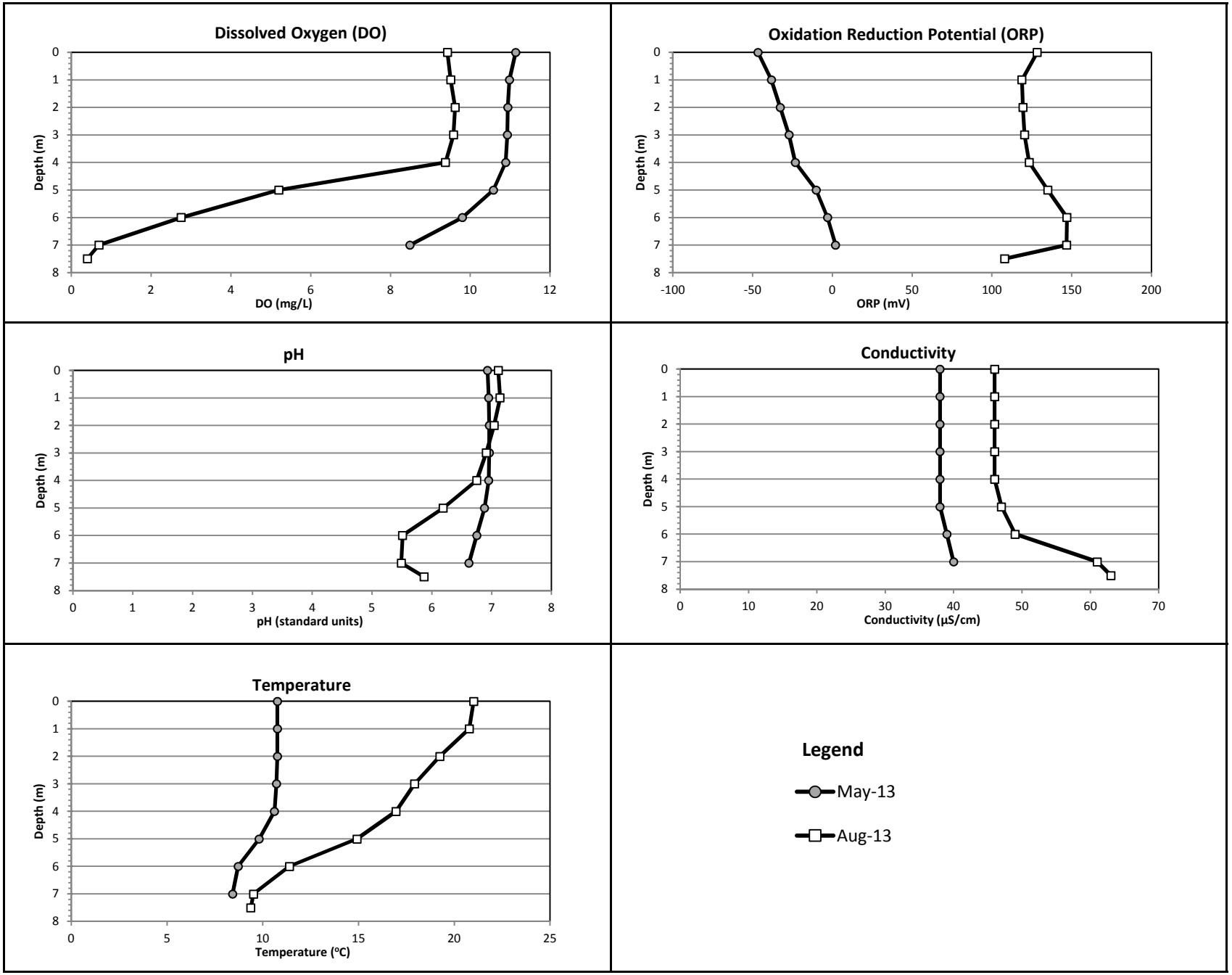
Water Column Profile Plots - Chester Lake (CHLK-LS)



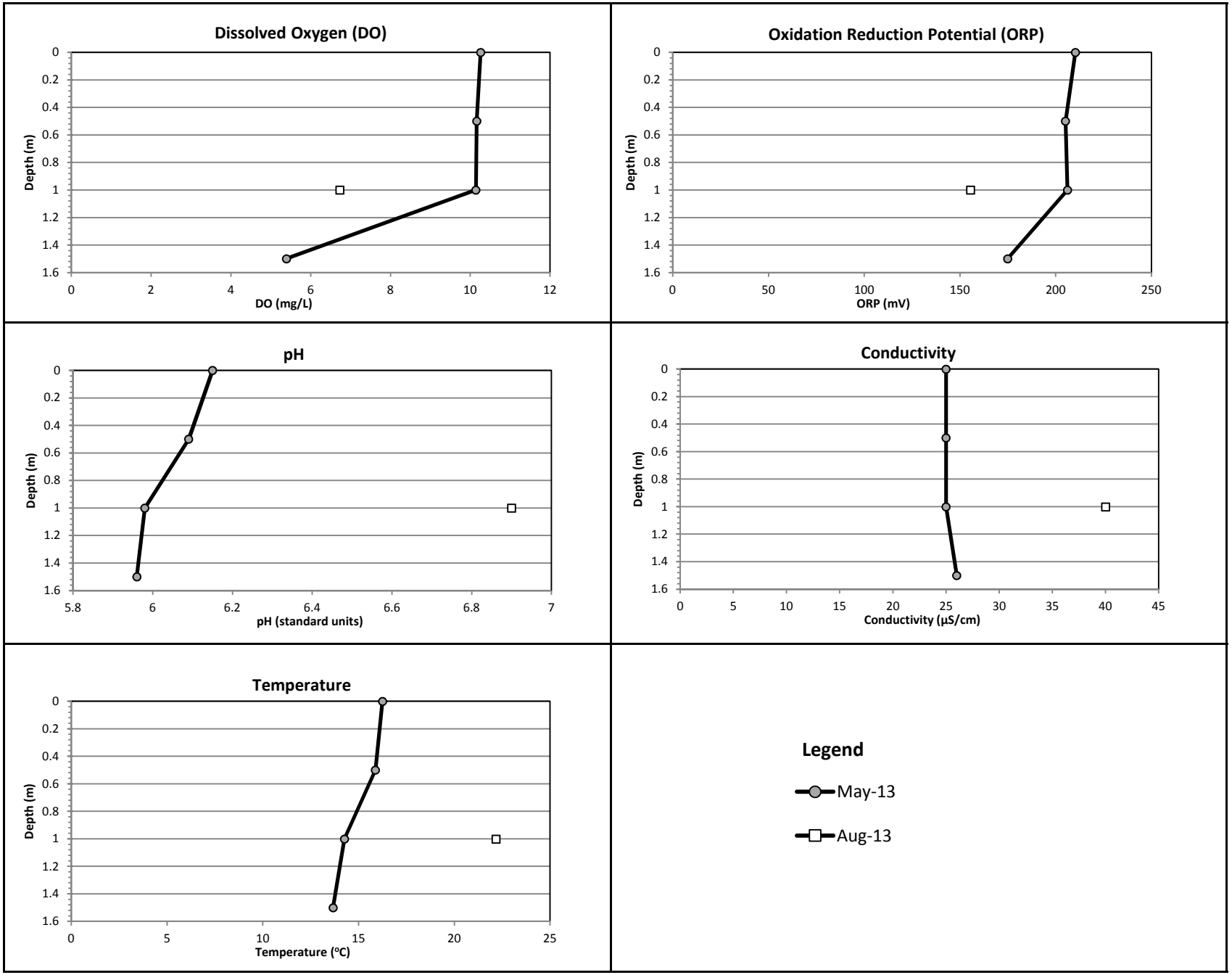
Water Column Profile Plots - Clam Lake (CM-LS1)



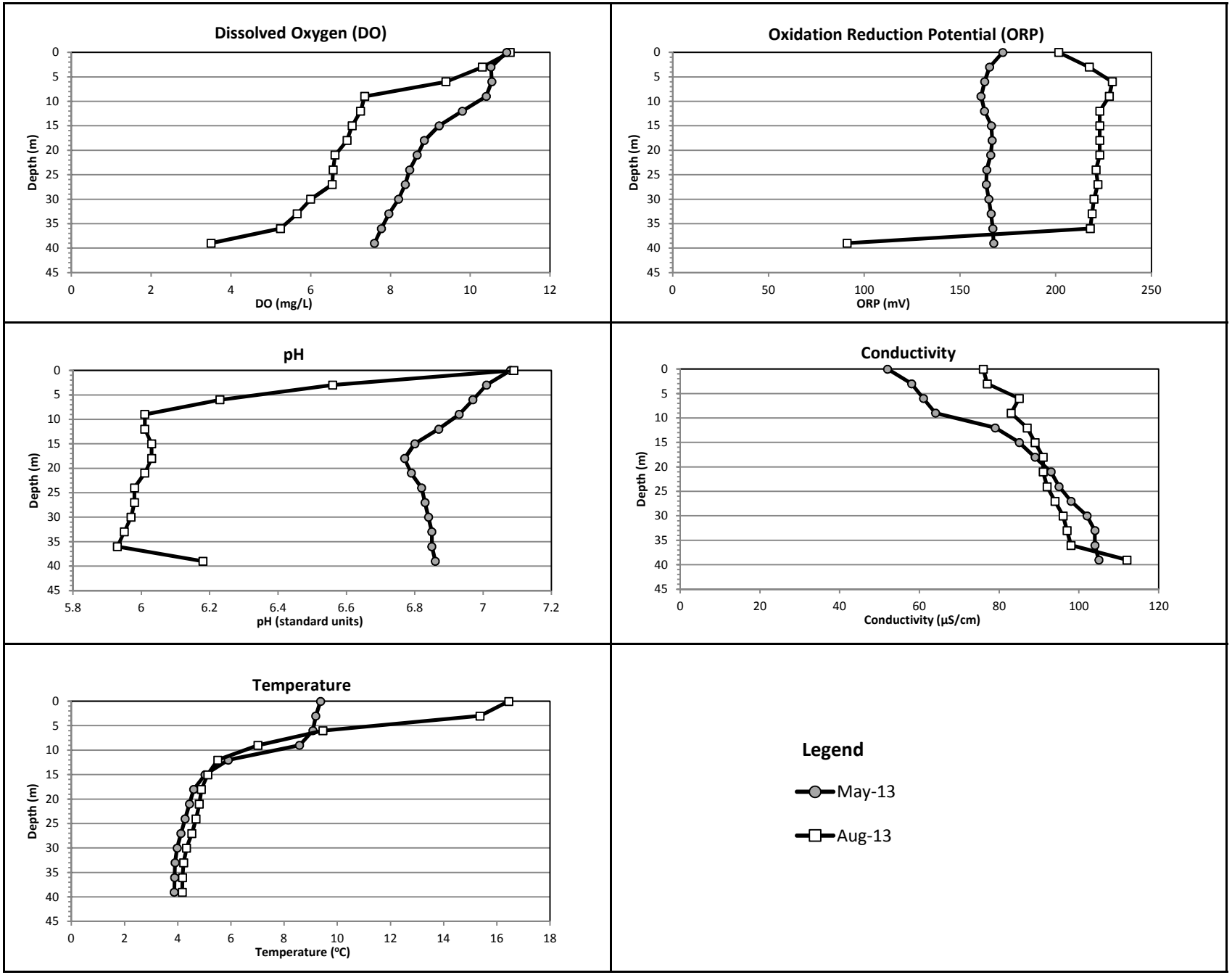
Water Column Profile Plots - Clam Lake (CM-LS2)



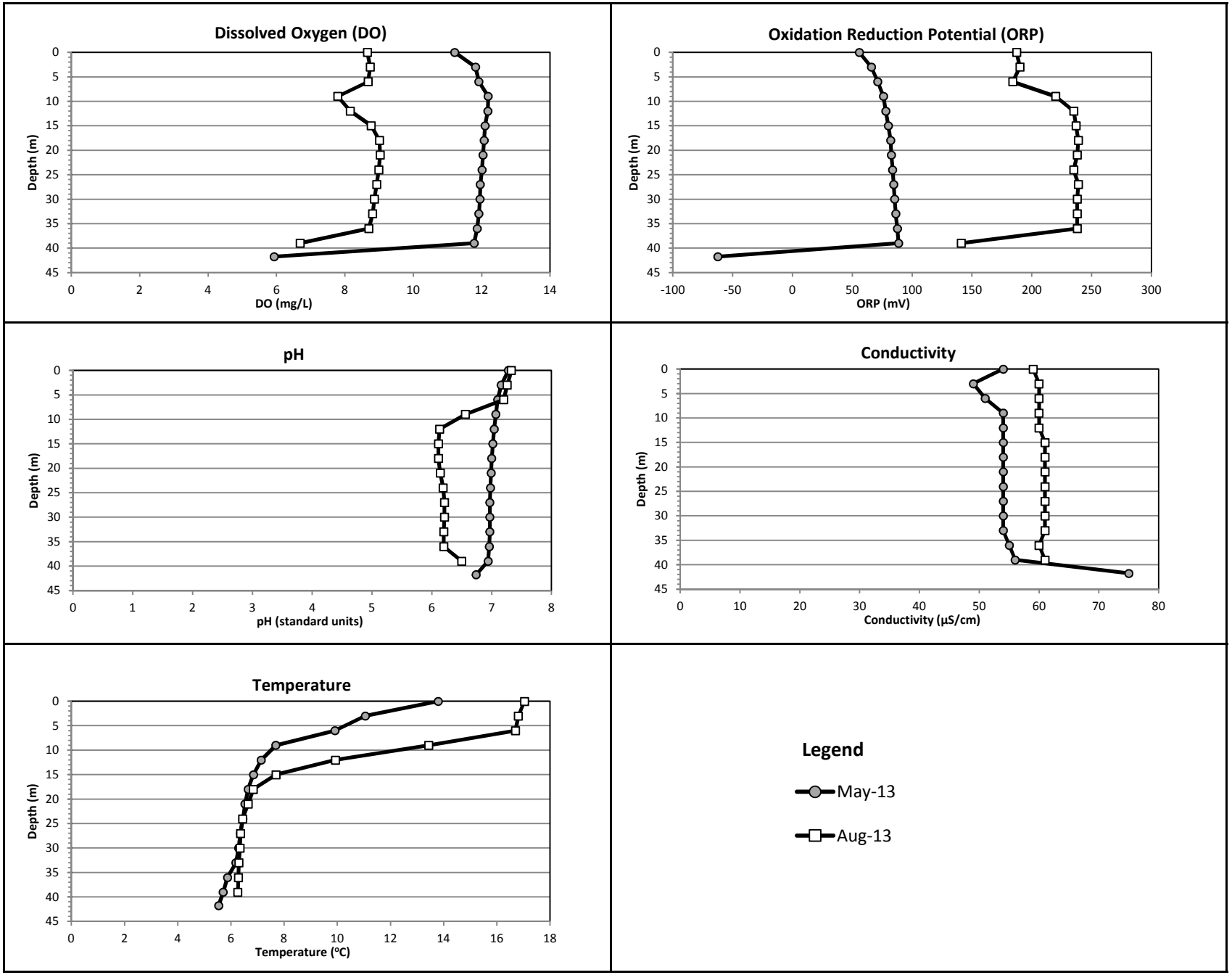
Water Column Profile Plots - Delaney Lake (DEL-LS)



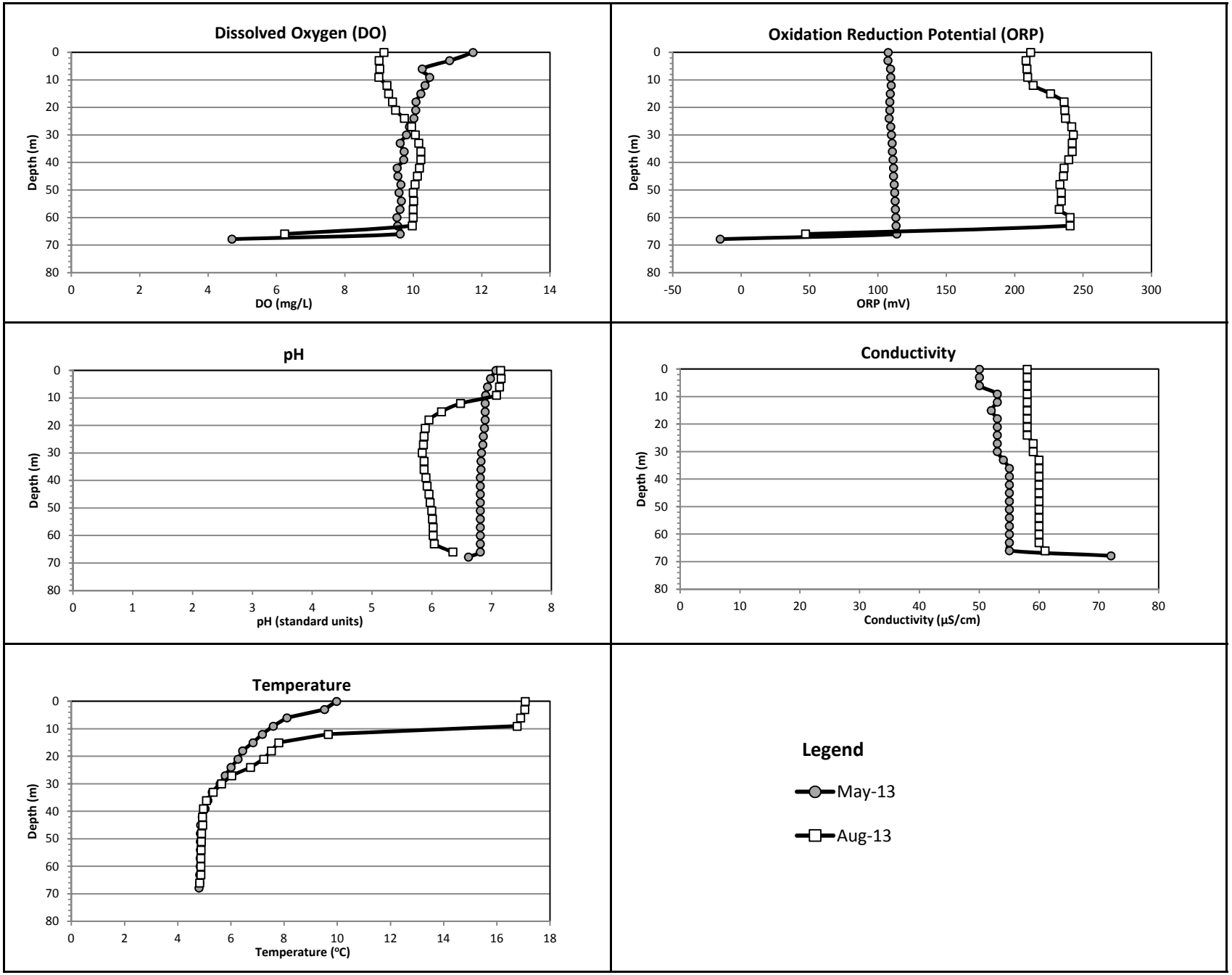
Water Column Profile Plots - Dividing Lake (DIV-LS1)



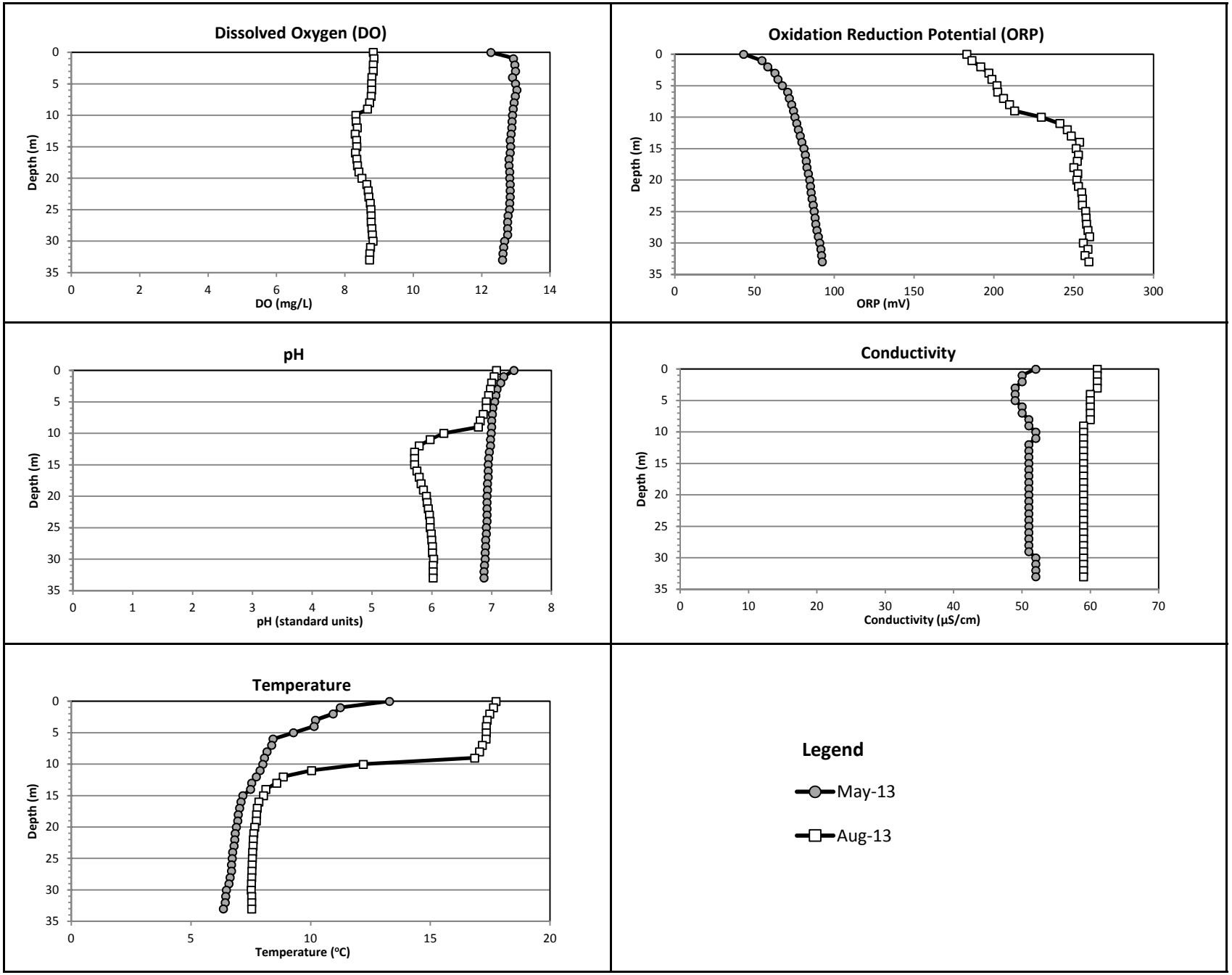
Water Column Profile Plots - Mesomikenda Lake (MESO-LS1)



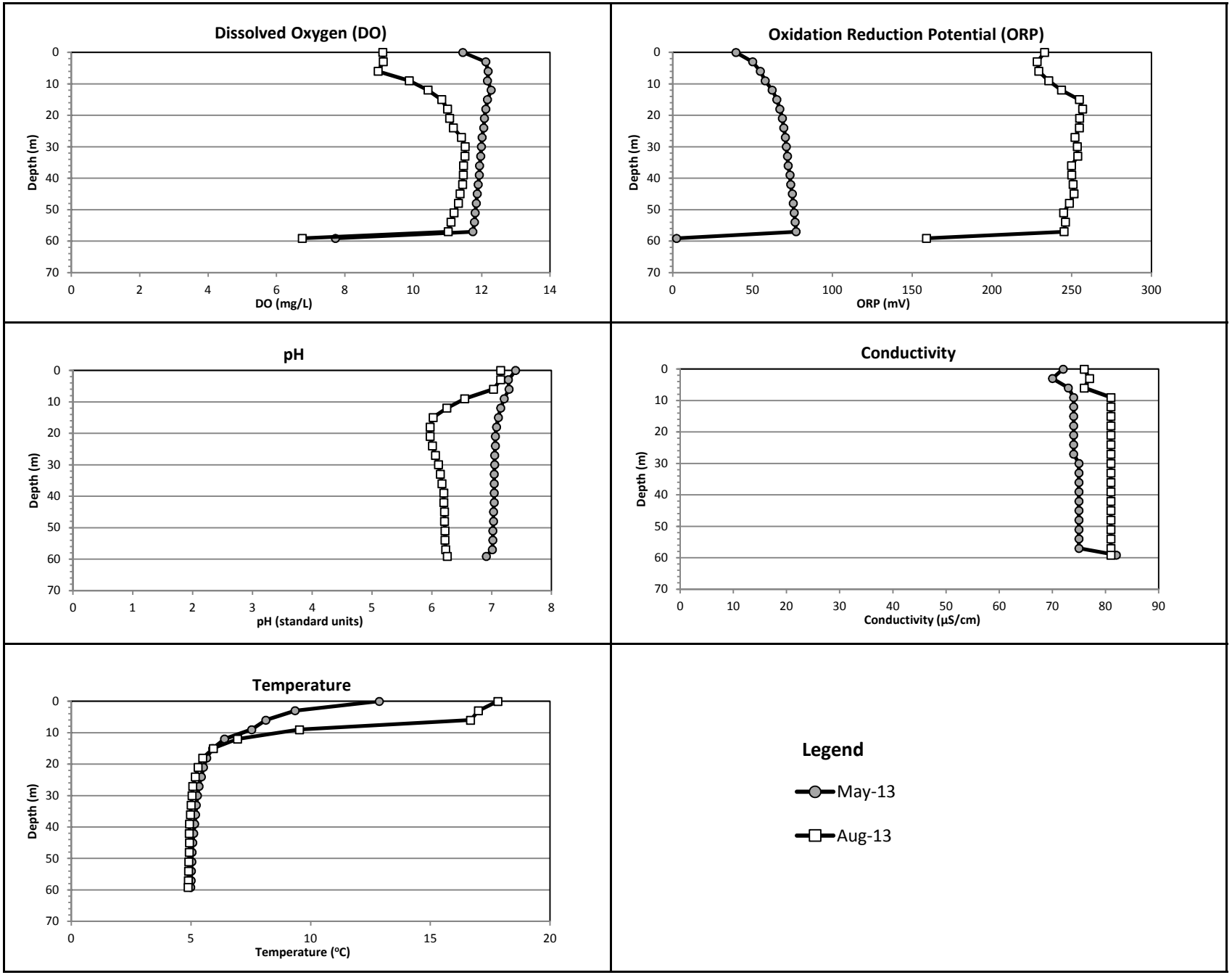
Water Column Profile Plots - Mesomikenda Lake (MESO-LS2)



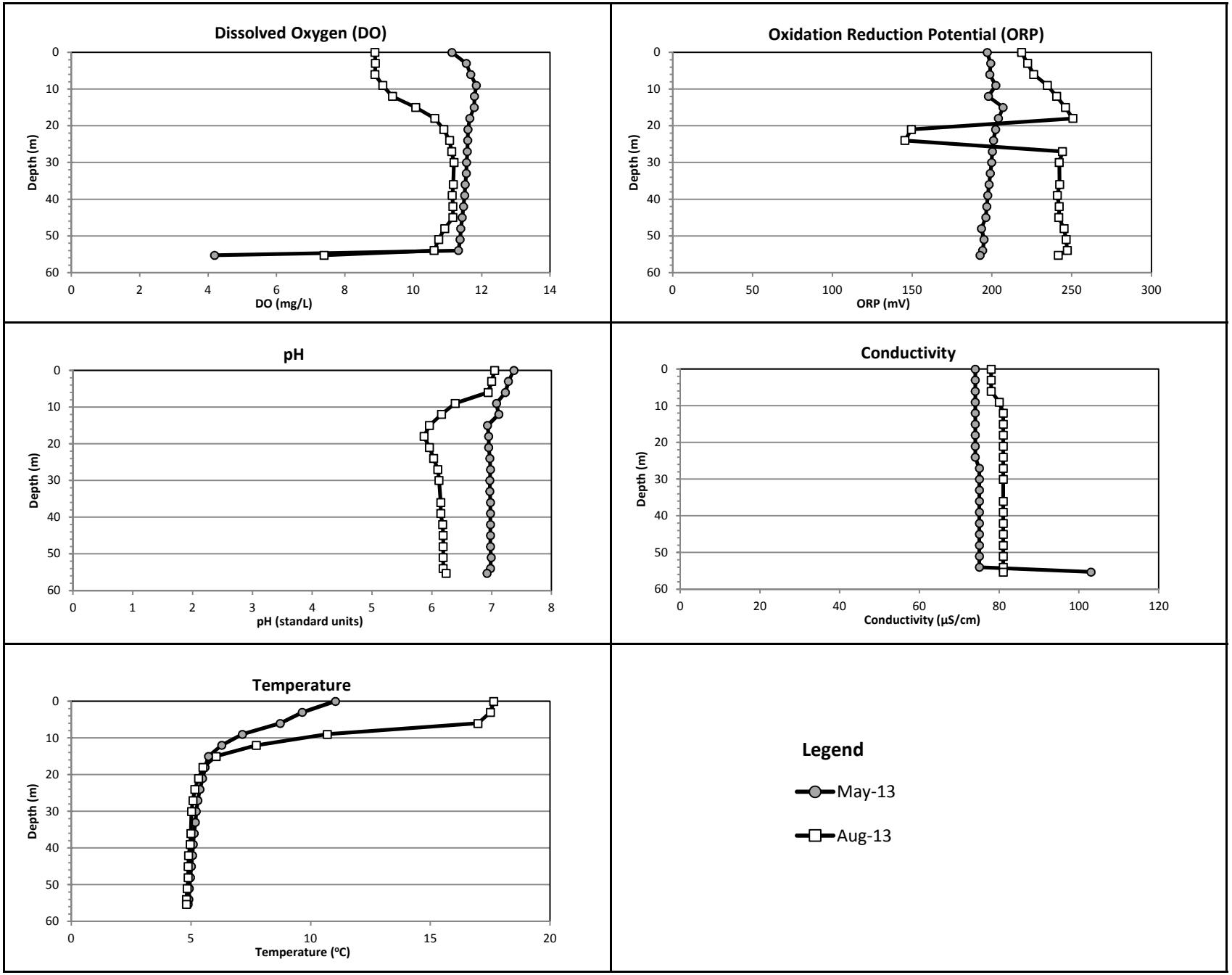
Water Column Profile Plots - Mesomikenda Lake (MESO-LS3)



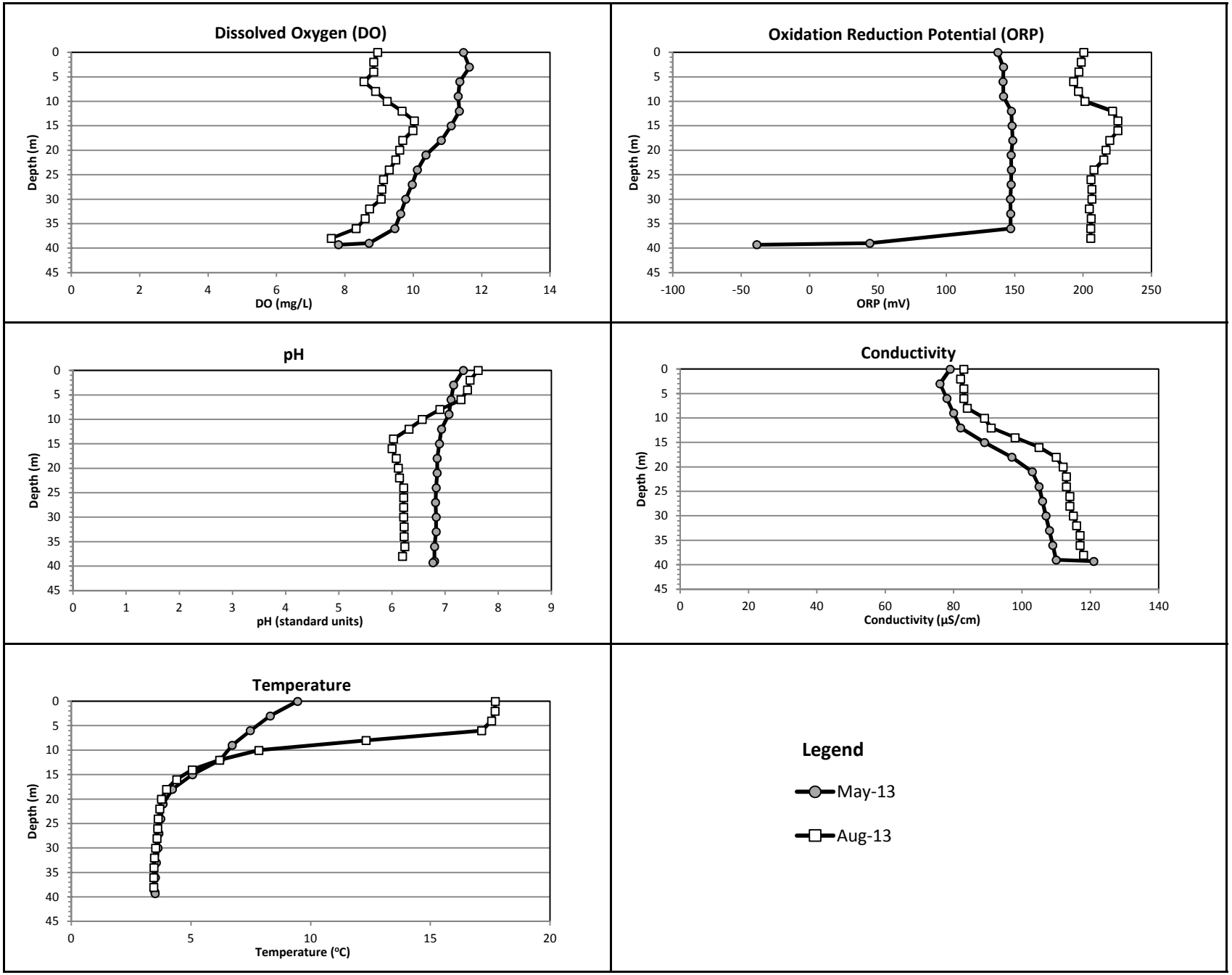
Water Column Profile Plots - Mesomikenda Lake (MESO-LS4)



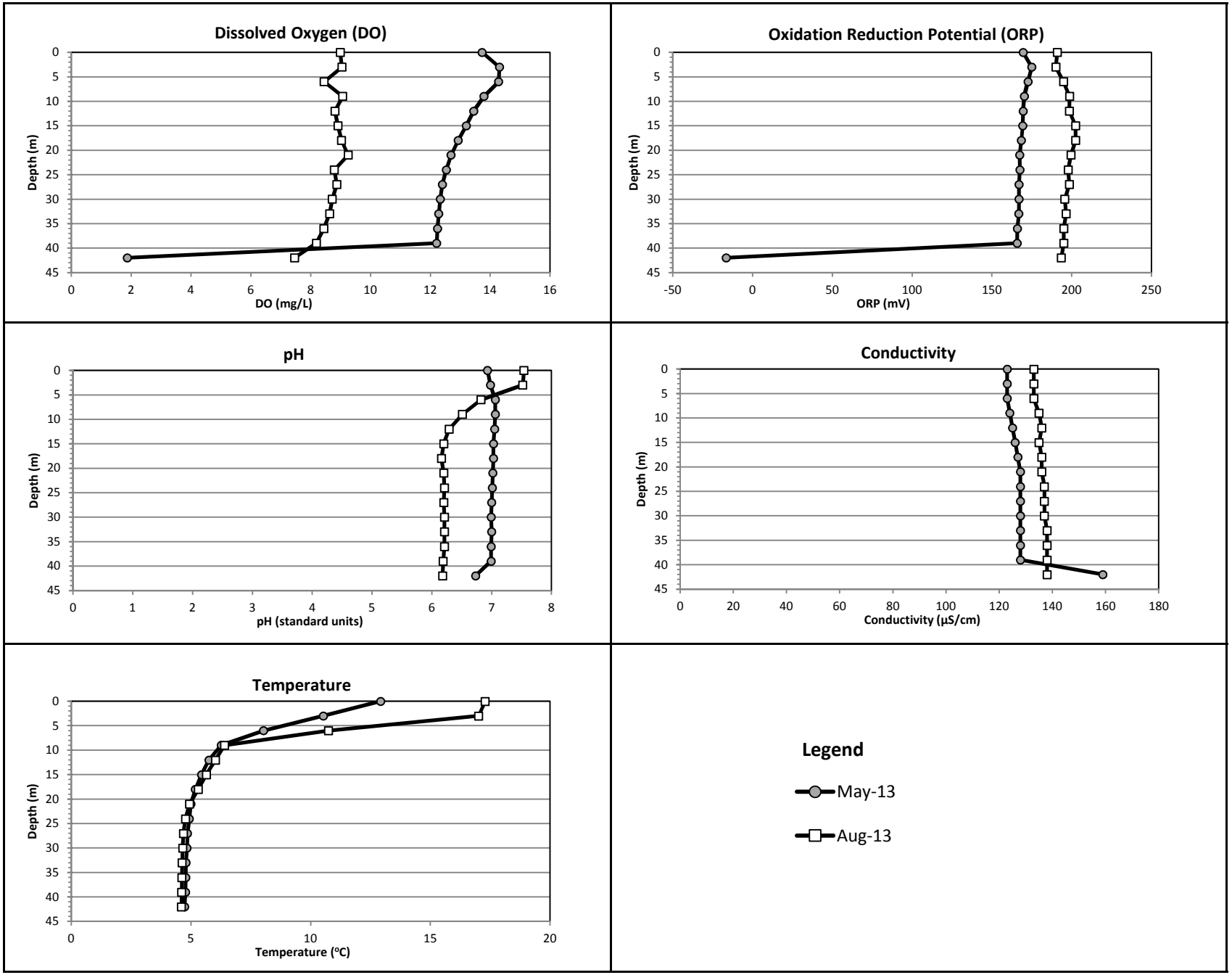
Water Column Profile Plots - Mesomikenda Lake (MESO-LS5)



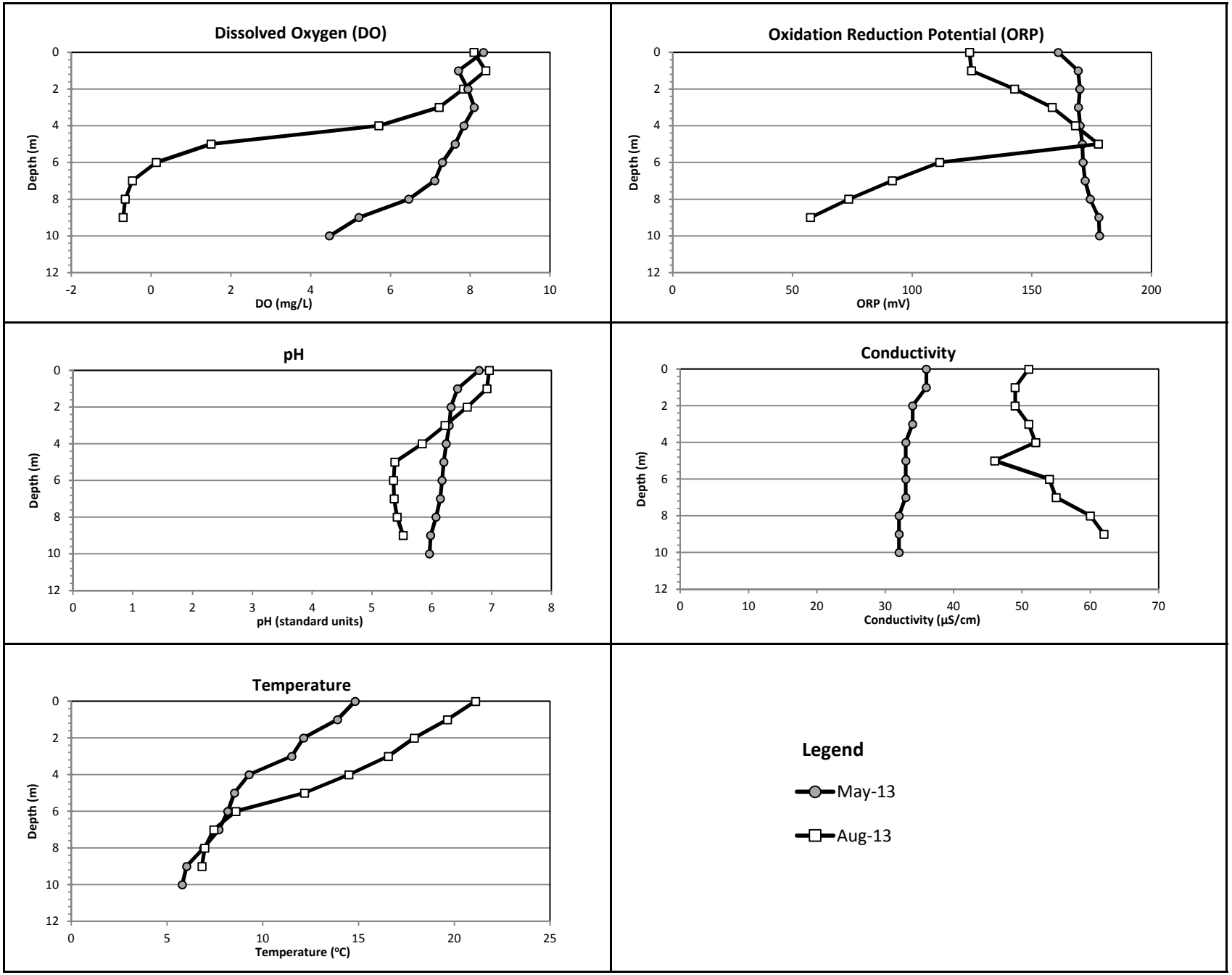
Water Column Profile Plots - Mesomikenda Lake (MESO-LS6)



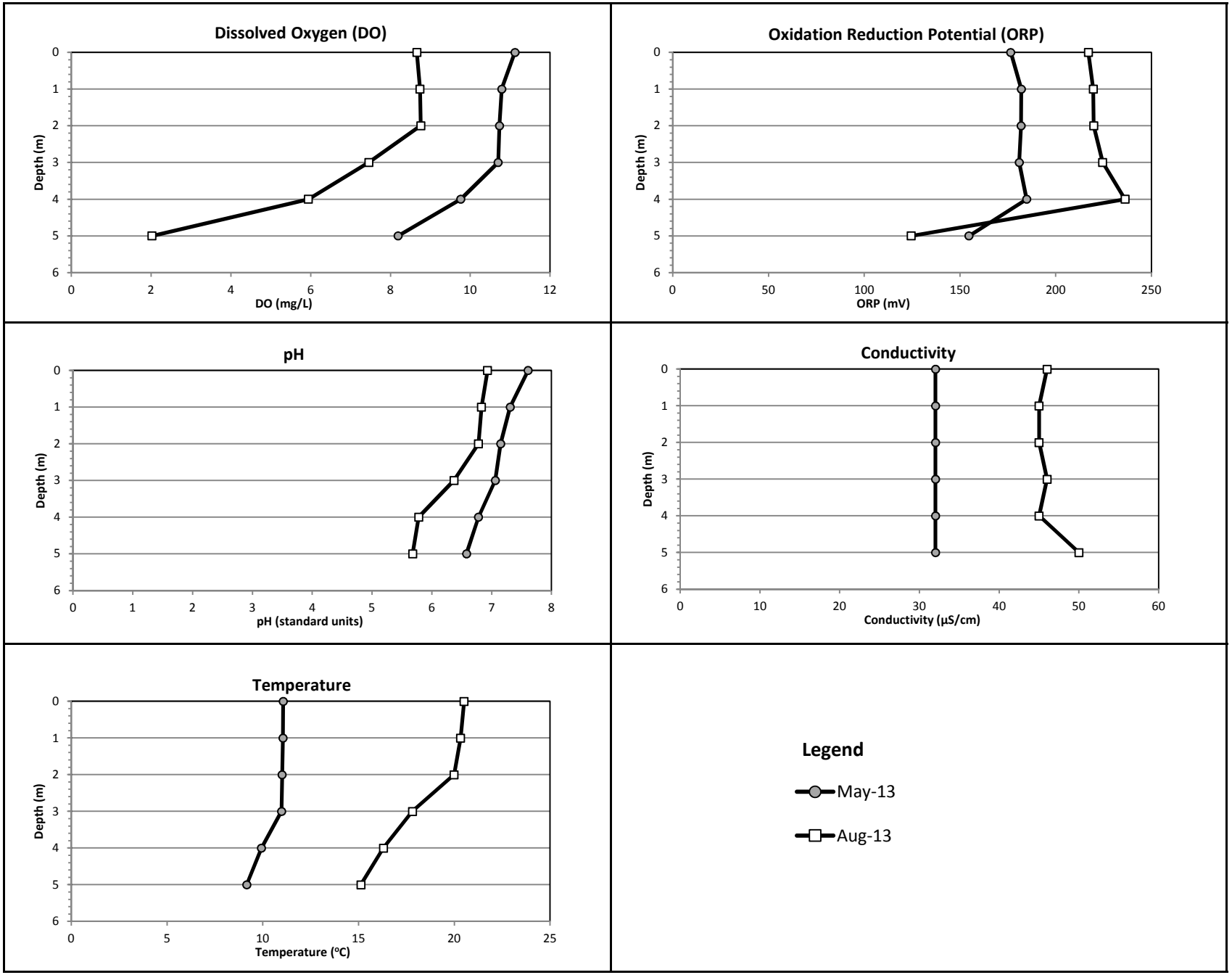
Water Column Profile Plots - Mesomikenda Lake (MESO-LS7)



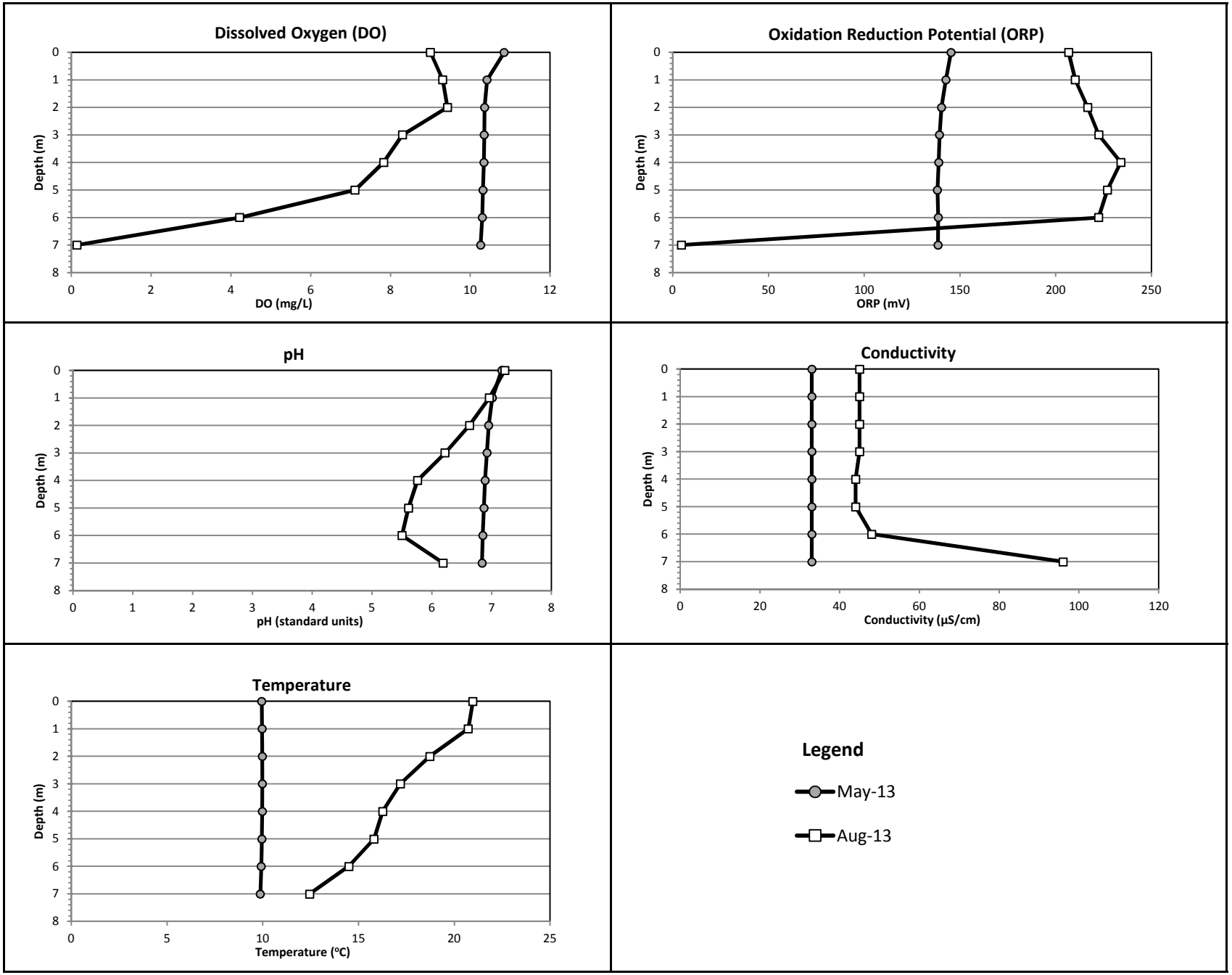
Water Column Profile Plots - Mesomikenda Lake (MESO-LS8)



Water Column Profile Plots - Three Duck Lakes (3D-LS1)



Water Column Profile Plots - Three Duck Lakes (3D-LS2)



APPENDIX C
Groundwater Quality Results

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards [1][2]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	Open Pit Footprint											
							BH12-1			BH12-2A			BH12-2B			BH12-3A		
			MAC	IMAC			18-May-12	14-Aug-12	5-Dec-12	18-May-12	14-Aug-12	5-Dec-12	19-May-12	14-Aug-12	5-Dec-12	20-May-12	14-Aug-12	5-Dec-12
FIELD PARAMETERS																		
pH	pH units	--	--	--	6.5-9	6.5-8.5	***6.33***	6.71	7.66	***6.02***	***6.49***	8.6	***6.41***	***5.96***	8.86	7.53	***6.32***	7.87
Conductivity	µs/cm	--	--	--	--	--	396	263	272	142	192	187	105	94	187	218	238	231
Temperature	degrees Celsius	--	--	--	--	--	7.5	17.3	6.7	11.8	11.4	5.5	10.8	12.1	6.5	16.5	17	6.5
GENERAL PARAMETERS																		
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.79	7.84	7.92	7.77	7.95	7.96	7.9	7.91	7.88	7.66	7.95	7.84
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	113000	135000	139000	92000	89000	92000	66000	48000	53000	115000	95000	108000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	240	276	283	205	191	198	121	102	90	246	224	246
Total Suspended Solids (TSS)	µg/L	<10000	--	--	+5000-25000 [6]	--	***820000***	***131000***	***110000***	***9120000***	***4640000***	***13000000***	***105000000***	***39400000***	***17600000***	***1240000***	***516000***	***208000***
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	128000	172000	160000	120000	128000	120000	320000	134000	58000	148000	144000	152000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	105000	144000	144000	94300	106000	90100	43600	69600	39500	119000	120000	123000
MAJOR IONS																		
Calcium (Ca)	µg/L	<50	--	--	--	--	35500	49900	51600	27700	30300	25900	14000	20600	12300	41700	41800	43000
Chloride (Cl)	µg/L	<100	--	--	--	--	1920	2850	2200	720	560	670	500	630	420	1690	1570	1220
Sodium (Na)	µg/L	<50	--	--	--	--	4140	3480	1840	6970	4910	3540	9920	2390	1310	5190	3170	2340
Fluoride (F)	µg/L	<50, <100, <50000	1500[7]	--	--	--	120	<50	<100	50	<50	<50	60	<50	<50	120	90	<50
Magnesium (Mg)	µg/L	<50	--	--	--	--	4070	4740	3790	6100	7470	6180	2100	4420	2140	3670	3810	3760
Potassium (K)	µg/L	<50	--	--	--	--	1870	2100	1010	1190	1540	950	628	1840	500	1560	1260	690
Sulphate (SO_4)	µg/L	<100	--	--	--	--	7320	6810	7980	13700	13600	12200	5610	5840	5550	14100	20400	23300
METALS																		
Aluminum (Al)	µg/L	<4	--	--	100[8]	75 [9]	34	43	20	7	8	11	14	64	22	13	15	10
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	35	40	35	13	12	10	<2	3	2	17	18	16
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	23	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1[13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	***3***	<2	<2	<2	<2	<2	<2	<2	<2	***4***	2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	<10	<10	<10	10	10	45	<10	<10	<10	122	<10	<10
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	123	107	<2	73	71	71	3	7	3	126	81	43
Mercury (Hg)	µg/L	<0.10	1	--	0.026	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
Molybdenum (Mo)	µg/L	<2	--	--	73	40	8	6	6	13	7	5	<2	<2	<2	41	73	***89***
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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
Strontium (Sr)	µg/L	<5	--	--	--	--	82	72	59	47	40	39	27	31	23	46	40	40
Thallium (Tl)	µg/L	<0.3, <4	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<0.1, <2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Tungsten (W)	µg/L	<0.1, <10	--	--	--	30	32	13	<10	20	<10	<10	<10	<10	<10	78	55	22
Uranium (U)	µg/L	<2, <4	20	--	15	5	<2	2	2	<2	<2	<2	<2	<2	<2	6	9	9
Vanadium (V)	µg/L	<0.1, <2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<4, <5	--	--	30	20	***45***	***54***	12	5	<5	<5	7	***78***	<5	6	<5	<5
Zirconium (Zr)	µg/L	<0.1, <4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
NUTRIENTS																		
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	170	--	720	<50	--	<50	90	--	<50	<50	<50	<50
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	<50	--	<50	<50	--	<50	<50	--	<50	<50	--	<50
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	<20	<20	<20	40	40	140	220	560	790	<20	<20	20
Un-Ionized Ammonia	µg/L as N	<20	--	--	19 [23]	20 [23]	<20	<20	<20	<20	<20	<20	<20	<20	30	<20	<20	<20
NUTRIENTS																		
Free Cyanide	µg/L	<2	200	--	5	5	<2	2	<2	<2	3	<2	<2	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards [1][2]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	Open Pit Footprint											
							BH12-3B			BH12-4			BH12-6	BH12-BULK1			DH12-PO-10		
			MAC	IMAC			20-May-12	14-Aug-12	5-Dec-12	18-May-12	14-Aug-12	5-Dec-12	18-May-12	28-May-12	14-Aug-12	5-Dec-12	7-Jun-12	16-Aug-12	5-Dec-12
FIELD PARAMETERS																			
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.46	6.69	7.68	***6.45***	6.67	7.9	6.9	6.63	6.5	7.78	8.08	***6.28***	8.06
Conductivity	µs/cm	--	--	--	--	--	107	99	127	162	133	130	134	268	279	287	273	335	282
Temperature	degrees Celsius	--	--	--	--	--	13.6	11.6	7.4	9.1	12.7	6.5	8.1	10.2	17.4	7.3	1.8	12.7	5.8
GENERAL PARAMETERS																			
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.22	7.51	7.22	7.64	7.77	7.65	7.74	7.72	7.96	7.87	7.87	7.98	7.88
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	46000	40000	61000	80000	53000	59000	83000	112000	114000	121000	147000	149000	142000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	115	103	140	164	124	137	173	265	275	299	279	344	289
Total Suspended Solids (TSS)	µg/L	<10000	--	--	+5000-25000 [6]	--	***27800000***	***4330000***	***2430000***	***7050000***	***1760000***	***283000***	***14400000***	***69000***	***130000***	***120000***	***1310000***	***924000***	***2000000***
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	172000	66000	88000	116000	84000	90000	188000	152000	176000	178000	160000	234000	188000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	52200	51600	65400	64500	71300	61700	48400	133000	142000	150000	137000	149000	144000
MAJOR IONS																			
Calcium (Ca)	µg/L	<50	--	--	--	--	19400	18700	24400	21900	22300	20600	14500	48700	51700	55100	42100	46400	44500
Chloride (Cl)	µg/L	<100	--	--	--	--	950	1150	1790	1930	640	1290	1670	1630	1430	1500	900	2710	1760
Sodium (Na)	µg/L	<50	--	--	--	--	1740	2030	2160	10500	3380	1820	19600	3030	3160	2720	3320	19800	7700
Fluoride (F)	µg/L	<50, <100, <50000	1500[7]	--	--	--	60	<50	<50	110	<50	<50	70	110	90	<50	140	110	110
Magnesium (Mg)	µg/L	<50	--	--	--	--	910	1190	1080	2380	3790	2480	2950	2870	3140	3030	7720	8060	8010
Potassium (K)	µg/L	<50	--	--	--	--	380	680	260	1060	1410	550	380	1330	1520	1160	1280	1710	1400
Sulphate (SO_4)	µg/L	<100	--	--	--	--	10600	8140	7040	7420	8770	8390	6610	25400	29200	34000	5080	32600	11200
METALS																			
Aluminum (Al)	µg/L	<4	--	--	100[8]	75 [9]	100	30	29	74	30	17	73	8	15	11	***195***	22	18
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	5	<3	<3	***6***	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	3	2	4	13	12	11	2	25	43	36	7	38	30
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	11	11	<10	<10	13	10	12	<10	<10	15	13
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1[13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	***0.1***	<0.1	***0.1***	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	0.8	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	***4***	***4***	***5***	***16***	***3***	<2	***3***	***4***	<2	***3***	***8***	***3***	***7***
Iron (Fe)	µg/L	<10	--	--	300	300	57	28	<10	58	<10	<10	25	<10	105	<10	38	<10	135
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	20	5	13	168	38	25	34	94	313	42	39	266	102
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.1	<0.1
Molybdenum (Mo)	µg/L	<2	--	--	73	40	5	5	5	3	<2	<2	<2	***127***	***108***	***147***	<2	48	30
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3	<3	<3	7	<3	3	<3	<3	9	5
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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
Strontium (Sr)	µg/L	<5	--	--	--	--	28	18	29	51	29	32	16	54	63	56	42	88	82
Thallium (Tl)	µg/L	<0.3, <4	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<0.1, <2	--	--	--	--	2	<2	<2	2	<2	<2	2	<2	<2	<2	<2	<2	<2
Tungsten (W)	µg/L	<0.1, <10	--	--	--	30	<10	<10	<10	212	55	23	232	14	<10	<10	21	91	54
Uranium (U)	µg/L	<2, <4	20	--	15	5	<2	<2	<2	<2	<2	8	<2	13	7	14	<2	2	<2
Vanadium (V)	µg/L	<0.1, <2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	2	<2
Zinc (Zn)	µg/L	<4, <5	--	--	30	20	***145***	<5	***41***	20	22	10	9	9	8	<5	***385***	***385***	***61***
Zirconium (Zr)	µg/L	<0.1, <4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
NUTRIENTS																			
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	<50	<50	<50	<50	<50	120	140	130	<50	<50	120	--	170
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	<50	--	<50	<50	--	<50	<50	<50	--	<50	<50	--	<50
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	<20	30	<20	40	<20	<20	150	<20	40	<20	<20	<20	40
Un-Ionized Ammonia	µg/L as N	<20	--	--	19 [23]	20 [23]	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
NUTRIENTS																			
Free Cyanide	µg/L	<2	200	--	5	5	<2	<2	<2	<2	<2	<2	<2	5	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1860	--	--

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards [1][2]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	Open Pit Footprint			Tailings Management Facility Footprint and Adjacent Areas								
							DH12-PO-14B			DH12-TMF-05A			DH12-TMF-05B			DH12-TMF-12		
			MAC	IMAC			28-May-12	15-Aug-12	5-Dec-12	6-Jun-12	14-Aug-01	29-Nov-12	6-Jun-12	14-Aug-12	29-Nov-12	13-Jun-12	14-Aug-12	29-Nov-12
FIELD PARAMETERS																		
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.93	6.94	8.33	7.76	6.54	7.91	7.09	6.54	6.96	***6.18***	7.6	7.51
Conductivity	µs/cm	--	--	--	--	--	192	203	213	592	415	382	552	783	761	670	787	727
Temperature	degrees Celsius	--	--	--	--	--	8.2	10.8	4.5	9.2	11.1	--	14.9	15.5	--	9.8	9.6	--
GENERAL PARAMETERS																		
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.83	8.04	7.99	7.81	8.01	7.89	7.89	7.97	7.91	7.75	7.94	7.81
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	91000	95000	106000	125000	136000	136000	232000	342000	328000	88000	87000	87000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	189	208	225	589	385	429	486	706	764	766	748	741
Total Suspended Solids (TSS)	µg/L	<10000	--	--	+5000-25000 [6]	--	***16000000***	***5560000***	***5970000***	***2640000***	***491000***	***524000***	***5680000***	***344000***	***25800000***	***326000***	***2350000***	***805000***
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	184000	134000	144000	378000	272000	398000	360000	554000	564000	574000	558000	468000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	81300	113000	105000	129000	141000	143000	200000	187000	231000	340000	343000	322000
MAJOR IONS																		
Calcium (Ca)	µg/L	<50	--	--	--	--	24800	33200	31700	39000	40200	40900	53400	52100	61900	84600	86100	82300
Chloride (Cl)	µg/L	<100	--	--	--	--	2440	3480	4160	15100	6670	9090	7850	13500	13300	16300	17100	17500
Sodium (Na)	µg/L	<50	--	--	--	--	8550	7160	4070	77400	29100	39800	36300	108000	96100	36300	36500	39100
Fluoride (F)	µg/L	<50, <100, <50000	1500[7]	--	--	--	140	90	<50	280	760	640	<50	<50	<50	<50	<50	<50
Magnesium (Mg)	µg/L	<50	--	--	--	--	4710	7310	6330	7590	9890	9940	16300	13800	18600	31200	31200	28300
Potassium (K)	µg/L	<50	--	--	--	--	590	1310	920	4760	3820	2810	2640	3470	3050	2190	2340	2080
Sulphate (SO_4)	µg/L	<100	--	--	--	--	8270	9840	9560	152000	53500	75900	26500	32900	78700	300000	310000	278000
METALS																		
Aluminum (Al)	µg/L	<4	--	--	100[8]	75 [9]	94	15	25	***146***	***116***	42	***123***	***134***	***142***	9	5	12
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	15	13	18	59	42	36	39	63	45	22	30	25
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10	31	34	32	<10	20	12	40	47	48
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1[13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3	***4***	***8***	***9***	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	3.9	2.7	2.9	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2	2	2	<2	<2	<2	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	32	73	89	184	<10	23	***7230***	***12200***	***13800***	28	164	223
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	56	64	62	320	201	151	553	609	731	832	832	864
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.1	<0.1	<0.1	<0.10	<0.1	<0.1	<0.10	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum (Mo)	µg/L	<2	--	--	73	40	10	5	6	***179***	49	16	3	5	2	4	4	5
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	5	6	<3	5	5	<3	<3	3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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
Strontium (Sr)	µg/L	<5	--	--	--	--	69	65	79	292	314	319	167	224	183	523	590	578
Thallium (Tl)	µg/L	<0.3, <4	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<0.1, <2	--	--	--	--	<2	<2	<2	5	2	<2	8	14	12	5	6	5
Tungsten (W)	µg/L	<0.1, <10	--	--	--	30	92	28	43	15	10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2, <4	20	--	15	5	<2	<2	<2	5	7	5	<2	<2	<2	3	3	4
Vanadium (V)	µg/L	<0.1, <2	--	--	--	6	<2	<2	<2	<2	<2	<2	6	6	6	<2	<2	<2
Zinc (Zn)	µg/L	<4, <5	--	--	30	20	***153***	<5	23	***96***	***35***	***59***	***1250***	11	<5	16	<5	8
Zirconium (Zr)	µg/L	<0.1, <4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
NUTRIENTS																		
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	<50	--	<50	<50	--	120	<50	--	<50	<50	--	<50
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	<50	--	<50	<50	--	<50	<50	--	<50	<50	--	<50
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	270	100	130	<20	<20	70	200	350	270	<20	20	<20
Un-Ionized Ammonia	µg/L as N	<20	--	--	19 [23]	20 [23]	<20	<20	<20	<20	<20	--	<20	<20	--	<20	<20	--
NUTRIENTS																		
Free Cyanide	µg/L	<2	200	--	5	5	<2	<2	<2	<2	<2	<2	4	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	50400	--	--	9100	--	--	--	--	--

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards [1][2]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	Tailings Management Facility Footprint and Adjacent Areas												
			MAC	IMAC			DH12-TMF-16	DH12-TMF-27A			DH12-TMF-27B			DH12-TMF-28			DH12-TMF-31A		
							6-Jun-12	29-May-12	15-Aug-12	29-Nov-12	29-May-12	15-Aug-12	29-Nov-12	13-Jun-12	16-Aug-12	29-Nov-12	5-Jun-12	16-Aug-12	29-Nov-12
FIELD PARAMETERS																			
pH	pH units	--	--	--	6.5-9	6.5-8.5	8.16	7.74	7.49	7	7.97	7.1	7.07	***6.31***	7.53	7.55	7.93	7.37	7.74
Conductivity	µs/cm	--	--	--	--	--	126	57	94	80	62	88	99	318	469	350	229	226	226
Temperature	degrees Celsius	--	--	--	--	--	10	6.9	9.7	--	8.7	10.3	--	8.4	13.4	5	6.7	8.6	4.6
GENERAL PARAMETERS																			
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.58	7.29	7.72	7.43	7.16	7.5	7.49	7.8	7.93	7.82	7.86	8.03	7.98
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	64000	41000	55000	43000	33000	40000	41000	99000	94000	99000	123000	116000	117000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	136	149	138	101	91	94	93	346	401	358	241	233	240
Total Suspended Solids (TSS)	µg/L	<10000	--	--	+5000-25000 [6]	--	***1250000***	***2900000***	***3810000***	***598000***	***7420000***	***11000000***	***2330000***	***548000***	***304000***	***138000***	***578000***	***648000***	***797000***
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	86000	66000	80000	74000	70000	102000	66000	220000	308000	222000	134000	146000	282000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	62800	40300	58400	46200	32200	43300	40800	145000	169000	153000	121000	124000	127000
MAJOR IONS																			
Calcium (Ca)	µg/L	<50	--	--	--	--	17400	9750	14300	11000	6120	7850	7850	39300	45300	41200	43000	43800	45500
Chloride (Cl)	µg/L	<100	--	--	--	--	420	350	480	600	440	440	350	5370	7110	5410	510	500	550
Sodium (Na)	µg/L	<50	--	--	--	--	2040	1640	3190	2250	2090	2700	2260	19100	23300	16000	1390	1410	1410
Fluoride (F)	µg/L	<50, <100, <50000	1500[7]	--	--	--	70	90	120	70	80	<50	<50	580	970	830	<50	<50	<50
Magnesium (Mg)	µg/L	<50	--	--	--	--	4690	3870	5520	4540	4100	5750	5150	11500	13500	12100	3430	3660	3210
Potassium (K)	µg/L	<50	--	--	--	--	430	410	730	470	450	600	400	1210	1670	1120	470	640	300
Sulphate (SO_4)	µg/L	<100	--	--	--	--	5910	4460	5750	6840	4630	5150	5230	70100	102000	75800	8320	8650	8880
METALS																			
Aluminum (Al)	µg/L	<4	--	--	100[8]	75 [9]	***184***	14	10	52	39	20	25	17	45	9	27	38	13
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	6	<2	5	6	2	2	2	29	57	37	7	5	5
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10	<10	<10	<10	<10	18	19	12	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1[13]	<0.1	<0.1	<0.1	<0.1	***0.1***	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	***6***	<2	2	***3***	<2	<2	<2	<2	<2	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	20	<10	<10	15	<10	<10	<10	297	168	256	<10	<10	<10
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	17	12	27	31	7	2	<2	284	462	433	8	6	4
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.10	<0.1	<0.1	<0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.1	<0.1
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2	<2	<2	<2	9	6	3	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/L	<0.1	--	--	0.1	0.1	***0.2***	***0.2***	<0.1	***0.2***	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	***0.2***	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	34	14	25	27	16	19	22	81	112	85	29	38	33
Thallium (Tl)	µg/L	<0.3, <4	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<0.1, <2	--	--	--	--	<2	<2	<2	3	<2	<2	<2	<2	3	<2	<2	<2	<2
Tungsten (W)	µg/L	<0.1, <10	--	--	--	30	74	38	42	13	<10	<10	<10	27	20	<10	22	12	<10
Uranium (U)	µg/L	<2, <4	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	3	5	5	<2	<2	<2
Vanadium (V)	µg/L	<0.1, <2	--	--	--	6	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<4, <5	--	--	30	20	***353***	<5	<5	<5	22	<5	8	5	***69***	<5	10	***53***	20
Zirconium (Zr)	µg/L	<0.1, <4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
NUTRIENTS																			
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	410	<50	--	<50	<50	--	70	<50	--	<50	<50	--	210
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	<50	<50	--	<50	<50	--	<50	<50	--	<50	<50	--	<50
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	<20	<20	60	30	<20	60	30	<20	<20	<20	<20	<20	40
Un-Ionized Ammonia	µg/L as N	<20	--	--	19 [23]	20 [23]	<20	<20	<20	--	<20	<20	--	<20	<20	<20	<20	<20	<20
NUTRIENTS																			
Free Cyanide	µg/L	<2	200	--	5	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	5	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	2040	1520	--	--	1580	--	--	--	--	--	2830	--	--

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards [1][2]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	Tailings Management Facility Footprint and Adjacent Areas								North of Tailings Management Facility				
							DH12-TMF-31B			DH12-TMF-32A		DH12-TMF-32B			DH12-TMF-23A		DH12-TMF-23B		
			MAC	IMAC			5-Jun-12	16-Aug-12	29-Nov-12	15-Aug-12	29-Nov-12	28-May-12	15-Aug-12	29-Nov-12	5-Jun-12	15-Aug-12	5-Jun-12	15-Aug-12	29-Nov-12
FIELD PARAMETERS																			
pH	pH units	--	--	--	6.5-9	6.5-8.5	8.02	--	7.44	7.53	8.01	8.5	6.9	7.06	7.99	6.97	8.3	6.75	7.14
Conductivity	µs/cm	--	--	--	--	--	133	--	95	302	303	122	120	132	157	172	107	99	88
Temperature	degrees Celsius	--	--	--	--	--	6.7	--	4.6	13.8	5	8.06	13.5	5.7	8.3	10.6	6.4	10	6.5
GENERAL PARAMETERS																			
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.65	7.83	7.58	7.95	8.05	7.22	7.58	7.47	7.78	7.85	7.58	7.78	7.54
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	74000	83000	46000	132000	136000	55000	52000	65000	102000	73000	58000	53000	52000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	160	183	115	295	304	126	126	146	260	175	121	117	113
Total Suspended Solids (TSS)	µg/L	<10000	--	--	+5000-25000 [6]	--	***22800000***	***12900000***	***2830000***	***1140000***	***953000***	***1380000***	***4500000***	***785000***	***286000***	***418000***	***6820000***	***1140000***	***1550000***
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	116000	138000	214000	208000	168000	74000	92000	86000	110000	124000	114000	88000	68000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	76400	95000	51500	129000	142000	55500	60500	70900	76600	76400	50000	58400	52700
MAJOR IONS																			
Calcium (Ca)	µg/L	<50	--	--	--	--	29000	35000	19100	41500	46100	20600	22300	26300	22600	22300	16000	18800	17100
Chloride (Cl)	µg/L	<100	--	--	--	--	520	530	1170	1270	1190	530	540	530	3590	2730	390	470	460
Sodium (Na)	µg/L	<50	--	--	--	--	1150	1560	1270	13700	11600	1330	1570	1310	5370	7700	4830	2700	2220
Fluoride (F)	µg/L	<50, <100, <50000	1500[7]	--	--	--	<50	<50	<50	392	380	<50	<50	<50	160	160	120	<50	<50
Magnesium (Mg)	µg/L	<50	--	--	--	--	980	1840	920	6140	6440	990	1170	1260	4890	5040	2450	2780	2440
Potassium (K)	µg/L	<50	--	--	--	--	340	1580	80	1770	1610	430	460	240	1340	1280	300	660	170
Sulphate (SO_4)	µg/L	<100	--	--	--	--	7540	8990	8070	22100	24200	5930	6690	7470	7450	11800	4220	5200	3580
METALS																			
Aluminum (Al)	µg/L	<4	--	--	100[8]	75 [9]	38	43	68	35	37	***180***	31	6	21	29	68	25	12
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	***16***	***179***	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	5	3	2	20	34	5	3	3	8	27	5	4	3
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10	119	149	<10	<10	<10	12	14	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1[13]	<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
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2	<2	<2	***15***	<2	<2	<2	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	<10	40	51	<10	<10	18	<10	<10	<10	140	13	<10	<10
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	39	66	14	130	15	116	76	8	92	155	25	15	5
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.1	<0.1	<0.1	<0.1	<0.10	<0.1	<0.1	<0.10	<0.1	<0.10	<0.1	<0.1
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	12	15	<2	<2	<2	<2	2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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
Strontium (Sr)	µg/L	<5	--	--	--	--	36	47	27	115	134	36	31	32	109	134	26	24	21
Thallium (Tl)	µg/L	<0.3, <4	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<0.1, <2	--	--	--	--	<2	3	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Tungsten (W)	µg/L	<0.1, <10	--	--	--	30	<10	<10	<10	31	<10	<10	<10	<10	<10	15	<10	<10	<10
Uranium (U)	µg/L	<2, <4	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	<2	***21***	***19***	<2	<2	<2
Vanadium (V)	µg/L	<0.1, <2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<4, <5	--	--	30	20	<5	5	<5	<5	12	***316***	***48***	<5	***36***	<5	***109***	***38***	<5
Zirconium (Zr)	µg/L	<0.1, <4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
NUTRIENTS																			
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	<50	--	80	190	200	610	--	450	80	--	<50	--	<50
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	<50	--	<50	<50	<50	<50	--	<50	<50	--	<50	--	<50
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	<20	<20	40	40	60	<20	30	20	<20	<20	<20	<20	<20
Un-Ionized Ammonia	µg/L as N	<20	--	--	19 [23]	20 [23]	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
NUTRIENTS																			
Free Cyanide	µg/L	<2	200	--	5	5	<2	<2	<2	<2	<2	***7***	<2	<2	<2	<2	3	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	2650	--	--	--	--	2070	--	--	2610	--	1510	--	--

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards [1][2]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	North of Tailings Management Facility						North of Open Pit			Adjacent to Mine Rock Area	
							DH12-TMF-24A			DH12-TMF-24B			DH12-WD-01			DH12-WD-12A	
			MAC	IMAC			6-Jun-12	14-Aug-12	29-Nov-12	6-Jun-12	14-Aug-12	29-Nov-12	7-Jun-12	15-Aug-12	5-Dec-12	4-Jun-12	16-Aug-12
FIELD PARAMETERS																	
pH	pH units	--	--	--	6.5-9	6.5-8.5	***6.48***	6.87	7.51	6.95	***6.16***	***6.11***	7.64	***5.5***	7.78	***6.14***	7.14
Conductivity	µs/cm	--	--	--	--	--	527	568	787	69	63	68	--	135	76	470	810
Temperature	degrees Celsius	--	--	--	--	--	8.4	12.1	5.2	8.1	10.1	5	8.1	14.6	6.2	5.3	10.5
GENERAL PARAMETERS																	
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.33	7.88	7.68	6.7	6.96	6.77	7.4	7.42	6.94	7.85	8
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	128000	200000	208000	17000	21000	21000	74000	65000	30000	133000	136000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	524	700	724	58	51	54	163	145	87	379	507
Total Suspended Solids (TSS)	µg/L	<10000	--	--	+5000-25000 [6]	--	***1760000***	***950000***	***1470000***	***26200000***	***4470000***	***6440000***	***1350000***	***160000***	***38000***	***175000***	***82000***
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	374000	454000	562000	162000	158000	76000	104000	104000	52000	380000	722000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	180000	267000	175000	16100	20300	20300	70700	64400	36500	131000	148000
MAJOR IONS																	
Calcium (Ca)	µg/L	<50	--	--	--	--	61500	91800	61400	4340	5500	5540	23000	22100	12400	41700	46900
Chloride (Cl)	µg/L	<100	--	--	--	--	56600	75300	59600	900	460	830	820	600	710	3900	5390
Sodium (Na)	µg/L	<50	--	--	--	--	36100	38300	85500	1940	1930	1880	3630	4900	2170	27200	55200
Fluoride (F)	µg/L	<50, <100, <50000	1500[7]	--	--	--	<50	<50	<50	<50	<50	<50	150	<50	<50	<50	<50
Magnesium (Mg)	µg/L	<50	--	--	--	--	6390	9110	5210	1290	1590	1560	3220	2240	1340	6540	7420
Potassium (K)	µg/L	<50	--	--	--	--	3440	2940	2860	580	600	740	870	780	450	1420	1580
Sulphate (SO_4)	µg/L	<100	--	--	--	--	26900	17600	55800	2710	2540	3130	9290	10400	11000	60400	121000
METALS																	
Aluminum (Al)	µg/L	<4	--	--	100[8]	75[9]	***106***	40	47	***159***	***154***	***133***	***122***	37	47	13	5
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	4	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	137	78	63	8	9	9	23	7	6	11	10
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	219	69	78	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1[13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	***0.2***	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	2.6	0.8	<0.5	0.7	0.5	0.6	0.8	1.5	0.8	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2	<2	<2	<2	***7***	***3***	***9***	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	***1950***	***549***	***816***	***7790***	***5580***	***7730***	45	***836***	24	11	<10
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	485	385	295	146	125	132	161	300	54	16	17
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.1	<0.1	<0.10	<0.1	<0.1	<0.10	<0.1	<0.1	<0.10	<0.1
Molybdenum (Mo)	µg/L	<2	--	--	73	40	3	3	<2	<2	<2	<2	33	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	11	5	<3	<3	<3	<3	5	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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
Strontium (Sr)	µg/L	<5	--	--	--	--	866	998	886	38	35	36	80	48	25	65	71
Thallium (Tl)	µg/L	<0.3, <4	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<0.1, <2	--	--	--	--	<2	<2	<2	4	9	4	<2	<2	<2	<2	<2
Tungsten (W)	µg/L	<0.1, <10	--	--	--	30	<10	<10	13	<10	<10	<10	107	25	<10	26	10
Uranium (U)	µg/L	<2, <4	20	--	15	5	<2	5	<2	<2	<2	<2	<2	<2	<2	2	2
Vanadium (V)	µg/L	<0.1, <2	--	--	--	6	<2	2	<2	16	6	18	2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<4, <5	--	--	30	20	***447***	<5	<5	***81***	5	14	***864***	<5	9	***39***	6
Zirconium (Zr)	µg/L	<0.1, <4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
NUTRIENTS																	
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	<50	--	<50	100	--	<50	60	--	<50	<50	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	<50	--	<50	<50	--	<50	<50	--	<50	<50	--
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	<20	30	40	60	30	50	<20	<20	<20	<20	<20
Un-Ionized Ammonia	µg/L as N	<20	--	--	19 [23]	20 [23]	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
NUTRIENTS																	
Free Cyanide	µg/L	<2	200	--	5	5	<2	<2	<2	<2	<2	<2	***6***	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	9370	--	--	900	--	--	3220	--	--	19200	--

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards [1][2]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	Adjacent to Mine Rock Area								West of Open Pit		
							DH12-WD-12B		DH12-WD-14			DH12-WD-17A			DH12-WD-19		
			MAC	IMAC			4-Jun-12	16-Aug-12	4-Jun-12	14-Aug-12	5-Dec-12	5-Jun-12	15-Aug-12	5-Dec-12	4-Jun-12	15-Aug-12	5-Dec-12
FIELD PARAMETERS																	
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.09	7.08	7.85	7.12	8.05	8.44	***6.04***	8.02	7.65	7.22	7.63
Conductivity	µs/cm	--	--	--	--	--	227	229	228	206	206	236	312	351	405	373	441
Temperature	degrees Celsius	--	--	--	--	--	4.9	10	10.1	11.2	7.4	10.1	9	--	9.7	13.2	6.6
GENERAL PARAMETERS																	
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.84	8.08	7.76	7.99	7.85	7.73	7.95	8.02	7.89	8.01	8.06
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	119000	120000	111000	103000	101000	109000	114000	133000	213000	198000	209000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	240	249	227	215	215	308	303	362	410	378	430
Total Suspended Solids (TSS)	µg/L	<10000	--	--	+5000-25000 [6]	--	***40000***	***100000***	***223000***	***256000***	***112000***	***38000***	***592000***	***102000***	***266000***	***187000***	***793000***
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	146000	172000	130000	138000	116000	146000	240000	208000	236000	244000	542000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	104000	129000	98600	104000	98900	93200	104000	107000	206000	205000	189000
MAJOR IONS																	
Calcium (Ca)	µg/L	<50	--	--	--	--	32400	40100	31900	33800	32100	29300	32200	32600	66100	66300	62300
Chloride (Cl)	µg/L	<100	--	--	--	--	900	870	1040	940	1060	10800	13000	21300	1890	960	3260
Sodium (Na)	µg/L	<50	--	--	--	--	4640	4630	6500	6290	6010	26900	24800	35700	4660	3850	24600
Fluoride (F)	µg/L	<50, <100, <50000	1500[7]	--	--	--	<50	<50	140	<50	100	<50	<50	<50	<50	<50	<50
Magnesium (Mg)	µg/L	<50	--	--	--	--	5550	6940	4590	4810	4550	4860	5660	6330	10000	9700	8240
Potassium (K)	µg/L	<50	--	--	--	--	1520	1700	1220	1190	1060	1020	1370	1170	1650	1720	1770
Sulphate (SO_4)	µg/L	<100	--	--	--	--	10200	13600	9890	10900	10700	32700	24200	26600	12400	11100	29000
METALS																	
Aluminum (Al)	µg/L	<4	--	--	100[8]	75[9]	21	8	13	7	10	63	25	13	18	13	14
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	14	13	22	10	17	35	77	50	23	29	41
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	16	20	22	11	14	27	<10	<10	12
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1[13]	<0.1	<0.1	***0.1***	<0.1	<0.1	***0.1***	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	2	<2	<2	<2	2	***4***	***3***	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	79	32	<10	<10	57	39	<10	16	<10	<10	52
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	61	58	46	17	59	85	98	113	96	101	181
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.1	<0.10	<0.1	<0.1	<0.10	<0.1	<0.1	<0.10	<0.1	<0.1
Molybdenum (Mo)	µg/L	<2	--	--	73	40	3	2	7	6	8	13	11	7	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3	<3	<3	7	13	<3	3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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
Strontium (Sr)	µg/L	<5	--	--	--	--	47	50	57	58	65	51	54	89	142	149	151
Thallium (Tl)	µg/L	<0.3, <4	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<0.1, <2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Tungsten (W)	µg/L	<0.1, <10	--	--	--	30	426	259	28	12	34	677	647	42	<10	<10	20
Uranium (U)	µg/L	<2, <4	20	--	15	5	3	3	4	4	3	<2	<2	2	<2	<2	4
Vanadium (V)	µg/L	<0.1, <2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<4, <5	--	--	30	20	27	8	***32***	12	<5	***262***	***142***	17	19	<5	8
Zirconium (Zr)	µg/L	<0.1, <4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
NUTRIENTS																	
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	<50	--	<50	--	<50	190	--	<50	<50	--	<50
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	<50	--	<50	--	<50	<50	--	<50	<50	--	<50
Total Ammonia ($NH_3 + NH_4$)	µg/L as N	<20	--	--	6980	--	<20	<20	<20	<20	40	<20	20	50	<20	<20	50
Un-Ionized Ammonia	µg/L as N	<20	--	--	19 [23]	20 [23]	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
NUTRIENTS																	
Free Cyanide	µg/L	<2	200	--	5	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	3200	--	3280	--	--	10700	--	--	4190	--	--

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards [1][2]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	Adjacent to Mine Rock Area			North of Open Pit								
							DH12-WD-23			DH12-WD-01			DH12-WD-25A			DH12-WD-25B		
			MAC	IMAC			5-Jun-12	15-Aug-12	5-Dec-12	7-Jun-12	15-Aug-12	5-Dec-12	13-Jun-12	16-Aug-12	5-Dec-12	13-Jun-12	16-Aug-12	5-Dec-12
FIELD PARAMETERS																		
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.65	***5.87***	6.97	7.64	***5.5***	7.78	6.68	***6.05***	7.42	***6.4***	***5.8***	7.3
Conductivity	µs/cm	--	--	--	--	--	339	308	330	--	135	76	163	167	152	214	254	266
Temperature	degrees Celsius	--	--	--	--	--	1.6	11.6	6	8.1	14.6	6.2	8.3	10.1	4.8	8.4	10.8	5
GENERAL PARAMETERS																		
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.93	8.05	7.96	7.4	7.42	6.94	7.53	7.64	7.31	7.7	7.79	7.68
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	181000	168000	167000	74000	65000	30000	81000	70000	70000	118000	135000	132000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	331	305	313	163	145	87	180	154	150	226	256	253
Total Suspended Solids (TSS)	µg/L	<10000	--	--	+5000-25000 [6]	--	***1910000***	***2140000***	***15000000***	***1350000***	***160000***	***38000***	***624000***	***736000***	***211000***	***19500000***	***4660000***	***5770000***
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	206000	202000	208000	104000	104000	52000	114000	98000	102000	154000	<20000	178000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	185000	183000	173000	70700	64400	36500	81900	81900	74100	123000	135000	128000
MAJOR IONS																		
Calcium (Ca)	µg/L	<50	--	--	--	--	59900	58400	56100	23000	22100	12400	25300	25000	23000	41100	44800	42800
Chloride (Cl)	µg/L	<100	--	--	--	--	670	520	810	820	600	710	590	550	760	690	670	810
Sodium (Na)	µg/L	<50	--	--	--	--	2170	2400	2040	3630	4900	2170	1680	1590	1490	4520	6610	4790
Fluoride (F)	µg/L	<50, <100, <50000	1500[7]	--	--	--	<50	<50	<50	150	<50	<50	<50	<50	<50	<50	<50	<50
Magnesium (Mg)	µg/L	<50	--	--	--	--	8560	8960	7930	3220	2240	1340	4550	4730	4050	4900	5700	5010
Potassium (K)	µg/L	<50	--	--	--	--	1910	2160	2010	870	780	450	860	940	470	770	640	590
Sulphate (SO_4)	µg/L	<100	--	--	--	--	100	100	100	9290	10400	11000	8410	8170	6730	5210	770	1570
METALS																		
Aluminum (Al)	µg/L	<4	--	--	100[8]	75 [9]	23	9	20	***122***	37	47	31	24	31	***209***	43	20
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	***8***	***14***	***11***	***6***	4	4
Barium (Ba)	µg/L	<2	1000	--	--	--	27	27	30	23	7	6	5	7	7	17	26	23
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1[13]	<0.1	<0.1	<0.1	***0.2***	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	0.8	1.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2	***7***	***3***	***9***	<2	<2	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	***1430***	***1510***	***1900***	45	***836***	24	***4400***	***4200***	***4360***	***3440***	***3210***	***4540***
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	166	156	191	161	300	54	268	300	287	390	366	431
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.1	<0.1	<0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum (Mo)	µg/L	<2	--	--	73	40	8	2	4	33	<2	<2	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	5	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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
Strontium (Sr)	µg/L	<5	--	--	--	--	58	56	60	80	48	25	46	48	49	60	70	74
Thallium (Tl)	µg/L	<0.3, <4	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<0.1, <2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	11	<2	<2
Tungsten (W)	µg/L	<0.1, <10	--	--	--	30	21	<10	<10	107	25	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2, <4	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Vanadium (V)	µg/L	<0.1, <2	--	--	--	6	2	<2	2	2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<4, <5	--	--	30	20	***37***	<5	<5	***864***	<5	9	10	11	<5	16	24	<5
Zirconium (Zr)	µg/L	<0.1, <4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
NUTRIENTS																		
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	<50	--	<50	60	--	<50	<50	--	<50	<50	--	<50
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	<50	--	<50	<50	--	<50	<50	--	<50	<50	--	<50
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	80	70	280	<20	<20	<20	<20	40	60	170	360	200
Un-Ionized Ammonia	µg/L as N	<20	--	--	19 [23]	20 [23]	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
NUTRIENTS																		
Free Cyanide	µg/L	<2	200	--	5	5	<2	<2	<2	***6***	<2	<2	<2	2	<2	<2	2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	140	--	--	3220	--	--	--	--	--	--	--	--

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards [1][2]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	North of Open Pit			West of Open Pit					
							DH12-WD-26			DH12-WD-27A			DH12-WD-27B		
			MAC	IMAC			13-Jun-12	15-Aug-12	5-Dec-12	4-Jun-12	15-Aug-12	5-Dec-12	4-Jun-12	15-Aug-12	5-Dec-12
FIELD PARAMETERS															
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.43	7.1	7.58	7.61	6.61	8.08	7.43	6.97	7.97
Conductivity	µs/cm	--	--	--	--	--	389	315	299	289	252	237	239	273	272
Temperature	degrees Celsius	--	--	--	--	--	8.9	13.6	6.3	9	9.5	4.8	8.2	8.7	4.8
GENERAL PARAMETERS															
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.83	7.78	7.84	7.87	8.08	7.94	7.85	8.13	8.01
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	135000	145000	150000	152000	122000	120000	125000	136000	134000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	372	331	306	294	248	246	259	271	272
Total Suspended Solids (TSS)	µg/L	<10000	--	--	+5000-25000 [6]	--	***602000***	***104000***	***41000***	***2700000***	***1210000***	***312000***	***6100000***	***3960000***	***2180000***
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	270000	216000	208000	170000	160000	148000	152000	176000	608000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	112000	121000	94900	146000	136000	117000	114000	157000	136000
MAJOR IONS															
Calcium (Ca)	µg/L	<50	--	--	--	--	37700	40100	32100	42200	39000	33700	33100	45200	39400
Chloride (Cl)	µg/L	<100	--	--	--	--	3420	2850	2740	800	680	710	800	710	860
Sodium (Na)	µg/L	<50	--	--	--	--	46100	30000	29600	2930	4660	4250	8120	3110	2600
Fluoride (F)	µg/L	<50, <100, <50000	1500[7]	--	--	--	300	290	250	<50	100	110	170	<50	<50
Magnesium (Mg)	µg/L	<50	--	--	--	--	4340	5030	3590	9850	9490	7980	7630	10700	9080
Potassium (K)	µg/L	<50	--	--	--	--	990	1220	820	1130	1230	910	1070	1230	960
Sulphate (SO_4)	µg/L	<100	--	--	--	--	59200	24400	9910	12100	12800	12600	14200	12700	12200
METALS															
Aluminum (Al)	µg/L	<4	--	--	100[8]	75 [9]	9	9	15	15	21	7	***154***	***102***	8
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	5	4	4	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	14	15	17	15	16	21	17	16	14
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	13	12	17	<10	<10	10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1[13]	<0.1	<0.1	<0.1	***0.1***	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2	<2	<2	<2	***5***	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	***1280***	***1440***	***1340***	89	<10	<10	154	61	28
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	263	279	257	47	57	53	63	36	16
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.1	<0.1	<0.1	<0.10	<0.1	<0.1	<0.10	<0.1	<0.1
Molybdenum (Mo)	µg/L	<2	--	--	73	40	12	6	8	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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
Strontium (Sr)	µg/L	<5	--	--	--	--	73	83	66	52	87	144	75	60	54
Thallium (Tl)	µg/L	<0.3, <4	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<0.1, <2	--	--	--	--	2	<2	<2	<2	<2	<2	5	<2	<2
Tungsten (W)	µg/L	<0.1, <10	--	--	--	30	29	14	11	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2, <4	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	3	2
Vanadium (V)	µg/L	<0.1, <2	--	--	--	6	3	3	3	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<4, <5	--	--	30	20	***227***	<5	<5	6	28	<5	21	***166***	<5
Zirconium (Zr)	µg/L	<0.1, <4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4
NUTRIENTS															
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	<50	--	<50	<50	--	<50	<50	--	<50
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	<50	--	<50	<50	--	<50	<50	--	<50
Total Ammonia (NH_3 + NH_4)	µg/L as N	<20	--	--	6980	--	80	20	110	<20	60	110	120	20	40
Un-Ionized Ammonia	µg/L as N	<20	--	--	19 [23]	20 [23]	<20	<20	<20	<20	<20	<20	<20	<20	<20
NUTRIENTS															
Free Cyanide	µg/L	<2	200	--	5	5	<2	2	<2	<2	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	4080	--	--	4820	--	--

APPENDIX C
Table Notes for Groundwater Quality Results

NOTES ON COMPARISONS TO WATER QUALITY STANDARDS AND GUIDELINES:

Values in GREY exceed the ODWSs MACs or IMACs
Values in ***bold italics*** exceed the CCME CWQGs
Values underlined exceed the PWQOs
-- indicates no value available

NOTES ON WATER QUALITY STANDARDS AND GUIDELINES:

(1) Total concentrations are assumed, unless stated otherwise.
(2) Ontario Regulation (O.Reg.) 169/03: Ontario Drinking Water Standards (ODWS). Last amendment: O.Reg. 327/08.
http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_030169_e.htm.
(3) MAC: Maximum Acceptable Concentration; IMAC: Interim Maximum Acceptable Concentration
(4) Canadian Council of Ministers of the Environment (CCME), Canadian Water Quality Guidelines (CWQGs) for the Protection of Aquatic Life, Update 7.1 (December 2007).
(5) Provincial Water Quality Objectives, Ministry of Environment and Energy (1994, Revised 1999).
(6) TSS (CWQG) Under clear flow: + 25 mg/L from background levels for any short-term exposure (e.g., 24-h period).
average + 5 mg/L from background levels for longer term exposures (24 h<discharge<30 d).
TSS (CWQG) Under high flow: + 25 mg/L from background levels at any time when background levels between 25 and 250 mg/L.
+ 10% of background levels when background is >250 mg/L.

(7) Where fluoride is added to drinking water, it is recommended that the concentration be adjusted to 0.5-0.8 mg/L the optimum level for control of tooth decay. Where supplies contain naturally occurring fluoride at levels higher than 1.5 mg/L but less than 2.4 mg/L the Ministry of Health and Long Term Care recommends an approach through local boards of health to raise public and professional awareness to control excessive exposure to fluoride from other sources.
(8) Aluminium guideline (CWQG) is calculated assuming a pH of 7.0.
(9) Aluminium guideline (PWQO) is calculated assuming a pH of 7.0.
(10) Beryllium guideline (PWQO) is calculated assuming a hardness of 30 mg/L as $CaCO_3$.
(11) Boron guideline (CWQG) is based on long-term exposure.
(12) Cadmium guideline (CWQG) is based on the Draft Scientific Criteria Document for the Development of the Canadian Water Quality Guidelines for the Protection of Aquatic Life: Cadmium, October 2012, and calculated using an assumed hardness of 30 mg/L as $CaCO_3$.
(13) Cadmium guideline (PWQO) is calculated assuming a hardness of 30 mg/L as $CaCO_3$.
(14) No guidelines for total chromium. Guidelines for trivalent chromium used: CWQG and PWQO guidelines for Cr(III) are both 8.9 µg/L.
(15) Copper guideline (CWQG) is calculated assuming a hardness of 30 mg/L as $CaCO_3$.
(16) Copper guideline (PWQO) is calculated assuming a hardness of 30 mg/L as $CaCO_3$.
(17) This standard applies to water at the point of consumption. Since lead is a component in some plumbing systems, first flush water may contain higher concentrations of lead than water that has been flushed for five minutes.
(18) Lead guideline (CWQG) is calculated assuming a hardness of 30 mg/L as $CaCO_3$.
(19) Lead guideline (PWQO) is calculated assuming a hardness of 30 mg/L as $CaCO_3$.
(20) Nickel guideline (CCME) is calculated assuming a hardness of 30 mg/L as $CaCO_3$.
(21) For protection from direct toxic effects, the guidelines do not consider indirect effects due to eutrophication.
(22) Guideline is expressed as µg nitrite-nitrogen/L. This value is equivalent to 197 µg nitrite/L.
(23) Un-ionized ammonia is calculated using the equation: $f = 1/(10^{pKa-pH} +1)$, where f is the fraction of NH_3; $pKa = 0.09018 + 2729.92/T$; T = ambient water temperature in Kelvin (K = °C + 273.16) (Emerson et al., 1975)

APPENDIX D
Quality Assurance/Quality Control

INTRODUCTION

As part of the review of the data from the Quality Assurance/Quality Control (QA/QC) samples, the following were taken into consideration to identify potential issues:

- lab, field and/or trip blank(s) showing detectable parameter concentrations and/or values outside criteria ranges;
- uncharacteristically high, anomalous concentrations; and
- duplicate samples having significantly different results.

SURFACE WATER QUALITY ASSURANCE/QUALITY CONTROL

Blanks

The field blanks that had detectable parameters, and/or values that were not within acceptable Canadian Water Quality Guidelines (CWQG) and Provincial Water Quality Objectives (PWQO) ranges are as follows:

- Total zinc concentration above PWQO (20 µg/L) in blanks on January 24, 2012 (26 µg/L) and above PWQO and CWQG (30 µg/L) on September 24, 2012 (45 µg/L).
- Total phosphorus concentrations at or above PWQO (20 µg/L) in blanks from August 20, 2012 (30 µg/L) and September 24, 2012 (20 µg/L).

Blind Duplicates

The analytical data for the blind duplicate samples (collected at the same time and in the same location as surface water samples) were reviewed. In order to provide a quantitative measure of the precision of duplicate analysis, the relative percent difference (RPD) is calculated as follows:

$$RPD = \frac{|x_1 - x_2|}{x_m} \times 100\%$$

Where x_1 = initial sample result

x_2 = duplicate sample result

x_m = mean of x_1, x_2

The results of this review indicated that the baseline monitoring program analytical data were of acceptable quality, with the exception of the parameters listed in Table 1, which had a higher than acceptable difference (i.e. >30%). It should be noted that it is not uncommon to have RPDs as high as 200% for results near the detection limit.

Table 1: Quality Assurance/Quality Control Blind Duplicates with Relative Percent Difference >30%

Sample Location	Sampling Date	Parameter (units)	Sample Concentration	Duplicate Concentration	Detection Limit
SL	May 31, 2012	TDS (µg/L)	56,000	80,000	20,000
	July 18, 2012	Iron (µg/L)	34	50	10
		Manganese (µg/L)	33	45	2
		Zinc (µg/L)	<5	65	5
		Total Phosphorus (µg/L)	<20	30	20
	August 20, 2012	Electrical Conductivity (µS/cm)	60	43	2
		Potassium (µg/L)	310	720	50
	September 24, 2012	TSS (µg/L)	<1000	2000	1000
		Zinc (µg/L)	7	<5	5
	January 29, 2013	Chloride (µg/L)	380	740	100
		DOC (µg/L)	8500	14200	500
		Dissolved Aluminum (µg/L)	28	96	4
		Sodium (µg/L)	730	1170	50
		Barium (µg/L)	7	5	2
		Iron (µg/L)	41	176	10
		Manganese (µg/L)	23	10	2
	February 24, 2013	Alkalinity (µg/L)	28000	16000	5000
		Dissolved Organic Carbon (µg/L)	8200	13500	500
		Chloride (µg/L)	340	910	100
		Total Ammonia (µg/L)	520	300	20
		Calcium (µg/L)	10400	7460	50
		Sodium (µg/L)	780	1110	50
		Dissolved Aluminum (µg/L)	30	58	4
		Manganese (µg/L)	39	10	2
		Strontium (µg/L)	24	13	5
BPD	May 31, 2012	Zinc (µg/L)	6	44	5
3D-c	June 28, 2012	Total Cyanide (µg/L)	<2	12	2
		Dissolved Aluminum (µg/L)	43	30	4
		Barium (µg/L)	4	6	2
		Manganese (µg/L)	22	36	2
		Strontium (µg/L)	12	25	5
		Zinc (µg/L)	24	320	5
	July 18, 2012	Zinc (µg/L)	20	7	5
	August 20, 2012	Total Phosphorus (µg/L)	<20	40	20
	September 24, 2012	TSS (µg/L)	<1000	2000	1000
	November 19, 2012	Zinc (µg/L)	7	<5	5

Sample Location	Sampling Date	Parameter (units)	Sample Concentration	Duplicate Concentration	Detection Limit
	January 29, 2013	Zinc (µg/L)	17	11	5
	February 2013	Chloride (µg/L)	880	380	100
		Iron (µg/L)	107	159	10
		Magnesium (µg/L)	1360	1870	50
		Zinc (µg/L)	43	9	5
CHLK	June 25, 2012	Zinc (µg/L)	<5	16	5
MESO-LS2	May 2013	Total Dissolved Solids (µg/L)	56000	84000	20000
		Nitrate	100	70	50
		Iron	200	300	10
		Zinc	5	48	5

Comparison of Total and Dissolved Metals

Laboratory analytical certificates of total and dissolved metal concentrations in surface water samples collected in 2012 and 2013 were reviewed and the total and dissolved concentrations were compared. Total metals concentrations were typically higher than the dissolved concentrations, with the exception of the parameters listed below (it should be noted that the instances where the dissolved metal concentration is only slightly higher than the total concentration, or near the laboratory detection limit, may be within the range of laboratory error):

- Dissolved zinc concentration (21 µg/L) was higher than the total zinc concentration (5 µg/L) at station P-6 in July 2012.
- Dissolved barium was higher than total barium at stations BL-B (15 µg/L vs. 5 µg/L), L-2 (10 µg/L vs. 3 µg/L), SL (11 µg/L vs. 5 µg/L and 27 µg/L vs. 6 µg/L in a duplicate sample), BPD (14 µg/L vs. 5 µg/L), LCM (34 µg/L vs. 8 µg/L), CHLK (15 µg/L vs. 4 µg/L), MP (13 µg/L vs. 11 µg/L), 3D-c (9 µg/L vs. 3 µg/L) in July 2012.
- Dissolved iron was higher than total iron at station BPD (14 µg/L vs. <10 µg/L) in July 2012.
- Dissolved boron was higher than total boron at station MP (16 µg/L vs 13 µg/L) in July 2012.

Additional QA/QC Analysis

As part of an additional QA/QC analysis conducted by IAMGOLD in spring 2013, a subset of samples were submitted to two different laboratories. Samples collected from the following locations on March 19, 2013, were submitted for analysis at both Testmark Laboratories Ltd. (Testmark) and AGAT Laboratories (AGAT):

- CL, LCM, 3D-c, CHLK, P-6 and MESO-OUT.

The RPD of the parameter concentrations measured at Testmark and AGAT were compared. The parameter concentrations below had a higher than acceptable RPD (i.e. >30%) are presented in Table 2.

Table 2: Quality Assurance/Quality Control, Laboratory Blind Duplicates with Relative Percent Difference >30%

Station	Parameter	Concentration (µg/L) Analyzed at Testmark	Concentration (µg/L) Analyzed at AGAT	Detection Limit (AGAT)	Detection Limit (Testmark)
CL	Zinc	10.4	106	5	1
LCM	Magnesium	486	840	50	4
	Zinc	1.2	11	5	1
3D-c	Magnesium	854	1180	50	4
	Zinc	3.2	5	5	1
CHLK	Magnesium	924	1270	50	4
P-6	TSS	750	2000	1000	500

The zinc concentrations from the duplicate samples from March 2013 were above the acceptable RPD (30%) at three of the six locations sampled; in particular, there was an order of magnitude difference in zinc concentrations at stations CL and LCM measured at the two labs. Additionally, the zinc concentration at sample CL analyzed by AGAT was above the PWQO (20 µg/L).

A blind duplicate sample collected at Station CL (Côté Lake) was submitted to Testmark. The zinc concentrations of the sample and the blind duplicate had a higher than acceptable RPD of 60% (with concentrations of 10.4 µg/L and 5.6 µg/L, respectively). All other parameters concentrations had an acceptable RPD (<30%).

Groundwater Quality Assurance/Quality Control

Blanks

The blanks that had parameter concentrations greater than the CWQG and PWQO are as follows:

- trip blank from June 13, 2012 had a dissolved aluminum concentration (13 µg/L) greater than the CWQG (5 µg/L);
- field blank from May 18, 2012 had a dissolved aluminum concentration (31 µg/L) greater than the CWQG (5 µg/L), and a dissolved zinc concentration (51 µg/L) greater than the PWQO (20 µg/L) and CWQG (30 µg/L);
- field blank from August 14, 2012 had a dissolved aluminum concentration (18 µg/L) greater than the CWQG (5 µg/L); and
- field blank from August 20, 2012 had a dissolved aluminum concentration (35 µg/L) greater than the CWQG (5 µg/L) and a dissolved zinc concentration (24 µg/L) greater than the PWQO (20 µg/L).

Blind Duplicate Samples

The analytical data for the blind duplicate samples (collected at the same time and in the same location as surface water samples) were reviewed. The results of this review (Table 3) indicated that the baseline monitoring program analytical data was generally of acceptable quality, with the exception of the following, which had a higher than acceptable difference (i.e. RPD >30%). It should be noted that it is not uncommon to have RPDs as high as 200% for results near the detection limit.

Table 3: Quality Assurance/Quality Control Blind Duplicate for Samples with Relative Percent Difference >30%

Sample Location	Sampling Date	Parameter (units)	Sample Concentration	Duplicate Concentration	Detection Limit
DH12-PO-14B	May 28, 2012	potassium (µg/L)	590	860	50
		sodium (µg/L)	8550	4980	50
		aluminum (µg/L)	94	25	4
		zinc (µg/L)	153	28	4
		ammonia (µg/L)	270	110	20
DH12-TMF-16	June 6, 2012	aluminum (µg/L)	184	25	4
		barium (µg/L)	6	3	2
		iron (µg/L)	20	<10	10
		manganese (µg/L)	17	4	2
		silver (µg/L)	0.2	<0.1	0.1
		strontium (µg/L)	34	21	5
		zinc (µg/L)	353	<5	5
DH12-TMF-32B	August 15, 2012	TSS (µg/L)	4,500,000	2,120,000	10,000
		aluminum (µg/L)	31	7	4
		copper (µg/L)	<2	3	2
		zinc (µg/L)	48	5	4
DH12-TMF-27A	November 29, 2012	silver (µg/L)	0.1	0.2	0.1
BH12-4	November 29, 2012	aluminum (µg/L)	31	17	4
		zinc (µg/L)	43	10	5
		TSS (µg/L)	189,000	283,000	1,000
		TDS (µg/L)	182,000	90,000	20,000
DH12-WD-25B	November 29, 2012	aluminum (µg/L)	82	20	4
		zinc (µg/L)	137	<5	5

Comparison of Total and Dissolved Metals

Laboratory analytical certificates of total and dissolved metal concentrations in groundwater samples collected in 2012 and were reviewed and the total and dissolved concentrations were compared. On occasion, the following dissolved parameter concentrations exceeded the total concentrations:

- Dissolved zinc was higher than the total concentration on at least one occasion at 16 wells (with the highest differences in concentrations being 864 µg/L vs. 36 µg/L and 153 µg/L vs. 32 µg/L at 2 wells in May 2012 and 69 µg/L vs. 5 µg/L at one well in August 2012). Dissolved zinc concentrations were higher than total zinc concentrations on one occasion in a trip blank (16 µg/L vs. <5 µg/L in June 2012), and on two occasions in a field blank sample (24 µg/L vs. <5 µg/L in August 2012 and 51 µg/L vs. <5 µg/L in May 2012).
- Dissolved tungsten was higher than the total concentration on at least one occasion at 14 wells (with the highest differences in concentrations being 232 µg/L vs. 23 µg/L and 212 µg/L vs. 46 µg/L at 2 wells in May 2012).
- Dissolved molybdenum was higher than the total concentration on at least one occasion at 9 wells (with the highest differences in concentrations being 127 µg/L vs. 99 µg/L and 33 µg/L vs. 2 µg/L at 2 wells in May 2012).
- Dissolved boron was higher than the total concentration on at least one occasion at 2 wells (with the highest difference being 219 µg/L vs. 139 µg/L in May 2012).
- Dissolved aluminum was higher than the total concentration on at least one occasion at 7 wells and on two occasions in a field blank. In the field blank from May 2012, the dissolved aluminum concentration was 31 µg/L while the total concentration was below the detection limit.
- Dissolved strontium was higher than the total concentration on at least one occasion at 5 wells (with the highest difference being 66 µg/L vs. 80 µg/L in May 2012).
- Dissolved manganese was higher than the total concentration on at least one occasion at 5 wells (with the highest difference being 408 µg/L/ vs. 485 µg/L in May 2012).
- Dissolved iron was higher than the total concentration on at least one occasion at 3 wells (with the highest difference being 12100 µg/L vs. 12200 µg/L in August 2012).

SUMMARY

Overall, the analytical data is of acceptable quality, however the review of the QA/QC analysis results indicated that there are some discrepancies for certain parameters, in particular zinc, the source for which is currently unknown. On several occasions, concentrations were notably different in the sample analysis versus the duplicate analysis. Furthermore, some blank samples have concentrations of aluminum, zinc and total phosphorous that are greater than the PWQO and/or CWQG criteria. Nonetheless, given the number of samples that have been submitted as part of the water quality baseline study, the percentage of individual parameters that have had anonymous results is very small; as such, based on this QA/QC analysis, the water quality data is considered to be appropriate for the purposes of the EA.

APPENDIX D
Quality Assurance/Quality Control Sample Results

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		CCME Water Guidelines [4]	Provincial Water Quality Objective [9]	Surface Water Quality Sampling Program - Duplicate Samples																					
							3D-c - Three Ducks Lake, near Outlet																		BPD - Bagsverd Creek, near Bagsverd Lake Outflow		CHLK - Chester Lake Outlet	
			MAC	IMAC			28-Jun-12	28-Jun-12 (DUP)	18-Jul-12	18-Jul-12 (DUP)	20-Aug-12	20-Aug-12 (DUP)	24-Sep-12	24-Sep-12 (DUP)	30-Oct-12	30-Oct-12 (DUP)	19-Nov-12	19-Nov-12 (DUP)	29-Jan-13	29-Jan-13 (DUP)	24-Feb-13	24-Feb-13 (DUP)	19-Mar-13	19-Mar-13 (DUP)	31-May-12	31-May-12 (DUP)	25-Jun-12	25-Jun-12 (DUP)
FIELD PARAMETERS																												
pH	pH units	--	--	--	6.5-9	6.5-8.5	7	--	7.21	--	7.29	--	7.12	--	7.8	--	7.15	--	7.5	--	6.89	--	7.83	--	7.4	--	7.21	--
Temperature	degrees Celsius	--	--	--	--	--	21.5	--	21.5	--	19.3	--	10.7	--	4.6	--	3	--	0.1	--	-0.1	--	0.1	--	17.4	--	23.5	--
Conductivity	µS/cm	--	--	--	--	--	38.7	--	40.4	--	38.5	--	24.6	--	25.6	--	24.7	--	29	--	27	--	24.5	--	48	--	43.2	--
Dissolved Oxygen	µg/L	--	--	--	--	--	7530	--	7050	--	7960	--	9070	--	11100	--	1196	--	12250	--	9860	--	9600	--	8580	--	6960	--
GENERAL PARAMETERS																												
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.06	6.99	6.6	6.62	6.93	6.68	6.91	6.91	6.7	6.73	6.6	***6.23***	6.57	6.6	***6.38***	6.65	***6.41***	***6.33***	6.7	6.93	6.98	6.97
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	12000	12000	13000	13000	14000	13000	13000	13000	12000	12000	12000	11000	16000	16000	15000	18000	13000	14000	22000	23000	12000	12000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	41	41	42	42	46	43	42	43	42	42	42	42	54	54	51	54	49	49	57	56	41	40
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	48000	42000	48000	38000	50000	46000	58000	48000	50000	40000	52000	56000	<20000	88000	<20000	<20000	42000	48000	80000	78000	42000	38000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<10000	<10000	<10000	<10000	<10000	<10000	<1000	2000	2000	2000	1000	<1000	<1000	<1000	<1000	<1000	<1000	1000	<10000	<10000	<10000	<10000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	17300	17000	20100	19900	20200	20200	21400	21100	19800	19900	20800	20700	24700	24800	24200	25600	21100	21600	26800	27300	17000	17200
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	14600	13700	10900	11100	8500	8600	10400	10300	11800	11800	11800	12000	13300	13800	12800	10000	12200	11700	8200	8800	13300	13700
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	6	--	--	--	--	--	--
MAJOR IONS																												
Calcium (Ca)	µg/L	<50	--	--	--	--	5300	5230	6150	6110	6190	6130	6590	6510	6100	6120	6530	6460	7580	7600	7440	7180	6490	6640	8530	8680	5200	5270
Magnesium (Mg)	µg/L	<50	--	--	--	--	990	950	1150	1130	1160	1200	1210	1180	1100	1110	1080	1100	1390	1410	1360	1870	1180	1220	1340	1370	970	980
Potassium (K)	µg/L	<50	--	--	--	--	360	410	450	440	440	390	430	500	390	390	500	450	400	380	410	350	430	470	290	300	310	360
Sodium (Na)	µg/L	<50	--	--	--	--	790	790	960	980	860	920	910	920	850	850	1040	1030	1110	1100	1090	1070	1100	1140	910	710	770	760
Chloride (Cl)	µg/L	<100	--	--	--	--	510	560	570	580	590	570	590	700	580	0.59	680	790	990	850	880	380	930	1000	340	350	330	300
Fluoride (Fl)	µg/L	<50, <50000	1500[7]	--	--	--	<50000	<50000	<50	<50	<50	<0.05	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50000	<50000
Sulphate (SO_4)	µg/L	<100	--	--	--	--	2680	2690	2600	2590	2630	2700	2490	2560	2910	2910	2970	2910	3620	3820	3250	3670	3140	3260	3000	2980	3130	3160
METALS																												
Aluminum (Al)	µg/L	<4	--	--	100[8]	75 [9]	43	30	18	20	11	11	13	18	40	37	42	51	63	58	67	72	64	60	14	14	45	42
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	4	6	4	3	4	4	4	4	4	4	4	4	5	5	6	5	6	6	4	5	5	5
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1 [13]	<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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	104	137	128	123	84	80	132	126	96	97	106	112	97	94	107	159	99	90	<10	<10	135	145
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	22	36	36	36	20	19	20	20	13	13	11	10	10	10	9	11	9	7	22	24	55	53
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.10	<0.10	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	12	25	14	13	14	14	15	16	13	13	12	12	17	18	15	16	14	15	19	21	13	13
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	24	***320***	20	7	<5	<5	<5	<5	<5	<5	7	<5	17	11	***43***	9	5	<5	6	***44***	<5	16
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
OTHER PARAMETERS																												
Total Cyanide	µg/L	<2	--	--	--	--	<2	12	<2	16	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NUTRIENTS																												
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Ammonia (NH_3)	µg/L as N	<20	--	--	6980	--	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	40	50	40	30	<20	20	<20	<20	<20	<20
Un-ionized Ammonia (NH_3) [25]	µg/L	--	--	--	19 [23]	20 [23]	<0.088	<0.088	<0.092	<0.092	<0.146	<0.146	<0.052	<0.052	<0.151	<0.151	<0.030	<0.030	0.104	0.131	0.0332	0.019	<0.112	0.112	<0.163	<0.163	<0.106	<0.106
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Phosphorus (TP)	µg/L	<20	--	--	20	20	***50***	***50***	***40***	***40***	<20	***40***	***30***	***30***	<20	<20	<20	<20	<20	20	<20	<20	<20	<20	<20	<20	***50***	***60***
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ORGANICS																												
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Radium-226																												
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		CCME Water Guidelines [4]	Provincial Water Quality Objective [5]	Surface Water Quality Sampling Program - Duplicate Samples																	
							SL - Schist Lake Outflow																P-3 - Inflow to Bagsverd Lake	
			MAC	IMAC			31-May-12	31-May-12 (DUP)	18-Jul-12	18-Jul-12 (DUP)	20-Aug-12	20-Aug-12 (DUP)	24-Sep-12	24-Sep-12 (DUP)	23-Oct-12	23-Oct-12 (DUP)	17-Dec-12	17-Dec-12 (DUP)	29-Jan-13	29-Jan-13 (DUP)	24-Feb-13	24-Feb-13 (DUP)	19-Mar-13	19-Mar-13 (DUP)	19-Nov-12	19-Nov-12 (DUP)
FIELD PARAMETERS																								
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.4	--	--	--	7.41	--	7.36	--	6.96	--	7.08	--	6.81	--	7.52	--	7.18	--	***6.32***	--
Temperature	degrees Celsius	--	--	--	--	--	15.3	--	--	--	19.8	--	9.8	--	3.2	--	0.9	--	0.7	--	1	--	0.7	--	2.7	--
Conductivity	µS/cm	--	--	--	--	--	46	--	--	--	54.8	--	42.8	--	35.2	--	35.2	--	38.9	--	42.1	--	40.1	--	23	--
Dissolved Oxygen	µg/L	--	--	--	--	--	7700	--	--	--	6520	--	8000	--	9740	--	1123	--	11940	--	9310	--	8520	--	907	--
GENERAL PARAMETERS																								
pH	pH units	--	--	--	6.5-9	6.5-8.5	6.82	6.89	6.74	6.77	6.87	6.68	7.02	7.05	6.68	6.88	6.81	6.92	6.66	6.67	6.54	6.6	6.75	6.52	***6.31***	***5.86***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	24000	23000	24000	23000	27000	13000	23000	23000	22000	22000	25000	24000	28000	21000	28000	16000	29000	28000	7000	6000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	57	57	59	59	60	43	58	58	59	59	61	58	72	61	73	52	76	76	37	40
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	56000	80000	48000	46000	52000	46000	62000	52000	50000	46000	52000	44000	44000	<20000	22000	26000	44000	50000	72000	72000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<10000	<10000	<10000	<10000	<10000	<10	<1000	2000	3000	4000	1000	<1000	13200	<1000	3000	<1000	<1000	1000	<1000	<1000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	26700	26900	28700	28800	28900	20200	29400	31300	27400	27200	28600	29700	29800	25100	32200	24200	32700	32000	19200	18400
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	8900	9000	9500	10200	7500	8600	9400	9300	9800	10200	8400	8000	8500	14200	8200	13500	8500	8500	14600	14200
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAJOR IONS																								
Calcium (Ca)	µg/L	<50	--	--	--	--	8580	8660	9230	9270	9250	9250	9430	10000	8730	8670	9100	9440	9460	7180	10400	7460	10500	10300	6360	6070
Magnesium (Mg)	µg/L	<50	--	--	--	--	1280	1280	1370	1370	1410	1400	1430	1530	1360	1350	1430	1480	1490	1750	1520	1350	1580	1530	810	780
Potassium (K)	µg/L	<50	--	--	--	--	260	280	340	330	310	300	270	290	270	310	290	310	270	310	360	470	390	330	320	330
Sodium (Na)	µg/L	<50	--	--	--	--	710	690	720	730	730	720	730	760	730	710	770	740	730	1170	780	1110	760	750	1040	1030
Chloride (Cl)	µg/L	<100	--	--	--	--	370	340	380	320	380	350	410	380	370	320	370	380	380	740	340	910	340	360	400	350
Fluoride (Fl)	µg/L	<50, <50000	1500[7]	--	--	--	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	2960	2950	2810	2870	2970	3010	2590	2580	3320	3370	3500	3540	3190	3950	3030	3510	2920	2830	4920	4990
METALS																								
Aluminum (Al)	µg/L	<4	--	--	100[8]	75[9]	14	14	9	9	5	5	9	10	19	21	12	15	28	96	30	58	25	19	***106***	***115***
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	5	4	5	6	5	5	7	7	6	6	6	6	7	5	8	6	10	11	4	4
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1 [13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	***4***	<2	<2	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	14	<10	34	50	44	45	33	29	66	60	24	23	41	176	95	104	77	62	153	139
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	29	26	33	45	16	16	17	17	13	13	6	6	23	10	39	8	56	46	4	4
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.10	<0.10	<0.10	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	24	20	23	27	24	25	27	27	21	21	21	22	25	20	24	13	30	30	13	13
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	***61***	<5	<5	***65***	<5	<5	7	<5	<5	<5	<5	<5	<5	<5	8	7	6	<5	<5	<5
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
OTHER PARAMETERS																								
Total Cyanide	µg/L	<2	--	--	--	--	4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NUTRIENTS																								
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	--	--	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	--	--	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--
Total Ammonia (NH_3)	µg/L as N	<20	--	--	6980	--	190	<20	<20	<20	<20	<20	50	60	370	370	610	620	700	50	520	300	420	410	<20	<20
Un-ioinized Ammonia (NH_3) [26]	µg/L	--	--	--	19 [23]	20 [23]	1.634	0.139	--	--	<0.24	<0.24	0.295	0.25	0.407	0.407	0.549	0.662	0.63	0.028	1.456	0.888	0.378	0.542	<0.0068	<0.0068
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Phosphorus (TP)	µg/L	<20	--	--	20	20	<20	<20	<20	***30***	***30***	***30***	***30***	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<100	<100	--	--	--	--	--	--	--	--
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ORGANICS																								
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Radium-226																								
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		CCME Water Guidelines [4]	Provincial Water Quality Objective [5]	Surface Water Quality Sampling Program - Blanks																
							CH2-BLK								CH2-BLK1						CH2-BLK2		
			MAC	IMAC			28-Nov-11	22-Dec-11	24-Jan-12	21-Feb-12	26-Mar-12	18-Jul-12	19-Nov-12	29-Jan-13	25-Jun-12	20-Aug-12	24-Sep-12	17-Dec-12	24-Feb-13	19-Mar-13	25-Jun-12	24-Feb-13	19-Mar-13
FIELD PARAMETERS																							
pH	pH units	--	--	--	6.5-9	6.5-8.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature	degrees Celsius	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Conductivity	µS/cm	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved Oxygen	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL PARAMETERS																							
pH	pH units	--	--	--	6.5-9	6.5-8.5	***5.78***	***5.81***	***5.63***	***5.89***	***6.37***	***5.39***	***5.55***	***6.35***	***6.27***	***6.08***	***6.13***	6.7	***5.88***	***5.74***	***6.09***	***5.62***	***5.56***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	<2	<2	<2	<2	3	<2	<2	6	3	3	4	7	<2	<2	3	<2	<2
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	<20000	<20000	<20000	<20000	46000	<20000	<20000	<20000	<20000	<20000	<20000	<20000	<20000	<20000	<20000	<20000	<20000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<10000	<10000	<10000	<10000	<10000	<10000	<1000	<1000	<10000	<10000	<1000	<1000	<1000	<1000	<10000	<10000	<1000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	<500	<500	<500	<500	599	<500	<500	974	<500	549	699	1830	<500	<500	<500	<500	<500
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	<500	800	<500	500	800	500	500	900	700	<500	500	<500	<500	700	800	<500	700
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAJOR IONS																							
Calcium (Ca)	µg/L	<50	--	--	--	--	90	110	70	80	240	<50	90	390	170	220	280	600	80	80	150	80	120
Magnesium (Mg)	µg/L	<50	--	--	--	--	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	80	<50	<50	<50	<50	<50
Potassium (K)	µg/L	<50	--	--	--	--	<50	<50	<50	<50	60	50	100	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Sodium (Na)	µg/L	<50	--	--	--	--	240	290	230	210	540	50	350	830	390	430	570	1080	270	240	360	250	290
Chloride (Cl)	µg/L	<100	--	--	--	--	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	120
Fluoride (Fl)	µg/L	<50, <50000	1500[7]	--	--	--	<50	<50	<50	<50	<50	<50	<50	<50	<50000	<50	<50	<50	<50	<50	<50000	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
METALS																							
Aluminum (Al)	µg/L	<4	--	--	100[8]	75 [9]	6	6	4	<4	<4	<4	<4	18	16	28	34	44	13	20	12	11	13
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	2	2	<2	<2	<2	<2	<2
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1 [13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	2	<2	<2	<2	<2	<2	<2
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	18	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/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	<0.1	<0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	<5	<5	26	8	<5	<5	<5	6	<5	<5	***45***	<5	<5	<5	<5	<5	<5
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
OTHER PARAMETERS																							
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NUTRIENTS																							
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Ammonia (NH_3)	µg/L as N	<20	--	--	6980	--	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Un-ioinized Ammonia (NH_3) [26]	µg/L	--	--	--	19 [23]	20 [23]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Phosphorus (TP)	µg/L	<20	--	--	20	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	***30***	20	<20	<20	<20	<20	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<100	--	--	--	--	--
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ORGANICS																							
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Radium-226																							
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	--	--	--	--	--	--	<0.001	<0.001	--	--	--	<0.001	<0.001		--	<0.001	--

APPENDIX D
Quality Assurance/Quality Control Sample Results

Parameter	Unit	Method Detection Limit	Ontario Drinking Water Standards [1][2]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	Groundwater Quality Sampling Program - Duplicate Samples									
							DH12-PO-14B - Open Pit Footprint		DH12-TMF-16 - TMF Footprint and Adjacent Areas		DH12-TMF-27A - TMF Footprint and Adjacent Areas		BH12-4 - Open Pit Footprint		DH12-WD-25B - North of Open Pit	
			MAC	IMAC			28-May-12	28-May-12 (DUP)	6-Jun-12	6-Jun-12 (DUP)	29-Nov-12	29-Nov-12 (DUP)	29-Nov-12	29-Nov-12 (DUP)	29-Nov-12	29-Nov-12 (DUP)
FIELD PARAMETERS																
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.93	--	8.16	--	7	--	7.9	--	7.3	--
Conductivity	µs/cm	--	--	--	--	--	192	--	126	--	80	--	130	--	266	--
Temperature	degrees Celsius	--	--	--	--	--	8.2	--	10	--	--	--	6.5	--	5	--
GENERAL PARAMETERS																
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.83	7.87	7.58	7.6	7.43	7.26	7.57	7.65	7.68	7.68
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%[5]	91000	97000	64000	67000	43000	43000	60000	59000	139000	132000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	189	200	136	142	101	96	141	137	267	253
Total Suspended Solids (TSS)	µg/L	<10000	--	--	+5000-25000 [6]	--	***16000000***	***12300000***	***1250000***	***1260000***	***598000***	***772000***	***189000***	***283000***	***7550000***	***5770000***
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	184000	164000	86000	88000	74000	64000	182000	90000	164000	178000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	81300	92500	62800	65800	46200	42600	63600	61700	130000	128000
MAJOR IONS																
Calcium (Ca)	µg/L	<50	--	--	--	--	24800	28100	17400	18400	11000	10200	21200	20600	43500	42800
Chloride (Cl)	µg/L	<100	--	--	--	--	2440	2590	420	410	600	500	1280	1290	960	810
Sodium (Na)	µg/L	<50	--	--	--	--	8550	4980	2040	2460	2250	2080	1840	1820	5100	4790
Fluoride (Fl)	µg/L	<50, <100, <50000	1500[7]	--	--	--	140	140	70	70	70	70	<50	<50	<50	<50
Magnesium (Mg)	µg/L	<50	--	--	--	--	4710	5430	4690	4830	4540	4160	2590	2480	5170	5010
Potassium (K)	µg/L	<50	--	--	--	--	590	860	430	450	470	410	520	550	620	590
Sulphate (SO_4)	µg/L	<100	--	--	--	--	8270	8400	5910	6060	6840	5530	8580	8390	1630	1570
METALS [10]																
Aluminum (Al)	µg/L	<4	--	--	100[8]	75[9]	***94***	***25***	***184***	***25***	***48***	***52***	***31***	***17***	***82***	***20***
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3	<3	<3	5	4
Barium (Ba)	µg/L	<2	1000	--	--	--	***15***	***15***	***6***	3	***6***	***6***	***11***	***11***	***27***	***23***
Beryllium (Be)	µg/L	<1	--	--	--	11[10]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500[11]	200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058[12]	0.1[13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9[14]	8.9[14]	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2[15]	5[16]	<2	<2	6	6	4	3	2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	***32***	***31***	***20***	<10	***13***	***15***	<10	<10	***4130***	***4540***
Lead (Pb)	µg/L	<1	10[17]	--	1[18]	3[19]	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	***56***	***53***	***17***	***4***	***33***	***31***	***29***	***25***	***462***	***431***
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.1	<0.1	<0.10	<0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum (Mo)	µg/L	<2	--	--	73	40	***10***	***10***	<2	<2	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25[20]	25	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/L	<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
Strontium (Sr)	µg/L	<5	--	--	--	--	***69***	***65***	***34***	***21***	***28***	***27***	***33***	***32***	***81***	***74***
Thallium (Tl)	µg/L	<0.3, <4	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<0.1, <2	--	--	--	--	<2	<2	<2	<2	***2***	***3***	<2	<2	<2	<2
Tungsten (W)	µg/L	<0.1, <10	--	--	--	30	92	94	74	75	13	13	23	23	<10	<10
Uranium (U)	µg/L	<2, <4	20	--	15	5	<2	<2	<2	<2	<2	<2	9	8	<2	<2
Vanadium (V)	µg/L	<0.1, <2	--	--	--	6	<2	<2	2	<2	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<4, <5	--	--	30	20	153	28	353	<5	<5	<5	43	10	137	<5
Zirconium (Zr)	µg/L	<0.1, <4	--	--	--	4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
NUTRIENTS																
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	<50	<50	***410***	***360***	<50	<50	***120***	***120***	<50	<50
Nitrite (NO_2^-)	µg/L as N		1000	--	60 [22]	--	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Ammonia (NH_3)	µg/L as N	<20	--	--	6980	--	***270***	***110***	<20	<20	30	30	<20	<20	0.2	0.2
Un-Ionized Ammonia	µg/L as N	<20	--	--	19 [23]	20 [23]	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
NUTRIENTS																
Free Cyanide	µg/L	<2	200	--	5	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	***2040***	***2080***	--	--	***2650***	***2560***	***640***	***620***

APPENDIX D
Quality Assurance/Quality Control Sample Results

Parameter	Unit	Method Detection Limit	Ontario Drinking Water Standards [1][2]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	Groundwater Quality Sampling Program - Blanks					
							TRIP BLANK			FIELD BLANK	GW BLK-1	GW BLK-2
			MAC	IMAC			18-May-12	13-Jun-12	20-Aug-12	18-May-12	14-Aug-12	20-Aug-12
FIELD PARAMETERS												
pH	pH units	--	--	--	6.5-9	6.5-8.5	--	--	--	--	--	--
Conductivity	µs/cm	--	--	--	--	--	--	--	--	--	--	--
Temperature	degrees Celsius	--	--	--	--	--	--	--	--	--	--	--
GENERAL PARAMETERS												
pH	pH units	--	--	--	6.5-9	6.5-8.5	***6.28***	***6.33***	***5.66***	***6.05***	***6.22***	***6.33***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%[5]	<5000	<5000	<5000	<5000	<5000	<5000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	<5000	<5000	<5000	<5000	<5000	<5000
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	<2	2	<2	<2	2	3
Total Suspended Solids (TSS)	µg/L	<10000	--	--	+5000-25000 [6]	--	<10000	<10000	<10000	<10000	<10000	<10000
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	<20000	<20000	<20000	<20000	<20000	<20000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	<500	<500	<500	<500	<500	<500
MAJOR IONS												
Calcium (Ca)	µg/L	<50	--	--	--	--	60	150	<50	100	180	162
Chloride (Cl)	µg/L	<100	--	--	--	--	<100	<100	130	<100	<100	<100
Sodium (Na)	µg/L	<50	--	--	--	--	180	340	<50	290	330	342
Fluoride (Fl)	µg/L	<50, <100, <50000	1500[7]	--	--	--	<50	<50	<50000	<50	<50	<50000
Magnesium (Mg)	µg/L	<50	--	--	--	--	<50	<50	<50	<50	<50	<50
Potassium (K)	µg/L	<50	--	--	--	--	<50	<50	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	<100	<100	<100	<100	<100	<100
METALS [10]												
Aluminum (Al)	µg/L	<4	--	--	100[8]	75 [9]	<4	***13***	<4	***31***	***18***	***35***
Antimony (Sb)	µg/L	<6	--	6	--	20	<6	<6	<6	<6	<6	<6
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	<2	<2	<2	<2	<2	<2
Beryllium (Be)	µg/L	<1	--	--	--	11 [10]	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500 [11]	200	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058 [12]	0.1[13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9 [14]	8.9 [14]	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2 [15]	5 [16]	<2	<2	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	<10	<10	<10	<10	<10	<10
Lead (Pb)	µg/L	<1	10 [17]	--	1 [18]	3 [19]	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	<2	<2	<2	***3***	<2	<2
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25 [20]	25	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/L	<0.1	--	--	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	<5	<5	<5	<5	<5	<5
Thallium (Tl)	µg/L	<0.3, <4	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<0.1, <2	--	--	--	--	<2	<2	<2	<2	<2	<2
Tungsten (W)	µg/L	<0.1, <10	--	--	--	30	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2, <4	20	--	15	5	<2	<2	<2	<2	<2	<2
Vanadium (V)	µg/L	<0.1, <2	--	--	--	6	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<4, <5	--	--	30	20	<5	16	<5	51	<5	24
Zirconium (Zr)	µg/L	<0.1, <4	--	--	--	4	<4	<4	<4	<4	<4	<4
NUTRIENTS												
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	<50	<50	<50	<50	--	<50
Nitrite (NO_2^-)	µg/L as N		1000	--	60 [22]	--	<50	<50	<50	<50	--	<50
Ammonia (NH_3)	µg/L as N	<20	--	--	6980	--	<20	<20	--	<20	<20	<20
Un-Ionized Ammonia	µg/L as N	<20	--	--	19 [23]	20 [23]	<20	--	--	<20	<20	<20
NUTRIENTS												
Free Cyanide	µg/L	<2	200	--	5	5	<2	<2	<2	--	<2	<2
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--

Parameter [1]	Unit	Method Detection Limit	Ontario Drinking Water Standards[2][3]		Canadian Water Quality Guidelines [4]	Provincial Water Quality Objective [5]	Water Column Profile Surface Water Sampling Program - Duplicates				Blanks	
							BAG-LS1		MESO-LS2		Field Blank	Trip Blank
			MAC	IMAC			21-May-2013 (T)	21-May-2013 (T Dup)	28-May-2013 (T)	28-May-2013 (T Dup)	28-May-13	28-May-13
FIELD PARAMETERS												
pH	pH units	--	--	--	6.5-9	6.5-8.5	7.14	7.14	7.04	7.04	--	--
Temperature	degrees Celsius	--	--	--	--	-0.25	11.4	11.4	9.77	9.77	--	--
Conductivity	µS/cm	--	--	--	--	--	50	50	50	50	--	--
Dissolved Oxygen	µg/L	--	--	--	--	--	--	--	10870	10870	--	--
ORP	mV		--	--	--		204.3	204.3	113.8	113.8	--	--
GENERAL PARAMETERS												
pH	pH units	--	--	--	6.5-9	6.5-8.5	***6.49***	***6.43***	***6.36***	***6.35***	***5.13***	***5.01***
Alkalinity	µg/L as CaCO3	<5000	--	--	--	-25%	19000	19000	18000	20000	<5000	<5000
Acidity	µg/L as CaCO3	<5000	--	--	--	--	<5000	<5000	<5000	<5000	<5000	<5000
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	55	55	56	56	2	<2
Total Dissolved Solids (TDS)	µg/L	<20000	--	--	--	--	52000	56000	56000	84000	<20000	<20000
Total Suspended Solids (TSS)	µg/L	<1000, <10000	--	--	+5000-25000 [6]	--	<10000	<10000	<10000	<10000	<10000	<10000
Total Hardness	µg/L as CaCO3	<500	--	--	--	--	26100	26000	25600	24700	<500	<500
Dissolved Organic Carbon (DOC)	µg/L	<500	--	--	--	--	8900	8900	7900	7800	<500	<500
Total Organic Carbon (TOC)	µg/L	<500	--	--	--	--	9500	9300	8500	8500	<500	<500
Chemical Oxygen Demand (COD)	µg/L	<5000	--	--	--	--	--	--	--	--	--	--
MAJOR IONS												
Calcium (Ca)	µg/L	<50	--	--	--	--	8390	8320	7530	7300	90	<50
Magnesium (Mg)	µg/L	<50	--	--	--	--	1250	1260	1640	1570	<50	<50
Potassium (K)	µg/L	<50	--	--	--	--	330	370	360	330	<50	<50
Sodium (Na)	µg/L	<50	--	--	--	--	670	680	1370	1340	270	<50
Chloride (Cl)	µg/L	<100	--	--	--	--	240	270	1140	1120	<100	<100
Fluoride (Fl)	µg/L	<50	1500[7]	--	--	--	<50	<50	<50	<50	<50	<50
Sulphate (SO_4)	µg/L	<100	--	--	--	--	3020	3040	3240	3330	<100	<100
METALS												
Aluminum (Al)	µg/L	<4	--	--	100[8]	75[9]	53	47	57	54	5	<4
Antimony (Sb)	µg/L	<6	--	6	--	20	<3	<3	<3	<3	<3	<3
Arsenic (As)	µg/L	<3	--	25	5	5	<3	<3	<3	<3	<3	<3
Barium (Ba)	µg/L	<2	1000	--	--	--	5	5	4	4	<2	<2
Beryllium (Be)	µg/L	<1	--	--	--	11[10]	<1	<1	<1	<1	<1	<1
Boron (B)	µg/L	<10	--	5000	1500[11]	200	<10	<10	<10	<10	<10	<10
Cadmium (Cd)	µg/L	<0.1	--	5	0.058[12]	0.1[13]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<3	50	--	8.9[14]	8.9[14]	<3	<3	<3	<3	<3	<3
Cobalt (Co)	µg/L	<0.5	--	--	--	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper (Cu)	µg/L	<2	--	--	2[15]	5[16]	<2	<2	<2	<2	<2	<2
Iron (Fe)	µg/L	<10	--	--	300	300	<10	<10	20	30	<10	<10
Lead (Pb)	µg/L	<1	10[17]	--	1[18]	3[19]	<1	<1	<1	<1	<1	<1
Manganese (Mn)	µg/L	<2	--	--	--	--	29	29	8	10	<2	<2
Mercury (Hg)	µg/L	<0.10	1	--	0.026	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum (Mo)	µg/L	<2	--	--	73	40	<2	<2	<2	<2	<2	<2
Nickel (Ni)	µg/L	<3	--	--	25[20]	25	<3	<3	<3	<3	<3	<3
Selenium (Se)	µg/L	<4	10	--	1	100	<4	<4	<4	<4	<4	<4
Silver (Ag)	µg/L	<0.1	--	--	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Strontium (Sr)	µg/L	<5	--	--	--	--	19	19	15	18	<5	<5
Thallium (Tl)	µg/L	<0.3	--	--	0.8	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Titanium (Ti)	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2
Tungsten (W)	µg/L	<10	--	--	--	30	<10	<10	<10	<10	<10	<10
Uranium (U)	µg/L	<2	20	--	15	5	<2	<2	<2	<2	<2	<2
Vanadium (V)	µg/L	<2	--	--	--	6	<2	<2	<2	<2	<2	<2
Zinc (Zn)	µg/L	<5	--	--	30	20	<5	<5	<5	***48***	<5	<5
Zirconium (Zr)	µg/L	<4	--	--	--	4	<4	<4	<4	<4	<4	<4
OTHER PARAMETERS												
Total Cyanide	µg/L	<2	--	--	--	--	<2	<2	<2	<2	<2	<2
Free Cyanide	µg/L	<2	--	--	5	5	<2	<2	<2	<2	<2	<2
Phenols	µg/L	<1	--	--	--	5	<1	<1	1	<1	<1	<1
Sulphur (S)	µg/L	<50	--	--	--	--	--	--	--	--	--	--
NUTRIENTS												
Nitrate (NO_3^-)	µg/L as N	<50	10000	--	13000 [21]	--	160	150	100	70	<50	<50
Nitrite (NO_2^-)	µg/L as N	<50	1000	--	60 [22]	--	<50	<50	<50	<50	<50	<50
Total Ammonia (NH_3)	µg/L as N	<20	--	--	6980	--	70	70	<20	<20	<20	<20
Un-ioinized Ammonia (NH_3)	µg/L	--	--	--	19 [23]	20 [23]	--	--	<0.040	<0.040	--	--
Total Kjeldahl Nitrogen	µg/L	<100	--	--	--	--	--	--	--	--	--	--
Total Phosphorus (TP)	µg/L	<20	--	--	20	20	<20	20	<20	<20	<20	<20
Phosphate (PO_4)	µg/L as P	<100	--	--	--	--	--	--	--	--	--	--
Soluble Reactive Phosphorus	µg/L	<20	--	--	--	--	--	--	--	--	--	--
ORGANICS												
Oil and Grease (Animal/Vegetable)	µg/L	<500	--	--	--	--	<500	<500	<500	<500	<500	<500
Oil and Grease (Mineral)	µg/L	<500	--	--	--	--	<500	<500	<500	<500	<500	<500
Oil and Grease (Total)	µg/L	<500	--	--	--	physically non detect	<500	<500	<500	<500	<500	<500
Polychlorinated Biphenyls	µg/L	<0.1	--	0.003	--	0.001	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Naphthalene	µg/L	<0.2	--	--	1.1	7	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	µg/L	<0.2	--	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Acenaphthene	µg/L	<0.2	--	--	5.8	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Fluorene	µg/L	<0.2	--	--	3	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Phenanthrene	µg/L	<0.1	--	--	0.4	0.03	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	--	--	0.012	0.0008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.2	--	--	0.04	0.0008	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pyrene	µg/L	<0.2	--	--	0.025	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benz(a)anthracene	µg/L	<0.2	--	--	0.018	0.0004	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chrysene	µg/L	<0.1	--	--	--	0.0001	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b)fluoranthene	µg/L	<0.1	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	µg/L	<0.1	--	--	--	0.0002	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	µg/L	<0.01	--	--	0.015	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	µg/L	<0.2	--	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dibenz(a,h)anthracene	µg/L	<0.2	--	--	--	0.002	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(g,h,i)perylene	µg/L	<0.2	--	--	--	0.00002	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2-and 1-methyl Naphthalene	µg/L	<0.2	--	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
RADIONUCLIDES												
Radium-226	Bq/L	<0.001	0.6	--	--	1 [24]	--	--	--	--	--	--
MICROBIOLOGICAL												
Escherichia coli	CFU/100mL	1	--	--	--	--	2	ND	1	ND	ND	--
Total Coliforms	CFU/100mL	1	--	--	--	--	33	48	34	38	ND	--

Parameter	Unit	Blind Duplicate Sample Laboratory Comparison											
		CL		LCM		3D-c		CHLK		P-6		MESO-OUT	
		Testmark	AGAT	Testmark	AGAT	Testmark	AGAT	Testmark	AGAT	Testmark	AGAT	Testmark	AGAT
pH	pH	6.61	6.71	6.46	6.19	6.71	6.41	6.76	6.51	6.95	6.67	7.09	6.71
Total Suspended Solids	mg/L	0.5	<1	1.3	<1	<0.5	<1	<1	<1	0.75	2	<0.5	1
Electrical Conductivity	µS/cm	50.1	57	38.7	44	42.2	49	44.9	51	83.6	98	55.5	64
Aluminum	µg/L	91	118	51.9	64	63.9	64	74.7	70	74.3	65	50.5	45
Antimony	µg/L	<0.5	<6	<0.5	<6	<0.5	<6	<0.5	<6	<0.5	<6	<0.5	<6
Arsenic	µg/L	<1	<3	<1	<3	<1	<3	<1	<3	1.1	<3	<1	<3
Barium	µg/L	5.9	7	3.8	4	5.1	6	5.9	5	9.6	10	4.5	5
Beryllium	µg/L	<0.5	<1	<0.5	<1	<0.5	<1	<0.5	<1	<0.5	<1	<0.5	<1
Bismuth	µg/L	<1	--	<1	--	<1	--	<1	--	<1	--	<1	--
Boron	µg/L	<2	<10	<2	<10	<2	<10	<2	<10	<2	<10	<2	<10
Cadmium	µg/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
Calcium	µg/L	7070	8240	5490	6270	5590	6490	6260	7250	11500	12500	6830	8160
Cerium	µg/L	<1	--	<1	--	<1	--	<1	--	2.1	--	<1	--
Cesium	µg/L	<1	--	<1	--	<1	--	<1	--	<1	--	<1	--
Chromium	µg/L	<0.8	<3	<0.8	<3	<0.8	<3	<0.8	<3	<0.8	<3	<0.8	<3
Cobalt	µg/L	<0.1	<0.5	0.11	<0.5	<0.1	<0.5	<0.1	<0.5	0.75	0.7	<0.1	<0.5
Copper	µg/L	1.4	<2	<1	<2	<1	<2	<1	<2	1.2	<2	<1	<2
Europium	µg/L	<1	--	<1	--	<1	--	<1	--	<1	--	<1	--
Gallium	µg/L	<1	--	<1	--	<1	--	<1	--	<1	--	<1	--
Iron	µg/L	247	274	63	84	114	99	210	211	1990	1750	76	60
Lanthanum	µg/L	<1	--	<1	--	<1	--	<1	--	<1	--	<1	--
Lead	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Lithium	µg/L	<5	--	<5	--	<5	--	<5	--	<5	--	<5	--
Magnesium	µg/L	1100	1440	486	840	854	1180	924	1270	2270	2460	1530	1920
Manganese	µg/L	52	60	29.5	31	7.8	9	36	33	2060	1660	9	6
Mercury	µg/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
Molybdenum	µg/L	<1	<2	<1	<2	<1	<2	<1	<2	<1	<2	<1	<2
Nickel	µg/L	<1	<3	<1	<3	<1	<3	<1	<3	<1	<3	<1	<3
Niobium	µg/L	<1	--	<1	--	<1	--	<1	--	<1	--	<1	--
Potassium	µg/L	440	400	290	320	380	430	260	260	320	350	290	320
Rubidium	µg/L	1.2	--	<1	--	1.3	--	<1	--	1.1	--	1.2	--
Scandium	µg/L	<1	--	<1	--	<1	--	<1	--	<1	--	<1	--
Selenium	µg/L	<1	<4	<1	<4	<1	<4	<1	<4	<1	<4	<1	<4
Silicon	µg/L	2260	--	960	--	1670	--	2190	--	4190	--	1820	--
Silver	µg/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
Sodium	µg/L	1150	1010	770	800	1100	1100	860	880	1190	1110	1280	1330
Strontium	µg/L	17.5	21	13.2	14	14.5	14	15.6	14	27.5	23	17.7	18
Sulfur	µg/L	<800	--	<800	--	<800	--	<800	--	<800	--	<800	--
Tellurium	µg/L	<1	--	<1	--	<1	--	<1	--	<1	--	<1	--
Thallium	µg/L	<0.1	<0.3	<0.1	<0.3	<0.1	<0.3	<0.1	<0.3	<0.1	<0.3	<0.1	<0.3
Thorium	µg/L	<1	--	<1	--	<1	--	<1	--	<1	--	<1	--
Tin	µg/L	<1	--	<1	--	<1	--	<1	--	<1	--	<1	--
Titanium	µg/L	1.1	<2	<1	<2	<1	<2	1	<2	1.4	<2	<1	<2
Tungsten	µg/L	<1	<10	<1	<10	<1	<10	<1	<10	<1	<10	<1	<10
Uranium	µg/L	<1	<2	<1	<2	<1	<2	<1	<2	<1	<2	<1	<2
Vanadium	µg/L	<1	<2	<1	<2	<1	<2	<1	<2	<1	<2	<1	<2
Yttrium	µg/L	<1	--	<1	--	<1	--	<1	--	<1	--	<1	--
Zinc	µg/L	10.4	106	1.2	11	3.2	5	<1	<5	1.4	<5	<1	<5
Zirconium	µg/L	<1	<4	<1	<4	<1	<4	<1	<4	<1	<4	<1	<4

APPENDIX D
Table Notes for Quality Assurance/Quality Control Results

NOTES ON COMPARISONS TO WATER QUALITY STANDARDS AND GUIDELINES:

Values in GREY exceed the ODWSs MACs or IMACs
Values in ***bold italics*** exceed the CCME CWQGs
Values underlined exceed the PWQOs
-- indicates no value available

NOTES ON WATER QUALITY STANDARDS AND GUIDELINES:

(1) Total concentrations are assumed, unless stated otherwise.
(2) Ontario Regulation (O.Reg.) 169/03: Ontario Drinking Water Standards (ODWS). Last amendment: O.Reg. 327/08.
http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_030169_e.htm.
(3) MAC: Maximum Acceptable Concentration; IMAC: Interim Maximum Acceptable Concentration
(4) Canadian Council of Ministers of the Environment (CCME), Canadian Water Quality Guidelines (CWQGs) for the Protection of Aquatic Life, Update 7.1 (December 2007).
(5) Provincial Water Quality Objectives, Ministry of Environment and Energy (1994, Revised 1999).
(6) TSS (CWQG) Under clear flow: + 25 mg/L from background levels for any short-term exposure (e.g., 24-h period).
average + 5 mg/L from background levels for longer term exposures (24 h<discharge<30 d).
TSS (CWQG) Under high flow: + 25 mg/L from background levels at any time when background levels between 25 and 250 mg/L.
+ 10% of background levels when background is >250 mg/L.

(7) Where fluoride is added to drinking water, it is recommended that the concentration be adjusted to 0.5-0.8 mg/L the optimum level for control of tooth decay. Where supplies contain naturally occurring fluoride at levels higher than 1.5 mg/L but less than 2.4 mg/L the Ministry of Health and Long Term Care recommends an approach through local boards of health to raise public and professional awareness to control excessive exposure to fluoride from other sources.
(8) Aluminium guideline (CWQG) is calculated assuming a pH of 7.0.
(9) Aluminium guideline (PWQO) is calculated assuming a pH of 7.0.
(10) Beryllium guideline (PWQO) is calculated assuming a hardness of 30 mg/L as $CaCO_3$.
(11) Boron guideline (CWQG) is based on long-term exposure.
(12) Cadmium guideline (CWQG) is based on the Draft Scientific Criteria Document for the Development of the Canadian Water Quality Guidelines for the Protection of Aquatic Life: Cadmium, October 2012, and calculated using an assumed hardness of 30 mg/L as $CaCO_3$.
(13) Cadmium guideline (PWQO) is calculated assuming a hardness of 30 mg/L as $CaCO_3$.
(14) No guidelines for total chromium. Guidelines for trivalent chromium used: CWQG and PWQO guidelines for Cr(III) are both 8.9 µg/L.
(15) Copper guideline (CWQG) is calculated assuming a hardness of 30 mg/L as $CaCO_3$.
(16) Copper guideline (PWQO) is calculated assuming a hardness of 30 mg/L as $CaCO_3$.
(17) This standard applies to water at the point of consumption. Since lead is a component in some plumbing systems, first flush water may contain higher concentrations of lead than water that has been flushed for five minutes.
(18) Lead guideline (CWQG) is calculated assuming a hardness of 30 mg/L as $CaCO_3$.
(19) Lead guideline (PWQO) is calculated assuming a hardness of 30 mg/L as $CaCO_3$.
(20) Nickel guideline (CCME) is calculated assuming a hardness of 30 mg/L as $CaCO_3$.
(21) For protection from direct toxic effects, the guidelines do not consider indirect effects due to eutrophication.
(22) Guideline is expressed as µg nitrite-nitrogen/L. This value is equivalent to 197 µg nitrite/L.
(23) Un-ionized ammonia is calculated using the equation: $f = 1/(10^{pKa-pH} +1)$, where f is the fraction of NH_3; $pKa = 0.09018 + 2729.92/T$; T = ambient water temperature in Kelvin (K = °C + 273.16) (Emerson et al., 1975)
(24) The PWQO for Ra-226 is based on drinking water requirements, which are derived from dose-response relationships as recommended by the International Commission on Radiological Protection (ICRP) in Publication 26.

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Golder Associates

2011-2013 Surface Water Quality Baseline Results

Parameter	Unit	Method Detection Limit	Ontario Drinking Water Standards				Canadian Water Quality Guidelines	Provincial Water Quality Objective	BASELINE DATA SUMMARY STATISTICS: CHLK - Chester Lake Outlet					
			MAC	IMAC	AO	OG			Number of samples	Minimum	Maximum	Average	Median	95th percentile
FIELD PARAMETERS		50%												
pH	pH units	--	--	--	--	6.5−8.5	6.5-9	6.5-8.5	38	4.5	7.7	5.8	6.8	7.5
Temperature	degrees Celsius	--	--	--	--	--	--	-0.25	38	-0.080	26	8.9	4.0	24
Conductivity	µS/cm	--	--	--	--	--	--	--	38	19	48	29	27	45
Dissolved Oxygen (DO)	mg/L	--	--	--	--	--	--	--	38	5.5	15	9.8	9.4	14
ORP	mV	--	--	--	--	--	--	--	38	nc	nc	nc	nc	nc
GENERAL PARAMETERS														
Lab pH	pH units	--	--	--	--	6.5−8.5	6.5-9	6.5-8.5	38	6.0	7.4	6.5	6.7	7.3
Alkalinity	mg/L as CaCO3	<5	--	--	--	--	--	-25%	38	6.0	22	13	12	17
Acidity	mg/L as CaCO3	<5	--	--	--	--	--	--	38	2.5	2.5	2.50	2.5	2.50
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	--	--	38	27.0	52	40	40	50
Total Dissolved Solids (TDS)	mg/L	<20	--	--	500	--	--	--	38	10	70	45	46	62
Total Suspended Solids (TSS)	mg/L	<1, <10	--	--	--	--	+5-25	--	38	0.50	6.0	1.5	1.0	3.6
Total Hardness	mg/L as CaCO3	<0.5	--	--	--	--	--	--	38	13	26	19	19	25
Dissolved Organic Carbon (DOC)	mg/L	<0.5	--	--	5	--	--	--	38	8.3	17	13	13	16
Total Organic Carbon (TOC)	mg/L	<0.5	--	--	--	--	--	--	38	12.7	15.6	14.00	14.1	15.32
Chemical Oxygen Demand (COD)	mg/L	<5	--	--	--	--	--	--	38	nc	nc	nc	nc	nc
MAJOR IONS														
Calcium (Ca)	mg/L	<0.05	--	--	--	--	--	--	38	3.9	8.0	6.0	6.1	7.6
Magnesium (Mg)	mg/L	<0.05	--	--	--	--	--	--	38	0.73	1.4	1.1	1.0	1.4
Potassium (K)	mg/L	<0.05	--	--	--	--	--	--	38	0.18	0.37	0.29	0.29	0.36
Sodium (Na)	mg/L	<0.05	--	--	200	--	--	--	38	0.61	1.0	0.80	0.80	0.94
Chloride (Cl)	mg/L	<0.1	--	--	250	--	--	--	38	0.12	0.82	0.32	0.33	0.43
Fluoride (F)	mg/L	<0.05	1.5	--	--	--	--	--	38	0.025	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	<0.1	--	--	500	--	--	--	38	1.6	3.8	2.7	2.7	3.5
METALS														
Aluminum (Al) (Dissolved)	mg/L	<0.004	--	--	--	0.1	0.1	0.075	38	0.024	0.12	0.066	0.067	0.094
Antimony (Sb)	mg/L	<0.006	--	0.006	--	--	--	0.02	38	0.0005	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	<0.003	--	0.025	--	--	0.005	0.005	38	0.0015	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	<0.002	1	--	--	--	--	--	38	0.0030	0.0080	0.0046	0.0045	0.0060
Beryllium (Be)	mg/L	<0.001	--	--	--	--	--	0.011	38	0.00050	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	<0.01	--	5	--	--	1.5	0.2	38	0.0050	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	<0.0001	--	0.005	--	--	0.000058	0.0001	38	0.000010	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	<0.003	0.05	--	--	--	0.0089	0.0089	38	0.0015	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	<0.0005	--	--	--	--	--	0.0009	38	0.00025	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	<0.002	--	--	1	--	0.002	0.005	38	0.00050	0.0020	0.00084	0.0007	0.0017
Iron (Fe)	mg/L	<0.010	--	--	0.3	--	0.3	0.3	38	0.086	0.37	0.20	0.19	0.35
Lead (Pb)	mg/L	<0.001	0.01	--	--	--	0.001	0.003	38	0.00010	0.00050	0.00032	0.00040	0.00050
Manganese (Mn)	mg/L	<0.002	--	--	0.05	--	--	--	38	0.010	0.065	0.025	0.021	0.049
Mercury (Hg)	mg/L	<0.00010	0.001	--	--	--	0.000026	0.0002	38	0.00000095	0.000027	0.000004	0.000001	0.000011
Molybdenum (Mo)	mg/L	<0.002	--	--	--	--	0.073	0.04	38	0.0010	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	<0.003	--	--	--	--	0.025	0.025	38	0.0015	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	<0.004	0.01	--	--	--	0.001	0.1	38	0.000050	0.0003	0.0001	0.0001	0.0002
Silver (Ag)	mg/L	<0.0001	--	--	--	--	0.0001	0.0001	38	0.0000050	0.000020	0.000006	0.000005	0.000011
Strontium (Sr)	mg/L	<0.005	--	--	--	--	--	--	38	0.0080	0.025	0.013	0.013	0.017
Thallium (Tl)	mg/L	<0.0003	--	--	--	--	0.0008	0.0003	38	0.0000050	0.00002	0.00001	0.00001	0.00001
Titanium (Ti)	mg/L	<0.002	--	--	--	--	--	--	38	0.0010	0.0010	0.0010	0.0010	0.0010

2011-2013 Surface Water Quality Baseline Results

Parameter	Unit	Method Detection Limit	Ontario Drinking Water Standards				Canadian Water Quality Guidelines	Provincial Water Quality Objective	BASELINE DATA SUMMARY STATISTICS: CHLK - Chester Lake Outlet					
			MAC	IMAC	AO	OG			Number of samples	Minimum	Maximum	Average	Median	95th percentile
Tungsten (W)	mg/L	<0.01	--	--	--	--	--	0.03	38	0.0050	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	<0.002	0.02	--	--	--	0.015	0.005	38	0.0010	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	<0.002	--	--	--	--	--	0.006	38	0.0010	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	<0.005	--	--	5	--	0.03	0.02	38	0.0025	0.055	0.009	0.0025	0.036
Zirconium (Zr)	mg/L	<0.004	--	--	--	--	--	0.004	38	0.0020	0.0020	0.0020	0.0020	0.0020
Mercury (Hg) (Dissolved)	mg/L	<0.0000025	0.001	--	--	--	0.000026	0.0002	38	0.0000	0.0000	0.0000	0.0000	0.0000

Notes:
nc = Statistic is not calculated for that parameter

2011-2013 Surface Water Quality Baseline Results

Parameter	Unit	Method Detection Limit	Ontario Drinking Water Standards				Canadian Water Quality Guidelines	Provincial Water Quality Objective	BASELINE DATA SUMMARY STATISTICS: CM - Culvert Road Crossing of Clam Lake					
			MAC	IMAC	AO	OG								
MDL	50%								Number of samples	Minimum	Maximum	Average	Median	95th percentile
FIELD PARAMETERS														
pH	pH units	--	--	--	--	6.5−8.5	6.5-9	6.5-8.5	36	5.5	8.5	6.5	7.0	7.9
Temperature	degrees Celsius	--	--	--	--	--	--	-0.25	36	-1.0	27	8.4	3.1	25
Conductivity	µS/cm	--	--	--	--	--	--	--	36	20	58	30	25	48
Dissolved Oxygen (DO)	mg/L	--	--	--	--	--	--	--	36	1.2	19	9.1	8.8	16
ORP	mV	--	--	--	--	--	--	--	36	nc	nc	nc	nc	nc
GENERAL PARAMETERS														0
Lab pH	pH units	--	--	--	--	6.5−8.5	6.5-9	6.5-8.5	36	6.0	7.5	6.6	6.7	7.4
Alkalinity	mg/L as CaCO3	<5	--	--	--	--	--	-25%	36	9.0	23	14	14	19
Acidity	mg/L as CaCO3	<5	--	--	--	--	--	--	36	2.5	2.5	2.50	2.5	2.50
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	--	--	36	36.0	53	43	43	52
Total Dissolved Solids (TDS)	mg/L	<20	--	--	500	--	--	--	36	10	86	38	40	53
Total Suspended Solids (TSS)	mg/L	<1, <10	--	--	--	--	+5-25	--	36	0.50	6	2	2.0	4.9
Total Hardness	mg/L as CaCO3	<0.5	--	--	--	--	--	--	36	15	24	19	19	23
Dissolved Organic Carbon (DOC)	mg/L	<0.5	--	--	5	--	--	--	36	5.7	13	8.5	8.4	11.0
Total Organic Carbon (TOC)	mg/L	<0.5	--	--	--	--	--	--	36	7.7	13.7	10.00	9.4	13.53
Chemical Oxygen Demand (COD)	mg/L	<5	--	--	--	--	--	--	36	nc	nc	nc	nc	nc
MAJOR IONS														nc
Calcium (Ca)	mg/L	<0.05	--	--	--	--	--	--	36	4.9	7.9	6.2	6.3	7.4
Magnesium (Mg)	mg/L	<0.05	--	--	--	--	--	--	36	0.67	1.1	0.91	0.91	1.07
Potassium (K)	mg/L	<0.05	--	--	--	--	--	--	36	0.27	0.93	0.39	0.37	0.46
Sodium (Na)	mg/L	<0.05	--	--	200	--	--	--	36	0.55	0.83	0.69	0.69	0.81
Chloride (Cl)	mg/L	<0.1	--	--	250	--	--	--	36	0.05	0.48	0.32	0.34	0.41
Fluoride (F)	mg/L	<0.05	1.5	--	--	--	--	--	36	0.025	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	<0.1	--	--	500	--	--	--	36	2.0	4.9	3.4	3.3	4.6
METALS														nc
Aluminum (Al) (Dissolved)	mg/L	<0.004	--	--	--	0.1	0.1	0.075	36	0.0040	0.078	0.021	0.017	0.051
Antimony (Sb)	mg/L	<0.006	--	0.006	--	--	--	0.02	36	0.0005	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	<0.003	--	0.025	--	--	0.005	0.005	36	0.0015	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	<0.002	1	--	--	--	--	--	36	0.0030	0.0060	0.0043	0.0040	0.0060
Beryllium (Be)	mg/L	<0.001	--	--	--	--	--	0.011	36	0.00050	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	<0.01	--	5	--	--	1.5	0.2	36	0.0050	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	<0.0001	--	0.005	--	--	0.000058	0.0001	36	0.000010	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	<0.003	0.05	--	--	--	0.0089	0.0089	36	0.0015	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	<0.0005	--	--	--	--	--	0.0009	36	0.00025	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	<0.002	--	--	1	--	0.002	0.005	36	0.0006	0.0027	0.0014	0.0013	0.0021
Iron (Fe)	mg/L	<0.010	--	--	0.3	--	0.3	0.3	36	0.0050	0.29	0.086	0.061	0.239
Lead (Pb)	mg/L	<0.001	0.01	--	--	--	0.001	0.003	36	0.000050	0.00050	0.00030	0.00050	0.00050
Manganese (Mn)	mg/L	<0.002	--	--	0.05	--	--	--	36	0.0030	0.058	0.017	0.013	0.040
Mercury (Hg)	mg/L	<0.00010	0.001	--	--	--	0.000026	0.0002	36	0.00000095	0.000004	0.000001	0.000001	0.000004
Molybdenum (Mo)	mg/L	<0.002	--	--	--	--	0.073	0.04	36	0.0010	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	<0.003	--	--	--	--	0.025	0.025	36	0.0015	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	<0.004	0.01	--	--	--	0.001	0.1	36	0.000050	0.0006	0.0001	0.0001	0.0004
Silver (Ag)	mg/L	<0.0001	--	--	--	--	0.0001	0.0001	36	0.0000050	0.00001	0.000005	0.000005	0.000005
Strontium (Sr)	mg/L	<0.005	--	--	--	--	--	--	36	0.009	0.017	0.013	0.013	0.016
Thallium (Tl)	mg/L	<0.0003	--	--	--	--	0.0008	0.0003	36	0.0000050	0.00003	0.00001	0.00001	0.00002
Titanium (Ti)	mg/L	<0.002	--	--	--	--	--	--	36	0.0010	0.0030	0.0011	0.0010	0.0013
Tungsten (W)	mg/L	<0.01	--	--	--	--	--	0.03	36	0.0050	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	<0.002	0.02	--	--	--	0.015	0.005	36	0.0010	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	<0.002	--	--	--	--	--	0.006	36	0.0010	0.0010	0.0010	0.0010	0.0010

2011-2013 Surface Water Quality Baseline Results

Parameter	Unit	Method Detection Limit	Ontario Drinking Water Standards				Canadian Water Quality Guidelines	Provincial Water Quality Objective	BASELINE DATA SUMMARY STATISTICS: CM - Culvert Road Crossing of Clam Lake					
			MAC	IMAC	AO	OG			Number of samples	Minimum	Maximum	Average	Median	95th percentile
MDL	50%													
Zinc (Zn)	mg/L	<0.005	--	--	5	--	0.03	0.02	36	0.0025	0.0680	0.0057	0.0025	0.0105
Zirconium (Zr)	mg/L	<0.004	--	--	--	--	--	0.004	36	0.0020	0.0020	0.0020	0.0020	0.0020
Mercury (Hg) (Dissolved)	mg/L	<0.0000025	0.001	--	--	--	0.000026	0.0002	36	0.0000	0.0000	0.0000	0.0000	0.0000

Notes:

nc = Not calculated

2011-2013 Surface Water Quality Baseline Results

Parameter	Unit	Method Detection Limit	Ontario Drinking Water Standards				Canadian Water Quality Guidelines	Provincial Water Quality Objective	BASELINE DATA SUMMARY STATISTICS: 3D-C - Three Ducks Lakes, upper basin outlet					
			MAC	IMAC	AO	OG			Number of samples	Minimum	Maximum	Average	Median	95th percentile
FIELD PARAMETERS		**50%**												
pH	pH units	--	--	--	--	6.5−8.5	6.5-9	6.5-8.5	8	nc	nc	nc	nc	nc
Temperature	degrees Celsius	--	--	--	--	--	--	-0.25	8	nc	nc	nc	nc	nc
Conductivity	µS/cm	--	--	--	--	--	--	--	8	nc	nc	nc	nc	nc
Dissolved Oxygen (DO)	mg/L	--	--	--	--	--	--	--	8	nc	nc	nc	nc	nc
ORP	mV	--	--	--	--	--	--	--	8	nc	nc	nc	nc	nc
GENERAL PARAMETERS														
Lab pH	pH units	--	--	--	--	6.5−8.5	6.5-9	6.5-8.5	8	6.7	7.4	7.2	7.3	7.4
Alkalinity	mg/L as CaCO3	<5	--	--	--	--	--	-25%	8	11.0	23	16	16	22.3
Acidity	mg/L as CaCO3	<5	--	--	--	--	--	--	8	2.5	2.5	2.50	2.5	2.5
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	--	--	8	34.0	55	43	43	52.2
Total Dissolved Solids (TDS)	mg/L	<20	--	--	500	--	--	--	8	30	60	47	50	57.2
Total Suspended Solids (TSS)	mg/L	<1, <10	--	--	--	--	+5-25	--	8	0.50	2.0	0.9	1.0	1.7
Total Hardness	mg/L as CaCO3	<0.5	--	--	--	--	--	--	8	16	26	19	19	24.8
Dissolved Organic Carbon (DOC)	mg/L	<0.5	--	--	5	--	--	--	8	10.3	13	12	12	13.3
Total Organic Carbon (TOC)	mg/L	<0.5	--	--	--	--	--	--	8	10.8	14.3	12.89	13.3	14.2
Chemical Oxygen Demand (COD)	mg/L	<5	--	--	--	--	--	--	8	nc	nc	nc	nc	nc
MAJOR IONS														
Calcium (Ca)	mg/L	<0.05	--	--	--	--	--	--	8	4.9	8.2	6.0	5.9	7.8
Magnesium (Mg)	mg/L	<0.05	--	--	--	--	--	--	8	0.85	1.4	1.1	1.1	1.3
Potassium (K)	mg/L	<0.05	--	--	--	--	--	--	8	0.29	0.36	0.31	0.30	0.4
Sodium (Na)	mg/L	<0.05	--	--	200	--	--	--	8	0.71	1.0	0.81	0.74	1.0
Chloride (Cl)	mg/L	<0.1	--	--	250	--	--	--	8	0.28	0.45	0.37	0.37	0.4
Fluoride (F)	mg/L	<0.05	1.5	--	--	--	--	--	8	0.025	0.025	0.0	0.025	0.0
Sulphate (SO_4)	mg/L	<0.1	--	--	500	--	--	--	8	1.910	2.5	2.3	2.4	2.5
METALS														
Aluminum (Al) (Dissolved)	mg/L	<0.004	--	--	--	0.1	0.1	0.075	8	0.035	0.096	0.062	0.057	0.094
Antimony (Sb)	mg/L	<0.006	--	0.006	--	--	--	0.02	8	0.0005	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	<0.003	--	0.025	--	--	0.005	0.005	8	0.0015	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	<0.002	1	--	--	--	--	--	8	0.0040	0.0060	0.0048	0.0050	0.0057
Beryllium (Be)	mg/L	<0.001	--	--	--	--	--	0.011	8	0.00050	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	<0.01	--	5	--	--	1.5	0.2	8	0.00500	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	<0.0001	--	0.005	--	--	0.000058	0.0001	8	0.000010	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	<0.003	0.05	--	--	--	0.0089	0.0089	8	0.001500	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	<0.0005	--	--	--	--	--	0.0009	8	0.00025	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	<0.002	--	--	1	--	0.002	0.005	8	0.00100	0.0022	0.0013	0.0012	0.0019
Iron (Fe)	mg/L	<0.010	--	--	0.3	--	0.3	0.3	8	0.0790	0.25	0.16	0.13	0.24
Lead (Pb)	mg/L	<0.001	0.01	--	--	--	0.001	0.003	8	0.000050	0.00040	0.00013	0.00010	0.00033
Manganese (Mn)	mg/L	<0.002	--	--	0.05	--	--	--	8	0.00900	0.026	0.016	0.015	0.025
Mercury (Hg)	mg/L	<0.00010	0.001	--	--	--	0.000026	0.0002	8	0.00000095	0.000004	0.000001	0.000001	0.000003
Molybdenum (Mo)	mg/L	<0.002	--	--	--	--	0.073	0.04	8	0.001000	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	<0.003	--	--	--	--	0.025	0.025	8	0.0015	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	<0.004	0.01	--	--	--	0.001	0.1	8	0.000050	0.0003	0.0001	0.0001	0.0003
Silver (Ag)	mg/L	<0.0001	--	--	--	--	0.0001	0.0001	8	0.0000050	0.000020	0.000007	0.000005	0.000015
Strontium (Sr)	mg/L	<0.005	--	--	--	--	--	--	8	0.011000	0.015	0.013	0.013	0.014
Thallium (Tl)	mg/L	<0.0003	--	--	--	--	0.0008	0.0003	8	0.0000050	0.00001	0.00001	0.00001	0.00001
Titanium (Ti)	mg/L	<0.002	--	--	--	--	--	--	8	0.00100	0.0010	0.0010	0.0010	0.0010

2011-2013 Surface Water Quality Baseline Results

Parameter	Unit	Method Detection Limit	Ontario Drinking Water Standards				Canadian Water Quality Guidelines	Provincial Water Quality Objective	BASELINE DATA SUMMARY STATISTICS: 3D-C - Three Ducks Lakes, upper basin outlet					
			MAC	IMAC	AO	OG			Number of samples	Minimum	Maximum	Average	Median	95th percentile
Tungsten (W)	mg/L	<0.01	--	--	--	--	--	0.03	8	0.0050	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	<0.002	0.02	--	--	--	0.015	0.005	8	0.0010	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	<0.002	--	--	--	--	--	0.006	8	0.0010	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	<0.005	--	--	5	--	0.03	0.02	8	0.0025	0.0050	0.0028	0.0025	0.0041
Zirconium (Zr)	mg/L	<0.004	--	--	--	--	--	0.004	8	0.0020	0.0020	0.0020	0.0020	0.0020
Mercury (Hg) (Dissolved)	mg/L	<0.0000025	0.001	--	--	--	0.000026	0.0002	8	0.0000	0.0000	0.0000	0.0000	0.0000

Notes:

nc = Not calculated

2011-2013 Surface Water Quality Baseline Results

Parameter	Unit	Method Detection Limit	Ontario Drinking Water Standards				Canadian Water Quality Guidelines	Provincial Water Quality Objective	BASELINE DATA SUMMARY STATISTICS: P-4 - Inflow to Mollie River					
			MAC	IMAC	AO	OG			Number of samples	Minimum	Maximum	Average	Median	95th percentile
FIELD PARAMETERS		50%												
pH	pH units	--	--	--	--	6.5−8.5	6.5-9	6.5-8.5	13	5.6	7.0	6.06	6.4	6.8675
Temperature	degrees Celsius	--	--	--	--	--	--	-0.25	13	nc	17.0	5.08	1.65	14.87
Conductivity	µS/cm	--	--	--	--	--	--	--	13	14.0	32.3	22.83	22.5	31.13
Dissolved Oxygen (DO)	mg/L	--	--	--	--	--	--	--	13	6.5	12.9	10.80	11.905	12.784
ORP	mV	--	--	--	--	--	--	--	13	nc	nc	nc	nc	nc
GENERAL PARAMETERS														
Lab pH	pH units	--	--	--	--	6.5−8.5	6.5-9	6.5-8.5	13	5.7	7.1	6.36	6.66	7.074
Alkalinity	mg/L as CaCO3	<5	--	--	--	--	--	-25%	13	2.5	13.0	9.04	10	12.4
Acidity	mg/L as CaCO3	<5	--	--	--	--	--	--	13	2.5	2.5	2.50	2.5	2.5
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	--	--	13	8.0	49.0	31.85	33	43
Total Dissolved Solids (TDS)	mg/L	<20	--	--	500	--	--	--	13	44.0	82.0	63.54	62	79.6
Total Suspended Solids (TSS)	mg/L	<1, <10	--	--	--	--	+5-25	--	13	0.5	4.0	1.13	0.5	4
Total Hardness	mg/L as CaCO3	<0.5	--	--	--	--	--	--	13	13.6	25.2	17.95	17.2	23.04
Dissolved Organic Carbon (DOC)	mg/L	<0.5	--	--	5	--	--	--	13	13.3	26.3	20.48	21.2	24.98
Total Organic Carbon (TOC)	mg/L	<0.5	--	--	--	--	--	--	13	21.9	25.7	23.57	22.2	25.67
Chemical Oxygen Demand (COD)	mg/L	<5	--	--	--	--	--	--	13	nc	nc	nc	nc	nc
MAJOR IONS														
Calcium (Ca)	mg/L	<0.05	--	--	--	--	--	--	13	4.2	8.0	5.55	5.24	7.182
Magnesium (Mg)	mg/L	<0.05	--	--	--	--	--	--	13	0.8	1.3	0.99	0.99	1.238
Potassium (K)	mg/L	<0.05	--	--	--	--	--	--	13	0.1	0.5	0.24	0.213	0.4272
Sodium (Na)	mg/L	<0.05	--	--	200	--	--	--	13	0.7	1.0	0.82	0.81	0.9724
Chloride (Cl)	mg/L	<0.1	--	--	250	--	--	--	13	0.1	0.3	0.25	0.26	0.328
Fluoride (F)	mg/L	<0.05	1.5	--	--	--	--	--	13	0.0	0.0	0.03	0.025	0.025
Sulphate (SO_4)	mg/L	<0.1	--	--	500	--	--	--	13	1.3	4.0	2.24	2.04	3.322
METALS														
Aluminum (Al) (Dissolved)	mg/L	<0.004	--	--	--	0.1	0.1	0.075	13	0.1	0.2	0.14	0.138	0.1608
Antimony (Sb)	mg/L	<0.006	--	0.006	--	--	--	0.02	13	0.0	0.0	0.00	0.0005	0.0005
Arsenic (As)	mg/L	<0.003	--	0.025	--	--	0.005	0.005	13	0.0	0.0	0.00	0.0015	0.0015
Barium (Ba)	mg/L	<0.002	1	--	--	--	--	--	13	0.0	0.0	0.01	0.005	0.0064
Beryllium (Be)	mg/L	<0.001	--	--	--	--	--	0.011	13	0.0	0.0	0.00	0.0005	0.0005
Boron (B)	mg/L	<0.01	--	5	--	--	1.5	0.2	13	0.0	0.0	0.01	0.005	0.005
Cadmium (Cd)	mg/L	<0.0001	--	0.005	--	--	0.000058	0.0001	13	0.0	0.0	0.00	0.00001	0.0000155
Chromium (Cr)	mg/L	<0.003	0.05	--	--	--	0.0089	0.0089	13	0.0	0.0	0.00	0.0015	0.0015
Cobalt (Co)	mg/L	<0.0005	--	--	--	--	--	0.0009	13	0.0	0.0	0.00	0.00025	0.00025
Copper (Cu)	mg/L	<0.002	--	--	1	--	0.002	0.005	13	0.0	0.0	0.00	0.00065	0.001615
Iron (Fe)	mg/L	<0.010	--	--	0.3	--	0.3	0.3	13	0.2	0.7	0.34	0.296	0.5624
Lead (Pb)	mg/L	<0.001	0.01	--	--	--	0.001	0.003	13	0.0	0.0	0.00	0.0003	0.0005
Manganese (Mn)	mg/L	<0.002	--	--	0.05	--	--	--	13	0.0	0.1	0.03	0.021	0.0584
Mercury (Hg)	mg/L	<0.00010	0.001	--	--	--	0.000026	0.0002	13	0.0	0.0	0.00	0.00000095	0.000008405
Molybdenum (Mo)	mg/L	<0.002	--	--	--	--	0.073	0.04	13	0.0	0.0	0.00	0.001	0.001
Nickel (Ni)	mg/L	<0.003	--	--	--	--	0.025	0.025	13	0.0	0.0	0.00	0.0015	0.0015
Selenium (Se)	mg/L	<0.004	0.01	--	--	--	0.001	0.1	13	0.0	0.0	0.00	0.00005	0.00105
Silver (Ag)	mg/L	<0.0001	--	--	--	--	0.0001	0.0001	13	0.0	0.0	0.00	0.000005	0.00001
Strontium (Sr)	mg/L	<0.005	--	--	--	--	--	--	13	0.0	0.0	0.01	0.011	0.019
Thallium (Tl)	mg/L	<0.0003	--	--	--	--	0.0008	0.0003	13	0.0	0.0	0.00	0.000005	0.0000255

2011-2013 Surface Water Quality Baseline Results

Parameter	Unit	Method Detection Limit	Ontario Drinking Water Standards				Canadian Water Quality Guidelines	Provincial Water Quality Objective	BASELINE DATA SUMMARY STATISTICS: P-4 - Inflow to Mollie River					
			MAC	IMAC	AO	OG			Number of samples	Minimum	Maximum	Average	Median	95th percentile
Titanium (Ti)	mg/L	<0.002	--	--	--	--	--	--	13	0.0	0.0	0.00	0.001	0.003
Tungsten (W)	mg/L	<0.01	--	--	--	--	--	0.03	13	0.0	0.0	0.01	0.005	0.005
Uranium (U)	mg/L	<0.002	0.02	--	--	--	0.015	0.005	13	0.0	0.0	0.00	0.001	0.001
Vanadium (V)	mg/L	<0.002	--	--	--	--	--	0.006	13	0.0	0.0	0.00	0.001	0.001
Zinc (Zn)	mg/L	<0.005	--	--	5	--	0.03	0.02	13	0.0	0.0	0.01	0.0025	0.0156
Zirconium (Zr)	mg/L	<0.004	--	--	--	--	--	0.004	13	0.0	0.0	0.00	0.002	0.002
Mercury (Hg) (Dissolved)	mg/L	<0.0000025	0.001	--	--	--	0.000026	0.0002	13	0.0	0.0	0.00	0.00000125	0.00000125

Notes:

nc = Not calculated

2011-2013 Surface Water Quality Results

Parameter	Unit	Method Detection Limit	Ontario Drinking Water Standards				Canadian Water Quality Guidelines	Provincial Water Quality Objective	BASELINE DATA SUMMARY STATISTICS: LCM - Little Clam Lake Outlet					
			MAC	IMAC	AO	OG			Number of samples	Minimum	Maximum	Average	Median	95th percentile
FIELD PARAMETERS		**50%**												
pH	pH units	--	--	--	--	6.5−8.5	6.5-9	6.5-8.5	33	4.2	7.6	5.4	6.5	7.5
Temperature	degrees Celsius	--	--	--	--	--	--	-0.25	33	-1.5	22	8.4	6.4	21
Conductivity	µS/cm	--	--	--	--	--	--	--	33	13	42	27	27	42
Dissolved Oxygen (DO)	mg/L	--	--	--	--	--	--	--	33	2.6	16	7.3	6.9	13.2
ORP	mV	--	--	--	--	--	--	--	33	nc	nc	nc	nc	nc
GENERAL PARAMETERS														0
Lab pH	pH units	--	--	--	--	6.5−8.5	6.5-9	6.5-8.5	33	5.7	7.3	6.3	6.5	7.2
Alkalinity	mg/L as CaCO3	<5	--	--	--	--	--	-25%	33	2.5	30	11	11	17
Acidity	mg/L as CaCO3	<5	--	--	--	--	--	--	33	2.5	2.5	2.50	2.5	2.50
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	--	--	33	25	64	37	36	46
Total Dissolved Solids (TDS)	mg/L	<20	--	--	500	--	--	--	33	10	94	45	42	82
Total Suspended Solids (TSS)	mg/L	<1, <10	--	--	--	--	+5-25	--	33	0.50	11.0	1.5	0.50	5.4
Total Hardness	mg/L as CaCO3	<0.5	--	--	--	--	--	--	33	10.9	28	18	16	27
Dissolved Organic Carbon (DOC)	mg/L	<0.5	--	--	5	--	--	--	33	7.5	34	13	11	25
Total Organic Carbon (TOC)	mg/L	<0.5	--	--	--	--	--	--	33	9.3	19.8	11.89	10.7	17.18
Chemical Oxygen Demand (COD)	mg/L	<5	--	--	--	--	--	--	33	nc	nc	nc	nc	nc
MAJOR IONS														nc
Calcium (Ca)	mg/L	<0.05	--	--	--	--	--	--	33	3.6	10	6	5.4	9.1
Magnesium (Mg)	mg/L	<0.05	--	--	--	--	--	--	33	0.47	1	1	0.68	1.01
Potassium (K)	mg/L	<0.05	--	--	--	--	--	--	33	0.025	1	0	0.28	0.53
Sodium (Na)	mg/L	<0.05	--	--	200	--	--	--	33	0.60	1	1	0.72	0.85
Chloride (Cl)	mg/L	<0.1	--	--	250	--	--	--	33	0.11	0.43	0.29	0.30	0.40
Fluoride (F)	mg/L	<0.05	1.5	--	--	--	--	--	33	0.025	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	<0.1	--	--	500	--	--	--	33	0.16	4.1	2.4	2.8	3.6
METALS														nc
Aluminum (Al) (Dissolved)	mg/L	<0.004	--	--	--	0.1	0.1	0.075	33	0.016	0.12	0.057	0.052	0.104
Antimony (Sb)	mg/L	<0.006	--	0.006	--	--	--	0.02	33	0.0005	0.001	0.00	0.0005	0.0005
Arsenic (As)	mg/L	<0.003	--	0.025	--	--	0.005	0.005	33	0.0015	0.002	0.002	0.0015	0.0015
Barium (Ba)	mg/L	<0.002	1	--	--	--	--	--	33	0.0020	0.0080	0.0044	0.00400	0.0074
Beryllium (Be)	mg/L	<0.001	--	--	--	--	--	0.011	33	0.00050	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	<0.01	--	5	--	--	1.5	0.2	33	0.0050	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	<0.0001	--	0.005	--	--	0.000058	0.0001	33	0.000010	0.000020	0.000011	0.0000100	0.000012
Chromium (Cr)	mg/L	<0.003	0.05	--	--	--	0.0089	0.0089	33	0.0015	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	<0.0005	--	--	--	--	--	0.0009	33	0.00025	0.0011	0.00035	0.00025	0.00090
Copper (Cu)	mg/L	<0.002	--	--	1	--	0.002	0.005	33	0.00040	0.0015	0.00074	0.0007	0.0012
Iron (Fe)	mg/L	<0.010	--	--	0.3	--	0.3	0.3	33	0.020	0.70	0.14	0.076	0.44
Lead (Pb)	mg/L	<0.001	0.01	--	--	--	0.001	0.003	33	0.000050	0.00050	0.00033	0.00050	0.00050
Manganese (Mn)	mg/L	<0.002	--	--	0.05	--	--	--	33	0.0030	0.20	0.038	0.011	0.149
Mercury (Hg)	mg/L	<0.00010	0.001	--	--	--	0.000026	0.0002	33	0.00000095	0.000012	0.000002	0.000001	0.000006
Molybdenum (Mo)	mg/L	<0.002	--	--	--	--	0.073	0.04	33	0.0010	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	<0.003	--	--	--	--	0.025	0.025	33	0.0015	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	<0.004	0.01	--	--	--	0.001	0.1	33	0.000050	0.0005	0.0001	0.0001	0.0004
Silver (Ag)	mg/L	<0.0001	--	--	--	--	0.0001	0.0001	33	0.0000050	0.000005	0.000005	0.000005	0.000005
Strontium (Sr)	mg/L	<0.005	--	--	--	--	--	--	33	0.0080	0.030	0.014	0.013	0.019
Thallium (Tl)	mg/L	<0.0003	--	--	--	--	0.0008	0.0003	33	0.0000050	0.00003	0.00001	0.00001	0.00001

2011-2013 Surface Water Quality Results

Parameter	Unit	Method Detection Limit	Ontario Drinking Water Standards				Canadian Water Quality Guidelines	Provincial Water Quality Objective	BASELINE DATA SUMMARY STATISTICS: LCM - Little Clam Lake Outlet					
			MAC	IMAC	AO	OG			Number of samples	Minimum	Maximum	Average	Median	95th percentile
Titanium (Ti)	mg/L	<0.002	--	--	--	--	--	--	33	0.0010	0.0080	0.0012	0.0010	0.0010
Tungsten (W)	mg/L	<0.01	--	--	--	--	--	0.03	33	0.0050	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	<0.002	0.02	--	--	--	0.015	0.005	33	0.0010	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	<0.002	--	--	--	--	--	0.006	33	0.0010	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	<0.005	--	--	5	--	0.03	0.02	33	0.0025	0.014	0.0042	0.0025	0.0110
Zirconium (Zr)	mg/L	<0.004	--	--	--	--	--	0.004	33	0.0020	0.0020	0.0020	0.0020	0.0020
Mercury (Hg) (Dissolved)	mg/L	<0.0000025	0.001	--	--	--	0.000026	0.0002	33	0.0000	0.0000	0.0000	0.0000	0.0000

Notes:

nc = Not calculated

2011-2013 Surface Water Quality Results

Parameter	Unit	Method Detection Limit	Ontario Drinking Water Standards				Canadian Water Quality Guidelines	Provincial Water Quality Objective	BASELINE DATA SUMMARY STATISTICS: ML - Moore Lake					
			MAC	IMAC	AO	OG			Number of samples	Minimum	Maximum	Average	Median	95th percentile
FIELD PARAMETERS		50%												
pH	pH units	--	--	--	--	6.5-8.5	6.5-9	6.5-8.5	10	nc	nc	nc	nc	nc
Temperature	degrees Celsius	--	--	--	--	--	--	-0.25	10	nc	nc	nc	nc	nc
Conductivity	µS/cm	--	--	--	--	--	--	--	10	nc	nc	nc	nc	nc
Dissolved Oxygen (DO)	mg/L	--	--	--	--	--	--	--	10	nc	nc	nc	nc	nc
ORP	mV	--	--	--	--	--	--	--	10	nc	nc	nc	nc	nc
GENERAL PARAMETERS														
Lab pH	pH units	--	--	--	--	6.5-8.5	6.5-9	6.5-8.5	10	6.6	7.3	7.06	7.19	7.3065
Alkalinity	mg/L as CaCO3	<5	--	--	--	--	--	-25%	10	12.0	17.0	14.90	16	16.55
Acidity	mg/L as CaCO3	<5	--	--	--	--	--	--	10	2.5	2.5	2.50	2.5	2.5
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	--	--	10	35	45	39.50	40	43.2
Total Dissolved Solids (TDS)	mg/L	<20	--	--	500	--	--	--	10	26	52	40.20	40	50.2
Total Suspended Solids (TSS)	mg/L	<1, <10	--	--	--	--	+5-25	--	10	0.5	30.0	3.95	0.75	17.4
Total Hardness	mg/L as CaCO3	<0.5	--	--	--	--	--	--	10	16	21	18.04	17.8	20.2
Dissolved Organic Carbon (DOC)	mg/L	<0.5	--	--	5	--	--	--	10	9	13	10.70	10.1	12.92
Total Organic Carbon (TOC)	mg/L	<0.5	--	--	--	--	--	--	10	9	13	11.00	10.55	13.02
Chemical Oxygen Demand (COD)	mg/L	<5	--	--	--	--	--	--	10	nc	nc	nc	nc	nc
MAJOR IONS														
Calcium (Ca)	mg/L	<0.05	--	--	--	--	--	--	10	5.1	6.5	5.60	5.465	6.305
Magnesium (Mg)	mg/L	<0.05	--	--	--	--	--	--	10	0.86	1.2	0.98	0.9805	1.134
Potassium (K)	mg/L	<0.05	--	--	--	--	--	--	10	0.14	0.22	0.17	0.162	0.20425
Sodium (Na)	mg/L	<0.05	--	--	200	--	--	--	10	0.58	0.69	0.64	0.6265	0.68435
Chloride (Cl)	mg/L	<0.1	--	--	250	--	--	--	10	0.14	0.29	0.24	0.245	0.2855
Fluoride (F)	mg/L	<0.05	1.5	--	--	--	--	--	10	0.025	0.125	0.04	0.025	0.08
Sulphate (SO_4)	mg/L	<0.1	--	--	500	--	--	--	10	2.3	3.3	2.71	2.605	3.237
METALS														
Aluminum (Al) (Dissolved)	mg/L	<0.004	--	--	--	0.1	0.1	0.075	10	0.024	0.05	0.04	0.037	0.05355
Antimony (Sb)	mg/L	<0.006	--	0.006	--	--	--	0.02	10	0.0005	0.0005	0.00	0.0005	0.0005
Arsenic (As)	mg/L	<0.003	--	0.025	--	--	0.005	0.005	10	0.0015	0.0015	0.00	0.0015	0.0015
Barium (Ba)	mg/L	<0.002	1	--	--	--	--	--	10	0.0030	0.0040	0.00	0.0035	0.004
Beryllium (Be)	mg/L	<0.001	--	--	--	--	--	0.011	10	0.00050	0.00050	0.00	0.0005	0.0005
Boron (B)	mg/L	<0.01	--	5	--	--	1.5	0.2	10	0.0050	0.0050	0.01	0.005	0.005
Cadmium (Cd)	mg/L	<0.0001	--	0.005	--	--	0.000058	0.0001	10	0.000010	0.000010	0.00	0.00001	0.00001
Chromium (Cr)	mg/L	<0.003	0.05	--	--	--	0.0089	0.0089	10	0.0015	0.0015	0.00	0.0015	0.0015
Cobalt (Co)	mg/L	<0.0005	--	--	--	--	--	0.0009	10	0.00025	0.00025	0.00	0.00025	0.00025
Copper (Cu)	mg/L	<0.002	--	--	1	--	0.002	0.005	10	0.00060	0.0012	0.00	0.0007	0.001065
Iron (Fe)	mg/L	<0.010	--	--	0.3	--	0.3	0.3	10	0.01	0.16	0.08	0.0565	0.1536
Lead (Pb)	mg/L	<0.001	0.01	--	--	--	0.001	0.003	10	0.00005	0.00005	0.00	0.00005	0.00005
Manganese (Mn)	mg/L	<0.002	--	--	0.05	--	--	--	10	0.005	0.030	0.01	0.014	0.02595
Mercury (Hg)	mg/L	<0.00010	0.001	--	--	--	0.000026	0.0002	10	0.00000095	0.000007	0.00	0.00000095	0.00000615
Molybdenum (Mo)	mg/L	<0.002	--	--	--	--	0.073	0.04	10	0.0010	0.0010	0.00	0.001	0.001
Nickel (Ni)	mg/L	<0.003	--	--	--	--	0.025	0.025	10	0.0015	0.0015	0.00	0.0015	0.0015
Selenium (Se)	mg/L	<0.004	0.01	--	--	--	0.001	0.1	10	0.000050	0.0010	0.00	0.00005	0.00064
Silver (Ag)	mg/L	<0.0001	--	--	--	--	0.0001	0.0001	10	0.0000050	0.0000100	0.00	0.000005	0.00000775
Strontium (Sr)	mg/L	<0.005	--	--	--	--	--	--	10	0.009	0.012	0.01	0.0105	0.012
Thallium (Tl)	mg/L	<0.0003	--	--	--	--	0.0008	0.0003	10	0.0000050	0.00003	0.00	0.000005	0.0000255
Titanium (Ti)	mg/L	<0.002	--	--	--	--	--	--	10	0.0010	0.0010	0.00	0.001	0.001

2011-2013 Surface Water Quality Results

Parameter	Unit	Method Detection Limit	Ontario Drinking Water Standards				Canadian Water Quality Guidelines	Provincial Water Quality Objective	BASELINE DATA SUMMARY STATISTICS: ML - Moore Lake					
			MAC	IMAC	AO	OG			Number of samples	Minimum	Maximum	Average	Median	95th percentile
Tungsten (W)	mg/L	<0.01	--	--	--	--	--	0.03	10	0.0050	0.0050	0.01	0.005	0.005
Uranium (U)	mg/L	<0.002	0.02	--	--	--	0.015	0.005	10	0.0010	0.0010	0.00	0.001	0.001
Vanadium (V)	mg/L	<0.002	--	--	--	--	--	0.006	10	0.0010	0.0010	0.00	0.001	0.001
Zinc (Zn)	mg/L	<0.005	--	--	5	--	0.03	0.02	10	0.0025	0.003	0.00	0.0025	0.0025
Zirconium (Zr)	mg/L	<0.004	--	--	--	--	--	0.004	10	0.0020	0.0020	0.00	0.002	0.002
Mercury (Hg) (Dissolved)	mg/L	<0.0000025	0.001	--	--	--	0.000026	0.0002	10	0.0000	0.0000	0.00	0.00000125	0.00000456

Notes:

nc = Not calculated

2011-2013 Surface Water Quality Results

Parameter	Unit	Method Detection Limit	Ontario Drinking Water Standards				Canadian Water Quality Guidelines	Provincial Water Quality Objective	BASELINE DATA SUMMARY STATISTICS: Location SL2					
			MAC	IMAC	AO	OG			Number of samples	Minimum	Maximum	Average	Median	95th percentile
FIELD PARAMETERS		50%												
pH	pH units	--	--	--	--	6.5−8.5	6.5-9	6.5-8.5	6	nc	nc	nc	nc	nc
Temperature	degrees Celsius	--	--	--	--	--	--	-0.25	6	nc	nc	nc	nc	nc
Conductivity	µS/cm	--	--	--	--	--	--	--	6	nc	nc	nc	nc	nc
Dissolved Oxygen (DO)	mg/L	--	--	--	--	--	--	--	6	nc	nc	nc	nc	nc
ORP	mV	--	--	--	--	--	--	--	6	nc	nc	nc	nc	nc
GENERAL PARAMETERS														
Lab pH	pH units	--	--	--	--	6.5−8.5	6.5-9	6.5-8.5	6	7.2	7.4	7.3	7.3	7.4
Alkalinity	mg/L as CaCO3	<5	--	--	--	--	--	-25%	6	12	29	22	23	29.0
Acidity	mg/L as CaCO3	<5	--	--	--	--	--	--	6	2.5	2.5	2.50	2.5	2.5
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	--	--	6	36	62	50	49	61.0
Total Dissolved Solids (TDS)	mg/L	<20	--	--	500	--	--	--	6	44	68	56	55	67.0
Total Suspended Solids (TSS)	mg/L	<1, <10	--	--	--	--	+5-25	--	6	0.50	2	1	0.5	1.6
Total Hardness	mg/L as CaCO3	<0.5	--	--	--	--	--	--	6	18.0	31	25	25	30.4
Dissolved Organic Carbon (DOC)	mg/L	<0.5	--	--	5	--	--	--	6	9.7	19	13.8	12.6	18.9
Total Organic Carbon (TOC)	mg/L	<0.5	--	--	--	--	--	--	6	9.9	19.6	14.80	14.8	19.2
Chemical Oxygen Demand (COD)	mg/L	<5	--	--	--	--	--	--	6	nc	nc	nc	nc	nc
MAJOR IONS														
Calcium (Ca)	mg/L	<0.05	--	--	--	--	--	--	6	5.0	9	7.0	7.0	8.4
Magnesium (Mg)	mg/L	<0.05	--	--	--	--	--	--	6	1.3	2.4	1.8	1.8	2.3
Potassium (K)	mg/L	<0.05	--	--	--	--	--	--	6	0.03	0.22	0.12	0.11	0.2
Sodium (Na)	mg/L	<0.05	--	--	200	--	--	--	6	0.68	1.63	0.89	0.74	1.4
Chloride (Cl)	mg/L	<0.1	--	--	250	--	--	--	6	0.15	0.38	0.23	0.22	0.4
Fluoride (F)	mg/L	<0.05	1.5	--	--	--	--	--	6	0.025	0.025	0.025	0.025	0.0
Sulphate (SO_4)	mg/L	<0.1	--	--	500	--	--	--	6	0.9	2.9	2.2	2.4	2.8
METALS														
Aluminum (Al) (Dissolved)	mg/L	<0.004	--	--	--	0.1	0.1	0.075	6	0.0880	0.155	0.122	0.115	0.154
Antimony (Sb)	mg/L	<0.006	--	0.006	--	--	--	0.02	6	0.0005	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	<0.003	--	0.025	--	--	0.005	0.005	6	0.0015	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	<0.002	1	--	--	--	--	--	6	0.0030	0.005	0.0040	0.0040	0.0050
Beryllium (Be)	mg/L	<0.001	--	--	--	--	--	0.011	6	0.00050	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	<0.01	--	5	--	--	1.5	0.2	6	0.0050	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	<0.0001	--	0.005	--	--	0.000058	0.0001	6	0.000010	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	<0.003	0.05	--	--	--	0.0089	0.0089	6	0.0015	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	<0.0005	--	--	--	--	--	0.0009	6	0.00025	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	<0.002	--	--	1	--	0.002	0.005	6	0.00050	0.0009	0.00078	0.0009	0.0009
Iron (Fe)	mg/L	<0.010	--	--	0.3	--	0.3	0.3	6	0.1430	0.41	0.214	0.183	0.361
Lead (Pb)	mg/L	<0.001	0.01	--	--	--	0.001	0.003	6	0.000050	0.00020	0.00008	0.00005	0.00018
Manganese (Mn)	mg/L	<0.002	--	--	0.05	--	--	--	6	0.0090	0.036	0.020	0.018	0.033
Mercury (Hg)	mg/L	<0.00010	0.001	--	--	--	0.000026	0.0002	6	0.00000095	0.000009	0.000003	0.000002	0.000008
Molybdenum (Mo)	mg/L	<0.002	--	--	--	--	0.073	0.04	6	0.0010	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	<0.003	--	--	--	--	0.025	0.025	6	0.0015	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	<0.004	0.01	--	--	--	0.001	0.1	6	0.000050	0.0002	0.0001	0.0001	0.0002
Silver (Ag)	mg/L	<0.0001	--	--	--	--	0.0001	0.0001	6	0.0000050	0.000005	0.000005	0.000005	0.000005
Strontium (Sr)	mg/L	<0.005	--	--	--	--	--	--	6	0.011	0.020	0.015	0.015	0.019
Thallium (Tl)	mg/L	<0.0003	--	--	--	--	0.0008	0.0003	6	0.0000050	0.00002	0.00001	0.00001	0.00002

2011-2013 Surface Water Quality Results

Parameter	Unit	Method Detection Limit	Ontario Drinking Water Standards				Canadian Water Quality Guidelines	Provincial Water Quality Objective	BASELINE DATA SUMMARY STATISTICS: Location SL2					
			MAC	IMAC	AO	OG			Number of samples	Minimum	Maximum	Average	Median	95th percentile
Titanium (Ti)	mg/L	<0.002	--	--	--	--	--	--	6	0.0010	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	<0.01	--	--	--	--	--	0.03	6	0.0050	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	<0.002	0.02	--	--	--	0.015	0.005	6	0.0010	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	<0.002	--	--	--	--	--	0.006	6	0.0010	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	<0.005	--	--	5	--	0.03	0.02	6	0.0025	0.0025	0.003	0.0025	0.0025
Zirconium (Zr)	mg/L	<0.004	--	--	--	--	--	0.004	6	0.0020	0.0020	0.0020	0.0020	0.0020
Mercury (Hg) (Dissolved)	mg/L	<0.0000025	0.001	--	--	--	0.000026	0.0002	6	0.0000	0.0000	0.0000	0.0000	0.0000

Notes:

nc = Not calculated

2011-2013 Surface Water Baseline Quality Results

Parameter	Unit	Method Detection Limit	Ontario Drinking Water Standards				Canadian Water Quality Guidelines	Provincial Water Quality Objective	BASELINE DATA SUMMARY STATISTICS: 3D-A - Three Ducks Lakes, upper basin outlet					
			MAC	IMAC	AO	OG			Number of samples	Minimum	Maximum	Average	Median	95th percentile
FIELD PARAMETERS		**50%**												
pH	pH units	--	--	--	--	6.5−8.5	6.5-9	6.5-8.5	8	nc	nc	nc	nc	nc
Temperature	degrees Celsius	--	--	--	--	--	--	-0.25	8	nc	nc	nc	nc	nc
Conductivity	µS/cm	--	--	--	--	--	--	--	8	nc	nc	nc	nc	nc
Dissolved Oxygen (DO)	mg/L	--	--	--	--	--	--	--	8	nc	nc	nc	nc	nc
ORP	mV	--	--	--	--	--	--	--	8	nc	nc	nc	nc	nc
GENERAL PARAMETERS														
Lab pH	pH units	--	--	--	--	6.5−8.5	6.5-9	6.5-8.5	8	6.7	7.4	7.2	7.3	7.4
Alkalinity	mg/L as CaCO3	<5	--	--	--	--	--	-25%	8	11.0	23	16	16	22.3
Acidity	mg/L as CaCO3	<5	--	--	--	--	--	--	8	2.5	2.5	2.50	2.5	2.5
Electrical Conductivity (EC)	µS/cm	<2	--	--	--	--	--	--	8	34.0	55	43	43	52.2
Total Dissolved Solids (TDS)	mg/L	<20	--	--	500	--	--	--	8	30	60	47	50	57.2
Total Suspended Solids (TSS)	mg/L	<1, <10	--	--	--	--	+5-25	--	8	0.50	2.0	0.9	1.0	1.7
Total Hardness	mg/L as CaCO3	<0.5	--	--	--	--	--	--	8	16	26	19	19	24.8
Dissolved Organic Carbon (DOC)	mg/L	<0.5	--	--	5	--	--	--	8	10.3	13	12	12	13.3
Total Organic Carbon (TOC)	mg/L	<0.5	--	--	--	--	--	--	8	10.8	14.3	12.89	13.3	14.2
Chemical Oxygen Demand (COD)	mg/L	<5	--	--	--	--	--	--	8	nc	nc	nc	nc	nc
MAJOR IONS														
Calcium (Ca)	mg/L	<0.05	--	--	--	--	--	--	8	4.9	8.2	6.0	5.9	7.8
Magnesium (Mg)	mg/L	<0.05	--	--	--	--	--	--	8	0.85	1.4	1.1	1.1	1.3
Potassium (K)	mg/L	<0.05	--	--	--	--	--	--	8	0.29	0.36	0.31	0.30	0.4
Sodium (Na)	mg/L	<0.05	--	--	200	--	--	--	8	0.71	1.0	0.81	0.74	1.0
Chloride (Cl)	mg/L	<0.1	--	--	250	--	--	--	8	0.28	0.45	0.37	0.37	0.4
Fluoride (F)	mg/L	<0.05	1.5	--	--	--	--	--	8	0.025	0.025	0.0	0.025	0.0
Sulphate (SO_4)	mg/L	<0.1	--	--	500	--	--	--	8	1.910	2.5	2.3	2.4	2.5
METALS														
Aluminum (Al) (Dissolved)	mg/L	<0.004	--	--	--	0.1	0.1	0.075	8	0.035	0.096	0.062	0.057	0.094
Antimony (Sb)	mg/L	<0.006	--	0.006	--	--	--	0.02	8	0.0005	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	<0.003	--	0.025	--	--	0.005	0.005	8	0.0015	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	<0.002	1	--	--	--	--	--	8	0.0040	0.0060	0.0048	0.0050	0.0057
Beryllium (Be)	mg/L	<0.001	--	--	--	--	--	0.011	8	0.00050	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	<0.01	--	5	--	--	1.5	0.2	8	0.00500	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	<0.0001	--	0.005	--	--	0.000058	0.0001	8	0.000010	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	<0.003	0.05	--	--	--	0.0089	0.0089	8	0.001500	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	<0.0005	--	--	--	--	--	0.0009	8	0.00025	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	<0.002	--	--	1	--	0.002	0.005	8	0.00100	0.0022	0.0013	0.0012	0.0019
Iron (Fe)	mg/L	<0.010	--	--	0.3	--	0.3	0.3	8	0.0790	0.25	0.16	0.13	0.24
Lead (Pb)	mg/L	<0.001	0.01	--	--	--	0.001	0.003	8	0.000050	0.00040	0.00013	0.00010	0.00033
Manganese (Mn)	mg/L	<0.002	--	--	0.05	--	--	--	8	0.00900	0.026	0.016	0.015	0.025
Mercury (Hg)	mg/L	<0.00010	0.001	--	--	--	0.000026	0.0002	8	0.00000095	0.000004	0.000001	0.000001	0.000003
Molybdenum (Mo)	mg/L	<0.002	--	--	--	--	0.073	0.04	8	0.001000	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	<0.003	--	--	--	--	0.025	0.025	8	0.0015	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	<0.004	0.01	--	--	--	0.001	0.1	8	0.000050	0.0003	0.0001	0.0001	0.0003
Silver (Ag)	mg/L	<0.0001	--	--	--	--	0.0001	0.0001	8	0.0000050	0.000020	0.000007	0.000005	0.000015
Strontium (Sr)	mg/L	<0.005	--	--	--	--	--	--	8	0.011000	0.015	0.013	0.013	0.014
Thallium (Tl)	mg/L	<0.0003	--	--	--	--	0.0008	0.0003	8	0.0000050	0.00001	0.00001	0.00001	0.00001
Titanium (Ti)	mg/L	<0.002	--	--	--	--	--	--	8	0.00100	0.0010	0.0010	0.0010	0.0010

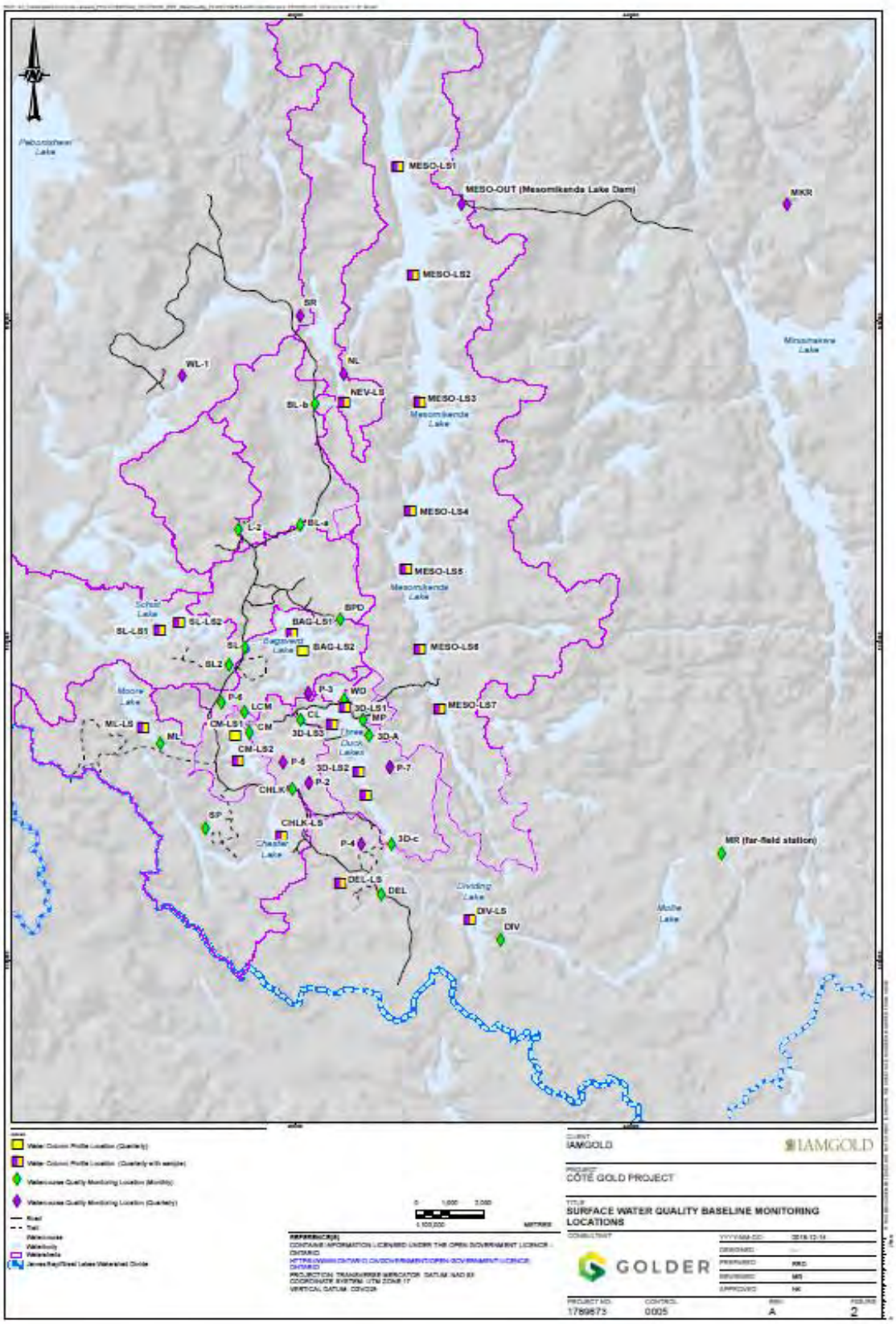
2011-2013 Surface Water Baseline Quality Results

Parameter	Unit	Method Detection Limit	Ontario Drinking Water Standards				Canadian Water Quality Guidelines	Provincial Water Quality Objective	BASELINE DATA SUMMARY STATISTICS: 3D-A - Three Ducks Lakes, upper basin outlet					
			MAC	IMAC	AO	OG			Number of samples	Minimum	Maximum	Average	Median	95th percentile
Tungsten (W)	mg/L	<0.01	--	--	--	--	--	0.03	8	0.0050	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	<0.002	0.02	--	--	--	0.015	0.005	8	0.0010	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	<0.002	--	--	--	--	--	0.006	8	0.0010	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	<0.005	--	--	5	--	0.03	0.02	8	0.0025	0.0050	0.0028	0.0025	0.0041
Zirconium (Zr)	mg/L	<0.004	--	--	--	--	--	0.004	8	0.0020	0.0020	0.0020	0.0020	0.0020
Mercury (Hg) (Dissolved)	mg/L	<0.0000025	0.001	--	--	--	0.000026	0.0002	8	0.0000	0.0000	0.0000	0.0000	0.0000

Notes:

nc = Not calculated

SURFACE WATER QUALITY BASELINE RESULTS
IAMGOLD CÔTÉ GOLD PROJECT - DECEMBER 2018



SURFACE WATER QUALITY BASELINE RESULTS
IAMGOLD CÔTÉ GOLD PROJECT
75th PERCENTILE VALUES

Surface Water Monitoring Location					ML - Moore Lake (Outlet Station)	ML-LS - Moore Lake (Profile Station)	SP - Saw Peter Lake (Outlet Station)	P-2 - Drainage from Beaver Pond	CHLK-LS - Chester Lake (Profile Station)
Rationale for Monitoring Location					Located adjacent to the TMF	Located adjacent to the TMF	Located adjacent to the TMF	Located adjacent to the TMF	Located adjacent to the MRA, downstream of Moore Lake
Easting (NAD83)					425351	425445	427317	430400	429580
Northing (NAD83)					5266666	5267293	5264124	5265548	5263895
Date (from)					09-May-16	09-Nov-16	02-Nov-16	19-Nov-12	22-May-13
Date (to)					26-Jun-17	24-May-17	15-May-17	28-Oct-14	15-May-17
Number of Sampling Rounds					10	3	4	7	7 (top and bottom samples)
Parameter	**Unit**	**PWQO**	***Interim PWQO***	**CWQG**	**75th Percentile**	**75th Percentile**	**75th Percentile**	**75th Percentile**	**75th Percentile**
GENERAL PARAMETERS (FIELD MEASURED)									
pH	pH units	6.5-8.5		6.5 - 9.0	6.9	7.3	7.7	**6.5**	7.2
Temperature	degrees Celsius	-0.25			7.7	6.6	8.1	14	12
Conductivity	µS/cm	--			35	44	36	54	44
Dissolved Oxygen (DO)	mg/L	--			11	12	12	9	10
ORP	mV	--			110	194	214	--	224
GENERAL PARAMETERS (LAB MEASURED)									
Lab pH	pH units	6.5-8.5	-	6.5 - 9.0	7.2	7.3	7.1	**6.4**	7.4
Alkalinity	mg/L as CaCO3	-25%	-	-	16	14	16	33	16
Acidity	mg/L as CaCO3	-	-	-	2.5	2.5	2.5	--	2.5
Electrical Conductivity (EC)	µS/cm	-	-	-	41	42	42	58	47
Total Dissolved Solids (TDS)	mg/L	-	-	-	44	35	66	89	59
Total Suspended Solids (TSS)	mg/L	-	-	-	2.0	1.0	1.3	4.5	2.0
Total Hardness	mg/L as CaCO3	-	-	-	18	18	21	28	21
Dissolved Organic Carbon	mg/L	-	-	-	12	9.1	19	27	13
Total Organic Carbon (TOC)	mg/L	-	-	-	12	10	20	--	15
MAJOR IONS									
Calcium (Ca)	mg/L	-	-	-	5.8	5.3	7.0	8.8	6.5
Magnesium (Mg)	mg/L	-	-	-	1.0	1.0	0.92	1.5	1.1
Potassium (K)	mg/L	-	-	-	0.17	0.14	0.37	0.31	0.31
Sodium (Na)	mg/L	-	-	-	0.67	0.59	0.81	0.95	0.89
Chloride (Cl)	mg/L	-	-	120	0.28	0.20	0.32	0.33	0.35
Fluoride (F)	mg/L	-	-	0.12	0.025	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	-	-	-	3.0	3.0	1.6	2.8	2.8
METALS									
Aluminum (Al) (Dissolved)	mg/L	2	0.075	0.1	*0.44*	0.028	*0.15*	*0.23*	*0.082*
Antimony (Sb)	mg/L	-	0.02	-	0.00050	0.00050	0.00050	--	0.00050
Arsenic (As)	mg/L	0.1	0.005	0.005	0.0015	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	-	-	-	0.0040	0.0038	0.0063	0.0085	0.0050
Beryllium (Be)	mg/L	0.011	-	-	0.00050	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	-	0.2	1.5	0.0050	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	0.002	0.0001	0.00007	0.000010	0.000040	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	0.0089	-	0.0089	0.0015	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	0.0009	-	0.0025	0.00025	0.00025	0.00025	0.00043	0.00025
Copper (Cu)	mg/L	0.005	0.005	0.002	0.00088	0.0010	0.00080	0.0011	0.0014
Iron (Fe)	mg/L	0.3	-	0.3	0.11	0.066	0.26	**1.3**	0.26
Lead (Pb)	mg/L	0.01	0.001	0.001	0.000050	0.00040	0.00020	0.00050	0.00020
Manganese (Mn)	mg/L	-	-	-	0.018	0.026	0.015	0.084	0.023
Mercury (Hg)	mg/L	-	-	-	0.0000038	0.0000055	0.0000078	0.0000099	0.0000049
Molybdenum (Mo)	mg/L	-	0.04	0.073	0.0010	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	0.025	-	0.025	0.0015	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	0.1	-	0.001	0.00016	0.00013	0.000063	0.000063	0.00010
Silver (Ag)	mg/L	0.0001	-	0.00025	0.0000050	0.000039	0.0000063	0.0000050	0.0000050
Strontium (Sr)	mg/L	-	-	-	0.011	0.011	0.012	0.02	0.013
Thallium (Tl)	mg/L	-	0.0003	0.0008	0.0000050	0.00011	0.0000063	0.0000050	0.0000050
Titanium (Ti)	mg/L	-	-	-	0.0010	0.0010	0.0010	0.0035	0.0010
Tungsten (W)	mg/L	-	0.03	-	0.0050	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	-	0.005	0.015	0.0010	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	-	0.006	-	0.0010	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	0.03	0.02	0.03	0.0025	0.0025	0.0025	0.014	0.0025
Zirconium (Zr)	mg/L	-	0.004	-	0.0020	0.0020	0.0020	0.0020	0.0020
Mercury (Hg) (Dissolved)	mg/L	0.0002	-	0.000026	0.0000031	0.0000029	0.0000070	0.000031	0.0000044
CYANIDE SPECIES									
Total Cyanide	mg/L	-	-	-	0.0010	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	0.005	-	0.005	0.0010	0.0010	0.0010	--	0.0010
NUTRIENTS									
Nitrate (NO_3^-)	mg/L as N	-	-	13	0.044	0.068	0.18	0.025	0.10
Nitrite (NO_2^-)	mg/L as N	-	-	0.06	0.025	0.025	0.025	0.025	0.025
Total Ammonia ($NH_3 + NH_4$)	mg/L as N	-	-	6.98	0.010	0.010	0.10	0.17	0.010
Total Kjeldahl Nitrogen	mg/L	-	-	-	--	--	--	--	--
Total Phosphorus (P)	mg/L	-	0.02	0.02	0.012	0.0095	0.014	0.017	0.013
Phosphate (PO_4)	mg/L as P	-	-	-	--	--	--	--	--
ORGANICS									
Oil and Grease (A/V)	mg/L	-	-	-	0.25	--	0.25	--	0.25
Oil and Grease (Mineral)	mg/L	-	-	-	0.25	--	0.25	--	0.25
Oil and Grease (Total)	mg/L	-	-	-	0.25	--	0.25	--	0.25
Phenols	mg/L	0.001	0.001	0.004	0.00050	--	0.00050	--	0.0010
Naphthalene	mg/L	-	0.007	0.0011	0.0001	--	0.0001	--	0.0001
Acenaphthylene	mg/L	-	-	-	0.0001	--	0.0001	--	0.0001
Acenaphthene	mg/L	-	-	0.0058	0.0001	--	0.0001	--	0.0001
Fluorene	mg/L	-	0.0002	0.003	0.0001	--	0.0001	--	0.0001
Benzo(b)fluoranthene	mg/L	-	-	-	0.00005	--	0.00005	--	0.00005
Benzo(a)pyrene	mg/L	-	-	0.000015	0.000005	--	0.000005	--	0.000005
Indeno(1,2,3-cd)pyrene	mg/L	-	-	-	0.0001	--	0.0001	--	0.0001
2-and 1-methyl Naphthalene	mg/L	-	0.002	-	0.0001	--	0.0001	--	0.0001
Chrysene-d12	%	-	-	-	91.75	--	76	--	--
Decachlorobiphenyl	%	-	-	-	80.5	--	104	--	--
RADIONUCLIDES									
Radium-226	Bq/L	1	-	-	0.005	--	--	0.0005	--
MICROBIOLOGICAL									
Escherichia coli	CFU/100mL	100	-	-	--	--	--	--	17
Total Coliforms	CFU/100mL	-	-	-	--	--	--	--	97

Notes:
For the purposes of statistical calculations, values below the detection limit are assumed to be equal to one half of the detection limit.
PWQO = Provincial Water Quality Guidelines.
CWQG = Canadian Water Quality Guidelines.
Bold shading indicates a concentration greater than the PWQO.
Italics indicates a concentration greater than the interim PWQO.
Underlining indicates a concentration greater than the CWQG.
-- indicates data not available.

SURFACE WATER QUALITY BASELINE RESULTS
IAMGOLD CÔTÉ GOLD PROJECT
75th PERCENTILE VALUES

Surface Water Monitoring Location					CHLK - Chester Lake (Outlet Station)	LCM - Little Clam Lake (Outlet Station)	CM-LS - Clam Lake (Profile Station)	CM - Clam Lake (Outlet Station)	P5 - Seasonal Pond
Rationale for Monitoring Location					Located adjacent to the MRA, downstream of Moore Lake	Located adjacent to the TMF	Located adjacent to the TMF, downstream of Little Clam Lake	Located adjacent to the TMF, downstream of Little Clam Lake	Upstream of Côté Lake
Easting (NAD83)					429899	428471	428286	428622	429632
Northing (NAD83)					5265330	5267773	5266218	5267120	5266162
Date (from)					24-Jan-12	21-Feb-12	23-May-13	24-Jan-12	23-May-12
Date (to)					21-Jun-17	26-Jun-17	15-Aug-17	21-Jun-17	28-Oct-14
Number of Sampling Rounds					38	33	11 (top and bottom samples)	36	7
Parameter	**Unit**	**PWQO**	***Interim PWQO***	**CWQG**	**75th Percentile**	**75th Percentile**	**75th Percentile**	**75th Percentile**	**75th Percentile**
GENERAL PARAMETERS (FIELD MEASURED)									
pH	pH units	6.5-8.5		6.5 - 9.0	7.0	6.9	7.2	7.2	**6.3**
Temperature	degrees Celsius	-0.25			17	15	12	17	14
Conductivity	µS/cm	--			35	34	53	36	35
Dissolved Oxygen (DO)	mg/L	--			12	9	12	13	10
ORP	mV	--			195	172	174	179	--
GENERAL PARAMETERS (LAB MEASURED)									
Lab pH	pH units	6.5-8.5	-	6.5 - 9.0	6.9	6.8	7.3	7.1	**6.4**
Alkalinity	mg/L as CaCO3	-25%	-	-	15	13	17	15	13
Acidity	mg/L as CaCO3	-	-	-	2.5	2.5	2.5	2.5	--
Electrical Conductivity (EC)	µS/cm	-	-	-	43	40	47	46	46
Total Dissolved Solids (TDS)	mg/L	-	-	-	56	48	44	45	69
Total Suspended Solids (TSS)	mg/L	-	-	-	2.0	1.5	1.8	2.0	5.0
Total Hardness	mg/L as CaCO3	-	-	-	22	19	19	20	23
Dissolved Organic Carbon	mg/L	-	-	-	14	13	9.4	9.3	25
Total Organic Carbon (TOC)	mg/L	-	-	-	14	12	9.9	11	--
MAJOR IONS									
Calcium (Ca)	mg/L	-	-	-	6.7	6.3	6.1	6.5	7.2
Magnesium (Mg)	mg/L	-	-	-	1.2	0.81	0.88	0.99	1.2
Potassium (K)	mg/L	-	-	-	0.31	0.33	0.39	0.42	0.63
Sodium (Na)	mg/L	-	-	-	0.87	0.76	0.76	0.73	0.91
Chloride (Cl)	mg/L	-	-	120	0.37	0.34	0.36	0.35	0.40
Fluoride (F)	mg/L	-	-	0.12	0.025	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	-	-	-	3.0	3.3	3.3	4.0	2.4
METALS									
Aluminum (Al) (Dissolved)	mg/L	2	0.075	0.1	*0.081*	0.067	0.036	0.027	*0.095*
Antimony (Sb)	mg/L	-	0.02	-	0.00050	0.00050	0.00050	0.00050	--
Arsenic (As)	mg/L	0.1	0.005	0.005	0.0015	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	-	-	-	0.0050	0.0050	0.0048	0.0050	0.0075
Beryllium (Be)	mg/L	0.011	-	-	0.00050	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	-	0.2	1.5	0.0050	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	0.002	0.0001	0.00007	0.000010	0.00001	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	0.0089	-	0.0089	0.0015	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	0.0009	-	0.0025	0.00025	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	0.005	0.005	0.002	0.00085	0.00088	0.0013	0.0016	0.00090
Iron (Fe)	mg/L	0.3	-	0.3	0.26	0.14	0.098	0.097	**0.35**
Lead (Pb)	mg/L	0.01	0.001	0.001	0.00050	0.00050	0.00005	0.00050	0.00050
Manganese (Mn)	mg/L	-	-	-	0.030	0.053	0.032	0.019	0.056
Mercury (Hg)	mg/L	-	-	-	0.0000046	0.0000025	0.0000062	0.00000095	0.0000026
Molybdenum (Mo)	mg/L	-	0.04	0.073	0.0010	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	0.025	-	0.025	0.0015	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	0.1	-	0.001	0.000050	0.00016	0.000050	0.00020	0.000050
Silver (Ag)	mg/L	0.0001	-	0.00025	0.0000050	0.0000050	0.0000050	0.0000050	0.0000063
Strontium (Sr)	mg/L	-	-	-	0.014	0.015	0.013	0.014	0.016
Thallium (Tl)	mg/L	-	0.0003	0.0008	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050
Titanium (Ti)	mg/L	-	-	-	0.0010	0.0010	0.0010	0.0010	0.0015
Tungsten (W)	mg/L	-	0.03	-	0.0050	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	-	0.005	0.015	0.0010	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	-	0.006	-	0.0010	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	0.03	0.02	0.03	0.0083	0.003125	0.0025	0.0043	**0.043**
Zirconium (Zr)	mg/L	-	0.004	-	0.0020	0.0020	0.0020	0.0020	0.0020
Mercury (Hg) (Dissolved)	mg/L	0.0002	-	0.000026	0.0000013	0.0000013	0.0000013	0.0000013	0.0000013
CYANIDE SPECIES									
Total Cyanide	mg/L	-	-	-	0.0010	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	0.005	-	0.005	0.0010	0.0010	0.0010	0.0010	--
NUTRIENTS									
Nitrate (NO_3^-)	mg/L as N	-	-	13	0.11	0.025	0.025	0.025	0.060
Nitrite (NO_2^-)	mg/L as N	-	-	0.06	0.025	0.025	0.025	0.025	0.025
Total Ammonia ($NH_3 + NH_4$)	mg/L as N	-	-	6.98	0.030	0.020	0.068	0.050	0.070
Total Kjeldahl Nitrogen	mg/L	-	-	-	--	--	--	--	--
Total Phosphorus (P)	mg/L	-	0.02	0.02	0.019	*0.026*	*0.027*	0.018	0.018
Phosphate (PO_4)	mg/L as P	-	-	-	0.050	0.050	--	0.500	--
ORGANICS									
Oil and Grease (A/V)	mg/L	-	-	-	--	--	--	--	--
Oil and Grease (Mineral)	mg/L	-	-	-	--	--	--	--	--
Oil and Grease (Total)	mg/L	-	-	-	--	--	--	--	--
Phenols	mg/L	0.001	0.001	0.004	--	--	--	--	--
Naphthalene	mg/L	-	0.007	0.0011	--	--	--	--	--
Acenaphthylene	mg/L	-	-	-	--	--	--	--	--
Acenaphthene	mg/L	-	-	0.0058	--	--	--	--	--
Fluorene	mg/L	-	0.0002	0.003	--	--	--	--	--
Benzo(b)fluoranthene	mg/L	-	-	-	--	--	--	--	--
Benzo(a)pyrene	mg/L	-	-	0.000015	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	mg/L	-	-	-	--	--	--	--	--
2-and 1-methyl Naphthalene	mg/L	-	0.002	-	--	--	--	--	--
Chrysene-d12	%	-	-	-	--	--	--	--	--
Decachlorobiphenyl	%	-	-	-	--	--	--	--	--
RADIONUCLIDES									
Radium-226	Bq/L	1	-	-	0.0005	0.0005	--	0.0005	0.0005
MICROBIOLOGICAL									
Escherichia coli	CFU/100mL	100	-	-	--	--	--	--	--
Total Coliforms	CFU/100mL	-	-	-	--	--	--	--	--

Notes:
For the purposes of statistical calculations, values below the detection limit are assumed to be equal to one half of the detection limit.
PWQO = Provincial Water Quality Guidelines.
CWQG = Canadian Water Quality Guidelines.
Bold shading indicates a concentration greater than the PWQO.
Italics indicates a concentration greater than the interim PWQO.
Underlining indicates a concentration greater than the CWQG.
-- indicates data not available.

SURFACE WATER QUALITY BASELINE RESULTS
IAMGOLD CÔTÉ GOLD PROJECT
75th PERCENTILE VALUES

Surface Water Monitoring Location					CL - Côté Lake (Outlet Station)	WD - Weeduck Lake (Outlet Station)	MP - Mill Pond (Outlet Station)	P-7 - Inflow to Three Ducks Lakes	3D-LS1 - Three Duck Lakes, Upper (Profile Station)
Rationale for Monitoring Location					Located adjacent to the MRA, downstream of Chester Lake, will be replaced by New Lake	Upstream of Three Duck Lakes	Upstream of Three Duck Lakes	Upstream of Three Duck Lakes	Receiver of treated effluent, downstream of New Lake
Easting (NAD83)					430152	431441	432002	432807	431472
Northing (NAD83)					5267509	5268135	5267534	5266020	5267888
Date (from)					23-Sep-11	23-Sep-11	23-Sep-11	23-May-12	23-May-13
Date (to)					28-Jun-17	28-Jun-17	28-Apr-14	02-Nov-14	14-Aug-17
Number of Sampling Rounds					41	43	36	10	11 (top and bottom samples)
Parameter	**Unit**	**PWQO**	***Interim PWQO***	**CWQG**	**75th Percentile**	**75th Percentile**	**75th Percentile**	**75th Percentile**	**75th Percentile**
GENERAL PARAMETERS (FIELD MEASURED)									
pH	pH units	6.5-8.5		6.5 - 9.0	7.0	7.3	6.7	6.8	7.1
Temperature	degrees Celsius	-0.25			18	16	15	16	11
Conductivity	µS/cm	--			38	34	52	45	49
Dissolved Oxygen (DO)	mg/L	--			12	11	11	11	11
ORP	mV	--			155	213	--	--	182
GENERAL PARAMETERS (LAB MEASURED)									
Lab pH	pH units	6.5-8.5	-	6.5 - 9.0	7.1	7.1	7.2	6.8	7.2
Alkalinity	mg/L as CaCO3	-25%	-	-	16	14	26	17	14
Acidity	mg/L as CaCO3	-	-	-	2.5	2.5	2.5	--	2.5
Electrical Conductivity (EC)	µS/cm	-	-	-	49	39	74	51	44
Total Dissolved Solids (TDS)	mg/L	-	-	-	58	42	78	64	56
Total Suspended Solids (TSS)	mg/L	-	-	-	2.0	2.0	1.0	1.0	2.0
Total Hardness	mg/L as CaCO3	-	-	-	24	18	35	24	20
Dissolved Organic Carbon	mg/L	-	-	-	14	8.8	18	15	14
Total Organic Carbon (TOC)	mg/L	-	-	-	15	9.0	17	--	15
MAJOR IONS									
Calcium (Ca)	mg/L	-	-	-	7.3	5.3	11.0	7.5	6.2
Magnesium (Mg)	mg/L	-	-	-	1.3	1.2	1.8	1.4	1.1
Potassium (K)	mg/L	-	-	-	0.38	0.41	0.71	0.45	0.33
Sodium (Na)	mg/L	-	-	-	1.0	0.74	2.40	1.1	0.84
Chloride (Cl)	mg/L	-	-	120	0.67	0.34	3.6	0.96	0.44
Fluoride (F)	mg/L	-	-	0.12	0.025	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	-	-	-	3.1	2.4	4.9	3.2	2.9
METALS									
Aluminum (Al) (Dissolved)	mg/L	2	0.075	0.1	0.075	0.013	*0.13*	*0.12*	*0.098*
Antimony (Sb)	mg/L	-	0.02	-	0.00050	0.00050	0.00050	--	0.00050
Arsenic (As)	mg/L	0.1	0.005	0.005	0.0015	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	-	-	-	0.0060	0.0060	0.0080	0.0058	0.0050
Beryllium (Be)	mg/L	0.011	-	-	0.00050	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	-	0.2	1.5	0.0050	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	0.002	0.0001	0.00007	0.000010	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	0.0089	-	0.0089	0.0015	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	0.0009	-	0.0025	0.00025	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	0.005	0.005	0.002	0.0012	0.00070	0.0041	0.00080	0.0014
Iron (Fe)	mg/L	0.3	-	0.3	0.28	0.060	**0.34**	0.28	0.26
Lead (Pb)	mg/L	0.01	0.001	0.001	0.00050	0.00050	0.00050	0.00050	0.00028
Manganese (Mn)	mg/L	-	-	-	0.041	0.053	0.038	0.031	0.030
Mercury (Hg)	mg/L	-	-	-	0.0000022	0.0000014	0.0000032	0.0018	0.0000071
Molybdenum (Mo)	mg/L	-	0.04	0.073	0.0010	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	0.025	-	0.025	0.0015	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	0.1	-	0.001	0.00018	0.00010	0.000050	0.00020	0.00023
Silver (Ag)	mg/L	0.0001	-	0.00025	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050
Strontium (Sr)	mg/L	-	-	-	0.015	0.013	0.021	0.015	0.013
Thallium (Tl)	mg/L	-	0.0003	0.0008	0.0000088	0.0000050	0.0000050	0.0000050	0.0000050
Titanium (Ti)	mg/L	-	-	-	0.0010	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	-	0.03	-	0.0050	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	-	0.005	0.015	0.0010	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	-	0.006	-	0.0010	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	0.03	0.02	0.03	0.0031	0.0060	0.020	0.0059	0.0025
Zirconium (Zr)	mg/L	-	0.004	-	0.0020	0.0020	0.0020	0.0020	0.0020
Mercury (Hg) (Dissolved)	mg/L	0.0002	-	0.000026	0.0000013	0.0000013	0.0000013	0.0000029	0.0000040
CYANIDE SPECIES									
Total Cyanide	mg/L	-	-	-	0.0010	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	0.005	-	0.005	0.0010	0.0010	0.0010	--	0.0010
NUTRIENTS									
Nitrate (NO_3^-)	mg/L as N	-	-	13	0.070	0.074	0.060	0.025	0.025
Nitrite (NO_2^-)	mg/L as N	-	-	0.06	0.025	0.025	0.025	0.025	0.025
Total Ammonia ($NH_3 + NH_4$)	mg/L as N	-	-	6.98	0.030	0.040	0.060	0.020	0.040
Total Kjeldahl Nitrogen	mg/L	-	-	-	1.0	--	--	--	--
Total Phosphorus (P)	mg/L	-	0.02	0.02	0.014	0.010	0.013	0.012	*0.032*
Phosphate (PO_4)	mg/L as P	-	-	-	0.050	0.050	0.013	--	--
ORGANICS									
Oil and Grease (A/V)	mg/L	-	-	-	0.4	--	--	--	0.25
Oil and Grease (Mineral)	mg/L	-	-	-	0.25	--	--	--	0.25
Oil and Grease (Total)	mg/L	-	-	-	0.25	--	--	--	0.25
Phenols	mg/L	0.001	0.001	0.004	--	--	--	--	--
Naphthalene	mg/L	-	0.007	0.0011	--	--	--	--	0.0001
Acenaphthylene	mg/L	-	-	-	--	--	--	--	0.0001
Acenaphthene	mg/L	-	-	0.0058	--	--	--	--	0.0001
Fluorene	mg/L	-	0.0002	0.003	--	--	--	--	0.0001
Benzo(b)fluoranthene	mg/L	-	-	-	--	--	--	--	0.00005
Benzo(a)pyrene	mg/L	-	-	0.000015	--	--	--	--	0.000005
Indeno(1,2,3-cd)pyrene	mg/L	-	-	-	--	--	--	--	0.0001
2-and 1-methyl Naphthalene	mg/L	-	0.002	-	--	--	--	--	0.0001
Chrysene-d12	%	-	-	-	--	--	--	--	--
Decachlorobiphenyl	%	-	-	-	--	--	--	--	--
RADIONUCLIDES									
Radium-226	Bq/L	1	-	-	0.0005	0.0005	0.0005	0.0005	--
MICROBIOLOGICAL									
Escherichia coli	CFU/100mL	100	-	-	--	--	--	--	4.0
Total Coliforms	CFU/100mL	-	-	-	--	--	--	--	156

Notes:
For the purposes of statistical calculations, values below the detection limit are assumed to be equal to one half of the detection limit.
PWQO = Provincial Water Quality Guidelines.
CWQG = Canadian Water Quality Guidelines.
Bold shading indicates a concentration greater than the PWQO.
Italics indicates a concentration greater than the interim PWQO.
Underlining indicates a concentration greater than the CWQG.
-- indicates data not available.

SURFACE WATER QUALITY BASELINE RESULTS
IAMGOLD CÔTÉ GOLD PROJECT
75th PERCENTILE VALUES

Surface Water Monitoring Location					3D-LS3 - Three Duck Lakes, Upper (Profile Station)	3D-a - Three Ducks Lakes, Upper (Outlet Station)	3D-LS2 - Three Duck Lakes, Lower (Profile Station)	3D-c - Three Ducks Lakes, Lower (Outlet Station)	P-4 - Inflow to Mollie River
Rationale for Monitoring Location					Receiver of treated effluent, downstream of New Lake	Receiver of treated effluent, downstream of New Lake	Located adjacent to the MRA, downstream of Three Duck Lake (upper and middle)	Located adjacent to the MRA, downstream of Three Duck Lake (upper and middle)	Upstream of Mollie River and Dividing Lake
Easting (NAD83)					431080	432192	431875	432866	432326
Northing (NAD83)					5267369	5267018	5265870	5263627	5263504
Date (from)					08-Nov-16	24-Oct-16	24-May-13	21-Feb-12	23-May-12
Date (to)					14-Aug-17	28-Jun-17	14-Aug-17	28-Jun-17	26-Jun-17
Number of Sampling Rounds					4 (top and bottom samples)	8	11 (top and bottom samples)	35	13
Parameter	**Unit**	**PWQO**	***Interim PWQO***	**CWQG**	**75th Percentile**	**75th Percentile**	**75th Percentile**	**75th Percentile**	**75th Percentile**
GENERAL PARAMETERS (FIELD MEASURED)									
pH	pH units	6.5-8.5		6.5 - 9.0	7.1	6.8	7.3	7.5	6.5
Temperature	degrees Celsius	-0.25			11	9	12	29	13
Conductivity	µS/cm	--			47	35	52	29	29
Dissolved Oxygen (DO)	mg/L	--			12	13	12	11	13
ORP	mV	--			236	191	190	167	127
GENERAL PARAMETERS (LAB MEASURED)									
Lab pH	pH units	6.5-8.5	-	6.5 - 9.0	7.2	7.4	7.2	6.9	6.9
Alkalinity	mg/L as CaCO3	-25%	-	-	16	19	17	13	11
Acidity	mg/L as CaCO3	-	-	-	2.5	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	-	-	-	46	46	46	43	36
Total Dissolved Solids (TDS)	mg/L	-	-	-	51	52	56	55	72
Total Suspended Solids (TSS)	mg/L	-	-	-	2.0	1.0	1.8	1.3	0.63
Total Hardness	mg/L as CaCO3	-	-	-	20	21	20	20	20
Dissolved Organic Carbon	mg/L	-	-	-	14	13	14	13	23
Total Organic Carbon (TOC)	mg/L	-	-	-	16	14	15	14	26
MAJOR IONS									
Calcium (Ca)	mg/L	-	-	-	6.3	6.4	6.1	6.3	6.3
Magnesium (Mg)	mg/L	-	-	-	1.1	1.1	1.1	1.2	1.2
Potassium (K)	mg/L	-	-	-	0.31	0.33	0.37	0.41	0.26
Sodium (Na)	mg/L	-	-	-	0.82	0.91	0.89	0.95	0.86
Chloride (Cl)	mg/L	-	-	120	0.45	0.41	0.47	0.59	0.30
Fluoride (F)	mg/L	-	-	0.12	0.025	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	-	-	-	2.4	2.4	2.8	2.8	2.3
METALS									
Aluminum (Al) (Dissolved)	mg/L	2	0.075	0.1	0.066	*0.076*	*0.093*	*0.076*	*<u>0.15</u>*
Antimony (Sb)	mg/L	-	0.02	-	0.00050	0.00050	0.00050	0.00050	0.00050
Arsenic (As)	mg/L	0.1	0.005	0.005	0.0015	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	-	-	-	0.0050	0.0050	0.0050	0.0050	0.0050
Beryllium (Be)	mg/L	0.011	-	-	0.00050	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	-	0.2	1.5	0.0050	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	0.002	0.0001	0.00007	0.000050	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	0.0089	-	0.0089	0.0015	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	0.0009	-	0.0025	0.00025	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	0.005	0.005	0.002	0.0016	0.0013	0.0013	0.0012	0.00070
Iron (Fe)	mg/L	0.3	-	0.3	0.18	0.20	0.26	0.18	**<u>0.34</u>**
Lead (Pb)	mg/L	0.01	0.001	0.001	0.00020	0.00013	0.00030	0.00050	0.00040
Manganese (Mn)	mg/L	-	-	-	0.024	0.020	0.049	0.022	0.033
Mercury (Hg)	mg/L	-	-	-	0.0000040	0.00000095	0.0000047	0.0000033	0.0000045
Molybdenum (Mo)	mg/L	-	0.04	0.073	0.0010	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	0.025	-	0.025	0.0015	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	0.1	-	0.001	0.00095	0.000088	0.00020	0.000050	0.00025
Silver (Ag)	mg/L	0.0001	-	0.00025	0.000016	0.0000050	0.0000050	0.0000050	0.0000088
Strontium (Sr)	mg/L	-	-	-	0.013	0.013	0.013	0.014	0.013
Thallium (Tl)	mg/L	-	0.0003	0.0008	0.000060	0.000005	0.000005	0.000005	0.000016
Titanium (Ti)	mg/L	-	-	-	0.0010	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	-	0.03	-	0.0050	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	-	0.005	0.015	0.0010	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	-	0.006	-	0.0010	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	0.03	0.02	0.03	0.0025	0.0025	0.0025	0.0025	0.0034
Zirconium (Zr)	mg/L	-	0.004	-	0.0020	0.0020	0.0020	0.0020	0.0020
Mercury (Hg) (Dissolved)	mg/L	0.0002	-	0.000026	0.0000016	0.0000013	0.0000030	0.0000013	0.0000013
CYANIDE SPECIES									
Total Cyanide	mg/L	-	-	-	0.0010	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	0.005	-	0.005	0.0010	0.0010	0.0010	0.0010	0.0010
NUTRIENTS									
Nitrate (NO_3^-)	mg/L as N	-	-	13	0.054	0.078	0.051	0.070	0.11
Nitrite (NO_2^-)	mg/L as N	-	-	0.06	0.025	0.025	0.025	0.025	0.025
Total Ammonia ($NH_3 + NH_4$)	mg/L as N	-	-	6.98	0.010	0.010	0.068	0.015	0.030
Total Kjeldahl Nitrogen	mg/L	-	-	-	--	--	--	--	--
Total Phosphorus (P)	mg/L	-	0.02	0.02	0.018	0.014	*<u>0.033</u>*	0.012	0.015
Phosphate (PO_4)	mg/L as P	-	-	-	--	--	--	0.050	--
ORGANICS									
Oil and Grease (A/V)	mg/L	-	-	-	--	0.425	0.25	--	--
Oil and Grease (Mineral)	mg/L	-	-	-	--	0.25	0.25	--	--
Oil and Grease (Total)	mg/L	-	-	-	--	0.55	0.25	--	--
Phenols	mg/L	0.001	0.001	0.004	--	0.00050	0.00050	--	--
Naphthalene	mg/L	-	0.007	0.0011	--	0.0001	0.0001	--	--
Acenaphthylene	mg/L	-	-	-	--	0.0001	0.0001	--	--
Acenaphthene	mg/L	-	-	0.0058	--	0.0001	0.0001	--	--
Fluorene	mg/L	-	0.0002	0.003	--	0.0001	0.0001	--	--
Benzo(b)fluoranthene	mg/L	-	-	-	--	0.00005	0.00005	--	--
Benzo(a)pyrene	mg/L	-	-	0.000015	--	0.000005	0.000005	--	--
Indeno(1,2,3-cd)pyrene	mg/L	-	-	-	--	0.0001	0.0001	--	--
2-and 1-methyl Naphthalene	mg/L	-	0.002	-	--	0.0001	0.0001	--	--
Chrysene-d12	%	-	-	-	--	93.25	--	--	--
Decachlorobiphenyl	%	-	-	-	--	84.5	--	--	--
RADIONUCLIDES									
Radium-226	Bq/L	1	-	-	--	--	--	0.0005	0.0005
MICROBIOLOGICAL									
Escherichia coli	CFU/100mL	100	-	-	--	--	4.0	--	--
Total Coliforms	CFU/100mL	-	-	-	--	--	199	--	--

<u>Notes:</u>
For the purposes of statistical calculations, values below the detection limit are assumed to be equal to one half of the detection limit.
PWQO = Provincial Water Quality Guidelines.
CWQG = Canadian Water Quality Guidelines.
Bold shading indicates a concentration greater than the PWQO.
Italics indicates a concentration greater than the interim PWQO.
Underlining indicates a concentration greater than the CWQG.
-- indicates data not available.

Surface Water Monitoring Location					DEL-LS - Delaney Lake (Profile Station)	DEL - Delaney Lake (Outlet Station)	DIV-LS - Dividing Lake (Profile Station)	DIV - Dividing Lake (Outlet Station)	MR - Mollie River
Rationale for Monitoring Location					Located adjacent to the MRA	Located adjacent to the MRA	Located downstream of Three Duck Lakes (lower) and Delaney Lake	Located downstream of Three Duck Lakes (lower) and Delaney Lake	Far-field station for Mollie River Watershed
Easting (NAD83)					431333	432505	435197	436103	442689
Northing (NAD83)					5262415	5262074	5261248	5260628	5263330
Date (from)					29-May-13	14-May-14	23-May-13	14-May-14	25-Aug-14
Date (to)					05-Feb-14	26-Jun-17	11-May-17	28-Jun-17	28-Jun-17
Number of Sampling Rounds					3	11	9	13	12
Parameter	**Unit**	**PWQO**	***Interim PWQO***	**CWQG**	**75th Percentile**	**75th Percentile**	**75th Percentile**	**75th Percentile**	**75th Percentile**
GENERAL PARAMETERS (FIELD MEASURED)									
pH	pH units	6.5-8.5		6.5 - 9.0	6.8	6.5	7.8	7.3	7.5
Temperature	degrees Celsius	-0.25			19	10	9	14	15
Conductivity	µS/cm	--			43	32	121	71	77
Dissolved Oxygen (DO)	mg/L	--			8	14	11	12	14
ORP	mV	--			178	135	174	209	199
GENERAL PARAMETERS (LAB MEASURED)									
Lab pH	pH units	6.5-8.5	-	6.5 - 9.0	**6.4**	7.1	7.5	7.6	7.7
Alkalinity	mg/L as CaCO3	-25%	-	-	8.0	14	35	30	36
Acidity	mg/L as CaCO3	-	-	-	2.5	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	-	-	-	36	41	97	79	90
Total Dissolved Solids (TDS)	mg/L	-	-	-	57	74	70	66	64
Total Suspended Solids (TSS)	mg/L	-	-	-	--	1.5	1.0	0.50	2.0
Total Hardness	mg/L as CaCO3	-	-	-	18	22	42	37	38
Dissolved Organic Carbon	mg/L	-	-	-	23	22	13	12	12
Total Organic Carbon (TOC)	mg/L	-	-	-	24	23	13	13	12
MAJOR IONS									
Calcium (Ca)	mg/L	-	-	-	5.5	6.6	13	11	12
Magnesium (Mg)	mg/L	-	-	-	1.1	1.3	2.3	2.1	2.2
Potassium (K)	mg/L	-	-	-	0.29	0.28	0.50	0.43	0.42
Sodium (Na)	mg/L	-	-	-	0.78	0.90	2.5	2.5	2.5
Chloride (Cl)	mg/L	-	-	120	0.39	0.42	4.8	4.1	3.9
Fluoride (F)	mg/L	-	-	0.12	0.025	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	-	-	-	2.4	2.1	3.5	3.2	3.0
METALS									
Aluminum (Al) (Dissolved)	mg/L	2	0.075	0.1	*0.15*	*0.15*	*0.077*	0.062	0.059
Antimony (Sb)	mg/L	-	0.02	-	--	0.00050	0.00050	0.00050	0.00050
Arsenic (As)	mg/L	0.1	0.005	0.005	0.0015	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	-	-	-	0.0050	0.0050	0.0040	0.0040	0.0040
Beryllium (Be)	mg/L	0.011	-	-	0.00050	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	-	0.2	1.5	0.0050	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	0.002	0.0001	0.00007	0.000025	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	0.0089	-	0.0089	0.0015	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	0.0009	-	0.0025	0.00025	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	0.005	0.005	0.002	0.00078	0.00070	0.0011	0.00080	0.00065
Iron (Fe)	mg/L	0.3	-	0.3	**0.40**	**0.45**	0.14	0.13	0.17
Lead (Pb)	mg/L	0.01	0.001	0.001	0.00055	0.00035	0.00010	0.00010	0.000050
Manganese (Mn)	mg/L	-	-	-	0.030	0.040	0.18	0.017	0.013
Mercury (Hg)	mg/L	-	-	-	0.000012	0.0000028	0.0000045	0.00000095	0.0000047
Molybdenum (Mo)	mg/L	-	0.04	0.073	0.0010	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	0.025	-	0.025	0.0015	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	0.1	-	0.001	0.000088	0.00020	0.000088	0.00010	0.00013
Silver (Ag)	mg/L	0.0001	-	0.00025	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050
Strontium (Sr)	mg/L	-	-	-	0.013	0.0115	0.019	0.016	0.016
Thallium (Tl)	mg/L	-	0.0003	0.0008	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050
Titanium (Ti)	mg/L	-	-	-	0.0015	0.0020	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	-	0.03	-	0.0050	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	-	0.005	0.015	0.0010	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	-	0.006	-	0.0010	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	0.03	0.02	0.03	0.013	0.0025	0.0025	0.0025	0.0025
Zirconium (Zr)	mg/L	-	0.004	-	0.0020	0.0020	0.0020	0.0020	0.0020
Mercury (Hg) (Dissolved)	mg/L	0.0002	-	0.000026	--	0.0000013	0.0000023	0.0000013	0.0000018
CYANIDE SPECIES									
Total Cyanide	mg/L	-	-	-	0.0010	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	0.005	-	0.005	0.0010	0.0010	0.0010	0.0010	0.0010
NUTRIENTS									
Nitrate (NO_3^-)	mg/L as N	-	-	13	0.043	0.14	0.14	0.11	0.070
Nitrite (NO_2^-)	mg/L as N	-	-	0.06	0.025	0.025	0.025	0.025	0.025
Total Ammonia ($NH_3 + NH_4$)	mg/L as N	-	-	6.98	0.035	0.010	0.025	0.01	0.01
Total Kjeldahl Nitrogen	mg/L	-	-	-	--	--	--	--	--
Total Phosphorus (P)	mg/L	-	0.02	0.02	0.016	0.019	*0.031*	0.012	0.012
Phosphate (PO_4)	mg/L as P	-	-	-	--	--	--	--	--
ORGANICS									
Oil and Grease (A/V)	mg/L	-	-	-	--	--	--	--	--
Oil and Grease (Mineral)	mg/L	-	-	-	--	--	--	--	--
Oil and Grease (Total)	mg/L	-	-	-	--	--	--	--	--
Phenols	mg/L	0.001	0.001	0.004	--	--	--	--	--
Naphthalene	mg/L	-	0.007	0.0011	--	--	--	--	--
Acenaphthylene	mg/L	-	-	-	--	--	--	--	--
Acenaphthene	mg/L	-	-	0.0058	--	--	--	--	--
Fluorene	mg/L	-	0.0002	0.003	--	--	--	--	--
Benzo(b)fluoranthene	mg/L	-	-	-	--	--	--	--	--
Benzo(a)pyrene	mg/L	-	-	0.000015	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	mg/L	-	-	-	--	--	--	--	--
2-and 1-methyl Naphthalene	mg/L	-	0.002	-	--	--	--	--	--
Chrysene-d12	%	-	-	-	--	--	--	--	--
Decachlorobiphenyl	%	-	-	-	--	--	--	--	--
RADIONUCLIDES									
Radium-226	Bq/L	1	-	-	--	--	--	--	--
MICROBIOLOGICAL									
Escherichia coli	CFU/100mL	100	-	-	--	5.0	--	--	--
Total Coliforms	CFU/100mL	-	-	-	--	163	--	--	--

Notes:
For the purposes of statistical calculations, values below the detection limit are assumed to be equal to one half of the detection limit.
PWQO = Provincial Water Quality Guidelines.
CWQG = Canadian Water Quality Guidelines.
Bold shading indicates a concentration greater than the PWQO.
Italics indicates a concentration greater than the interim PWQO.
Underlining indicates a concentration greater than the CWQG.
-- indicates data not available.

Surface Water Monitoring Location					SL2 - Unnamed Lake #6 (Outlet Station)	SL-LS1 - Schist Lake (Profile Station)	SL-LS2 - Schist Lake (Profile Station)	SL - Schist Lake (Outlet Station)	P-3 - Inflow to Bagsverd Lake
Rationale for Monitoring Location					Located adjacent to the TMF	Located adjacent to the TMF	Located adjacent to the TMF	Located adjacent to the TMF	Upstream of Bagsverd Lake
Easting (NAD83)					428026	425959	426531	428499	430389
Northing (NAD83)					5269244	5270327	5270550	5269768	5268355
Date (from)					31-Oct-16	09-Nov-16	18-Aug-17	24-Jan-12	19-Nov-12
Date (to)					26-Jun-17	16-May-17	18-Aug-17	20-Jun-17	06-Nov-14
Number of Sampling Rounds					6	3 (top and bottom samples)	4 (top and bottom samples)	38	7
Parameter	**Unit**	**PWQO**	***Interim PWQO***	**CWQG**	**75th Percentile**	**75th Percentile**	**75th Percentile**	**75th Percentile**	**75th Percentile**
GENERAL PARAMETERS (FIELD MEASURED)									
pH	pH units	6.5-8.5		6.5 - 9.0	6.7	7.6	7.6	7.2	6.5
Temperature	degrees Celsius	-0.25			11	7	15	15	10
Conductivity	µS/cm	--			48	62	81	50	28
Dissolved Oxygen (DO)	mg/L	--			12	12	12	11	10
ORP	mV	--			167	175	174	212	--
GENERAL PARAMETERS (LAB MEASURED)									
Lab pH	pH units	6.5-8.5	-	6.5 - 9.0	7.4	7.6	7.6	7.1	**6.3**
Alkalinity	mg/L as CaCO3	-25%	-	-	28	26	24	25	9.0
Acidity	mg/L as CaCO3	-	-	-	2.5	2.5	2.5	2.5	--
Electrical Conductivity (EC)	µS/cm	-	-	-	56	64	55	61	41
Total Dissolved Solids (TDS)	mg/L	-	-	-	64	44	46	52	66
Total Suspended Solids (TSS)	mg/L	-	-	-	0.50	1.0	1.3	2.0	2.5
Total Hardness	mg/L as CaCO3	-	-	-	27	28	25	29	20
Dissolved Organic Carbon	mg/L	-	-	-	17	9.0	10	10	18
Total Organic Carbon (TOC)	mg/L	-	-	-	17	9.8	11	11	--
MAJOR IONS									
Calcium (Ca)	mg/L	-	-	-	7.8	8.9	8.1	9.4	6.6
Magnesium (Mg)	mg/L	-	-	-	2.0	1.3	1.2	1.4	0.83
Potassium (K)	mg/L	-	-	-	0.16	0.26	0.25	0.32	0.36
Sodium (Na)	mg/L	-	-	-	0.85	0.68	0.71	0.73	0.85
Chloride (Cl)	mg/L	-	-	120	0.27	0.26	0.34	0.37	0.33
Fluoride (F)	mg/L	-	-	0.12	0.025	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	-	-	-	2.6	2.8	2.7	3.0	3.8
METALS									
Aluminum (Al) (Dissolved)	mg/L	2	0.075	0.1	*0.15*	0.022	0.019	0.024	*0.16*
Antimony (Sb)	mg/L	-	0.02	-	0.00050	0.00050	0.00050	0.00050	--
Arsenic (As)	mg/L	0.1	0.005	0.005	0.0015	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	-	-	-	0.0048	0.0068	0.0063	0.0060	0.0055
Beryllium (Be)	mg/L	0.011	-	-	0.00050	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	-	0.2	1.5	0.0050	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	0.002	0.0001	0.00007	0.000010	0.000040	0.000028	0.000010	0.000018
Chromium (Cr)	mg/L	0.0089	-	0.0089	0.0015	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	0.0009	-	0.0025	0.00025	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	0.005	0.005	0.002	0.00090	0.0010	0.0010	0.00060	0.00093
Iron (Fe)	mg/L	0.3	-	0.3	0.22	0.0050	0.014	0.042	0.15
Lead (Pb)	mg/L	0.01	0.001	0.001	0.000088	0.00039	0.00016	0.00050	0.00050
Manganese (Mn)	mg/L	-	-	-	0.024	0.0090	0.029	0.029	0.035
Mercury (Hg)	mg/L	-	-	-	0.0000059	0.0000051	0.0000021	0.0000037	0.00000095
Molybdenum (Mo)	mg/L	-	0.04	0.073	0.0010	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	0.025	-	0.025	0.0015	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	0.1	-	0.001	0.000088	0.000050	0.00016	0.00010	0.00011
Silver (Ag)	mg/L	0.0001	-	0.00025	0.0000050	0.000039	0.000016	0.0000050	0.0000050
Strontium (Sr)	mg/L	-	-	-	0.016	0.024	0.024	0.024	0.016
Thallium (Tl)	mg/L	-	0.0003	0.0008	0.0000050	0.00011	0.000041	0.0000050	0.0000050
Titanium (Ti)	mg/L	-	-	-	0.0010	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	-	0.03	-	0.0050	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	-	0.005	0.015	0.0010	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	-	0.006	-	0.0010	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	0.03	0.02	0.03	0.0025	0.0025	0.0025	0.0025	0.0025
Zirconium (Zr)	mg/L	-	0.004	-	0.0020	0.0020	0.0020	0.0020	0.0020
Mercury (Hg) (Dissolved)	mg/L	0.0002	-	0.000026	0.0000044	0.0000029	0.0000032	0.0000013	0.0000030
CYANIDE SPECIES									
Total Cyanide	mg/L	-	-	-	0.0010	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	0.005	-	0.005	0.0010	0.0010	0.0010	0.0010	--
NUTRIENTS									
Nitrate (NO_3^-)	mg/L as N	-	-	13	0.081	0.16	0.025	0.025	0.025
Nitrite (NO_2^-)	mg/L as N	-	-	0.06	0.025	0.025	0.025	0.025	0.025
Total Ammonia ($NH_3 + NH_4$)	mg/L as N	-	-	6.98	0.01	0.063	0.010	0.21	0.03
Total Kjeldahl Nitrogen	mg/L	-	-	-	--	--	--	--	--
Total Phosphorus (P)	mg/L	-	0.02	0.02	0.0088	0.011	0.012	0.011	*0.024*
Phosphate (PO_4)	mg/L as P	-	-	-	--	--	--	0.039	0.050
ORGANICS									
Oil and Grease (A/V)	mg/L	-	-	-	0.25	--	--	0.25	--
Oil and Grease (Mineral)	mg/L	-	-	-	0.25	--	--	0.25	--
Oil and Grease (Total)	mg/L	-	-	-	0.25	--	--	0.25	--
Phenols	mg/L	0.001	0.001	0.004	0.00050	--	--	0.00050	--
Naphthalene	mg/L	-	0.007	0.0011	0.0001	--	--	0.0001	--
Acenaphthylene	mg/L	-	-	-	0.0001	--	--	0.0001	--
Acenaphthene	mg/L	-	-	0.0058	0.0001	--	--	0.0001	--
Fluorene	mg/L	-	0.0002	0.003	0.0001	--	--	0.0001	--
Benzo(b)fluoranthene	mg/L	-	-	-	0.00005	--	--	0.00005	--
Benzo(a)pyrene	mg/L	-	-	0.000015	0.000005	--	--	0.000005	--
Indeno(1,2,3-cd)pyrene	mg/L	-	-	-	0.0001	--	--	0.0001	--
2-and 1-methyl Naphthalene	mg/L	-	0.002	-	0.0001	--	--	0.0001	--
Chrysene-d12	%	-	-	-	70.25	--	--	92	--
Decachlorobiphenyl	%	-	-	-	72.25	--	--	107	--
RADIONUCLIDES									
Radium-226	Bq/L	1	-	-	--	--	--	0.0005	0.0005
MICROBIOLOGICAL									
Escherichia coli	CFU/100mL	100	-	-	--	--	--	--	--
Total Coliforms	CFU/100mL	-	-	-	--	--	--	--	--

Notes:
For the purposes of statistical calculations, values below the detection limit are assumed to be equal to one half of the detection limit.
PWQO = Provincial Water Quality Guidelines.
CWQG = Canadian Water Quality Guidelines.
Bold shading indicates a concentration greater than the PWQO.
Italics indicates a concentration greater than the interim PWQO.
Underlining indicates a concentration greater than the CWQG.
-- indicates data not available.

SURFACE WATER QUALITY BASELINE RESULTS
IAMGOLD CÔTÉ GOLD PROJECT
75th PERCENTILE VALUES

Surface Water Monitoring Location					P-6 - Inflow to Bagsverd Lake	BAG-LS1 - Bagsverd Lake (Profile Station)	BPD - Bagsverd Creek (Upstream Section)	L-2 - Inflow to Bagsverd Creek	BL-a - Bagsverd Creek (Mid-stream Section)
Rationale for Monitoring Location					Upstream of Bagsverd Lake	Located downstream of Unnamed Lake #6 and Bagsverd Lake (south)	Located downstream of Unnamed Lake #6 and Bagsverd Lake (south)	Located downstream of Bagsverd Lake	Located downstream of Bagsverd Lake
Easting (NAD83)					427784	429886	431341	428298	430135
Northing (NAD83)					5268053	5270214	5270640	5273455	5273626
Date (from)					26-Mar-12	21-May-13	26-Mar-12	26-Mar-12	24-Jan-12
Date (to)					20-Jun-17	15-Aug-17	21-Jun-17	24-May-17	20-Jun-17
Number of Sampling Rounds					37	11 (top and bottom samples)	32	29	35
Parameter	**Unit**	**PWQO**	***Interim PWQO***	**CWQG**	**75th Percentile**	**75th Percentile**	**75th Percentile**	**75th Percentile**	**75th Percentile**
GENERAL PARAMETERS (FIELD MEASURED)									
pH	pH units	6.5-8.5		6.5 - 9.0	7.0	7.5	7.3	7.0	6.9
Temperature	degrees Celsius	-0.25			16	12	18	18	12
Conductivity	µS/cm	--			58	64	49	31	45
Dissolved Oxygen (DO)	mg/L	--			9	12	12	12	13
ORP	mV	--			219	205	186	186	163
GENERAL PARAMETERS (LAB MEASURED)									
Lab pH	pH units	6.5-8.5	-	6.5 - 9.0	7.2	7.4	7.2	6.6	7.0
Alkalinity	mg/L as CaCO3	-25%	-	-	36	25	24	11	23
Acidity	mg/L as CaCO3	-	-	-	2.5	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	-	-	-	80	60	57	37	57
Total Dissolved Solids (TDS)	mg/L	-	-	-	66	50	55	58	60
Total Suspended Solids (TSS)	mg/L	-	-	-	1.0	3.0	1.0	3.0	1.0
Total Hardness	mg/L as CaCO3	-	-	-	36	26	28	19	29
Dissolved Organic Carbon	mg/L	-	-	-	13	11	10	16	14
Total Organic Carbon (TOC)	mg/L	-	-	-	13	11	11	18	16
MAJOR IONS									
Calcium (Ca)	mg/L	-	-	-	11	8.5	9.1	5.2	9.1
Magnesium (Mg)	mg/L	-	-	-	2.1	1.2	1.4	1.4	1.4
Potassium (K)	mg/L	-	-	-	0.26	0.28	0.31	0.31	0.32
Sodium (Na)	mg/L	-	-	-	1.1	0.70	0.76	0.90	0.78
Chloride (Cl)	mg/L	-	-	120	0.40	0.32	0.34	0.35	0.36
Fluoride (F)	mg/L	-	-	0.12	0.025	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	-	-	-	3.2	3.0	3.1	2.7	3.1
METALS									
Aluminum (Al) (Dissolved)	mg/L	2	0.075	0.1	*0.082*	0.026	0.019	*0.14*	0.059
Antimony (Sb)	mg/L	-	0.02	-	0.00050	0.00050	0.00050	0.00050	0.00050
Arsenic (As)	mg/L	0.1	0.005	0.005	0.0015	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	-	-	-	0.0050	0.0050	0.0053	0.0050	0.0055
Beryllium (Be)	mg/L	0.011	-	-	0.00050	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	-	0.2	1.5	0.0050	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	0.002	0.0001	0.00007	0.000010	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	0.0089	-	0.0089	0.0015	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	0.0009	-	0.0025	0.00025	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	0.005	0.005	0.002	0.00088	0.00080	0.00053	0.00080	0.00060
Iron (Fe)	mg/L	0.3	-	0.3	**0.39**	0.044	0.022	**0.46**	0.10
Lead (Pb)	mg/L	0.01	0.001	0.001	0.00050	0.00018	0.00050	0.00050	0.00050
Manganese (Mn)	mg/L	-	-	-	0.22	0.062	0.033	0.028	0.026
Mercury (Hg)	mg/L	-	-	-	0.0000060	0.0000051	0.0000016	0.0000062	0.0000024
Molybdenum (Mo)	mg/L	-	0.04	0.073	0.0010	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	0.025	-	0.025	0.0015	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	0.1	-	0.001	0.00016	0.000050	0.000063	0.000050	0.00020
Silver (Ag)	mg/L	0.0001	-	0.00025	0.0000050	0.0000050	0.0000050	0.0000063	0.0000050
Strontium (Sr)	mg/L	-	-	-	0.024	0.020	0.021	0.015	0.021
Thallium (Tl)	mg/L	-	0.0003	0.0008	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050
Titanium (Ti)	mg/L	-	-	-	0.0010	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	-	0.03	-	0.0050	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	-	0.005	0.015	0.0010	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	-	0.006	-	0.0010	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	0.03	0.02	0.03	0.0025	0.0025	0.0025	0.0025	0.0051
Zirconium (Zr)	mg/L	-	0.004	-	0.0020	0.0020	0.0020	0.0020	0.0020
Mercury (Hg) (Dissolved)	mg/L	0.0002	-	0.000026	0.0000013	0.0000035	0.0000013	0.0000013	0.0000013
CYANIDE SPECIES									
Total Cyanide	mg/L	-	-	-	0.0010	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	0.005	-	0.005	0.0010	0.0010	0.0010	0.0010	0.0010
NUTRIENTS									
Nitrate (NO_3^-)	mg/L as N	-	-	13	0.025	0.078	0.025	0.063	0.034
Nitrite (NO_2^-)	mg/L as N	-	-	0.06	0.025	0.025	0.025	0.025	0.025
Total Ammonia ($NH_3 + NH_4$)	mg/L as N	-	-	6.98	0.045	0.088	0.063	0.040	0.040
Total Kjeldahl Nitrogen	mg/L	-	-	-	--	--	--	--	--
Total Phosphorus (P)	mg/L	-	0.02	0.02	0.013	*0.021*	0.020	0.020	0.012
Phosphate (PO_4)	mg/L as P	-	-	-	0.050	--	0.050	0.050	0.050
ORGANICS									
Oil and Grease (A/V)	mg/L	-	-	-	--	0.25	--	--	--
Oil and Grease (Mineral)	mg/L	-	-	-	--	0.25	--	--	--
Oil and Grease (Total)	mg/L	-	-	-	--	0.25	--	--	--
Phenols	mg/L	0.001	0.001	0.004	--	0.00050	--	--	--
Naphthalene	mg/L	-	0.007	0.0011	--	0.0001	--	--	--
Acenaphthylene	mg/L	-	-	-	--	0.0001	--	--	--
Acenaphthene	mg/L	-	-	0.0058	--	0.0001	--	--	--
Fluorene	mg/L	-	0.0002	0.003	--	0.0001	--	--	--
Benzo(b)fluoranthene	mg/L	-	-	-	--	0.00005	--	--	--
Benzo(a)pyrene	mg/L	-	-	0.000015	--	0.000005	--	--	--
Indeno(1,2,3-cd)pyrene	mg/L	-	-	-	--	0.0001	--	--	--
2-and 1-methyl Naphthalene	mg/L	-	0.002	-	--	0.0001	--	--	--
Chrysene-d12	%	-	-	-	--	--	--	--	--
Decachlorobiphenyl	%	-	-	-	--	--	--	--	--
RADIONUCLIDES									
Radium-226	Bq/L	1	-	-	0.0005	--	0.0005	0.0005	0.0005
MICROBIOLOGICAL									
Escherichia coli	CFU/100mL	100	-	-	--	2.0	--	--	--
Total Coliforms	CFU/100mL	-	-	-	--	142	--	--	--

Notes:
For the purposes of statistical calculations, values below the detection limit are assumed to be equal to one half of the detection limit.
PWQO = Provincial Water Quality Guidelines.
CWQG = Canadian Water Quality Guidelines.
Bold shading indicates a concentration greater than the PWQO.
Italics indicates a concentration greater than the interim PWQO.
Underlining indicates a concentration greater than the CWQG.
-- indicates data not available.

SURFACE WATER QUALITY BASELINE RESULTS
IAMGOLD CÔTÉ GOLD PROJECT
75th PERCENTILE VALUES

Surface Water Monitoring Location					BL-b - Bagsverd Creek (Downstream Section)	WL-1 - Wolf Lake (Outlet Station)	SR - Somme River	NEV-LS - Neville Lake (Profile Station)	NL - Neville Lake (Outlet Station)
Rationale for Monitoring Location					Located downstream of Bagsverd Lake	Upstream of Neville Lake	Upstream of Neville Lake	Located downstream of Bagsverd Creek	Located downstream of Bagsverd Creek
Easting (NAD83)					430571	425988	429904	431443	431438
Northing (NAD83)					5277421	5277614	5280160	5277466	5278357
Date (from)					24-Jan-12	23-May-12	24-Jan-12	28-May-13	29-Jan-13
Date (to)					20-Jun-17	29-May-17	24-May-17	18-Aug-17	17-May-17
Number of Sampling Rounds					36	17	24	14 (top and bottom samples)	19
Parameter	**Unit**	**PWQO**	***Interim PWQO***	**CWQG**	**75th Percentile**	**75th Percentile**	**75th Percentile**	**75th Percentile**	**75th Percentile**
GENERAL PARAMETERS (FIELD MEASURED)									
pH	pH units	6.5-8.5		6.5 - 9.0	6.9	7.3	7.3	6.8	7.0
Temperature	degrees Celsius	-0.25			12	18	17	11	13
Conductivity	µS/cm	--			41	40	34	61	36
Dissolved Oxygen (DO)	mg/L	--			11	12	12	11	13
ORP	mV	--			199	--	--	140	--
GENERAL PARAMETERS (LAB MEASURED)									
Lab pH	pH units	6.5-8.5	-	6.5 - 9.0	7.0	6.9	6.8	7.0	6.9
Alkalinity	mg/L as CaCO3	-25%	-	-	24	15	15	17	16
Acidity	mg/L as CaCO3	-	-	-	2.5	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	-	-	-	59	42	49	45	46
Total Dissolved Solids (TDS)	mg/L	-	-	-	64	56	56	70	52
Total Suspended Solids (TSS)	mg/L	-	-	-	1.0	2.0	1.5	2.8	1.5
Total Hardness	mg/L as CaCO3	-	-	-	28	21	22	22	22
Dissolved Organic Carbon	mg/L	-	-	-	16	13	13	18	12
Total Organic Carbon (TOC)	mg/L	-	-	-	19	14	13	20	13
MAJOR IONS									
Calcium (Ca)	mg/L	-	-	-	8.7	5.8	6.6	6.4	6.2
Magnesium (Mg)	mg/L	-	-	-	1.6	1.5	1.7	1.3	1.4
Potassium (K)	mg/L	-	-	-	0.30	0.33	0.35	0.26	0.30
Sodium (Na)	mg/L	-	-	-	0.84	0.87	1.0	0.84	0.90
Chloride (Cl)	mg/L	-	-	120	0.41	0.36	0.42	0.37	0.37
Fluoride (F)	mg/L	-	-	0.12	0.025	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	-	-	-	2.9	3.1	3.3	2.7	3.0
METALS									
Aluminum (Al) (Dissolved)	mg/L	2	0.075	0.1	*0.082*	*0.081*	*0.088*	*<u>0.13</u>*	*0.090*
Antimony (Sb)	mg/L	-	0.02	-	0.00050	0.00050	0.00050	0.00050	0.00050
Arsenic (As)	mg/L	0.1	0.005	0.005	0.0015	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	-	-	-	0.0050	0.0050	0.0050	0.0060	0.0050
Beryllium (Be)	mg/L	0.011	-	-	0.00050	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	-	0.2	1.5	0.0050	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	0.002	0.0001	0.00007	0.000010	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	0.0089	-	0.0089	0.0015	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	0.0009	-	0.0025	0.00025	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	0.005	0.005	0.002	0.00070	0.00080	0.00078	0.00095	0.00070
Iron (Fe)	mg/L	0.3	-	0.3	0.22	0.16	0.20	**<u>0.554</u>**	0.203
Lead (Pb)	mg/L	0.01	0.001	0.001	0.00050	0.00050	0.00050	0.00050	0.00050
Manganese (Mn)	mg/L	-	-	-	0.037	0.017	0.018	0.072	0.018
Mercury (Hg)	mg/L	-	-	-	0.0000040	0.0000042	0.0000031	0.0000024	0.0000032
Molybdenum (Mo)	mg/L	-	0.04	0.073	0.0010	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	0.025	-	0.025	0.0015	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	0.1	-	0.001	0.000050	0.000050	0.000050	0.00028	0.000050
Silver (Ag)	mg/L	0.0001	-	0.00025	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050
Strontium (Sr)	mg/L	-	-	-	0.021	0.015	0.016	0.018	0.0165
Thallium (Tl)	mg/L	-	0.0003	0.0008	0.0000050	0.0000050	0.0000088	0.0000050	0.0000050
Titanium (Ti)	mg/L	-	-	-	0.0010	0.0010	0.0010	0.0020	0.0010
Tungsten (W)	mg/L	-	0.03	-	0.0050	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	-	0.005	0.015	0.0010	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	-	0.006	-	0.0010	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	0.03	0.02	0.03	0.0025	0.0025	0.0025	0.0025	0.0025
Zirconium (Zr)	mg/L	-	0.004	-	0.0020	0.0020	0.0020	0.0020	0.0020
Mercury (Hg) (Dissolved)	mg/L	0.0002	-	0.000026	0.0000040	0.0000013	0.0000019	0.0000028	0.0000013
CYANIDE SPECIES									
Total Cyanide	mg/L	-	-	-	0.0010	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	0.005	-	0.005	0.0010	0.0010	0.0010	0.0010	0.0010
NUTRIENTS									
Nitrate (NO_3^-)	mg/L as N	-	-	13	0.093	0.058	0.025	0.080	0.059
Nitrite (NO_2^-)	mg/L as N	-	-	0.06	0.025	0.025	0.025	0.025	0.025
Total Ammonia ($NH_3 + NH_4$)	mg/L as N	-	-	6.98	0.033	0.030	0.033	0.12	0.055
Total Kjeldahl Nitrogen	mg/L	-	-	-	--	--	--	--	--
Total Phosphorus (P)	mg/L	-	0.02	0.02	0.015	0.017	0.014	*<u>0.034</u>*	0.014
Phosphate (PO_4)	mg/L as P	-	-	-	0.050	0.050	0.050	--	0.0050
ORGANICS									
Oil and Grease (A/V)	mg/L	-	-	-	--	--	--	--	--
Oil and Grease (Mineral)	mg/L	-	-	-	--	--	--	--	--
Oil and Grease (Total)	mg/L	-	-	-	--	--	--	--	--
Phenols	mg/L	0.001	0.001	0.004	--	--	--	--	--
Naphthalene	mg/L	-	0.007	0.0011	--	--	--	--	--
Acenaphthylene	mg/L	-	-	-	--	--	--	--	--
Acenaphthene	mg/L	-	-	0.0058	--	--	--	--	--
Fluorene	mg/L	-	0.0002	0.003	--	--	--	--	--
Benzo(b)fluoranthene	mg/L	-	-	-	--	--	--	--	--
Benzo(a)pyrene	mg/L	-	-	0.000015	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	mg/L	-	-	-	--	--	--	--	--
2-and 1-methyl Naphthalene	mg/L	-	0.002	-	--	--	--	--	--
Chrysene-d12	%	-	-	-	--	--	--	--	--
Decachlorobiphenyl	%	-	-	-	--	--	--	--	--
RADIONUCLIDES									
Radium-226	Bq/L	1	-	-	0.0005	0.0005	0.0005	--	0.0005
MICROBIOLOGICAL									
Escherichia coli	CFU/100mL	100	-	-	--	--	--	--	--
Total Coliforms	CFU/100mL	-	-	-	--	--	--	--	--

<u>Notes:</u>
For the purposes of statistical calculations, values below the detection limit are assumed to be equal to one half of the detection limit.
PWQO = Provincial Water Quality Guidelines.
CWQG = Canadian Water Quality Guidelines.
Bold shading indicates a concentration greater than the PWQO.
Italics indicates a concentration greater than the interim PWQO.
Underlining indicates a concentration greater than the CWQG.
-- indicates data not available.

SURFACE WATER QUALITY BASELINE RESULTS
IAMGOLD CÔTÉ GOLD PROJECT
75th PERCENTILE VALUES

Surface Water Monitoring Location					MESO-LS7 - Mesomikenda Lake, Lower (Profile Station)	MESO-LS5 - Mesomikenda Lake, Middle (Profile Station)	MESO-LS4 - Mesomikenda Lake, Middle (Profile Station)	MESO-LS2 - Mesomikenda Lake, Upper (Profile Station)	MESO-OUT - Mesomikenda Lake (Outlet Station)
Rationale for Monitoring Location					Located downstream of Neville Lake	Located downstream of Neville Lake	Located downstream of Neville Lake	Located downstream of Neville Lake	Located downstream of Neville Lake
Easting (NAD83)					434288	433282	433428	433501	434952
Northing (NAD83)					5267851	5272218	5274044	5281444	5283681
Date (from)					29-May-13	30-May-13	30-May-13	28-May-13	29-Jan-13
Date (to)					23-Sep-14	23-Sep-14	24-Sep-14	24-Sep-14	28-May-17
Number of Sampling Rounds					6 (top and bottom samples)	6 (top and bottom samples)	6 (top and bottom samples)	6 (top and bottom samples)	19
Parameter	**Unit**	**PWQO**	***Interim PWQO***	**CWQG**	**75th Percentile**	**75th Percentile**	**75th Percentile**	**75th Percentile**	**75th Percentile**
GENERAL PARAMETERS (FIELD MEASURED)									
pH	pH units	6.5-8.5		6.5 - 9.0	7.5	7.4	7.3	7.2	7.6
Temperature	degrees Celsius	-0.25			11	12	12	11	16
Conductivity	µS/cm	--			140	87	86	61	50
Dissolved Oxygen (DO)	mg/L	--			12	12	11	11	13
ORP	mV	--			176	195	236	192	--
GENERAL PARAMETERS (LAB MEASURED)									
Lab pH	pH units	6.5-8.5	-	6.5 - 9.0	7.5	7.3	7.3	7.2	7.0
Alkalinity	mg/L as CaCO3	-25%	-	-	33	23	22	21	21
Acidity	mg/L as CaCO3	-	-	-	2.5	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	-	-	-	137	83	81	60	58
Total Dissolved Solids (TDS)	mg/L	-	-	-	88	61	68	49	52
Total Suspended Solids (TSS)	mg/L	-	-	-	0.5	0.5	0.5	0.9	1.0
Total Hardness	mg/L as CaCO3	-	-	-	43	29	29	26	26
Dissolved Organic Carbon	mg/L	-	-	-	6.4	8.4	8.5	9.3	9.7
Total Organic Carbon (TOC)	mg/L	-	-	-	7.1	8.7	8.9	9.6	9.5
MAJOR IONS									
Calcium (Ca)	mg/L	-	-	-	13	8.8	8.6	7.6	7.7
Magnesium (Mg)	mg/L	-	-	-	2.3	1.8	1.7	1.6	1.7
Potassium (K)	mg/L	-	-	-	0.53	0.40	0.41	0.35	0.34
Sodium (Na)	mg/L	-	-	-	9.0	4.3	4.1	1.4	1.4
Chloride (Cl)	mg/L	-	-	120	16	7.2	6.4	1.4	1.3
Fluoride (F)	mg/L	-	-	0.12	0.025	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	-	-	-	4.3	3.9	3.9	3.2	3.2
METALS									
Aluminum (Al) (Dissolved)	mg/L	2	0.075	0.1	0.020	0.043	0.043	0.057	0.069
Antimony (Sb)	mg/L	-	0.02	-	--	--	--	--	0.00050
Arsenic (As)	mg/L	0.1	0.005	0.005	0.0015	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	-	-	-	0.0030	0.0033	0.0033	0.0040	0.0040
Beryllium (Be)	mg/L	0.011	-	-	0.00050	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	-	0.2	1.5	0.0050	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	0.002	0.0001	0.00007	0.000010	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	0.0089	-	0.0089	0.0015	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	0.0009	-	0.0025	0.00025	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	0.005	0.005	0.002	0.00070	0.00078	0.00080	0.00078	0.00070
Iron (Fe)	mg/L	0.3	-	0.3	0.030	0.028	0.040	0.072	0.11
Lead (Pb)	mg/L	0.01	0.001	0.001	0.000050	0.00043	0.000050	0.000063	0.00050
Manganese (Mn)	mg/L	-	-	-	0.019	0.0043	0.0033	0.0083	0.0085
Mercury (Hg)	mg/L	-	-	-	0.00000095	0.0000018	0.0000030	0.0000029	0.0000015
Molybdenum (Mo)	mg/L	-	0.04	0.073	0.0010	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	0.025	-	0.025	0.0015	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	0.1	-	0.001	0.000050	0.000088	0.000050	0.000050	0.000050
Silver (Ag)	mg/L	0.0001	-	0.00025	0.0000050	0.0000050	0.0000050	0.0000088	0.0000050
Strontium (Sr)	mg/L	-	-	-	0.02	0.017	0.017	0.015	0.016
Thallium (Tl)	mg/L	-	0.0003	0.0008	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050
Titanium (Ti)	mg/L	-	-	-	0.0010	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	-	0.03	-	0.0050	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	-	0.005	0.015	0.0010	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	-	0.006	-	0.0010	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	0.03	0.02	0.03	0.0025	0.0025	0.0025	0.0025	0.0025
Zirconium (Zr)	mg/L	-	0.004	-	0.0020	0.0020	0.0020	0.0020	0.0020
Mercury (Hg) (Dissolved)	mg/L	0.0002	-	0.000026	0.0000013	0.0000013	0.0000013	0.0000013	0.0000013
CYANIDE SPECIES									
Total Cyanide	mg/L	-	-	-	0.0010	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	0.005	-	0.005	0.0010	0.0010	0.0010	0.0010	0.0010
NUTRIENTS									
Nitrate (NO_3^-)	mg/L as N	-	-	13	0.083	0.11	0.12	0.10	0.080
Nitrite (NO_2^-)	mg/L as N	-	-	0.06	0.025	0.025	0.025	0.025	0.025
Total Ammonia ($NH_3 + NH_4$)	mg/L as N	-	-	6.98	0.065	0.045	0.0225	0.055	0.030
Total Kjeldahl Nitrogen	mg/L	-	-	-	--	--	--	--	--
Total Phosphorus (P)	mg/L	-	0.02	0.02	0.019	*0.051*	*0.039*	*0.026*	0.013
Phosphate (PO_4)	mg/L as P	-	-	-	--	--	--	--	0.0050
ORGANICS									
Oil and Grease (A/V)	mg/L	-	-	-	0.25	0.25	0.25	0.25	--
Oil and Grease (Mineral)	mg/L	-	-	-	0.25	0.25	0.25	0.25	--
Oil and Grease (Total)	mg/L	-	-	-	0.25	0.25	0.25	0.25	--
Phenols	mg/L	0.001	0.001	0.004	--	0.00050	0.00050	0.00100	--
Naphthalene	mg/L	-	0.007	0.0011	0.0001	0.0001	0.0001	0.0001	--
Acenaphthylene	mg/L	-	-	-	0.0001	0.0001	0.0001	0.0001	--
Acenaphthene	mg/L	-	-	0.0058	0.0001	0.0001	0.0001	0.0001	--
Fluorene	mg/L	-	0.0002	0.003	0.0001	0.0001	0.0001	0.0001	--
Benzo(b)fluoranthene	mg/L	-	-	-	0.00005	0.00005	0.00005	0.00005	--
Benzo(a)pyrene	mg/L	-	-	0.000015	0.000005	0.000005	0.000005	0.000005	--
Indeno(1,2,3-cd)pyrene	mg/L	-	-	-	0.0001	0.0001	0.0001	0.0001	--
2-and 1-methyl Naphthalene	mg/L	-	0.002	-	0.0001	0.0001	0.0001	0.0001	--
Chrysene-d12	%	-	-	-	--	--	--	--	--
Decachlorobiphenyl	%	-	-	-	--	--	--	--	--
RADIONUCLIDES									
Radium-226	Bq/L	1	-	-	--	--	0.0005	--	0.0005
MICROBIOLOGICAL									
Escherichia coli	CFU/100mL	100	-	-	--	--	1.8	1.5	--
Total Coliforms	CFU/100mL	-	-	-	40	37	45	67	--

Notes:
For the purposes of statistical calculations, values below the detection limit are assumed to be equal to one half of the detection limit.
PWQO = Provincial Water Quality Guidelines.
CWQG = Canadian Water Quality Guidelines.
Bold shading indicates a concentration greater than the PWQO.
Italics indicates a concentration greater than the interim PWQO.
Underlining indicates a concentration greater than the CWQG.
-- indicates data not available.

Surface Water Monitoring Location	MKR - Makami River
Rationale for Monitoring Location	Far-field Station for Mesomikenda Lake Watershed
Easting (NAD83)	444646
Northing (NAD83)	5283648
Date (from)	06-Dec-16
Date (to)	28-May-17
Number of Sampling Rounds	7

Parameter	Unit	PWQO	*Interim PWQO*	CWQG	75th Percentile
GENERAL PARAMETERS (FIELD MEASURED)					
pH	pH units	6.5-8.5		6.5 - 9.0	7.3
Temperature	degrees Celsius	-0.25			13
Conductivity	µS/cm	--			56
Dissolved Oxygen (DO)	mg/L	--			14
ORP	mV	--			--
GENERAL PARAMETERS (LAB MEASURED)					
Lab pH	pH units	6.5-8.5	-	6.5 - 9.0	7.5
Alkalinity	mg/L as CaCO3	-25%	-	-	30
Acidity	mg/L as CaCO3	-	-	-	2.5
Electrical Conductivity (EC)	µS/cm	-	-	-	64
Total Dissolved Solids (TDS)	mg/L	-	-	-	59
Total Suspended Solids (TSS)	mg/L	-	-	-	1.5
Total Hardness	mg/L as CaCO3	-	-	-	28
Dissolved Organic Carbon	mg/L	-	-	-	9.4
Total Organic Carbon (TOC)	mg/L	-	-	-	9.7
MAJOR IONS					
Calcium (Ca)	mg/L	-	-	-	8.2
Magnesium (Mg)	mg/L	-	-	-	1.8
Potassium (K)	mg/L	-	-	-	0.32
Sodium (Na)	mg/L	-	-	-	1.6
Chloride (Cl)	mg/L	-	-	120	1.6
Fluoride (F)	mg/L	-	-	0.12	0.025
Sulphate (SO_4)	mg/L	-	-	-	3.0
METALS					
Aluminum (Al) (Dissolved)	mg/L	2	0.075	0.1	0.057
Antimony (Sb)	mg/L	-	0.02	-	0.0018
Arsenic (As)	mg/L	0.1	0.005	0.005	0.0015
Barium (Ba)	mg/L	-	-	-	0.0040
Beryllium (Be)	mg/L	0.011	-	-	0.00050
Boron (B)	mg/L	-	0.2	1.5	0.0050
Cadmium (Cd)	mg/L	0.002	0.0001	0.00007	0.000010
Chromium (Cr)	mg/L	0.0089	-	0.0089	0.0015
Cobalt (Co)	mg/L	0.0009	-	0.0025	0.00025
Copper (Cu)	mg/L	0.005	0.005	0.002	0.00060
Iron (Fe)	mg/L	0.3	-	0.3	0.080
Lead (Pb)	mg/L	0.01	0.001	0.001	0.000050
Manganese (Mn)	mg/L	-	-	-	0.0085
Mercury (Hg)	mg/L	-	-	-	0.0000025
Molybdenum (Mo)	mg/L	-	0.04	0.073	0.0010
Nickel (Ni)	mg/L	0.025	-	0.025	0.0015
Selenium (Se)	mg/L	0.1	-	0.001	0.00013
Silver (Ag)	mg/L	0.0001	-	0.00025	0.0000050
Strontium (Sr)	mg/L	-	-	-	0.016
Thallium (Tl)	mg/L	-	0.0003	0.0008	0.0000050
Titanium (Ti)	mg/L	-	-	-	0.0010
Tungsten (W)	mg/L	-	0.03	-	0.0050
Uranium (U)	mg/L	-	0.005	0.015	0.0010
Vanadium (V)	mg/L	-	0.006	-	0.0010
Zinc (Zn)	mg/L	0.03	0.02	0.03	0.0025
Zirconium (Zr)	mg/L	-	0.004	-	0.0020
Mercury (Hg) (Dissolved)	mg/L	0.0002	-	0.000026	0.0000013
CYANIDE SPECIES					
Total Cyanide	mg/L	-	-	-	0.0010
Free Cyanide	mg/L	0.005	-	0.005	0.0010
NUTRIENTS					
Nitrate (NO_3^-)	mg/L as N	-	-	13	0.065
Nitrite (NO_2^-)	mg/L as N	-	-	0.06	0.025
Total Ammonia ($NH_3 + NH_4$)	mg/L as N	-	-	6.98	0.010
Total Kjeldahl Nitrogen	mg/L	-	-	-	--
Total Phosphorus (P)	mg/L	-	0.02	0.02	0.0090
Phosphate (PO_4)	mg/L as P	-	-	-	--
ORGANICS					
Oil and Grease (A/V)	mg/L	-	-	-	--
Oil and Grease (Mineral)	mg/L	-	-	-	--
Oil and Grease (Total)	mg/L	-	-	-	--
Phenols	mg/L	0.001	0.001	0.004	--
Naphthalene	mg/L	-	0.007	0.0011	--
Acenaphthylene	mg/L	-	-	-	--
Acenaphthene	mg/L	-	-	0.0058	--
Fluorene	mg/L	-	0.0002	0.003	--
Benzo(b)fluoranthene	mg/L	-	-	-	--
Benzo(a)pyrene	mg/L	-	-	0.000015	--
Indeno(1,2,3-cd)pyrene	mg/L	-	-	-	--
2-and 1-methyl Naphthalene	mg/L	-	0.002	-	--
Chrysene-d12	%	-	-	-	--
Decachlorobiphenyl	%	-	-	-	--
RADIONUCLIDES					
Radium-226	Bq/L	1	-	-	--
MICROBIOLOGICAL					
Escherichia coli	CFU/100mL	100	-	-	--
Total Coliforms	CFU/100mL	-	-	-	--

Notes:
For the purposes of statistical calculations, values below the detection limit are assumed to be equal to one half of the detection limit.
PWQO = Provincial Water Quality Guidelines.
CWQG = Canadian Water Quality Guidelines.
Bold shading indicates a concentration greater than the PWQO.
Italics indicates a concentration greater than the interim PWQO.
Underlining indicates a concentration greater than the CWQG.
-- indicates data not available.

Parameter	Unit	CHLK-LS - Chester Lake (Profile Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	10	6.6	8.3	7.0	0.48	6.9	7.1	7.2	8.0
Temperature	degrees Celsius	10	2.4	19	10	4.9	7.1	11	12	18
Conductivity	µS/cm	10	29	98	44	21	34	36	44	79
Dissolved Oxygen (DO)	mg/L	10	8.3	11	9.7	0.98	9.3	9.6	10	11
ORP	mV	10	173	259	208	33	184	200	224	252
GENERAL PARAMETERS										
Lab pH	pH units	10	6.2	7.4	6.8	0.37	6.8	7.1	7.4	7.4
Alkalinity	mg/L as $CaCO_3$	10	2.5	23	13	6.7	9.0	14	16	23
Acidity	mg/L as $CaCO_3$	10	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	10	32	54	41	7.3	35	40	47	52
Total Dissolved Solids (TDS)	mg/L	10	30	64	47	11	39	45	59	63
Total Suspended Solids (TSS)	mg/L	10	0.50	4.0	1.7	1.2	0.63	1.5	2.0	3.5
Total Hardness	mg/L as $CaCO_3$	10	16	24	19	2.9	16	18	21	24
Dissolved Organic Carbon (DOC)	mg/L	10	11	16	13	1.3	12	13	13	15
Total Organic Carbon (TOC)	mg/L	10	12	124	25	33	13	15	15	76
Chemical Oxygen Demand (COD)	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	10	4.9	7.6	5.9	0.91	5.1	5.7	6.5	7.4
Magnesium (Mg)	mg/L	10	0.84	1.3	1.00	0.15	0.87	0.96	1.1	1.2
Potassium (K)	mg/L	10	0.24	0.38	0.29	0.047	0.25	0.28	0.31	0.37
Sodium (Na)	mg/L	10	0.71	0.98	0.82	0.089	0.74	0.83	0.89	0.95
Chloride (Cl)	mg/L	10	0.19	0.38	0.30	0.059	0.25	0.31	0.35	0.37
Fluoride (F)	mg/L	10	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	10	1.9	3.1	2.4	0.41	2.1	2.3	2.8	3.0
METALS										
Aluminum (Al) (Dissolved)	mg/L	10	0.048	0.092	0.070	0.016	0.053	0.078	0.082	0.088
Antimony (Sb)	mg/L	10	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	10	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	10	0.0030	0.0060	0.0046	0.00092	0.0040	0.0045	0.0050	0.0060
Beryllium (Be)	mg/L	10	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	10	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	10	0.000010	0.000010	0.000010	0	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	10	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	10	0.00025	0.00	0.000	0	0.00025	0.00025	0.000	0.000
Copper (Cu)	mg/L	10	0.00060	0.0022	0.00113	0.00050	0.00080	0.00095	0.0014	0.0020
Iron (Fe)	mg/L	10	0.12	0.39	0.22	0.091	0.17	0.19	0.26	0.38
Lead (Pb)	mg/L	10	0.00010	0.00050	0.00021	0.00011	0.00013	0.00020	0.00020	0.00041
Manganese (Mn)	mg/L	10	0.014	0.037	0.021	0.0077	0.016	0.018	0.023	0.036
Mercury (Hg)	mg/L	10	0.00000095	0.000022	0.000005	0.0000064	0.00000095	0.000005	0.000005	0.000017
Molybdenum (Mo)	mg/L	10	0.000050	0.0010	0.00091	0.00029	0.00100	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	10	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	10	0.000050	0.00020	0.000078	0.000048	0.000050	0.000050	0.00010	0.00016
Silver (Ag)	mg/L	10	0.0000050	0.000070	0.000012	0.000020	0.0000050	0.0000050	0.000005	0.000044
Strontium (Sr)	mg/L	10	0.010	0.015	0.012	0.0019	0.010	0.012	0.013	0.015
Thallium (Tl)	mg/L	10	0.0000050	0.00003	0.000008	0.0000079	0.0000050	0.0000050	0.000005	0.000020
Titanium (Ti)	mg/L	10	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	10	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	10	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	10	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	10	0.0025	0.0025	0.0025	0	0.0025	0.0025	0.0025	0.0025
Zirconium (Zr)	mg/L	10	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	10	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	10	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	10	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Sulphur (S)	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	10	0.025	0.17	0.064	0.060	0.025	0.025	0.104	0.166
Nitrite (NO_2^-)	mg/L as N	10	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	10	0.010	0.020	0.012	0.0042	0.010	0.010	0.010	0.020
Un-ionized Ammonia (NH_3)	mg/L	10	0.000015	0.00069	0.00025	0.00031	0.000035	0.000055	0.00037	0.00063
Total Kjeldahl Nitrogen	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	10	0.0025	0.017	0.011	0.0041	0.011	0.012	0.013	0.016
Phosphate (PO_4)	mg/L as P	10	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	10	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Mineral)	mg/L	10	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Total)	mg/L	10	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Polychlorinated Biphenyls	mg/L	10	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Naphthalene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthylene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Fluorene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Phenanthrene	mg/L	10	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Anthracene	mg/L	10	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Fluoranthene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Pyrene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benz(a)anthracene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Chrysene	mg/L	10	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(b)fluoranthene	mg/L	10	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(k)fluoranthene	mg/L	10	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(a)pyrene	mg/L	10	0.0000050	0.0000050	0.0000050	0	0.0000050	0.0000050	0.0000050	0.0000050
Indeno(1,2,3-cd)pyrene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Dibenz(a,h)anthracene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benzo(g,h,i)perylene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
2-and 1-methyl Naphthalene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
RADIONUCLIDES										
Radium-226	Bq/L	10	nc	nc	nc	nc	nc	nc	nc	nc
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	10	1.0	22	12	11	6.3	12	17	21
Total Coliforms	CFU/100mL	10	30	119	75	45	52	75	97	115

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	CHLK - Chester Lake (Outlet Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	38	4.5	7.7	5.9	0.62	6.5	6.7	7.0	7.3
Temperature	degrees Celsius	38	-0.080	26	8.7	8.6	1.6	4.2	17	24
Conductivity	µS/cm	38	13	48	29	8.2	24	29	35	44
Dissolved Oxygen (DO)	mg/L	38	5.5	22	10	3.2	8.0	9.5	12	15
ORP	mV	38	117	221	169	52	143	169	195	215
GENERAL PARAMETERS										
Lab pH	pH units	38	6.0	7.4	6.5	0.37	6.4	6.7	6.9	7.3
Alkalinity	mg/L as $CaCO_3$	38	6.0	22	13	3.2	11	12	15	17
Acidity	mg/L as $CaCO_3$	38	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	38	27	52	40	6.3	35	40	43	50
Total Dissolved Solids (TDS)	mg/L	38	10	70	45	13	41	46	56	62
Total Suspended Solids (TSS)	mg/L	38	0.50	6.0	1.5	1.2	0.50	1.0	2.0	3.6
Total Hardness	mg/L as $CaCO_3$	38	13	26	19	3.2	17	19	22	25
Dissolved Organic Carbon (DOC)	mg/L	38	8.3	17	13	1.7	12	13	14	16
Total Organic Carbon (TOC)	mg/L	38	13	16	14	1	13	14	14	15
Chemical Oxygen Demand (COD)	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	38	3.9	8.0	6.0	1.02	5.3	6.1	6.7	7.6
Magnesium (Mg)	mg/L	38	0.73	1.4	1.1	0.17	0.90	1.0	1.2	1.4
Potassium (K)	mg/L	38	0.18	0.37	0.29	0.047	0.26	0.29	0.31	0.36
Sodium (Na)	mg/L	38	0.61	1.0	0.80	0.091	0.74	0.80	0.87	0.94
Chloride (Cl)	mg/L	38	0.12	0.82	0.32	0.117	0.24	0.33	0.37	0.43
Fluoride (F)	mg/L	38	0.025	0.025	0.025	1E-17	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	38	1.6	3.8	2.7	0.50	2.3	2.7	3.0	3.5
METALS										
Aluminum (Al) (Dissolved)	mg/L	38	0.024	0.12	0.066	0.021	0.049	0.067	0.081	0.094
Antimony (Sb)	mg/L	38	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	38	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	38	0.0030	0.0080	0.0046	0.00088	0.0040	0.0045	0.0050	0.0060
Beryllium (Be)	mg/L	38	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	38	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	38	0.000010	0.000010	0.000010	0	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	38	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	38	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	38	0.00050	0.0020	0.00084	0.00037	0.00065	0.0007	0.0009	0.0017
Iron (Fe)	mg/L	38	0.086	0.37	0.20	0.080	0.14	0.19	0.26	0.35
Lead (Pb)	mg/L	38	0.00010	0.00050	0.00032	0.00018	0.00010	0.00040	0.00050	0.00050
Manganese (Mn)	mg/L	38	0.010	0.065	0.025	0.012	0.017	0.021	0.030	0.049
Mercury (Hg)	mg/L	38	0.00000095	0.000027	0.000004	0.0000059	0.000001	0.000001	0.000005	0.000011
Molybdenum (Mo)	mg/L	38	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	38	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	38	0.000050	0.00030	0.000082	0.000069	0.000050	0.000050	0.000050	0.00021
Silver (Ag)	mg/L	38	0.0000050	0.000020	0.000006	0.000003	0.000005	0.000005	0.000005	0.000011
Strontium (Sr)	mg/L	38	0.0080	0.025	0.013	0.0030	0.011	0.013	0.014	0.017
Thallium (Tl)	mg/L	38	0.0000050	0.00002	0.00001	0.0000033	0.00001	0.00001	0.00001	0.00001
Titanium (Ti)	mg/L	38	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	38	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	38	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	38	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	38	0.0025	0.055	0.009	0.012	0.0025	0.0025	0.008	0.036
Zirconium (Zr)	mg/L	38	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	38	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	38	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	38	0.025	0.140	0.066	0.049	0.025	0.043	0.113	0.140
Nitrite (NO_2^-)	mg/L as N	38	0.025	0.025	0.025	0.000	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	38	0.010	0.070	0.023	0.016	0.010	0.010	0.030	0.052
Un-ionized Ammonia (NH_3)	mg/L	38	0.00000014	0.00018	0.000038	0.000048	0.0000090	0.000014	0.000047	0.000135
Total Kjeldahl Nitrogen	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	38	0.003	0.093	0.019	0.021	0.010	0.014	0.019	0.047
Phosphate (PO_4)	mg/L as P	38	0.050	0.050	0.050	0	0.050	0.050	0.050	0.050
Soluble Reactive Phosphorus	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	38	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	38	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	38	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	P-2 - Drainage from Beaver Pond								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	7	5.5	6.6	5.9	0.46	5.6	6.2	6.5	6.6
Temperature	degrees Celsius	7	-0.10	18	7.7	7.1	1.4	5.7	14	17
Conductivity	µS/cm	7	10	66	35	21	20	26	54	65
Dissolved Oxygen (DO)	mg/L	7	3.5	12	8.0	2.6	6.7	8.6	9.3	11
ORP	mV	7	nc	nc	nc	nc	nc	nc	nc	nc
GENERAL PARAMETERS										
Lab pH	pH units	7	5.7	6.6	6.0	0.32	5.9	6.1	6.4	6.6
Alkalinity	mg/L as $CaCO_3$	7	2.5	54	20	21	5.0	8	33	53
Acidity	mg/L as $CaCO_3$	7	nc	nc	nc	nc	nc	nc	nc	nc
Electrical Conductivity (EC)	µS/cm	7	23	118	51	30	32	36	58	102
Total Dissolved Solids (TDS)	mg/L	7	58	108	78	17	64	72	89	103
Total Suspended Solids (TSS)	mg/L	7	1.0	14	4.7	4.0	2.5	4.0	4.5	11
Total Hardness	mg/L as $CaCO_3$	7	9.7	60	26	16	16	19	28	52
Dissolved Organic Carbon (DOC)	mg/L	7	14	31	23	5.4	19	26	27	30
Total Organic Carbon (TOC)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Chemical Oxygen Demand (COD)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	7	3.2	19	8.1	4.9	5.3	6.2	8.8	16.4
Magnesium (Mg)	mg/L	7	0.44	3.0	1.3	0.80	0.76	0.9	1.5	2.6
Potassium (K)	mg/L	7	0.10	0.72	0.29	0.20	0.17	0.21	0.31	0.62
Sodium (Na)	mg/L	7	0.65	1.2	0.85	0.18	0.73	0.77	0.95	1.13
Chloride (Cl)	mg/L	7	0.15	0.54	0.28	0.12	0.19	0.27	0.33	0.48
Fluoride (F)	mg/L	7	0.025	0.025	0.025	3.5E-18	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	7	0.45	4.0	2.3	1.0	2.0	2.4	2.8	3.8
METALS										
Aluminum (Al) (Dissolved)	mg/L	7	0.066	0.26	0.18	0.063	0.14	0.18	0.23	0.25
Antimony (Sb)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Arsenic (As)	mg/L	7	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	7	0.0040	0.019	0.0083	0.0047	0.0060	0.0060	0.0085	0.0163
Beryllium (Be)	mg/L	7	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	7	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	7	0.000010	0.000010	0.000010	0	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	7	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	7	0.00025	0.0022	0.00058	0.00067	0.00025	0.00025	0.00043	0.00172
Copper (Cu)	mg/L	7	0.00050	0.0011	0.00093	0.00025	0.0009	0.0011	0.0011	0.0011
Iron (Fe)	mg/L	7	0.29	4.0	1.3	1.2	0.68	0.81	1.3	3.3
Lead (Pb)	mg/L	7	0.00010	0.00050	0.00034	0.00015	0.00025	0.00030	0.00050	0.00050
Manganese (Mn)	mg/L	7	0.021	0.58	0.12	0.19	0.027	0.033	0.08	0.44
Mercury (Hg)	mg/L	7	0.00000095	0.000017	0.000007	0.0000062	0.0000027	0.000005	0.000010	0.000016
Molybdenum (Mo)	mg/L	7	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	7	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	7	0.000050	0.00010	0.000063	0.000022	0.000050	0.000050	0.000063	0.000093
Silver (Ag)	mg/L	7	0.0000050	0.000005	0.000005	0	0.0000050	0.000005	0.000005	0.000005
Strontium (Sr)	mg/L	7	0.0080	0.043	0.020	0.011	0.014	0.017	0.022	0.037
Thallium (Tl)	mg/L	7	0.0000050	0.00001	0.000005	0	0.0000050	0.000005	0.00001	0.00001
Titanium (Ti)	mg/L	7	0.0010	0.0060	0.0031	0.0015	0.0025	0.0030	0.0035	0.0054
Tungsten (W)	mg/L	7	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	7	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	7	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	7	0.0025	0.047	0.012	0.015	0.0025	0.0025	0.014	0.039
Zirconium (Zr)	mg/L	7	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	7	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Phenols	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	7	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Nitrite (NO_2^-)	mg/L as N	7	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	7	0.040	0.55	0.15	0.18	0.045	0.060	0.17	0.47
Un-ionized Ammonia (NH_3)	mg/L	7	0.0000034	0.00014	0.000037	0.000047	0.0000088	0.000021	0.000031	0.000113
Total Kjeldahl Nitrogen	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	7	0.003	0.022	0.012	0.010	0.0074	0.012	0.017	0.021
Phosphate (PO_4)	mg/L as P	7	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	7	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	7	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	7	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	P5 - Seasonal Pond								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	7	5.7	7.0	6.0	0.41	5.9	6.1	6.3	6.8
Temperature	degrees Celsius	7	0.020	20	8.1	7.4	1.2	6.6	14	18
Conductivity	µS/cm	7	13	53	29	13	19	26	35	49
Dissolved Oxygen (DO)	mg/L	7	1.6	11	7.6	3.2	6.4	8.4	9.8	11
ORP	mV	7	nc	nc	nc	nc	nc	nc	nc	nc
GENERAL PARAMETERS										
Lab pH	pH units	7	5.9	6.6	6.1	0.25	6.0	6.1	6.4	6.5
Alkalinity	mg/L as $CaCO_3$	7	2.5	21	10	5.9	6.5	8.0	13	20
Acidity	mg/L as $CaCO_3$	7	nc	nc	nc	nc	nc	nc	nc	nc
Electrical Conductivity (EC)	µS/cm	7	26	60	40	10	34	36	46	56
Total Dissolved Solids (TDS)	mg/L	7	46	82	63	11	55	62	69	79
Total Suspended Solids (TSS)	mg/L	7	1.0	8.0	3.3	2.7	1.3	2.0	5.0	7.5
Total Hardness	mg/L as $CaCO_3$	7	13	29	20	5.0	18	19	23	28
Dissolved Organic Carbon (DOC)	mg/L	7	13	35	24	6.2	23	23	25	33
Total Organic Carbon (TOC)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Chemical Oxygen Demand (COD)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	7	4.0	9.4	6.4	1.7	5.6	6.1	7.2	9.0
Magnesium (Mg)	mg/L	7	0.72	1.4	1.1	0.23	0.92	1.1	1.2	1.4
Potassium (K)	mg/L	7	0.13	0.90	0.51	0.24	0.38	0.56	0.63	0.82
Sodium (Na)	mg/L	7	0.63	1.0	0.83	0.13	0.71	0.90	0.91	0.99
Chloride (Cl)	mg/L	7	0.27	0.75	0.40	0.15	0.31	0.35	0.40	0.66
Fluoride (F)	mg/L	7	0.025	0.025	0.025	3.5E-18	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	7	0.30	3.4	1.7	1.0	0.88	2.0	2.4	3.1
METALS										
Aluminum (Al) (Dissolved)	mg/L	7	0.037	0.12	0.083	0.023	0.078	0.084	0.095	0.11
Antimony (Sb)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Arsenic (As)	mg/L	7	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	7	0.0050	0.010	0.0067	0.0017	0.0055	0.0060	0.0075	0.0094
Beryllium (Be)	mg/L	7	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	7	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	7	0.000010	0.000010	0.000010	0	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	7	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	7	0.00025	0.0012	0.00039	0.00033	0.00025	0.00025	0.00025	0.00091
Copper (Cu)	mg/L	7	0.00060	0.0009	0.00078	0.00013	0.00068	0.00080	0.0009	0.0009
Iron (Fe)	mg/L	7	0.18	0.90	0.36	0.23	0.23	0.30	0.35	0.75
Lead (Pb)	mg/L	7	0.00020	0.00050	0.00034	0.00014	0.00020	0.00030	0.00050	0.00050
Manganese (Mn)	mg/L	7	0.007	0.41	0.09	0.13	0.020	0.042	0.056	0.307
Mercury (Hg)	mg/L	7	0.0000010	0.000004	0.000002	0.000001	0.000001	0.000002	0.000003	0.000003
Molybdenum (Mo)	mg/L	7	0.0010	0.0010	0.0010	0.0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	7	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	7	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Silver (Ag)	mg/L	7	0.0000050	0.000010	0.000006	0.000002	0.0000050	0.000005	0.000006	0.000009
Strontium (Sr)	mg/L	7	0.0080	0.020	0.014	0.0037	0.012	0.013	0.016	0.019
Thallium (Tl)	mg/L	7	0.0000050	0.00001	0.000005	0	0.0000050	0.000005	0.00001	0.00001
Titanium (Ti)	mg/L	7	0.0010	0.0050	0.0017	0.0014	0.0010	0.0010	0.0015	0.0041
Tungsten (W)	mg/L	7	0.0050	0.0050	0.0050	0.0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	7	0.0010	0.0010	0.0010	0.0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	7	0.0010	0.0010	0.0010	0.0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	7	0.0025	0.067	0.028	0.024	0.003	0.034	0.043	0.060
Zirconium (Zr)	mg/L	7	0.0020	0.0020	0.0020	0.0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	7	0.0010	0.0030	0.0013	0.00070	0.0010	0.0010	0.0010	0.0024
Free Cyanide	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Phenols	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	7	0.060	0.060	0.060	0	0.060	0.060	0.060	0.060
Nitrite (NO_2^-)	mg/L as N	7	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	7	0.010	0.96	0.17	0.33	0.010	0.030	0.070	0.696
Un-ionized Ammonia (NH_3)	mg/L	7	0.0000029	0.00013	0.000036	0.000045	0.0000043	0.000018	0.000038	0.000109
Total Kjeldahl Nitrogen	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	7	0.0025	0.023	0.013	0.010	0.0076	0.013	0.018	0.022
Phosphate (PO_4)	mg/L as P	7	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	7	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	7	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	7	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	CM-LS - Clam Lake (Profile Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	22	5.5	7.8	7.0	0.47	6.8	7.1	7.2	7.7
Temperature	degrees Celsius	22	0.38	21	9.1	5.6	5.1	8.4	12	21
Conductivity	µS/cm	22	26	131	54	29	38	42	53	129
Dissolved Oxygen (DO)	mg/L	22	0.20	117	14	23	9.5	12	12	15
ORP	mV	22	-2.2	252	115	81	38	121	174	250
GENERAL PARAMETERS										
Lab pH	pH units	22	6.1	7.9	6.9	0.48	6.7	6.9	7.3	7.8
Alkalinity	mg/L as $CaCO_3$	22	11	24	15	3.7	12	13	17	23
Acidity	mg/L as $CaCO_3$	22	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	22	39	54	43	4.4	40	42	47	50
Total Dissolved Solids (TDS)	mg/L	22	10	50	36	11	31	39	44	50
Total Suspended Solids (TSS)	mg/L	22	0.50	5.0	1.5	1.3	1.0	1.0	1.8	4.4
Total Hardness	mg/L as $CaCO_3$	22	16	23	19	2.0	17	18	19	22
Dissolved Organic Carbon (DOC)	mg/L	22	6.7	11	8.7	1.1	8.0	8.7	9.4	10
Total Organic Carbon (TOC)	mg/L	22	7.4	13	9.2	1.2	8.4	9.3	9.9	11
Chemical Oxygen Demand (COD)	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	22	5.1	7.5	6.0	0.65	5.5	5.9	6.1	7.2
Magnesium (Mg)	mg/L	22	0.76	1.1	0.87	0.087	0.81	0.85	0.88	1.07
Potassium (K)	mg/L	22	0.27	0.59	0.36	0.075	0.30	0.35	0.39	0.47
Sodium (Na)	mg/L	22	0.61	1.06	0.71	0.101	0.64	0.67	0.76	0.84
Chloride (Cl)	mg/L	22	0.19	1.00	0.35	0.155	0.30	0.31	0.36	0.46
Fluoride (F)	mg/L	na	na	na	na	na	na	na	na	na
Sulphate (SO_4)	mg/L	22	1.8	3.8	3.0	0.54	2.6	3.0	3.3	3.7
METALS										
Aluminum (Al) (Dissolved)	mg/L	22	0.0070	0.16	0.030	0.032	0.012	0.026	0.036	0.049
Antimony (Sb)	mg/L	22	0.0005	0.0005	0.0005	0.00000	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	22	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	22	0.0030	0.0080	0.0045	0.0013	0.0040	0.0040	0.0048	0.0070
Beryllium (Be)	mg/L	22	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	22	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	22	0.000010	0.00010	0.000015	0.000020	0.000010	0.000010	0.000010	0.000028
Chromium (Cr)	mg/L	22	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	22	0.00025	0.00060	0.00027	0.000073	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	22	0.0007	0.0080	0.0016	0.0015	0.0011	0.0012	0.0013	0.0023
Iron (Fe)	mg/L	22	0.0050	1.13	0.16	0.28	0.040	0.062	0.10	0.80
Lead (Pb)	mg/L	22	0.000050	0.0010	0.00011	0.00021	0.000050	0.000050	0.000050	0.000190
Manganese (Mn)	mg/L	22	0.0010	0.55	0.085	0.15	0.019	0.022	0.032	0.392
Mercury (Hg)	mg/L	22	0.00000095	0.000050	0.000005	0.000011	0.00000095	0.00000095	0.000006	0.000014
Molybdenum (Mo)	mg/L	22	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	22	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	22	0.000050	0.0020	0.00016	0.00043	0.000050	0.000050	0.000050	0.000380
Silver (Ag)	mg/L	22	0.0000050	0.000050	0.000009	0.000010	0.0000050	0.0000050	0.000005	0.000023
Strontium (Sr)	mg/L	22	0.010	0.015	0.012	0.0015	0.011	0.012	0.013	0.015
Thallium (Tl)	mg/L	22	0.0000050	0.00015	0.000013	0.000032	0.0000050	0.0000050	0.0000050	0.0000240
Titanium (Ti)	mg/L	22	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	22	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	22	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	22	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	22	0.0025	0.016	0.0039	0.0037	0.0025	0.0025	0.0025	0.0137
Zirconium (Zr)	mg/L	22	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	22	0.0010	0.0030	0.0011	0.00042	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	22	0.0010	0.0030	0.0011	0.00042	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	22	0.025	0.10	0.036	0.022	0.025	0.025	0.025	0.089
Nitrite (NO_2^-)	mg/L as N	22	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	22	0.010	0.15	0.044	0.041	0.010	0.030	0.068	0.12
Un-ionized Ammonia (NH_3)	mg/L	22	0.0000044	0.00043	0.00011	0.00013	0.000020	0.000049	0.00018	0.00035
Total Kjeldahl Nitrogen	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	22	0.0025	0.046	0.018	0.012	0.0088	0.015	0.027	0.038
Phosphate (PO_4)	mg/L as P	22	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	22	nc	nc	nc	nc	nc	nc	nc	nc
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	22	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	22	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	CM - Clam Lake (Culvert Road Crossing)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	36	5.5	8.5	6.5	0.61	6.6	6.8	7.2	7.7
Temperature	degrees Celsius	36	-1.0	27	8.5	8.8	1.3	3.4	17	24
Conductivity	µS/cm	36	20	58	32	9.7	25	28	36	50
Dissolved Oxygen (DO)	mg/L	36	nc	19	9.4	4.5	6.6	9.4	13	16
ORP	mV	36	144	191	168	23	156	168	179	189
GENERAL PARAMETERS										
Lab pH	pH units	36	6.0	7.5	6.6	0.36	6.5	6.7	7.1	7.4
Alkalinity	mg/L as $CaCO_3$	36	9.0	23	14	2.7	13	14	15	19
Acidity	mg/L as $CaCO_3$	36	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	36	36	53	43	4.3	40	43	46	52
Total Dissolved Solids (TDS)	mg/L	36	10	86	38	14	28	40	45	53
Total Suspended Solids (TSS)	mg/L	36	0.50	5.8	2.1	1.5	1.0	2.0	2.0	4.9
Total Hardness	mg/L as $CaCO_3$	36	15	24	19	2.2	18	19	20	23
Dissolved Organic Carbon (DOC)	mg/L	36	5.7	13	8.5	1.5	7.4	8.4	9.3	11
Total Organic Carbon (TOC)	mg/L	36	7.7	14	10	2.1	8.8	9.4	11	14
Chemical Oxygen Demand (COD)	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	36	4.9	7.9	6.2	0.72	5.6	6.3	6.5	7.4
Magnesium (Mg)	mg/L	36	0.67	1.1	0.91	0.101	0.84	0.91	0.99	1.07
Potassium (K)	mg/L	36	0.27	0.93	0.39	0.10	0.35	0.37	0.42	0.46
Sodium (Na)	mg/L	36	0.55	0.83	0.69	0.064	0.67	0.69	0.73	0.81
Chloride (Cl)	mg/L	36	0.05	0.48	0.32	0.074	0.29	0.34	0.35	0.41
Fluoride (F)	mg/L	36	0.025	0.025	0.025	1.0E-17	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	36	2.0	4.9	3.4	0.73	2.8	3.3	4.0	4.6
METALS										
Aluminum (Al) (Dissolved)	mg/L	36	0.0040	0.078	0.021	0.016	0.0080	0.017	0.027	0.051
Antimony (Sb)	mg/L	36	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	36	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	36	0.0030	0.0060	0.0043	0.00089	0.0040	0.0040	0.0050	0.0060
Beryllium (Be)	mg/L	36	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	36	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	36	0.000010	0.000010	0.000010	0	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	36	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	36	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	36	0.0006	0.0027	0.0014	0.00050	0.0011	0.0013	0.0016	0.0021
Iron (Fe)	mg/L	36	0.0050	0.29	0.086	0.075	0.036	0.061	0.097	0.239
Lead (Pb)	mg/L	36	0.000050	0.00050	0.00030	0.00021	0.00005	0.00050	0.00050	0.00050
Manganese (Mn)	mg/L	36	0.0030	0.058	0.017	0.012	0.0088	0.013	0.019	0.040
Mercury (Hg)	mg/L	36	0.00000095	0.000004	0.000001	0.0000010	0.0000010	0.000001	0.000001	0.000004
Molybdenum (Mo)	mg/L	36	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	36	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	36	0.000050	0.00060	0.00014	0.00014	0.000050	0.000050	0.00020	0.00036
Silver (Ag)	mg/L	36	0.0000050	0.00001	0.000005	0	0.000005	0.000005	0.000005	0.000005
Strontium (Sr)	mg/L	36	0.009	0.017	0.013	0.0019	0.011	0.013	0.014	0.016
Thallium (Tl)	mg/L	36	0.0000050	0.00003	0.00001	0.000007	0.000005	0.00001	0.00001	0.00002
Titanium (Ti)	mg/L	36	0.0010	0.0030	0.0011	0.00036	0.0010	0.0010	0.0010	0.0013
Tungsten (W)	mg/L	36	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	36	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	36	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	36	0.0025	0.0680	0.0057	0.011	0.0025	0.0025	0.0043	0.0105
Zirconium (Zr)	mg/L	36	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	36	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	36	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	36	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Nitrite (NO_2^-)	mg/L as N	36	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	36	0.010	0.13	0.036	0.029	0.010	0.030	0.050	0.080
Un-ionized Ammonia (NH_3)	mg/L	36	0.0000010	0.0012	0.00011	0.00023	0.000010	0.000039	0.00011	0.00030
Total Kjeldahl Nitrogen	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	36	0.0025	0.033	0.014	0.008	0.010	0.011	0.018	0.027
Phosphate (PO_4)	mg/L as P	36	0.5	0.50	0.50	0.00	0.50	0.50	0.50	0.50
Soluble Reactive Phosphorus	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	36	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	36	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	36	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	CL - Côté Lake (Outlet Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	41	5.2	7.5	6.4	0.46	6.7	6.9	7.0	7.4
Temperature	degrees Celsius	41	-1.3	24	8.3	8.8	0.30	3.9	18	23
Conductivity	µS/cm	41	14	49	32	8.5	27	30	38	46
Dissolved Oxygen (DO)	mg/L	41	4.9	27	10.7	4.2	8.3	9.9	12	17
ORP	mV	41	155	155	155	0	155	155	155	155
GENERAL PARAMETERS										
Lab pH	pH units	41	5.8	7.5	6.6	0.40	6.6	6.7	7.1	7.4
Alkalinity	mg/L as $CaCO_3$	41	8.0	30	15	4.4	12	14	16	24
Acidity	mg/L as $CaCO_3$	41	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	41	32	57	45	6.0	41	46	49	54
Total Dissolved Solids (TDS)	mg/L	41	28	524	64	74	44	54	58	78
Total Suspended Solids (TSS)	mg/L	41	0.50	4.0	1.6	1.0	1.0	2.0	2.0	3.6
Total Hardness	mg/L as $CaCO_3$	41	15	27	22	3.0	20	22	24	27
Dissolved Organic Carbon (DOC)	mg/L	41	10	27	13	2.5	12	13	14	16
Total Organic Carbon (TOC)	mg/L	41	11	16	14	1.4	13	14	15	16
Chemical Oxygen Demand (COD)	mg/L	41	32	39	36	2.9	34	37	39	39
MAJOR IONS										
Calcium (Ca)	mg/L	41	4.6	8.4	6.7	0.93	6.1	6.8	7.3	8.2
Magnesium (Mg)	mg/L	41	0.82	1.5	1.2	0.16	1.0	1.2	1.3	1.4
Potassium (K)	mg/L	41	0.22	0.45	0.32	0.059	0.28	0.31	0.38	0.40
Sodium (Na)	mg/L	41	0.66	1.3	0.91	0.13	0.83	0.91	1.0	1.1
Chloride (Cl)	mg/L	41	0.20	1.3	0.56	0.22	0.38	0.57	0.67	0.86
Fluoride (F)	mg/L	41	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	41	1.8	3.7	2.7	0.54	2.4	2.8	3.1	3.6
METALS										
Aluminum (Al) (Dissolved)	mg/L	41	0.015	0.119	0.060	0.023	0.045	0.063	0.075	0.095
Antimony (Sb)	mg/L	41	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	41	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	41	0.0030	0.0070	0.0049	0.00092	0.0040	0.0050	0.0060	0.0060
Beryllium (Be)	mg/L	41	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	41	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	41	0.000010	0.00030	0.000025	0.000065	0.000010	0.000010	0.000010	0.000039
Chromium (Cr)	mg/L	41	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	41	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	41	0.00060	0.0030	0.0012	0.00066	0.0009	0.0010	0.0012	0.0030
Iron (Fe)	mg/L	41	0.095	0.41	0.22	0.082	0.16	0.22	0.28	0.36
Lead (Pb)	mg/L	41	0.000050	0.0030	0.00040	0.00045	0.00020	0.00050	0.00050	0.00050
Manganese (Mn)	mg/L	41	0.012	0.11	0.035	0.020	0.019	0.028	0.041	0.068
Mercury (Hg)	mg/L	41	0.00000095	0.000013	0.000003	0.0000032	0.000001	0.000001	0.000002	0.000009
Molybdenum (Mo)	mg/L	41	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	41	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	41	0.000050	0.0012	0.00016	0.00026	0.000050	0.000050	0.00018	0.00043
Silver (Ag)	mg/L	41	0.0000050	0.00020	0.000019	0.000044	0.000005	0.000005	0.000005	0.000074
Strontium (Sr)	mg/L	41	0.010	0.021	0.014	0.0021	0.013	0.014	0.015	0.017
Thallium (Tl)	mg/L	41	0.0000050	0.00003	0.00001	0.0000082	0.00001	0.00001	0.00001	0.00003
Titanium (Ti)	mg/L	41	0.0010	0.0030	0.0011	0.00047	0.0010	0.0010	0.0010	0.0020
Tungsten (W)	mg/L	41	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	41	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	41	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	41	0.0025	0.049	0.0055	0.0080	0.0025	0.0025	0.0031	0.0144
Zirconium (Zr)	mg/L	41	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	41	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	41	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	41	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	41	1.0	1.1	1.1	0.029	1.0	1.0	1.1	1.1
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	41	0.025	0.160	0.054	0.044	0.025	0.025	0.070	0.14
Nitrite (NO_2^-)	mg/L as N	41	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	41	0.010	0.060	0.023	0.018	0.010	0.010	0.030	0.060
Un-ionized Ammonia (NH_3)	mg/L	41	0.0000004	0.00022	0.000045	0.000055	0.000013	0.000023	0.000046	0.000163
Total Kjeldahl Nitrogen	mg/L	41	0.52	1.3	0.82	0.30	0.56	0.76	1.0	1.2
Total Phosphorus (P)	mg/L	41	0.0025	0.028	0.011	0.0068	0.0081	0.012	0.014	0.021
Phosphate (PO_4)	mg/L as P	41	0.050	0.050	0.050	0.0	0.050	0.050	0.050	0.050
Soluble Reactive Phosphorus	mg/L	41	0.010	0.010	0.010	0.0	0.010	0.010	0.010	0.010
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	41	0.25	1.1	0.45	0.33	0.25	0.25	0.40	0.96
Oil and Grease (Mineral)	mg/L	41	0.25	0.25	0.25	0.0	0.25	0.25	0.25	0.25
Oil and Grease (Total)	mg/L	41	0.25	1.4	0.48	0.46	0.25	0.25	0.25	1.17
Polychlorinated Biphenyls	mg/L	41	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	41	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	41	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	41	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	41	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	41	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	41	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	41	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	41	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	41	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	41	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	41	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	41	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	41	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	41	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	41	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	41	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	41	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	41	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	41	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	41	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	WD - Weeduck Lake (Outlet Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	43	5.6	8.1	6.6	0.56	6.7	7.0	7.3	7.8
Temperature	degrees Celsius	43	-0.20	24	8.6	8.5	0.94	5.8	16	24
Conductivity	µS/cm	43	16	134	31	19	23	26	34	41
Dissolved Oxygen (DO)	mg/L	43	1.2	19	9.3	3.5	7.4	9.0	11	14
ORP	mV	43	213	213	213	0	213	213	213	213
GENERAL PARAMETERS										
Lab pH	pH units	43	5.8	7.4	6.5	0.43	6.5	6.8	7.1	7.3
Alkalinity	mg/L as $CaCO_3$	43	2.5	26	13	3.0	12	13	14	16
Acidity	mg/L as $CaCO_3$	43	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	43	26	45	38	3.6	36	38	39	44
Total Dissolved Solids (TDS)	mg/L	43	10	82	33	14	26	34	42	54
Total Suspended Solids (TSS)	mg/L	43	0.50	5.0	1.3	1.1	0.50	1.0	2.0	3.0
Total Hardness	mg/L as $CaCO_3$	43	12	21	17	1.9	16	17	18	20
Dissolved Organic Carbon (DOC)	mg/L	43	6.1	173	13	25	7.8	8.2	8.8	11
Total Organic Carbon (TOC)	mg/L	43	7.4	9.6	8.6	0.62	8.1	8.7	9.0	9.4
Chemical Oxygen Demand (COD)	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	43	3.5	6.2	5.0	0.58	4.6	5.1	5.3	5.8
Magnesium (Mg)	mg/L	43	0.77	1.4	1.1	0.12	1.0	1.1	1.2	1.3
Potassium (K)	mg/L	43	0.24	0.52	0.39	0.060	0.35	0.38	0.41	0.51
Sodium (Na)	mg/L	43	0.50	0.85	0.67	0.082	0.62	0.65	0.74	0.82
Chloride (Cl)	mg/L	43	0.12	0.52	0.31	0.096	0.25	0.29	0.34	0.50
Fluoride (F)	mg/L	43	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	43	1.7	2.8	2.2	0.28	2.0	2.2	2.4	2.7
METALS										
Aluminum (Al) (Dissolved)	mg/L	43	0.0020	0.029	0.011	0.0059	0.0070	0.0100	0.013	0.023
Antimony (Sb)	mg/L	43	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	43	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	43	0.0030	0.0060	0.0051	0.00076	0.0050	0.0050	0.0060	0.0060
Beryllium (Be)	mg/L	43	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	43	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	43	0.000010	0.000050	0.000012	0.000009	0.000010	0.000010	0.000010	0.000016
Chromium (Cr)	mg/L	43	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	43	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	43	0.00030	0.0008	0.00057	0.00015	0.0004	0.0006	0.0007	0.0008
Iron (Fe)	mg/L	43	0.0050	0.15	0.039	0.034	0.0050	0.025	0.060	0.090
Lead (Pb)	mg/L	43	0.000050	0.00050	0.00030	0.00022	0.00005	0.00050	0.00050	0.00050
Manganese (Mn)	mg/L	43	0.0040	0.13	0.040	0.035	0.015	0.027	0.053	0.113
Mercury (Hg)	mg/L	43	0.00000095	0.000004	0.000001	0.00000086	0.000001	0.000001	0.000001	0.000003
Molybdenum (Mo)	mg/L	43	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	43	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	43	0.000050	0.00030	0.00011	0.000094	0.000050	0.00005	0.00010	0.00030
Silver (Ag)	mg/L	43	0.0000050	0.000005	0.000005	0	0.000005	0.000005	0.000005	0.000005
Strontium (Sr)	mg/L	43	0.0080	0.016	0.012	0.0017	0.011	0.012	0.013	0.015
Thallium (Tl)	mg/L	43	0.0000050	0.00005	0.00001	0.000010	0.00001	0.00001	0.00001	0.00002
Titanium (Ti)	mg/L	43	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	43	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	43	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	43	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	43	0.0025	0.025	0.0060	0.0065	0.0025	0.0025	0.006	0.022
Zirconium (Zr)	mg/L	43	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	43	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	43	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	43	0.025	0.14	0.053	0.043	0.025	0.025	0.074	0.13
Nitrite (NO_2^-)	mg/L as N	43	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	43	0.010	0.070	0.026	0.020	0.010	0.010	0.040	0.060
Un-ionized Ammonia (NH_3)	mg/L	43	0.0000019	0.00078	0.00011	0.00018	0.000020	0.000028	0.00012	0.00045
Total Kjeldahl Nitrogen	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	43	0.0025	0.033	0.009	0.0071	0.0053	0.0080	0.010	0.020
Phosphate (PO_4)	mg/L as P	43	0.050	0.050	0.050	0.0	0.050	0.050	0.050	0.050
Soluble Reactive Phosphorus	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	43	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	43	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	43	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	43	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	MP - Inflow to Three Duck Lakes								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	36	5.7	7.8	6.4	0.44	6.2	6.5	6.8	7.3
Temperature	degrees Celsius	36	-0.30	21	6.8	7.6	0.440	2.9	14	21
Conductivity	µS/cm	36	15	82	41	14	31	40	49	63
Dissolved Oxygen (DO)	mg/L	36	2.6	16	8.3	3.2	6.6	7.9	11	12
ORP	mV	36	94	115	104	10	99	104	110	114
GENERAL PARAMETERS										
Lab pH	pH units	36	5.9	7.7	6.6	0.45	6.6	6.8	7.2	7.5
Alkalinity	mg/L as $CaCO_3$	36	9.0	42	21	7.4	15	21	26	33
Acidity	mg/L as $CaCO_3$	36	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	36	50	106	68	13	61	66	74	91
Total Dissolved Solids (TDS)	mg/L	36	42	100	68	14	56	68	78	90
Total Suspended Solids (TSS)	mg/L	36	0.50	2.0	0.92	0.47	0.50	1.0	1.0	2.0
Total Hardness	mg/L as $CaCO_3$	36	23	50	31	6.0	27	29	35	40
Dissolved Organic Carbon (DOC)	mg/L	36	12	21	16	2.4	14	16	18	21
Total Organic Carbon (TOC)	mg/L	36	14.5	19	16	1.3	16	17	17	18
Chemical Oxygen Demand (COD)	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	36	7.2	16	9.7	1.9	8.4	9.1	11	13
Magnesium (Mg)	mg/L	36	1.2	2.5	1.6	0.31	1.4	1.5	1.8	2.2
Potassium (K)	mg/L	36	0.27	0.86	0.58	0.16	0.46	0.59	0.71	0.83
Sodium (Na)	mg/L	36	1.0	2.7	1.8	0.53	1.4	1.7	2.4	2.6
Chloride (Cl)	mg/L	36	0.87	4.6	2.5	1.1	1.7	2.2	3.6	4.0
Fluoride (F)	mg/L	36	0.025	0.060	0.026	0.0058	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	36	1.6	14	4.6	2.2	3.4	3.9	4.9	7.8
METALS										
Aluminum (Al) (Dissolved)	mg/L	36	0.068	0.19	0.11	0.030	0.086	0.098	0.13	0.16
Antimony (Sb)	mg/L	36	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	36	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	36	0.0050	0.011	0.0074	0.0017	0.0060	0.0070	0.0080	0.0110
Beryllium (Be)	mg/L	36	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	36	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	36	0.000010	0.000030	0.000012	0.0000054	0.000010	0.000010	0.000010	0.000023
Chromium (Cr)	mg/L	36	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	36	0.00025	0.00080	0.00028	0.00012	0.00025	0.00025	0.00025	0.00055
Copper (Cu)	mg/L	36	0.0020	0.0072	0.0038	0.00094	0.0030	0.0040	0.0041	0.0050
Iron (Fe)	mg/L	36	0.056	0.71	0.26	0.16	0.13	0.22	0.34	0.56
Lead (Pb)	mg/L	36	0.00010	0.00050	0.00036	0.00017	0.00020	0.00050	0.00050	0.00050
Manganese (Mn)	mg/L	36	0.0020	0.093	0.028	0.027	0.0060	0.019	0.038	0.084
Mercury (Hg)	mg/L	36	0.00000095	0.000017	0.000003	0.0000044	0.000001	0.000001	0.000003	0.000012
Molybdenum (Mo)	mg/L	36	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	36	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	36	0.000050	0.00030	0.000087	0.000085	0.000050	0.000050	0.000050	0.00030
Silver (Ag)	mg/L	36	0.0000050	0.000020	0.000006	0.0000037	0.000005	0.000005	0.000005	0.000009
Strontium (Sr)	mg/L	36	0.014	0.027	0.019	0.0036	0.016	0.019	0.021	0.026
Thallium (Tl)	mg/L	36	0.0000050	0.00006	0.00001	0.000014	0.00001	0.00001	0.00001	0.00003
Titanium (Ti)	mg/L	36	0.0010	0.0020	0.0010	0.00016	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	36	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	36	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	36	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	36	0.0025	0.12	0.021	0.030	0.0058	0.008	0.020	0.099
Zirconium (Zr)	mg/L	36	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	36	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	36	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	36	0.025	0.080	0.045	0.023	0.025	0.025	0.060	0.080
Nitrite (NO_2^-)	mg/L as N	36	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	36	0.010	0.15	0.049	0.036	0.015	0.050	0.060	0.110
Un-ionized Ammonia (NH_3)	mg/L	36	0.0000009	0.0052	0.00047	0.0013	0.0000061	0.000013	0.000062	0.003490
Total Kjeldahl Nitrogen	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	36	0.006	0.026	0.012	0.0053	0.0085	0.012	0.013	0.020
Phosphate (PO_4)	mg/L as P	36	0.050	0.050	0.050	0	0.050	0.050	0.050	0.050
Soluble Reactive Phosphorus	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	36	0.00050	0.00500	0.0010	0.0014	0.00050	0.00050	0.00050	0.0032
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	36	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	36	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

IAMGOLD CÔTÉ GOLD PROJECT

STATISTICS BY STATION

Parameter	Unit	P7 - Inflow to Three Ducks Lakes								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	10	5.7	6.9	6.4	0.37	6.5	6.7	6.8	6.9
Temperature	degrees Celsius	10	0.10	20	8.6	7.9	0.81	6.6	16	20
Conductivity	µS/cm	10	15	66	36	15	29	33	45	60
Dissolved Oxygen (DO)	mg/L	10	2.8	12	8.7	2.8	7.4	8.7	11	12
ORP	mV	10	nc	nc	nc	nc	nc	nc	nc	nc
GENERAL PARAMETERS										
Lab pH	pH units	10	6.2	7.2	6.6	0.28	6.5	6.7	6.8	7.1
Alkalinity	mg/L as $CaCO_3$	10	2.5	29	16	7.4	13	16	17	29
Acidity	mg/L as $CaCO_3$	10	nc	nc	nc	nc	nc	nc	nc	nc
Electrical Conductivity (EC)	µS/cm	10	27	70	49	11	45	47	51	66
Total Dissolved Solids (TDS)	mg/L	10	32	70	54	11	49	54	64	68
Total Suspended Solids (TSS)	mg/L	10	0.50	13	2.2	3.9	0.50	0.50	1.0	8.6
Total Hardness	mg/L as $CaCO_3$	10	12	35	24	5.5	22	23	24	32
Dissolved Organic Carbon (DOC)	mg/L	10	6.9	17	13	2.7	12	14	15	16
Total Organic Carbon (TOC)	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Chemical Oxygen Demand (COD)	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	10	3.6	11	7.2	1.7	6.7	7.0	7.5	9.8
Magnesium (Mg)	mg/L	10	0.67	2.0	1.4	0.33	1.3	1.4	1.4	1.9
Potassium (K)	mg/L	10	0.31	0.50	0.39	0.069	0.32	0.37	0.45	0.49
Sodium (Na)	mg/L	10	0.64	1.3	1.0	0.16	0.97	1.0	1.1	1.2
Chloride (Cl)	mg/L	10	0.56	1.3	0.91	0.21	0.79	0.90	1.0	1.2
Fluoride (F)	mg/L	10	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	10	2.0	3.5	2.8	0.46	2.5	2.9	3.2	3.4
METALS										
Aluminum (Al) (Dissolved)	mg/L	10	0.017	0.17	0.089	0.049	0.057	0.070	0.12	0.17
Antimony (Sb)	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Arsenic (As)	mg/L	10	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	10	0.0040	0.0070	0.0050	0.0010	0.0040	0.0050	0.0058	0.0066
Beryllium (Be)	mg/L	10	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	10	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	10	0.000010	0.000010	0.000010	0.000000	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	10	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	10	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	10	0.00040	0.0010	0.00064	0.00022	0.00050	0.0005	0.0008	0.0010
Iron (Fe)	mg/L	10	0.13	0.48	0.26	0.11	0.19	0.24	0.28	0.46
Lead (Pb)	mg/L	10	0.00005	0.00050	0.00034	0.00018	0.00020	0.00040	0.00050	0.00050
Manganese (Mn)	mg/L	10	0.0060	0.14	0.032	0.039	0.010	0.023	0.031	0.094
Mercury (Hg)	mg/L	10	0.00000095	0.0070	0.0018	0.0030	0.000001	0.000001	0.001751	0.005950
Molybdenum (Mo)	mg/L	10	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	10	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	10	0.000050	0.00040	0.00015	0.00014	0.000050	0.000050	0.00020	0.00036
Silver (Ag)	mg/L	10	0.0000050	0.000005	0.000005	0	0.0000050	0.000005	0.000005	0.000005
Strontium (Sr)	mg/L	10	0.0090	0.020	0.015	0.0030	0.013	0.015	0.015	0.020
Thallium (Tl)	mg/L	10	0.0000050	0.00001	0.000005	0	0.0000050	0.00001	0.00001	0.00001
Titanium (Ti)	mg/L	10	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	10	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	10	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	10	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	10	0.0025	0.17	0.021	0.050	0.0025	0.0025	0.0059	0.0988
Zirconium (Zr)	mg/L	10	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	10	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Phenols	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	10	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Nitrite (NO_2^-)	mg/L as N	10	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	10	0.010	0.060	0.020	0.016	0.010	0.010	0.020	0.051
Un-ionized Ammonia (NH_3)	mg/L	10	0.00000095	0.000040	0.000014	0.000013	0.0000068	0.0000085	0.000016	0.000038
Total Kjeldahl Nitrogen	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	10	0.0050	0.015	0.010	0.0041	0.0070	0.0090	0.012	0.014
Phosphate (PO_4)	mg/L as P	10	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	10	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	10	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	10	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	3D-LS1 - Three Duck Lakes, Upper (Profile Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	22	6.0	8.2	6.7	0.49	6.7	7.0	7.1	7.9
Temperature	degrees Celsius	22	0.020	21	10	5.9	5.1	10	11	20
Conductivity	µS/cm	22	30	145	50	28	34	41	49	99
Dissolved Oxygen (DO)	mg/L	22	0.19	13	9.0	3.5	7.8	10	11	13
ORP	mV	22	44	282	157	60	124	150	182	281
GENERAL PARAMETERS										
Lab pH	pH units	22	6.2	7.3	6.6	0.38	6.5	6.8	7.2	7.3
Alkalinity	mg/L as $CaCO_3$	22	7.0	23	13	3.9	11.0	12	14	21
Acidity	mg/L as $CaCO_3$	22	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	22	28	52	41	5.9	36	41	44	51
Total Dissolved Solids (TDS)	mg/L	22	10	60	44	14	33	48	56	56
Total Suspended Solids (TSS)	mg/L	22	0.50	9.0	2.1	2.0	1.3	2.0	2.0	4.5
Total Hardness	mg/L as $CaCO_3$	22	11	25	19	3.1	18	19	20	23
Dissolved Organic Carbon (DOC)	mg/L	22	4.8	17	13	2.7	11	13	14	17
Total Organic Carbon (TOC)	mg/L	22	5	18	14	2.8	12	13	15	17
Chemical Oxygen Demand (COD)	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	22	3.3	7.7	5.8	0.96	5.6	6.0	6.2	7.1
Magnesium (Mg)	mg/L	22	0.57	1.4	1.0	0.17	0.97	1.04	1.1	1.3
Potassium (K)	mg/L	22	0.25	0.42	0.31	0.048	0.27	0.30	0.33	0.42
Sodium (Na)	mg/L	22	0.65	0.99	0.80	0.09	0.78	0.79	0.84	0.92
Chloride (Cl)	mg/L	22	0.28	0.65	0.41	0.09	0.35	0.39	0.44	0.58
Fluoride (F)	mg/L	na	na	na	na	na	na	na	na	na
Sulphate (SO_4)	mg/L	22	1.6	3.3	2.5	0.48	2.2	2.4	2.9	3.3
METALS										
Aluminum (Al) (Dissolved)	mg/L	22	0.018	0.13	0.070	0.032	0.043	0.066	0.098	0.123
Antimony (Sb)	mg/L	22	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	22	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	22	0.0030	0.0170	0.0052	0.0027	0.0040	0.0045	0.0050	0.0070
Beryllium (Be)	mg/L	22	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	22	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	22	0.000010	0.000050	0.000015	0.000012	0.000010	0.000010	0.000010	0.000050
Chromium (Cr)	mg/L	22	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	22	0.00025	0.00070	0.00027	0.000094	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	22	0.0008	0.0031	0.0014	0.00052	0.0011	0.0012	0.0014	0.0024
Iron (Fe)	mg/L	22	0.04	2.80	0.31	0.55	0.13	0.17	0.26	0.40
Lead (Pb)	mg/L	22	0.00005	0.00060	0.00023	0.00017	0.00010	0.00020	0.00028	0.00050
Manganese (Mn)	mg/L	22	0.005	0.515	0.052	0.10	0.018	0.021	0.030	0.098
Mercury (Hg)	mg/L	22	0.00000095	0.000019	0.000005	0.0000057	0.00000095	0.00000095	0.0000071	0.0000171
Molybdenum (Mo)	mg/L	22	0.000050	0.0010	0.00091	0.00027	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	22	0.0015	0.017	0.0023	0.0032	0.0015	0.0015	0.0015	0.0029
Selenium (Se)	mg/L	22	0.000050	0.0020	0.00030	0.00058	0.000050	0.000050	0.00023	0.0020
Silver (Ag)	mg/L	22	0.0000050	0.000050	0.000011	0.000015	0.0000050	0.0000050	0.000005	0.000050
Strontium (Sr)	mg/L	22	0.0060	0.017	0.012	0.0025	0.010	0.013	0.013	0.017
Thallium (Tl)	mg/L	22	0.0000050	0.00015	0.000021	0.000043	0.0000050	0.0000050	0.0000050	0.0001500
Titanium (Ti)	mg/L	22	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	22	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	22	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	22	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	22	0.0025	0.010	0.0030	0.0017	0.0025	0.0025	0.0025	0.0058
Zirconium (Zr)	mg/L	22	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	22	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	22	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	22	0.025	0.44	0.061	0.094	0.025	0.025	0.025	0.18
Nitrite (NO_2^-)	mg/L as N	22	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	22	0.010	0.450	0.060	0.111	0.010	0.010	0.040	0.337
Un-ionized Ammonia (NH_3)	mg/L	22	0.0	0.00028	0.000084	0.000084	0.0000143	0.000058	0.00013	0.00023
Total Kjeldahl Nitrogen	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	22	0.012	0.059	0.025	0.014	0.013	0.019	0.032	0.051
Phosphate (PO_4)	mg/L as P	22	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	22	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Mineral)	mg/L	22	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Total)	mg/L	22	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Polychlorinated Biphenyls	mg/L	22	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Naphthalene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthylene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Fluorene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Phenanthrene	mg/L	22	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Anthracene	mg/L	22	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Fluoranthene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Pyrene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benz(a)anthracene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Chrysene	mg/L	22	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(b)fluoranthene	mg/L	22	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(k)fluoranthene	mg/L	22	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(a)pyrene	mg/L	22	0.0000050	0.0000050	0.0000050	0	0.0000050	0.0000050	0.0000050	0.0000050
Indeno(1,2,3-cd)pyrene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Dibenz(a,h)anthracene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benzo(g,h,i)perylene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
2-and 1-methyl Naphthalene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
RADIONUCLIDES										
Radium-226	Bq/L	22	nc	nc	nc	nc	nc	nc	nc	nc
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	22	1.0	4.0	3.0	1.2	2.5	3.5	4.0	4.0
Total Coliforms	CFU/100mL	22	7.0	384	124	153	19	52	156	338

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	3D-LS2 - Three Duck Lakes, Lower (Profile Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	22	5.5	7.9	6.5	0.54	6.7	7.0	7.3	7.8
Temperature	degrees Celsius	22	0.025	23	9.5	5.9	5.2	9.3	12	21
Conductivity	µS/cm	22	31	141	55	34	35	42	52	139
Dissolved Oxygen (DO)	mg/L	22	0.1	14	8.8	3.8	8.0	9.6	12	13
ORP	mV	22	44	245	142	56	105	125	190	222
GENERAL PARAMETERS										
Lab pH	pH units	22	6.0	7.6	6.6	0.42	6.6	7.0	7.2	7.3
Alkalinity	mg/L as $CaCO_3$	22	9.0	44	15	7.4	11	12	17	24
Acidity	mg/L as $CaCO_3$	22	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	22	33	106	45	15	38	41	46	60
Total Dissolved Solids (TDS)	mg/L	22	34	64	48	9	41	46	56	62
Total Suspended Solids (TSS)	mg/L	22	0.50	5.0	1.3	1.2	0.5	1.0	1.8	3.1
Total Hardness	mg/L as $CaCO_3$	22	14	26	19	3.2	18	19	20	26
Dissolved Organic Carbon (DOC)	mg/L	22	7.1	17	13	2.5	11	13	14	16
Total Organic Carbon (TOC)	mg/L	22	8	19	13	2.8	12	14	15	17
Chemical Oxygen Demand (COD)	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	22	4.4	8.1	5.9	1.0	5.6	5.8	6.1	7.9
Magnesium (Mg)	mg/L	22	0.76	1.5	1.0	0.17	0.97	1.0	1.1	1.4
Potassium (K)	mg/L	22	0.24	0.47	0.33	0.061	0.29	0.31	0.37	0.44
Sodium (Na)	mg/L	22	0.64	1.3	0.83	0.14	0.74	0.78	0.9	1.0
Chloride (Cl)	mg/L	22	0.32	0.82	0.45	0.11	0.38	0.42	0.47	0.63
Fluoride (F)	mg/L	na	na	na	na	na	na	na	na	na
Sulphate (SO_4)	mg/L	22	1.1	3.2	2.4	0.46	2.2	2.4	2.8	3.1
METALS										
Aluminum (Al) (Dissolved)	mg/L	22	0.025	0.12	0.066	0.031	0.037	0.064	0.093	0.113
Antimony (Sb)	mg/L	22	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	22	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	22	0.0030	0.0110	0.0050	0.0018	0.0040	0.0040	0.0050	0.0080
Beryllium (Be)	mg/L	22	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	22	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	22	0.000010	0.00011	0.000020	0.000024	0.000010	0.000010	0.000010	0.000053
Chromium (Cr)	mg/L	22	0.0015	0.0030	0.0016	0.00031	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	22	0.00025	0.00070	0.00027	0.000094	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	22	0.000050	0.0023	0.0012	0.00050	0.0010	0.0011	0.0013	0.0022
Iron (Fe)	mg/L	22	0.08	6.51	0.55	1.3	0.19	0.21	0.26	0.93
Lead (Pb)	mg/L	22	0.000050	0.00050	0.00023	0.00016	0.00010	0.00020	0.00030	0.00050
Manganese (Mn)	mg/L	22	0.0090	0.45	0.064	0.10	0.017	0.024	0.049	0.221
Mercury (Hg)	mg/L	22	0.00000095	0.000008	0.0000028	0.0000025	0.00000095	0.00000095	0.0000047	0.0000082
Molybdenum (Mo)	mg/L	22	0.000050	0.0010	0.00091	0.00027	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	22	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	22	0.000050	0.0034	0.00045	0.00089	0.000050	0.000050	0.000200	0.002070
Silver (Ag)	mg/L	22	0.0000050	0.000050	0.000010	0.000014	0.0000050	0.0000050	0.000005	0.000050
Strontium (Sr)	mg/L	22	0.008	0.024	0.013	0.0035	0.010	0.013	0.013	0.017
Thallium (Tl)	mg/L	22	0.0000050	0.00015	0.000021	0.000044	0.0000050	0.0000050	0.000005	0.000150
Titanium (Ti)	mg/L	22	0.0010	0.0030	0.0011	0.00042	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	22	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	22	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	22	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	22	0.0025	0.0050	0.0026	0	0.0025	0.0025	0.0025	0.0025
Zirconium (Zr)	mg/L	22	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	22	0.0010	0.021	0.0019	0.0042	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	22	0.0010	0.021	0.0019	0.0042	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	22	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Sulphur (S)	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	22	0.025	0.40	0.063	0.087	0.025	0.025	0.051	0.20
Nitrite (NO_2^-)	mg/L as N	22	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	22	0.010	0.490	0.067	0.120	0.010	0.015	0.068	0.366
Un-ionized Ammonia (NH_3)	mg/L	22	0.0000058	0.00014	0.000049	0.000046	0.000014	0.000033	0.000061	0.000135
Total Kjeldahl Nitrogen	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	22	0.0025	0.091	0.025	0.021	0.011	0.018	0.033	0.058
Phosphate (PO_4)	mg/L as P	22	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	22	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Mineral)	mg/L	22	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Total)	mg/L	22	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Polychlorinated Biphenyls	mg/L	22	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Naphthalene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthylene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Fluorene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Phenanthrene	mg/L	22	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Anthracene	mg/L	22	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Fluoranthene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Pyrene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benz(a)anthracene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Chrysene	mg/L	22	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(b)fluoranthene	mg/L	22	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(k)fluoranthene	mg/L	22	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(a)pyrene	mg/L	22	0.0000050	0.0000050	0.0000050	0	0.0000050	0.0000050	0.0000050	0.0000050
Indeno(1,2,3-cd)pyrene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Dibenz(a,h)anthracene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benzo(g,h,i)perylene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
2-and 1-methyl Naphthalene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
RADIONUCLIDES										
Radium-226	Bq/L	22	nc	nc	nc	nc	nc	nc	nc	nc
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	22	1.0	6.0	3.0	2.2	1.5	2.0	4.0	5.6
Total Coliforms	CFU/100mL	22	4.0	340	134	147	31	57	199	312

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	3D-LS3 - Three Duck Lakes, Upper (Profile Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	8	6.5	7.7	6.8	0.35	6.7	6.8	7.1	7.5
Temperature	degrees Celsius	8	0.14	20	8.8	6.5	5.7	6.7	11	20
Conductivity	µS/cm	8	31	78	45	14	35	43	47	70
Dissolved Oxygen (DO)	mg/L	8	0.3	12	8.1	4.3	4.1	10	12	12
ORP	mV	8	24	236	135	101	40	141	236	236
GENERAL PARAMETERS										
Lab pH	pH units	8	6.5	7.3	6.9	0.27	6.8	7.2	7.2	7.3
Alkalinity	mg/L as $CaCO_3$	8	5.0	20	14	4.2	13	15	16	19
Acidity	mg/L as $CaCO_3$	8	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	8	36	51	44	5	40	43	46	51
Total Dissolved Solids (TDS)	mg/L	8	10	56	44	13	44	48	51	55
Total Suspended Solids (TSS)	mg/L	8	0.50	2.0	1.3	0.70	0.50	1.5	2.0	2.0
Total Hardness	mg/L as $CaCO_3$	8	15	23	19	2.8	18	19	20	23
Dissolved Organic Carbon (DOC)	mg/L	8	11.0	15	13	1.5	12	14	14	15
Total Organic Carbon (TOC)	mg/L	8	12	16	14	1.7	13	14	16	16
Chemical Oxygen Demand (COD)	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	8	4.7	7.2	5.9	0.9	5.4	5.9	6.3	7.1
Magnesium (Mg)	mg/L	8	0.77	1.3	1.0	0.18	0.98	1.1	1.1	1.3
Potassium (K)	mg/L	8	0.24	0.37	0.29	0.042	0.26	0.28	0.31	0.36
Sodium (Na)	mg/L	8	0.64	1.0	0.78	0.10	0.74	0.78	0.8	0.9
Chloride (Cl)	mg/L	8	0.33	0.54	0.42	0.06	0.38	0.43	0.45	0.51
Fluoride (F)	mg/L	na	na	na	na	na	na	na	na	na
Sulphate (SO_4)	mg/L	8	2.0	7.5	2.9	1.7	2.1	2.3	2.4	5.7
METALS										
Aluminum (Al) (Dissolved)	mg/L	8	0.043	0.09	0.062	0.018	0.049	0.056	0.066	0.092
Antimony (Sb)	mg/L	8	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	8	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	8	0.0040	0.0060	0.0046	0	0.0040	0.0045	0.0050	0.0057
Beryllium (Be)	mg/L	8	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	8	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	8	0.000010	0.00006	0.000026	0.000021	0.000010	0.000010	0.000050	0.000057
Chromium (Cr)	mg/L	8	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	8	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	8	0.000800	0.0049	0.0017	0.00137	0.0010	0.0011	0.0016	0.0042
Iron (Fe)	mg/L	8	0.13	0.23	0.18	0.025	0.17	0.17	0.18	0.21
Lead (Pb)	mg/L	8	0.000050	0.00050	0.00019	0.00018	0.00009	0.00010	0.00020	0.00050
Manganese (Mn)	mg/L	8	0.0130	0.05	0.022	0.011	0.014	0.018	0.024	0.041
Mercury (Hg)	mg/L	8	0.00000095	0.000011	0.000003	0.0000033	0.00000095	0.00000213	0.0000040	0.0000089
Molybdenum (Mo)	mg/L	8	0.001000	0.0010	0.00100	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	8	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	8	0.000050	0.0020	0.00065	0.00080	0.000088	0.000200	0.000950	0.002000
Silver (Ag)	mg/L	8	0.0000050	0.000050	0.000016	0.000019	0.0000050	0.0000050	0.000016	0.000050
Strontium (Sr)	mg/L	8	0.010	0.015	0.012	0.0017	0.012	0.013	0.013	0.015
Thallium (Tl)	mg/L	8	0.0000050	0.00015	0.000044	0.000062	0.0000050	0.0000050	0.000060	0.000150
Titanium (Ti)	mg/L	8	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	8	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	8	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	8	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	8	0.0025	0.0025	0.0025	0	0.0025	0.0025	0.0025	0.0025
Zirconium (Zr)	mg/L	8	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	8	0.0010	0.001	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	8	0.0010	0.001	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	8	0.025	0.14	0.054	0.050	0.025	0.025	0.054	0.14
Nitrite (NO_2^-)	mg/L as N	8	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	8	0.010	0.010	0.010	0	0.010	0.010	0.010	0.010
Un-ionized Ammonia (NH_3)	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Total Kjeldahl Nitrogen	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	8	0.015	0.021	0.017	0.0019	0.016	0.017	0.018	0.021
Phosphate (PO_4)	mg/L as P	8	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	8	nc	nc	nc	nc	nc	nc	nc	nc
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	8	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	8	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	3D-a - Three Ducks Lakes, Upper (Outlet Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	8	6.1	7.6	6.6	0.42	6.6	6.7	6.8	7.4
Temperature	degrees Celsius	8	0.46	21	6.5	6.8	1.3	3.5	8.8	18
Conductivity	µS/cm	8	15	46	33	8.2	30	35	35	43
Dissolved Oxygen (DO)	mg/L	8	8.7	16	12	2.2	11	12	13	15
ORP	mV	8	152	204	178	26	165	178	191	201
GENERAL PARAMETERS										
Lab pH	pH units	8	6.7	7.4	7.2	0.21	7.2	7.3	7.4	7.4
Alkalinity	mg/L as $CaCO_3$	8	11	23	16	4.0	13	16	19	22
Acidity	mg/L as $CaCO_3$	8	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	8	34	55	43	6.2	38	43	46	52
Total Dissolved Solids (TDS)	mg/L	8	30	60	47	10	44	50	52	57
Total Suspended Solids (TSS)	mg/L	8	0.50	2.0	0.94	0.46	0.50	1.0	1.0	1.7
Total Hardness	mg/L as $CaCO_3$	8	16	26	19	3.3	17	19	21	25
Dissolved Organic Carbon (DOC)	mg/L	8	10	13	12	1.1	11	12	13	13
Total Organic Carbon (TOC)	mg/L	8	11	14	13	1.3	12	13	14	14
Chemical Oxygen Demand (COD)	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	8	4.9	8.2	6.0	1.0	5.1	5.9	6.4	7.8
Magnesium (Mg)	mg/L	8	0.85	1.4	1.1	0.16	0.95	1.1	1.1	1.3
Potassium (K)	mg/L	8	0.29	0.36	0.31	0.028	0.29	0.30	0.33	0.36
Sodium (Na)	mg/L	8	0.71	1.0	0.81	0.11	0.71	0.74	0.91	0.97
Chloride (Cl)	mg/L	8	0.28	0.45	0.37	0.05	0.33	0.37	0.41	0.44
Fluoride (F)	mg/L	8	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	8	1.9	2.5	2.3	0.22	2.1	2.4	2.4	2.5
METALS										
Aluminum (Al) (Dissolved)	mg/L	8	0.035	0.10	0.062	0.020	0.049	0.057	0.076	0.094
Antimony (Sb)	mg/L	8	0.0005	0.001	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	8	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	8	0.0040	0.0060	0.0048	0.00066	0.0040	0.0050	0.0050	0.0057
Beryllium (Be)	mg/L	8	0.00050	0.0005	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	8	0.00500	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	8	0.000010	0.0000	0.00001	0	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	8	0.001500	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	8	0.00025	0.0003	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	8	0.00100	0.0022	0.0013	0.00038	0.0010	0.0012	0.0013	0.0019
Iron (Fe)	mg/L	8	0.0790	0.25	0.16	0.057	0.118	0.13	0.20	0.24
Lead (Pb)	mg/L	8	0.000050	0.00	0.0001	0.00011	0.00005	0.00010	0.00013	0.00033
Manganese (Mn)	mg/L	8	0.00900	0.026	0.016	0.0057	0.012	0.015	0.020	0.025
Mercury (Hg)	mg/L	8	0.00000095	0.000	0.0000	0	0.000001	0.000001	0.000001	0.000003
Molybdenum (Mo)	mg/L	8	0.001000	0.0010	0.00100	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	8	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	8	0.000050	0.00030	0.00010	0.000090	0.000050	0.000050	0.000088	0.000265
Silver (Ag)	mg/L	8	0.0000050	0.0000	0.00001	0	0.000005	0.000005	0.000005	0.000015
Strontium (Sr)	mg/L	8	0.011000	0.015	0.013	0.0011	0.012	0.013	0.013	0.014
Thallium (Tl)	mg/L	8	0.0000050	0.000	0.00001	0	0.000005	0.00001	0.00001	0.00001
Titanium (Ti)	mg/L	8	0.00100	0.0010	0.00100	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	8	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	8	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	8	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	8	0.0025	0.005	0.0028	0.00083	0.0025	0.0025	0.0025	0.0041
Zirconium (Zr)	mg/L	8	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	8	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	8	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	8	0.00050	0.0010	0.00058	0.00019	0.00050	0.00050	0.00050	0.00088
Sulphur (S)	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	8	0.025	0.17	0.063	0.048	0.025	0.043	0.078	0.15
Nitrite (NO_2^-)	mg/L as N	8	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	8	0.010	0.010	0.010	0	0.010	0.010	0.010	0.010
Un-ionized Ammonia (NH_3)	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Total Kjeldahl Nitrogen	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	8	0.0060	0.018	0.012	0	0.010	0.012	0.014	0.017
Phosphate (PO_4)	mg/L as P	8	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	8	0.25	3.50	0.76	1.1	0.25	0.25	0.43	2.63
Oil and Grease (Mineral)	mg/L	8	0.25	0.90	0.34	0.2	0.25	0.25	0.25	0.71
Oil and Grease (Total)	mg/L	8	0.25	4.40	0.93	1.4	0.25	0.25	0.55	3.26
Polychlorinated Biphenyls	mg/L	8	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Naphthalene	mg/L	8	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthylene	mg/L	8	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthene	mg/L	8	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Fluorene	mg/L	8	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Phenanthrene	mg/L	8	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Anthracene	mg/L	8	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Fluoranthene	mg/L	8	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Pyrene	mg/L	8	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benz(a)anthracene	mg/L	8	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Chrysene	mg/L	8	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(b)fluoranthene	mg/L	8	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(k)fluoranthene	mg/L	8	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(a)pyrene	mg/L	8	0.0000050	0.0000050	0.0000050	0	0.0000050	0.0000050	0.0000050	0.0000050
Indeno(1,2,3-cd)pyrene	mg/L	8	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Dibenz(a,h)anthracene	mg/L	8	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benzo(g,h,i)perylene	mg/L	8	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
2-and 1-methyl Naphthalene	mg/L	8	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
RADIONUCLIDES										
Radium-226	Bq/L	8	nc	nc	nc	nc	nc	nc	nc	nc
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	8	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	8	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	3D-c - Three Ducks Lakes, Lower (Outlet Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	35	5.5	7.8	6.4	0.60	6.4	7.0	7.2	7.7
Temperature	degrees Celsius	35	-1.4	24	9	9	0.5	6	18	22
Conductivity	µS/cm	35	20.0	49	31	7.3	25	29	36	41
Dissolved Oxygen (DO)	mg/L	35	1.2	17	9.4	3	8.1	9.7	11	15
ORP	mV	35	167	167	167	0	167	167	167	167
GENERAL PARAMETERS										
Lab pH	pH units	35	6.0	7.4	6.5	0.39	6.4	6.7	6.9	7.4
Alkalinity	mg/L as $CaCO_3$	35	8.0	22	13	2.9	11	12	13	18
Acidity	mg/L as $CaCO_3$	35	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	35	34	54	41	5.4	38	40	43	53
Total Dissolved Solids (TDS)	mg/L	35	10	78	49	13	48	50	55	63
Total Suspended Solids (TSS)	mg/L	35	0.50	3.0	1.1	0.79	0.50	0.75	1.3	2.9
Total Hardness	mg/L as $CaCO_3$	35	14	26	19	2.5	18	18	20	24
Dissolved Organic Carbon (DOC)	mg/L	35	8.5	17	13	1.8	12	12	13	16
Total Organic Carbon (TOC)	mg/L	35	11	14	13	0.9	13	13	14	14
Chemical Oxygen Demand (COD)	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	35	4.4	8.0	5.9	0.79	5.5	5.7	6.3	7.5
Magnesium (Mg)	mg/L	35	0.83	1.4	1.1	0.14	0.97	1.0	1.2	1.4
Potassium (K)	mg/L	35	0.28	0.50	0.37	0.056	0.33	0.37	0.41	0.45
Sodium (Na)	mg/L	35	0.67	1.1	0.86	0.13	0.77	0.84	0.95	1.10
Chloride (Cl)	mg/L	35	0.30	0.99	0.52	0.17	0.40	0.46	0.59	0.91
Fluoride (F)	mg/L	35	0.025	0.03	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	35	1.9	3.6	2.7	0.37	2.5	2.7	2.8	3.3
METALS										
Aluminum (Al) (Dissolved)	mg/L	35	0.011	0.10	0.056	0.024	0.043	0.052	0.076	0.095
Antimony (Sb)	mg/L	35	0.0005	0.001	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	35	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	35	0.0030	0.0060	0.0045	0.00071	0.0040	0.0040	0.0050	0.0060
Beryllium (Be)	mg/L	35	0.00050	0.0005	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	35	0.00500	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	35	0.000010	0.0000	0.00001	0	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	35	0.001500	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	35	0.00025	0.0003	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	35	0.00070	0.0015	0.0010	0.00019	0.0009	0.0010	0.0012	0.0013
Iron (Fe)	mg/L	35	0.0840	0.27	0.14	0.046	0.105	0.14	0.18	0.22
Lead (Pb)	mg/L	35	0.000050	0.00050	0.00031	0.00020	0.00010	0.00050	0.00050	0.00050
Manganese (Mn)	mg/L	35	0.00700	0.057	0.019	0.012	0.011	0.013	0.022	0.042
Mercury (Hg)	mg/L	35	0.00000095	0.000012	0.0000027	0.0000032	0.000001	0.000001	0.000003	0.000008
Molybdenum (Mo)	mg/L	35	0.001000	0.0010	0.00100	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	35	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	35	0.000050	0.00030	0.00008	0.000070	0.000050	0.000050	0.000050	0.00023
Silver (Ag)	mg/L	35	0.0000050	0.0000050	0.0000050	0	0.000005	0.000005	0.000005	0.000005
Strontium (Sr)	mg/L	35	0.009000	0.017	0.012	0.0018	0.011	0.012	0.014	0.015
Thallium (Tl)	mg/L	35	0.0000050	0.000	0.00001	0	0.000005	0.00001	0.00001	0.00001
Titanium (Ti)	mg/L	35	0.00100	0.0010	0.00100	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	35	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	35	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	35	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	35	0.0025	0.050	0.0074	0.012	0.0025	0.0025	0.0025	0.0386
Zirconium (Zr)	mg/L	35	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	35	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	35	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	35	0.025	0.160	0.058	0.043	0.025	0.043	0.070	0.13
Nitrite (NO_2^-)	mg/L as N	35	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	35	0.010	0.080	0.018	0.017	0.010	0.010	0.015	0.055
Un-ionized Ammonia (NH_3)	mg/L	35	0.00000076	0.00065	0.000072	0.00014	0.000010	0.000034	0.000075	0.000146
Total Kjeldahl Nitrogen	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	35	0.0060	0.024	0.011	0.0045	0.0080	0.010	0.012	0.019
Phosphate (PO_4)	mg/L as P	35	0.050	0.050	0.050	0	0.050	0.050	0.050	0.050
Soluble Reactive Phosphorus	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	35	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	35	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	35	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

IAMGOLD CÔTÉ GOLD PROJECT

STATISTICS BY STATION

Parameter	Unit	DEL-LS - Delaney Lake (Profile Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	3	6.3	6.9	6.5	0.27	6.5	6.7	6.8	6.9
Temperature	degrees Celsius	3	2.5	22	14	8.2	9.3	16	19	22
Conductivity	µS/cm	3	25	46	37	8.8	33	40	43	45
Dissolved Oxygen (DO)	mg/L	na	na	na	na	na	na	na	na	na
ORP	mV	3	156	185	170	15	163	170	178	183
GENERAL PARAMETERS										
Lab pH	pH units	3	6.2	6.5	6.3	0.16	6.2	6.2	6.4	6.5
Alkalinity	mg/L as $CaCO_3$	3	7.0	9.0	7.7	0.94	7.0	7.0	8.0	8.8
Acidity	mg/L as $CaCO_3$	3	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	3	25	37	32	5.1	30	34	36	37
Total Dissolved Solids (TDS)	mg/L	3	54	58	56	1.6	55	56	57	58
Total Suspended Solids (TSS)	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Total Hardness	mg/L as $CaCO_3$	3	15	20	17	2.1	16	16	18	20
Dissolved Organic Carbon (DOC)	mg/L	3	17	28	21	4.9	17	17	23	27
Total Organic Carbon (TOC)	mg/L	3	19	29	22	4.5	19	19	24	28
Chemical Oxygen Demand (COD)	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	3	4.5	6.0	5.1	0.63	4.7	4.9	5.5	5.9
Magnesium (Mg)	mg/L	3	0.88	1.2	1.0	0.14	0.92	0.96	1.1	1.2
Potassium (K)	mg/L	3	0.26	0.31	0.28	0.022	0.27	0.27	0.29	0.31
Sodium (Na)	mg/L	3	0.67	0.85	0.74	0.077	0.69	0.71	0.78	0.84
Chloride (Cl)	mg/L	3	0.25	0.52	0.34	0.13	0.25	0.25	0.39	0.49
Fluoride (F)	mg/L	na	na	na	na	na	na	na	na	na
Sulphate (SO_4)	mg/L	3	1.7	2.6	2.2	0.36	2.0	2.2	2.4	2.6
METALS										
Aluminum (Al) (Dissolved)	mg/L	3	0.086	0.17	0.13	0.033	0.11	0.14	0.15	0.16
Antimony (Sb)	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Arsenic (As)	mg/L	3	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	3	0.0040	0.0060	0.0047	0.00094	0.0040	0.0040	0.0050	0.0058
Beryllium (Be)	mg/L	3	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	3	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	3	0.000010	0.000030	0.000020	0.000010	0.000015	0.000020	0.000025	0.000029
Chromium (Cr)	mg/L	3	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	3	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	3	0.00070	0.0008	0.00075	0.000050	0.00073	0.00075	0.00078	0.00080
Iron (Fe)	mg/L	3	0.11	0.57	0.30	0.19	0.17	0.23	0.40	0.54
Lead (Pb)	mg/L	3	0.00030	0.00060	0.00047	0.00012	0.00040	0.00050	0.00055	0.00059
Manganese (Mn)	mg/L	3	0.010	0.045	0.023	0.015	0.013	0.015	0.030	0.042
Mercury (Hg)	mg/L	3	0.00000095	0.000016	0.000009	0.000008	0.0000048	0.000009	0.000012	0.000015
Molybdenum (Mo)	mg/L	3	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	3	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	3	0.000050	0.00010	0.00008	0.000025	0.000063	0.000075	0.00009	0.00010
Silver (Ag)	mg/L	3	0.0000050	0.0000050	0.0000050	0	0.0000050	0.0000050	0.0000050	0.0000050
Strontium (Sr)	mg/L	3	0.010	0.013	0.012	0.0014	0.012	0.013	0.013	0.013
Thallium (Tl)	mg/L	3	0.0000050	0.00001	0.000005	0	0.0000050	0.0000050	0.000005	0.000005
Titanium (Ti)	mg/L	3	0.0010	0.0020	0.0013	0.00047	0.0010	0.0010	0.0015	0.0019
Tungsten (W)	mg/L	3	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	3	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	3	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	3	0.0025	0.023	0.0093	0.0097	0.0025	0.0025	0.013	0.021
Zirconium (Zr)	mg/L	3	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	3	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	3	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	3	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	3	0.025	0.060	0.037	0.016	0.025	0.025	0.043	0.057
Nitrite (NO_2^-)	mg/L as N	3	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	3	0.010	0.060	0.027	0.024	0.010	0.010	0.035	0.055
Un-ionized Ammonia (NH_3)	mg/L	3	0.0000055	0.000037	0.000024	0.000013	0.000018	0.000030	0.000033	0.000036
Total Kjeldahl Nitrogen	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	3	0.016	0.016	0.016	0	0.016	0.016	0.016	0.016
Phosphate (PO_4)	mg/L as P	3	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	3	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	3	nc	nc	nc	nc	nc	nc	nc	nc
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	3	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	3	nc	nc	nc	nc	nc	nc	nc	nc

Notes:

nc = Statistic not calculated for that parameter

IAMGOLD CÔTÉ GOLD PROJECT

STATISTICS BY STATION

Parameter	Unit	DEL - Delaney Lake (Outlet Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	11	5.5	6.8	6.0	0.40	5.9	6.3	6.5	6.7
Temperature	degrees Celsius	11	0.010	18	5.8	6.5	0.41	3.7	10	17
Conductivity	µS/cm	11	11	40	27	8.6	24	27	32	39
Dissolved Oxygen (DO)	mg/L	11	5.9	26	13	4.9	12	13	14	21
ORP	mV	11	124	139	131	7.4	127	131	135	138
GENERAL PARAMETERS										
Lab pH	pH units	11	5.7	7.3	6.4	0.50	6.4	6.9	7.1	7.3
Alkalinity	mg/L as $CaCO_3$	11	2.5	22	11	5.8	7.5	9.0	14	20
Acidity	mg/L as $CaCO_3$	11	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	11	21	53	35	8.9	30	33	41	50
Total Dissolved Solids (TDS)	mg/L	11	52	86	68	9.3	63	68	74	82
Total Suspended Solids (TSS)	mg/L	11	0.50	4.0	1.3	1.0	0.50	1.0	1.5	3.0
Total Hardness	mg/L as $CaCO_3$	11	10	29	18	5.2	15	17	22	26
Dissolved Organic Carbon (DOC)	mg/L	11	15	26	21	2.6	20	20	22	25
Total Organic Carbon (TOC)	mg/L	11	19	25	22	1.7	21	22	23	24
Chemical Oxygen Demand (COD)	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	11	3.1	8.8	5.6	1.56	4.6	5.2	6.6	8.0
Magnesium (Mg)	mg/L	11	0.59	1.7	1.1	0.30	0.88	0.99	1.3	1.6
Potassium (K)	mg/L	11	0.16	0.34	0.24	0.050	0.21	0.24	0.28	0.32
Sodium (Na)	mg/L	11	0.55	1.08	0.79	0.163	0.69	0.76	0.90	1.06
Chloride (Cl)	mg/L	11	0.20	0.47	0.34	0.10	0.26	0.40	0.42	0.45
Fluoride (F)	mg/L	11	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	11	1.5	2.3	2.0	0.22	1.8	2.0	2.1	2.3
METALS										
Aluminum (Al) (Dissolved)	mg/L	11	0.118	0.19	0.14	0.020	0.12	0.14	0.15	0.17
Antimony (Sb)	mg/L	11	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	11	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	11	0.0030	0.0050	0.0043	0.00062	0.0040	0.0040	0.0050	0.0050
Beryllium (Be)	mg/L	11	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	11	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	11	0.000010	0.000020	0.000012	0.000004	0.000010	0.000010	0.000010	0.000020
Chromium (Cr)	mg/L	11	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	11	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	11	0.00050	0.0009	0.00066	0.00012	0.00060	0.00060	0.00070	0.00090
Iron (Fe)	mg/L	11	0.28	0.52	0.39	0.081	0.32	0.40	0.45	0.51
Lead (Pb)	mg/L	11	0.00020	0.00050	0.00033	0.00007	0.00030	0.00030	0.00035	0.00045
Manganese (Mn)	mg/L	11	0.021	0.064	0.034	0.012	0.025	0.033	0.040	0.053
Mercury (Hg)	mg/L	11	0.00000095	0.000010	0.000003	0.0000032	0.0000010	0.000001	0.000003	0.000009
Molybdenum (Mo)	mg/L	11	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	11	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	11	0.000050	0.00050	0.00014	0.00013	0.000050	0.00010	0.00020	0.00035
Silver (Ag)	mg/L	11	0.0000050	0.0000050	0.0000050	0	0.0000050	0.0000050	0.0000050	0.0000050
Strontium (Sr)	mg/L	11	0.007	0.013	0.010	0.0018	0.010	0.010	0.012	0.013
Thallium (Tl)	mg/L	11	0.0000050	0.00003	0.000007	0.000007	0.0000050	0.0000050	0.000005	0.000018
Titanium (Ti)	mg/L	11	0.0010	0.0020	0.0014	0.00048	0.0010	0.0010	0.0020	0.0020
Tungsten (W)	mg/L	11	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	11	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	11	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	11	0.0025	0.003	0.0025	0	0.0025	0.0025	0.003	0.003
Zirconium (Zr)	mg/L	11	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	11	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	11	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	11	0.025	0.19	0.081	0.065	0.025	0.025	0.14	0.18
Nitrite (NO_2^-)	mg/L as N	11	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	11	0.010	0.060	0.015	0.014	0.010	0.010	0.010	0.040
Un-ionized Ammonia (NH_3)	mg/L	11	0.0000030	0.000003	0.000003	0	0.000003	0.000003	0.000003	0.000003
Total Kjeldahl Nitrogen	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	11	0.0025	0.025	0.016	0.0060	0.014	0.016	0.019	0.025
Phosphate (PO_4)	mg/L as P	11	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	11	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	11	nc	nc	nc	nc	nc	nc	nc	nc
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	11	1.0	24.0	6.0	8.2	1.3	2.0	5.0	19.5
Total Coliforms	CFU/100mL	11	40.0	352.0	159.8	94.7	127.0	135.5	162.8	306.5

Notes:

nc = Statistic not calculated for that parameter

Parameter	Unit	P-4 - Inflow to Mollie River								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	13	5.4	7.0	6.0	0.46	5.9	6.4	6.5	6.7
Temperature	degrees Celsius	13	nc	17	6.3	7.0	0.28	3.5	13	17
Conductivity	µS/cm	13	14	37	25	5.7	22	25	29	34
Dissolved Oxygen (DO)	mg/L	13	1.7	20	11	4.7	7.4	11	13	17
ORP	mV	13	127	127	127	0	127	127	127	127
GENERAL PARAMETERS										
Lab pH	pH units	13	5.7	7.1	6.4	0.41	6.2	6.7	6.9	7.1
Alkalinity	mg/L as $CaCO_3$	13	2.5	13	9.0	2.9	8.0	10	11	12
Acidity	mg/L as $CaCO_3$	13	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	13	8.0	49	32	9	28	33	36	43
Total Dissolved Solids (TDS)	mg/L	13	44	82	64	11	54	62	72	80
Total Suspended Solids (TSS)	mg/L	13	0.50	4.0	1.1	1.3	0.50	0.50	0.63	4.0
Total Hardness	mg/L as $CaCO_3$	13	14	25	18	3.3	15	17	20	23
Dissolved Organic Carbon (DOC)	mg/L	13	13	26	20	3.5	18	21	23	25
Total Organic Carbon (TOC)	mg/L	13	22	26	24	2	22	22	26	26
Chemical Oxygen Demand (COD)	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	13	4.2	8.0	5.6	1.1	4.7	5.2	6.3	7.2
Magnesium (Mg)	mg/L	13	0.77	1.3	1.0	0.18	0.8	1.0	1.2	1.2
Potassium (K)	mg/L	13	0.10	0.50	0.24	0.10	0.19	0.21	0.26	0.43
Sodium (Na)	mg/L	13	0.71	1.0	0.82	0.09	0.76	0.81	0.86	0.97
Chloride (Cl)	mg/L	13	0.05	0.34	0.25	0.079	0.22	0.26	0.30	0.33
Fluoride (F)	mg/L	13	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	13	1.3	4.0	2.2	0.62	2.0	2.0	2.3	3.3
METALS										
Aluminum (Al) (Dissolved)	mg/L	13	0.10	0.17	0.14	0.016	0.13	0.14	0.15	0.16
Antimony (Sb)	mg/L	13	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	13	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	13	0.0040	0.0070	0.0052	0.00077	0.0050	0.0050	0.0050	0.0064
Beryllium (Be)	mg/L	13	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	13	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	13	0.000010	0.000020	0.000011	0.0000030	0.000010	0.000010	0.000010	0.000016
Chromium (Cr)	mg/L	13	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	13	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	13	0.00040	0.0022	0.00080	0.00048	0.00060	0.0007	0.0007	0.0016
Iron (Fe)	mg/L	13	0.24	0.71	0.34	0.12	0.27	0.30	0.34	0.56
Lead (Pb)	mg/L	13	0.00020	0.00050	0.00034	0.00010	0.00030	0.00030	0.00040	0.00050
Manganese (Mn)	mg/L	13	0.007	0.080	0.025	0.019	0.012	0.021	0.033	0.058
Mercury (Hg)	mg/L	13	0.0000010	0.000010	0.000003	0.0000030	0.000001	0.000001	0.000005	0.000008
Molybdenum (Mo)	mg/L	13	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	13	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	13	0.000050	0.0015	0.00027	0.00043	0.00005	0.00005	0.00025	0.0011
Silver (Ag)	mg/L	13	0.0000050	0.000010	0.000007	0.000002	0.000005	0.000005	0.000009	0.000010
Strontium (Sr)	mg/L	13	0.0090	0.019	0.012	0.0032	0.010	0.011	0.013	0.019
Thallium (Tl)	mg/L	13	0.0000050	0.00003	0.00001	0.000009	0.00001	0.00001	0.00002	0.00003
Titanium (Ti)	mg/L	13	0.0010	0.0030	0.0014	0.0007	0.0010	0.0010	0.0010	0.0030
Tungsten (W)	mg/L	13	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	13	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	13	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	13	0.0025	0.020	0.005	0.0053	0.0025	0.003	0.003	0.016
Zirconium (Zr)	mg/L	13	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	13	0.0010	0.0030	0.0012	0.00053	0.0010	0.0010	0.0010	0.0018
Free Cyanide	mg/L	13	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	13	0.025	0.15	0.062	0.049	0.025	0.025	0.11	0.14
Nitrite (NO_2^-)	mg/L as N	13	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	13	0.010	0.060	0.018	0.015	0.010	0.010	0.030	0.042
Un-ionized Ammonia (NH_3)	mg/L	13	0.0000010	0.000020	0.000013	0.0000079	0.0000078	0.000015	0.000020	0.000020
Total Kjeldahl Nitrogen	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	13	0.0025	0.033	0.014	0.0072	0.012	0.014	0.015	0.025
Phosphate (PO_4)	mg/L as P	13	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	13	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	13	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	13	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	DIV-LS - Dividing Lake (Profile Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	18	6.4	8.7	7.1	0.58	7.0	7.2	7.8	8.3
Temperature	degrees Celsius	18	0.08	22	6.8	5.2	3.8	4.6	8.8	18
Conductivity	µS/cm	18	31	218	100	54	54	83	121	213
Dissolved Oxygen (DO)	mg/L	18	0.010	13	7.0	4.9	1.0	9.6	11	13
ORP	mV	18	-163	236	125	89	107	142	174	226
GENERAL PARAMETERS										
Lab pH	pH units	18	6.3	7.9	7.0	0.41	7.0	7.3	7.5	7.9
Alkalinity	mg/L as $CaCO_3$	18	11	55	29	10	21	31	35	43
Acidity	mg/L as $CaCO_3$	18	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	18	44	131	81	25	59	85	97	117
Total Dissolved Solids (TDS)	mg/L	18	42	84	63	11	55	64	70	81
Total Suspended Solids (TSS)	mg/L	18	0.5	3.0	1.0	0.7	0.5	0.8	1.0	2.5
Total Hardness	mg/L as $CaCO_3$	18	14	54	33	11	24	33	42	47
Dissolved Organic Carbon (DOC)	mg/L	18	7.5	15	11	2.3	9.0	11	13	15
Total Organic Carbon (TOC)	mg/L	18	8.5	15	12	2.3	9.6	11	13	15
Chemical Oxygen Demand (COD)	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	18	4.5	17	10	3.3	7.5	10	13	14
Magnesium (Mg)	mg/L	18	0.78	3.0	1.8	0.59	1.4	1.8	2.3	2.6
Potassium (K)	mg/L	18	0.27	0.66	0.44	0.10	0.36	0.44	0.50	0.61
Sodium (Na)	mg/L	18	0.64	3.2	1.9	0.70	1.2	2.1	2.5	2.7
Chloride (Cl)	mg/L	18	0.59	5.8	3.4	1.6	2.2	3.8	4.8	5.4
Fluoride (F)	mg/L	na	na	na	na	na	na	na	na	na
Sulphate (SO_4)	mg/L	18	2.4	4.1	3.1	0.50	2.7	3.2	3.5	3.8
METALS										
Aluminum (Al) (Dissolved)	mg/L	18	0.017	0.092	0.049	0.027	0.022	0.041	0.077	0.088
Antimony (Sb)	mg/L	18	0.0005	nc	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	18	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	18	0.0010	0.0060	0.0036	0.0013	0.0030	0.0040	0.0040	0.0052
Beryllium (Be)	mg/L	18	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	18	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	18	0.000010	0.000010	0.000010	0	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	18	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	18	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	18	0.00040	0.0057	0.00123	0.0012	0.00078	0.0009	0.0011	0.0026
Iron (Fe)	mg/L	18	0.010	0.27	0.108	0.066	0.052	0.103	0.14	0.22
Lead (Pb)	mg/L	18	0.000050	0.00050	0.00012	0.00014	0.000050	0.000075	0.00010	0.00050
Manganese (Mn)	mg/L	18	0.0080	1.15	0.16	0.27	0.020	0.032	0.18	0.53
Mercury (Hg)	mg/L	18	0.00000095	0.000008	0.000003	0.000002	0.00000095	0.0000025	0.000005	0.000007
Molybdenum (Mo)	mg/L	18	0.000050	0.0010	0.00089	0.00030	0.00100	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	18	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	18	0.000050	0.00050	0.00012	0.00014	0.000050	0.000050	0.000088	0.00043
Silver (Ag)	mg/L	18	0.0000050	0.000005	0.000005	0	0.0000050	0.0000050	0.000005	0.000005
Strontium (Sr)	mg/L	18	0.011	0.021	0.016	0.0032	0.013	0.016	0.019	0.020
Thallium (Tl)	mg/L	18	0.0000050	0.00001	0.000005	0	0.0000050	0.000005	0.00001	0.00001
Titanium (Ti)	mg/L	18	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	18	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	18	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	18	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	18	0.0025	0.031	0.0046	0.0066	0.0025	0.0025	0.0025	0.0123
Zirconium (Zr)	mg/L	18	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	18	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	18	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	18	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	18	0.025	0.26	0.096	0.066	0.034	0.085	0.14	0.20
Nitrite (NO_2^-)	mg/L as N	18	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	18	0.010	0.150	0.028	0.036	0.010	0.010	0.025	0.090
Un-ionized Ammonia (NH_3)	mg/L	18	0.0000026	0.000076	0.000032	0.000020	0.000023	0.000030	0.000039	0.000064
Total Kjeldahl Nitrogen	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	18	0.0080	0.048	0.022	0.013	0.012	0.020	0.031	0.044
Phosphate (PO_4)	mg/L as P	18	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	18	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	18	nc	nc	nc	nc	nc	nc	nc	nc
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	18	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	18	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	DIV - Dividing Lake (Outlet Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	13	5.9	8.0	6.7	0.53	6.8	6.9	7.3	7.8
Temperature	degrees Celsius	13	0.020	21	8.0	7.2	2.1	5.0	14	20
Conductivity	µS/cm	13	20	104	59	21	45	60	71	90
Dissolved Oxygen (DO)	mg/L	13	8.6	13	11	1.5	10	11	12	13
ORP	mV	13	209	209	209	0	209	209	209	209
GENERAL PARAMETERS										
Lab pH	pH units	13	6.8	7.8	7.2	0.30	7.1	7.4	7.6	7.7
Alkalinity	mg/L as $CaCO_3$	13	14	44	27	8.9	21	24	30	43
Acidity	mg/L as $CaCO_3$	13	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	13	37	115	72	21	63	72	79	110
Total Dissolved Solids (TDS)	mg/L	13	40	82	62	12	60	62	66	81
Total Suspended Solids (TSS)	mg/L	13	0.5	2.0	0.7	0.4	0.5	0.5	0.5	1.4
Total Hardness	mg/L as $CaCO_3$	13	21	47	33	7.3	25	33	37	44
Dissolved Organic Carbon (DOC)	mg/L	13	8.1	15	11	1.8	8.9	11	12	13
Total Organic Carbon (TOC)	mg/L	13	8.4	15	12	2.1	9.9	12	13	15
Chemical Oxygen Demand (COD)	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	13	6.5	14	10	2.3	7.7	10	11	14
Magnesium (Mg)	mg/L	13	1.3	2.7	1.8	0.41	1.5	1.8	2.1	2.5
Potassium (K)	mg/L	13	0.34	0.49	0.40	0.049	0.35	0.38	0.43	0.47
Sodium (Na)	mg/L	13	1.0	3.2	2.0	0.56	1.6	1.8	2.5	2.9
Chloride (Cl)	mg/L	13	0.75	5.8	3.1	1.4	2.2	2.4	4.1	5.6
Fluoride (F)	mg/L	13	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	13	2.0	4.1	3.0	0.54	2.7	3.0	3.2	3.9
METALS										
Aluminum (Al) (Dissolved)	mg/L	13	0.022	0.075	0.048	0.018	0.031	0.045	0.062	0.073
Antimony (Sb)	mg/L	13	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	13	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	13	0.0030	0.0050	0.0039	0.00062	0.0040	0.0040	0.0040	0.0050
Beryllium (Be)	mg/L	13	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	13	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	13	0.000010	0.000010	0.000010	0	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	13	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	13	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	13	0.00040	0.0016	0.00077	0.00029	0.00060	0.0008	0.0008	0.0012
Iron (Fe)	mg/L	13	0.005	0.21	0.106	0.051	0.071	0.114	0.13	0.18
Lead (Pb)	mg/L	13	0.000050	0.00020	0.00008	0.000042	0.000050	0.000050	0.00010	0.00014
Manganese (Mn)	mg/L	13	0.0070	0.023	0.013	0.0053	0.008	0.010	0.02	0.02
Mercury (Hg)	mg/L	13	0.00000095	0.000009	0.000002	0.0000027	0.00000095	0.0000010	0.000001	0.000008
Molybdenum (Mo)	mg/L	13	0.001000	0.0010	0.00100	0	0.00100	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	13	0.0015	0.0080	0.0020	0	0.0015	0.0015	0.0015	0.0041
Selenium (Se)	mg/L	13	0.000050	0.00040	0.00010	0.00010	0.000050	0.000050	0.00010	0.00028
Silver (Ag)	mg/L	13	0.0000050	0.000010	0.000006	0.0000018	0.0000050	0.0000050	0.000005	0.000010
Strontium (Sr)	mg/L	13	0.013	0.018	0.015	0.0014	0.014	0.015	0.016	0.017
Thallium (Tl)	mg/L	13	0.0000050	0.00002	0.000007	0.0000041	0.0000050	0.000005	0.00001	0.00001
Titanium (Ti)	mg/L	13	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	13	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	13	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	13	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	13	0.0025	0.003	0.0025	0	0.0025	0.0025	0.0025	0.0025
Zirconium (Zr)	mg/L	13	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	13	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	13	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	13	0.025	0.13	0.073	0.039	0.025	0.080	0.11	0.12
Nitrite (NO_2^-)	mg/L as N	13	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	13	0.010	0.030	0.013	0.0061	0.010	0.010	0.010	0.024
Un-ionized Ammonia (NH_3)	mg/L	13	0.0000245	0.000025	0.000025	0	0.000025	0.000025	0.000025	0.000025
Total Kjeldahl Nitrogen	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	13	0.0025	0.022	0.010	0.0047	0.0090	0.010	0.012	0.017
Phosphate (PO_4)	mg/L as P	13	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	13	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	13	nc	nc	nc	nc	nc	nc	nc	nc
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	13	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	13	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	ML - Moore Lake (Outlet Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	10	6.0	7.5	6.4	0.47	6.3	6.5	6.9	7.3
Temperature	degrees Celsius	10	0.15	18	5.7	6.3	0.61	3.4	7.7	17
Conductivity	µS/cm	10	15	43	29	8.4	24	29	35	41
Dissolved Oxygen (DO)	mg/L	10	7.4	16	11	2.6	8.9	11	11	15
ORP	mV	10	94	115	104	10	99	104	110	114
GENERAL PARAMETERS										
Lab pH	pH units	10	6.6	7.3	7.1	0.20	7.0	7.2	7.2	7.3
Alkalinity	mg/L as $CaCO_3$	10	12	17	15	1.6	13	16	16	17
Acidity	mg/L as $CaCO_3$	10	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	10	35	45	40	2.8	38	40	41	43
Total Dissolved Solids (TDS)	mg/L	10	26	52	40	6.8	37	40	44	50
Total Suspended Solids (TSS)	mg/L	10	0.5	30	4.0	8.7	0.5	0.8	2.0	17
Total Hardness	mg/L as $CaCO_3$	10	16	21	18	1.3	17	18	18	20
Dissolved Organic Carbon (DOC)	mg/L	10	8.8	13	11	1.5	9.5	10	12	13
Total Organic Carbon (TOC)	mg/L	10	8.8	13	11	1.4	9.9	11	12	13
Chemical Oxygen Demand (COD)	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	10	5.1	6.5	5.6	0.4	5.3	5.5	5.8	6.3
Magnesium (Mg)	mg/L	10	0.9	1.2	1.0	0.098	0.9	1.0	1.0	1.1
Potassium (K)	mg/L	10	0.14	0.22	0.17	0.023	0.15	0.16	0.17	0.20
Sodium (Na)	mg/L	10	0.58	0.69	0.64	0.037	0.620	0.627	0.666	0.684
Chloride (Cl)	mg/L	10	0.14	0.29	0.24	0.049	0.23	0.25	0.28	0.29
Fluoride (F)	mg/L	10	0.025	0.13	0.035	0.030	0.025	0.025	0.025	0.080
Sulphate (SO_4)	mg/L	10	2.3	3.3	2.7	0.37	2.4	2.6	3.0	3.2
METALS										
Aluminum (Al) (Dissolved)	mg/L	10	0.024	0.054	0.038	0.010	0.027	0.037	0.044	0.054
Antimony (Sb)	mg/L	10	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	10	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	10	0.0030	0.0040	0.0035	0.00050	0.0030	0.0035	0.0040	0.0040
Beryllium (Be)	mg/L	10	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	10	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	10	0.000010	0.000010	0.000010	0	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	10	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	10	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	10	0.00060	0.0012	0.00077	0.00018	0.00063	0.0007	0.0009	0.0011
Iron (Fe)	mg/L	10	0.005	0.16	0.077	0.051	0.050	0.057	0.11	0.15
Lead (Pb)	mg/L	10	0.000050	0.00005	0.00005	0.00000	0.000050	0.000050	0.00005	0.00005
Manganese (Mn)	mg/L	10	0.0050	0.030	0.014	0.0072	0.0085	0.014	0.02	0.03
Mercury (Hg)	mg/L	10	0.00000095	0.000007	0.000002	0.0000021	0.00000095	0.0000010	0.000004	0.000006
Molybdenum (Mo)	mg/L	10	0.001000	0.0010	0.00100	0	0.00100	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	10	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	10	0.000050	0.0010	0.00018	0.00028	0.000050	0.000050	0.00016	0.00064
Silver (Ag)	mg/L	10	0.0000050	0.000010	0.000006	0.0000015	0.0000050	0.0000050	0.000005	0.000008
Strontium (Sr)	mg/L	10	0.009	0.012	0.011	0.00092	0.010	0.011	0.011	0.012
Thallium (Tl)	mg/L	10	0.0000050	0.00003	0.000009	0.0000083	0.0000050	0.000005	0.00001	0.00003
Titanium (Ti)	mg/L	10	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	10	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	10	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	10	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	10	0.0025	0.003	0.0025	0	0.0025	0.0025	0.0025	0.0025
Zirconium (Zr)	mg/L	10	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	10	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	10	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sulphur (S)	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	10	0.025	0.13	0.046	0.037	0.025	0.025	0.04	0.12
Nitrite (NO_2^-)	mg/L as N	10	0.025	0.125	0.035	0.030	0.025	0.025	0.025	0.080
Total Ammonia (NH_3 + NH_4)	mg/L as N	10	0.010	0.070	0.017	0.018	0.010	0.010	0.010	0.047
Un-ionized Ammonia (NH_3)	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Total Kjeldahl Nitrogen	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	10	0.0025	0.020	0.010	0.0047	0.0070	0.0085	0.012	0.017
Phosphate (PO_4)	mg/L as P	10	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	10	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	10	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Mineral)	mg/L	10	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Total)	mg/L	10	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Polychlorinated Biphenyls	mg/L	10	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Naphthalene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthylene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Fluorene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Phenanthrene	mg/L	10	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Anthracene	mg/L	10	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Fluoranthene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Pyrene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benz(a)anthracene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Chrysene	mg/L	10	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(b)fluoranthene	mg/L	10	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(k)fluoranthene	mg/L	10	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(a)pyrene	mg/L	10	0.0000050	0.0000050	0.0000050	0	0.0000050	0.0000050	0.0000050	0.0000050
Indeno(1,2,3-cd)pyrene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Dibenz(a,h)anthracene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benzo(g,h,i)perylene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
2-and 1-methyl Naphthalene	mg/L	10	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
RADIONUCLIDES										
Radium-226	Bq/L	10	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	10	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	10	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

IAMGOLD CÔTÉ GOLD PROJECT

STATISTICS BY STATION

Parameter	Unit	ML-LS - Moore Lake (Profile Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	6	6.7	7.4	7.0	0.26	6.8	7.1	7.3	7.4
Temperature	degrees Celsius	6	0.44	12	5.8	3.5	4.2	6.2	6.6	11
Conductivity	µS/cm	6	26	50	40	7.4	38	42	44	49
Dissolved Oxygen (DO)	mg/L	6	1.5	13	9.4	3.8	8.7	11	12	13
ORP	mV	6	100	213	171	42	161	185	194	209
GENERAL PARAMETERS										
Lab pH	pH units	6	6.7	7.4	7.0	0.27	6.9	7.2	7.3	7.4
Alkalinity	mg/L as $CaCO_3$	6	12	15	13	0.94	13	13	14	15
Acidity	mg/L as $CaCO_3$	6	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	6	36	44	39	3.0	37	38	42	44
Total Dissolved Solids (TDS)	mg/L	6	10	42	26	12	15	29	35	41
Total Suspended Solids (TSS)	mg/L	6	0.5	1.0	0.83	0.24	0.63	1.0	1.0	1.0
Total Hardness	mg/L as $CaCO_3$	6	16	19	17	0.82	17	17	18	18
Dissolved Organic Carbon (DOC)	mg/L	6	7.8	10	8.7	0.6	8.3	8.6	9.1	10
Total Organic Carbon (TOC)	mg/L	6	7.8	11	9.2	1.0	8.6	9.2	10	10
Chemical Oxygen Demand (COD)	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	6	5.0	5.6	5.2	0.2	5.0	5.2	5.3	5.6
Magnesium (Mg)	mg/L	6	1.0	1.1	1.0	0.054	1.0	1.0	1.0	1.1
Potassium (K)	mg/L	6	0.09	0.18	0.13	0.027	0.12	0.13	0.14	0.17
Sodium (Na)	mg/L	6	0.57	0.71	0.60	0.051	0.57	0.58	0.59	0.68
Chloride (Cl)	mg/L	6	0.14	0.26	0.18	0.04	0.16	0.17	0.20	0.25
Fluoride (F)	mg/L	6	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	6	2.6	3.2	2.9	0.16	2.9	3.0	3.0	3.1
METALS										
Aluminum (Al) (Dissolved)	mg/L	6	0.016	0.031	0.023	0.0059	0.018	0.023	0.028	0.031
Antimony (Sb)	mg/L	6	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	6	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	6	0.0020	0.0040	0.0032	0.00069	0.0030	0.0030	0.0038	0.0040
Beryllium (Be)	mg/L	6	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	6	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	6	0.000010	0.000050	0.000023	0.000019	0.000010	0.000010	0.000040	0.000050
Chromium (Cr)	mg/L	6	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	6	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	6	0.00070	0.0038	0.00132	0.0011	0.00070	0.0009	0.0010	0.0031
Iron (Fe)	mg/L	6	0.005	0.08	0.049	0.026	0.033	0.056	0.07	0.08
Lead (Pb)	mg/L	6	0.000050	0.00050	0.00021	0.00021	0.000050	0.000075	0.00040	0.00050
Manganese (Mn)	mg/L	6	0.0040	0.10	0.03	0.03	0.011	0.022	0.03	0.08
Mercury (Hg)	mg/L	6	0.00000095	0.000006	0.000003	0.0000024	0.00000095	0.0000032	0.000005	0.000006
Molybdenum (Mo)	mg/L	6	0.001000	0.0010	0.00100	0	0.00100	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	6	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	6	0.000050	0.00020	0.00011	0.000054	0.000088	0.000100	0.00013	0.00019
Silver (Ag)	mg/L	6	0.0000050	0.000050	0.000020	0.000021	0.0000050	0.0000050	0.000039	0.000050
Strontium (Sr)	mg/L	6	0.010	0.012	0.011	0.00069	0.010	0.011	0.011	0.012
Thallium (Tl)	mg/L	6	0.0000050	0.00015	0.000053	0.000068	0.0000050	0.000005	0.00011	0.00015
Titanium (Ti)	mg/L	6	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	6	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	6	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	6	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	6	0.0025	0.003	0.0025	0	0.0025	0.0025	0.0025	0.0025
Zirconium (Zr)	mg/L	6	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	6	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	6	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	6	0.025	0.20	0.068	0.062	0.025	0.043	0.07	0.17
Nitrite (NO_2^-)	mg/L as N	6	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	6	0.010	0.010	0.010	0	0.010	0.010	0.010	0.010
Un-ionized Ammonia (NH_3)	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Total Kjeldahl Nitrogen	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	6	0.0060	0.013	0.008	0.0025	0.0063	0.0075	0.010	0.012
Phosphate (PO_4)	mg/L as P	6	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	6	nc	nc	nc	nc	nc	nc	nc	nc
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	6	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	6	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	SP - Saw Peter Lake (Outlet Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	4	6.2	8.0	6.7	0.70	6.6	7.2	7.7	7.9
Temperature	degrees Celsius	4	0.050	14	5.3	5.5	0.67	3.5	8.1	13
Conductivity	µS/cm	4	29	44	34	6.0	30	32	36	42
Dissolved Oxygen (DO)	mg/L	4	11	12	12	0.74	12	12	12	12
ORP	mV	4	214	214	214	0	214	214	214	214
GENERAL PARAMETERS										
Lab pH	pH units	4	6.8	7.2	7.0	0.14	7.0	7.1	7.1	7.2
Alkalinity	mg/L as $CaCO_3$	4	10	21	14	4.1	12	13	16	20
Acidity	mg/L as $CaCO_3$	4	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	4	32	50	39	6.7	35	38	42	48
Total Dissolved Solids (TDS)	mg/L	4	44	70	59	10	55	61	66	69
Total Suspended Solids (TSS)	mg/L	4	0.50	2.0	1.1	0.54	0.88	1.0	1.3	1.9
Total Hardness	mg/L as $CaCO_3$	4	17	25	20	3.0	17	19	21	24
Dissolved Organic Carbon (DOC)	mg/L	4	17	22	18	2.2	17	17	19	22
Total Organic Carbon (TOC)	mg/L	4	17	23	19	2.3	17	18	20	22
Chemical Oxygen Demand (COD)	mg/L	4	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	4	5.5	8.1	6.5	1.0	5.8	6.3	7.0	7.9
Magnesium (Mg)	mg/L	4	0.74	1.0	0.86	0.12	0.76	0.82	0.92	1.0
Potassium (K)	mg/L	4	0.20	0.38	0.29	0.078	0.22	0.30	0.37	0.37
Sodium (Na)	mg/L	4	0.51	1.0	0.72	0.17	0.61	0.70	0.81	0.94
Chloride (Cl)	mg/L	4	0.21	0.38	0.28	0.069	0.22	0.26	0.32	0.37
Fluoride (F)	mg/L	4	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	4	1.5	1.6	1.6	0.026	1.5	1.6	1.6	1.6
METALS										
Aluminum (Al) (Dissolved)	mg/L	4	0.057	0.158	0.121	0.039	0.107	0.134	0.148	0.156
Antimony (Sb)	mg/L	4	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	4	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	4	0.0040	0.0070	0.0053	0.0013	0.0040	0.0050	0.0063	0.0069
Beryllium (Be)	mg/L	4	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	4	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	4	0.000010	0.000010	0.000010	0	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	4	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	4	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	4	0.00040	0.0008	0.00065	0.00017	0.00055	0.0007	0.0008	0.0008
Iron (Fe)	mg/L	4	0.199	0.42	0.259	0.094	0.204	0.208	0.26	0.39
Lead (Pb)	mg/L	4	0.000100	0.00020	0.00015	0.000050	0.000100	0.000150	0.00020	0.00020
Manganese (Mn)	mg/L	4	0.0030	0.04	0.01	0.014	0.005	0.006	0.01	0.03
Mercury (Hg)	mg/L	4	0.00000095	0.000011	0.000005	0.0000042	0.00000095	0.0000038	0.000008	0.000010
Molybdenum (Mo)	mg/L	4	0.001000	0.0010	0.00100	0	0.00100	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	4	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	4	0.000050	0.00010	0.000063	0.000022	0.000050	0.000050	0.00006	0.00009
Silver (Ag)	mg/L	4	0.0000050	0.000010	0.000006	0.0000022	0.0000050	0.0000050	0.000006	0.000009
Strontium (Sr)	mg/L	4	0.008	0.013	0.011	0.0019	0.010	0.011	0.012	0.013
Thallium (Tl)	mg/L	4	0.0000050	0.00001	0.000006	0.0000022	0.0000050	0.000005	0.00001	0.00001
Titanium (Ti)	mg/L	4	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	4	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	4	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	4	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	4	0.0025	0.003	0.0025	0	0.0025	0.0025	0.0025	0.0025
Zirconium (Zr)	mg/L	4	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	4	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	4	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sulphur (S)	mg/L	4	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	4	0.025	0.21	0.129	0.070	0.089	0.140	0.18	0.20
Nitrite (NO_2^-)	mg/L as N	4	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	4	0.020	0.160	0.073	0.055	0.028	0.055	0.100	0.15
Un-ionized Ammonia (NH_3)	mg/L	4	nc	nc	nc	nc	nc	nc	nc	nc
Total Kjeldahl Nitrogen	mg/L	4	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	4	0.0090	0.017	0.013	0.0029	0.011	0.013	0.014	0.016
Phosphate (PO_4)	mg/L as P	4	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	4	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	4	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Mineral)	mg/L	4	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Total)	mg/L	4	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Polychlorinated Biphenyls	mg/L	4	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Naphthalene	mg/L	4	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthylene	mg/L	4	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthene	mg/L	4	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Fluorene	mg/L	4	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Phenanthrene	mg/L	4	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Anthracene	mg/L	4	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Fluoranthene	mg/L	4	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Pyrene	mg/L	4	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benz(a)anthracene	mg/L	4	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Chrysene	mg/L	4	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(b)fluoranthene	mg/L	4	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(k)fluoranthene	mg/L	4	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(a)pyrene	mg/L	4	0.0000050	0.0000050	0.0000050	0	0.0000050	0.0000050	0.0000050	0.0000050
Indeno(1,2,3-cd)pyrene	mg/L	4	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Dibenz(a,h)anthracene	mg/L	4	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benzo(g,h,i)perylene	mg/L	4	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
2-and 1-methyl Naphthalene	mg/L	4	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
RADIONUCLIDES										
Radium-226	Bq/L	4	nc	nc	nc	nc	nc	nc	nc	nc
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	4	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	4	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	LCM - Little Clam Lake (Outlet Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	33	4.2	7.6	5.6	0.72	6.1	6.5	6.9	7.4
Temperature	degrees Celsius	33	-1.5	22	7.5	8.2	0.17	4.3	15	21
Conductivity	µS/cm	33	13	58	28	9.5	21	26	34	42
Dissolved Oxygen (DO)	mg/L	33	2.5	19	7.7	3.8	4.7	7.4	8.9	14
ORP	mV	33	172	172	172	0	172	172	172	172
GENERAL PARAMETERS										
Lab pH	pH units	33	5.7	7.3	6.3	0.43	6.2	6.5	6.8	7.2
Alkalinity	mg/L as $CaCO_3$	33	2.5	30	11	4.5	9.0	11	13	17
Acidity	mg/L as $CaCO_3$	33	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	33	25	64	37	6.9	33	36	40	46
Total Dissolved Solids (TDS)	mg/L	33	10	94	45	18	34	42	48	82
Total Suspended Solids (TSS)	mg/L	33	0.50	11.0	1.5	2.3	0.50	0.50	1.5	5.4
Total Hardness	mg/L as $CaCO_3$	33	11	28	18	4.4	15	16	19	27
Dissolved Organic Carbon (DOC)	mg/L	33	7.5	34	13	5.8	9.7	11	13	25
Total Organic Carbon (TOC)	mg/L	33	9.3	20	12	3.1	10	11	12	17
Chemical Oxygen Demand (COD)	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	33	3.6	10	5.9	1.5	4.9	5.4	6.3	9.1
Magnesium (Mg)	mg/L	33	0.47	1.2	0.72	0.15	0.62	0.68	0.81	1.01
Potassium (K)	mg/L	33	0.025	0.98	0.29	0.17	0.21	0.28	0.33	0.53
Sodium (Na)	mg/L	33	0.60	0.89	0.72	0.071	0.68	0.72	0.76	0.85
Chloride (Cl)	mg/L	33	0.11	0.43	0.29	0.077	0.26	0.30	0.34	0.40
Fluoride (F)	mg/L	33	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	33	0.16	4.1	2.4	1.1	2.3	2.8	3.3	3.6
METALS										
Aluminum (Al) (Dissolved)	mg/L	33	0.016	0.12	0.057	0.026	0.040	0.052	0.067	0.104
Antimony (Sb)	mg/L	33	0.0005	0.0	0.00	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	33	0.0015	0.0	0.002	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	33	0.0020	0.0080	0.0044	0.0014	0.0040	0.0040	0.0050	0.0074
Beryllium (Be)	mg/L	33	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	33	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	33	0.000010	0.000020	0.000011	0.0000023	0.000010	0.000010	0.000010	0.000012
Chromium (Cr)	mg/L	33	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	33	0.00025	0.0011	0.00035	0.00023	0.00025	0.00025	0.00025	0.00090
Copper (Cu)	mg/L	33	0.00040	0.0015	0.00074	0.00028	0.0005	0.0007	0.0009	0.0012
Iron (Fe)	mg/L	33	0.020	0.70	0.14	0.15	0.040	0.076	0.14	0.44
Lead (Pb)	mg/L	33	0.000050	0.00050	0.00033	0.00019	0.00010	0.00050	0.00050	0.00050
Manganese (Mn)	mg/L	33	0.0030	0.20	0.038	0.050	0.0070	0.011	0.053	0.149
Mercury (Hg)	mg/L	33	0.00000095	0.000012	0.000002	0.0000028	0.0000010	0.000001	0.000003	0.000006
Molybdenum (Mo)	mg/L	33	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	33	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	33	0.000050	0.00050	0.00013	0.00014	0.000050	0.000050	0.00016	0.00042
Silver (Ag)	mg/L	33	0.0000050	0.000005	0.000005	0	0.0000050	0.000005	0.000005	0.000005
Strontium (Sr)	mg/L	33	0.0080	0.030	0.014	0.0040	0.011	0.013	0.015	0.019
Thallium (Tl)	mg/L	33	0.0000050	0.00003	0.00001	0.0000058	0.0000050	0.00001	0.00001	0.00001
Titanium (Ti)	mg/L	33	0.0010	0.0080	0.0012	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	33	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	33	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	33	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	33	0.0025	0.014	0.0042	0.0032	0.0025	0.0025	0.0031	0.0110
Zirconium (Zr)	mg/L	33	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	33	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	33	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	33	0.025	0.10	0.039	0.028	0.025	0.025	0.025	0.096
Nitrite (NO_2^-)	mg/L as N	33	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	33	0.010	0.16	0.025	0.031	0.010	0.010	0.020	0.072
Un-ionized Ammonia (NH_3)	mg/L	33	0.0000002	0.000	0.0000	0.0000	0.000002	0.00001	0.000	0.000
Total Kjeldahl Nitrogen	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	33	0.0025	0.060	0.019	0.015	0.009	0.012	0.026	0.042
Phosphate (PO_4)	mg/L as P	33	0.050	0.050	0.050	0.0	0.050	0.050	0.050	0.050
Soluble Reactive Phosphorus	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	33	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	33	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	33	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	MKR - Makami River								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	7	6.7	7.5	7.0	0.30	6.9	7.1	7.3	7.4
Temperature	degrees Celsius	7	0.33	13	8.4	5.2	5.8	10	13	13
Conductivity	µS/cm	7	39	60	52	7.9	51	55	56	59
Dissolved Oxygen (DO)	mg/L	7	11	14	12	1.3	11	12	14	14
ORP	mV	7	nc	nc	nc	nc	nc	nc	nc	nc
GENERAL PARAMETERS										
Lab pH	pH units	7	6.7	7.6	7.2	0.29	7.2	7.3	7.5	7.6
Alkalinity	mg/L as $CaCO_3$	7	17	31	25	5.3	21	28	30	31
Acidity	mg/L as $CaCO_3$	7	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	7	49	68	60	5.9	59	61	64	67
Total Dissolved Solids (TDS)	mg/L	7	38	62	52	8.0	47	52	59	61
Total Suspended Solids (TSS)	mg/L	7	0.50	3.0	1.3	0.84	0.8	1.0	1.5	2.7
Total Hardness	mg/L as $CaCO_3$	7	22	31	26	2.9	24	25	28	30
Dissolved Organic Carbon (DOC)	mg/L	7	5.9	11	8.6	1.6	7.6	8.8	9.4	11
Total Organic Carbon (TOC)	mg/L	7	7.7	12	9.3	1.2	8.5	9.2	10	11
Chemical Oxygen Demand (COD)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	7	6.3	9.1	7.6	0.88	7.0	7.4	8.2	8.8
Magnesium (Mg)	mg/L	7	1.43	2.0	1.7	0.18	1.6	1.7	1.8	2.0
Potassium (K)	mg/L	7	0.27	0.34	0.30	0.02	0.28	0.31	0.32	0.33
Sodium (Na)	mg/L	7	1.3	1.7	1.5	0.16	1.4	1.6	1.6	1.7
Chloride (Cl)	mg/L	7	1.1	1.6	1.4	0.19	1.2	1.5	1.6	1.6
Fluoride (F)	mg/L	7	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	7	2.7	3.2	2.9	0.16	2.8	3.0	3.0	3.1
METALS										
Aluminum (Al) (Dissolved)	mg/L	7	0.02	0.07	0.05	0.016	0.03	0.05	0.06	0.07
Antimony (Sb)	mg/L	7	0.0005	0.0030	0.0012	0	0.0005	0.0005	0.0018	0.0030
Arsenic (As)	mg/L	7	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	7	0.0030	0.0040	0.0036	0.00049	0.0030	0.0040	0.0040	0.0040
Beryllium (Be)	mg/L	7	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	7	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	7	0.000010	0.000010	0.000010	0	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	7	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	7	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	7	0.00040	0.0007	0.00056	0.000090	0.00050	0.00060	0.0006	0.0007
Iron (Fe)	mg/L	7	0.012	0.10	0.07	0.027	0.06	0.07	0.08	0.10
Lead (Pb)	mg/L	7	0.00005	0.00005	0.00005	0	0.00005	0.00005	0.00005	0.00005
Manganese (Mn)	mg/L	7	0.0060	0.009	0.008	0.0010	0.007	0.007	0.009	0.009
Mercury (Hg)	mg/L	7	0.00000095	0.000011	0.000003	0.0000034	0.000001	0.000001	0.000002	0.000009
Molybdenum (Mo)	mg/L	7	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	7	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	7	0.000050	0.0015	0.00028	0.00050	0.000050	0.000050	0.00013	0.0011
Silver (Ag)	mg/L	7	0.0000050	0.000010	0.000006	0.0000017	0.0000050	0.000005	0.000005	0.000009
Strontium (Sr)	mg/L	7	0.012	0.017	0.015	0.0016	0.014	0.015	0.016	0.017
Thallium (Tl)	mg/L	7	0.0000050	0.00008	0.000016	0.000026	0.0000050	0.000005	0.00001	0.00006
Titanium (Ti)	mg/L	7	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	7	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	7	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	7	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	7	0.0025	0.003	0.0025	0	0.0025	0.0025	0.0025	0.0025
Zirconium (Zr)	mg/L	7	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	7	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	7	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	7	0.025	0.090	0.059	0.018	0.055	0.060	0.065	0.084
Nitrite (NO_2^-)	mg/L as N	7	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	7	0.010	0.010	0.010	0	0.010	0.010	0.010	0.010
Un-ionized Ammonia (NH_3)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Total Kjeldahl Nitrogen	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	7	0.0025	0.010	0.0066	0.0029	0.0043	0.0070	0.0090	0.010
Phosphate (PO_4)	mg/L as P	7	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	7	nc	nc	nc	nc	nc	nc	nc	nc
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	7	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	7	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	P-3 - Inflow to Bagsverd Lake								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	7	5.2	6.7	5.7	0.55	5.6	6.3	6.5	6.6
Temperature	degrees Celsius	7	0.90	15	6.0	5.6	1.7	2.7	10	15
Conductivity	µS/cm	7	17	34	25	5.4	21	26	28	33
Dissolved Oxygen (DO)	mg/L	7	3.1	17	8.1	4.3	5.0	7.7	9.6	15
ORP	mV	7	nc	nc	nc	nc	nc	nc	nc	nc
GENERAL PARAMETERS										
Lab pH	pH units	7	5.9	6.4	6.2	0.14	6.1	6.2	6.3	6.3
Alkalinity	mg/L as $CaCO_3$	7	5.0	12	7.9	2.4	6.5	7.0	9.0	12
Acidity	mg/L as $CaCO_3$	7	nc	nc	nc	nc	nc	nc	nc	nc
Electrical Conductivity (EC)	µS/cm	7	27	45	36	6.1	33	34	41	45
Total Dissolved Solids (TDS)	mg/L	7	38	74	57	13	48	58	66	73
Total Suspended Solids (TSS)	mg/L	7	0.50	3.0	1.7	0.99	0.8	2.0	2.5	3.0
Total Hardness	mg/L as $CaCO_3$	7	13	22	18	2.9	17	17	20	22
Dissolved Organic Carbon (DOC)	mg/L	7	12	23	17	3.4	15	17	18	22
Total Organic Carbon (TOC)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Chemical Oxygen Demand (COD)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	7	4.2	7.4	5.9	0.98	5.6	5.8	6.6	7.2
Magnesium (Mg)	mg/L	7	0.55	0.94	0.74	0.12	0.68	0.69	0.83	0.91
Potassium (K)	mg/L	7	0.15	0.43	0.30	0.09	0.25	0.32	0.36	0.42
Sodium (Na)	mg/L	7	0.67	1.0	0.82	0.11	0.76	0.82	0.85	1.0
Chloride (Cl)	mg/L	7	0.18	0.40	0.30	0.062	0.29	0.30	0.33	0.38
Fluoride (F)	mg/L	7	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	7	1.9	4.9	3.3	0.90	2.9	3.1	3.8	4.7
METALS										
Aluminum (Al) (Dissolved)	mg/L	7	0.10	0.18	0.14	0.027	0.11	0.15	0.16	0.17
Antimony (Sb)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Arsenic (As)	mg/L	7	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	7	0.0040	0.0070	0.0049	0.0011	0.0040	0.0040	0.0055	0.0067
Beryllium (Be)	mg/L	7	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	7	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	7	0.000010	0.000040	0.000018	0.000013	0.000010	0.000010	0.000018	0.000036
Chromium (Cr)	mg/L	7	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	7	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	7	0.00060	0.0010	0.00080	0.00016	0.00068	0.00080	0.0009	0.0010
Iron (Fe)	mg/L	7	0.093	0.33	0.16	0.069	0.14	0.15	0.15	0.27
Lead (Pb)	mg/L	7	0.00010	0.00050	0.00033	0.00016	0.00020	0.00030	0.00050	0.00050
Manganese (Mn)	mg/L	7	0.0020	0.064	0.025	0.020	0.009	0.022	0.035	0.057
Mercury (Hg)	mg/L	7	0.00000095	0.000001	0.000001	0.000000	0.000001	0.000001	0.000001	0.000001
Molybdenum (Mo)	mg/L	7	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	7	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	7	0.000050	0.00030	0.00011	0.00011	0.000050	0.000050	0.00011	0.00026
Silver (Ag)	mg/L	7	0.0000050	0.000005	0.000005	0.000000	0.0000050	0.000005	0.000005	0.000005
Strontium (Sr)	mg/L	7	0.010	0.017	0.014	0.0024	0.013	0.014	0.016	0.017
Thallium (Tl)	mg/L	7	0.0000050	0.00001	0.000005	0	0.0000050	0.000005	0.00001	0.00001
Titanium (Ti)	mg/L	7	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	7	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	7	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	7	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	7	0.0025	0.011	0.0037	0.0030	0.0025	0.0025	0.0025	0.0084
Zirconium (Zr)	mg/L	7	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	7	0.0010	0.0010	0.0010	0.0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Phenols	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	7	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Nitrite (NO_2^-)	mg/L as N	7	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	7	0.010	0.050	0.021	0.016	0.010	0.010	0.030	0.047
Un-ionized Ammonia (NH_3)	mg/L	7	0	0.000	0.0000	0.0000	0.0	0.0000100	0.0000102	0.0000104
Total Kjeldahl Nitrogen	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	7	0.0060	0.027	0.018	0.0087	0.013	0.020	0.024	0.026
Phosphate (PO_4)	mg/L as P	7	0.050	0.050	0.050	0.000	0.1	0.1	0.050	0.050
Soluble Reactive Phosphorus	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	7	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	7	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	7	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	7	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	P-6 - Inflow to Bagsverd Lake								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	37	5.7	7.6	6.5	0.40	6.5	6.8	7.0	7.2
Temperature	degrees Celsius	37	-0.20	25	8.8	8.0	1.1	4.8	16	21
Conductivity	µS/cm	37	16	94	49	20	32	50	58	87
Dissolved Oxygen (DO)	mg/L	37	0.87	13	6.2	3.5	3.2	6.3	9.5	11
ORP	mV	37	219	219	219	0	219	219	219	219
GENERAL PARAMETERS										
Lab pH	pH units	37	6.2	7.6	6.7	0.40	6.6	6.8	7.2	7.5
Alkalinity	mg/L as $CaCO_3$	37	9.0	46	26	11	18	25	36	44
Acidity	mg/L as $CaCO_3$	37	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	37	34	100	63	19	48	58	80	99
Total Dissolved Solids (TDS)	mg/L	37	32	120	60	16	54	60	66	84
Total Suspended Solids (TSS)	mg/L	37	0.50	20	1.7	3.6	0.50	0.50	1.0	4.7
Total Hardness	mg/L as $CaCO_3$	37	16	53	30	9.0	23	28	36	46
Dissolved Organic Carbon (DOC)	mg/L	37	8.6	16	12	1.8	11	12	13	15
Total Organic Carbon (TOC)	mg/L	37	11	14	12	0.9	11	12	13	13
Chemical Oxygen Demand (COD)	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	37	5.1	16	9.2	2.8	6.8	8.3	11	14
Magnesium (Mg)	mg/L	37	0.91	3.1	1.8	0.51	1.3	1.6	2.1	2.6
Potassium (K)	mg/L	37	0.025	0.41	0.20	0.09	0.13	0.16	0.26	0.36
Sodium (Na)	mg/L	37	0.69	2.5	1.0	0.30	0.85	0.93	1.1	1.2
Chloride (Cl)	mg/L	37	0.11	0.64	0.33	0.14	0.23	0.30	0.40	0.58
Fluoride (F)	mg/L	37	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	37	0.59	4.8	2.5	1.2	1.4	2.7	3.2	4.6
METALS										
Aluminum (Al) (Dissolved)	mg/L	37	0.0090	0.17	0.058	0.038	0.027	0.051	0.082	0.126
Antimony (Sb)	mg/L	37	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	37	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	37	0.0010	0.23	0.011	0.038	0.0030	0.0030	0.0050	0.0110
Beryllium (Be)	mg/L	37	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	37	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	37	0.000010	0.000020	0.000011	0.0000023	0.000010	0.000010	0.000010	0.000012
Chromium (Cr)	mg/L	37	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	37	0.00025	0.00130	0.00036	0.00028	0.00025	0.00025	0.00025	0.00099
Copper (Cu)	mg/L	37	0.00030	0.0011	0.00069	0.00025	0.0005	0.0007	0.0009	0.0010
Iron (Fe)	mg/L	37	0.005	2.7	0.45	0.65	0.086	0.18	0.39	1.88
Lead (Pb)	mg/L	37	0.000050	0.00050	0.00027	0.00022	0.000050	0.00005	0.00050	0.00050
Manganese (Mn)	mg/L	37	0.0030	3.8	0.51	0.98	0.020	0.043	0.22	2.95
Mercury (Hg)	mg/L	37	0.00000095	0.000773	0.000046	0.00018	0.0000010	0.000001	0.000006	0.000125
Molybdenum (Mo)	mg/L	37	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	37	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	37	0.000050	0.00040	0.00013	0.00013	0.000050	0.00005	0.00016	0.00040
Silver (Ag)	mg/L	37	0.0000050	0.000010	0.000005	0.0000011	0.0000050	0.000005	0.000005	0.000006
Strontium (Sr)	mg/L	37	0.011	0.034	0.020	0.0061	0.016	0.019	0.024	0.033
Thallium (Tl)	mg/L	37	0.0000050	0.00002	0.00001	0.0000034	0.0000050	0.00001	0.00001	0.00001
Titanium (Ti)	mg/L	37	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	37	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	37	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	37	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	37	0.0025	0.054	0.0076	0.012	0.0025	0.0025	0.0025	0.0359
Zirconium (Zr)	mg/L	37	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	37	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	37	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	37	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Nitrite (NO_2^-)	mg/L as N	37	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	37	0.010	0.29	0.045	0.067	0.010	0.010	0.045	0.20
Un-ionized Ammonia (NH_3)	mg/L	37	0.0000015	0.001	0.0001	0.0001	0.000007	0.000019	0.00008	0.00024
Total Kjeldahl Nitrogen	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	37	0.0025	0.025	0.010	0.0062	0.0060	0.010	0.013	0.021
Phosphate (PO_4)	mg/L as P	37	0.0050	0.050	0.035	0.021	0.028	0.050	0.050	0.050
Soluble Reactive Phosphorus	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	37	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	37	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.0005	0.0005
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	37	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	37	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	SL - Schist Lake (Outlet Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	38	5.8	7.5	6.7	0.38	6.8	7.1	7.2	7.4
Temperature	degrees Celsius	38	-1.2	22	8.0	8.0	0.90	3.8	15	21
Conductivity	µS/cm	38	25	57	41	8.6	35	40	50	56
Dissolved Oxygen (DO)	mg/L	38	4.7	18.7	9.8	3.0	7.8	9.4	11	15
ORP	mV	38	191	218	205	14	198	205	212	217
GENERAL PARAMETERS										
Lab pH	pH units	38	6.2	7.7	6.8	0.35	6.7	6.9	7.1	7.6
Alkalinity	mg/L as $CaCO_3$	38	11	33	24	4.1	22	24	25	29
Acidity	mg/L as $CaCO_3$	38	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	38	33	76	59	8.0	54	58	61	72
Total Dissolved Solids (TDS)	mg/L	38	22	62	46	10	42	49	52	58
Total Suspended Solids (TSS)	mg/L	38	0.50	13	1.6	2.4	0.50	0.8	2.0	3.0
Total Hardness	mg/L as $CaCO_3$	38	15	36	27	3.7	25	27	29	33
Dissolved Organic Carbon (DOC)	mg/L	38	7.5	14	9.9	1.5	8.9	9.5	10	13
Total Organic Carbon (TOC)	mg/L	38	8.8	14	10.5	1.8	9.6	9.8	11	14
Chemical Oxygen Demand (COD)	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	38	4.9	11	8.8	1.20	8.1	8.6	9.4	10.7
Magnesium (Mg)	mg/L	38	0.68	1.8	1.3	0.19	1.2	1.3	1.4	1.6
Potassium (K)	mg/L	38	0.19	0.44	0.28	0.056	0.24	0.28	0.32	0.37
Sodium (Na)	mg/L	38	0.56	0.88	0.71	0.070	0.65	0.71	0.73	0.84
Chloride (Cl)	mg/L	38	0.14	0.41	0.31	0.064	0.27	0.32	0.37	0.39
Fluoride (F)	mg/L	38	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	38	1.7	3.7	2.9	0.38	2.7	2.9	3.0	3.5
METALS										
Aluminum (Al) (Dissolved)	mg/L	38	0.0020	0.103	0.022	0.017	0.0128	0.020	0.024	0.045
Antimony (Sb)	mg/L	38	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	38	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	38	0.0040	0.010	0.0059	0.0012	0.0050	0.0060	0.0060	0.0080
Beryllium (Be)	mg/L	38	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	38	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	38	0.000010	0.000090	0.000015	0.000019	0.000010	0.000010	0.000010	0.000026
Chromium (Cr)	mg/L	38	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	38	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	38	0.00040	0.0007	0.00054	0.00010	0.00050	0.0005	0.0006	0.0007
Iron (Fe)	mg/L	38	0.0050	0.15	0.034	0.033	0.005	0.028	0.042	0.088
Lead (Pb)	mg/L	38	0.000050	0.00050	0.00029	0.00022	0.00005	0.00050	0.00050	0.00050
Manganese (Mn)	mg/L	38	0.0060	0.056	0.022	0.012	0.013	0.021	0.029	0.043
Mercury (Hg)	mg/L	38	0.00000095	0.000	0.0000	0	0.000001	0.000001	0.000004	0.000011
Molybdenum (Mo)	mg/L	38	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	38	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	38	0.000050	0.00090	0.00014	0.00021	0.000050	0.000050	0.00010	0.00050
Silver (Ag)	mg/L	38	0.0000050	0.000070	0.000012	0.000017	0.000005	0.000005	0.000005	0.000046
Strontium (Sr)	mg/L	38	0.010	0.030	0.022	0.0033	0.020	0.023	0.024	0.027
Thallium (Tl)	mg/L	38	0.0000050	0.00015	0.00002	0.000034	0.000005	0.00001	0.00001	0.00005
Titanium (Ti)	mg/L	38	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	38	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	38	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	38	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	38	0.0025	0.0080	0.0032	0.0016	0.0025	0.0025	0.0025	0.0073
Zirconium (Zr)	mg/L	38	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	38	0.0010	0.0040	0.0011	0.00049	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	38	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sulphur (S)	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	38	0.025	0.22	0.056	0.064	0.025	0.025	0.025	0.176
Nitrite (NO_2^-)	mg/L as N	38	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	38	0.010	0.70	0.15	0.19	0.010	0.05	0.21	0.54
Un-ionized Ammonia (NH_3)	mg/L	38	0.000012	0.010	0.00072	0.0019	0.000055	0.00021	0.00044	0.00160
Total Kjeldahl Nitrogen	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	38	0.0025	0.012	0.009	0.0026	0.007	0.0090	0.011	0.011
Phosphate (PO_4)	mg/L as P	38	0.0050	0.050	0.028	0.023	0.016	0.028	0.039	0.048
Soluble Reactive Phosphorus	mg/L	38	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	38	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Mineral)	mg/L	38	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Total)	mg/L	38	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Polychlorinated Biphenyls	mg/L	38	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Naphthalene	mg/L	38	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthylene	mg/L	38	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthene	mg/L	38	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Fluorene	mg/L	38	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Phenanthrene	mg/L	38	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Anthracene	mg/L	38	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Fluoranthene	mg/L	38	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Pyrene	mg/L	38	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benz(a)anthracene	mg/L	38	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Chrysene	mg/L	38	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(b)fluoranthene	mg/L	38	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(k)fluoranthene	mg/L	38	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(a)pyrene	mg/L	38	0.0000050	0.0000050	0.0000050	0	0.0000050	0.0000050	0.0000050	0.0000050
Indeno(1,2,3-cd)pyrene	mg/L	38	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Dibenz(a,h)anthracene	mg/L	38	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benzo(g,h,i)perylene	mg/L	38	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
2-and 1-methyl Naphthalene	mg/L	38	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
RADIONUCLIDES										
Radium-226	Bq/L	38	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	38	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	38	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

SURFACE WATER QUALITY BASELINE RESULTS
IAMGOLD CÔTÉ GOLD PROJECT
STATISTICS BY STATION

Parameter	Unit	SL2 - Unnamed Lake #6 (Outlet Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	6	5.8	7.6	6.3	0.54	6.5	6.6	6.7	7.4
Temperature	degrees Celsius	6	0.070	15	5.8	6.0	0.72	3.1	11	14
Conductivity	µS/cm	6	16	55	41	12	38	44	48	54
Dissolved Oxygen (DO)	mg/L	6	7.0	17	11	3.5	8.0	9.0	12	16
ORP	mV	6	152	172	162	10	157	162	167	171
GENERAL PARAMETERS										
Lab pH	pH units	6	7.2	7.4	7.3	0.10	7.2	7.3	7.4	7.4
Alkalinity	mg/L as $CaCO_3$	6	12	29	22	6.0	19	23	28	29
Acidity	mg/L as $CaCO_3$	6	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	6	36	62	50	8.3	47	49	56	61
Total Dissolved Solids (TDS)	mg/L	6	44	68	56	9.3	48	55	64	67
Total Suspended Solids (TSS)	mg/L	6	0.50	2.0	0.75	0.56	0.50	0.50	0.50	1.6
Total Hardness	mg/L as $CaCO_3$	6	18	31	25	4.2	23	25	27	30
Dissolved Organic Carbon (DOC)	mg/L	6	10	19	14	3.5	11	13	17	19
Total Organic Carbon (TOC)	mg/L	6	9.9	20	15	3.4	12	15	17	19
Chemical Oxygen Demand (COD)	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	6	5.0	8.6	7.0	1.2	6.4	7.0	7.8	8.4
Magnesium (Mg)	mg/L	6	1.3	2.4	1.8	0.3	1.7	1.8	2.0	2.3
Potassium (K)	mg/L	6	0.03	0.22	0.12	0.06	0.08	0.11	0.16	0.21
Sodium (Na)	mg/L	6	0.68	1.63	0.89	0.34	0.69	0.74	0.85	1.44
Chloride (Cl)	mg/L	6	0.15	0.38	0.23	0.08	0.17	0.22	0.27	0.36
Fluoride (F)	mg/L	6	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	6	0.9	2.9	2.2	0.64	2.2	2.4	2.6	2.8
METALS										
Aluminum (Al) (Dissolved)	mg/L	6	0.088	0.155	0.122	0.025	0.106	0.115	0.145	0.154
Antimony (Sb)	mg/L	6	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	6	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	6	0.0030	0.0050	0.0040	0.0008	0.0033	0.0040	0.0048	0.0050
Beryllium (Be)	mg/L	6	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	6	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	6	0.000010	0.000010	0.000010	0	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	6	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	6	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	6	0.0005	0.0009	0.0008	0.0001	0.0007	0.0009	0.0009	0.0009
Iron (Fe)	mg/L	6	0.143	0.407	0.214	0.091	0.151	0.183	0.218	0.361
Lead (Pb)	mg/L	6	0.00005	0.00020	0.00008	0.00006	0.00005	0.00005	0.00009	0.00018
Manganese (Mn)	mg/L	6	0.009	0.036	0.020	0.009	0.013	0.018	0.024	0.033
Mercury (Hg)	mg/L	6	0.000001	0.000009	0.000003	0.000003	0.000001	0.000002	0.000006	0.000008
Molybdenum (Mo)	mg/L	6	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	6	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	6	0.000050	0.00020	0.000083	0.000055	0.000050	0.000050	0.000088	0.00018
Silver (Ag)	mg/L	6	0.000005	0.000005	0.000005	0	0.000005	0.000005	0.000005	0.000005
Strontium (Sr)	mg/L	6	0.011	0.020	0.015	0.003	0.013	0.015	0.016	0.019
Thallium (Tl)	mg/L	6	0.000005	0.000020	0.000008	0.000006	0.000005	0.000005	0.000005	0.000016
Titanium (Ti)	mg/L	6	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	6	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	6	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	6	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	6	0.0025	0.0025	0.0025	0	0.0025	0.0025	0.0025	0.0025
Zirconium (Zr)	mg/L	6	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	6	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	6	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sulphur (S)	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	6	0.025	0.13	0.055	0.043	0.025	0.025	0.081	0.12
Nitrite (NO_2^-)	mg/L as N	6	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	6	0.010	0.010	0.010	0	0.010	0.010	0.010	0.010
Un-ionized Ammonia (NH_3)	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Total Kjeldahl Nitrogen	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	6	0.0025	0.011	0.0076	0.0026	0.0073	0.0080	0.0088	0.011
Phosphate (PO_4)	mg/L as P	6	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	6	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Mineral)	mg/L	6	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Total)	mg/L	6	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Polychlorinated Biphenyls	mg/L	6	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Naphthalene	mg/L	6	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthylene	mg/L	6	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthene	mg/L	6	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Fluorene	mg/L	6	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Phenanthrene	mg/L	6	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Anthracene	mg/L	6	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Fluoranthene	mg/L	6	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Pyrene	mg/L	6	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benz(a)anthracene	mg/L	6	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Chrysene	mg/L	6	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(b)fluoranthene	mg/L	6	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(k)fluoranthene	mg/L	6	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(a)pyrene	mg/L	6	0.0000050	0.0000050	0.0000050	0	0.0000050	0.0000050	0.0000050	0.0000050
Indeno(1,2,3-cd)pyrene	mg/L	6	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Dibenz(a,h)anthracene	mg/L	6	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benzo(g,h,i)perylene	mg/L	6	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
2-and 1-methyl Naphthalene	mg/L	6	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
RADIONUCLIDES										
Radium-226	Bq/L	6	nc	nc	nc	nc	nc	nc	nc	nc
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	6	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	6	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	SL-LS1 - Schist Lake (Profile Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	6	6.6	7.7	7.1	0.40	7.0	7.3	7.6	7.7
Temperature	degrees Celsius	6	0.34	14	6.5	3.9	5.3	6.0	7.3	12
Conductivity	µS/cm	6	41	69	54	10	49	49	62	68
Dissolved Oxygen (DO)	mg/L	6	2.0	12	8.4	4.1	5.2	11	12	12
ORP	mV	6	35	180	122	59	83	136	175	179
GENERAL PARAMETERS										
Lab pH	pH units	6	6.9	7.6	7.2	0.3	7.1	7.5	7.6	7.6
Alkalinity	mg/L as $CaCO_3$	6	23	29	25	2.3	23	24	26	29
Acidity	mg/L as $CaCO_3$	6	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	6	49	69	57	8.1	51	53	64	69
Total Dissolved Solids (TDS)	mg/L	6	10	44	36	12	37	42	44	44
Total Suspended Solids (TSS)	mg/L	6	0.50	1.0	0.75	0.25	0.50	0.75	1.0	1.0
Total Hardness	mg/L as $CaCO_3$	6	24	30	26	2.7	24	24	28	30
Dissolved Organic Carbon (DOC)	mg/L	6	8.3	9.1	8.7	0.33	8.4	8.7	9.0	9.1
Total Organic Carbon (TOC)	mg/L	6	8.6	10	9.4	0.5	9.1	9.3	9.8	10
Chemical Oxygen Demand (COD)	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	6	7.7	9.9	8.3	0.92	7.7	7.7	8.9	9.8
Magnesium (Mg)	mg/L	6	1.1	1.4	1.2	0.11	1.1	1.1	1.3	1.4
Potassium (K)	mg/L	6	0.19	0.28	0.23	0.035	0.20	0.24	0.26	0.27
Sodium (Na)	mg/L	6	0.62	0.76	0.66	0.052	0.63	0.63	0.68	0.75
Chloride (Cl)	mg/L	6	0.14	0.30	0.23	0.050	0.21	0.24	0.26	0.29
Fluoride (F)	mg/L	6	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	6	2.3	2.9	2.6	0.24	2.4	2.6	2.8	2.9
METALS										
Aluminum (Al) (Dissolved)	mg/L	6	0.013	0.025	0.017	0.005	0.013	0.014	0.022	0.025
Antimony (Sb)	mg/L	6	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	6	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	6	0.0040	0.0080	0.0057	0.0015	0.0043	0.0055	0.0068	0.0078
Beryllium (Be)	mg/L	6	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	6	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	6	0.000010	0.000050	0.000023	0.000019	0.000010	0.000010	0.000040	0.000050
Chromium (Cr)	mg/L	6	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	6	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	6	0.0003	0.0014	0.0008	0.0004	0.0004	0.0008	0.0010	0.0013
Iron (Fe)	mg/L	6	0.005	0.005	0.005	0	0.005	0.005	0.005	0.005
Lead (Pb)	mg/L	6	0.00005	0.00050	0.00020	0.00021	0.00005	0.00005	0.00039	0.00050
Manganese (Mn)	mg/L	6	0.004	0.053	0.015	0.017	0.006	0.008	0.009	0.042
Mercury (Hg)	mg/L	6	0.000001	0.000005	0.000003	0.000002	0.000001	0.000003	0.000005	0.000005
Molybdenum (Mo)	mg/L	6	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	6	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	6	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Silver (Ag)	mg/L	6	0.000005	0.000050	0.000020	0.000021	0.000005	0.000005	0.000039	0.000050
Strontium (Sr)	mg/L	6	0.018	0.025	0.021	0.0028	0.019	0.020	0.024	0.025
Thallium (Tl)	mg/L	6	0.00001	0.00015	0.00005	0.00007	0.00001	0.00001	0.00011	0.00015
Titanium (Ti)	mg/L	6	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	6	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	6	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	6	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	6	0.0025	0.0025	0.0025	0	0.0025	0.0025	0.0025	0.0025
Zirconium (Zr)	mg/L	6	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	6	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	6	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	6	0.025	0.31	0.10	0.11	0.025	0.025	0.16	0.28
Nitrite (NO_2^-)	mg/L as N	6	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	6	0.010	0.13	0.050	0.041	0.018	0.040	0.063	0.12
Un-ionized Ammonia (NH_3)	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Total Kjeldahl Nitrogen	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	6	0.0025	0.012	0.008	0.0033	0.0065	0.0080	0.011	0.012
Phosphate (PO_4)	mg/L as P	6	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	6	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	6	nc	nc	nc	nc	nc	nc	nc	nc
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	6	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	6	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	SL-LS2 - Schist Lake (Profile Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	8	6.4	7.9	6.9	0.51	6.8	7.4	7.6	7.8
Temperature	degrees Celsius	8	0.86	20	10	6.4	5.4	8.3	15	19
Conductivity	µS/cm	8	39	166	72	41	48	49	81	145
Dissolved Oxygen (DO)	mg/L	8	0.2	12	8.4	4.4	6.9	11	12	12
ORP	mV	8	27	193	111	66	50	111	174	193
GENERAL PARAMETERS										
Lab pH	pH units	8	7.0	7.6	7.3	0.24	7.3	7.5	7.6	7.6
Alkalinity	mg/L as $CaCO_3$	8	22	35	25	4.0	23	24	24	32
Acidity	mg/L as $CaCO_3$	8	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	8	48	80	56	10	52	53	55	73
Total Dissolved Solids (TDS)	mg/L	8	10	48	35	15	30	42	46	47
Total Suspended Solids (TSS)	mg/L	8	0.5	3.0	1.3	0.75	1.0	1.0	1.3	2.7
Total Hardness	mg/L as $CaCO_3$	8	23	34	26	3.6	24	24	25	32
Dissolved Organic Carbon (DOC)	mg/L	8	8.0	11	10	1.0	9.0	9.2	10	11
Total Organic Carbon (TOC)	mg/L	8	9.4	12	10	0.67	10	10	11	11
Chemical Oxygen Demand (COD)	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	8	7.4	11	8.2	1.3	7.6	7.7	8.1	11
Magnesium (Mg)	mg/L	8	1.1	1.5	1.2	0.12	1.1	1.2	1.2	1.4
Potassium (K)	mg/L	8	0.19	0.35	0.24	0.054	0.20	0.22	0.25	0.34
Sodium (Na)	mg/L	8	0.61	0.90	0.69	0.10	0.63	0.64	0.71	0.87
Chloride (Cl)	mg/L	8	0.20	0.40	0.29	0.07	0.24	0.26	0.34	0.40
Fluoride (F)	mg/L	8	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	8	2.1	2.8	2.5	0.22	2.4	2.4	2.7	2.8
METALS										
Aluminum (Al) (Dissolved)	mg/L	8	0.011	0.022	0.016	0.004	0.014	0.014	0.019	0.022
Antimony (Sb)	mg/L	8	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	8	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	8	0.0040	0.0090	0.0059	0.0015	0.0050	0.0055	0.0063	0.0083
Beryllium (Be)	mg/L	8	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	8	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	8	0.000010	0.000050	0.000021	0.000017	0.000010	0.000010	0.000028	0.000050
Chromium (Cr)	mg/L	8	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	8	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	8	0.0003	0.0018	0.0007	0.0005	0.0004	0.0005	0.0010	0.0015
Iron (Fe)	mg/L	8	0.005	0.088	0.018	0.027	0.005	0.005	0.014	0.065
Lead (Pb)	mg/L	8	0.00005	0.00050	0.00016	0.00019	0.00005	0.00005	0.00016	0.00050
Manganese (Mn)	mg/L	8	0.006	0.241	0.042	0.076	0.007	0.009	0.029	0.167
Mercury (Hg)	mg/L	8	0.000001	0.000007	0.000002	0.000002	0.000001	0.000001	0.000002	0.000007
Molybdenum (Mo)	mg/L	8	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	8	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	8	0.000050	0.00040	0.00013	0.00013	0.000050	0.000050	0.00016	0.00035
Silver (Ag)	mg/L	8	0.000005	0.000050	0.000016	0.000019	0.000005	0.000005	0.000016	0.000050
Strontium (Sr)	mg/L	8	0.018	0.027	0.022	0.0029	0.019	0.022	0.024	0.026
Thallium (Tl)	mg/L	8	0.00001	0.00015	0.00004	0.00006	0.00001	0.00001	0.00004	0.00015
Titanium (Ti)	mg/L	8	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	8	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	8	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	8	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	8	0.0025	0.0025	0.0025	0	0.0025	0.0025	0.0025	0.0025
Zirconium (Zr)	mg/L	8	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	8	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	8	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	8	0.025	0.17	0.043	0.048	0.025	0.025	0.025	0.12
Nitrite (NO_2^-)	mg/L as N	8	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	8	0.010	0.32	0.049	0.10	0.010	0.010	0.010	0.21
Un-ionized Ammonia (NH_3)	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Total Kjeldahl Nitrogen	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	8	0.0060	0.014	0.010	0.0030	0.0068	0.010	0.012	0.014
Phosphate (PO_4)	mg/L as P	8	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	8	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	8	nc	nc	nc	nc	nc	nc	nc	nc
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	8	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	8	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

SURFACE WATER QUALITY BASELINE RESULTS
IAMGOLD CÔTÉ GOLD PROJECT
STATISTICS BY STATION

Parameter	Unit	BAG-LS1 - Bagsverd Lake (Profile Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	22	6.4	8.0	7.0	0.42	7.0	7.2	7.5	8.0
Temperature	degrees Celsius	22	0.32	22	10	5.8	5.3	10	12	20
Conductivity	µS/cm	22	40	186	65	32	50	55	64	109
Dissolved Oxygen (DO)	mg/L	22	0.19	14	8.6	3.9	6.3	9.6	12	13
ORP	mV	22	6.8	449	153	120	64	155	205	444
GENERAL PARAMETERS										
Lab pH	pH units	22	6.3	7.9	6.9	0.43	6.8	7.2	7.4	7.8
Alkalinity	mg/L as $CaCO_3$	22	17	36	23	4.5	20	24	25	30
Acidity	mg/L as $CaCO_3$	22	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	22	48	72	57	6.1	53	57	60	67
Total Dissolved Solids (TDS)	mg/L	22	10	62	43	11.2	39	43	50	58
Total Suspended Solids (TSS)	mg/L	22	0.5	58	6.4	14	1.0	2.0	3.0	27
Total Hardness	mg/L as $CaCO_3$	22	23	31	26	2.4	24	25	26	31
Dissolved Organic Carbon (DOC)	mg/L	22	7.7	12	9.8	1.2	8.9	9.4	11	12
Total Organic Carbon (TOC)	mg/L	22	8.6	14	10	1.2	9.4	10	11	12
Chemical Oxygen Demand (COD)	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	22	7.2	10	8.2	0.82	7.6	8.1	8.5	9.9
Magnesium (Mg)	mg/L	22	1.1	1.4	1.2	0.10	1.1	1.2	1.2	1.4
Potassium (K)	mg/L	22	0.18	0.33	0.25	0.039	0.23	0.25	0.28	0.32
Sodium (Na)	mg/L	22	0.63	0.81	0.69	0.046	0.65	0.68	0.70	0.77
Chloride (Cl)	mg/L	22	0.22	0.43	0.30	0.046	0.26	0.30	0.32	0.38
Fluoride (F)	mg/L	22	0.025	0.050	0.026	0.0052	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	22	1.6	3.5	2.7	0.41	2.5	2.8	3.0	3.3
METALS										
Aluminum (Al) (Dissolved)	mg/L	22	0.0040	0.053	0.018	0.012	0.0073	0.016	0.026	0.036
Antimony (Sb)	mg/L	22	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	22	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	22	0.0040	0.0270	0.0062	0.0046	0.0050	0.0050	0.0050	0.0080
Beryllium (Be)	mg/L	22	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	22	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	22	0.000010	0.000070	0.000013	0.000013	0.000010	0.000010	0.000010	0.000013
Chromium (Cr)	mg/L	22	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	22	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	22	0.00030	0.0019	0.00071	0.00037	0.00050	0.00060	0.00080	0.00152
Iron (Fe)	mg/L	22	0.0050	4.27	0.228	0.883	0.0063	0.0255	0.044	0.173
Lead (Pb)	mg/L	22	0.000050	0.00050	0.00013	0.00013	0.000050	0.00005	0.00018	0.00049
Manganese (Mn)	mg/L	22	0.0040	1.64	0.130	0.335	0.027	0.035	0.062	0.263
Mercury (Hg)	mg/L	22	0.00000095	0.000014	0.000003	0.000003	0.00000095	0.00000095	0.0000051	0.0000072
Molybdenum (Mo)	mg/L	22	0.000050	0.0010	0.00091	0.00027	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	22	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	22	0.000050	0.00020	0.000075	0.000054	0.000050	0.000050	0.000050	0.00020
Silver (Ag)	mg/L	22	0.0000050	0.000080	0.000009	0.000016	0.0000050	0.0000050	0.0000050	0.0000088
Strontium (Sr)	mg/L	22	0.016	0.029	0.020	0.00255	0.018	0.019	0.020	0.024
Thallium (Tl)	mg/L	22	0.0000050	0.00008	0.000009	0.000016	0.0000050	0.0000050	0.0000050	0.0000135
Titanium (Ti)	mg/L	22	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	22	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	22	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	22	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	22	0.0025	0.0025	0.0025	0	0.0025	0.0025	0.0025	0.0025
Zirconium (Zr)	mg/L	22	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	22	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	22	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	22	0.00050	0.00050	0.00050	0.0	0.00050	0.00050	0.00050	0.00050
Sulphur (S)	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	22	0.025	0.20	0.064	0.063	0.025	0.025	0.08	0.18
Nitrite (NO_2^-)	mg/L as N	22	0.025	0.050	0.026	0.0054	0.025	0.025	0.025	0.026
Total Ammonia (NH_3 + NH_4)	mg/L as N	22	0.010	0.40	0.067	0.087	0.010	0.040	0.088	0.19
Un-ionized Ammonia (NH_3)	mg/L	22	0	0.00032	0.000145	0.00009	0.0000789	0.000143	0.000195	0.000270
Total Kjeldahl Nitrogen	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	22	0.0025	0.057	0.019	0.014	0.011	0.015	0.021	0.048
Phosphate (PO_4)	mg/L as P	22	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	22	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	22	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Mineral)	mg/L	22	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Total)	mg/L	22	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Polychlorinated Biphenyls	mg/L	22	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Naphthalene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthylene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Fluorene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Phenanthrene	mg/L	22	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Anthracene	mg/L	22	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Fluoranthene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Pyrene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benz(a)anthracene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Chrysene	mg/L	22	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(b)fluoranthene	mg/L	22	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(k)fluoranthene	mg/L	22	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(a)pyrene	mg/L	22	0.0000050	0.0000050	0.0000050	0	0.0000050	0.0000050	0.0000050	0.0000050
Indeno(1,2,3-cd)pyrene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Dibenz(a,h)anthracene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benzo(g,h,i)perylene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
2-and 1-methyl Naphthalene	mg/L	22	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
RADIONUCLIDES										
Radium-226	Bq/L	22	nc	nc	nc	nc	nc	nc	nc	nc
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	22	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0
Total Coliforms	CFU/100mL	22	25	250	103	104	29	33	142	228

Notes:
nc = Statistic not calculated for that parameter

IAMGOLD CÔTÉ GOLD PROJECT

STATISTICS BY STATION

Parameter	Unit	BPD - Bagsverd Creek (Upstream Section)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	33	6.1	7.8	6.8	0.42	6.9	7.2	7.3	7.6
Temperature	degrees Celsius	33	-0.44	24	9.2	8.3	1.6	5.0	18	22
Conductivity	µS/cm	33	23	58	41	9.5	35	41	49	56
Dissolved Oxygen (DO)	mg/L	33	5.6	17	11	2.6	8.5	10	12	15
ORP	mV	33	119	209	164	45	142	164	186	204
GENERAL PARAMETERS										
Lab pH	pH units	33	6.2	7.6	6.8	0.37	6.7	6.9	7.2	7.6
Alkalinity	mg/L as $CaCO_3$	33	17	28	22	2.9	20	23	24	25
Acidity	mg/L as $CaCO_3$	33	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	33	48	68	55	5.3	51	54	57	66
Total Dissolved Solids (TDS)	mg/L	33	34	80	49	9	44	47	55	61
Total Suspended Solids (TSS)	mg/L	33	0.50	4.0	1.1	1.0	0.50	0.5	1.0	3.8
Total Hardness	mg/L as $CaCO_3$	33	22	33	27	2.9	24	26	28	31
Dissolved Organic Carbon (DOC)	mg/L	33	6.7	12	9.3	1.2	8.5	9.2	10	11
Total Organic Carbon (TOC)	mg/L	33	8.8	13	10	1.2	9.6	10	11	12
Chemical Oxygen Demand (COD)	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	33	7.0	11	8.5	0.9	7.8	8.3	9.1	9.9
Magnesium (Mg)	mg/L	33	1.1	1.6	1.3	0.14	1.2	1.3	1.4	1.5
Potassium (K)	mg/L	33	0.19	0.36	0.27	0.045	0.25	0.27	0.31	0.34
Sodium (Na)	mg/L	33	0.59	0.91	0.71	0.074	0.65	0.70	0.76	0.84
Chloride (Cl)	mg/L	33	0.05	0.44	0.28	0.079	0.24	0.29	0.34	0.40
Fluoride (F)	mg/L	33	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	33	2.3	3.6	2.9	0.27	2.8	2.9	3.1	3.3
METALS										
Aluminum (Al) (Dissolved)	mg/L	33	0.0060	0.041	0.016	0.0083	0.0098	0.015	0.019	0.032
Antimony (Sb)	mg/L	33	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	33	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	33	0.0030	0.0070	0.0050	0.00081	0.0050	0.0050	0.0053	0.0060
Beryllium (Be)	mg/L	33	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	33	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	33	0.000010	0.000010	0.000010	0	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	33	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	33	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	33	0.00020	0.0006	0.00046	0.00011	0.00040	0.0005	0.0005	0.0006
Iron (Fe)	mg/L	33	0.0050	0.1	0.02	0.02	0.0050	0.0050	0.022	0.045
Lead (Pb)	mg/L	33	0.000050	0.00050	0.00028	0.00022	0.000050	0.00030	0.00050	0.00050
Manganese (Mn)	mg/L	33	0.0090	0.07	0.026	0.013	0.015	0.023	0.033	0.047
Mercury (Hg)	mg/L	33	0.00000095	0.00001	0.00000	0	0.0000010	0.00000	0.00000	0.00001
Molybdenum (Mo)	mg/L	33	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	33	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	33	0.000050	0.00030	0.000081	0.000068	0.000050	0.000050	0.000063	0.00023
Silver (Ag)	mg/L	33	0.0000050	0.000005	0.000005	0	0.0000050	0.000005	0.000005	0.000005
Strontium (Sr)	mg/L	33	0.015	0.026	0.020	0.0026	0.018	0.020	0.021	0.024
Thallium (Tl)	mg/L	33	0.0000050	0.00003	0.00001	0.000006	0.000005	0.00001	0.00001	0.00001
Titanium (Ti)	mg/L	33	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	33	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	33	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	33	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	33	0.0025	0.033	0.0046	0.0062	0.0025	0.0025	0.0025	0.0145
Zirconium (Zr)	mg/L	33	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	33	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	33	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	33	0.025	0.10	0.034	0.025	0.025	0.025	0.025	0.074
Nitrite (NO_2^-)	mg/L as N	33	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	33	0.010	0.25	0.049	0.072	0.010	0.010	0.063	0.21
Un-ionized Ammonia (NH_3)	mg/L	33	0.0	0.001	0.0001	0.0002	0.000025	0.00005	0.00014	0.00055
Total Kjeldahl Nitrogen	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	33	0.0070	0.034	0.015	0.0083	0.010	0.012	0.020	0.030
Phosphate (PO_4)	mg/L as P	33	0.050	0.050	0.050	0	0.050	0.050	0.050	0.050
Soluble Reactive Phosphorus	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	33	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	33	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	33	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	33	nc	nc	nc	nc	nc	nc	nc	nc

Notes:

nc = Statistic not calculated for that parameter

Parameter	Unit	BL-a - Bagsverd Creek (Mid-stream Section)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	35	4.5	7.4	5.9	0.57	6.4	6.7	6.9	7.3
Temperature	degrees Celsius	35	-1.5	21	6.8	7.6	0.13	3.0	12	20
Conductivity	µS/cm	35	19	65	36	11	29	34	45	53
Dissolved Oxygen (DO)	mg/L	35	4.8	18	11	3.5	7.9	11	13	17
ORP	mV	35	155	165	160	4.2	158	161	163	164
GENERAL PARAMETERS										
Lab pH	pH units	35	6.1	7.6	6.6	0.41	6.5	6.8	7.0	7.5
Alkalinity	mg/L as $CaCO_3$	35	10	28	19	5.0	15	20	23	27
Acidity	mg/L as $CaCO_3$	35	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	35	36	67	51	8.2	46	49	57	65
Total Dissolved Solids (TDS)	mg/L	35	10	90	51	15	44	48	60	73
Total Suspended Solids (TSS)	mg/L	35	0.50	6.0	1.3	1.2	0.50	1.0	1.0	3.0
Total Hardness	mg/L as $CaCO_3$	35	19	34	26	4.2	23	25	29	33
Dissolved Organic Carbon (DOC)	mg/L	35	7.4	26	13	3.9	10	12	14	21
Total Organic Carbon (TOC)	mg/L	35	10	21	14	3.1	12	13	16	19
Chemical Oxygen Demand (COD)	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	35	5.9	11	8.1	1.3	7.1	7.8	9.1	10
Magnesium (Mg)	mg/L	35	0.91	1.8	1.3	0.20	1.2	1.3	1.4	1.7
Potassium (K)	mg/L	35	0.15	0.55	0.28	0.080	0.22	0.27	0.32	0.40
Sodium (Na)	mg/L	35	0.61	0.91	0.73	0.075	0.68	0.73	0.78	0.86
Chloride (Cl)	mg/L	35	0.05	1.0	0.32	0.14	0.27	0.32	0.36	0.41
Fluoride (F)	mg/L	35	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	35	1.7	3.5	2.8	0.40	2.6	2.9	3.1	3.3
METALS										
Aluminum (Al) (Dissolved)	mg/L	35	0.0050	0.11	0.043	0.027	0.020	0.041	0.059	0.093
Antimony (Sb)	mg/L	35	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	35	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	35	0.0040	0.0090	0.0051	0.00105	0.0045	0.0050	0.0055	0.0070
Beryllium (Be)	mg/L	35	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	35	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	35	0.000010	0.000010	0.000010	0	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	35	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	35	0.00025	0.00050	0.00026	4.2E-05	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	35	0.00020	0.0007	0.00054	0.00012	0.00050	0.0006	0.0006	0.0007
Iron (Fe)	mg/L	35	0.005	0.33	0.091	0.067	0.046	0.084	0.10	0.22
Lead (Pb)	mg/L	35	0.00005	0.00050	0.00034	0.00018	0.00020	0.00050	0.00050	0.00050
Manganese (Mn)	mg/L	35	0.0050	0.458	0.034	0.074	0.013	0.018	0.026	0.068
Mercury (Hg)	mg/L	35	0.00000095	0.000	0.000	0	0.000001	0.000	0.000	0.000
Molybdenum (Mo)	mg/L	35	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	35	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	35	0.000050	0.00050	0.00015	0.00015	0.000050	0.000050	0.00020	0.00043
Silver (Ag)	mg/L	35	0.0000050	0.000005	0.000005	0	0.000005	0.000005	0.000005	0.000005
Strontium (Sr)	mg/L	35	0.013	0.029	0.019	0.0035	0.017	0.019	0.021	0.025
Thallium (Tl)	mg/L	35	0.0000050	0.00003	0.00001	0.000007	0.00001	0.00001	0.00001	0.00002
Titanium (Ti)	mg/L	35	0.0010	0.0030	0.0011	0.00033	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	35	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	35	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	35	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	35	0.0025	0.035	0.0057	0.0070	0.0025	0.0025	0.0051	0.0184
Zirconium (Zr)	mg/L	35	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	35	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	35	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	35	0.025	0.110	0.040	0	0.025	0.025	0.034	0.093
Nitrite (NO_2^-)	mg/L as N	35	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	35	0.010	0.21	0.039	0.058	0.010	0.010	0.040	0.20
Un-ionized Ammonia (NH_3)	mg/L	35	0.0	0.001	0.0001	0.0001	0.0000038	0.000015	0.00004	0.00017
Total Kjeldahl Nitrogen	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	35	0.0025	0.034	0.011	0.0084	0.0075	0.010	0.012	0.025
Phosphate (PO_4)	mg/L as P	35	0.050	0.050	0.050	0	0.050	0.050	0.050	0.050
Soluble Reactive Phosphorus	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	35	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	35	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	35	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	35	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

IAMGOLD CÔTÉ GOLD PROJECT

STATISTICS BY STATION

Parameter	Unit	L-2 - Inflow to Bagsverd Creek								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	29	5.6	7.5	6.4	0.45	6.5	6.8	7.0	7.2
Temperature	degrees Celsius	29	-0.53	26	9.1	8.9	1.4	4.3	18	24
Conductivity	µS/cm	29	19	41	26	6.2	22	24	31	38
Dissolved Oxygen (DO)	mg/L	29	6.3	16	10	2.3	8.8	9.8	12	14
ORP	mV	29	186	186	186	0	186	186	186	186
GENERAL PARAMETERS										
Lab pH	pH units	29	5.9	7.1	6.4	0.31	6.2	6.5	6.6	7.0
Alkalinity	mg/L as $CaCO_3$	29	6.0	25	11	3.2	9.0	10	11	13
Acidity	mg/L as $CaCO_3$	29	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	29	28	66	37	6.7	34	36	37	44
Total Dissolved Solids (TDS)	mg/L	29	20	70	49	11	44	48	58	67
Total Suspended Solids (TSS)	mg/L	29	0.50	5.0	2.1	1.5	0.6	2.0	3.0	5.0
Total Hardness	mg/L as $CaCO_3$	29	13	22	17	2.2	16	17	19	21
Dissolved Organic Carbon (DOC)	mg/L	29	9.2	20	14	2.6	13	14	16	19
Total Organic Carbon (TOC)	mg/L	29	16	18	17	0.78	17	17	18	18
Chemical Oxygen Demand (COD)	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	29	3.5	5.9	4.8	0.61	4.3	4.7	5.2	5.8
Magnesium (Mg)	mg/L	29	1.0	1.7	1.3	0.16	1.2	1.3	1.4	1.6
Potassium (K)	mg/L	29	0.18	0.62	0.30	0.099	0.24	0.27	0.31	0.52
Sodium (Na)	mg/L	29	0.79	1.1	0.88	0.068	0.82	0.86	0.90	1.00
Chloride (Cl)	mg/L	29	0.12	0.40	0.29	0.074	0.25	0.29	0.35	0.38
Fluoride (F)	mg/L	29	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	29	1.4	3.2	2.5	0.42	2.3	2.5	2.7	3.2
METALS										
Aluminum (Al) (Dissolved)	mg/L	29	0.031	0.19	0.11	0.043	0.080	0.104	0.14	0.18
Antimony (Sb)	mg/L	29	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	29	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	29	0.0030	0.0070	0.0043	0.00091	0.0040	0.0040	0.0050	0.0060
Beryllium (Be)	mg/L	29	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	29	0.0050	0.005	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	29	0.000010	0.000010	0.000010	0	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	29	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	29	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	29	0.00060	0.0009	0.00073	0.00011	0.00060	0.0007	0.0008	0.0009
Iron (Fe)	mg/L	29	0.12	0.70	0.33	0.17	0.20	0.26	0.46	0.66
Lead (Pb)	mg/L	29	0.00010	0.00050	0.00037	0.00016	0.00020	0.00050	0.00050	0.00050
Manganese (Mn)	mg/L	29	0.0090	0.080	0.026	0.0155	0.018	0.023	0.028	0.059
Mercury (Hg)	mg/L	29	0.00000095	0.000	0.000	0	0.0000010	0.000	0.000	0.000
Molybdenum (Mo)	mg/L	29	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	29	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	29	0.000050	0.00010	0.000058	0.000019	0.000050	0.000050	0.000050	0.00010
Silver (Ag)	mg/L	29	0.0000050	0.000020	0.000008	0.000006	0.000005	0.000005	0.000006	0.000020
Strontium (Sr)	mg/L	29	0.011	0.019	0.014	0.0019	0.013	0.014	0.015	0.017
Thallium (Tl)	mg/L	29	0.0000050	0.00001	0.00001	0.000000	0.0000050	0.00001	0.00001	0.00001
Titanium (Ti)	mg/L	29	0.0010	0.0030	0.0011	0.00043	0.0010	0.0010	0.0010	0.0020
Tungsten (W)	mg/L	29	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	29	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	29	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	29	0.0025	0.058	0.0074	0.014	0.0025	0.0025	0.0025	0.0404
Zirconium (Zr)	mg/L	29	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	29	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	29	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	29	0.025	0.10	0.050	0.031	0.025	0.038	0.063	0.093
Nitrite (NO_2^-)	mg/L as N	29	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	29	0.010	0.15	0.032	0.036	0.010	0.020	0.040	0.12
Un-ionized Ammonia (NH_3)	mg/L	29	0.0	0.001	0.0001	0.0002	0.000006	0.000026	0.00012	0.00048
Total Kjeldahl Nitrogen	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	29	0.0025	0.026	0.014	0.0078	0.008	0.016	0.020	0.024
Phosphate (PO_4)	mg/L as P	29	0.050	0.050	0.050	0	0.050	0.050	0.050	0.050
Soluble Reactive Phosphorus	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	29	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	29	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	29	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	29	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	BL-b - Bagsverd Creek (Downstream Section)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	36	5.2	7.8	6.1	0.58	6.3	6.7	6.9	7.4
Temperature	degrees Celsius	36	-1.5	22	6.7	7.6	0.09	3.3	12	20
Conductivity	µS/cm	36	15	63	34	12	24	32	41	57
Dissolved Oxygen (DO)	mg/L	36	nc	17	9.8	3.3	7.6	9.9	11	16
ORP	mV	36	185	204	195	9.1	190	195	199	203
GENERAL PARAMETERS										
Lab pH	pH units	36	5.8	7.5	6.5	0.44	6.4	6.7	7.0	7.3
Alkalinity	mg/L as $CaCO_3$	36	7.0	25	17	6.3	12	16	24	25
Acidity	mg/L as $CaCO_3$	36	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	36	27	66	48	11	39	47	59	64
Total Dissolved Solids (TDS)	mg/L	36	24	94	57	16	48	56	64	88
Total Suspended Solids (TSS)	mg/L	36	0.50	3.0	0.95	0.69	0.50	0.50	1.0	2.0
Total Hardness	mg/L as $CaCO_3$	36	14	33	24	5.4	20	24	28	33
Dissolved Organic Carbon (DOC)	mg/L	36	9.7	28	15	4.7	12	13	16	26
Total Organic Carbon (TOC)	mg/L	36	12	25	17	4.4	14	15	19	24
Chemical Oxygen Demand (COD)	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	36	4.1	10	7.3	1.7	6.1	7.4	8.7	10
Magnesium (Mg)	mg/L	36	0.82	2.1	1.4	0.27	1.2	1.3	1.6	1.8
Potassium (K)	mg/L	36	0.11	0.49	0.25	0.075	0.20	0.26	0.30	0.36
Sodium (Na)	mg/L	36	0.62	0.98	0.77	0.093	0.71	0.77	0.84	0.93
Chloride (Cl)	mg/L	36	0.05	0.76	0.35	0.12	0.29	0.35	0.41	0.53
Fluoride (F)	mg/L	36	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	36	1.2	3.5	2.6	0.48	2.3	2.7	2.9	3.2
METALS										
Aluminum (Al) (Dissolved)	mg/L	36	0.024	0.15	0.055	0.038	0.025	0.029	0.082	0.135
Antimony (Sb)	mg/L	36	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	36	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	36	0.0030	0.0080	0.0046	0.0010	0.0040	0.0050	0.0050	0.0060
Beryllium (Be)	mg/L	36	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	36	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	36	0.000010	0.000030	0.000011	0.000005	0.000010	0.000010	0.000010	0.000014
Chromium (Cr)	mg/L	36	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	36	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	36	0.00030	0.0008	0.00059	0.00013	0.00050	0.0006	0.0007	0.0008
Iron (Fe)	mg/L	36	0.079	0.57	0.19	0.10	0.13	0.15	0.22	0.37
Lead (Pb)	mg/L	36	0.000050	0.00050	0.00033	0.00018	0.00020	0.00050	0.00050	0.00050
Manganese (Mn)	mg/L	36	0.0060	0.069	0.024	0.018	0.011	0.016	0.037	0.067
Mercury (Hg)	mg/L	36	0.00000095	0.000	0.000	0.000	0.0000010	0.000	0.000	0.000
Molybdenum (Mo)	mg/L	36	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	36	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	36	0.000050	0.00040	0.000094	0.00010	0.000050	0.000050	0.000050	0.00032
Silver (Ag)	mg/L	36	0.0000050	0.000030	0.000007	0.000007	0.0000050	0.000005	0.000005	0.000022
Strontium (Sr)	mg/L	36	0.010	0.026	0.018	0.0043	0.015	0.018	0.021	0.025
Thallium (Tl)	mg/L	36	0.0000050	0.00012	0.00001	0.000028	0.0000050	0.00001	0.00001	0.00006
Titanium (Ti)	mg/L	36	0.0010	0.0020	0.0011	0.00031	0.0010	0.0010	0.0010	0.0020
Tungsten (W)	mg/L	36	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	36	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	36	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	36	0.0025	0.032	0.0048	0.0060	0.0025	0.0025	0.0025	0.0148
Zirconium (Zr)	mg/L	36	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	36	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	36	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	36	0.025	0.17	0.068	0.047	0.025	0.055	0.093	0.15
Nitrite (NO_2^-)	mg/L as N	36	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	36	0.010	0.21	0.038	0.050	0.010	0.010	0.033	0.15
Un-ionized Ammonia (NH_3)	mg/L	36	0.0	0.000	0.0000	0.0000	0.0000039	0.000012	0.00004	0.00011
Total Kjeldahl Nitrogen	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	36	0.0025	0.034	0.013	0.0083	0.008	0.011	0.015	0.027
Phosphate (PO_4)	mg/L as P	36	0.050	0.050	0.050	0	0.050	0.050	0.050	0.050
Soluble Reactive Phosphorus	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	36	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	36	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	36	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	36	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

IAMGOLD CÔTÉ GOLD PROJECT

STATISTICS BY STATION

Parameter	Unit	WL-1 - Wolf Lake (Outlet Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	17	5.1	7.7	6.0	0.76	6.6	7.1	7.3	7.6
Temperature	degrees Celsius	17	-0.10	25	11	8.8	3.0	13	18	23
Conductivity	µS/cm	17	13	49	32	8.8	27	33	40	43
Dissolved Oxygen (DO)	mg/L	17	6.6	19	11	3.1	8.5	10	12	16
ORP	mV	17	nc	nc	nc	nc	nc	nc	nc	nc
GENERAL PARAMETERS										
Lab pH	pH units	17	5.9	7.3	6.5	0.34	6.4	6.6	6.9	7.2
Alkalinity	mg/L as $CaCO_3$	17	6.0	24	13	3.9	12	13	15	19
Acidity	mg/L as $CaCO_3$	17	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	17	25	56	40	6.2	38	41	42	48
Total Dissolved Solids (TDS)	mg/L	17	24	64	46	12	36	46	56	62
Total Suspended Solids (TSS)	mg/L	17	0.50	12	2.0	2.8	0.50	1.0	2.0	5.7
Total Hardness	mg/L as $CaCO_3$	17	10	26	19	3.4	18	19	21	23
Dissolved Organic Carbon (DOC)	mg/L	17	7.0	15	11	2.4	8.7	11	13	15
Total Organic Carbon (TOC)	mg/L	17	9.2	15	13	2.5	11	14	14	15
Chemical Oxygen Demand (COD)	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	17	2.6	7.3	5.3	0.98	5.1	5.3	5.8	6.5
Magnesium (Mg)	mg/L	17	0.79	1.9	1.4	0.22	1.3	1.4	1.5	1.7
Potassium (K)	mg/L	17	0.17	0.42	0.29	0.061	0.25	0.28	0.33	0.40
Sodium (Na)	mg/L	17	0.54	1.1	0.84	0.12	0.80	0.83	0.87	1.06
Chloride (Cl)	mg/L	17	0.17	0.50	0.32	0.093	0.26	0.28	0.36	0.48
Fluoride (F)	mg/L	17	0.025	0.050	0.028	0.0081	0.025	0.025	0.025	0.050
Sulphate (SO_4)	mg/L	17	1.8	4.0	2.8	0.53	2.5	2.9	3.1	3.5
METALS										
Aluminum (Al) (Dissolved)	mg/L	17	0.011	0.12	0.061	0.027	0.036	0.064	0.081	0.096
Antimony (Sb)	mg/L	17	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	17	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	17	0.0020	0.0050	0.0037	0.0011	0.0030	0.0040	0.0050	0.0050
Beryllium (Be)	mg/L	17	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	17	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	17	0.000010	0.000030	0.000013	0.000006	0.000010	0.000010	0.000010	0.000026
Chromium (Cr)	mg/L	17	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	17	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	17	0.00040	0.0017	0.00081	0.00032	0.00070	0.0008	0.0008	0.0013
Iron (Fe)	mg/L	17	0.042	0.25	0.13	0.058	0.098	0.11	0.16	0.24
Lead (Pb)	mg/L	17	0.000050	0.00050	0.00027	0.00020	0.00010	0.00020	0.00050	0.00050
Manganese (Mn)	mg/L	17	0.0080	0.024	0.013	0.0046	0.010	0.011	0.017	0.021
Mercury (Hg)	mg/L	17	0.00000095	0.000007	0.000003	0.000002	0.0000010	0.000001	0.000004	0.000006
Molybdenum (Mo)	mg/L	17	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	17	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	17	0.000050	0.00060	0.00011	0.00016	0.000050	0.000050	0.000050	0.00037
Silver (Ag)	mg/L	17	0.0000050	0.000020	0.000008	0.000006	0.0000050	0.000005	0.000005	0.000020
Strontium (Sr)	mg/L	17	0.007	0.017	0.014	0.0022	0.013	0.014	0.015	0.017
Thallium (Tl)	mg/L	17	0.0000050	0.00004	0.000010	0.000011	0.0000050	0.00001	0.00001	0.00003
Titanium (Ti)	mg/L	17	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	17	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	17	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	17	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	17	0.0025	0.014	0.0032	0.0027	0.0025	0.0025	0.0025	0.0048
Zirconium (Zr)	mg/L	17	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	17	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	17	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	17	0.025	0.080	0.045	0.023	0.025	0.038	0.058	0.076
Nitrite (NO_2^-)	mg/L as N	17	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	17	0.010	0.080	0.025	0.021	0.010	0.010	0.030	0.064
Un-ionized Ammonia (NH_3)	mg/L	17	0.0	0.001	0.0001	0.0002	0.000025	0.000035	0.0001	0.0004
Total Kjeldahl Nitrogen	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	17	0.0070	0.018	0.014	0.0039	0.014	0.015	0.017	0.018
Phosphate (PO_4)	mg/L as P	17	0.050	0.050	0.050	0	0.050	0.050	0.050	0.050
Soluble Reactive Phosphorus	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	17	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	17	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	17	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	17	nc	nc	nc	nc	nc	nc	nc	nc

Notes:

nc = Statistic not calculated for that parameter

Parameter	Unit	SR - Somme River								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	24	5.2	7.7	6.3	0.55	6.5	6.8	7.3	7.6
Temperature	degrees Celsius	24	-1.3	22	8.1	8.3	0.40	4.2	17	22
Conductivity	µS/cm	24	17	44	29	7.7	24	28	34	44
Dissolved Oxygen (DO)	mg/L	24	7.2	15	11	1.9	9.1	11	12	13
ORP	mV	24	nc	nc	nc	nc	nc	nc	nc	nc
GENERAL PARAMETERS										
Lab pH	pH units	24	6.0	7.3	6.5	0.32	6.4	6.5	6.8	7.1
Alkalinity	mg/L as $CaCO_3$	24	6.0	21	13	3.4	12	13	15	18
Acidity	mg/L as $CaCO_3$	24	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	24	30	56	43	7.5	39	42	49	54
Total Dissolved Solids (TDS)	mg/L	24	28	88	48	13	40	48	56	61
Total Suspended Solids (TSS)	mg/L	24	0.50	3.0	1.2	0.8	0.50	1.0	1.5	3.0
Total Hardness	mg/L as $CaCO_3$	24	14	24	19	3.2	18	19	22	24
Dissolved Organic Carbon (DOC)	mg/L	24	6.5	16	11	2.2	9.8	11	13	14
Total Organic Carbon (TOC)	mg/L	24	12	13	13	0.6	13	13	13	13
Chemical Oxygen Demand (COD)	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	24	3.8	7.2	5.7	0.95	5.3	5.8	6.6	6.8
Magnesium (Mg)	mg/L	24	1.0	1.9	1.5	0.25	1.3	1.5	1.7	1.8
Potassium (K)	mg/L	24	0.18	0.39	0.30	0.056	0.26	0.30	0.35	0.38
Sodium (Na)	mg/L	24	0.68	1.1	0.91	0.11	0.86	0.89	1.0	1.1
Chloride (Cl)	mg/L	24	0.14	0.48	0.34	0.087	0.28	0.33	0.42	0.48
Fluoride (F)	mg/L	24	0.025	0.050	0.026	0.0050	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	24	2.0	4.0	3.0	0.52	2.7	3.0	3.3	3.9
METALS										
Aluminum (Al) (Dissolved)	mg/L	24	0.010	0.15	0.068	0.032	0.043	0.067	0.088	0.116
Antimony (Sb)	mg/L	24	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	24	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	24	0.0030	0.0060	0.0043	0.00078	0.0040	0.0040	0.0050	0.0050
Beryllium (Be)	mg/L	24	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	24	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	24	0.000010	0.000	0.000	0.000	0.000010	0.000	0.000	0.000
Chromium (Cr)	mg/L	24	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	24	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	24	0.00030	0.0037	0.00093	0.00093	0.00060	0.0007	0.0008	0.0024
Iron (Fe)	mg/L	24	0.041	0.27	0.16	0.063	0.12	0.17	0.20	0.26
Lead (Pb)	mg/L	24	0.000050	0.00050	0.00034	0.00019	0.00010	0.00050	0.00050	0.00050
Manganese (Mn)	mg/L	24	0.0080	0.031	0.015	0.0064	0.010	0.014	0.018	0.029
Mercury (Hg)	mg/L	24	0.00000095	0.000015	0.000003	0.000004	0.0000010	0.000002	0.000003	0.000011
Molybdenum (Mo)	mg/L	24	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	24	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	24	0.000050	0.00020	0.000080	0.000060	0.000050	0.000050	0.000050	0.00020
Silver (Ag)	mg/L	24	0.0000050	0.000020	0.000007	0.000005	0.0000050	0.000005	0.000005	0.000016
Strontium (Sr)	mg/L	24	0.010	0.020	0.015	0.0024	0.014	0.015	0.016	0.018
Thallium (Tl)	mg/L	24	0.0000050	0.00003	0.00001	0.000007	0.000005	0.00001	0.00001	0.00002
Titanium (Ti)	mg/L	24	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	24	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	24	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	24	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	24	0.0025	0.028	0.0046	0.0060	0.0025	0.0025	0.0025	0.0169
Zirconium (Zr)	mg/L	24	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	24	0.0010	0.0030	0.0011	0.00040	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	24	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	24	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Nitrite (NO_2^-)	mg/L as N	24	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	24	0.010	0.060	0.023	0.017	0.010	0.010	0.033	0.059
Un-ionized Ammonia (NH_3)	mg/L	24	0.0000003	0.00014	0.000034	0.000039	0.000006	0.000022	0.000034	0.00012
Total Kjeldahl Nitrogen	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	24	0.0025	0.016	0.0092	0.0055	0.0036	0.010	0.014	0.016
Phosphate (PO_4)	mg/L as P	24	0.050	0.050	0.050	0.0	0.050	0.050	0.050	0.050
Soluble Reactive Phosphorus	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	24	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	24	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	24	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	24	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

IAMGOLD CÔTÉ GOLD PROJECT

STATISTICS BY STATION

Parameter	Unit	NEV-LS - Neville Lake (Profile Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	28	5.4	8.0	6.3	0.51	6.4	6.6	6.8	7.4
Temperature	degrees Celsius	28	0.060	20	7.9	6.0	3.5	6.5	11	20
Conductivity	µS/cm	28	30	147	57	29	38	46	61	123
Dissolved Oxygen (DO)	mg/L	28	-0.65	13	6.9	4.5	2.1	8.3	11	13
ORP	mV	28	-62	246	114	67	72	127	140	222
GENERAL PARAMETERS										
Lab pH	pH units	28	6.0	7.4	6.7	0.34	6.7	6.8	7.0	7.3
Alkalinity	mg/L as $CaCO_3$	28	7.0	26	14	4.4	11.8	13	17	22
Acidity	mg/L as $CaCO_3$	28	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	28	32	61	42	6.7	38	42	45	54
Total Dissolved Solids (TDS)	mg/L	28	32	152	63	23	50	61	70	99
Total Suspended Solids (TSS)	mg/L	28	0.5	9.0	2.3	2.1	1.0	2.0	2.8	6.5
Total Hardness	mg/L as $CaCO_3$	28	14	28	20	2.8	18	20	22	24
Dissolved Organic Carbon (DOC)	mg/L	28	10	27	16	3.9	13	14	18	21
Total Organic Carbon (TOC)	mg/L	28	12	30	17	4.2	14	16	20	23
Chemical Oxygen Demand (COD)	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	28	4.1	8.8	6.1	0.9	5.4	6.1	6.4	7.5
Magnesium (Mg)	mg/L	28	0.87	1.5	1.2	0.17	1.1	1.2	1.3	1.5
Potassium (K)	mg/L	28	0.16	0.92	0.26	0.132	0.21	0.24	0.26	0.34
Sodium (Na)	mg/L	28	0.59	1.1	0.77	0.11	0.71	0.75	0.84	0.95
Chloride (Cl)	mg/L	28	0.23	0.92	0.35	0.13	0.27	0.34	0.37	0.47
Fluoride (F)	mg/L	28	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	28	0.61	3.7	2.3	0.58	2.1	2.3	2.7	3.1
METALS										
Aluminum (Al) (Dissolved)	mg/L	28	0.038	0.17	0.11	0.036	0.078	0.107	0.13	0.17
Antimony (Sb)	mg/L	28	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	28	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	28	0.0030	0.012	0.0054	0.0020	0.0040	0.0050	0.0060	0.0093
Beryllium (Be)	mg/L	28	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	28	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	28	0.000010	0.000090	0.000017	0.000018	0.000010	0.000010	0.000010	0.000050
Chromium (Cr)	mg/L	28	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	28	0.00025	0.0012	0.00037	0.00030	0.00025	0.00025	0.00025	0.00110
Copper (Cu)	mg/L	28	0.00050	0.0020	0.00083	0.00030	0.00063	0.00080	0.0010	0.0013
Iron (Fe)	mg/L	28	0.090	5.2	0.84	1.4	0.18	0.30	0.55	4.30
Lead (Pb)	mg/L	28	0.000050	0.00090	0.00033	0.00022	0.00020	0.00025	0.00050	0.00070
Manganese (Mn)	mg/L	28	0.011	0.50	0.09	0.14	0.015	0.023	0.072	0.446
Mercury (Hg)	mg/L	28	0.00000095	0.000014	0.000003	0.000004	0.00000095	0.00000095	0.0000024	0.0000120
Molybdenum (Mo)	mg/L	28	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	28	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	28	0.000050	0.0020	0.00027	0.00052	0.000050	0.000050	0.00028	0.0017
Silver (Ag)	mg/L	28	0.0000050	0.000050	0.000008	0.000012	0.0000050	0.0000050	0.0000050	0.0000388
Strontium (Sr)	mg/L	28	0.011	0.022	0.016	0.0025	0.015	0.016	0.018	0.020
Thallium (Tl)	mg/L	28	0.0000050	0.00015	0.000018	0.000039	0.0000050	0.0000050	0.0000050	0.0001225
Titanium (Ti)	mg/L	28	0.0010	0.0030	0.0014	0.00067	0.0010	0.0010	0.0020	0.0030
Tungsten (W)	mg/L	28	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	28	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	28	0.0010	0.0030	0.0011	0.00041	0.0010	0.0010	0.0010	0.0017
Zinc (Zn)	mg/L	28	0.0025	0.018	0.0037	0.0037	0.0025	0.0025	0.0025	0.0122
Zirconium (Zr)	mg/L	28	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	28	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	28	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	28	0.025	0.24	0.073	0.062	0.025	0.055	0.080	0.215
Nitrite (NO_2^-)	mg/L as N	28	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	28	0.010	2.2	0.20	0.44	0.010	0.030	0.12	0.82
Un-ionized Ammonia (NH_3)	mg/L	28	0.0	0.001	0.0001	0.0002	0.0000063	0.000018	0.0001	0.0006
Total Kjeldahl Nitrogen	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	na	na	na	na	na	na	na	na	na
Phosphate (PO_4)	mg/L as P	28	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	28	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	28	nc	nc	nc	nc	nc	nc	nc	nc
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	28	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	28	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	NL - Neville Lake (Outlet Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	19	5.9	7.7	6.4	0.49	6.2	6.6	7.0	7.4
Temperature	degrees Celsius	19	-1.1	23	7.2	8.1	0.25	4.8	13	23
Conductivity	µS/cm	19	17	49	31	9	25	30	36	46
Dissolved Oxygen (DO)	mg/L	19	7.8	18	11	2.5	11	11	13	15
ORP	mV	19	nc	nc	nc	nc	nc	nc	nc	nc
GENERAL PARAMETERS										
Lab pH	pH units	19	6.1	7.7	6.5	0.43	6.5	6.6	6.9	7.3
Alkalinity	mg/L as $CaCO_3$	19	5.0	21	13	3.9	12	13	16	20
Acidity	mg/L as $CaCO_3$	19	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	19	26	59	41	8.7	37	40	46	58
Total Dissolved Solids (TDS)	mg/L	19	34	62	46	7.9	42	44	52	58
Total Suspended Solids (TSS)	mg/L	19	0.50	4.0	1.1	0.89	0.50	1.0	1.5	2.2
Total Hardness	mg/L as $CaCO_3$	19	13	28	19	4.1	17	19	22	26
Dissolved Organic Carbon (DOC)	mg/L	19	8.5	15	12	1.6	10	12	12	15
Total Organic Carbon (TOC)	mg/L	19	11	15	12	1.7	11	12	13	15
Chemical Oxygen Demand (COD)	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	19	3.6	8.4	5.6	1.2	4.8	5.5	6.2	7.5
Magnesium (Mg)	mg/L	19	0.83	1.8	1.3	0.26	1.1	1.3	1.4	1.7
Potassium (K)	mg/L	19	0.21	0.34	0.26	0.038	0.24	0.25	0.30	0.33
Sodium (Na)	mg/L	19	0.65	1.0	0.83	0.10	0.78	0.84	0.90	0.97
Chloride (Cl)	mg/L	19	0.18	0.46	0.31	0.071	0.27	0.32	0.37	0.40
Fluoride (F)	mg/L	19	0.025	0.070	0.029	0.011	0.025	0.025	0.025	0.052
Sulphate (SO_4)	mg/L	19	2.1	3.7	2.8	0.43	2.4	2.8	3.0	3.5
METALS										
Aluminum (Al) (Dissolved)	mg/L	19	0.032	0.098	0.070	0.023	0.047	0.076	0.090	0.097
Antimony (Sb)	mg/L	19	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	19	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	19	0.0030	0.0060	0.0043	0.00085	0.0040	0.0040	0.0050	0.0051
Beryllium (Be)	mg/L	19	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	19	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	19	0.000010	0.000020	0.000011	0.000003	0.000010	0.000010	0.000010	0.000014
Chromium (Cr)	mg/L	19	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	19	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	19	0.00050	0.0012	0.00065	0.00017	0.00060	0.0006	0.0007	0.0009
Iron (Fe)	mg/L	19	0.044	0.25	0.16	0.057	0.12	0.16	0.20	0.25
Lead (Pb)	mg/L	19	0.000050	0.00050	0.00024	0.00019	0.00010	0.00010	0.00050	0.00050
Manganese (Mn)	mg/L	19	0.008	0.033	0.015	0.0063	0.011	0.014	0.018	0.029
Mercury (Hg)	mg/L	19	0.00000095	0.000010	0.000003	0.000003	0.0000010	0.000001	0.000003	0.000007
Molybdenum (Mo)	mg/L	19	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	19	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	19	0.000050	0.00040	0.000088	0.00010	0.000050	0.000050	0.000050	0.00028
Silver (Ag)	mg/L	19	0.0000050	0.000020	0.000007	0.000004	0.0000050	0.000005	0.000005	0.000014
Strontium (Sr)	mg/L	19	0.010	0.023	0.015	0.0032	0.013	0.015	0.017	0.020
Thallium (Tl)	mg/L	19	0.0000050	0.00003	0.000007	0.000007	0.0000050	0.000005	0.00001	0.00002
Titanium (Ti)	mg/L	19	0.0010	0.0020	0.0011	0.00031	0.0010	0.0010	0.0010	0.0020
Tungsten (W)	mg/L	19	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	19	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	19	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	19	0.0025	0.024	0.0037	0.0049	0.0025	0.0025	0.0025	0.0057
Zirconium (Zr)	mg/L	19	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	19	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	19	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	19	0.025	0.080	0.042	0.024	0.025	0.025	0.059	0.078
Nitrite (NO_2^-)	mg/L as N	19	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	19	0.010	0.10	0.032	0.029	0.010	0.010	0.055	0.082
Un-ionized Ammonia (NH_3)	mg/L	19	0.0000013	0.000	0.0001	0.0001	0.000006	0.00002	0.000	0.000
Total Kjeldahl Nitrogen	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	19	0.0025	0.040	0.014	0.011	0.008	0.011	0.014	0.033
Phosphate (PO_4)	mg/L as P	19	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Soluble Reactive Phosphorus	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	19	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.0005	0.0005
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	19	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	19	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	MESO-LS7 - Mesomikenda Lake, Lower (Profile Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	12	6.4	7.7	7.1	0.35	7.2	7.4	7.5	7.6
Temperature	degrees Celsius	12	1.7	21	7.9	5.8	3.8	4.4	11	19
Conductivity	µS/cm	12	110	142	135	8.9	132	139	140	142
Dissolved Oxygen (DO)	mg/L	12	3.4	14	10	3.2	6.6	10	12	14
ORP	mV	12	13	232	123	62	84	99	176	219
GENERAL PARAMETERS										
Lab pH	pH units	12	6.4	7.7	7.0	0.42	6.8	7.3	7.5	7.7
Alkalinity	mg/L as $CaCO_3$	12	29	39	33	2.4	31	32	33	36
Acidity	mg/L as $CaCO_3$	12	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	12	121	146	133	6.4	128	132	137	142
Total Dissolved Solids (TDS)	mg/L	12	68	104	82	11	74	80	88	101
Total Suspended Solids (TSS)	mg/L	12	0.50	0.50	0.50	0	0.50	0.50	0.50	0.50
Total Hardness	mg/L as $CaCO_3$	12	37	47	41	3.1	39	41	43	46
Dissolved Organic Carbon (DOC)	mg/L	12	4.7	6.7	6.0	0.55	5.8	6.0	6.4	6.6
Total Organic Carbon (TOC)	mg/L	12	5.5	11	7.0	1.4	6.3	6.5	7.1	9.6
Chemical Oxygen Demand (COD)	mg/L	12	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	12	12	15	13	0.94	12	13	13	14
Magnesium (Mg)	mg/L	12	2.0	2.6	2.2	0.17	2.1	2.1	2.3	2.5
Potassium (K)	mg/L	12	0.40	0.54	0.50	0.040	0.47	0.51	0.53	0.54
Sodium (Na)	mg/L	12	8.6	9.9	9.0	0.36	8.8	8.9	9.0	9.7
Chloride (Cl)	mg/L	12	15	17	16	0.56	15	16	16	16
Fluoride (F)	mg/L	12	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	12	3.8	4.7	4.3	0.22	4.2	4.2	4.3	4.6
METALS										
Aluminum (Al) (Dissolved)	mg/L	12	0.0090	0.033	0.018	0.0070	0.013	0.015	0.020	0.031
Antimony (Sb)	mg/L	12	nc	nc	nc	nc	nc	nc	nc	nc
Arsenic (As)	mg/L	12	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	12	0.0030	0.0040	0.0032	0.00037	0.0030	0.0030	0.0030	0.0040
Beryllium (Be)	mg/L	12	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	12	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	12	0.000010	0.000010	0.000010	0	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	12	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	12	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	12	0.00050	0.0013	0.00069	0.00022	0.00060	0.00060	0.00070	0.00108
Iron (Fe)	mg/L	12	0.0050	0.089	0.0186	0.024	0.0050	0.0050	0.0300	0.0588
Lead (Pb)	mg/L	12	0.000050	0.00050	0.00013	0.00017	0.000050	0.000050	0.000050	0.000500
Manganese (Mn)	mg/L	12	0.0010	0.075	0.015	0.022	0.0018	0.0045	0.019	0.057
Mercury (Hg)	mg/L	12	0.00000095	0.0000024	0.0000012	0.0000006	0.00000095	0.00000095	0.0000010	0.0000024
Molybdenum (Mo)	mg/L	12	0.000050	0.0010	0.00084	0.00035	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	12	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	12	0.000050	0.00040	0.00011	0.00012	0.000050	0.000050	0.000050	0.00036
Silver (Ag)	mg/L	12	0.0000050	0.000020	0.000007	0.000005	0.0000050	0.0000050	0.000005	0.000016
Strontium (Sr)	mg/L	12	0.016	0.022	0.019	0.0018	0.018	0.019	0.020	0.022
Thallium (Tl)	mg/L	12	0.0000050	0.00001	0.000005	0	0.0000050	0.0000050	0.00001	0.00001
Titanium (Ti)	mg/L	12	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	12	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	12	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	12	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	12	0.0025	0.0025	0.0025	0	0.0025	0.0025	0.0025	0.0025
Zirconium (Zr)	mg/L	12	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	12	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	12	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	12	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	12	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	12	0.025	0.11	0.063	0.031	0.025	0.065	0.083	0.11
Nitrite (NO_2^-)	mg/L as N	12	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	12	0.010	0.11	0.046	0.034	0.010	0.045	0.065	0.099
Un-ionized Ammonia (NH_3)	mg/L	12	0.000015	0.001	0.0002	0.0003	0.00002	0.0000	0.000	0.001
Total Kjeldahl Nitrogen	mg/L	12	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	12	0.0070	0.055	0.0184	0.017	0.0070	0.010	0.019	0.050
Phosphate (PO_4)	mg/L as P	12	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	12	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	12	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Mineral)	mg/L	12	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Total)	mg/L	12	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Polychlorinated Biphenyls	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Naphthalene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthylene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Fluorene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Phenanthrene	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Anthracene	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Fluoranthene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Pyrene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benz(a)anthracene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Chrysene	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(b)fluoranthene	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(k)fluoranthene	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(a)pyrene	mg/L	12	0.0000050	0.0000050	0.0000050	0	0.0000050	0.0000050	0.0000050	0.0000050
Indeno(1,2,3-cd)pyrene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Dibenz(a,h)anthracene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benzo(g,h,i)perylene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
2-and 1-methyl Naphthalene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
RADIONUCLIDES										
Radium-226	Bq/L	12	nc	nc	nc	nc	nc	nc	nc	nc
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	12	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	12	28	50	36	9.9	29	30	40	48

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	MESO-LS5 - Mesomikenda Lake, Middle (Profile Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	12	6.2	7.6	6.9	0.39	7.0	7.3	7.4	7.6
Temperature	degrees Celsius	12	1.5	19	8.0	5.5	4.2	4.7	12	18
Conductivity	µS/cm	12	66	90	81	6.6	78	82	87	89
Dissolved Oxygen (DO)	mg/L	12	6.9	13	11	1.6	10	10	12	13
ORP	mV	12	7.0	247	129	71	84	115	195	231
GENERAL PARAMETERS										
Lab pH	pH units	12	6.3	7.5	6.8	0.40	6.6	7.1	7.3	7.5
Alkalinity	mg/L as $CaCO_3$	12	18	25	22	2.0	21	23	23	24
Acidity	mg/L as $CaCO_3$	12	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	12	73	94	80	6	76	80	83	90
Total Dissolved Solids (TDS)	mg/L	12	40	74	55	9.7	49	53	61	70
Total Suspended Solids (TSS)	mg/L	12	0.50	0.5	0.5	0.0	0.5	0.5	0.5	0.5
Total Hardness	mg/L as $CaCO_3$	12	25	36	29	2.6	27	28	29	33
Dissolved Organic Carbon (DOC)	mg/L	12	6.0	11	8.0	1.5	7.3	7.5	8.4	11
Total Organic Carbon (TOC)	mg/L	12	7.0	13	8.6	1.6	7.6	8.0	8.7	12
Chemical Oxygen Demand (COD)	mg/L	12	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	12	7.6	11	8.6	0.79	8.2	8.3	8.8	10.0
Magnesium (Mg)	mg/L	12	1.5	2.1	1.7	0.16	1.6	1.6	1.8	2.0
Potassium (K)	mg/L	12	0.32	0.45	0.37	0.040	0.34	0.37	0.40	0.44
Sodium (Na)	mg/L	12	3.6	5.3	4.1	0.45	3.8	4.0	4.3	4.9
Chloride (Cl)	mg/L	12	5.5	8.0	6.4	0.83	5.7	6.1	7.2	7.7
Fluoride (F)	mg/L	12	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	12	3.2	5.1	3.8	0.55	3.4	3.5	3.9	4.8
METALS										
Aluminum (Al) (Dissolved)	mg/L	12	0.031	0.044	0.038	0.004	0.035	0.038	0.043	0.044
Antimony (Sb)	mg/L	12	nc	nc	nc	nc	nc	nc	nc	nc
Arsenic (As)	mg/L	12	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	12	0.0030	0.0050	0.0033	0	0.0030	0.0030	0.0033	0.0045
Beryllium (Be)	mg/L	12	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	12	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	12	0.000010	0.000010	0.000010	0	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	12	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	12	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	12	0.00060	0.0020	0.00080	0.00041	0.00060	0.00065	0.00078	0.00146
Iron (Fe)	mg/L	12	0.0050	0.049	0.022	0.016	0.0050	0.020	0.028	0.049
Lead (Pb)	mg/L	12	0.000050	0.050	0.0043	0.014	0.000050	0.000050	0.00043	0.02278
Manganese (Mn)	mg/L	12	0.0010	0.0050	0.0028	0.0017	0.0010	0.0025	0.0043	0.0050
Mercury (Hg)	mg/L	12	0.00000095	0.000020	0.000003	0.000006	0.00000095	0.0000010	0.000002	0.000013
Molybdenum (Mo)	mg/L	12	0.000050	0.0010	0.00084	0.00035	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	12	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	12	0.000050	0.00070	0.00015	0.00020	0.000050	0.000050	0.00009	0.00052
Silver (Ag)	mg/L	12	0.0000050	0.000030	0.000008	0.000008	0.0000050	0.0000050	0.000005	0.000019
Strontium (Sr)	mg/L	12	0.014	0.020	0.016	0.0017	0.016	0.016	0.017	0.019
Thallium (Tl)	mg/L	12	0.0000050	0.00001	0.000005	0	0.0000050	0.0000050	0.00001	0.00001
Titanium (Ti)	mg/L	12	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	12	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	12	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	12	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	12	0.0025	0.0025	0.0025	0	0.0025	0.0025	0.0025	0.0025
Zirconium (Zr)	mg/L	12	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	12	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	12	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	12	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Sulphur (S)	mg/L	12	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	12	0.025	0.18	0.093	0.042	0.080	0.10	0.11	0.15
Nitrite (NO_2^-)	mg/L as N	12	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	12	0.010	0.080	0.028	0.024	0.010	0.010	0.045	0.069
Un-ionized Ammonia (NH_3)	mg/L	12	0.000012	0.00012	0.000042	0.000034	0.000019	0.000029	0.000041	0.00011
Total Kjeldahl Nitrogen	mg/L	12	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	12	0.0060	0.085	0.030	0.031	0.0070	0.0075	0.051	0.081
Phosphate (PO_4)	mg/L as P	12	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	12	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	12	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Mineral)	mg/L	12	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Total)	mg/L	12	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Polychlorinated Biphenyls	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Naphthalene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthylene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Fluorene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Phenanthrene	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Anthracene	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Fluoranthene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Pyrene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benz(a)anthracene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Chrysene	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(b)fluoranthene	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(k)fluoranthene	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(a)pyrene	mg/L	12	0.0000050	0.0000050	0.0000050	0	0.0000050	0.0000050	0.0000050	0.0000050
Indeno(1,2,3-cd)pyrene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Dibenz(a,h)anthracene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benzo(g,h,i)perylene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
2-and 1-methyl Naphthalene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
RADIONUCLIDES										
Radium-226	Bq/L	12	nc	nc	nc	nc	nc	nc	nc	nc
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	12	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	12	1.0	85	30	33	9.3	17	37	75

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	MESO-LS4 - Mesomikenda Lake, Middle (Profile Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	12	6.2	7.7	6.9	0.37	6.9	7.2	7.3	7.6
Temperature	degrees Celsius	12	1.6	21	8.0	6.0	4.3	4.6	12.0	19.0
Conductivity	µS/cm	12	65	89	80	6.7	76	81	86	88
Dissolved Oxygen (DO)	mg/L	12	4.2	12	10	2.3	9.0	11	11	12
ORP	mV	12	7.5	429	160	133	63	124	236	395
GENERAL PARAMETERS										
Lab pH	pH units	12	6.3	7.5	6.7	0.44	6.5	7.1	7.3	7.5
Alkalinity	mg/L as $CaCO_3$	12	18	24	22	1.4	22	22	22	23
Acidity	mg/L as $CaCO_3$	12	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	12	73	85	78	3.6	75	78	81	84
Total Dissolved Solids (TDS)	mg/L	12	42	92	62	14	54	58	68	87
Total Suspended Solids (TSS)	mg/L	12	0.50	0.5	0.5	0	0.5	0.5	0.5	0.5
Total Hardness	mg/L as $CaCO_3$	12	26	32	28	1.7	27	27	29	31
Dissolved Organic Carbon (DOC)	mg/L	12	6.2	9.6	7.8	0.97	7.0	7.9	8.5	9.2
Total Organic Carbon (TOC)	mg/L	12	7.2	11	8.4	1.0	7.6	8.4	8.9	10
Chemical Oxygen Demand (COD)	mg/L	12	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	12	7.9	9.7	8.4	0.52	8.1	8.2	8.6	9.3
Magnesium (Mg)	mg/L	12	1.5	2.0	1.7	0.11	1.6	1.7	1.7	1.9
Potassium (K)	mg/L	12	0.33	0.43	0.38	0.035	0.35	0.38	0.41	0.43
Sodium (Na)	mg/L	12	3.3	4.6	4.0	0.31	3.8	3.9	4.1	4.4
Chloride (Cl)	mg/L	12	5.0	7.4	6.2	0.69	5.7	6.1	6.4	7.3
Fluoride (F)	mg/L	12	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	12	3.1	4.2	3.6	0.35	3.4	3.5	3.9	4.2
METALS										
Aluminum (Al) (Dissolved)	mg/L	12	0.035	0.089	0.044	0.015	0.036	0.038	0.043	0.070
Antimony (Sb)	mg/L	12	nc	nc	nc	nc	nc	nc	nc	nc
Arsenic (As)	mg/L	12	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	12	0.0030	0.0040	0.0033	0.00043	0.0030	0.0030	0.0033	0.0040
Beryllium (Be)	mg/L	12	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	12	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	12	0.000010	0.000010	0.000010	0	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	12	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	12	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	12	0.00050	0.0037	0.00101	0.00091	0.00063	0.00070	0.00080	0.00249
Iron (Fe)	mg/L	12	0.0050	0.070	0.025	0.020	0.0050	0.022	0.040	0.058
Lead (Pb)	mg/L	12	0.000050	0.00050	0.00013	0.00017	0.000050	0.000050	0.000050	0.000500
Manganese (Mn)	mg/L	12	0.0010	0.0040	0.0023	0.0012	0.0010	0.0020	0.0033	0.0040
Mercury (Hg)	mg/L	12	0.00000095	0.000013	0.000003	0.000004	0.00000095	0.00000095	0.000003	0.000009
Molybdenum (Mo)	mg/L	12	0.000050	0.0010	0.00084	0.00035	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	12	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	12	0.000050	0.00020	0.00007	0.00005	0.000050	0.000050	0.000050	0.00013
Silver (Ag)	mg/L	12	0.0000050	0.000010	0.000006	0.000002	0.0000050	0.0000050	0.000005	0.000010
Strontium (Sr)	mg/L	12	0.013	0.021	0.016	0.0020	0.015	0.016	0.017	0.019
Thallium (Tl)	mg/L	12	0.0000050	0.00001	0.000005	0	0.0000050	0.0000050	0.00001	0.00001
Titanium (Ti)	mg/L	12	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	12	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	12	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	12	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	12	0.0025	0.018	0.0038	0.0043	0.0025	0.0025	0.0025	0.0095
Zirconium (Zr)	mg/L	12	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	12	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	12	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	12	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Sulphur (S)	mg/L	12	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	12	0.025	0.13	0.093	0.036	0.083	0.11	0.12	0.13
Nitrite (NO_2^-)	mg/L as N	12	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	12	0.010	0.080	0.020	0.020	0.010	0.010	0.023	0.053
Un-ionized Ammonia (NH_3)	mg/L	12	0.000002	0.00025	0.00006	0.00007	0.00002	0.00003	0.00005	0.00019
Total Kjeldahl Nitrogen	mg/L	12	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	12	0.0030	0.057	0.021	0.021	0.0053	0.0070	0.039	0.053
Phosphate (PO_4)	mg/L as P	12	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	12	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	12	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Mineral)	mg/L	12	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Total)	mg/L	12	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Polychlorinated Biphenyls	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Naphthalene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthylene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Fluorene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Phenanthrene	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Anthracene	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Fluoranthene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Pyrene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benz(a)anthracene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Chrysene	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(b)fluoranthene	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(k)fluoranthene	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(a)pyrene	mg/L	12	0.0000050	0.0000050	0.0000050	0	0.0000050	0.0000050	0.0000050	0.0000050
Indeno(1,2,3-cd)pyrene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Dibenz(a,h)anthracene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benzo(g,h,i)perylene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
2-and 1-methyl Naphthalene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
RADIONUCLIDES										
Radium-226	Bq/L	12	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	12	1.0	2.0	1.5	0.50	1.3	1.5	1.8	2.0
Total Coliforms	CFU/100mL	12	1.0	81	33	30	14	26	45	74

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	MESO-LS2 - Mesonikenda Lake, Upper (Profile Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	12	6.1	7.4	6.8	0.33	6.9	7.1	7.2	7.3
Temperature	degrees Celsius	12	0.31	20	7.9	5.7	4.5	5.0	11	18
Conductivity	µS/cm	12	46	65	56	6.3	50	56	61	64
Dissolved Oxygen (DO)	mg/L	12	6.8	13	10	1.5	9.4	10	11	12
ORP	mV	12	83	212	156	46	111	176	192	212
GENERAL PARAMETERS										
Lab pH	pH units	12	6.3	7.5	6.7	0.42	6.5	6.9	7.2	7.5
Alkalinity	mg/L as $CaCO_3$	12	13	22	19	2.6	17	18	21	21
Acidity	mg/L as $CaCO_3$	12	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	12	47	62	55	4.8	53	55	60	62
Total Dissolved Solids (TDS)	mg/L	12	26	64	44	11	34	45	49	60
Total Suspended Solids (TSS)	mg/L	12	0.50	2.0	0.9	0.6	0.5	0.5	0.9	1.8
Total Hardness	mg/L as $CaCO_3$	12	20	28	24	1.9	24	24	26	27
Dissolved Organic Carbon (DOC)	mg/L	12	7.3	12	9.0	1.5	8.0	8.8	9.3	12
Total Organic Carbon (TOC)	mg/L	12	7.7	15	9.7	2.0	8.6	9.3	9.6	14
Chemical Oxygen Demand (COD)	mg/L	12	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	12	5.8	8.2	7.2	0.57	6.9	7.1	7.6	8.0
Magnesium (Mg)	mg/L	12	1.3	1.8	1.6	0.11	1.6	1.6	1.6	1.7
Potassium (K)	mg/L	12	0.27	0.37	0.33	0.027	0.32	0.34	0.35	0.36
Sodium (Na)	mg/L	12	0.99	1.6	1.3	0.18	1.3	1.4	1.4	1.5
Chloride (Cl)	mg/L	12	0.41	1.6	1.2	0.32	1.1	1.2	1.4	1.5
Fluoride (F)	mg/L	12	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	12	2.7	3.4	3.1	0.21	2.9	3.1	3.2	3.4
METALS										
Aluminum (Al) (Dissolved)	mg/L	12	0.039	0.071	0.051	0.0092	0.043	0.054	0.057	0.064
Antimony (Sb)	mg/L	12	nc	nc	nc	nc	nc	nc	nc	nc
Arsenic (As)	mg/L	12	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	12	0.0030	0.0040	0.0037	0.00047	0.0030	0.0040	0.0040	0.0040
Beryllium (Be)	mg/L	12	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	12	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	12	0.000010	0.000010	0.000010	0	0.000010	0.000010	0.000010	0.000010
Chromium (Cr)	mg/L	12	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	12	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	12	0.00050	0.0013	0.00077	0.00021	0.00070	0.00070	0.0008	0.0012
Iron (Fe)	mg/L	12	0.0050	0.15	0.054	0.041	0.0163	0.060	0.072	0.114
Lead (Pb)	mg/L	12	0.000050	0.00050	0.00013	0.00017	0.000050	0.000050	0.000063	0.000500
Manganese (Mn)	mg/L	12	0.0050	0.012	0.0076	0.0019	0.0068	0.0070	0.0083	0.0109
Mercury (Hg)	mg/L	12	0.00000095	0.000004	0.000002	0.000001	0.00000095	0.00000095	0.0000029	0.0000040
Molybdenum (Mo)	mg/L	12	0.000050	0.0010	0.00084	0.00035	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	12	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	12	0.000050	0.00010	0.000055	0.000015	0.000050	0.000050	0.000050	0.000077
Silver (Ag)	mg/L	12	0.0000050	0.000020	0.000008	0.000005	0.0000050	0.0000050	0.000009	0.000016
Strontium (Sr)	mg/L	12	0.013	0.017	0.015	0.0014	0.014	0.015	0.015	0.017
Thallium (Tl)	mg/L	12	0.0000050	0.00008	0.000014	0.000025	0.0000050	0.0000050	0.00001	0.00005
Titanium (Ti)	mg/L	12	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	12	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	12	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	12	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	12	0.0025	0.0025	0.0025	0	0.0025	0.0025	0.0025	0.0025
Zirconium (Zr)	mg/L	12	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	12	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	12	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	12	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Sulphur (S)	mg/L	12	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	12	0.025	0.12	0.081	0.034	0.066	0.090	0.10	0.12
Nitrite (NO_2^-)	mg/L as N	12	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	12	0.010	0.12	0.038	0.037	0.010	0.010	0.055	0.10
Un-ionized Ammonia (NH_3)	mg/L	12	0.000002	0.000	0.0001	0.0001	0.00002	0.000	0.000	0.000
Total Kjeldahl Nitrogen	mg/L	12	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	12	0.0070	0.066	0.022	0.022	0.0080	0.009	0.026	0.061
Phosphate (PO_4)	mg/L as P	12	nc	nc	nc	nc	nc	nc	nc	nc
Soluble Reactive Phosphorus	mg/L	12	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	12	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Mineral)	mg/L	12	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Oil and Grease (Total)	mg/L	12	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25
Polychlorinated Biphenyls	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Naphthalene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthylene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Acenaphthene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Fluorene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Phenanthrene	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Anthracene	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Fluoranthene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Pyrene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benz(a)anthracene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Chrysene	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(b)fluoranthene	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(k)fluoranthene	mg/L	12	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050	0.000050
Benzo(a)pyrene	mg/L	12	0.0000050	0.0000050	0.0000050	0	0.0000050	0.0000050	0.0000050	0.0000050
Indeno(1,2,3-cd)pyrene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Dibenz(a,h)anthracene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
Benzo(g,h,i)perylene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
2-and 1-methyl Naphthalene	mg/L	12	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010	0.00010
RADIONUCLIDES										
Radium-226	Bq/L	12	nc	nc	nc	nc	nc	nc	nc	nc
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	12	1.0	2.0	1.3	0.47	1.0	1.0	1.5	1.9
Total Coliforms	CFU/100mL	12	10	164	57	63	17	27	67	145

Notes:
nc = Statistic not calculated for that parameter

Parameter	Unit	MESO-OUT - Mesomikenda Lake (Outlet Station)								
		Number of samples	Minimum	Maximum	Average	Standard Deviation	25th percentile	Median	75th percentile	95th percentile
FIELD PARAMETERS										
pH	pH units	19	5.3	8.0	6.4	0.68	6.7	7.1	7.6	7.9
Temperature	degrees Celsius	19	-0.97	22	8.1	7.8	1.0	6.9	16	21
Conductivity	µS/cm	19	29	59	42	10.4	34	38	50	59
Dissolved Oxygen (DO)	mg/L	19	8.4	20	12	2.9	10	12	13	17
ORP	mV	19	nc	nc	nc	nc	nc	nc	nc	nc
GENERAL PARAMETERS										
Lab pH	pH units	19	6.2	7.4	6.7	0.33	6.6	6.8	7.0	7.4
Alkalinity	mg/L as $CaCO_3$	19	12	24	19	3.0	18	20	21	23
Acidity	mg/L as $CaCO_3$	19	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	19	38	64	54	6.2	50	55	58	62
Total Dissolved Solids (TDS)	mg/L	19	10	90	45	16	36	48	52	65
Total Suspended Solids (TSS)	mg/L	19	0.50	4.0	1.0	1.0	0.50	0.50	1.0	3.1
Total Hardness	mg/L as $CaCO_3$	19	17	29	24	2.9	23	24	26	29
Dissolved Organic Carbon (DOC)	mg/L	19	7.6	15	9.6	2.1	8.3	8.7	9.7	14
Total Organic Carbon (TOC)	mg/L	19	7.7	10	9	0.8	8.9	9	10	10
Chemical Oxygen Demand (COD)	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
MAJOR IONS										
Calcium (Ca)	mg/L	19	4.9	8.4	7.1	0.86	6.6	7.0	7.7	8.3
Magnesium (Mg)	mg/L	19	1.2	2.0	1.6	0.20	1.5	1.6	1.7	2.0
Potassium (K)	mg/L	19	0.17	0.42	0.31	0.049	0.30	0.32	0.34	0.38
Sodium (Na)	mg/L	19	0.8	1.7	1.3	0.19	1.2	1.3	1.4	1.5
Chloride (Cl)	mg/L	19	0.35	1.6	1.0	0.35	0.78	1.1	1.3	1.5
Fluoride (F)	mg/L	19	0.025	0.050	0.026	0	0.025	0.025	0.025	0.027
Sulphate (SO_4)	mg/L	19	2.6	4.1	3.1	0.34	2.8	3.1	3.2	3.7
METALS										
Aluminum (Al) (Dissolved)	mg/L	19	0.024	0.100	0.055	0.021	0.041	0.048	0.069	0.092
Antimony (Sb)	mg/L	19	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	19	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	19	0.0010	0.0050	0.0038	0.00083	0.0040	0.0040	0.0040	0.0050
Beryllium (Be)	mg/L	19	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
Boron (B)	mg/L	19	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	19	0.000010	0.000040	0.000012	0.000008	0.000010	0.000010	0.000010	0.000022
Chromium (Cr)	mg/L	19	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	19	0.00025	0.00025	0.00025	0	0.00025	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	19	0.00030	0.0014	0.00068	0.00026	0.00050	0.0007	0.0007	0.0011
Iron (Fe)	mg/L	19	0.0050	0.19	0.069	0.057	0.033	0.048	0.11	0.17
Lead (Pb)	mg/L	19	0.000050	0.00050	0.00022	0.00020	0.000050	0.00010	0.00050	0.00050
Manganese (Mn)	mg/L	19	0.0030	0.011	0.0062	0.0026	0.0040	0.0050	0.0085	0.0110
Mercury (Hg)	mg/L	19	0.00000095	0.000007	0.000002	0.000002	0.00000095	0.0000010	0.000002	0.000006
Molybdenum (Mo)	mg/L	19	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	19	0.0015	0.0015	0.0015	0	0.0015	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	19	0.000050	0.00010	0.000058	0.000018	0.000050	0.000050	0.000050	0.00010
Silver (Ag)	mg/L	19	0.0000050	0.000050	0.000013	0.000018	0.0000050	0.0000050	0.000005	0.000050
Strontium (Sr)	mg/L	19	0.012	0.021	0.015	0.0019	0.014	0.015	0.016	0.018
Thallium (Tl)	mg/L	19	0.0000050	0.00002	0.000007	0.000004	0.0000050	0.000005	0.00001	0.00001
Titanium (Ti)	mg/L	19	0.0010	0.0030	0.0011	0.00045	0.0010	0.0010	0.0010	0.0012
Tungsten (W)	mg/L	19	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Uranium (U)	mg/L	19	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	19	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	19	0.0025	0.012	0.0030	0.0021	0.0025	0.0025	0.0025	0.0034
Zirconium (Zr)	mg/L	19	0.0020	0.0020	0.0020	0	0.0020	0.0020	0.0020	0.0020
OTHER PARAMETERS										
Total Cyanide	mg/L	19	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Free Cyanide	mg/L	19	0.0010	0.0010	0.0010	0	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Sulphur (S)	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	19	0.025	0.080	0.069	0.022	0.080	0.080	0.080	0.080
Nitrite (NO_2^-)	mg/L as N	19	0.025	0.025	0.025	0	0.025	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	19	0.010	0.060	0.021	0.017	0.010	0.010	0.030	0.060
Un-ionized Ammonia (NH_3)	mg/L	19	0.0000008	0.001	0.0002	0.0002	0.000009	0.00002	0.000	0.001
Total Kjeldahl Nitrogen	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Total Phosphorus (P)	mg/L	19	0.0025	0.02	0.010	0.008	0.006	0.008	0.013	0.023
Phosphate (PO_4)	mg/L as P	19	0.0050	0.0050	0.0050	0	0.0050	0.0050	0.0050	0.0050
Soluble Reactive Phosphorus	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Mineral)	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Oil and Grease (Total)	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Polychlorinated Biphenyls	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Naphthalene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthylene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Acenaphthene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Fluorene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Phenanthrene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Anthracene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Fluoranthene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Pyrene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Benz(a)anthracene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Chrysene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(b)fluoranthene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(k)fluoranthene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(a)pyrene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Indeno(1,2,3-cd)pyrene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Dibenz(a,h)anthracene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
Benzo(g,h,i)perylene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
2-and 1-methyl Naphthalene	mg/L	19	nc	nc	nc	nc	nc	nc	nc	nc
RADIONUCLIDES										
Radium-226	Bq/L	19	0.00050	0.00050	0.00050	0	0.00050	0.00050	0.00050	0.00050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	19	nc	nc	nc	nc	nc	nc	nc	nc
Total Coliforms	CFU/100mL	19	nc	nc	nc	nc	nc	nc	nc	nc

Notes:
nc = Statistic not calculated for that parameter

SURFACE WATER QUALITY BASELINE RESULTS
IAMGOLD CÔTÉ GOLD PROJECT
OVERALL STATISTICS

Parameter	Unit	Number of Samples	Min	Max	Average	Median	Std. Dev.	Overall 25th Percentile	Overall 75th Percentile	Overall 95th Percentile
FIELD PARAMETERS										
pH	pH units	773	4.2	8.7	6.8	6.9	0.6	6.5	7.2	7.7
Temperature	degrees Celsius	774	-1.5	26	8.2	5.4	7.5	1.3	14	22
Conductivity	µS/cm	777	10.1	218	44	36	27	28	50	98
Dissolved Oxygen (DO)	mg/L	739	-0.7	117	10	10	5	8	12	15
ORP	mV	224	-163	449	142	146	78	98	191	245
GENERAL PARAMETERS										
pH	pH units	842	5.7	7.9	6.8	6.8	0.45	6.5	7.2	7.6
Alkalinity	mg/L as CaCO3	842	2.5	55	17	15	7.9	12	22	32
Acidity	mg/L as CaCO3	402	2.5	2.5	2.5	2.5	0	2.5	2.5	2.5
Electrical Conductivity (EC)	µS/cm	838	8.0	146	51	46	19	39	57	86.0
Total Dissolved Solids (TDS)	mg/L	842	10	524	52	50	23	42	60	80.0
Total Suspended Solids (TSS)	mg/L	650	0.5	58	1.6	1.0	3.0	0.5	2.0	4.0
Total Hardness	mg/L as CaCO3	832	10	60	23	22	6.9	18	27	36.8
Dissolved Organic Carbon (DOC)	mg/L	841	4.7	173	13	12	6.9	9.3	14	20.9
Total Organic Carbon (TOC)	mg/L	403	4.8	124	13	12	6.9	10	15	21.7
Chemical Oxygen Demand (COD)	mg/L	4	32	39	36	37	2.9	34	39	39.0
MAJOR IONS										
Calcium (Ca)	mg/L	841	2.6	19	7.1	6.7	2.2	5.5	8.2	11.5
Magnesium (Mg)	mg/L	841	0.44	3.1	1.3	1.2	0.39	1.0	1.5	2.1
Potassium (K)	mg/L	840	0.03	0.98	0.32	0.30	0.12	0.25	0.36	0.5
Sodium (Na)	mg/L	841	0.50	9.9	1.1	0.8	1.2	0.7	1.0	2.6
Chloride (Cl)	mg/L	842	0.05	17	1.0	0.4	2.2	0.3	0.5	4.9
Fluoride (F)	mg/L	744	0.025	0.125	0.025	0.025	0.0048	0.025	0.025	0.025
Sulphate (SO_4)	mg/L	842	0.16	13.8	2.8	2.8	0.90	2.3	3.1	4.1
METALS										
Aluminum (Al)	mg/L	841	0.002	0.26	0.060	0.050	0.043	0.025	0.086	0.15
Antimony (Sb)	mg/L	247	0.0005	0.0030	0.0005	0.0005	0.0002	0.0005	0.0005	0.0005
Arsenic (As)	mg/L	842	0.0015	0.0015	0.0015	0.0015	0.0000	0.0015	0.0015	0.0015
Barium (Ba)	mg/L	842	0.0010	0.23	0.0051	0.0050	0.0079	0.0040	0.0050	0.0080
Beryllium (Be)	mg/L	842	0.00050	0.00050	0.00050	0.00050	0.00000	0.00050	0.00050	0.00050
Boron (B)	mg/L	841	0.0050	0.0050	0.0050	0.0050	0.0000	0.0050	0.0050	0.0050
Cadmium (Cd)	mg/L	545	0.000010	0.00030	0.000013	0.000010	0.000016	0.000010	0.000010	0.000030
Chromium (Cr)	mg/L	842	0.0015	0.0030	0.0015	0.0015	0.000052	0.0015	0.0015	0.0015
Cobalt (Co)	mg/L	842	0.00025	0.0022	0.00027	0.00025	0.00013	0.00025	0.00025	0.00025
Copper (Cu)	mg/L	568	0.00005	0.0080	0.0010	0.00070	0.00095	0.00060	0.0010	0.0031
Iron (Fe)	mg/L	842	0.0050	6.5	0.21	0.13	0.46	0.049	0.22	0.52
Lead (Pb)	mg/L	839	0.000050	0.050	0.00033	0.00020	0.0017	0.000050	0.00050	0.00050
Manganese (Mn)	mg/L	841	0.0010	3.76	0.057	0.019	0.24	0.011	0.033	0.13
Mercury (Hg)	mg/L	536	0.0000010	0.0070	0.000018	0.0000010	0.00030	0.0000010	0.0000040	0.000011
Molybdenum (Mo)	mg/L	842	0.0001	0.0010	0.0010	0.0010	0.0001	0.0010	0.0010	0.0010
Nickel (Ni)	mg/L	842	0.0015	0.0170	0.0015	0.0015	0.0006	0.0015	0.0015	0.0015
Selenium (Se)	mg/L	538	0.000050	0.0034	0.00015	0.000050	0.00032	0.000050	0.00010	0.00040
Silver (Ag)	mg/L	549	0.0000050	0.00020	0.0000082	0.0000050	0.000013	0.0000050	0.0000050	0.000020
Strontium (Sr)	mg/L	842	0.0060	0.043	0.016	0.015	0.0044	0.012	0.018	0.024
Thallium (Tl)	mg/L	534	0.000005	0.00015	0.000012	0.0000050	0.000026	0.0000050	0.0000050	0.000033
Titanium (Ti)	mg/L	842	0.0010	0.0080	0.0011	0.0010	0.0005	0.0010	0.0010	0.0010
Tungsten (W)	mg/L	842	0.0050	0.0050	0.0050	0.0050	0.0000	0.0050	0.0050	0.0050
Uranium (U)	mg/L	842	0.0010	0.0010	0.0010	0.0010	0.0000	0.0010	0.0010	0.0010
Vanadium (V)	mg/L	842	0.0010	0.0030	0.0010	0.0010	0.0001	0.0010	0.0010	0.0010
Zinc (Zn)	mg/L	825	0.0025	0.169	0.0057	0.0025	0.012	0.0025	0.0025	0.021
Zirconium (Zr)	mg/L	842	0.0020	0.0020	0.0020	0.0020	0.0000	0.0020	0.0020	0.0020
Mercury (Hg) (Dissolved)	mg/L	336	0.0000013	0.00091	0.0000051	0.0000013	0.000050	0.0000013	0.0000013	0.0000065
OTHER PARAMETERS										
Total Cyanide	mg/L	837	0.0010	0.0210	0.0010	0.0010	0.0007	0.0010	0.0010	0.0010
Free Cyanide	mg/L	399	0.0010	0.0210	0.0011	0.0010	0.0010	0.0010	0.0010	0.0010
Phenols	mg/L	31	0.00050	0.0010	0.0006	0.0005	0.0002	0.0005	0.0005	0.0010
Sulphur (S)	mg/L	6	0.0010	1.1	0.53	0.51	0.52	0.0010	1.0	1.1
NUTRIENTS										
Nitrate (NO_3^-)	mg/L as N	424	0.025	0.44	0.061	0.025	0.056	0.025	0.090	0.170
Nitrite (NO_2^-)	mg/L as N	422	0.025	0.125	0.025	0.025	0.005	0.025	0.025	0.025
Total Ammonia (NH_3 + NH_4)	mg/L as N	840	0.010	2.2	0.046	0.010	0.11	0.010	0.040	0.151
Total Kjeldahl Nitrogen	mg/L	4	0.52	1.3	0.82	0.76	0.30	0.56	1.0	1.2
Total Phosphorus (TP)	mg/L	410	0.0025	0.093	0.015	0.012	0.013	0.0080	0.017	0.040
Phosphate (PO_4)	mg/L as P	35	0.0050	0.050	0.045	0.050	0.014	0.050	0.050	0.050
Soluble Reactive Phosphorus	mg/L	4	0.010	0.010	0.010	0.010	0.000	0.010	0.010	0.010
ORGANICS										
Oil and Grease (Animal/Vegetable)	mg/L	39	0.25	3.5	0.37	0.25	0.53	0.25	0.25	0.65
Oil and Grease (Mineral)	mg/L	39	0.25	0.90	0.27	0.25	0.10	0.25	0.25	0.25
Oil and Grease (Total)	mg/L	39	0.25	4.4	0.40	0.25	0.68	0.25	0.25	0.68
Polychlorinated Biphenyls	mg/L	34	0.000050	0.000050	0.000050	0.000050	0	0.00005	0.00005	0.000050
Naphthalene	mg/L	32	0.00010	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010
Acenaphthylene	mg/L	31	0.00010	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010
Acenaphthene	mg/L	32	0.00010	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010
Fluorene	mg/L	32	0.00010	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010
Phenanthrene	mg/L	32	0.00005	0.00005	0.00005	0.00005	0	0.00005	0.00005	0.000050
Anthracene	mg/L	32	0.00005	0.00005	0.00005	0.00005	0	0.00005	0.00005	0.000050
Fluoranthene	mg/L	32	0.00010	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010
Pyrene	mg/L	32	0.00010	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010
Benz(a)anthracene	mg/L	32	0.00010	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010
Chrysene	mg/L	32	0.000050	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050
Benzo(b)fluoranthene	mg/L	32	0.000050	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050
Benzo(k)fluoranthene	mg/L	32	0.000050	0.000050	0.000050	0.000050	0	0.000050	0.000050	0.000050
Benzo(a)pyrene	mg/L	32	0.0000050	0.0000050	0.0000050	0.0000050	0	0.0000050	0.0000050	0.0000050
Indeno(1,2,3-cd)pyrene	mg/L	32	0.00010	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010
Dibenz(a,h)anthracene	mg/L	32	0.00010	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010
Benzo(g,h,i)perylene	mg/L	32	0.00010	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010
2-and 1-methyl Naphthalene	mg/L	32	0.00010	0.00010	0.00010	0.00010	0	0.00010	0.00010	0.00010
RADIONUCLIDES										
Radium-226	Bq/L	163	0.00050	0.0050	0.00072	0.00050	0.00097	0.00050	0.00050	0.00050
MICROBIOLOGICAL										
Escherichia coli	CFU/100mL	21	1.0	24	4.2	2.0	6.3	1.0	4.0	22
Total Coliforms	CFU/100mL	33	1.0	384	88	34	104	21	126	345