

**Status and Trends of Water
Chemistry and Flow in the
Coppermine and Lockhart
River Basins
Final Report**



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BASINS
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Executive Summary

The Coppermine and Lockhart river watersheds have been identified as some of the most important and pristine river systems in the Canadian Central Arctic. Development pressures within the two watersheds currently include diamond mining and ongoing base metal exploration, as well as winter road development, and recreational use. Potential cumulative effects of these developments require ongoing monitoring and assessment of each watershed's water chemistry and water quantity, and this is currently completed by Environment Canada (EC) and the Government of the Northwest Territories (GNWT). Stantec Consulting Ltd. was retained by the GNWT to review the existing EC and GNWT data record for the Coppermine and Lockhart watershed, and undertake an evaluation of the status and trends of water chemistry and hydrology (flow). The key objectives were to assess spatial variability, describe seasonality, and evaluate temporal trends in flow and various water chemistry analytes.

The Coppermine River watershed occupies an area of 50,800 km² and straddles the treeline and the Slave Geological Province (SGP), with igneous granitic rock, and the Bear Geological Province (BGP), with sedimentary rock. The headwaters of the system are at Lac du Sauvage, NT, after which the river flows in a general northward direction, through a series of lakes and river canyons, and empties into the Coronation Gulf of the Arctic Ocean (see Figure 1-1 in Section 1.2). Hydrology data were reviewed for six sites in the Coppermine watershed, while water chemistry data were reviewed for seven sites: the Lac de Gras outlet, Desteffany Lake, Daring Lake, the Point Lake outlet, and Rocknest Lake in the southern watershed, and the Coppermine River above Copper Creek site, and the Coppermine River mouth site in the northern watershed. Conversely, the Lockhart River watershed occupies an area approximately 26,600 km² and the headwaters are near Starfish Lake, NT, from which it flows in a general southeast direction to the east arm of Great Slave Lake (see Figure 1-1 in Section 1.2). Water chemistry data were reviewed for four lakes throughout the watershed: King Lake, Lake of the Enemy, MacKay Lake, and the Lockhart River below Artillery Lake (Lockhart outflow). Hydrometric data were only available for the Lockhart outflow.

Within the Coppermine watershed, flow can be marked by seasonality, and yearly fluctuation, depending on location in the watershed. In the southern Coppermine watershed, the presence of wetlands and lake storage means spring freshet (usually in May) is typically a gradual-increase event, and peak flows consistently occur in July and/or September, after which flows generally decline through late summer and/or early fall until winter baseflow (usually November to April). In the northern Coppermine watershed, a 57-fold increase in flow occurs during the spring freshet, while the summer recession period typically occurs between July and October and is characterized by a gradual reduction in flows to winter baseflow. Marginally significant increasing temporal trends in flow suggest a potential alteration in seasonal timing of the hydrological cycle within the Coppermine watershed, depending on hydrometric site. However, there has been no significant alteration in the annual maximum or minimum daily flow in the

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Coppermine watershed, indicating that the frequency and occurrence of extreme events have not increased over time.

Differences in water chemistry were observed between the southern and northern portions of the Coppermine watershed. In the southern Coppermine watershed, water chemistry was relatively similar across sites. Water chemistry began to change in Rocknest Lake, and into the northern Coppermine watershed, with many analytes higher in concentration, compared to the southern watershed. This was attributed to the change in geological conditions between the southern and northern watersheds at Rocknest Lake (from the SGP with igneous granitic rock to the BGP with sedimentary rock and higher amounts of weathering), and a change in vegetation conditions (from tundra to boreal forest). In general, waters in the southern Coppermine watershed are considered circumneutral and very soft with low levels of conductivity, TDS, turbidity, acid-buffering capacity, and metals. Waters in the northern Coppermine watershed are considered alkaline and soft with overall low levels of conductivity, TDS, and metals, and moderate to high acid-buffering capacity. Nutrients, as total phosphorus (TP) and total nitrogen (TN), were low throughout the southern Coppermine watershed, and waters were considered oligotrophic. Nutrient levels were higher in the northern Coppermine watershed and waters were considered mesotrophic. Seasonal variability was more pronounced for most water chemistry parameters throughout the northern Coppermine watershed, compared to the southern Coppermine watershed with minor seasonal variations.

In the southern Coppermine watershed, highly or moderately significant increasing temporal trends in pH, conductivity, total hardness, dissolved calcium, dissolved magnesium, chloride, and total molybdenum and strontium were identified at the Lac de Gras outlet, as well as downstream Desteffany Lake, and to a lesser extent Point Lake. No highly or moderately significant increasing temporal trends were identified at Daring Lake or Rocknest Lake. This indicates there has been an increase in these analyte concentrations over time, and this may be related to an increase in chemical weathering and/or groundwater inflow, or related to anthropogenic influences upstream in Lac de Gras. The present trend results correspond with a study on the potential cumulative effects, and spatial and temporal trends in Lac de Gras, which identified significant increasing trends in pH, conductivity, total hardness, chloride, and total strontium throughout the lake (Stantec unpub.). In the northern Coppermine watershed, moderately significant decreasing trends were identified for dissolved chloride, TP, and total copper during spring freshet at the Coppermine River above Copper Creek site. No highly or moderately significant trends were identified for the Coppermine River mouth site.

Within the Lockhart watershed at the single hydrometric station (Lockhart outflow), flow is marked by seasonality, and yearly fluctuation. Winter baseflow typically occurs between November and April and flow rates generally reach yearly lows sometime in May. Spring freshet is usually a gradual-increase event due to lake storage effects from upstream Artillery Lake. Maximum monthly flow rates consistently occur in August and September, after which flows generally decline in early fall until baseflow. No significant temporal trends were identified for flow at the Lockhart outflow. This indicates that the total volume of water flowing within the Lockhart River watershed has not changed over the 50 year data record, despite considerable

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yearly variability. This is likely due to the influence of various lakes on the hydrological cycle within the watershed.

Water chemistry in the Lockhart watershed was relatively similar across all sites reviewed and minimal spatial or seasonal variation was observed. Overall, waters of the Lockhart watershed are considered circumneutral and soft with low conductivity, TDS, turbidity, acid-buffering capacity, and metals. Nutrients, as TP and TN, were also low and waters were considered oligotrophic. Significant increasing temporal trends were identified for pH, conductivity, TDS, total hardness, calcium, total alkalinity, sulphate, and total strontium in the Lockhart watershed, though these occurred primarily at the Lockhart outflow. This indicates there has been an increase in these analyte concentrations over time, and this may be related to an increase in chemical weathering and/or groundwater inflow, or related to anthropogenic influences from upstream of King Lake. The trends were not consistent across the watershed however and may be due to differences in the period of record between the Lockhart outflow (monitored since 1969) and the other sites (monitored since 2006).

The design of each monitoring program was reviewed to assess adequacy of the programs for detecting potential spatial and temporal changes in hydrology and water chemistry. Several recommendations were made to improve the overall hydrology and water-chemistry monitoring programs for each watershed, and facilitate future monitoring for cumulative effects.

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Abbreviations

<	less than
>	greater than
%	percent
µS/cm	microSiemens per centimetre
m ³ /s	cubic metres per second
mg/L	milligrams per litre
AANDC	Aboriginal Affairs and Northern Development Canada
BTEX	Benzene, toluene, ethylbenzene, and xylene
DL	Detection limit
DOC	Dissolved organic carbon
EC	Environment Canada
FDC	Flow duration curve
GNWT	Government of the Northwest Territories
IQR	Inter-quartile range
NTU	Nephelometric turbidity units
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyls
Stantec	Stantec Consulting Ltd.
TDS	Total dissolved solids
TKN	Total Kjeldahl nitrogen
TN	Total nitrogen
TP	Total phosphorus

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1.0 INTRODUCTION

Stantec Consulting Ltd. (Stantec) was retained by the Government of the Northwest Territories (GNWT) to undertake an evaluation of the status and trends of water chemistry and flow in the Coppermine and Lockhart Rivers' watersheds. Stantec was retained through a Request for Proposal (No. SC445172), under the Supply Services Arrangement SA100002, issued by the GNWT.

This report outlines the results of the analyses conducted by Stantec to assess the status and trends of water chemistry and hydrology in the Coppermine and Lockhart watersheds. To complete this, Stantec examined the existing hydrology data record from six monitoring sites, and the existing water-chemistry data record from 18 monitoring sites, to assess spatial variability, describe seasonality, and evaluate temporal trends in flow and various water chemistry analytes.

1.1 BACKGROUND

The Coppermine and Lockhart river watersheds have been identified as some of the most important and pristine river systems in the Canadian Central Arctic. Development pressures within the two watersheds currently include diamond mining and ongoing base metal exploration, as well as winter road development, and recreational use. Potential cumulative effects of these developments require ongoing monitoring and assessment of the watershed's water chemistry and water quantity. Both Environment Canada (EC) and the Water Resources Division of the Department of Environment and Natural Resources, GNWT, has been collecting water chemistry and quantity (flow) data within these two watersheds since as early as 1944. Monitoring since 2000 has been more consistent however, compared to previous monitoring efforts. Prior to devolution on April 1, 2014, Aboriginal Affairs and Northern Development Canada (AANDC) was responsible for monitoring sites that are currently monitored by the GNWT. In this report, these sites are referred to as GNWT sites.

The evaluation of the status and trends of water chemistry and flow in the two watersheds will form an understanding of the potential cumulative effects of the current and future development pressures on these two watersheds. The results of the evaluation will be used by the GNWT and EC to:

- Learn more about the water quality of these basins;
- Understand if water quality and quantity are changing seasonally, temporally, and/or spatially;
- Support cumulative impact assessment of water quality and quantity in the North Slave region of the Northwest Territories;
- Determine if monitoring locations, sampling frequency, and parameters are adequate to detect natural or development-induced changes in the aquatic environment;



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- Help to address downstream community concerns; and,
- Support the development of water quality objectives for trans-boundary agreements.

1.1.1 Study Objectives

Specifically, the objectives of this study are to:

1. Assess the current status and trends of hydrology in the Coppermine and Lockhart river watersheds by assessing flow data for seasonal differences and temporal trends.
2. Assess current status of water chemistry in the Coppermine and Lockhart river watersheds, using available EC and GNWT data, by evaluating any spatial differences throughout the two watersheds, assessing seasonal differences in water chemistry, evaluating temporal trends, and comparing data to relevant guidelines (i.e. Canadian Council of Ministers of the Environment (CCME) Guidelines for Freshwater Aquatic Life (FAL), and the Health Canada Guidelines for Canadian Drinking Water Quality (GCDWQ)).
3. Assess the historic and existing monitoring programs in the Coppermine and Lockhart river watersheds to evaluate adequacy of the programs for detecting potential spatial and temporal changes in water chemistry.

The above objectives were addressed by developing an understanding of the water chemistry and hydrology datasets for the two watersheds using EC and GNWT datasets, and conducting the appropriate statistical analyses on the data to examine potential spatial and seasonal variability, and temporal trends. Water quality was also assessed. Through this, an understanding of the scope of the two monitoring programs was developed. To complete the above tasks, the following steps were completed:

1. Review the existing hydrology datasets and determine seasonal flow periods.
2. Review the existing water chemistry datasets from the GNWT and EC and conduct a data quality assessment.
3. Calculate basic summary statistics for all analytes at each sample site to assess spatial and seasonal variability.
4. Conduct an appropriate trends test to provide a statistical understanding of whether hydrology and water chemistry within the two watersheds have changed temporally over the period of record.
5. Examine adequacy of the two monitoring programs for assessing current conditions and monitoring potential change.

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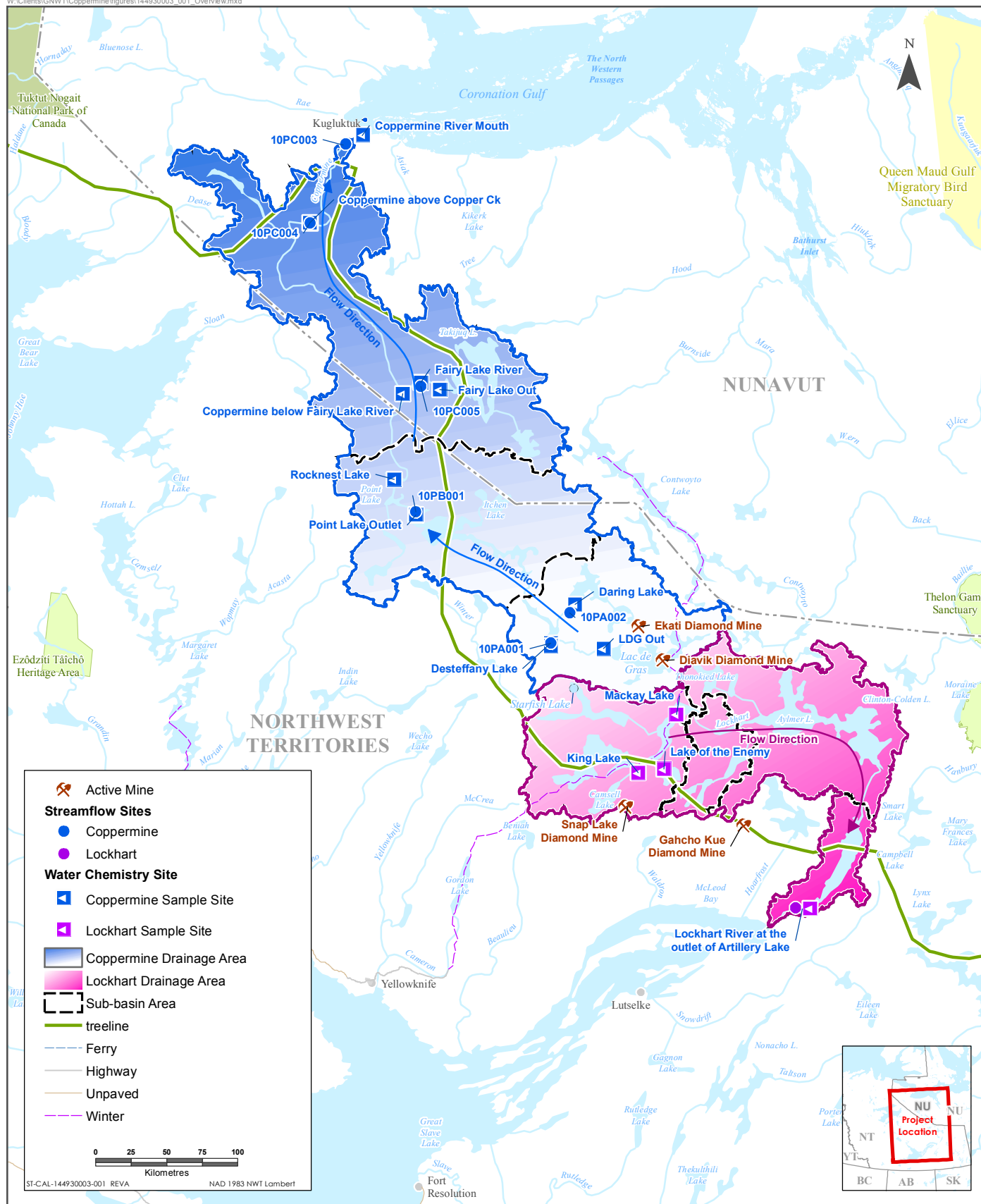
1.2 STUDY AREA

1.2.1 Coppermine River Watershed

The drainage basin of the Coppermine River watershed occupies an area of 50,800 km² (Wedel et al. 1988) and is depicted in Figure 1-1. The headwaters of the Coppermine River are at Lac du Sauvage, NT, which flows into Lac de Gras. Following the outlet from Lac de Gras, the Coppermine River flows in a general northward direction through Desteffany Lake, Lake Providence, Point Lake, Redrock Lake, and Rocknest Lake, and continues through river canyons to the Coronation Gulf of the Arctic Ocean, near the community of Kugluktuk, NU. The community Kugluktuk also obtains their drinking water from the Coppermine River.

Two active diamond mines, the Ekati Diamond Mine and the Diavik Diamond, are situated on, or near the shores of, Lac de Gras (see Figure 1-1), and effluent from both of the mines is discharged into Lac de Gras, either directly (Diavik) or indirectly through a series of lakes (Ekati) (Stantec unpub.). The Ekati and Diavik diamond mines have been in operation since 1998 and 2003, respectively. Other development pressures in the Coppermine watershed include the expansion of the Ekati operation through their Jay Project, which includes construction and mining of an open pit mine under Lac du Sauvage, as well as several exploration projects for diamonds and base metals (NWT/NU CM 2012).

The Coppermine watershed is largely divided into two physiographic regions, inclusive of the Slave Geological Province (SGP) and the Bear Geological Province (BGP) (Figure 1-2) (Wedel et al. 1988). The Coppermine watershed also crosses a third region, the Arctic Platform, in a small northern corner of the basin. The division between the SGP and BGP regions roughly falls at Rocknest Lake and divides the lake country, in the southern and central portions of the watershed, from the river country with few lakes in the northern portion of the watershed (Wedel et al. 1988, MacDonald et al. 1999). Differences in geology between the SGP, BGP and the Arctic Platform naturally affect the chemical and physical properties of the water, particularly pH, conductivity, alkalinity, and sediment loadings (turbidity) (Wedel et al. 1988, GeoNorth 1997). This is due to the predominance of igneous granitic rock in the SGP, which is more resistant to weathering (erosion) than the sedimentary rock of the BGP (Wedel et al. 1988, GeoNorth 1997) and the Arctic Platform (GSC 1991). The abundance of lakes in the southern and central portion of the watershed also regulates streamflow by storing large volumes of water (MacDonald et al. 1999), in contrast to the northern river portion of the watershed with more variable hydrological conditions (MacDonald et al. 1999).



Sources: Base Data - ESRI, Natural Earth, Thematic Data - ERBC

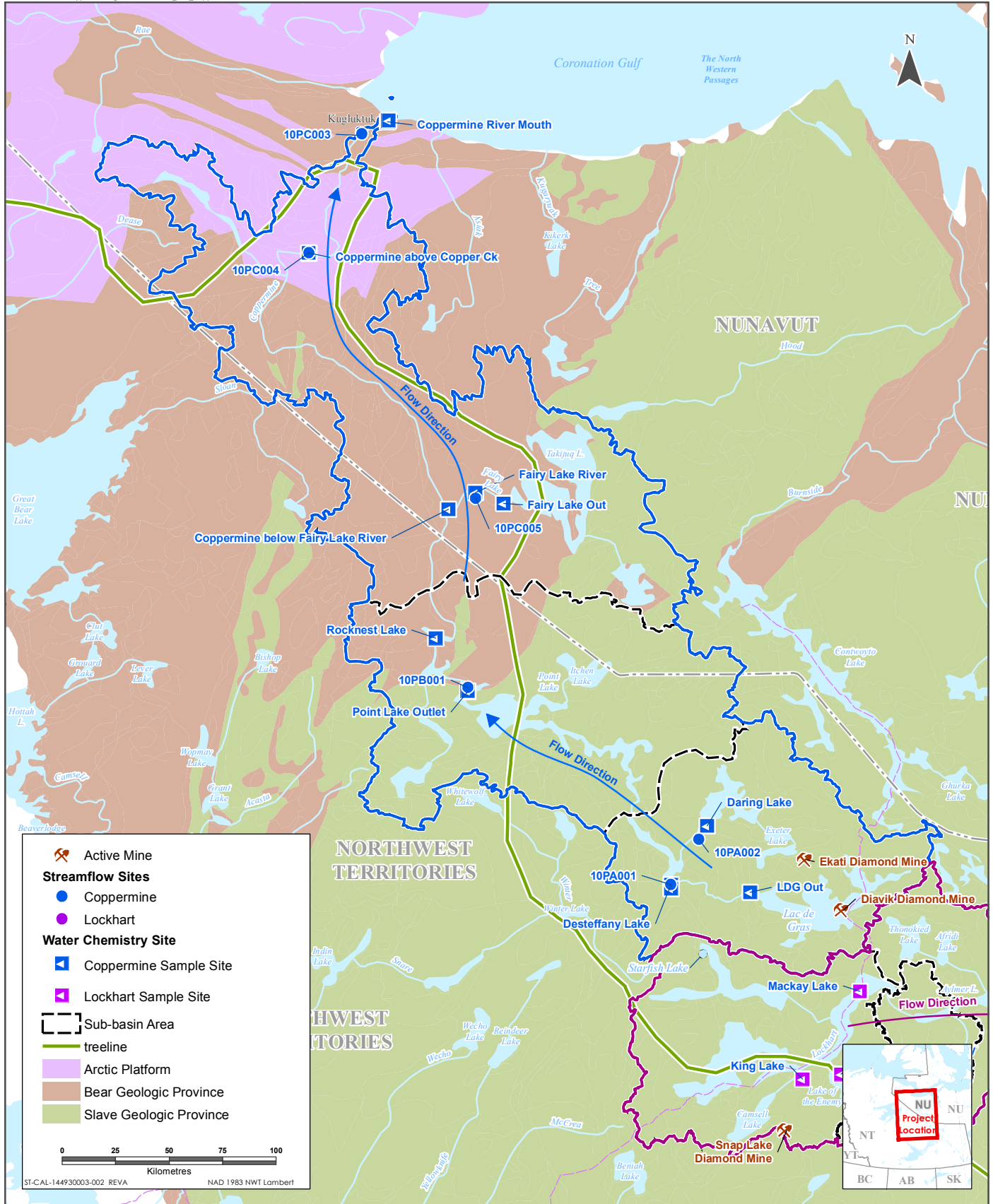
Disclaimer: This map is for illustrative purposes to support this Stantec project; questions can be directed to the issuing agency.

Overview of the Coppermine and Lockhart River Watersheds



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Figure 1-1



Sources: Base Data - ESRI, Natural Earth; Thematic Data - ERBC

Disclaimer: This map is for illustrative purposes to support this Stantec project; questions can be directed to the issuing agency.

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The majority of the Coppermine watershed is also situated within the zone of continuous permafrost though a portion of the basin, in the southwest, lies within the zone of discontinuous permafrost (GeoNorth 1997). The presence of permafrost can influence water chemistry through the addition of solutes during annual active-layer thaw. The degradation of permafrost further affects water chemistry by exposing undeveloped mineral soils to infiltration and transport of additional solutes via run-off to nearby waterbodies (Thompson 2003).

Finally, the treeline bisects the Coppermine watershed in a general southeast direction with the eastern portion of the watershed dominated by tundra vegetation and the western portion by boreal forest (MacDonald et al. 1999). The presence or absence of trees is known to affect runoff and other hydrologic features of watersheds at similar latitudes (Wedel et al. 1988). Catchment vegetation and the presence or absence of trees also affects water chemistry as lakes within the treeline have been shown to be warmer and have higher concentrations of major ions, nutrients and dissolved organic carbon (DOC) than lakes on the tundra (Pienitz et al. 1997, Duff et al. 1999)

1.2.2 Lockhart River Watershed

The Lockhart River watershed occupies an area approximately 26,600 km² (Blais 2004) and its headwaters are near Starfish Lake, NT (see Figure 1-1). From Starfish Lake, the Lockhart River flows in a general southeast direction through Courageous Lake, Snake Lake, MacKay Lake, Aylmer Lake, Clinton-Colden Lake, and Artillery Lake, and empties into the east arm of Great Slave Lake.

One active diamond mine, the Snap Lake Diamond Mine, is situated within the Lockhart watershed, and is located approximately 25 km south (upstream) of King Lake (Golder 2011), which flows into MacKay Lake (see Figure 1-1). The Snap Lake Diamond Mine has been in operation since 2008. Other development pressures in the Lockhart watershed include one additional diamond mine, Gahcho Kue, that is currently under construction (see Figure 1-1), and a few advanced exploration projects, including Courageous Lake (operated by Seabridge Gold) and Kennady North (operated by Kennady Diamonds) (NWT/NU CM 2012). Two past producing gold mines, Salmita and Tundra Mines, are also situated near the north shore of MacKay Lake in the Lockhart watershed. Remediation of the Salmita Mine was completed by Royal Oak Mines in the late 1980s (AANDC 2011) while remedial work at the Tundra Mine was largely completed by AANDC in 2014 (AANDC 2014).

In contrast to the Coppermine River watershed, the Lockhart River watershed is contained entirely within the SGP (Figure 1-3) and is dominated by igneous granitic rock which tends to be stable and resistant to weathering (GeoNorth 1997, MacDonald et al. 1999). The treeline also bisects the Lockhart watershed (Figure 1-3) and the watershed straddles the zone of continuous and discontinuous permafrost. The southern portion of the watershed is generally contained

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within the boreal forest and discontinuous zone of permafrost while the northern portion of the watershed characterized by tundra with continuous permafrost.

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2.0 METHODS

2.1 HYDROLOGY AND WATER CHEMISTRY SITES

Data were compiled for a total of 17 EC and GNWT monitoring sites within the Coppermine and Lockhart watersheds. Other existing data sets for the watersheds, such as aquatic effect monitoring programs from active mine sites, were not reviewed as this was outside the scope of the project. Of the 11 sites within the Coppermine River watershed, four sites had both hydrology and water chemistry data, while the remaining seven sites had water chemistry data only. Within the Lockhart River watershed, only one site had concurrent hydrology and water chemistry data, while three sites had water chemistry only (Table 2-1).

Table 2-1: EC and GNWT hydrometric and water chemistry monitoring sites within the Coppermine and Lockhart River Watersheds

Site Name	Site Operator ¹	Type	Station ID ²	Latitude (North)	Longitude (West)	Period of Record
Coppermine Watershed						
Southern Portion						
Lac de Gras Outlet	GNWT	Chemistry	–	64° 34' 49"	111° 10' 58"	2000 – 2014
Desteffany Lake Outlet	WSC	Hydrology	10PA001	64° 36' 57"	111° 57' 17"	1994 – 2013
	EC GNWT	Chemistry	–	64° 36' 56"	111° 57' 16"	1995 – 1996 1998 – 2014
Daring Lake	GNWT	Chemistry	–	64° 51' 43"	111° 35' 49"	2003 – 2014
Yamba River below Daring Lake (tributary)	WSC	Hydrology	10PA002	64° 48' 24"	111° 40' 41"	2000 – 2013
Point Lake Outlet	EC GNWT	Chemistry	–	65° 24' 52"	114° 0' 27"	1972 – 1998 2001 – 2014
	WSC	Hydrology	10PB001	65° 24' 57"	114° 0' 28"	1965 – 2011
Rocknest Lake	GNWT	Chemistry		65° 38' 6"	114° 21' 9"	2006 – 2014
Fairy Lake Outlet (tributary)	GNWT	Chemistry	–	66° 12' 37"	113° 41' 46"	2006 – 2009
Fairy Lake River (tributary)	GNWT	Chemistry	–	66° 15' 13"	113° 59' 29"	2001 – 2006
	GNWT	Hydrology	10PC005	66° 13' 42"	113° 59' 29"	1993 – 2013
Coppermine River below Fairy Lake River	GNWT	Chemistry	–	66° 10' 46"	114° 16' 18"	2001 – 2006

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Table 2-1: EC and GNWT hydrometric and water chemistry monitoring sites within the Coppermine and Lockhart River Watersheds

Site Name	Site Operator ¹	Type	Station ID ²	Latitude (North)	Longitude (West)	Period of Record
Northern Portion						
Coppermine River above Copper Creek	EC	Chemistry	–	67° 13' 44"	115° 53' 17"	2000 - 2014
	WSC	Hydrology	10PC004			Need dates 1987 - 2013
Coppermine River below Copper Creek	GNWT	Chemistry	–	67° 13' 39"	115° 53' 3"	2001 – 2003
Coppermine River above Bloody Falls	WSC	Hydrology	10PC003	67° 44' 25"	115° 22' 43"	1983 – 1986
Coppermine River Mouth	EC GNWT	Chemistry	–	67° 47' 52"	115° 6' 23"	1960 1967 – 1973 1975 – 1976 1992 – 1996 2001 – 2003
Lockhart Watershed						
King Lake	GNWT	Chemistry	–	63° 47' 30"	110° 42' 24"	2006 – 2014
Lake of the Enemy	GNWT	Chemistry	–	63° 48' 32"	110° 20' 20"	2006 – 2014
MacKay Lake	GNWT	Chemistry	–	64° 9' 13"	110° 8' 6"	2006 – 2014
Lockhart River at the outlet of Artillery Lake	EC	Chemistry	–	62° 53' 20"	108° 28' 19"	1969 – 1981 1983 – 1996 1998 – 2014
	WSC	Hydrology	07RD001	62° 53' 39"	108° 27' 58"	1944 – 2013
NOTES:						
1. Site operator includes Environment Canada (EC), the Government of the Northwest Territories (GNWT) and the Water Survey of Canada (WSC); prior to devolution (April 1, 2014), AANDC was responsible for carrying out monitoring for the current GNWT program – these sites are referred to as GNWT sites in this report.						
2. Station ID refers to the WSC identifier						

2.2 HYDROLOGY

2.2.1 Monitoring Stations - Period of Record

Hydrometric data for seven monitoring sites within the Coppermine and Lockhart watersheds were obtained from the Water Survey of Canada (WSC). These are outlined in Table 2-1.



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The hydrometric records for all stations are not complete, with one to 21 years of streamflow data missing over the six station records used (Table 2-3). These missing data compromise the determination of temporal trends, particularly in years where many months of data were missing. As the Coppermine River above Bloody Falls station (10PC003; see Table 2-1) only has streamflow records for three years, it was omitted from the trends analysis. The five remaining hydrometric stations have a wide range of periods of record, from 13 years at the Yamba River below Daring Lake station (2000 to 2013) in the Coppermine watershed, to 56 years at the Lockhart Outflow at Artillery Lake site (1944 to 2013, with no data from 1950 - 1962; Table 2-3) in the Lockhart watershed. For each station, the entire useable period of record was used for trends analysis.

Table 2-2: Number of days of missed hydrometric data for sites within the Coppermine and Lockhart watersheds

Year	Station Name					
	Fairy Lake River Near Outlet of Napaktukik Lake	Coppermine River above Copper Creek	Coppermine River at Outlet of Point Lake	Yamba River below Daring Lake	Coppermine River below Desteffany Lake	Lockhart Outflow at Artillery Lake
Data Span	1993-2013	1987-2013	1965-2011	2000-2013	1994-2013	1944-2013
1944						304
1945						212
1949						92
1950						no data
1951						no data
1952						no data
1953						no data
1954						no data
1955						no data
1956						no data
1957						no data
1958						no data
1959						no data
1960						no data
1961						no data
1962						364
1963						111
1965	192	81				
1966	83	177				



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Table 2-2: Number of days of missed hydrometric data for sites within the Coppermine and Lockhart watersheds

Year	Station Name					
	Fairy Lake River Near Outlet of Napaktukik Lake	Coppermine River above Copper Creek	Coppermine River at Outlet of Point Lake	Yamba River below Daring Lake	Coppermine River below Desteffany Lake	Lockhart Outflow at Artillery Lake
Data Span	1993-2013	1987-2013	1965-2011	2000-2013	1994-2013	1944-2013
1967			55			54
1972			94			
1982						52
1983						
1993	163					
1994					201	
1995					92	
1996					60	
1997	30	45			152	
1998	61	31				
1999	120	158			39	
2000				186		
2002		44				
2005	38					
2006	77	114		93		
2007		37				
2008		10				
2009		9				
2010			5			
2011		9			83	
2012		8			126	
2013		5			232	
	Outside of Period of Record					

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2.2.2 Trends Analysis

Trends in streamflow were assessed for both the entire period of record and the last decade (2003 – 2013). Trends analyses were undertaken using linear regression (graphical trend analysis) and a Mann-Kendall test. Tests for significance (calculation of p-values) were undertaken using the Mann-Kendall test. Trends analysis was completed for the following hydrometric parameters:

- Mean annual streamflow
- Median annual streamflow
- Annual maximum daily flow: the maximum daily flow rate in each year
- Annual minimum daily flow: the minimum daily flow rate in each year
- Seasonal median streamflow
- Median monthly streamflow to assess in depth any temporal changes in seasonality

Normality tests completed on the streamflow data show the data do not follow normal distribution. Therefore, median streamflow was selected since median is better suited for non-normal (skewed) distribution data. For annual streamflow analysis, a water year (October 1st to September 30th of the next year) was used because precipitation that falls in the fall and winter accumulates as snow and does not melt until the following spring.

In order to assess seasonal trends, the seasons were defined using visual inspection of the long-term median seasonal hydrograph. Winter baseflow season is defined by looking at the hydrograph where an extended period of minimum flow is observed. Spring freshet is characterized by a rapid increase in streamflow after an extended period of minimum baseflow. After spring freshet, flows generally decline gradually, which indicates summer recession. It was considered for the purpose of this report that the seasons are defined the same for each year as follows:

- Winter baseflow: November 1 to April 30
- Spring freshet: May 1 to June 30
- Summer recession: July 1 to October 31

Flow-duration curves (FDCs) were constructed using available daily streamflow data in order to assess changes in the flow regime between the entire period of streamflow records, and the last decade (2003 – 2013). The FDCs are cumulative frequency curves that provide a measure of the percentage of time a given daily streamflow is equaled or exceeded over the period of record. The FDCs are useful to show the relationship between the magnitude and frequency of a given streamflow event of the two periods. Moreover, they highlight key streamflow features such as the variability in the range of flows, and changes in baseflow and high flows. In the present report, the FDC from the last decade will be compared to the FDC for the entire period of record. If there is no difference in the curves, then this indicates there is no change in the flows over time.



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2.3 WATER CHEMISTRY

2.3.1 Monitoring Sites – Period of Record

The entire water chemistry data record for each site was reviewed for consistency, completeness, and overall data variability; data plots were prepared and are provided in Appendix B-1 for the Coppermine watershed and Appendix B-2 for the Lockhart watershed.

Based on the period of record and limited data available, four sites within the Coppermine watershed were removed from all water chemistry analyses, except summary statistic calculations. From Table 2-1, this includes the Fairy Lake Outlet (tributary to the Coppermine River; n = 14 and last monitoring event in 2009), the Fairy Lake River (tributary to the Coppermine River; n = 12 and last monitoring event in 2006), the Coppermine River downstream of the Fairy Lake River Outlet (n = 11 and last monitoring event in 2006), and the Coppermine River below Copper Creek (n = 9 and last monitoring event in 2003). Although the Coppermine River mouth has not been monitored since 2003, this site has the longest data record (since the 1960s) and so was retained for the water chemistry data analysis. All four sites within the Lockhart watershed were retained for the water chemistry data analysis.

As outlined in Table 2-1, both EC and the GNWT collected water chemistry samples from the three of the same sites within the Coppermine River basin. When no data overlap existed, water chemistry data for these nearby GNWT and EC sites were combined (see Table 2-3).

Table 2-3: Water chemistry monitoring sites where EC and GNWT water chemistry data were merged for statistical analyses

Site Name	Environment Canada			Government of the Northwest Territories		
	Latitude (North)	Longitude (West)	Period of Record	Latitude (North)	Longitude (West)	Period of Record
Desteffany Lake	64° 36' 56"	111° 57' 16"	1995 – 1996 1998 – 2000	64° 36' 57"	111° 57' 17"	2001 – 2014
Point Lake	65° 25' 0"	114° 0' 29"	1972 – 1998	65° 24' 52"	114° 0' 27"	2001 – 2014
Coppermine River Mouth	67° 48' 15"	115° 5' 29"	1960 1967 – 1973 1975 – 1976 1992 – 1996	67° 47' 52"	115° 6' 23"	2001 – 2003

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2.3.2 Data Management

2.3.2.1 Data Rationalization

Water chemistry data for a total of 18 monitoring sites from both the EC and GNWT monitoring programs were received. Given the close proximity between EC and GNWT sites at three locations (see Table 2-3) data from these sites were combined and a total of 15 monitoring sites were reviewed (see Table 2-1). A total of 238 analytes were summarized, including physicals (i.e. pH, specific conductivity, total suspended solids (TSS), total dissolved solids (TDS), and turbidity), major anions and cations, nutrients, organic carbon, and total and dissolved metals. Limited data for a number of polycyclic aromatic hydrocarbons (PAHs), organic compounds (primarily organochlorines), and hydrocarbons were also received for one site within the Coppermine watershed only.

To continue with data analysis, some data re-organization and quality assurance/quality control (QA/QC) checking was required. This included:

- Locating and mapping each of the monitoring sites
- Merging data for the same parameters that were titled differently; for example “Ammonia – Filtered” and “Ammonia Dissolved”, or “Calcium Dissolved/Filtered” and “Calcium Dissolved”.
- Transforming all data to a standard concentration metric (i.e. milligrams per litre [mg/L])
- Transforming all chemistry data reported as less than the “Method Detection Limit” (e.g., < 0.02 mg/L) to a numerical value equal to the detection limit, as requested by the GNWT. It is noted this is a conservative estimate as the approach may overestimate the data.
- Data from only one of the samples identified as duplicates and triplicates were used in the statistical analyses. Other numerical values reported for duplicates, triplicates, and blanks (field and travel) were removed from the water-chemistry dataset for statistical analyses. These QA/QC samples were retained to examine data quality however (see Section 2.3.1.2).
- Both surface and bottom samples were collected. However, as no samples depths were provided, and only 32 of the 382 samples were identified as “bottom” samples, all site data were combined, regardless of sample depth. This resulted in two data points per site per sample day when both surface and bottom samples were collected.

2.3.2.2 Data Quality Assessment

A quality assessment was performed on the water chemistry data to assure data quality regarding precision and bias (potential contamination); detection limits, where available, were assessed as part of the monitoring program evaluation (see Section 2.3.5). Data from duplicate and triplicate results were compared to data quality objectives (DQOs) established for this project. Potential bias (contamination) was assessed by evaluating the ratio between total and dissolved metals, and by examining blank samples. If exceedances of DQOs suggested a



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reduction in the precision or accuracy of the data, results were interpreted with additional caution (i.e. conclusions were drawn with the levels of precision and accuracy in mind). Results of the data quality assessment are reported in Appendix A.

2.3.2.2.1 Replicates

Field replicates are multiple samples collected at the same time from the same site and handled in the same manner. The purpose of these samples is to assess field precision. The water chemistry dataset included 54 field duplicate and 57 field triplicate sample sets.

Results for field replicates were examined to determine if data quality objectives (DQOs) were met. The DQO for duplicates was < 25% relative percent difference (RPD), and for triplicates was < 18% relative standard deviation (RSD) (Mitchell 2006, CCME 2011), where:

$$RPD = \frac{\text{replicate 1} - \text{replicate 2}}{\text{mean of replicates 1 and 2}} \times 100$$

and

$$RSD = \frac{\text{standard deviation of replicates 1, 2, and 3}}{\text{mean of replicates 1, 2, and 3}} \times 100$$

The RPD and RSD were only calculated for duplicate and triplicate samples, respectively, when all data for a given analyte were reported above detection (i.e. the RPD and RSD were not calculated when one or more results for a given analyte in a duplicate or triplicate set were reported as 'less than detection'). Results for the duplicate and triplicate samples' quality assessment are presented in Table A-2-1 and Table A-2-2 in Appendix A-2.

2.3.2.2.2 Blanks

The purpose of a blank sample is to assess the accuracy of the data by identifying contamination introduced by sample preparation, handling or processing. The water chemistry dataset included results for 29 travel blank samples and 63 field blank samples. Travel blanks are typically a full set of sample bottles, filled at the laboratory with deionized water. In the field, travel blank samples are handled in the same manner as other water samples except that they are never opened and no preservative is added. In contrast, for field blanks a full set of sample bottles are filled with laboratory-supplied deionized water in the field. If needed, field blanks are preserved and filtered in the field.

Travel and field blank results were examined to identify any parameters which were reported at levels greater than the DQO, which is any result greater than the detection limit (with the exception of pH which is expected to be detectable in blanks). Results for the blank samples' quality assessment are presented in Table A-2-3 and Table A-2-4 in Appendix A-2.

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2.3.2.2.3 Dissolved-to-Total Metal Ratios

To evaluate potential contamination during sample filtration, concentrations of total and dissolved metals were compared in those water chemistry samples where both concentrations were greater than the detection limit. The dissolved to total metal ratio was calculated as follows:

$$\text{dissolved to total metal ratio} = \frac{\text{dissolved metal concentration}}{\text{total metal concentration}}$$

Dissolved to total metal ratios that were greater than the DQO of 1.2 were considered an indication of potential contamination during filtration. Where the dissolved to total metal ratio was between 1 and 1.2, the higher values of the dissolved phase were attributed to sampling and analytical error margins. Results for the total and dissolved metal samples' quality assessment are presented in Table A-2-5 in Appendix A-2.

2.3.3 Spatial Variability

To examine potential spatial differences in overall water chemistry within each watershed, summary statistics (Table 2-4) were generated for each analyte of interest. As noted in Section 2.3.1.1, for results reported as "below detection", a value equal to the detection limit was used for calculation of summary statistics, as requested by the GNWT. It is noted this is a conservative estimate as the approach may overestimate the data.

Table 2-4: Statistics used to summarize water chemistry data from the Coppermine and Lockhart watersheds

Parameter	Description
n	Sample Size
ND (#, %)	Number and percent of samples reported as non-detects (or less than the detection limit)
CCME FAL	Canadian Council of Ministers of the Environment Freshwater Aquatic Life guidelines
>CCME (#, %)	Number and percent of samples greater than the CCME guideline value
Min	The minimum observed value in the set of data, considered an outlier if it is less than the defined 'low' value of the dataset
Low	Lower Limit: The lowest observed value in the set of data still within 1.5 x IQR of the 25 th percentile. Comparable to the ~5 th percentile of the data.
25% ¹	The 25 th percentile of the set of data
Median	The 50 th percentile of the set of data
75% ¹	The 75 th percentile of the set of data
High	Upper Limit: The highest observed value in the set of data still within 1.5 x IQR of the 75 th percentile. Comparable to the ~95 th percentile of the data.

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Table 2-4: Statistics used to summarize water chemistry data from the Coppermine and Lockhart watersheds

Parameter	Description
Max	The maximum observed value in the set of data, considered an outlier if it is greater than the defined 'high' value of the dataset
Mean	The average value of the set of data, including outliers
STD	The standard deviation of the set of data
SE	The standard error of the set of data ($STD/\sqrt{N}$)
CV	The coefficient of variation (MEAN/STD)
IQR	The Interquartile Range, calculated as the 75 th percentile minus the 25 th percentile
1.5 x IQR	1.5 times the Interquartile Range. The 75 th percentile plus 1.5 x IQR and the 25 th percentile minus 1.5 x IQR is roughly equivalent to the 95 th percentile of the data
NOTE:	
1. Definition of percentile data is limited to datasets with five or more observations. If $n < 5$, then baseline can only be described by the mean and standard deviation.	

Analytes of interest were determined by the GNWT and Stantec based on the results of an assessment of spatial and temporal trends in the Peel River watershed (Stantec 2012), and Lac de Gras (Stantec unpub.). Analytes of interest for the Coppermine and Lockhart watersheds include:

- pH
- Conductivity
- Turbidity
- Total dissolved solids (TDS)
- Chloride
- Sulphate
- Hardness, with calcium and magnesium
- Alkalinity
- Total Nitrogen
- Total Phosphorus
- Total Aluminum
- Total Arsenic
- Total Barium
- Total Copper
- Total Nickel
- Total Mercury
- Total Molybdenum
- Total Strontium
- Total Uranium

Data were also received for benzene, toluene, ethylbenzene, and xylenes (BTEX), hydrocarbon fractions (C10 to C16, C16 to C34, C24 to C50) and total petroleum hydrocarbons (TPH), primarily from one site. Data for a number of polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and organic compounds (e.g., organochlorines, organophosphates) were also available, but only for one site over two sampling events ($n = 2$). Data for total cyanide, thiocyanate, and weak-acid dissociable cyanide were received for sites in the Coppermine and Lockhart watersheds. Not enough data have been collected for these



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analytes to perform any meaningful analyses and these results are only briefly summarized in this report.

Boxplot analysis and comparison of descriptive statistics (Table 2-4) of analytes of interest between sites was therefore completed to assess spatial variation in water chemistry. This non-parametric assessment was utilized because the approach makes no assumptions regarding the normality of the data, is resistant to outliers (hence they are left in the analyses), and can accommodate up to 25% of 'less than detection' (< DL) data without seriously affecting the assessment. Evaluation of boxplots and summary statistics also allowed a cursory assessment of site data normality as skewness could be visually assessed (e.g., presence of outliers above/below 1.5 times the IQR, mean and median values dissimilar). From this assessment, it was found that most data were non-normal and a non-parametric assessment was most appropriate. Because water chemistry data are inherently "noisy", and are not (statistically speaking) distributed "normally", this approach is considered not only statistically appropriate but is also a more robust approach to assessments of similarity or dissimilarity of data, and to tests of trend.

The upper and lower limits of the data record were defined as the highest or lowest recorded value still contained within 1.5 times the IQR of the 25th or 75th percentile of the data (Table 2-4). The upper limits are approximately comparable to the 95th percentile of the data. As mentioned, this non-parametric approach can accommodate up to 25% of < DL data for a given dataset, however as the number of < DL data increase, the lower bounds become undefined (when < DL data is > 25%), followed by the median (when < DL data is > 50%), and the upper bound (when < DL data is > 75%). Therefore, when the number of < DL data was greater than 50%, only the mean, standard deviation, minimum and maximum values are reported in the summary statistics to avoid inaccurate reporting of statistics (see Appendix B-3 for the Coppermine watershed and Appendix B-4 for the Lockhart watershed).

2.3.3.1 Seasonality

To examine potential seasonality in water chemistry within the Coppermine and Lockhart watersheds, summary statistics (Table 2-4) were generated for each site (see Section 2.3.2) following the definition of hydrologic seasons (i.e. spring freshet, summer recession, and winter baseflow; see Section 3.1.1 and 3.2.1). Within the Coppermine and Lockhart watersheds, the majority of data have been collected in either the summer recession or winter baseflow periods, however, and only minimal water chemistry data exist for spring freshet (i.e. 13% of samples in the Coppermine watershed were collected during spring freshet, with only 16% of samples in the Lockhart watershed). As there are logistical and safety concerns associated with sampling during spring, water chemistry data sets often have lower numbers of sampling events during freshet. Seasonal analysis was completed using data from all seasons, with the understanding that fewer measurements during freshet may reduce the precision of the seasonal water chemistry assessment.



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Similar to the assessment of spatial variability, boxplot analysis and comparison of descriptive statistics within sites was completed to assess any seasonal variation in water chemistry. This assessment also allowed for an examination of potential spatial differences in seasonal water chemistry throughout each watershed. This analysis focused on the analytes of interest, as outlined above in Section 2.3.3.

2.3.4 Comparison to Water Quality Guidelines

As part of the summary statistics, all chemistry data were compared with Canadian Council of Ministers of the Environment (CCME) Freshwater Aquatic Life (FAL) guidelines (CCME 2014), and Health Canada's Guidelines for Canadian Drinking Water Quality (GCDWQ) (Health Canada 2014) (see Appendix B-3-12). It is noted that CCME FAL guidelines are national in scope and thus are not designed to reflect all local conditions, such as those in the Coppermine and Lockhart watersheds. However, they provide a benchmark to assess current water quality conditions in each watershed. Further, the GCDWQ are typically applied to treated drinking water systems and are not intended for direct comparison to natural lake and river systems. For example, the GCDWQ for turbidity was not applied here as it is applicable to drinking water after filtration and natural turbidity in the lake and rivers systems may be higher. Therefore, exceedances of the CCME or Health Canada guidelines may occur within the natural range of variability. The results of screening against these guidelines should be interpreted with this in mind. The number and percentage of water-chemistry values that exceeded each applicable guideline were recorded in the summary tables for each sample group (see Section 3.1.3 and 3.2.3 and Appendix B).

2.3.5 Temporal Trends Analysis

Stantec assessed trends in water chemistry for seven sites in the Coppermine watershed and four sites in the Lockhart watershed. These sites were selected because they had an extensive and relatively complete dataset over the period of record. They include:

- Coppermine watershed:
 - Lac de Gras outlet
 - Desteffany Lake
 - Daring Lake
 - Point Lake outlet
 - Rocknest Lake
 - Coppermine River above Copper Creek
 - Coppermine River mouth
- Lockhart watershed:
 - King Lake
 - Lake of the Enemy
 - MacKay Lake
 - Lockhart River below Artillery Lake (Lockhart outflow)

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Upon examination of the data for each analyte and site, missing time-periods were identified (e.g., data were not collected in all years, or not collected in all seasons). These data gaps can compromise the robustness of the trends test. However, as a non-parametric test, the Mann-Kendall trends test is robust and can handle missing values (USEPA 2013), and it makes no assumptions regarding the structure of the data. Therefore, the Mann-Kendall trends test was selected for temporal trends analysis of sample sites in the Coppermine and Lockhart watersheds.

The Mann-Kendall test requires that the dataset be monotonic over time, and that there is only one value per time period. Therefore, when multiple data points existed within the dataset for a single time-period (i.e. if there were multiple sampling events per year or per season), the median of the data for the analytes of interest (see Section 2.3.2) was calculated to produce a single value per time period. This was completed for each of the following time periods:

- Annual: median of all data collected in one year (all seasons combined)
- Winter baseflow: median of data collected during winter baseflow months
- Spring freshet: median of data collected during spring freshet months
- Summer recession: median of data collected during summer recession months.

For values that were reported as "< DL", a numerical value equal to the reported DL was substituted. However, where method DLs were variable through the time series, all '< DL' records were equated to a numerical value equal to the DL of the highest reported '< DL' result for each site (Helsel and Hirsch 2002, p. 353). For example, if '< DL' values for a given parameter included such records as < 0.0001 mg/L, < 0.0002 mg/L, and < 0.0004 mg/L, all '< DL' results were set at 0.0004 mg/L. Although this did reduce the resolution of the dataset to some extent, it was a necessary step to normalize all non-detect data. Most < DL values were within five-fold of each other and was likely not a large enough difference to compromise the validity of the trends test. However, some < DL values differed by five-fold or more and these were removed from the trends analysis to prevent inaccurate reporting of trends caused by high and/or variable < DL results, particularly early in the dataset. In some cases, analyte values were reported as above detection limits in only one season in a given year, and as < DL in all other seasons in the same year. Therefore, to prevent biasing of the data to single seasons, entire water years were removed. In most cases, high DL values were restricted to the early years of the dataset, so a reduced period of record was analyzed. Removal of data due to high and/or variable DL values is outlined in Table C-2-1 in Appendix C.

A p-value of 0.05 was used to indicate marginal significance. Because four tests (i.e. annual medians and three individual seasons) were used to identify significant trends in each analyte over time, a Bonferroni correction was used to control the family-wise Type I error rate, which is the probability of making at least one Type I error, or concluding that there is a significant trend when there is none, among multiple tests. A second level of significance ($p = 0.0125$) was established for testing of trends with a Bonferroni correction:



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$$\alpha' = \frac{\alpha}{n}$$

where: α' = the corrected p-value
 α = 0.05
 n = the number of tests (four)

For groups of trends tests, there were up to 84 time/analyte combinations being tested (i.e. 21 analytes and four time periods). To ensure the probability of finding an effect in error remained reasonable, a third and fourth level of significance was established (Table 2-5). Given the relatively high probability of making a Type I error with the large number of tests and higher p-values, it was therefore considered that a p-value ≤ 0.001 indicated a highly significant result under all conditions (Table 2-5).

Table 2-5: Percent probability of at least one Type 1 error at multiple test levels¹

p-value	Level of Significance	N (number of tests)			
		1	10	50	150
0.05	Marginal	5%	40%	92%	>99%
0.0125	Moderate	1%	12%	47%	85%
0.001	High	0.1%	1%	5%	14%
0.0001	Very High	0.01%	0.10%	0.5%	1%
NOTES:					
1. Probability of a Type 1 error for a series/family of tests was estimated $(1-(1-\alpha)^C)$, where α is the p-value and C is the number of tests (Abdi 2010)					

To complete the Mann-Kendall trends tests, annual and seasonal medians were calculated using Microsoft Excel 2010. The Mann-Kendall test was performed using R and the 'Kendall' package (McLeod 2011, R Core Team 2014); see Appendix C-1 for additional information and the calculation steps for the Mann-Kendall trends test in R.

2.3.6 Monitoring Program Evaluation

The design of the monitoring program for each of the watersheds was evaluated to assess adequacy in establishing hydrologic and water chemistry conditions. The number and distribution of monitoring sites were evaluated, as well as analytes monitored, and detection limits reported. The most common detection limits used over the past 10 years, in each monitoring program were reviewed. As specific detection limits for each analyte were not provided, detection limits were inferred from results reported as less than the detection. For analytes which did not have any less than detection values, an assessment of detection limits could not be completed.



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3.0 RESULTS AND DISCUSSION

3.1 COPPERMINE WATERSHED

3.1.1 Hydrology

3.1.1.1 Spatial and Seasonal Variability in Flow

Flow (also known as 'Q') within the Coppermine watershed is marked by considerable seasonality (Figure 3-1), and yearly fluctuation, depending on station (Figure D-1 to Figure D-35 in Appendix D). There is a relatively long period of 'baseflow' that occurs during the approximately six months of winter (from November to April). During winter baseflow, rates generally reach yearly lows, usually sometime in April (Figure 3-1).

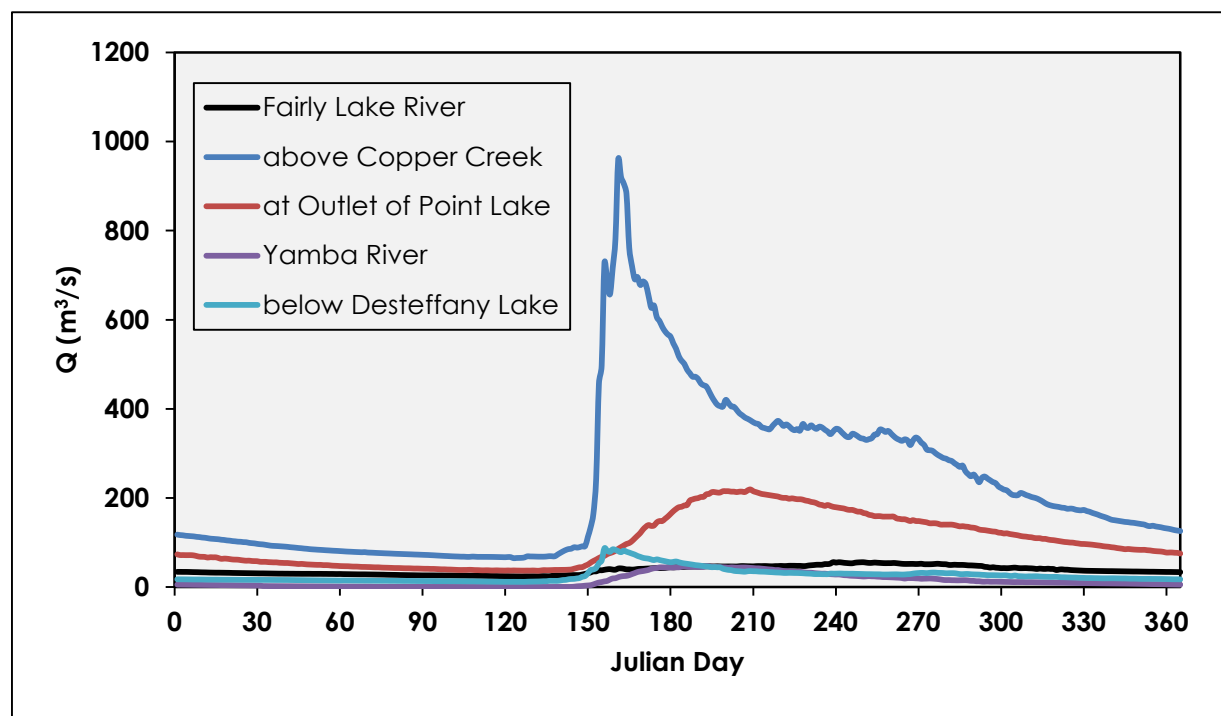


Figure 3-1: Median seasonal flow dynamics in the Coppermine River and tributaries

After the extended period of minimum baseflow, there is a short period of slow increase. This rate of increase gradually accelerates over a period of weeks, producing the annual spring freshet in June, which is highly variable within the Coppermine River watershed depending on location and year. Due to the existence of sparse wetlands and lake storage in the southern Coppermine watershed, spring freshet at the Fairly Lake River station, Coppermine River at the outlet of Point

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Lake station, and the Yamba River below Daring Lake station, is usually a gradual-increase event (Figure 3-1) and occurs later in summer. On average, flow rates increase by eight-fold in the Fairy Lake River, and 24- and 57-fold in the Coppermine River at outlet of Point Lake, and above Copper Creek, respectively (Table 3-1). The spring freshet in the Coppermine River is somewhat flashy, with 57-fold differences between lowest and highest flow rates (Table 3-1). The lake effect, which delays the peak flow until July or later, is evident at the Fairy Lake River near the outlet of Napaktukik Lake, the Yamba River below Daring Lake, and the Coppermine River at the outlet of Point Lake, since these sites do not actually exhibit a spring freshet (Figure 3-1 and Table 3-1). At these three sites, maximum monthly flow rates consistently occur in July and/or September (due to summer rainfall), after which flows generally decline in late summer and early fall until baseflow once again occurs (Figure 3-1, Table 3-2, and Figures D-6, D-20, and D-27 in Appendix D). The Coppermine River below Desteffany Lake station does not show lake effect and has a spring freshet in June. There is likely no lake effect on spring freshet because the lake is small and has very little storage.

Table 3-1: Minimum and maximum daily flow rates (m³/s) in the Coppermine watershed, expressed as a ratio

Parameter	Station				
	Fairy Lake River Near Outlet of Napaktukik Lake	Coppermine River above Copper Creek	Coppermine River at Outlet of Point Lake	Yamba River below Daring Lake	Coppermine River below Desteffany Lake
Minimum	13	38.9	22.1	0	0
Maximum	98.6	2200	533	98.2	294
Ratio	8	57	24	–	–

Median streamflow rates within the Coppermine River, not unexpectedly, are higher in the main stem moving downstream (Figure 3-1 and Table 3-2) with the highest flow rates observed in the Coppermine River above Copper Creek in the northern watershed. Of the three main tributaries, the Fairy Lake River near the outlet of Napaktukik Lake is the largest (Figure 3-1, Table 3-1 and Table 3-2). Coppermine River at the outlet of Point Lake is considered part of the southern main stem.

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Table 3-2: Median flow rates (m³/s) in the Coppermine watershed

Month	Season	Station				
		Fairy Lake River Near Outlet of Napaktukik Lake	Coppermine River above Copper Creek	Coppermine River at Outlet of Point Lake	Yamba River below Daring Lake	Coppermine River below Desteffany Lake
January	Baseflow	32	107	64	4	16
February	Baseflow	30	87	52	1	15
March	Baseflow	28	77	44	0	13
April	Baseflow	25	68	38	0	12
May	Freshet	25	70	39	0	13
June	Freshet	41	615	106	31	75
July	Recession	46	409	213	44	41
August	Recession	49	354	196	34	31
September	Recession	53	329	156	22	28
October	Recession	48	264	134	14	29
November	Baseflow	40	181	105	10	23
December	Baseflow	35	142	83	7	19
Annual Median		37	161	94	8	21

3.1.1.2 Temporal Trends in Flow

Mann-Kendall trends tests were completed on the hydrologic parameters described in Section 2.2.2 and the results are shown in Table 3-3. Within the Coppermine watershed, there have been no consistently significant trends in annual median or mean flow for the entire period of record, or over the last decade (Table 3-3 and Figures D-4, D-5, D-11, D-12, D-18, D-19, D-25, D-26, D-32, and D-33 in Appendix D). The lack of trends indicates that the total volume of water flowing within the Coppermine River watershed, despite considerable annual variability (Figures D-1 to D-35 in Appendix D), is the same now as it was 40 to 50 years ago. This also suggests that overall the hydrological cycle has remained measurably unchanged over the period of record.

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Table 3-3: Results of the Mann-Kendall trends analysis of streamflow data (p-values¹) for the Coppermine watershed

Test Parameter	Station									
	Fairy Lake River Near Outlet of Napaktukik Lake		Coppermine River above Copper Creek		Coppermine River at Outlet of Point Lake		Yamba River below Daring Lake		Coppermine River below Desteffany Lake	
	1993- 2013	2003- 2013	1987- 2013	2003- 2013	1965- 2011	2001- 2011	2000- 2013	2003- 2013	1994- 2013	2003- 2013
Month										
January	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
February	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
March	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
April	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
May	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
June	NS	NS	NS	NS	NS	NS	0.050	0.050	NS	NS
July	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
August	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
September	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.050
October	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
November	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
December	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Season²										
Baseflow	NS	NS	NS	NS	NS	NS	NS	NS	0.042	NS
Freshet	NS	0.047	NS	NS	NS	NS	NS	NS	NS	NS
Recession	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Annual Flow (water years)										
Average Q	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Daily Min Q	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Daily Max Q	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Median Q	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
NOTES:										
1. P-value: <0.05 = Marginally Significant; <0.005 = Moderately Significant ; <0.001 = Highly Significant; <0.0001 = Very Highly Significant, NS = Not Significant. Positive p-values indicate increasing trend and negative p-values indicate decreasing trend.										
2. Season: baseflow = November 1 to April 30; freshet = May 1 to June 30; recession = July 1 to October 31										

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However, there was a marginal ($p < 0.05$) increase in freshet flow rate observed over the past decade at the Fairy Lake River near the outlet of Napaktukik Lake, in June flow at the Yamba River below Daring Lake, and in baseflow and September flow at Coppermine River below Desteffany (Table 3-3). These suggest there is a potential alteration in the seasonal timing of the hydrological cycle within the Coppermine River watershed.

Within the Coppermine watershed, there has also been no significant alteration in the annual maximum or minimum daily flow (Table 3-3 and Figures D-4, D-5, D-11, D-12, D-18, D-19, D-25, D-26, D-32, and D-33 in Appendix D). This indicates that the frequency and occurrence of extreme events, such as winter baseflow, intense summer rainstorms, precipitous freshet melting events, and/or unusually large snowpack, have not increased within the Coppermine watershed.

The FDC for the Coppermine River above Copper Creek station, for the period of 1987 to 2013 and the period of 2003 to 2013 is shown in Figure 3-2. This figure illustrates that the Q_{10} , which represents high flows, or flows that are exceeded 10% of the time, for the last decade is almost identical to the Q_{10} calculated for the period of record. The Q_{90} , which represents low flows, or flows that are exceeded 90% of the time, over the last decade is also practically identical to the Q_{90} calculated for the period of record (Figure 3-2, and Figures D-7, D-14, D-21, D-28, and D-35 in Appendix D). This suggests that there is no change in the flow regime between the entire period of streamflow records, and for the last decade (2003 to 2013) at the Coppermine River above Copper Creek station.

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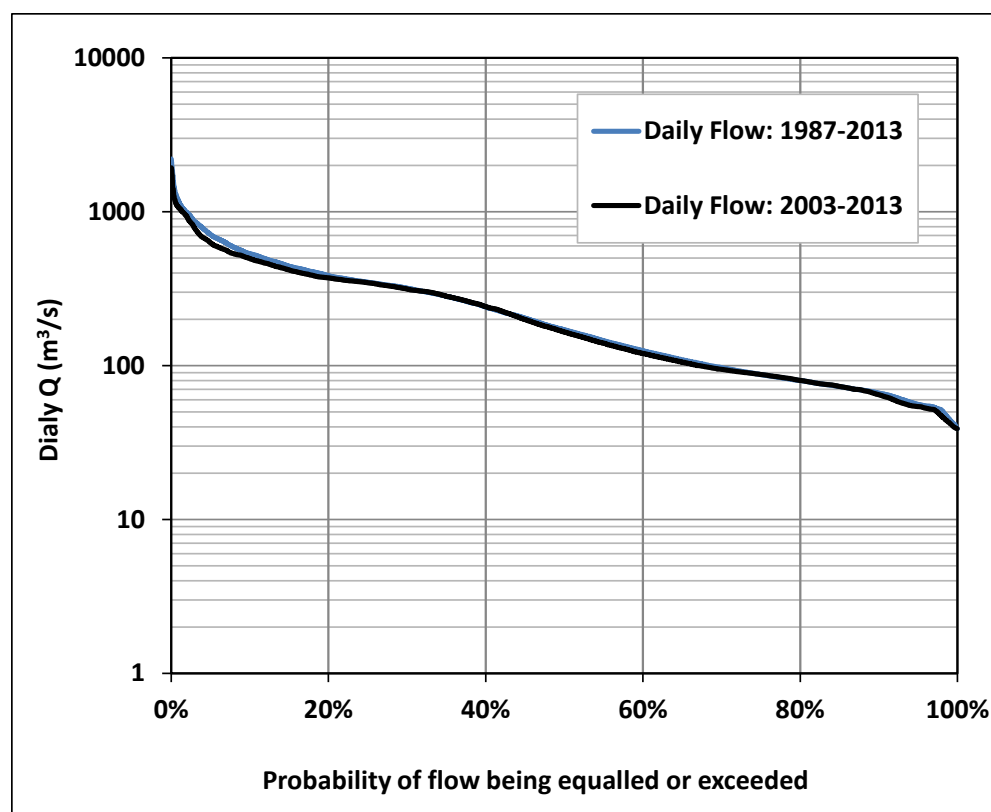


Figure 3-2: Flow duration curve for the Coppermine River above Copper Creek station

3.1.2 Water Chemistry

3.1.2.1 Spatial and Seasonal Variability in Water Chemistry

To examine potential spatial and seasonal differences in water chemistry within the Coppermine watershed, the water chemistry data for each site were summarized and compared for each analyte of interest. Scatterplots with all data are available in Appendix B-1 and summary statistics are provided in Appendix B-3. Boxplots for spatial and seasonal analysis for each analyte of interest are provided in Appendix B-5 (spatial) and Appendix B-6 (seasonal). Overall spatial and seasonal differences are described in the following sections.

3.1.2.1.1 Physical Analytes

All physical analytes of interest, including pH, conductivity, total dissolved solids (TDS), and turbidity, are lower near the headwaters of the Coppermine River, at the outlet of Lac de Gras, compared to the mouth of the Coppermine River, where they are higher. The most pronounced difference occurred between Rocknest Lake and the Coppermine River above Copper Creek

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site where a two-fold or more difference was observed. Differences between the two physiographic regions of the watershed are likely responsible for the change in these parameters as one moves from the lake-dominated upstream (southern) portion of the watershed, within the SGP dominated by igneous and granitic rock, to the river-dominated downstream (northern) portion of the watershed, within the BGP with few lakes and sedimentary rock. This tendency for analytes to differ over the divide between the two regions was previously identified by Wedel et al. (1988) and MacDonald et al. (1999).

Within the southern Coppermine watershed, five sites (the Lac de Gras outlet, Desteffany Lake, Daring Lake, the Point Lake outlet, and Rocknest Lake) were evaluated for spatial and temporal trends. At these sites, values for pH, conductivity, TDS and turbidity were relatively similar and changed little between sites (Table 3-4). For instance, the range of median values throughout the southern watershed was 6.7 to 7.1 for pH, 12.0 to 22.6 $\mu\text{S}/\text{cm}$ for conductivity, 10 to 14 mg/L for TDS, and 0.28 to 0.49 NTU for turbidity (Table 3-4). These values are similar to, or slightly lower than, those from previous studies on the Canadian Shield, between Yellowknife and Contwyoto Lake, where pH values ranged from 6.3 to 7.3 (Moore 1979, Tibbatts et al. 1987), and conductivity was $\leq 100 \mu\text{S}/\text{cm}$ (Pienitz et al. 1997).

Examining all data by season (i.e. winter baseflow, spring freshet, and summer recession), only minor seasonal differences were observed at sites in the southern Coppermine watershed. Depending on the sample site, the upper limit, defined at the ~95th percentile ("high" value in Table 3-4), was between 6.9 and 7.6 for pH, 18.0 and 32.9 $\mu\text{S}/\text{cm}$ for conductivity, 22 and 32 mg/L for TDS, and 0.52 to 1.20 NTU for turbidity (Table 3-4). Waters throughout the southern Coppermine watershed are considered circumneutral (i.e. pH 6.5 to 7.5).

Slightly higher pH, conductivity, and TDS values were observed in Rocknest Lake, as well as slightly greater seasonal variability, compared to other sample sites in the southern Coppermine watershed. This is attributed to the lake's position entirely within the treeline and position largely within the BGP (see Figure 1-1). The higher amount of catchment vegetation surrounding Rocknest Lake likely influences the water chemistry due to higher input of ions, nutrients, and organic carbon in run-off (Pienitz et al. 1997, Duff et al. 1999). Rocknest Lake does straddle the division between the SGP and the BGP, though is largely situated within the BGP. Given the predominance of sedimentary rock in this region, the catchment surrounding Rocknest Lake is more susceptible to weathering and would contribute high amounts of solutes as well.

The Point Lake outlet site is also situated within the treeline (see Figure 1-1), however the treeline bisects Point Lake and majority of the lake is surrounded by tundra vegetation and is situated within the SGP. It is assumed that the water chemistry at the outlet is controlled by the lake and explains why the water chemistry at the Point Lake outlet is relatively similar to that observed at other upstream tundra sites within the SGP.

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Table 3-4: Summary statistics of the physical analytes of interest, for all seasons combined, at sample sites in the Coppermine watershed

Sample Site	nND / n	% ND	Min	Low ¹	10 th	25 th	Mean	Median	75 th	90 th	High ²	Max	SD	SE	CV
pH															
Lac de Gras outlet	0 / 65	0	6.4	6.5	6.5	6.6	6.7	6.7	6.8	6.9	6.9	7.1	0.13	0.016	0.02
Desteffany Lake	0 / 60	0	6.0	6.3	6.5	6.6	6.7	6.7	6.8	6.9	7.0	7.4	0.19	0.024	0.03
Daring Lake	0 / 42	0	6.3	6.5	6.5	6.6	6.7	6.7	6.8	6.8	6.9	6.9	0.13	0.02	0.02
Point Lake outlet	0 / 92	0	5.8	6.3	6.6	6.7	6.9	6.8	7.0	7.4	7.4	8.9	0.41	0.043	0.06
Rocknest Lake	0 / 36	0	6.4	6.7	6.7	7.0	7.1	7.1	7.3	7.54	7.6	7.6	0.28	0.047	0.04
Coppermine above Copper Creek	0 / 22	0	6.1	6.5	7.1	7.2	7.6	7.7	7.9	8.4	8.7	8.7	0.62	0.13	0.08
Coppermine River mouth	0 / 18	0	4.8	6.8	6.6	7.2	7.2	7.4	7.6	7.9	8.04	8.0	0.73	0.17	0.10
Conductivity (µS/cm)															
Lac de Gras outlet	0 / 65	0	12.4	12.4	13.4	15	18.0	16.7	19.8	21.4	25.5	30.3	3.7	0.46	0.21
Desteffany Lake	0 / 61	0	11	11.0	13.1	13.8	22.0	15.5	17.6	21.2	22.9	309.0	39	5	1.76
Daring Lake	0 / 42	0	9.9	9.9	10.7	11.35	14.0	12.0	15.3	18.45	20.7	31.9	4.2	0.65	0.31
Point Lake outlet	0 / 153	0	7.1	10.0	11.3	13	15.0	14.1	15.3	19.0	18.0	29.7	3.4	0.27	0.23
Rocknest Lake	0 / 36	0	18.0	18.0	19.1	20.5	25.0	22.6	25.5	38.7	32.9	42.3	6.8	1.1	0.27
Coppermine above Copper Creek	0 / 40	0	30.1	30.1	44.2	47.3	70.0	69.8	80.75	96.4	113.0	156.0	25.0	3.9	0.36
Coppermine River mouth	0 / 13	0	20.7	20.7	22.6	29.0	53.0	48.5	52.5	102.7	73.6	112.0	30.0	8.3	0.56
Total Dissolved Solids (mg/L)															
Lac de Gras outlet	29 / 65	45	10	10	10	10	14	10	15	22	22	53	7.6	0.94	0.54
Desteffany Lake	22 / 66	33	10	10	10	10	16	13.5	18	22	29	84	10	1.2	0.64
Daring Lake	24 / 42	57	10	-	-	-	12	-	-	-	-	22	3.4	0.53	0.28
Point Lake outlet	21 / 74	28	3	3	10	10	16	13	18	23.7	26	81	9.8	1.1	0.62
Rocknest Lake	8 / 36	22	10	10	10	10	17	14	22	27	32	42	7.9	1.3	0.47
Coppermine above Copper Creek	0 / 40	0	10	10	18.9	29.5	47	43.5	61.25	78	88	88	21	3.4	0.46
Coppermine River mouth	0 / 39	0	23	23	29.8	30.5	42	39	50	63	78	83	14	2.3	0.34
Turbidity (NTU)															
Lac de Gras outlet	0 / 65	0	0.10	0.10	0.19	0.22	0.43	0.30	0.50	0.70	0.90	2.40	0.39	0.05	0.90
Desteffany Lake	0 / 67	0	0.10	0.10	0.18	0.33	0.60	0.49	0.68	1.04	1.20	3.23	0.50	0.06	0.83
Daring Lake	0 / 42	0	0.12	0.12	0.21	0.26	0.42	0.28	0.38	0.59	0.52	3.31	0.50	0.08	1.18
Point Lake outlet	1 / 147	1	0.07	0.07	0.16	0.20	0.64	0.30	0.59	1.68	1.10	5.00	0.91	0.08	1.42
Rocknest Lake	0 / 36	0	0.12	0.12	0.21	0.24	0.41	0.34	0.4	0.64	0.56	1.70	0.33	0.05	0.80

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Table 3-4: Summary statistics of the physical analytes of interest, for all seasons combined, at sample sites in the Coppermine watershed

Sample Site	n _{ND} / n	% ND	Min	Low ¹	10 th	25 th	Mean	Median	75 th	90 th	High ²	Max	SD	SE	CV
Coppermine above Copper Creek	0 / 40	0	0.56	0.56	1.07	1.50	6.50	3.12	7.80	17.12	17.10	36	7.80	1.20	1.20
Coppermine River mouth	0 / 83	0	0.20	0.20	0.72	1.45	7.00	2.60	6.00	18.90	9.40	71	11.00	1.20	1.59
NOTES: 1. Low = lower limit, defined approximately as the 5 th percentile 2. High = upper limit, defined approximately as the 95 th percentile															

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The northern Coppermine watershed includes two sites which were evaluated for spatial and temporal trends (Coppermine River above Copper Creek, and the Coppermine River mouth). At these sites, pH, conductivity, TDS and turbidity were considerably higher compared to sites in the southern watershed. The difference was greater than two-fold for some analytes and median values in the northern watershed ranged from 7.4 to 7.7 for pH, 48.5 to 69.8 $\mu\text{S}/\text{cm}$ for conductivity, 39 to 45 mg/L for TDS, and 2.6 to 3.1 NTU for turbidity (Table 3-4).

More pronounced seasonal variability was observed in the northern Coppermine watershed, compared to the southern watershed, and reflects the seasonal variation in flows (see Section 3.1.1). Seasonal changes were not consistent across physical analytes however. Values for pH, conductivity, and TDS tended to be lowest during winter baseflow while the highest values for pH occurred during the summer recession and during the spring freshet for conductivity and TDS. This is an unexpected result as conductivity and dissolved solids usually decrease in the spring due to ice melt, higher water flow, and dilution effects. The higher conductivity and TDS concentration observed during spring freshet in the northern Coppermine watershed may be related to increased run-off and erosion during the spring freshet, with higher turbidity and dissolved solutes from the surrounding catchment area.

Compared to the southern Coppermine watershed, turbidity was also more variable in the northern watershed and showed strong seasonal effects. Peak turbidity values occurred during the spring at both sites in the northern Coppermine watershed, and several outliers (greater than the upper limit, defined at the ~95th percentile) were present in the dataset.

3.1.2.1.2 Major Ions

In the southern Coppermine watershed, hardness and alkalinity data indicate very soft water (hardness < 30 mg/L; Health Canada 2014) that has low buffering capacity and is sensitive to acid deposition (alkalinity < 10 mg/L; Saffran et al. 1996) (see Table 3-5). This is typical of fresh waters within the areas of the Canadian Shield (Tibbatts et al. 1987). Throughout the watershed the dominant cation was calcium, followed by magnesium and lesser amounts of sodium and potassium. The dominant anion appeared to be bicarbonate, with lesser amounts of sulphate and chloride, however bicarbonate data were only available for the Point Lake outlet site and only a partial evaluation of major anions could be completed.

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Table 3-5: Summary statistics of the major ion and nutrient analytes of interest, for all seasons combined, at sample sites in the Coppermine watershed

Sample Site	n _{ND} / n	% ND	Min	Low ¹	10 th	25 th	Mean	Median	75 th	90 th	High ²	Max	SD	SE	CV
Total Hardness (mg/L)															
Lac de Gras outlet	0 / 65	0	0.007	0.007	4.2	4.7	6.8	6.7	8.3	10.7	13.5	13.5	2.5	0.32	0.38
Desteffany Lake	0 / 60	0	2.4	2.4	3.8	4.8	6.8	6.3	8.4	10.6	12.3	12.3	2.5	0.33	0.38
Daring Lake	0 / 42	0	1.9	1.9	4.12	4.6	6.9	5.9	8.5	9.7	11.3	22.4	3.4	0.52	0.49
Point Lake outlet	3 / 127	2	0.5	2.3	3.778	4.6	6.1	5.3	6.8	10.3	9.9	25.5	3.3	0.29	0.53
Rocknest Lake	0 / 36	0	5.1	5.1	8.2	9.4	14	12.3	15.4	19.0	24	46.2	6.9	1.20	0.51
Coppermine above Copper Creek	0 / 39	0	17.8	17.8	19.8	21.4	37	35.1	42.5	50.5	62.4	114.8	20	3.20	0.54
Coppermine River mouth	0 / 57	0	4.7	4.7	20.3	21.7	61	24.9	33.2	49.7	50.3	1,559	200	270	3.36
Total Alkalinity (mg/L)															
Lac de Gras outlet	0 / 65	0	1.2	1.2	3.2	3.4	4.2	3.9	5.1	5.6	6.4	6.4	1.0	0.13	0.25
Desteffany Lake	0 / 67	0	1.5	1.5	3.2	3.4	5.1	3.8	5.0	5.6	6.8	41.4	6.0	0.73	1.17
Daring Lake	0 / 42	0	2.6	2.6	3	3.1	4.1	3.4	4.9	5.8	6.7	9.3	1.4	0.21	0.34
Point Lake outlet	4 / 146	3	1.1	1.1	2.6	3.1	4.5	3.6	4.5	6.0	6.5	47.3	4.8	0.40	1.08
Rocknest Lake	0 / 36	0	4.2	4.2	5.4	6.0	8.9	7.6	9.7	15.8	13.8	18.9	3.9	0.65	0.44
Coppermine above Copper Creek	0 / 40	0	16.9	16.9	17.89	20.1	33.0	34.7	40.6	47.4	59	79.6	14.0	2.20	0.42
Coppermine River mouth	0 / 81	0	2.3	14.3	17.4	19.7	26.0	23.6	30.0	38.4	43.0	94.0	12.0	1.40	0.48
Dissolved Calcium (mg/L)															
Lac de Gras outlet	0 / 65	0	0.6	0.6	0.8	0.9	1.4	1.2	1.7	2.3	2.8	2.9	0.6	0.07	0.41
Desteffany Lake	0 / 67	0	0.5	0.5	0.8	0.9	1.4	1.2	1.6	2.4	2.5	3.6	0.7	0.08	0.48
Daring Lake	0 / 42	0	0.4	0.4	0.9	1.0	1.7	1.3	2.0	2.4	3.0	6.1	1.2	0.18	0.70
Point Lake outlet	5 / 146	3	0.1	0.5	0.9	1.0	1.4	1.2	1.5	2.5	2.2	7.1	0.8	0.07	0.58
Rocknest Lake	0 / 36	0	1.0	1.0	1.8	2.2	3.3	2.9	4.2	4.5	6.0	12.9	2.0	0.33	0.60
Coppermine above Copper Creek	0 / 39	0	4.3	4.3	4.6	5.1	8.3	7.8	9.1	10.9	12.6	32.6	5.0	0.80	0.60
Coppermine River mouth	0 / 82	0	0.8	0.8	4.9	5.3	9.8	6.5	8.5	13.0	13.3	108	15.0	1.60	1.49
Chloride (mg/L)															
Lac de Gras outlet	20 / 59	34	0.2	0.2	0.3	0.5	0.8	0.7	0.9	1.3	1.3	3.6	0.6	0.07	0.70
Desteffany Lake	26 / 61	43	0.1	0.1	0.2	0.4	0.6	0.7	0.7	0.9	1.0	1.5	0.3	0.04	0.46
Daring Lake	33 / 37	89	0.3	-	-	-	-	-	-	-	-	0.9	-	-	-
Point Lake outlet	38 / 140	27	0.1	0.1	0.227	0.3	0.5	0.4	0.7	0.7	0.9	2.4	0.3	0.03	0.64
Rocknest Lake	30 / 30	100	0.7	-	-	-	-	-	-	-	-	0.7	-	-	-

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Table 3-5: Summary statistics of the major ion and nutrient analytes of interest, for all seasons combined, at sample sites in the Coppermine watershed

Sample Site	n _{ND} / n	% ND	Min	Low ¹	10 th	25 th	Mean	Median	75 th	90 th	High ²	Max	SD	SE	CV
Coppermine above Copper Creek	0 / 39	0	0.2	0.2	0.3	0.3	0.5	0.4	0.6	0.9	0.9	1.3	0.3	0.04	0.54
Coppermine River mouth	0 / 82	0	0.2	0.2	0.4	0.6	140	0.9	1.3	7.3	2.2	4800	660	73	4.71
Sulphate (mg/L)															
Lac de Gras outlet	12 / 65	18	0.3	1	2	2	2.6	3	3	3	4	10	1.2	0.15	0.46
Desteffany Lake	16 / 67	24	1	1	2	2	2.5	2	3	3	4	10	1.2	0.15	0.48
Daring Lake	2 / 42	5	1	1	1	1	1.3	1	1.9	2	3	3	0.58	09	0.44
Point Lake outlet	13 / 146	9	0.3	0.8	1	1.4	2.1	2	2	3	2.8	33	2.7	0.22	1.27
Rocknest Lake	0 / 36	0	1	2	2	2	2.1	2	2	2	2	4	0.44	073	0.21
Coppermine above Copper Creek	0 / 39	0	1	1	1.3	1.4	2.5	1.8	2.1	2.4	2.7	26.8	4	0.65	1.64
Coppermine River mouth	34 / 83	41	1	1	1	1.3	16	3	3	5	5	413	61	6.7	3.78
Total Phosphorus (mg/L)															
Lac de Gras outlet	29 / 66	44	0.002	0.002	0.002	0.003	0.011	0.009	0.01	0.02	0.02	0.09	0.016	0.0019	1.42
Desteffany Lake	21 / 67	31	0.002	0.002	0.003	0.004	0.008	0.007	0.01	0.01	0.015	0.061	0.009	0.0011	1.08
Daring Lake	15 / 42	36	0.002	0.002	0.003	0.003	0.008	0.01	0.01	0.01	0.02	0.03	0.005	0.00081	0.69
Point Lake outlet	49 / 119	41	0.002	0.002	0.002	0.003	0.009	0.006	0.01	0.015	0.02	0.1	0.013	0.0012	1.41
Rocknest Lake	11 / 36	31	0.002	0.002	0.002	0.003	0.006	0.004	0.01	0.01	0.01	0.01	0.004	0.0006	0.62
Coppermine above Copper Creek	7 / 39	18	0.004	0.004	0.01	0.01	0.025	0.02	0.03	0.049	0.045	0.078	0.019	0.003	0.77
Coppermine River mouth	5 / 46	11	0.002	0.002	0.0045	0.005	0.014	0.009	0.015	0.028	0.029	0.082	0.016	0.0023	1.10
Total Nitrogen (mg/L)															
Point Lake outlet	0 / 48	0	0.11	0.11	0.14	0.15	0.17	0.16	0.183	0.233	0.23	0.37	0.048	0.007	0.28
Coppermine River above Copper Creek	0 / 40	0	0.06	0.06	0.142	0.17	0.31	0.243	0.388	0.500	0.633	0.94	0.19	0.03	0.62

NOTES:
1. Low = lower bound, defined approximately as the 5th percentile
2. High = upper bound, defined approximately as the 95th percentile

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Between the Lac de Gras outlet and the Point Lake outlet in the southern Coppermine watershed, median values for the major ions ranged from 5.3 to 6.7 mg/L for hardness, 3.4 to 3.9 mg/L for alkalinity, 1.2 to 1.3 mg/L for calcium, and 0.5 to 0.8 mg/L for magnesium, while median bicarbonate was 4.3 mg/L at the Point Lake outlet (see Table 3-5). These analytes were higher in Rocknest Lake, compared to other sites in the southern Coppermine watershed, and median hardness was 12.3 mg/L with a median alkalinity of 7.6 mg/L. As discussed for the physical analytes in Section 3.1.2.1.1, the higher analyte concentrations in Rocknest Lake, compared to other sites in the southern watershed, are likely due to differences in catchment vegetation and geology.

Only minor seasonal variation in hardness, calcium, magnesium, and alkalinity were noted through the southern Coppermine watershed at most sites. Again, Rocknest Lake tended to have greater seasonal variability than other sites in the southern watershed and major ions tended to increase from winter to summer. For example, in Rocknest Lake median hardness increased from 10.5 mg/L in winter to 12.6 mg/L in summer and median alkalinity increased from 5.7 to 7.7 mg/L; spring data are not available for Rocknest Lake. However overall, values for hardness, calcium, magnesium, and alkalinity remained low throughout all seasons in the southern Coppermine watershed and, depending on sample site, the upper limit was defined between 9.9 and 24 mg/L for hardness, 6.5 and 13.8 mg/L for alkalinity, 2.5 and 6.0 mg/L for calcium, and 1.0 to 2.1 mg/L for magnesium.

In the northern Coppermine watershed, hardness, calcium, magnesium and alkalinity are higher than in the southern watershed. The waters of the northern Coppermine watershed have higher buffering capacity with moderate to low sensitivity to acid deposition (alkalinity > 10 mg/L to > 40 mg/L; Saffran et al. 1996), but are still considered soft (hardness between 30 – 60 mg/L; Health Canada 2014). Between the Coppermine River above Copper Creek site, and the Coppermine River mouth site, median values ranged from 24.9 to 35.1 mg/L for hardness, 23.6 to 34.7 mg/L for alkalinity, 6.5 to 7.8 mg/L for calcium, and 2.4 to 3.8 mg/L for magnesium.

Similar to the physical analytes, seasonal variability is evident in the northern Coppermine watershed for hardness, calcium, magnesium, and alkalinity. These analytes tended to be lowest in the winter baseflow period than other seasons, particularly spring when the highest concentrations were observed. This follows the seasonal differences in conductivity and TDS, with higher concentrations of dissolved constituents in the spring increasing hardness, alkalinity and acid-buffering capacity. Seasonality is most pronounced at the Coppermine River above Copper Creek where hardness, calcium, magnesium, and alkalinity are up to two-fold higher in the spring; this site also had the most pronounced seasonal flows.

In contrast to the other analytes previously discussed, both dissolved chloride and dissolved sulphate appear to be slightly higher in the southern Coppermine watershed (see Table 3-5). Chloride and sulphate concentrations are slightly higher at the Lac de Gras outlet and in Desteffany Lake compared to other sites in the Coppermine watershed. At these two sites,



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median values were 0.7 mg/L for chloride, and ranged from 2.0 to 3.0 mg/L for sulphate, with the upper limit defined between 1.0 and 1.3 mg/L for chloride, and at 4.0 mg/L for sulphate, respectively. The Lac de Gras outlet also had among the highest chloride values (3.6 mg/L) throughout the watershed.

Chloride and sulphate values are slightly lower downstream of Desteffany Lake. Between the Point Lake outlet, in the southern watershed, and the Coppermine River above Copper Creek, in the northern watershed, median values were 0.4 mg/L for chloride and ranged from 1.0 to 2.0 mg/L for sulphate. The upper limit was also slightly lower downstream of Desteffany Lake, and was defined at 0.9 mg/L for chloride and between 2.0 to 3.0 mg/L for sulphate, depending on sample site. The majority (greater than 89%) of chloride data was also reported below detection at two sites (Daring Lake and Rocknest Lake).

At the mouth of the Coppermine River, median chloride and sulphate values were slightly higher (0.9 mg/L chloride and 3.0 mg/L sulphate) and the data were skewed with several outliers. Maximum chloride (4,800 mg/L) and sulphate (413 mg/L) values are extremely high compared to values observed at other sites in the watershed, but correspond with elevated values of hardness, calcium, and turbidity, over the same time period between 1967 and 1972. These values are either transcription errors, or, given the coastal location of the sample site, could be related to tidal influences/back-water from the marine environment of the Coronation Gulf. Unfortunately concurrent hydrology data are not available to confirm this. These extreme chloride and sulphate values have not appeared in the dataset since then however, so the results may be erroneous.

Similar to other analytes previously discussed, only minor seasonal differences were observed for chloride and sulphate throughout the southern Coppermine watershed while more pronounced seasonality was observed in the northern watershed, where chloride and sulphate tended to be highest during winter baseflow and decrease through spring and summer. This is unlike the seasonal variation noted for hardness, calcium, magnesium, alkalinity, TDS, and conductivity, where concentrations tended to be lower during winter baseflow and higher during spring freshet. This difference implies that concentrations of chloride and sulphate are likely affected by flow and dilution, with the highest concentrations typically during low flow periods, which is common in freshwater systems. Further, compared to bicarbonate and calcium, these two anions only comprise a small proportion of the ionic balance such that a change in their concentrations does not have an appreciable effect on hardness or alkalinity.

3.1.2.1.3 Nutrients

Total nitrogen (TN) and total phosphorus (TP) data were reviewed to examine nutrient and trophic status throughout the Coppermine watershed. In general, nutrient levels are low and are frequently reported below detection. Data for TN were only collected at two sites (the Point Lake outlet and the Coppermine River above Copper Creek) and data for total Kjeldahl nitrogen (TKN), nitrate (as N) and nitrite (as N), or nitrate+nitrite (as N), which can be summed to



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estimate TN, were only reported for one site (the Point Lake outlet). This limited the assessment of TN across the watershed.

Waters in the southern Coppermine watershed are largely considered oligotrophic (i.e. TP < 0.012 mg/L and TN < 0.360 mg/L; Carlson and Simpson 1996, CCME 2004). This estimate of trophic status is based on median TP values (range from 0.004 to 0.009 mg/L) and the upper limit (defined between 0.010 and 0.020 mg/L), as well as the median and upper limit for TN at the Point Lake outlet (0.160 mg/L and 0.230 mg/L, respectively) (Table 3-5). This trophic status estimate can be verified with chlorophyll *a* data, which was not received by Stantec.

Concentrations of TP and TN were higher in the northern Coppermine watershed, compared to concentrations observed at sites in the southern watershed (Table 3-5). Waters in the northern watershed are largely considered mesotrophic (i.e. TP 0.012 to 0.024 mg/L and TN 0.360 to 0.750 mg/L; Carlson and Simpson 1996, CCME 2004) based on median TP values (range from 0.009 to 0.020 mg/L) and the upper limit (defined between 0.029 and 0.045 mg/L). Median TN was 0.243 mg/L at the Coppermine River above Copper Creek, and the upper limit was 0.633 mg/L.

Very minor seasonal variations in TP were identified through the southern Coppermine watershed and TP was only slightly higher in the spring than winter or summer. At southern Coppermine sites phosphorus is primarily in the dissolved form and increases in dissolved phosphorus are typical during periods of snowmelt and run-off, or after rain events (Wetzel 2001). Seasonality in TP was more pronounced at the northern Coppermine sites. In riverine systems, TP can be associated with the particulate fraction and thus follows changes in turbidity. This appears to be the case during spring freshet in the northern Coppermine watershed.

At both sites where TN data exists (the Point Lake outlet and the Coppermine River above Copper Creek), TN tended to be highest during winter baseflow and decrease through the spring and summer periods; this was more pronounced at the Coppermine River above Copper Creek site, in the northern Coppermine watershed. Though snowmelt can be a significant source of nitrogen to fresh waters (Wetzel 2001), the decrease from winter highs to summer is common as nitrogenous compounds accumulate over the winter period and are taken up by bacteria, plankton and macrophytes, and are absorbed to sediments, through the spring and summer periods (Wetzel 2001). This trend was also noted by MacDonald et al. (1999) for the Coppermine watershed.

3.1.2.1.4 Metals

As outlined in Section 2.3.2, metals of interest (including metals with data appropriate for trend assessment) in the Coppermine watershed include aluminum, arsenic, barium, copper, mercury, molybdenum, nickel, strontium, and uranium. The upper and lower limits for arsenic, mercury, molybdenum, and uranium were largely undefined for all sites in the Coppermine watershed due to the prevalence of data reported as < DL (range from 42 to 94%). Other metals which



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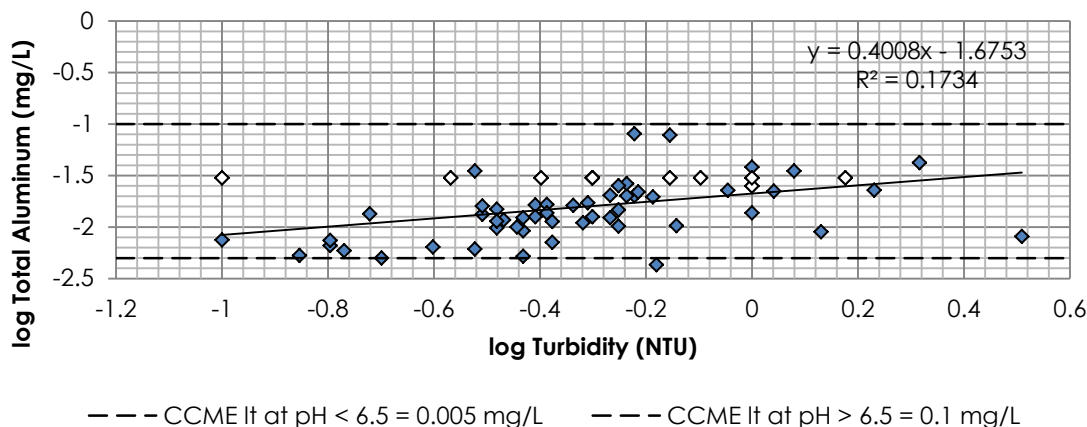
were frequently reported < DL at all sample sites included antimony, beryllium, cadmium, cesium, chromium, cobalt, lead, platinum, selenium, silver, thallium, and vanadium. One exception was at the Coppermine River above Copper Creek site, where most total metal concentrations including arsenic, molybdenum and uranium, were reported above detection limits and the upper and lower limits could be defined. Mercury is undefined in the northern Coppermine watershed as data were not collected.

Upon examining the ratio between total and dissolved metals, where both were reported, it was found that aluminum was primarily associated with the particulate fraction throughout the watershed (i.e. dissolved-to-total metal ratio considerably < 1.0); other particulate metals included bismuth, cerium, gallium, lanthanum, manganese, niobium, and yttrium. The relationship between turbidity and particulate metal concentrations was examined by reviewing turbidity versus total aluminum concentrations. Given the strong seasonal variation in turbidity observed in the northern portion of the watershed, total aluminum concentrations, and therefore likely other particulate metal concentrations, are correlated with turbidity (log R^2 ranged from 0.50 to 0.87). However, a correlation was not observed between total aluminum concentrations and turbidity in the southern watershed (log R^2 ranged from 0.03 to 0.17) likely due to minor seasonal variation in turbidity, resulting from lake-controlled flows. See Figure 3-3 for an example of the correlation between total aluminum concentrations and turbidity at two sites: Desteffany Lake in the southern watershed, and the Coppermine River above Copper Creek in the northern watershed. Figures for all other sites are provided in Appendix B-7.

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a) Desteffany Lake (southern Coppermine watershed)



b) Coppermine River above Copper Creek (northern Coppermine watershed)

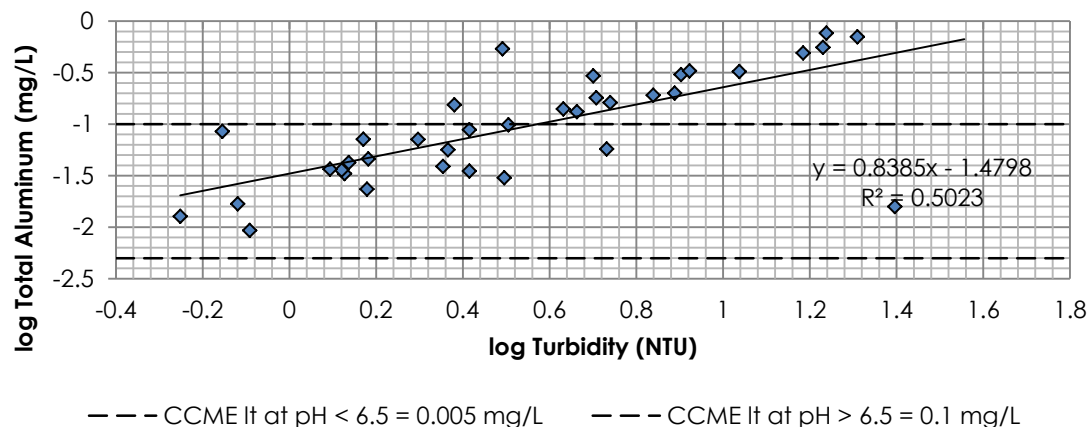


Figure 3-3: Total aluminum versus turbidity at Desteffany Lake and the Coppermine River above Copper Creek

Because total aluminum is correlated with turbidity in the northern Coppermine watershed, it is not surprising that higher concentrations of total aluminum occurred at the two northern sites, compared to the southern sites, since turbidity values were also higher at northern sites. Dissolved aluminum was therefore examined to define natural variability at the Coppermine River above Copper Creek and the upper limit was defined at 0.053 mg/L (compared to an upper limit of 0.303 mg/L for total aluminum) (see Table 3-6). There is considerably less dissolved metal data available for the Coppermine River mouth ($n = 2$) however the maximum reported dissolved aluminum value was 0.030 mg/L (compared to a maximum total aluminum value of 1.76 mg/L) (Table 3-6).

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Table 3-6: Summary statistics of select total metals of interest, for all seasons combined, at sample sites in the Coppermine watershed

Sample Site	n _{ND} / n	% ND	Min	Low ¹	10 th	25 th	Mean	Median	75 th	90 th	High ²	Max	SD	SE	CV
Total Aluminum (mg/L)															
Lac de Gras outlet	15 / 64	23	0.0017	0.0017	0.0031	0.004	0.0120	0.0056	0.030	0.030	0.0430	0.043	0.012	0.0015	0.98
Desteffany Lake	11 / 64	17	0.0043	0.0043	0.0065	0.0102	0.0200	0.0155	0.0273	0.030	0.0422	0.0806	0.014	0.0018	0.74
Daring Lake	2 / 42	5	0.0027	0.0027	0.0044	0.0055	0.0096	0.0070	0.0086	0.0130	0.0132	0.0585	0.010	0.0015	1.01
Point Lake outlet	8 / 74	11	0.0089	0.0089	0.0101	0.0124	0.0180	0.0140	0.0188	0.030	0.0250	0.079	0.011	0.0013	0.62
Rocknest Lake	0 / 36	0	0.009	0.009	0.0103	0.0115	0.0140	0.0126	0.0140	0.0154	0.0170	0.0688	0.010	0.0016	0.67
Coppermine above Copper Creek	0 / 36	0	0.0093	0.0093	0.0201	0.0363	0.180	0.0865	0.2235	0.514	0.490	0.763	0.20	0.0340	1.14
Coppermine River mouth	1 / 10	10	0.030	0.030	0.0408	0.0490	0.370	0.0698	0.2125	1.274	0.215	1.76	0.610	0.190	1.63
Total Barium (mg/L)															
Lac de Gras outlet	2 / 63	3	0.001	0.001	0.001	0.0015	0.0019	0.0018	0.002	0.0025	0.0027	0.0072	0.0008	0.0001	0.45
Desteffany Lake	1 / 64	2	0.001	0.001	0.0015	0.0016	0.0019	0.0018	0.0021	0.0024	0.0028	0.0067	0.0007	0.0001	0.37
Daring Lake	0 / 42	0	0.001	0.001	0.0011	0.0011	0.0015	0.0012	0.0017	0.0024	0.0025	0.0039	0.0007	0.0001	0.42
Point Lake outlet	29 / 103	28	0.0012	0.0012	0.0018	0.0019	0.026	0.0021	0.08	0.080	0.10	0.10	0.039	0.004	1.49
Rocknest Lake	0 / 36	0	0.0022	0.0022	0.00245	0.0026	0.003	0.0028	0.00325	0.0039	0.0039	0.005	0.0007	0.0001	0.22
Coppermine above Copper Creek	0 / 39	0	0.00846	0.00846	0.00981	0.0114	0.022	0.0234	0.0294	0.0364	0.0517	0.0517	0.011	0.0018	0.52
Coppermine River mouth	0 / 10	0	0.0116	0.0116	0.01196	0.013	0.023	0.01335	0.02925	0.0388	0.036	0.0641	0.017	0.0054	0.74
Total Copper (mg/L)															
Lac de Gras outlet	14 / 65	22	0.0002	0.0002	0.0005	0.0006	0.0012	0.0007	0.002	0.0023	0.0030	0.0052	0.0009	0.0001	0.77
Desteffany Lake	11 / 66	17	0.0002	0.0002	0.0005	0.0006	0.0013	0.0008	0.002	0.002	0.0033	0.0078	0.0013	0.0002	0.95
Daring Lake	8 / 42	19	0.0002	0.0002	0.0002	0.0003	0.00053	0.0004	0.0006	0.0008	0.0008	0.0021	0.0005	0.0001	0.85
Point Lake outlet	10 / 104	10	0.0003	0.0003	0.0006	0.0007	0.0012	0.0010	0.0012	0.002	0.0019	0.01	0.0011	0.0001	0.93
Rocknest Lake	0 / 36	0	0.0003	0.0003	0.0005	0.0006	0.0007	0.0007	0.0008	0.0009	0.0009	0.0019	0.0003	0.00004	0.35
Coppermine above Copper Creek	0 / 39	0	0.00091	0.0009	0.0012	0.0013	0.0021	0.0017	0.0023	0.0038	0.0033	0.0069	0.0013	0.0002	0.59
Coppermine River mouth	5 / 31	16	0.0004	0.0004	0.0013	0.00155	0.16	0.002	0.0029	0.004	0.0041	5	0.9	0.16	5.49
Total Nickel (mg/L)															
Lac de Gras outlet	8 / 65	12	0.0006	0.0006	0.0008	0.0009	0.001	0.001	0.0011	0.0012	0.0014	0.002	0.0002	0.00003	0.23
Desteffany Lake	10 / 67	15	0.0001	0.0004	0.0006	0.0007	0.0083	0.0008	0.001	0.0010	0.0011	0.50	0.061	0.0075	7.37
Daring Lake	4 / 42	10	0.0001	0.0001	0.0001	0.0001	0.0003	0.0002	0.0002	0.0003	0.0003	0.0034	0.0005	0.00008	1.75
Point Lake outlet	23 / 104	22	0.0002	0.0003	0.0005	0.0007	0.0010	0.0008	0.001	0.001	0.0014	0.0169	0.0016	0.00016	1.65
Rocknest Lake	0 / 36	0	0.0005	0.0005	0.0005	0.0005	0.0006	0.0006	0.0007	0.0009	0.0009	0.0011	0.0002	0.00003	0.24

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Table 3-6: Summary statistics of select total metals of interest, for all seasons combined, at sample sites in the Coppermine watershed

Sample Site	n _{ND} / n	% ND	Min	Low ¹	10 th	25 th	Mean	Median	75 th	90 th	High ²	Max	SD	SE	CV
Coppermine above Copper Creek	1 / 39	3	0.0002	0.0002	0.0004	0.0005	0.0012	0.0007	0.0012	0.0014	0.0017	0.0148	0.0023	0.0004	1.92
Coppermine River mouth	6 / 31	19	0.0001	0.0001	0.0004	0.0006	0.098	0.0009	0.0010	0.0013	0.0013	3	0.54	0.097	5.52
Total Strontium (mg/L)															
Lac de Gras outlet	1 / 64	2	0.0046	0.0046	0.005	0.006	0.0077	0.0071	0.0087	0.0108	0.0116	0.0167	0.0024	0.0003	0.31
Desteffany Lake	1 / 60	2	0.000005	0.0043	0.0009	0.0058	0.0063	0.0065	0.0078	0.0086	0.0102	0.0137	0.0028	0.0004	0.44
Daring Lake	0 / 42	0	0.0038	0.0038	0.0048	0.0050	0.0059	0.0053	0.0066	0.0083	0.0087	0.0129	0.0017	0.0003	0.29
Point Lake outlet	0 / 74	0	0.0041	0.0041	0.0048	0.0051	0.0059	0.0056	0.0062	0.0074	0.0077	0.0124	0.0014	0.0002	0.23
Rocknest Lake	0 / 36	0	0.0045	0.0057	0.0062	0.0064	0.007	0.0067	0.0074	0.0085	0.0088	0.0088	0.0010	0.0002	0.14
Coppermine above Copper Creek	0 / 39	0	0.0070	0.0070	0.0074	0.0081	0.009	0.0088	0.0097	0.0103	0.0113	0.0129	0.0014	0.0002	0.15
Coppermine River mouth	0 / 8	0	0.0080	0.0080	0.0087	0.0090	0.011	0.0101	0.0128	0.0154	0.0162	0.0162	0.003	0.0011	0.27
NOTES: 1. Low = lower bound, defined approximately as the 5 th percentile 2. High = upper bound, defined approximately as the 95 th percentile															

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As there was no correlation between turbidity and total aluminum, and likely other particulate metals, in the southern Coppermine watershed, total aluminum values were examined at the southern sites. Additionally, examining other metals, where both the dissolved and total concentrations were reported, it was found that barium, copper, nickel and strontium were primarily found as the dissolved ion throughout the Coppermine watershed (i.e. dissolved-to-total metal ratio approximately 1.0); other metals typically found as dissolved ions included boron, iron, lithium, rubidium, tin, tungsten, and zinc. However, as there is much less dissolved metal data available than total metal data, total concentrations of barium, copper, nickel and strontium were examined.

Overall, there appears to be minor spatial variation in concentrations of total aluminum, barium, copper, nickel and strontium at sites in the southern Coppermine watershed. The upper limit of these metals the southern Coppermine watershed was defined between 0.013 to 0.043 mg/L for total aluminum, 0.003 to 0.10 mg/L for total barium, 0.0008 to 0.003 mg/L for total copper, 0.0003 to 0.001 mg/L for total nickel, and 0.008 to 0.012 mg/L for total strontium. Mean and median values for barium at the Point Lake outlet were skewed upwards (0.026 and 0.002 mg/L, respectively) due to a number of high non-detect values (< 0.080 and < 0.100 mg/L) from the 1980s. Concentrations of all of these metals are higher in the northern Coppermine watershed. This is attributed to higher turbidity (for total aluminum) or differences in catchment vegetation (i.e. treeline) and geology (SGP vs. BGP) for total barium, copper, nickel and strontium.

Little to no seasonal variation was observed for most metals of interest the southern Coppermine watershed. Slight seasonal variation was noted for total copper, nickel and strontium however and these metals tended to have slightly lower values during the summer recession. This may be related to peak flows at these lake sites during the summer recession (see Section 3.1.1.1). Stronger seasonal variation was observed in the northern Coppermine watershed, typically with higher total metal concentrations during spring freshet. This included total aluminum, which follows changes in turbidity, as well as total barium, copper, nickel and strontium. The latter four metals remained as dissolved ions during spring freshet and also followed the observed increase in conductivity, TDS, hardness, calcium, and magnesium during spring freshet at the northern Coppermine watershed sites.

Total molybdenum and strontium appeared to be more variable (larger CV values, larger data spread) and had higher mean and median values at the Lac de Gras outlet, and immediately downstream at Desteffany Lake, compared to other sites in the southern Coppermine watershed. This is particularly the case for total molybdenum which was largely reported as $< \text{DL}$ at Daring Lake, the Point Lake outlet, and Rocknest Lake, and had less $< \text{DL}$ values at the Lac de Gras outlet and Desteffany Lake.

3.1.2.1.5 Other Analytes

Data for BTEX and TPH were received primarily from Daring Lake ($n = 12$) with one sample from the LDG outlet. All BTEX results, all hydrocarbon fractions, and all but one TPH result, were



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reported below detection. The single reportable result (i.e. greater than detection) for TPH occurred during the summer recession period at Daring Lake (0.2 mg/L).

Data were received for a total of 24 PAHs (plus surrogates), 25 organic compounds (plus surrogates) and total PCBs for the Coppermine River above Copper Creek only (n = 2). Of the PAHs, 20 of the 24 compounds were reported below detection in all samples. Four PAH compounds (1-methylnaphthalene, 2-methylnaphthalene, acenaphthalene, and naphthalene) had one reportable result each, all of which occurred during winter baseflow. Total PCBs and all but one organic compound (pentachloroanisole) were reported below detection. The single reportable result for pentachloroanisole occurred during the winter baseflow period.

Data for total cyanide were received for most sites across the Coppermine watershed, while thiocyanate and weak-acid dissociable cyanide have only been sampled a few times (range from 1 to 3 data points) in the southern Coppermine watershed only. Mean and median total cyanide across the Coppermine watershed ranged from 0.001 to 0.006 mg/L, and many results were reported below detection (range from 33 to 89% non-detect). Results for thiocyanate and weak-acid dissociable cyanide from the southern Coppermine watershed were ≤ 0.5 mg/L and ≤ 0.002 mg/L, respectively.

3.1.2.1.6 Spatial and Seasonal Variability Summary

Overall, water chemistry parameters were relatively similar across sites in the lake-dominated southern Coppermine watershed (i.e. the Lac de Gras outlet, Desteffany Lake, Daring Lake, and the Point Lake outlet). Waters in the southern Coppermine watershed are considered circumneutral and very soft with low conductivity, TDS, turbidity, acid-buffering capacity, and metals. Water chemistry typically began to change in Rocknest Lake with many analytes higher in concentration at this site, and this was attributed to changes in catchment vegetation (Rocknest Lake is situated within the treeline while all other southern Coppermine sites are not) and geology (Rocknest Lake is largely positioned within the BGP while all other sites in the southern watershed are in the SGP). Seasonal variability was minor for most water chemistry analytes at most sites throughout the southern Coppermine water, likely due to the effect of lake storage and geology (i.e. granitic rock that is resistant to weather). Again, due to differences in vegetation and geology, Rocknest Lake showed slight seasonal variation in some analytes.

In the river-dominated northern Coppermine watershed, concentrations of many analytes were higher than in the southern watershed. This was attributed to the change in geological conditions, with the dominance of sedimentary rock which is more susceptible to weathering. Waters in the northern Coppermine watershed are considered alkaline and soft with overall low conductivity, TDS, metals, and moderate to high acid-buffering capacity. Seasonal variability was more pronounced for most water chemistry analytes throughout the northern Coppermine watershed, compared to the southern Coppermine watershed.

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Nutrients, such as TP and TN, were low throughout the southern Coppermine watershed, and waters were considered oligotrophic. Nutrient levels were higher in the northern Coppermine watershed and waters were considered mesotrophic. These estimates of trophic status can be verified with chlorophyll *a* data, which was not available for this assessment.

Using a separate dataset from the Ekati and Diavik diamond mines' Aquatic Effects Monitoring Programs (AEMPs), Stantec evaluated potential cumulative effects, and spatial and temporal trends, in Lac de Gras for several analytes of interest (Stantec unpub.); this report has not yet been released to the public. Through the cumulative effect study, significant increases in chloride, sulphate, total molybdenum, and total strontium were identified at the Lac de Gras outlet, as well as at several sites in Lac de Gras, over period of record (generally 1994 to 2013) and over the defined upper limit of baseline (~95th percentile for data collected between 1994 and 2000) (Stantec unpub.). Higher values of these same parameters were also identified in the EC/GNWT dataset at the Lac de Gras outlet and at the downstream sampling site in Desteffany Lake. These results support the cumulative effect identified above for select water quality parameters in Lac de Gras (Stantec unpub.) and downstream to at least Desteffany Lake.

3.1.3 Comparison to Water Quality Guidelines

Reviewing all data that were reported above detection limits for the seven sample sites examined in the Coppermine watershed, the CCME guidelines for the protection of freshwater aquatic life (FAL) were exceeded in several instances across the Coppermine watershed. These are summarized in Table 3-7 below, and detailed for each site and season in Appendix B-3. Exceedances include chloride, fluoride, nitrite, total cyanide, and total aluminum, arsenic, cadmium, chromium, copper iron, lead, nickel, selenium, silver, thallium, and zinc. Of Health Canada's GCDWQ, only total arsenic, chromium, lead and selenium exceeded their respective guidelines in very few ($\leq 2\%$) of samples. However, as discussed in Section 2.3.4, the Health Canada guidelines are typically applied to treated drinking water systems and are not intended for direct comparison to natural lake and river systems. The CCME guidelines are also national in scope and are not designed to reflect all local, natural conditions. Therefore, any guideline exceedances should be considered with this in mind.

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Table 3-7: Total number of exceedances of the CCME FAL and Health Canada GCDWQ across the Coppermine watershed

Analyte	Guideline (mg/L) ¹	n _{>GL} / n ²	% > GL ³	Sample Site(s) with Exceedances
CCME FAL				
Chloride	120 – 640	7 / 504	1%	Coppermine River mouth
Fluoride	0.12	8 / 288	3%	Lac de Gras outlet, Point Lake outlet, Rocknest Lake, Coppermine River mouth
Nitrite	0.060	22 / 323	7%	Lac de Gras outlet, Desteffany Lake, Daring Lake, Point Lake outlet, Rocknest Lake, Coppermine River mouth
Total Cyanide	0.005	1 / 102	1%	Coppermine River above Copper Creek
Total Aluminum	0.005 – 0.10	59 / 383	15%	All sites
Total Arsenic	0.005	4 / 308	1%	Coppermine River mouth
Total Cadmium	0.00004 – 0.0077	50 / 449	11%	Lac de Gras outlet, Desteffany Lake, Point Lake outlet, Rocknest Lake, Coppermine River above Copper Creek, Coppermine River mouth
Total Chromium	0.0089	3 / 419	1%	Lac de Gras outlet, Desteffany Lake, Coppermine River mouth
Total Copper	0.0002 – 0.0004	50 / 440	11%	All sites
Total Iron	0.30	52 / 418	12%	Lac de Gras outlet, Desteffany Lake, Coppermine River above Copper Creek, Coppermine River mouth
Total Lead	0.001 – 0.0058	21 / 405	5%	All sites
Total Nickel	0.025 – 0.15	2 / 441	< 1%	Desteffany Lake, Coppermine River mouth
Total Selenium	0.001	9 / 356	3%	Lac de Gras outlet, Desteffany Lake, Daring Lake, Point Lake outlet, Rocknest Lake, Coppermine River mouth
Total Silver	0.0001	8 / 370	2%	Lac de Gras outlet, Desteffany Lake, Rocknest Lake, Coppermine River above Copper Creek
Total Thallium	0.0008	1 / 353	< 1%	Desteffany Lake

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Table 3-7: Total number of exceedances of the CCME FAL and Health Canada GCDWQ across the Coppermine watershed

Analyte	Guideline (mg/L) ¹	n _{>GL} / n ²	% > GL ³	Sample Site(s) with Exceedances
CCME FAL (con't)				
Total Zinc	0.03	11 / 449	2%	Lac de Gras outlet, Desteffany Lake, Coppermine River above Copper Creek, Coppermine River mouth
GCDWQ				
Total Arsenic	0.010	4 / 308	1%	Coppermine River mouth
Total Chromium	0.050	2 / 419	< 1%	Coppermine River mouth
Total Lead	0.010	7 / 408	2%	Lac de Gras outlet, Desteffany Lake, Daring Lake, Coppermine River above Copper Creek
Total Selenium	0.050	1 / 356	< 1%	Coppermine River mouth
NOTES:				
1. Where guidelines are hardness-dependent, or pH-dependent (total Al only), the range of guideline values is given				
2. n _{>GL} / n = number of results greater than applicable guideline over the total number of results				
3. % > GL = percentage of total results greater than applicable guideline				

All exceedances identified in Table 3-7 are inclusive of those results reported above detection limits, but < DL results are included in the total 'n' value. Overall, the number of guideline exceedances were relatively low and typically comprised less than 5% of a given analyte's dataset. A few exceedances for cadmium, copper and lead were identified throughout the watershed. The CCME guidelines for these metals are hardness-dependent, and when hardness (per sample) values are low, as they are in the Coppermine watershed, the guideline values are also quite low. This means that detection limits are frequently either above the guideline value, or are not lower than ten times the guideline, as is typically suggested (Mitchell 2006). Therefore, results reported even slightly higher than the detection limit may exceed the guideline, but likely do not create any risks for aquatic life.

3.1.4 Temporal Trends in Water Chemistry

Of the 588 temporal Mann-Kendall trends tests completed for median data from the Coppermine watershed (21 analytes by four time periods (annual median, winter baseflow, spring freshet, and summer recession), by seven sites), 123 were significant with 79 significant increasing trends and 44 significant decreasing trends. Due to the large number of comparisons made and the probability of making a Type I error at a p-value of 0.05 (see Table 2-5 in Section 2.3.5), confidence in all marginally significant ($p \leq 0.05$) trends are not sufficient for



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further interpretation. Therefore, the following sections summarize moderately significant ($p \leq 0.0125$) and highly significant ($p \leq 0.001$) trends only. Marginally significant trends are identified in this section, but are not discussed further.

Significant increasing temporal trends were identified for several analytes across the Coppermine watershed. Generally, the Lac de Gras outlet, Desteffany Lake, and the Point Lake outlet had the greatest number of significant temporal trends (Table 3-8 and Table C-2-2 in Appendix C-2). While there were increasing trends for some metals, the majority of highly significant trends were found for the major ions, particularly chloride, hardness, magnesium and conductivity.

The greatest number of significant results were observed during the summer recession period. Significant results were rarely observed during spring freshet, though this may be related to the limited amount of data available for that season. Trend results are summarized in Table 3-8 for select analytes of interest and detailed in Table C-2-2 in Appendix C-2.

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Table 3-8: Summary of Mann-Kendall trend results for select analytes of interest in the Coppermine watershed

Sample Site & Time Period	Trend Results ¹											
	pH	Cond.	Total Dissolved Solids (TDS)	Turbidity	Total Hardness	Dissolved Calcium	Dissolved Magnesium	Total Alkalinity	Chloride	Sulphate	Total Phosphorus	Total Strontium
Lac de Gras outlet												
Annual Median	↑	↑	–	↓	↑	↑	↑	–	↑	–	–	↑
Winter Baseflow	–	↑	–	–	↑	↑	↑	–	↑	–	–	↑
Spring Freshet	–	–	–	–	–	–	–	–	–	–	↑	–
Summer Recession	↑	↑	–	–	↑	↑	↑	–	↑	–	–	↑
Desteffany Lake												
Annual Median	–	↑	–	–	↑	↑	↑	–	↑	–	–	↑
Winter Baseflow	–	↑	–	–	↑	↑	↑	–	↑	–	–	↑
Spring Freshet	–	–	–	–	↑	–	↑	–	–	–	–	–
Summer Recession	↑	↑	–	↓	↑	↑	↑	–	–	–	–	↑
Daring Lake												
Annual Median	↑	–	–	–	–	–	–	–	–	–	↓	–
Winter Baseflow	–	–	–	–	–	–	–	↓	–	–	↓	–
Spring Freshet	–	–	–	–	–	–	–	–	–	–	–	–
Summer Recession	–	–	–	–	–	–	–	–	–	–	↓	–
Point Lake outlet												
Annual Median	–	↑	–	↓	↑	↑	↑	↑	↑	↑	–	–
Winter Baseflow	–	↑	–	↓	↑	↑	↑	↑	↑	↑	↓	↑
Spring Freshet	–	–	–	–	–	–	–	–	–	–	–	–
Summer Recession	–	↑	–	–	↑	↑	↑	↑	↑	↑	–	↑

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Table 3-8: Summary of Mann-Kendall trend results for select analytes of interest in the Coppermine watershed

Sample Site & Time Period	Trend Results ¹											
	pH	Cond.	Total Dissolved Solids (TDS)	Turbidity	Total Hardness	Dissolved Calcium	Dissolved Magnesium	Total Alkalinity	Chloride	Sulphate	Total Phosphorus	Total Strontium
Rocknest Lake												
Annual Median	–	–	–	–	↓	–	↓	–	–	–	↓	–
Winter Baseflow	–	–	–	–	–	–	–	–	–	↑	–	–
Spring Freshet	–	–	–	–	–	–	–	–	–	–	–	–
Summer Recession	–	–	–	–	↓	–	↓	–	–	–	↓	–
Coppermine River above Copper Creek												
Annual Median	–	–	–	–	–	–	–	–	–	–	–	–
Winter Baseflow	–	↑	–	–	–	–	–	–	–	–	–	–
Spring Freshet	–	–	–	–	–	–	–	–	↓	–	↓	–
Summer Recession	–	–	–	–	–	–	–	–	–	–	–	–
Coppermine River mouth												
Annual Median	–	↑	–	–	–	–	–	–	–	–	↑	–
Winter Baseflow	–	–	–	–	–	–	–	–	–	–	–	–
Spring Freshet	–	–	–	–	–	–	–	–	–	↑	–	–
Summer Recession	–	–	↑	–	–	–	–	–	–	–	↑	–
NOTES:												
1. Trend results: "–" implies no significant trend; ↑ implies increasing trend; ↓ implies decreasing trend; bolded red arrows imply highly significant trend ($p \leq 0.001$); bolded blue arrows imply moderately significant trend ($p \leq 0.0125$); arrows with no bold and no colour imply marginally significant trend ($p \leq 0.05$)												

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3.1.4.1 Physical Analytes

Across the southern Coppermine watershed, significant increasing temporal trends with moderate or high significance were identified at the Lac de Gras outlet, Desteffany Lake, and the Point Lake outlet for the physical analytes pH, conductivity, and turbidity. No significant increasing temporal trends with moderate or high significance were identified in the northern Coppermine watershed.

At the Lac de Gras outlet, highly significant ($p \leq 0.001$) increasing trends were identified for conductivity (annual median, winter baseflow, and summer recession periods). Moderately significant ($p \leq 0.0125$) increasing trends were identified for pH (annual median and summer recession). A highly significant decreasing trend was also identified for turbidity (annual median) at the Lac de Gras outlet.

At Desteffany Lake, highly significant increasing trends were identified for conductivity (winter baseflow and summer recession), with a moderately significant increasing trend for the annual median. At the Point Lake outlet, highly significant increasing trends were identified for conductivity (annual median, winter baseflow and summer recession periods) and a moderately significant decreasing trend was identified for turbidity (winter baseflow).

3.1.4.2 Major Ions

The majority of moderately or highly significant temporal trends for total alkalinity, total hardness and the major ions occurred in the southern Coppermine watershed at the Lac de Gras outlet, Desteffany Lake, and the Point Lake outlet, with a minimal number of significant trends identified for the northern Coppermine watershed sites. There were no moderately or highly significant trends at Daring Lake or Rocknest Lake.

At the Lac de Gras outlet, highly significant increasing trends were identified for dissolved magnesium (summer recession) and chloride (annual median and winter baseflow). Moderately significant increasing trends were identified for total hardness (annual median, winter baseflow, and summer recession periods), dissolved calcium (annual median, winter baseflow, and summer recession periods), and dissolved magnesium (annual median and winter baseflow).

In contrast to Stantec (unpub.), no significant increasing trends in sulphate were identified at the Lac de Gras outlet in the present analysis. A detection limit of 3.0 mg/L was used at this site by the GNWT until 2003 and most data with this detection limit were reported as < DL. In comparison, detection limits in the Diavik AEMP dataset for the Lac de Gras outlet have typically been < 3.0 mg/L since the mid-1990s, and reported values range from 1.2 to 3.6 mg/L (Stantec unpub.). Data from years earlier than 2003 in the GNWT dataset were omitted from trend analysis for this reason however trends were not identified in with this reduced dataset.

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At Desteffany Lake, highly significant increasing trends were identified for total hardness (annual median), dissolved calcium (annual median, winter baseflow and summer recession), dissolved magnesium (annual median and summer recession), and dissolved chloride (winter baseflow). Moderately significant increasing trends were identified for total hardness (summer recession) and dissolved magnesium (winter baseflow).

At the Point Lake outlet, highly significant increasing trends were identified for total hardness (annual median, winter baseflow and summer recession), dissolved calcium (annual median and winter baseflow), dissolved magnesium (annual median, winter baseflow and summer recession), total alkalinity (winter baseflow), chloride (annual median and winter baseflow) and sulphate (annual median, winter baseflow, and summer recession). Moderately significant increasing trends were identified for dissolved calcium (summer recession), and chloride (summer recession). At the Coppermine River above Copper Creek, a moderately significant decreasing trend was identified for dissolved chloride during the spring freshet period.

3.1.4.3 Nutrients

Where data for TN exists for the Coppermine watershed (i.e. Point Lake outlet and Coppermine River above Copper Creek only), no significant temporal trends were identified. Several decreasing trends were identified for TP, although these results are suspect due to highly variable detection limits throughout the dataset. For example, detection limits in TP over the data record have been as high as 0.01 mg/L (from 2004 to 2009 for GNWT data), and most data were reported below detection. Since the Mann-Kendall trends test requires one median value per time period (i.e. annual and seasonal medians), all < DL values were brought to a value of equal to the highest < DL result; this higher detection limit would inflate all other data reported as less than detection during the trends test and obscure any potential increasing trends. Removing high and/or variable < DL results from the trends test for TP was investigated but this would have removed a significant portion of the data and further affected the trends tests for TP. Trend results for TP are not considered reliable.

3.1.4.4 Metals

Due to the prevalence of data reported as < DL, total mercury and total uranium were omitted from trend analysis for all sites in the Coppermine watershed. Total arsenic, total molybdenum and total nickel were also omitted from trend analysis at the Coppermine River mouth due to the prevalence of < DL data, as well as total arsenic at Daring Lake.

Trend analysis results indicated highly or moderately significant increasing trends for total barium, total molybdenum and total strontium, and decreasing temporal trends for total aluminum, total barium, total copper, and total nickel.

At the Lac de Gras outlet, highly significant increasing trends were identified for total strontium (annual median, winter baseflow and summer recession) and moderately significant increasing



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trends were identified for total barium (winter baseflow and summer recession) and total molybdenum (annual median and winter baseflow). A moderately significant decreasing trend was identified for total copper at the Lac De Gras outlet (annual median and summer recession).

At Desteffany Lake, highly significant increasing trends were identified for total strontium (annual median, winter baseflow and summer recession), with a moderately significant increasing trend for total molybdenum (winter baseflow). A moderately significant decreasing trend was identified for total copper at Desteffany Lake (annual median and summer recession).

At Daring Lake, a highly significant decreasing trend was identified for total copper (annual median), with a moderately significant decreasing trend for total barium (annual median).

At Point Lake, a moderately significant increasing trend was identified for total strontium (winter baseflow). A highly significant decreasing trend was identified for total copper (summer recession), with moderately significant decreasing trends for total aluminum (annual median and summer recession), total barium (winter baseflow), and total copper (annual median).

At the Coppermine River above Copper Creek, a moderately significant decreasing trend was identified for total copper (spring freshet). There were no highly or moderately significant trends for any metals assessed at Rocknest Lake or the Coppermine River mouth.

3.1.4.5 Conclusion

In the present study, significant increasing temporal trends in pH, conductivity, total hardness, dissolved calcium, chloride, magnesium, total molybdenum, and total strontium were identified at the Lac de Gras outlet, as well as downstream Desteffany Lake, and to a lesser extent Point Lake. This indicates that there has been an increase in these analyte concentrations over time at these sites in the southern Coppermine watershed.

As mentioned in Section 3.1.2.1.6, temporal trends were evaluated throughout Lac de Gras using the AEMP datasets from Ekati and Diavik diamond mines (Stantec unpub.). The present trend results for pH, conductivity, total hardness, chloride, and total strontium at the Lac de Gras outlet support the identified water chemistry changes in Lac de Gras (Stantec unpub.). Significant increasing trends in sulphate were also identified throughout Lac de Gras, and at the Lac de Gras outlet in the AEMP data (Stantec unpub.), but were not identified in the present trend analysis and reasons for this are unknown. Trends in dissolved calcium, magnesium, and total barium were not within the scope of the previous temporal trends analysis in Lac de Gras (Stantec unpub.) but were identified in the present analysis at the Lac de Gras outlet.

Significant increasing trends in total alkalinity, sulphate, total phosphorus, and total barium were also identified at sites in the southern Coppermine watershed, though there was no apparent spatial tendency to these trends.



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In the Peel watershed, significant increasing trends in calcium, magnesium, and sulphate were attributed to an increase in chemical weathering and/or an increasing in the contribution of groundwater to total flow (Stantec 2012). Chemical weathering of bedrock and soils can also be a significant source of strontium to natural waters (Capo et al. 1998), such as those in the Coppermine watershed. However in the present assessment, Daring Lake, which flows into Desteffany Lake and is not influenced by discharge from Lac de Gras, only showed a marginally significant increasing trend for pH and decreasing trends for alkalinity and total phosphorus. This suggests that the trends observed at the Lac de Gras outlet, Desteffany Lake, and to a lesser extent, the Point Lake outlet, are not due to natural phenomena alone, such as chemical weathering or groundwater inflow, but are influenced by the discharge of waters from the Lac de Gras basin.

Highly or moderately significant decreasing trends were identified for turbidity at the Lac de Gras outlet and the Point Lake outlet; this indicates a reduction in particulates over time, though reasons for this are unclear. This may reflect slight changes in sampling distance from the actual outlet depending on field and weather conditions; for example, more recent sampling could be completed slightly further from the outlet, which is expected to have less turbidity than the outlet itself. The results may also be related to a reduction in run-off and rain events, during the summer recession, though further investigation is needed to confirm this.

Highly or moderately significant decreasing trends were identified for total copper for one or more time periods at the Lac de Gras outlet, Desteffany Lake, Daring Lake, the Point Lake outlet, and the Coppermine River above Copper Creek. A reduced set of data were analyzed to remove most of the high and variable < DL data so the trend results are considered reliable, but reasons for this trend are unknown. Hullebusch et al. (2008) showed that copper (as the dissolved ion) typically follows concentrations of dissolved organic carbon (DOC). Reduced DOC concentrations have been associated with permafrost thaw slumping in the Mackenzie Delta (reviewed by Thienpont et al. 2013), and this is likely related to changes in chemical interactions (Thompson 2003). For example, increasing concentrations of cations (e.g., calcium, magnesium, sulphate), caused by permafrost thaw, can speed adsorption and flocculation of humic substances (a large component of DOC in oligotrophic systems), decreasing their concentration (reviewed by Thomas 1997). This in turn could affect concentrations of copper. However, further investigation and monitoring is needed.

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3.2 LOCKHART WATERSHED

3.2.1 Hydrology

3.2.1.1 Spatial and Seasonal Variability in Flow

At the single hydrometric monitoring site within the Lockhart watershed (see Table 2-1), flow is marked by considerable seasonality (Figure 3-4), and yearly fluctuation (Figure D-36 to Figure D-42 in Appendix D). There is a relatively long period of 'baseflow' that occurs during the approximately six months of winter (between November to April). Flow rates generally reach yearly lows, sometime in May (Figure 3-4). Maximum monthly flow rates consistently occur in August and September, after which flows generally decline (Figure 3-4, Table 3-9 and Figure D-41 in Appendix D) until baseflow is reached (Figure 3-44).

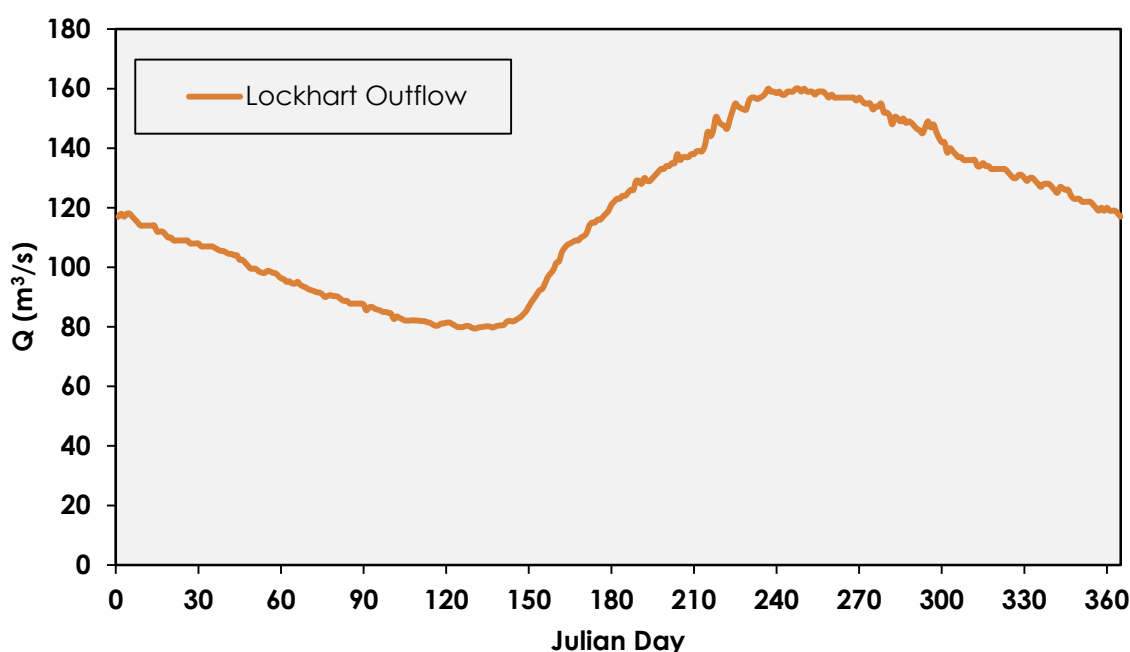


Figure 3-4: Median seasonal flow dynamics at the Lockhart River below Artillery Lake

Due to the location of the hydrometric station at the outlet of Artillery Lake on the Lockhart River, (Lockhart outflow), spring freshet is usually a gradual-increase event (Figure 3-4) with the peak occurring in May or June. On average, flow rates increase by seven-fold at the Lockhart outflow, with maximum and minimum observed flows of 285 m³/s and 43 m³/s, respectively. The lake effect on seasonal flow is evident at the Lockhart outflow, which does not actually exhibit a spring freshet (Figure 3-4) as the peak flow occurs in August or September.

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Table 3-9: Median flow rates (m³/s) at the outlet of the Lockhart River below Artillery Lake

Month	Season	Lockhart River below Artillery Lake
January	Baseflow	112
February	Baseflow	102
March	Baseflow	92
April	Baseflow	83
May	Freshet	81
June	Freshet	108
July	Recession	132
August	Recession	154
September	Recession	157
October	Recession	150
November	Baseflow	133
December	Baseflow	125
Annual Median		119

3.2.1.2 Temporal Trends in Flow

The Mann-Kendall trends test was performed for the hydrologic parameters described in Section 2.2.2 and the results are shown in Table 3-10. At the Lockhart outflow, there have been no significant trends in annual median, or mean for the entire period of record (1944-2013), or over the past decade (Table 3-10 and Figure D-39 in Appendix D). The lack of trends indicates that the total volume of water flowing within the Lockhart River watershed, despite considerable yearly variability (Figure D-36 to D-42 in Appendix D), is the same now as it was about 50 years ago. This suggests that overall the hydrological cycle has remained measurably unchanged over the period of record. The lack of temporal trends in the Lockhart watershed is due to the influence of various lakes on the hydrological cycle within the watershed.

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Table 3-10: Results of the Mann-Kendall trends analysis (p-values¹) for the Lockhart watershed

Test Parameter	Lockhart River below Artillery Lake	
	1944-2013	2003-2013
Month		
January	NS	NS
February	NS	NS
March	NS	NS
April	NS	NS
May	NS	NS
June	NS	NS
July	NS	NS
August	NS	NS
September	NS	NS
October	NS	NS
November	NS	NS
December	NS	NS
Season²		
Baseflow	NS	NS
Freshet	NS	NS
Recession	NS	NS
Annual Flow (water years)		
Average Q	NS	NS
Daily Min Q	NS	NS
Daily Max Q	NS	NS
Median Q	NS	NS
NOTES:		
1. P-value: <0.05 = Marginally Significant; <0.005 = Moderately Significant ; <0.001 = Highly Significant; <0.0001 = Very Highly Significant, NS = Not Significant		
2. Season: baseflow = November 1 to April 30; freshet = May 1 to June 30; recession = July 1 to October 31		

Within the Lockhart watershed, there has also been no significant alteration in the annual maximum or minimum daily flow (Table 3-10 and Figure D-39 in Appendix D). This suggests that the frequency and occurrence of extreme events, such as winter baseflow, intense summer rainstorms, precipitous freshet melting events, and/or unusually large snowpack, have not increased within the watershed.

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Consistent with this is the fact that the Q_{10} , which represents high flows, or flows exceeded 10% of the time, for the past decade is almost identical to the Q_{10} calculated for the entire period of record, as demonstrated by the FDC in Figure 3-5. Additionally, the Q_{90} , which represents low flows, or flows exceeded 90% of the time, over the last decade is relatively identical to the Q_{90} calculated for the period of record (Figure 3-5). This suggests that there is no change in the flow regime between the entire period of streamflow records and for the last decade (2003 to 2013).

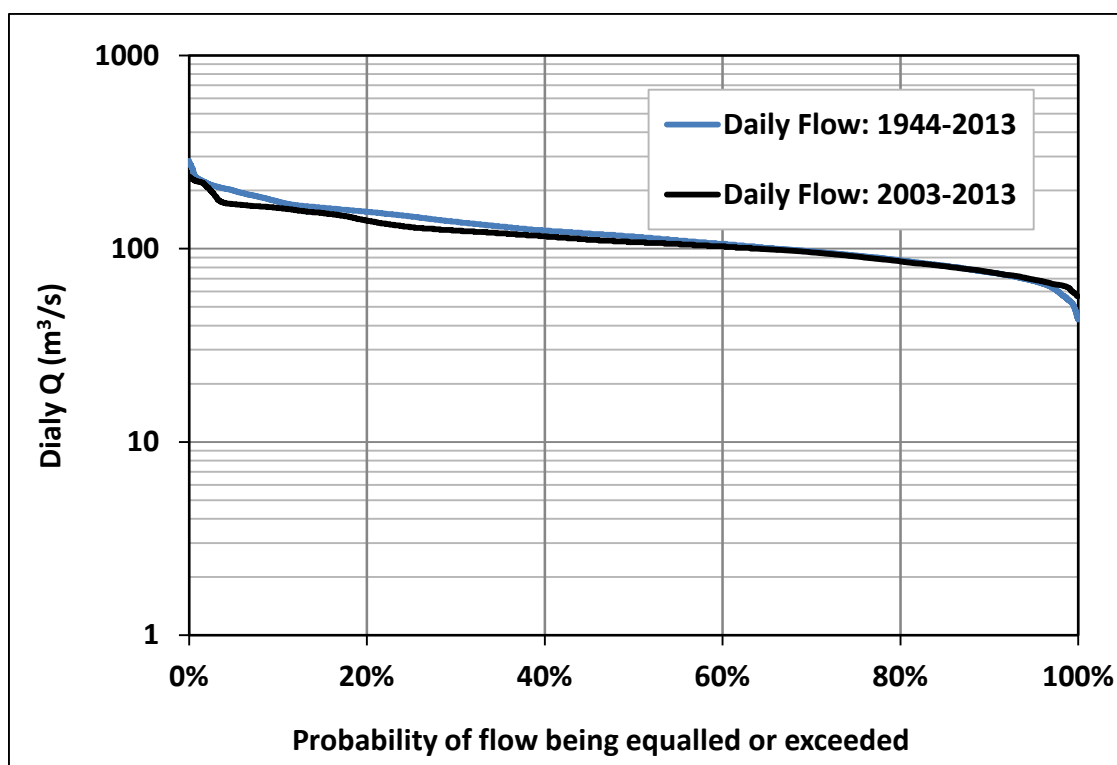


Figure 3-5: Flow duration curve for the Lockhart River below Artillery Lake

The results of the hydrological flow and trends analysis suggests that the hydrological cycle within the Lockhart watershed, at the Lockhart outflow below Artillery Lake, has not experienced a significant increase in yearly and seasonal flow over the past 50 years due to the dominant influence of lakes on the hydrology of the outlet river.

3.2.2 Water Chemistry

3.2.2.1 Spatial and Seasonal Variability in Water Chemistry

To examine potential spatial and seasonal differences in water chemistry within the Lockhart watershed, the water chemistry data for each site were summarized and compared for each analyte of interest. Scatterplots with all data are available in Appendix B-2 and summary

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statistics are provided in Appendix B-4. Boxplots for spatial and seasonal analysis for each analyte of interest are provided in Appendix B-5 (spatial) and Appendix B-6 (seasonal). Overall spatial and seasonal differences are described in the following sections.

3.2.2.1.1 Physical Analytes

Data were summarized for the four sites within the Lockhart watershed, including King Lake, Lake of the Enemy, MacKay Lake, and the Lockhart River below Artillery Lake (Lockhart outflow). Minor spatial differences were observed for pH, conductivity, TDS and turbidity across the Lockhart watershed at these sites (see Table 3-11). For example, the range of median values throughout the Lockhart watershed was 6.8 to 7.2 for pH, 15.8 to 20.5 $\mu\text{S}/\text{cm}$ for conductivity, 10 to 14 mg/L for TDS, and 0.21 to 0.37 NTU for turbidity (Table 3-4). These values are similar to those observed in the southern Coppermine watershed, also on the SGP, and are similar to, or slightly lower than, those from previous studies on the Canadian Shield, between Yellowknife and Contwoyto Lake, where pH values ranged from 6.3 to 7.3 (Moore 1979, Tibbatts et al. 1987), and conductivity was $\leq 100 \mu\text{S}/\text{cm}$ (Pienitz et al. 1997).

Examining all data by season (i.e. winter baseflow, spring freshet, and summer recession), only minor differences between were observed in pH and turbidity at the lake sites within the Lockhart watershed (i.e. King Lake, Lake of the Enemy, and MacKay Lake). Some seasonal variation was observed at the lake sites for conductivity and TDS which were slightly higher during winter baseflow than summer recession; spring freshet data are not available for the lake sites in the Lockhart watershed.

At the Lockhart outflow, conductivity and TDS slightly increase during the spring freshet period. While not as dramatic, this is similar to the seasonal pattern observed at riverine sites in the northern Coppermine watershed (see Section 3.1.2.1.1). This was attributed to increased run-off and erosion during the spring freshet, with higher turbidity and dissolved solutes from the surrounding catchment area. This appears to occur at the Lockhart outflow even though peak flows at this site do not occur until the summer recession (see Section 3.2.1.1). Seasonal turbidity data are also more variable at the Lockhart outflow (CV 136%), compared to the lake sites of the Lockhart watershed, and a number of outliers are present. These outliers occurred throughout all seasons but were most abundant during the summer recession when peak flows occurred (see Section 3.2.1.1). While the Lockhart outflow is a riverine site, seasonal variability at the Lockhart outflow site is not as dramatic as the riverine sites in the northern Coppermine watershed due to the dominant influence of Artillery Lake on the hydrologic conditions at this site.

Depending on the sample site, the upper limit for physical analytes was defined between 7.0 and 8.3 for pH, 17.4 and 23.0 $\mu\text{S}/\text{cm}$ for conductivity, 22 and 30 mg/L for TDS, and 0.41 to 1.30 NTU for turbidity (Table 3-11). Waters throughout the Lockhart watershed are considered circumneutral (i.e. pH 6.5 to 7.5).

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Table 3-11: Summary statistics of the physical analytes of interest, for all seasons combined, at sample sites in the Lockhart watershed

Sample Site	n _{ND} / n	% ND	Min	Low ¹	10 th	25 th	Mean	Median	75 th	90 th	High ²	Max	SD	SE	CV
pH															
King Lake	0 / 28	0	6.9	6.9	6.9	7.0	7.0	7.0	7.1	7.1	7.2	7.2	0.09	0.02	0.01
Lake of the Enemy	0 / 29	0	6.7	6.7	6.7	6.8	6.8	6.8	6.9	6.9	7.0	7.0	0.10	0.02	0.01
MacKay Lake	0 / 28	0	6.6	6.6	6.7	6.8	6.8	6.8	6.9	7.0	7.1	7.1	0.11	0.02	0.02
Lockhart River below Artillery Lake	0 / 69	0	4.2	6.1	6.6	6.8	7.1	7.2	7.5	7.9	8.3	9.0	0.67	0.08	0.09
Conductivity (µS/cm)															
King Lake	0 / 33	0	18.6	18.6	18.94	19.3	22	20.5	22.3	29.58	22.7	34.1	4.3	0.75	0.20
Lake of the Enemy	0 / 34	0	15.4	15.4	16.4	16.8	19	17.25	18.25	26.54	19.8	31	4.1	0.7	0.22
MacKay Lake	0 / 34	0	14	14	14.55	15.05	17	15.8	16.48	23.01	17.4	27.9	3.6	0.62	0.21
Lockhart River below Artillery Lake	0 / 131	0	10	10	11.9	14.9	18	16.6	18.85	21.2	23	69.9	6.4	0.56	0.37
Total Dissolved Solids (mg/L)															
King Lake	11 / 33	33	10	10	10	10	16	14	22	25.6	28	28	6.6	1.2	0.42
Lake of the Enemy	20 / 34	59	10	-	-	-	13	-	-	-	-	24	4.7	0.81	0.35
MacKay Lake	13 / 34	38	10	10	10	10	13	10	16	20	22	22	4	0.69	0.31
Lockhart River below Artillery Lake	17 / 58	29	10	10	10	10	16	14	19.75	26	30	44	7.5	0.99	0.47
Turbidity (NTU)															
King Lake	0 / 33	0	0.16	0.16	0.202	0.27	0.32	0.3	0.38	0.43	0.5	0.5	0.091	0.016	0.29
Lake of the Enemy	0 / 34	0	0.13	0.13	0.14	0.16	0.25	0.21	0.29	0.392	0.45	0.87	0.14	0.024	0.57
MacKay Lake	0 / 34	0	0.15	0.15	0.173	0.23	0.3	0.26	0.32	0.48	0.41	0.79	0.14	0.024	0.47
Lockhart River below Artillery Lake	2 / 129	2	0.05	0.05	0.14	0.2	0.65	0.37	0.7	1.52	1.3	5.5	0.89	0.078	1.36
NOTES: 1. Low = lower bound, defined as approximately the 5 th percentile 2. High = upper bound, defined as approximately the 95 th percentile															

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3.2.2.1.2 Major Ions

In the Lockhart watershed, hardness and alkalinity data indicate very soft water (i.e. hardness < 30 mg/L; Health Canada 2014) that has low buffering capacity and is sensitive to acid deposition (i.e. alkalinity < 10 mg/L; Saffran et al. 1996) (see Table 3-12). This is similar to results from the southern Coppermine watershed and is typical of fresh waters within the areas of the Canadian Shield (Tebbatts et al. 1987). Throughout the watershed, the dominant cation was calcium (dissolved), followed by magnesium (dissolved) with lesser amounts of sodium (dissolved) and potassium (dissolved). The dominant anion appeared to be bicarbonate, with lesser amounts of sulphate and chloride, however bicarbonate data were only available for the Lockhart outflow and only a partial evaluation of major anions could be completed for the Lockhart watershed.

Overall, median values for major cations in the Lockhart watershed ranged from 6.0 to 9.6 mg/L for total hardness, 1.4 to 2.8 mg/L for dissolved calcium, and 0.7 to 1.0 mg/L for dissolved magnesium (Table 3-12). For the major anions, median alkalinity ranged from 3.9 to 6.2 mg/L across sample sites in the Lockhart watershed and median bicarbonate was 5.8 mg/L at the Lockhart outflow. Hardness, calcium, magnesium, and alkalinity appeared to be slightly lower at the Lockhart outflow, compared to other sites in the watershed, with the highest values typically reported in King Lake.

Only minor seasonal variation in hardness, calcium, magnesium, and alkalinity were noted for the four sites in the Lockhart watershed. At most sites, these analytes tended to be slightly higher in winter baseflow than summer recession, however overall, values for hardness, calcium, magnesium and alkalinity remained low throughout all seasons.

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Table 3-12: Summary statistics of the major ion and nutrient analytes of interest, for all seasons combined, at sample sites in the Lockhart watershed

Sample Site	n _{ND} / n	% ND	Min	Low ¹	10 th	25 th	Mean	Median	75 th	90 th	High ²	Max	SD	SE	CV
Total Hardness (mg/L)															
King Lake	0 / 28	0	3	3	7.76	8.35	10	9.55	12.725	13.43	16.7	16.7	2.9	0.55	0.28
Lake of the Enemy	0 / 29	0	2.5	2.5	6.54	6.7	8.9	8.2	10.7	11.62	15.4	15.4	2.9	0.53	0.32
MacKay Lake	0 / 28	0	2.8	2.8	6.07	6.4	8.5	8.95	10.9	11.2	14.2	14.2	2.5	0.48	0.30
Lockhart River below Artillery Lake	0 / 112	0	2.2	4.39	5.135	5.5	6.5	6.0085	6.705	7.8656	8.27	28.3	2.7	0.25	0.41
Total Alkalinity (mg/L)															
King Lake	5 / 33	15	0.7	5.8	0.7	6	6.1	6.2	7.6	8.76	9.2	10.7	2.6	0.46	0.43
Lake of the Enemy	5 / 34	15	0.7	2.6	0.7	3.8	3.9	3.9	5.05	5.57	6.4	6.4	1.6	0.27	0.41
MacKay Lake	6 / 34	18	0.7	3.9	0.7	4	4.1	4.2	5.35	6.14	7.2	7.2	1.9	0.33	0.47
Lockhart River below Artillery Lake	5 / 125	4	0.1	2	3.84	4.4	5.2	5	6	6.76	8.3	13.2	1.7	0.15	0.32
Dissolved Calcium (mg/L)															
King Lake	0 / 33	0	0.9	0.9	1.9	2.2	2.9	2.8	3.2	3.7	4.2	8.7	1.3	0.23	0.46
Lake of the Enemy	0 / 34	0	0.5	0.5	1.3	1.4	2	1.8	2.4	2.8	3.5	7.1	1.1	0.19	0.54
MacKay Lake	0 / 34	0	0.7	0.7	1.3	1.5	2.2	2.2	2.6	2.9	3.3	7.2	1.1	0.19	0.51
Lockhart River below Artillery Lake	1 / 128	1	0.6	0.8	1.1	1.2	2	1.4	1.5	1.9	1.9	59	5.2	0.46	2.59
Chloride (mg/L)															
King Lake	12 / 27	44	0.1	0.7	0.1	0.7	0.71	0.7	0.95	1	1.3	1.3	0.33	0.064	0.47
Lake of the Enemy	27 / 28	96	0.1	-	-	-	0.59	-	-	-	-	0.7	0.23	0.044	0.39
MacKay Lake	27 / 28	96	0.1	-	-	-	0.57	-	-	-	-	0.7	0.25	0.047	0.44
Lockhart River below Artillery Lake	4 / 130	3	0.1	0.25	0.3	0.4	1.1	0.41	0.5	0.7	0.62	76.1	6.6	0.58	6.26
Sulphate (mg/L)															
King Lake	1 / 29	3	0.1	0.1	1	1	1.5	2	2	2	2	2	0.57	0.11	0.38
Lake of the Enemy	1 / 30	3	0.1	3	3	3	3.1	3	3	4	3	5	0.81	0.15	0.26
MacKay Lake	2 / 30	7	0.1	0.1	1	1	1.6	2	2	2.1	3	3	0.75	0.14	0.46
Lockhart River below Artillery Lake	8 / 129	6	0.6	0.88	1	1.3	1.7	1.5	1.65	2	2.1	14.8	1.5	0.13	0.88
Total Phosphorus (mg/L)															
King Lake	15 / 33	45	0.002	0.002	0.002	0.003	0.006	0.003	0.01	0.01	0.01	0.01	0.0037	0.00065	0.62
Lake of the Enemy	26 / 34	76	0.002	-	-	-	0.006	-	-	-	-	0.01	0.0039	0.00068	0.70
MacKay Lake	19 / 34	56	0.002	-	-	-	0.007	-	-	-	-	0.02	0.0044	0.00075	0.68
Lockhart River below Artillery Lake	42 / 99	42	0.002	0.002	0.002	0.003	0.008	0.005	0.01	0.0128	0.02	0.069	0.0085	0.00085	1.07

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Table 3-12: Summary statistics of the major ion and nutrient analytes of interest, for all seasons combined, at sample sites in the Lockhart watershed

Sample Site	n _{ND} / n	% ND	Min	Low ¹	10 th	25 th	Mean	Median	75 th	90 th	High ²	Max	SD	SE	CV
Total Nitrogen (mg/L)															
Lockhart River below Artillery Lake	0 / 103	0	0.026	0.026	0.10	0.12	2.10	0.140	0.190	0.250	0.257	204	20	2	9.36
NOTES: 3. Low = lower bound, defined as approximately the 5 th percentile 4. High = upper bound, defined as approximately the 95 th percentile															

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Chloride concentrations were slightly higher at King Lake than the Lockhart outflow and median values ranged from 0.7 mg/L in King Lake to 0.4 mg/L at the Lockhart outflow (see Table 3-12). The upper limit for chloride was defined at 1.3 mg/L in King Lake and 0.6 mg/L at the Lockhart outflow. Chloride was largely undefined at the Lake of the Enemy and MacKay Lake as 96% of the data from each lake were below the detection limit of 0.7 mg/L.

Sulphate was largely similar across the Lockhart watershed with median values ranging from 1.5 to 3.0 mg/L. The upper limit for sulphate was defined between 2.0 and 3.0 mg/L, depending on sample site.

Little to no seasonal variation in chloride or sulphate was noted through the Lockhart watershed. Throughout all seasons, median chloride was 0.7 mg/L at King Lake, Lake of the Enemy, and MacKay Lake, and 0.4 mg/L at the Lockhart outflow. Sulphate tended to be slightly higher during winter baseflow than in summer recession at Lake of the Enemy and MacKay Lake, however values remained low throughout all seasons.

3.2.2.1.3 Nutrients

Similar to the Coppermine watershed, TN and TP data were reviewed to examine nutrient and trophic status throughout the Lockhart watershed. In general, nutrient levels are low and are frequently reported below detection. Data for TN and data for TKN, nitrate (as N) and nitrite (as N), or nitrate+nitrite (as N) (which can be summed to estimate TN), were only reported for the Lockhart outflow. This prevented an assessment of TN across the Lockhart watershed.

Waters in the Lockhart watershed are largely considered oligotrophic (i.e. $TP < 0.012$ mg/L and $TN < 0.360$ mg/L; Carlson and Simpson 1996) based on median TP values, and the median TN value at the Lockhart outflow. Median TP was only defined in King Lake (0.003 mg/L) and the Lockhart outflow (0.005 mg/L) as the majority (56 to 76%) of the TP data in Lake of the Enemy and MacKay Lake were reported below detection. Median TN at the Lockhart outflow was 0.140 mg/L. The upper limit for TP at King Lake and the Lockhart outflow was defined at 0.001 and 0.002 mg/L, respectively. The upper limit for TN at the Lockhart outflow was defined at 0.257 mg/L. The TN data at the Lockhart outflow were skewed upwards (mean 2.15 mg/L) and indicate some variability in TN values at this site; one larger outlier (205 mg/L; January 17, 2000) was included in the data analysis and this was likely erroneous.

Throughout the Lockhart watershed, TP is slightly higher in winter baseflow than the summer recession period. Data for TP during spring freshet are not available so it is unknown if slight increases also occur then, as observed in the Coppermine watershed. However, an examination of dissolved and total phosphorus values in the Lockhart watershed revealed that phosphorus appears to be primarily associated with the dissolved fraction. The increase during summer, and potential increase during spring freshet, may be related to snowmelt and rain events, with subsequent run-off from the surrounding catchment (Wetzel 2001).

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Minor seasonal variation was noted for TN at the Lockhart outflow with median values being slightly higher during winter baseflow (0.165 mg/L) than spring freshet (0.150 mg/L), with the lowest values seen during the summer recession (0.138 mg/L). This seasonal pattern was also observed at two sites in the Coppermine watershed and is attributed to uptake of nitrogen by aquatic organisms (e.g., plankton, macrophytes) during the summer period (Wetzel 2001).

3.2.2.1.4 Metals

As outlined in Section 2.3.2, metals of interest (including metals with data appropriate for trend assessment) for the present assessment of the Lockhart watershed include total aluminum, arsenic, barium, copper, mercury, molybdenum, nickel, strontium, and uranium. Concentrations for total arsenic, mercury, molybdenum and uranium are largely undefined for King Lake, Lake of the Enemy, and MacKay Lake due to the prevalence of non-detect data (see Table 3-13). At the Lockhart outflow, total metal concentrations, including total arsenic, molybdenum and uranium, were reported above detection limits and the upper limits could be defined (Table 3-13). Total mercury concentrations are unknown at the Lockhart outflow as mercury data have not been collected at this site.

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Table 3-13: Summary statistics of select total metals of interest, for all seasons combined, at sample sites in the Lockhart watershed

Sample Site	n _{ND} / n	% ND	Min	Low ¹	10 th	25 th	Mean	Median	75 th	90 th	High ²	Max	SD	SE	CV
Total Aluminum (mg/L)															
King Lake	0 / 33	0	0.0037	0.0037	0.0058	0.0074	0.009	0.0091	0.01030	0.0118	0.0144	0.0144	0.0024	0.00041	0.26
Lake of the Enemy	1 / 34	3	0.0006	0.0008	0.0007	0.0021	0.0026	0.0026	0.00310	0.0042	0.0044	0.0065	0.0013	0.00022	0.49
MacKay Lake	0 / 34	0	0.0028	0.0028	0.0041	0.0055	0.0068	0.00705	0.0081	0.0094	0.0109	0.0109	0.002	0.00035	0.30
Lockhart River below Artillery Lake	2 / 59	3	0.002	0.002	0.0033	0.004	0.0061	0.0047	0.0060	0.009	0.008	0.03	0.0048	0.00062	0.79
Total Barium (mg/L)															
King Lake	0 / 33	0	0.0025	0.0025	0.0026	0.0027	0.0031	0.0029	0.0033	0.00388	0.004	0.0047	0.00051	0.00009	0.17
Lake of the Enemy	0 / 34	0	0.0014	0.0014	0.0015	0.0016	0.002	0.0017	0.0023	0.00267	0.0028	0.0039	0.00062	0.00011	0.31
MacKay Lake	0 / 34	0	0.0016	0.0016	0.00173	0.0019	0.0021	0.002	0.0022	0.00257	0.0026	0.003	0.00033	0.000056	0.16
Lockhart River below Artillery Lake	35 / 97	36	0.0021	0.0021	0.0023	0.0025	0.034	0.00279	0.08	0.1	0.12	0.12	0.042	0.0043	1.22
Total Copper (mg/L)															
King Lake	2 / 33	6	0.0002	0.0002	0.00032	0.0005	0.0007	0.0006	0.0007	0.0008	0.0008	0.0045	0.0007	0.00012	1.05
Lake of the Enemy	3 / 34	9	0.0002	0.0002	0.0002	0.0004	0.0005	0.0006	0.0006	0.0007	0.0008	0.0008	0.0002	0.000031	0.34
MacKay Lake	1 / 34	3	0.0002	0.0002	0.0003	0.0005	0.0006	0.0006	0.0007	0.0008	0.0009	0.0009	0.0002	0.000032	0.32
Lockhart River below Artillery Lake	57 / 98	58	0.000004	-	-	-	0.0003	-	-	-	-	0.0013	0.0004	0.000037	1.19
Total Nickel (mg/L)															
King Lake	0 / 33	0	0.0001	0.0003	0.0004	0.0004	0.0004	0.0004	0.0005	0.0005	0.0006	0.0006	0.000087	0.00002	0.20
Lake of the Enemy	0 / 34	0	0.0002	0.0004	0.0004	0.0005	0.0005	0.0005	0.0006	0.0007	0.0007	0.0008	0.00011	0.00002	0.21
MacKay Lake	0 / 34	0	0.0003	0.0003	0.0005	0.0008	0.0010	0.0010	0.0012	0.0014	0.0016	0.0017	0.00033	0.0001	0.34
Lockhart River below Artillery Lake	28 / 98	29	0.0002	0.0004	0.0004	0.0005	0.011	0.00051	0.0006	0.001	0.0007	1	0.1	0.01	9.04
Total Strontium (mg/L)															
King Lake	0 / 33	0	0.0071	0.0071	0.0093	0.0098	0.0110	0.0101	0.0119	0.0146	0.0150	0.0183	0.0023	0.0004	0.21
Lake of the Enemy	0 / 34	0	0.005	0.0063	0.0063	0.0065	0.0073	0.0067	0.0070	0.0103	0.0072	0.0124	0.0017	0.0003	0.24
MacKay Lake	0 / 34	0	0.0047	0.0064	0.0065	0.0066	0.0074	0.0071	0.0074	0.0092	0.0086	0.0128	0.0017	0.00029	0.23
Lockhart River below Artillery Lake	0 / 61	0	0.00001	0.0052	0.0055	0.0057	0.0060	0.0061	0.0064	0.0066	0.0072	0.0072	0.00091	0.0001	0.15
NOTES: 1. Low = lower bound, defined as approximately the 5 th percentile 2. High = upper bound, defined as approximately the 95 th percentile															

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Upon examining the ratio between total and dissolved metals, where both were reported, it was found that aluminum was primarily associated with the particulate fraction throughout the Lockhart watershed (i.e. dissolved-to-total metal ratio considerably < 1.0); other particulate metals included iron, and manganese. The relationship between turbidity and particulate metal concentrations was examined by reviewing turbidity versus total aluminum concentrations. Given the minor seasonal variability noted for turbidity at sites in the Lockhart watershed, a correlation was not observed between turbidity and total aluminum, and likely other particulate metals (log R^2 ranged from 0.01 to 0.08). The relationship between turbidity and total aluminum is provided in for the Lockhart outflow as an example; all other figures are available in Appendix B-7.

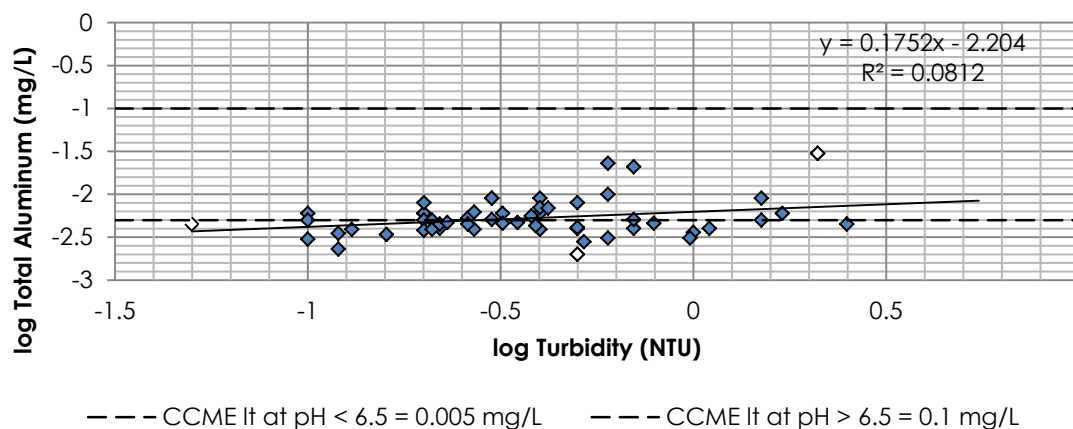


Figure 3-6: Total aluminum versus turbidity at the Lockhart River below Artillery Lake (Lockhart outflow)

Examining other metals, where both the total and dissolved concentrations were reported, it was found that barium, copper, nickel and strontium were primarily found as the dissolved ion throughout the Lockhart watershed (i.e. dissolved-to-total metal ratio approximately 1.0); other metals typically found as dissolved ions included bismuth, boron, cerium, gallium, lanthanum, lead, lithium, rubidium, tungsten, and yttrium. However, total concentrations were examined for these metals as there is much less dissolved metal data available.

Overall, there appears to be a minor spatial variation in concentrations of total aluminum, barium, and copper at sites in the Lockhart watershed. Depending on site, the upper limit of these metals in the Lockhart watershed was defined between 0.008 and 0.0144 mg/L for total aluminum, 0.003 and 0.12 mg/L for total barium, and 0.0008 and 0.0009 mg/L for total copper (Table 3-13). Mean and median values for total barium at the Lockhart outflow indicate an upwardly-skewed dataset and this was due to a number of high non-detect values (< 0.080 and < 0.100 mg/L) from the 1980s.

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Median total nickel concentrations were twice as high in MacKay Lake (0.001 mg/L), than in King Lake (0.0004 mg/L) and Lake of the Enemy (0.0005 mg/L), but reasons for this are unknown. Differences in overburden, geological materials, and weathering can cause variations in nickel (EC 1994), however the three lakes are not a considerable distance from each other, and higher concentrations were not noted for other metals. Nickel is also released in the combustion of fossil fuels, which is the second most important source of anthropogenic nickel in Canada (EC 1994). The Tibbitt to Contwoyto Winter Road crosses the length of MacKay Lake (see Figure 1-1 and Figure 1-3) and local deposition of emissions from long-haul trucks may influence nickel concentrations in this lake; however, further investigation is needed.

Little to no seasonal variation was observed for total aluminum, barium, and copper at sites throughout the Lockhart watershed. Some seasonal variation was observed for total nickel and strontium at the three lake sites, with values being slightly higher during winter baseflow, than during the summer recession.

3.2.2.1.5 Other Analytes

Data were not received for BTEX, TPH, PAHs, PCBs, or organic compounds for the Lockhart watershed. Data for total cyanide were received for all sites across the watershed, though the majority of the data came from the Lockhart outflow (two data points each at King Lake, MacKay Lake and Lake of the Enemy, versus 49 data points at the Lockhart outflow). Mean and median total cyanide ranged from 0.001 to 0.779 mg/L though many results (50% to 100%) were reported below detection. Results for thiocyanate and weak-acid dissociable cyanide from the Lockhart watershed were ≤ 0.8 mg/L and ≤ 0.002 mg/L, respectively.

3.2.2.1.6 Spatial and Seasonal Variability Summary

Overall, water chemistry was relatively similar across sites in the Lockhart watershed with minimal spatial variation; this finding is consistent with Blais (2004). The waters of the Lockhart watershed are considered circumneutral and very soft with low conductivity, TDS, turbidity, acid-buffering capacity, and metals. Nutrients, as TP and TN, were low throughout the Lockhart watershed, and waters were considered oligotrophic. Seasonal variability was minor for most water chemistry parameters throughout the watershed.

3.2.3 Comparison to Water Quality Guidelines

Reviewing all data that were reported above detection limits for the four sample sites examined in the Lockhart watershed, the CCME guidelines for the protection of freshwater aquatic life (FAL) were exceeded in several instances across the watershed. These are summarized in Table 3-14 below, and detailed for each site and season in Appendix B-4. Exceedances include nitrite, total cyanide, and total aluminum, cadmium, copper, lead, mercury, nickel, selenium, silver, and thallium. Of Health Canada's GCDWQ, only total cyanide and total lead exceeded their respective guidelines in very few ($\leq 2\%$) of samples. However, as discussed in Section 2.3.4, the Health Canada guidelines are typically applied to treated drinking water systems and are not

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intended for direct comparison to natural lake and river systems. The CCME guidelines are also national in scope and are not designed to reflect all local, natural conditions. Therefore, any guideline exceedances should be considered with this in mind.

Table 3-14: Total number of exceedances of the CCME FAL and GCDWQ across the Lockhart watershed

Analyte	Guideline (mg/L) ¹	n _{>GL} / n ²	% > GL ³	Sample Site(s) with Exceedances
CCME FAL				
Nitrite	0.060	11 / 231	5%	King Lake, Lake of the Enemy, MacKay Lake
Total Cyanide	0.005	3 / 86	3%	Lockhart River
Total Aluminum	0.005 – 0.10	18 / 166	11%	King Lake, MacKay Lake, Lockhart River
Total Cadmium	0.00004 – 0.00058	22 / 346	6%	King Lake, Lake of the Enemy, Lockhart River
Total Copper	0.0002	5 / 220	2%	King Lake, Lockhart River
Total Lead	0.0001	10 / 334	3%	King Lake, Lake of the Enemy, MacKay Lake, Lockhart River
Total Mercury	0.000026	1 / 190	1%	MacKay Lake
Total Nickel	0.025 – 0.15	2 / 85	2%	Lockhart River
Total Selenium	0.001	3 / 253	2%	King Lake, Lake of the Enemy, MacKay Lake
Total Silver	0.0001	4 / 274	1%	King Lake, MacKay Lake, Lockhart River
Total Thallium	0.0008	1 / 249	<1%	Lockhart River
GCDWQ				
Total Cyanide	0.2	2 / 86	2%	Lockhart River
Total Lead	0.010	1 / 334	<1%	Lake of the Enemy
NOTES:				
1. Where guidelines are hardness-dependent, or pH-dependent (total Al only), the range of guideline values is given				
2. n _{>GL} / n = number detectable of results greater than applicable guideline over the total number of results				
3. % > GL = percentage of total results greater than applicable guideline				

All exceedances identified in Table 3-14 are inclusive of those results reported above detection limits, but < DL results are included in the total 'n' value. Overall, the number of guideline exceedances was relatively low and typically comprised less than 6% of a given analyte's dataset. A few exceedances for cadmium, copper and lead were identified throughout the watershed. The CCME guidelines for these metals are hardness-dependent, and when hardness

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(per sample) values are low, as they are in the Lockhart watershed, the guideline values are also quite low. This means that detection limits are frequently either above the guideline value, or are not lower than ten times the guideline, as is typically suggested (Mitchell 2006). Therefore, results reported even slightly higher than the detection limit may exceed the guideline, but likely do not create any risks for aquatic life.

3.2.4 Temporal Trends in Water Chemistry

Of the 336 temporal Mann-Kendall trends tests completed for median data from the Lockhart watershed (21 analytes by four seasonal periods (annual median, winter baseflow, spring freshet, and summer recession), by four sites), 66 were significant with 37 significant increasing trends and 29 significant decreasing trends (Table C-2-2 in Appendix C-2). Due to the large number of comparisons made and the probability of making a Type I error at a p-value of 0.05 (see Table 2-5 in Section 2.3.4), confidence in all marginally significant ($p \leq 0.05$) trends are not sufficient for further interpretation. Therefore, the following sections summarize moderately significant ($p \leq 0.0125$) and highly significant ($p \leq 0.001$) trends only. Marginally significant trends are identified in this section, but are not discussed further.

The greatest number of significant temporal trends in the Lockhart watershed were identified at the Lockhart outflow site, compared to the other sites in the watershed. This is attributed to differences in the period of record between the Lockhart outflow (monitored since 1969) and the other sites (monitored since 2006). Most of the significant trends were found for the annual median or the summer recession period; significant trends were rarely observed during spring freshet or winter baseflow. Trend results are summarized in Table 3-14 for select analytes of interest and detailed in Table C-2-2 in Appendix C-2.

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Table 3-15: Summary of Mann-Kendall trend results for select analytes of interest in the Lockhart watershed

Sample Site & Time Period	Trend Results ¹							
	Conductivity	Turbidity	Total Hardness	Dissolved Magnesium	Total Alkalinity	Chloride	Sulphate	Total Strontium
King Lake								
Annual Median	↑	–	–	–	–	↑	↑	↑
Winter Baseflow	–	–	–	–	–	–	–	–
Spring Freshet	–	–	–	–	–	–	–	–
Summer Recession	↑	–	–	–	–	↑	↑	↑
Lake of the Enemy								
Annual Median	–	–	–	–	–	–	–	↑
Winter Baseflow	–	–	–	–	–	–	↑	–
Spring Freshet	–	–	–	–	–	–	–	–
Summer Recession	–	–	–	–	–	–	–	–
MacKay Lake								
Annual Median	–	–	–	–	–	–	–	↑
Winter Baseflow	–	–	–	–	–	–	–	↑
Spring Freshet	–	–	–	–	–	–	–	–
Summer Recession	–	–	–	–	–	–	–	↑
Lockhart River below Artillery Lake (Lockhart outflow)								
Annual Median	↑	↓	↑	↑	↑	–	↑	↑
Winter Baseflow	–	↓	–	↑	↑	–	↑	↑
Spring Freshet	–	–	↑	↑	↑	–	–	↑
Summer Recession	↑	↓	↑	↑	↑	–	↑	↑
NOTES:								
1. Trend results: "–" implies no significant trend; ↑ implies increasing trend; ↓ implies decreasing trend; bolded red arrows imply highly significant trend ($p \leq 0.001$); bolded blue arrows imply moderately significant trend ($p \leq 0.0125$); arrows with no bold and no colour imply marginally significant trend ($p \leq 0.05$)								

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3.2.4.1 Physical Analytes

Trend analysis indicated several moderately significant ($p \leq 0.0125$) trends for conductivity and turbidity in the Lockhart watershed. Highly significant ($p \leq 0.001$) trends were not identified for any physical analyte, and there were no significant trends identified for pH or TDS, or at MacKay Lake.

At King Lake, a moderately significant increasing trend was identified for conductivity (summer recession). Moderately significant increasing trends were also identified for conductivity at the Lockhart outflow (annual median and summer recession). Moderately significant decreasing trends in turbidity were also identified at the Lockhart outflow (annual median and winter baseflow).

3.2.4.2 Major Ions

Trend analysis indicated several highly or moderately significant trends for total hardness, dissolved magnesium, total alkalinity, chloride, and sulphate in the Lockhart watershed, for at least one site. Highly or moderately significant trends were not identified for any major ion in MacKay Lake, and no trends were identified in the Lake of the Enemy.

At King Lake, a moderately significant increasing trend was identified for chloride (annual median). At the Lockhart outflow, highly significant increasing trends were identified for total hardness (annual median and spring freshet), dissolved magnesium (annual median), total alkalinity (annual median, winter baseflow, and summer recession), and sulphate (annual median). Moderately significant increasing trends in dissolved magnesium were also identified at the Lockhart outflow for the remaining seasonal periods (winter baseflow, spring freshet and summer recession).

3.2.4.3 Nutrients

Data for TN were only available for the Lockhart outflow and only marginally significant increasing trends were identified during winter baseflow and summer recession.

A moderately significant decreasing trend was identified for TP at MacKay Lake during summer recession only. This trend result may have been due to variable detection limits throughout the dataset, as discussed in Section 3.1.4.3.

3.2.4.4 Metals

Due to the prevalence of data reported as below the detection limit, total mercury was omitted from trend analysis for all sites, while total arsenic, total molybdenum and total uranium were omitted from trend analysis for all sites but the Lockhart outflow.



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At King Lake, a moderately significant decreasing trend was identified for total copper (summer recession) with moderately significant increasing trends for total strontium (annual median and summer recession). At Lake of the Enemy, moderately significant decreasing trend was identified for total copper (annual median and summer recession), with a moderately significant increasing trend in total strontium (annual median). At MacKay Lake, a moderately significant increasing trend was identified for total strontium (annual median). Although total nickel was elevated at MacKay Lake, relative to the other Lockhart watershed sites (see Section 3.2.2.1.4), no significant trends were identified.

At the Lockhart River, highly significant increasing trends were identified for total barium (summer recession) and total strontium (annual median, spring freshet and summer recession). Moderately significant increasing trends were also identified for total barium (annual median and winter baseflow) and total strontium (winter baseflow) at the Lockhart outflow, with moderately significant decreasing trends for total aluminum (annual median and winter baseflow) and total arsenic (spring freshet).

Significant trends were not identified for total molybdenum, total nickel, or total uranium at any site in the Lockhart watershed.

3.2.4.5 Conclusion

Highly or moderately significant increasing temporal trends were identified for conductivity, total hardness, dissolved magnesium, total alkalinity, sulphate, total nitrogen, total barium, and total strontium in the Lockhart watershed. The majority of these occurred at the Lockhart outflow only. With the exception of total strontium, and to a lesser extent sulphate (which was only marginally significant), increasing trends were not consistent across the watershed. King Lake, Lake of the Enemy, and MacKay Lake have only been monitored since 2006, while data for the Lockhart outflow date back to 1969 (see Table 2-1 for the range of the period of record). This difference in the data record may preclude the present identification of trends at these lake sites; however, additional trends may become apparent with continued monitoring.

Overall, the trend results indicate there has been an increase in several analyte concentrations over time in the Lockhart watershed. As previously discussed, significant increasing trends in calcium, magnesium, and sulphate were attributed to an increase in chemical weathering and/or an increase in the contribution of groundwater to total flow in the Peel watershed (Stantec 2012). Chemical weathering of bedrock and soils is also a significant source of strontium to natural waters (Capo et al. 1998). An increase in chemical weathering and/or groundwater inflow may explain these increasing trends at these sites. The Snap Lake Diamond Mine, situated upstream of King Lake, may also be a factor in these increases identified in King Lake.

Moderately significant decreasing trends were identified in the Lockhart watershed for turbidity, total phosphorus, total aluminum, total arsenic, and total copper. Decreasing trends did not

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have apparent spatial or seasonal patterns, with the exception of turbidity and total aluminum which were only identified at the Lockhart outflow, and total copper which were only identified at Lake of the Enemy and King Lake. Significant decreasing trends for total copper were also identified in the Coppermine watershed and could be potentially be related to reduced DOC concentrations, caused by increasing cation concentrations, but this effect needs further investigation.

Turbidity and total aluminum results from the Lockhart outflow indicate a reduction in particulates over time, though reasons for this are unclear. This may be related to slight differences in sample locations at this outflow site, as discussed in the Coppermine watershed (see Section 3.1.4.5), or a reduction in run-off and rain events during the summer recession; further investigation is needed to confirm the latter however.

3.3 MONITORING PROGRAM EVALUATION

3.3.1 Hydrology

3.3.1.1 Coppermine Watershed

The hydrometric monitoring program in the Coppermine watershed is comprised of five primary stations. The distribution of these stations is sufficient to understand the seasonal and annual hydrologic dynamics within the watershed. No additional stations are recommended.

3.3.1.2 Lockhart Watershed

The hydrometric monitoring program on the Lockhart watershed is comprised of one station. The single station is not sufficient to gain a full understanding of the seasonal and annual hydrologic dynamics within the entire watershed. Therefore, to obtain more data on the hydrologic characteristics of the Lockhart watershed, at least two additional monitoring stations upstream of Artillery Lake are recommended. The additional stations should be sited at or near existing water chemistry monitoring stations (e.g., MacKay Lake) to obtain concurrent hydrologic and water chemistry data.

3.3.2 Water Chemistry

3.3.2.1 Monitoring Sites

3.3.2.1.1 Coppermine Watershed

The water chemistry monitoring program in the Coppermine watershed is comprised of seven primary sites: the Lac de Gras outlet, Desteffany Lake, Daring Lake, the Point Lake outlet, Rocknest Lake, the Coppermine River above Copper Creek, and the Coppermine River mouth. The distribution of these sites is sufficient to understand the seasonal and annual water chemistry dynamics within the watershed.



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The Daring Lake site is not influenced by water from Lac de Gras, and is a particularly important monitoring site to distinguish between potentially naturally-occurring water chemistry trends and those that may be related to anthropogenic influences from upstream Lac de Gras. Rocknest Lake also appears to be a transition between the water chemistry of the southern Coppermine watershed, and of the northern Coppermine watershed, and is a useful site to monitor this transition. Finally, the Coppermine River mouth has not been monitored since 2003 and it is an important site for monitoring the overall water chemistry trends in the Coppermine watershed. Monitoring at the Coppermine River mouth could be considered in cooperation with the Government of Nunavut.

3.3.2.1.2 Lockhart Watershed

The water chemistry monitoring program in the Lockhart watershed is comprised of four sites: King Lake, Lake of the Enemy, MacKay Lake, and the Lockhart River below Artillery Lake (Lockhart outflow). The distribution of these sites is largely sufficient to understand the seasonal and annual water chemistry dynamics within the watershed. The addition of one site near the headwaters of the Lockhart River, at Starfish Lake for example, could be considered to obtain information on water chemistry upstream of all inputs.

3.3.2.2 Sampling Methods

Through the data quality assessment (Appendix A), issues were identified regarding the collection of replicates, triplicates, and field blanks. A number of replicate and triplicate samples failed to meet the data quality objectives (i.e. 25% relative percent difference for replicates and 18% relative standard deviation for triplicates, as recommended by Mitchell 2006 and CCME 2011) and this was attributed to the potential introduction of suspended solids during sequential field sampling of duplicates and triplicates. A number of field blanks had results reported above the detection limits (mean of 30% of analytes per sample). Given that field blanks are typically filled and filtered in the field with laboratory-supplied deionized water, this indicates potential issues with the source of the deionized water, and/or field-filtering methods.

Field methods, including sample collection and sample filtering, should be reviewed to determine the most appropriate sampling techniques for a particular sample site to reduce potential sources of contamination. The source of the deionized water used for field blanks and travel blanks should also be reviewed.

Throughout both the Coppermine and Lockhart watershed, sampling events typically covered two seasonal periods (winter baseflow and summer recession); minimal data were available for spring freshet at most sites. It is recognized that there are logistical and safety concerns associated with sampling during spring and water chemistry data sets often have lower numbers of sampling events during freshet. However, as this can reduce the precision of the seasonal water chemistry assessment, sampling programs should equally represent all seasons, where possible.

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At lake sites, this should include sampling up to four times per year: spring freshet and turnover, summer stratification, fall turnover, and late winter.

3.3.2.3 Analytes

Overall, analytes monitored throughout the Coppermine and Lockhart watersheds, between the EC and GNWT monitoring programs, are largely sufficient for monitoring trends in water chemistry. A consistent set of analytes should be monitored at each site throughout each watershed to allow for an evaluation of spatial and temporal trends. This largely appears to be the case and should be continued.

Data for bicarbonate and TN, or a combination of TKN, nitrate and nitrite, were only received for two sites in the Coppermine watershed and one site in the Lockhart watershed. Stantec recommends the addition of these analytes to each of the monitoring programs. The addition of bicarbonate will help obtain a complete understanding of the ionic balance throughout the watershed, and will allow for monitoring of changes in ionic balance, which is important for the metabolism of many aquatic biota, as well as their distribution (Wetzel 2001). The addition of TN, or a combination of TKN, nitrate and nitrite, will allow for a complete examination of current trophic status and nutrient loadings, and also allow for monitoring of potential changes over time and space. The addition of chlorophyll *a* can also be used to verify trophic status estimates and monitor seasonal and annual changes.

Some limnological data, including *in-situ* temperature, pH, conductivity, and dissolved oxygen, are collected as part of the monitoring programs but were not available in a readily accessible format (e.g., Excel) for the present study. Stantec recommends entering this data into an accessible format that will allow for an evaluation of the seasonal limnological changes at each of the monitoring sites. If only limited data are collected (e.g., not a full depth profile), Stantec recommends collecting the full limnological profile during each sample event.

3.3.2.4 Detection Limits

Stantec evaluated the detection limits used by each agency over the past decade to assess adequacy, particularly where a CCME or Health Canada guideline exists, and consistency between the EC and GNWT monitoring programs. As noted in Section 2.3.6, an assessment of detection limits could not be completed for analytes which did not have any values reported as "less than detection" (e.g., conductivity, total hardness, calcium, magnesium). For analytes with "less than detection" results, the most common detection limits used since 2003 are summarized in Table 3-15 for analytes of interest and for analytes with applicable guidelines. The most common detection limits used since 2003 for all analytes are detailed in Table A-2-6 in Appendix A-2.

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Table 3-16: Most common detection limits used in the EC and GNWT water chemistry monitoring programs in the Coppermine and Lockhart watersheds since 2003

Analyte	CCME Guidelines (mg/L) ¹		Health Canada GCDWQ (mg/L) ²	Most Common Detection Limits (mg/L) ³			
	ST	LT		Coppermine		Lockhart	
				EC	GNWT	EC	GNWT
Physical							
pH	–	–	–	n/a	n/a	n/a	n/a
Conductivity	–	–	–	n/a	n/a	n/a	n/a
TDS	–	–	–	10	10	10	10
Major Ions							
Total Alkalinity	–	–	–	10	0.4	0.7	0.7
Chloride	640	120	–	0.1	0.7	0.7	0.7
Sulphate	–	–	–	–	1	–	0.1
Fluoride	–	0.12	1.5	–	0.1	–	0.1
Nutrients							
Nitrate	124	2.9	45	0.01	0.01	0.01	0.01
Nitrite	–	0.06	3	0.01	0.01	0.01	0.01
Total Phosphorus	–	–	–	0.01	0.01	0.01	0.01
Total Metals							
Aluminum	–	0.005 – 0.100 ^a	–	–	0.03	–	0.0006
Arsenic	–	0.005	–	–	0.0002	–	0.0002
Cadmium	0.00002 ^b 0.001 ^c	0.00004 ^b 0.00009 ^c	0.005	–	0.00005	–	0.00005
Chromium	–	0.0089	0.05	–	0.0001	–	0.0001
Copper	–	0.002 ^d	–	–	0.0002	–	0.0002
Lead	–	0.001 ^e	0.01	–	0.0001	0.000005	0.0001
Mercury	–	0.000026	–	–	0.00001 ^f	–	0.00001 ^f
Molybdenum	–	0.073	–	–	0.0001	–	0.0001
Nickel	–	0.025 ^e	–	–	0.0001	–	0.0001
Selenium	–	0.001	0.05	0.00005	0.0003	0.0003	0.0003
Uranium	–	0.15	0.02	–	0.0001	–	0.0001
Zinc	–	0.03	–	0.01	0.0004	0.0004	0.0004

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Table 3-16: Most common detection limits used in the EC and GNWT water chemistry monitoring programs in the Coppermine and Lockhart watersheds since 2003

Analyte	CCME Guidelines (mg/L) ¹		Health Canada GCDWQ (mg/L) ²	Most Common Detection Limits (mg/L) ³			
	ST	LT		Coppermine		Lockhart	
				EC	GNWT	EC	GNWT
Other Analytes							
Total Cyanide	–	0.005	0.2	0.001	0.001	0.001	0.001
NOTES:							
1. CCME Guidelines = CCME Guidelines for the Protection of Freshwater Aquatic Life; ST = short-term (acute); LT = long-term (chronic)							
2. Health Canada GCDWQ = Health Canada Guidelines for Canadian Drinking Water Quality							
3. Where '–' reported, detection limits were unavailable							
a. Total Al guideline 0.005 at pH < 6.5, or 0.100 at pH ≥ 6.5							
b. Total Cd guideline is hardness-dependent; values given for hardness at 10 mg/L							
c. Total Cd guideline is hardness-dependent; values given for hardness at 50 mg/L							
d. Total Cu guideline is hardness-dependent; value given for hardness ≤ 82 mg/L							
e. Total Pb and Ni guidelines are hardness-dependent; values given for hardness ≤ 60 mg/L							
f. "Ultra-low" detection limit currently used							

Typically, it is recommended that detection limits be at least 10 times lower than guideline values (Mitchell 2006). Overall, current detection limits are suitable for most analytes. Exceptions include fluoride, nitrite, total aluminum (Coppermine only), and cadmium, which have detection limits near the respective guidelines. As a result of low hardness values throughout the Coppermine and Lockhart watersheds, hardness-dependent guidelines (e.g., cadmium, copper, and lead) are also quite low. Therefore, the lowest detection limits (e.g., "ultra-low" metals) available for these three metals should always be requested. Currently, "ultra-low" detection limits for these metals available at commercial laboratories include 0.000005 mg/L for cadmium, 0.0001 mg/L for copper, and 0.00001 mg/L for lead (ALS Laboratories Spira, pers. comm.).

Detection limits were different between the GNWT and EC, with typically higher detection limits in the GNWT programs than the EC programs. Consistent detection limits are critical for the evaluation of trends, particularly for analytes at or near the detection limits. Further coordination between the two agencies is recommended to synchronize detection limits.

Furthermore, for nutrients, particularly for TP, lower detection limits are recommended given the prevalence of less than detection data and the oligotrophic status of many of the waterbodies in the Coppermine and Lockhart watersheds. Currently "low-level" detection limits available for nutrients include 0.005 mg/L for total ammonia, 0.001 mg/L for nitrite, 0.005 mg/L for nitrate, 0.05 mg/L for TKN, and 0.001 mg/L for TP (ALS Laboratories, Spira, pers. comm.). Detection limits for low-level TN are not available, as it is usually calculated from TKN, nitrate and nitrite, but the typical detection limit for TN is 0.05 mg/L (Spira, pers. comm.)



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4.0 CONCLUSIONS AND RECOMMENDATIONS

From the analysis of the existing water-chemistry and flow data record for the Coppermine and Lockhart watersheds, the following conclusions were made regarding the spatial and temporal trends. A number of recommendations are also made to improve the overall water-chemistry monitoring programs for each watershed and facilitate future monitoring for cumulative effects.

4.1 COPPERMINE WATERSHED

4.1.1 Conclusions

4.1.1.1 Hydrology

- Flow within the Coppermine watershed is marked by seasonality, and yearly fluctuation, depending on location in the watershed. Winter 'baseflow' typically occurs between November to April and flow rates generally reach yearly lows, sometime in April.
- Due to the presence of sparse wetlands and lake storage in the southern Coppermine watershed, spring freshet is usually a gradual-increase event. In the southern watershed, peak flows consistently occur in July and/or September, after which flows generally decline through late summer and/or early fall until baseflow once again occurs.
- Conversely, in the northern Coppermine watershed, there is a 57-fold increase in flow during the spring freshet. The summer recession period typically occurs between July and October and is characterized by a gradual reduction in flows.
- A marginal increasing temporal trend in freshet flow was identified for one site, in June flow for one site, and in baseflow and September flow for one site. These results suggest a potential alteration in seasonal timing of the hydrological cycle within the Coppermine River watershed
- There has also been no significant alteration in the annual maximum or minimum daily flow in the Coppermine watershed. This indicates that the frequency and occurrence of extreme events (e.g., winter baseflow, intense summer rainstorms, precipitous freshet melting events, and/or unusually large snowpack) have not increased within the Coppermine watershed.

4.1.1.2 Water Chemistry

- Water chemistry parameters were relatively similar across sites in the southern Coppermine watershed (at the Lac de Gras outlet, Desteffany Lake, Daring Lake, and Point Lake outlet sites) and began to change in Rocknest Lake, with many analytes higher in concentration in Rocknest Lake.
- Overall, waters in the southern Coppermine watershed are considered circumneutral and very soft with low levels of conductivity, TDS, turbidity, acid-buffering capacity, and metals.



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- Seasonal variability was minor for most water chemistry parameters throughout the southern Coppermine watershed.
- Concentrations of many analytes are higher in the northern Coppermine watershed (at the Coppermine River above Copper Creek site, and the Coppermine River mouth site) and this was attributed to the change in geological conditions, from the SGP with igneous granitic rock to the BGP with sedimentary rock and higher amounts of weathering, and a change in vegetation conditions (from tundra to boreal forest). This change occurred at Rocknest Lake.
- Overall, waters in the northern Coppermine watershed are considered alkaline and soft with overall low levels of conductivity, TDS, and metals, and moderate to high acid-buffering capacity.
- Seasonal variability was more pronounced for most water chemistry parameters throughout the northern Coppermine watershed, compared to the southern Coppermine watershed.
- Nutrients, as TP and TN, were low throughout the southern Coppermine watershed, and waters were considered oligotrophic. Nutrient levels were higher in the northern Coppermine watershed and waters were considered mesotrophic.
- Highly or moderately significant increasing temporal trends in pH, conductivity, total hardness, dissolved calcium, dissolved magnesium, chloride, and total molybdenum and strontium were identified at the Lac de Gras outlet, as well as downstream Desteffany Lake, and to a lesser extent Point Lake. No highly or moderately significant increasing temporal trends were identified at Daring Lake or Rocknest Lake. The present trend results for pH, conductivity, total hardness, chloride, and total strontium at the Lac de Gras outlet correspond with the significant increasing trends identified throughout Lac de Gras (Stantec unpub.).

4.1.2 Recommendations

- Continue monitoring at Daring Lake site to distinguish between potentially naturally-occurring water chemistry trends and those that may be related to anthropogenic influences from upstream of Lac de Gras.
- Continue monitoring at Rocknest Lake to monitor the water chemistry transition between the southern and northern Coppermine watersheds.
- Enter available limnological data into an accessible format (e.g., Excel) to allow for an evaluation of the seasonal limnological changes at each monitoring site. If only limited data are collected, consider collecting the full limnological profile during each sample event.
- Consider monitoring at the Coppermine River mouth again, in cooperation with the Government of Nunavut, to gather information on the overall water chemistry trends in the Coppermine watershed.
- Field methods, including sample collection and sample filtering, should be reviewed to determine the most appropriate sampling techniques for a particular sample site to reduce potential sources of contamination. The source of the deionized water used for field blanks and travel blanks should also be reviewed.



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- Where possible, given logistical and safety concerns, sampling programs should equally represent all seasons; for lakes, this includes spring freshet and turnover, summer stratification, fall turnover, and late winter.
- A consistent set of analytes should be monitored at each site, by each agency, throughout the watershed to allow for an evaluation of spatial and temporal trends.
- Add bicarbonate to obtain a complete understanding of the ionic balance throughout the watershed.
- Add TN, or a combination to TKN, nitrate and nitrite, to obtain a complete understanding of nutrients throughout watershed.
- Add chlorophyll *a* to verify trophic status estimates and monitor seasonal and annual changes.
- Consistent detection limits should be used at each site, by each agency, throughout the watershed, and are critical for the evaluation of trends. The lowest available detection limits (i.e. ultra-low metals, low-level nutrients) should be requested.

4.2 LOCKHART WATERSHED

4.2.1 Conclusions

4.2.1.1 Hydrology

- The hydrometric monitoring program on the Lockhart watershed is comprised of one station. The single station is not sufficient to gain a full understanding of the seasonal and annual hydrologic dynamics within the entire watershed.
- At the single hydrometric station in the Lockhart watershed, flow is marked by seasonality, and yearly fluctuation. Winter 'baseflow' typically occurs between November and April and flow rates generally reach yearly lows, sometime in May.
- Due to the location of the hydrometric station on Lockhart River, at the outlet of Artillery Lake, spring freshet is usually gradual-increase event. Maximum monthly flow rates consistently occur in August and September, after which flows generally decline early fall until baseflow occurs once again.
- No significant temporal trends were identified for flow at the single station on the Lockhart River. This indicates that the total volume of water flowing within the Lockhart River watershed has not changed over the 50 year data record, despite considerable yearly variability. This is likely due to the influence of various lakes on the hydrological cycle within the watershed.

4.2.1.2 Water Chemistry

- Water chemistry is relatively similar across the Lockhart watershed with minimal spatial variation.



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- The waters of the Lockhart watershed are considered circumneutral and soft with low conductivity, TDS, turbidity, acid-buffering capacity, and metals.
- Seasonal variability was minor for most water chemistry parameters throughout the watershed.
- Nutrients, as TP and TN, were low throughout the Lockhart watershed, and waters were considered oligotrophic.
- Significant increasing temporal trends were identified for pH, conductivity, TDS, total hardness, calcium, total alkalinity, sulphate, and total strontium in the Lockhart watershed, primarily at the Lockhart outflow only. This indicates there has been an increase in these analyte concentrations over time, and may be related to an increase in chemical weathering and/or groundwater inflow, or related to anthropogenic influences from upstream of King Lake. These trends were not consistent across the watershed however and may be due to differences in the period of record between the Lockhart outflow (monitored since 1969) and the other sites (monitored since 2006).

4.2.2 Recommendations

- At least two additional hydrometric stations, upstream of Artillery Lake, are recommended to obtain more data on the hydrologic characteristics of the Lockhart watershed. The additional stations should be sited at or near existing water chemistry monitoring stations (e.g., MacKay Lake) to obtain concurrent hydrologic and water chemistry data.
- The addition of one water chemistry site near the headwaters of the Lockhart River, at Starfish Lake for example, could be considered to obtain information on water chemistry upstream of all inputs.
- Field methods, including sample collection and sample filtering, should be reviewed to determine the most appropriate sampling techniques for a particular sample site to reduce potential sources of contamination. The source of the deionized water used for field blanks and travel blanks should also be reviewed.
- Where possible, given logistical and safety concerns, sampling programs should equally represent all seasons; for lakes, this includes spring freshet and turnover, summer stratification, fall turnover, and late winter.
- Enter available limnological data into an accessible format (e.g., Excel) to allow for an evaluation of the seasonal limnological changes at each monitoring site. If only limited data are collected, consider collecting the full limnological profile during each sample event.
- A consistent set of analytes should be monitored at each site, by each agency, throughout the watershed to allow for an evaluation of spatial and temporal trends.
- Add bicarbonate to obtain a complete understanding of the ionic balance throughout the watershed.
- Add TN, or a combination to TKN, nitrate and nitrite, to obtain a complete understanding of nutrients throughout watershed.
- Add chlorophyll *a* to verify trophic status estimates and monitor seasonal and annual changes.



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- Consistent detection limits should be used at each site, by each agency, throughout the watershed, and are critical for the evaluation of trends. The lowest available detection limits (i.e. ultra-low metals, low-level nutrients) should be requested.

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5.0 CLOSURE

Stantec Consulting has prepared this draft report for the sole benefit of the Government of the Northwest Territories (GNWT) for the purpose of documenting the current status, and spatial and temporal trends in water chemistry and flow within the Coppermine and Lockhart watersheds. The report may not be relied upon by any other person or entity, other than for its intended purposes, without the express written consent of Stantec Consulting and GNWT. Any use of this preliminary report by a third party, or any reliance on decisions made based upon it, are the responsibility of such third parties.

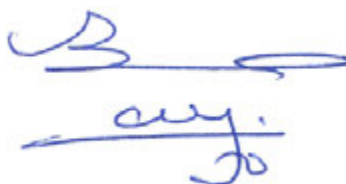
The information provided in this report was compiled from existing documents and analytical data provided by EC and the GNWT, and compiled by Stantec Consulting Ltd. This report represents the best professional judgment of our personnel available at the time of its preparation. Stantec Consulting Ltd. reserves the right to modify the contents of this report, in whole or in part, to reflect any new information that becomes available. If any conditions become apparent that differ significantly from our understanding of conditions as presented in this report, we request that we be notified immediately to reassess the conclusions provided herein.

Respectfully Submitted,

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6.2 PERSONAL COMMUNICATIONS

Spira, J. Senior Account Manager, ALS Life Sciences Division, Environmental. Email re "Detection Limits". 2 March 2015.

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Appendix A DATA QUALITY ASSESSMENT

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A.1 WATER CHEMISTRY DATA QUALITY ASSESSMENT FOR THE COPPERMINE AND LOCKHART WATERSHEDS

Replicates

Of all field duplicate analyses, 7% (245 of 3,449) exceeded the DQO of 25% RPD. This occurred for at least one parameter in most duplicate pairs, between 1% and 12% of parameters in 52 of the 57 duplicate pairs (Table A-2-1 in Appendix A-2). Turbidity most frequently exceeded the DQO in duplicates.

Of all field triplicate analyses, 15% (529 of 3,520) exceeded the DQO of 18% RSD. This occurred for at least one parameter in all triplicate sets, between 1% and 20% of parameters across the 57 triplicate sets (Table A-2-2 in Appendix A-2). Parameters that most frequently exceeded the DQO in triplicates were, particulate organic carbon, hardness, particulate nitrogen, total phosphorus, total dissolved solids (TDS), turbidity, total cadmium (Cd), total chromium (Cr), total copper (Cu), total iron (Fe), total lead (Pb), and total zinc (Zn).

Many of these DQO failures were associated with higher turbidity values and indicate the introduction of suspended solids during sequential field sampling of duplicates and triplicates. Field methods and site conditions should be reviewed to determine the most appropriate sampling techniques for the sample site, particularly for triplicate sampling. These DQO failures are not expected to materially affect the results of the current study however.

Blanks

Travel and field blank results were examined for any results reported as greater than the detection limit (the DQO). Of all travel blank analyses, 10% (189 of 1,804) exceeded the DQO. This occurred for between 4% and 38% of parameters in the 29 travel blanks included in the water chemistry dataset from 2006 to 2014 (Table A-2-3 in Appendix A-2). Detection limits were not exceeded by wide margins for most parameters, though 1 to 4% of parameters were detected at more than five times the detection limit in 17 of the 29 blanks. The parameters that were most frequently detectable (detected in more than 20% of travel blanks) were alkalinity, total and dissolved aluminum (Al), dissolved calcium (Ca), hardness, dissolved magnesium (Mg), dissolved manganese (Mn), specific conductance, and turbidity. Dissolved Al and dissolved Ca were detected at the highest concentrations, more than five times the detection limit in 27% and 17% of travel blanks, respectively. Given that travel blanks are laboratory-supplied and are not opened in the field, these results indicate potential issues with deionized water used by the laboratory, or contamination was introduced during analysis.

Of all field blank analyses, 25% (1,079 of 4,374) were exceeded the DQO. This occurred for between 4% and 100% of parameters in the 63 field blanks included in the water chemistry dataset (Table A-2-4 in Appendix A-2). The margins by which the DQO was exceeded could not

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be determined due to highly variable detection limits across the blanks. The parameters that were most frequently detectable (detected in more than 20% of field blanks) were alkalinity, dissolved and total Al, dissolved and total antimony (Sb), dissolved As, dissolved and extractable Ba, extractable B, dissolved Cd, dissolved Ca, dissolved organic carbon, particulate organic carbon, dissolved chloride, total Cr, dissolved and total Cu, free CO₂, hardness, extractable Fe, total La, total, dissolved and extractable Pb, dissolved Mg, particulate nitrogen, total nitrogen, total dissolved nitrogen, total and dissolved phosphorus, dissolved potassium, dissolved sodium, sodium percentage, specific conductance, dissolved sulphate, total dissolved solids, dissolved tin, turbidity, dissolved and total vanadium (V), and total and dissolved Zn.

Field blanks are typically filled and filtered in the field with laboratory-supplied deionized water. The number of results, particularly dissolved results, which are greater than the DQO is concerning. For example, one field blank collected by EC on September 9, 2011, showed 84% (85 of 101) of all parameters analyzed were reported at values greater than detection limits. Field practices for filtering and collection of field blank samples should be examined, as well as the source of deionized water.

Dissolved to Total Metal Ratio

All metals in the water chemistry dataset had dissolved to total metal ratios greater than the DQO of 1.2 in at least one sample, with the exception of cesium (Ce), gallium (Ga), lanthanum (La), rubidium (Rb), strontium (Sr), titanium (Ti), tungsten (W) and uranium (U) which were all below the DQO (Table A-2-5 in Appendix A-2). The remainder of metals had dissolved to total metal ratios greater than the DQO in 1% to 36% of samples. The metals that most frequently exceeded the DQO were Al, sodium (Na), and Zn.

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A.2 DATA QUALITY ASSESSMENT TABLES

RPD greater than 25%

Parameter	Daring Lake			Daring Lake			Daring Lake			Daring Lake			Destaffany Lake			Destaffany Lake			Destaffany Lake			Destaffany Lake		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	3/26/2009			9/1/2010			9/5/2012			7/8/2014			8/30/2011			3/22/2006			8/5/2009			3/23/2010		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
alkalinity phenolphthalein caco3(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
alkalinity total caco3(mg/l)	6.1	5.8	5%	3.2	3.1	3%	3.2	3.2	0%	3.3	3.1	6%	3.4	3.4	0%	5.7	5.7	0%	3.4	3.3	3%	3.9	4	3%
aluminum dissolved(ug/l)	-	-	n/a	-	-	n/a	5.7	5.9	3%	2.2	1.8	20%	-	-	n/a	4	4.7	16%	12	12.3	2%	-	-	n/a
aluminum extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
aluminum total(ug/l)	7	6	15%	7.6	7.5	1%	6.1	6	2%	6.8	5.9	14%	11.4	11.5	1%	<30	<30	n/a	16	15.5	3%	6.6	6.4	3%
ammonia dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
ammonia total(mg/l)	0.01	0.008	22%	<0.01	<0.01	n/a	0.01	0.01	0%	0.006	<0.005	n/a	<0.01	<0.01	n/a	0.008	0.011	32%	<0.01	<0.01	n/a	0.01	0.01	0%
antimony dissolved(ug/l)	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
antimony total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.3	0.2	40%	0.3	0.2	40%	<0.1	<0.1	n/a	<0.1	<0.1	n/a
arsenic dissolved(ug/l)	-	-	n/a	-	-	n/a	<0.2	<0.2	n/a	<0.2	<0.2	n/a	-	-	n/a	0.2	0.2	0%	0.2	0.2	0%	-	-	n/a
arsenic total(ug/l)	0.3	0.3	0%	<0.2	<0.2	n/a	<0.2	<0.2	n/a	<0.2	<0.2	n/a	0.3	0.3	0%	<0.2	<0.2	n/a	0.2	0.2	0%	0.2	0.2	0%
barium dissolved(ug/l)	-	-	n/a	-	-	n/a	1.1	1.1	0%	1.1	1.2	9%	-	-	n/a	1.7	1.8	6%	1.6	1.6	0%	-	-	n/a
barium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
barium total(ug/l)	2.8	2.7	4%	1.2	1.2	0%	1.1	1.1	0%	1.2	1.1	9%	1.6	1.7	6%	2.2	2.1	5%	1.7	1.7	0%	2.3	2.2	4%
beryllium dissolved(ug/l)	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
beryllium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
beryllium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
bicarbonate (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
bismuth dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	<0.2	<0.2	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
bismuth total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
boron dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	1.9	1.4	30%	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
boron extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
boron total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
btex, benzene (mg/l)(mg/l)	<0.005	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
btex, ethylbenzene (mg/l)(mg/l)	<0.005	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
btex, m/p-xylene (mg/l)(mg/l)	<0.005	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
btex, o-xylene (mg/l)(mg/l)	<0.005	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
btex, toluene (mg/l)(mg/l)	<0.005	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cadmium dissolved(ug/l)	-	-	n/a	-	-	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	-	-	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	-	-	n/a
cadmium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cadmium total(ug/l)	<0.1	<0.1	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.1	<0.1	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a
calcium dissolved(mg/l)	3	2.9	3%	1.1	1.1	0%	0.9	0.7	25%	0.9	0.8	12%	1.3	1.3	0%	1.4	1.4	0%	0.5	0.6	18%	2.1	2	5%
calcium extractable/unfiltered(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
carbon dissolved inorganic(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
carbon dissolved organic(mg/l)	3.1	3.1	0%	2.1	2	5%	2.8	2.8	0%	2.4	2.6	8%	3.1	3	3%	2.6	2.5	4%	3.2	3.2	0%	3	3.1	3%
carbon particulate organic(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
carbon total organic(mg/l)	3	3	0%	1.9	1.9	0%	2.4	2.5	4%	2.5	2.5	0%	3.2	3.1	3%	2.7	2.7	0%	3.7	3.7	0%	3.2	3	6%
carbonate (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cesium dissolved(ug/l)	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
cesium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
chloride dissolved(mg/l)	<0.7	<0.7	n/a	<0.7	<0.7	n/a	-	-	n/a	<0.7	<0.7	n/a	<0.7	<0.7	n/a	<0.7	<0.7	n/a	<0.7	<0.7	n/a	<0.7	<0.7	n/a
chromium dissolved(ug/l)	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
chromium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	Daring Lake			Daring Lake			Daring Lake			Daring Lake			Destaffany Lake			Destaffany Lake			Destaffany Lake			Destaffany Lake		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	3/26/2009			9/1/2010			9/5/2012			7/8/2014			8/30/2011			3/22/2006			8/5/2009			3/23/2010		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
chromium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.1	<0.1	n/a	1.8	1.7	6%	<0.1	<0.1	n/a	<0.1	<0.1	n/a
cobalt dissolved(ug/l)	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	-	-	n/a
cobalt extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cobalt total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
colourapparent(rel units)	5	<5	n/a	7	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
colourtrue(rel units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
copper dissolved(ug/l)	-	-	n/a	-	-	n/a	<0.2	<0.2	n/a	0.3	0.3	0%	-	-	n/a	0.6	0.9	40%	0.6	0.7	15%	-	-	n/a
copper extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
copper total(ug/l)	0.7	0.7	0%	0.4	0.4	0%	<0.2	<0.2	n/a	<0.2	<0.2	n/a	0.7	0.9	25%	5.5	1.8	101%	0.6	0.6	0%	0.7	0.7	0%
cyanide total(mg/l)	0.001	0.001	0%	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cyanide wad(mg/l)	0.002	0.002	0%	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
fluoride dissolved(mg/l)	<0.1	<0.1	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
free co2 (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
hardness non-carb (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
hardness total caco3 calcd(mg/l)	11.3	11.2	1%	5.7	5.4	5%	4.6	4	14%	4.1	3.9	5%	6.3	6.5	3%	6.6	6.6	0%	2.4	2.5	4%	10.5	10.3	2%
hydroxide (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
iron dissolved(ug/l)	-	-	n/a	-	-	n/a	<5	<5	n/a	<5	<5	n/a	-	-	n/a	<50	<50	n/a	7	8	13%	-	-	n/a
iron extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
iron total(ug/l)	21	20	5%	8	9	12%	14	11	24%	11	11	0%	28	23	20%	<50	<50	n/a	23	23	0%	<5	<5	n/a
lead dissolved(ug/l)	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
lead extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
lead total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
lithium dissolved(ug/l)	-	-	n/a	-	-	n/a	0.8	0.8	0%	0.7	0.9	25%	-	-	n/a	1.4	1.5	7%	1.2	1.2	0%	-	-	n/a
lithium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
lithium total(ug/l)	1.5	1.4	7%	0.8	0.8	0%	0.8	0.6	29%	0.8	0.8	0%	1.4	1.5	7%	1.4	1.5	7%	1.2	1.2	0%	1.5	1.5	0%
magnesium dissolved(mg/l)	1	1	0%	0.7	0.7	0%	0.6	0.5	18%	0.4	0.4	0%	0.7	0.8	13%	0.8	0.8	0%	0.3	0.3	0%	1.3	1.3	0%
magnesium extractable(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
magnesium total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	0.0009	0.0009	0%	-	-	n/a	-	-	n/a
manganese dissolved(ug/l)	-	-	n/a	-	-	n/a	0.7	0.7	0%	0.8	0.7	13%	-	-	n/a	0.6	0.8	29%	1.1	1.2	9%	-	-	n/a
manganese extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
manganese total(ug/l)	3	2.9	3%	1.1	1.2	9%	1.8	1.5	18%	1.3	1.2	8%	1.9	1.9	0%	-	-	n/a	2.5	2.5	0%	0.8	0.8	0%
mercury dissolved(ug/l)	-	-	n/a	-	-	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	-	-	n/a	<0.02	<0.02	n/a	<0.01	<0.01	n/a	-	-	n/a
mercury total(ug/l)	<0.01	<0.01	n/a	0.001	<0.01	n/a	<0.01	<0.01	n/a	0.001	0.001	0%	<0.01	0.002	n/a	<0.02	<0.02	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a
molybdenum dissolved(ug/l)	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
molybdenum extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
molybdenum total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.3	0.2	40%	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.3	0.2	40%
nickel dissolved(ug/l)	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	0.9	0.9	0%	0.8	0.7	13%	-	-	n/a
nickel extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nickel total(ug/l)	0.3	0.3	0%	0.2	0.2	0%	0.1	<0.1	n/a	<0.1	<0.1	n/a	0.4	0.5	22%	1	0.9	11%	0.8	0.8	0%	1	0.9	11%
nitrate(mg/l)	0.02	0.02	0%	<0.005	<0.005	n/a	<0.005	<0.005	n/a	<0.005	<0.005	n/a	<0.005	<0.005	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	0.014	0.04	96%
nitrate-nitrite dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nitrate-nitrite(mg/l)	0.02	0.02	0%	0.04	0.04	0%	<0.01	<0.01	n/a	<0.005	0.03	n/a	0.05	0.03	50%	<0.01	<0.01	n/a	<0.01	<0.01	n/a	-	-	n/a
nitrite(mg/l)	<0.01	<0.01	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.001	<0.01	n/a

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	Daring Lake			Daring Lake			Daring Lake			Daring Lake			Destaffany Lake			Destaffany Lake			Destaffany Lake			Destaffany Lake		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	3/26/2009			9/1/2010			9/5/2012			7/8/2014			8/30/2011			3/22/2006			8/5/2009			3/23/2010		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
nitrogen particulate(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nitrogen total dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nitrogen total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
pH(ph units)	6.51	6.52	0%	6.73	6.73	0%	6.91	6.9	0%	6.75	6.74	0%	6.85	6.85	0%	6.54	6.52	0%	6.71	6.71	0%	6.3	6.28	0%
phosphate ortho(mg/l)	<0.002	<0.002	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a	-	-	n/a	<0.002	<0.002	n/a	<0.001	<0.001	n/a
phosphorous particulate (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
phosphorous total dissolved(mg/l)	<0.01	0.01	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	0.01	0.01	0%	-	-	n/a	-	-	n/a
phosphorous total(mg/l)	0.01	<0.01	n/a	0.003	0.003	0%	0.004	0.005	22%	<0.002	<0.002	n/a	0.003	0.003	0%	<0.01	0.01	n/a	<0.01	<0.01	n/a	0.003	0.003	0%
potassium dissolved(mg/l)	0.8	0.8	0%	0.4	0.4	0%	0.4	0.4	0%	0.4	0.4	0%	0.5	0.5	0%	0.6	0.6	0%	0.4	0.4	0%	0.7	0.7	0%
potassium extractable(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
rubidium dissolved(ug/l)	-	-	n/a	-	-	n/a	1.2	1.2	0%	1.1	1.1	0%	-	-	n/a	1.7	1.7	0%	1.3	1.3	0%	-	-	n/a
rubidium total(ug/l)	1.9	1.8	5%	1.2	1.1	9%	1.2	1.2	0%	1.2	1.1	9%	1.4	1.5	7%	1.5	1.6	6%	1.3	1.3	0%	1.6	1.5	6%
saturation index (calcd)(ph units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
selenium dissolved(ug/l)	-	-	n/a	-	-	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	-	-	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	-	-	n/a
selenium total(ug/l)	<0.5	<0.5	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<1	<1	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a
silica reactive(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
silica(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
silver dissolved(ug/l)	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
silver total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
sodium dissolved(mg/l)	1	1	0%	0.5	0.5	0%	0.6	0.5	18%	0.5	0.5	0%	0.6	0.6	0%	0.6	0.7	15%	0.4	0.4	0%	0.9	0.9	0%
sodium extractable(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
sodium percentage (calcd)(%)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
sodium total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
specific conductance(usie/cm)	20.7	20.7	0%	12.4	12.5	1%	12.5	12.6	1%	10.5	10.1	4%	15.8	15.8	0%	17.9	17.9	0%	13.8	13.9	1%	19.5	19.6	1%
stability index (calcd)(ph units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
strontium dissolved(ug/l)	-	-	n/a	-	-	n/a	5.3	5.1	4%	5	5	0%	-	-	n/a	7.9	8.1	2%	5.9	5.8	2%	-	-	n/a
strontium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
strontium total(ug/l)	9	8.5	6%	5	5.1	2%	5.3	5.1	4%	5.3	5.3	0%	7	7.3	4%	7.4	7.6	3%	5.9	5.9	0%	9	8.7	3%
sulphate dissolved(mg/l)	2	2	0%	1	1	0%	2	1	67%	1	1	0%	2	2	0%	2	2	0%	2	2	0%	2	2	0%
tds calc(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tds(mg/l)	<10	12	n/a	<10	<10	n/a	<10	<10	n/a	18	18	0%	<10	<10	n/a	14	16	13%	<10	<10	n/a	14	10	33%
temperature water(deg c)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
thallium dissolved(ug/l)	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
thallium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
tin dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tin total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
titanium dissolved(ug/l)	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	0.2	n/a	-	-	n/a
titanium total(ug/l)	0.1	<0.1	n/a	<0.1	<0.1	n/a	0.1	<0.1	n/a	<0.1	<0.1	n/a	0.2	0.5	86%	0.2	0.5	86%	0.3	0.3	0%	<0.1	<0.1	n/a
tss fixed(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tss(mg/l)	<3	<3	n/a	4	<3	n/a	<3	<3	n/a	<3	<3	n/a	<3	<3	n/a	<3	<3	n/a	<3	<3	n/a	<3	<3	n/a
tungsten dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tungsten total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
turbidity(ntu)	0.28	0.67	82%	0.28	0.22	24%	0.3	0.32	6%	0.25	0.26	4%	0.33	0.24	32%	0.27	0.34	23%	0.31	0.26	18%	0.16	0.15	6%

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	Daring Lake			Daring Lake			Daring Lake			Daring Lake			Destaffany Lake			Destaffany Lake			Destaffany Lake			Destaffany Lake		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	3/26/2009			9/1/2010			9/5/2012			7/8/2014			8/30/2011			3/22/2006			8/5/2009			3/23/2010		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
uranium dissolved(ug/l)	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	0.1	0.2	67%	-	-	n/a
uranium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	0.1	n/a	<0.1	<0.1	n/a	0.2	0.2	0%	<0.1	<0.1	n/a
vanadium dissolved(ug/l)	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
vanadium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
vanadium total(ug/l)	0.4	0.3	29%	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.3	0.3	0%	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
zinc dissolved(ug/l)	-	-	n/a	-	-	n/a	<0.4	<0.4	n/a	0.9	0.7	25%	-	-	n/a	<0.4	<0.4	n/a	0.6	0.6	0%	-	-	n/a
zinc extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
zinc total(ug/l)	<5	<5	n/a	<0.4	<0.4	n/a	<0.4	<0.4	n/a	<0.4	<0.4	n/a	<0.4	<0.4	n/a	<10	16	n/a	0.7	0.5	33%	0.5	0.8	46%
# > 25% RPD			3			1			8			4			8			7			3			4
Total # Duplicate Results			52			47			72			77			47			73			74			47
% > 25 % RPD			1%			0%			1%			1%			4%			4%			1%			3%

RPD greater than 25%

Parameter	Destaffany Lake			Destaffany Lake			Destaffany Lake			Destaffany Lake			Destaffany Lake			Destaffany Lake			Fairy Lake			King Lake		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	8/30/2011			8/8/2012			3/27/2013			8/7/2013			9/6/2013			3/21/2014			9/13/2007			8/10/2010		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
alkalinity phenolphthalein caco3(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
alkalinity total caco3(mg/l)	3.5	3.4	3%	3.4	3.4	0%	4.4	4.6	4%	3.6	3.1	15%	3.5	3.6	3%	5.4	5.1	6%	23.2	23.4	1%	6.1	5.6	9%
aluminum dissolved(ug/l)	-	-	n/a	6.5	6.7	3%	3.4	3.9	14%	7.3	7.9	8%	4.8	4.6	4%	4.6	4.3	7%	2.1	2	5%	-	-	n/a
aluminum extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
aluminum total(ug/l)	12.3	12	2%	12.3	11.5	7%	4	4.3	7%	13.7	11.8	15%	11	11.1	1%	6.4	6.8	6%	2.8	3.9	33%	9.1	10.1	10%
ammonia dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
ammonia total(mg/l)	<0.01	<0.01	n/a	<0.01	<0.01	n/a	0.018	0.013	32%	<0.005	<0.005	n/a	<0.005	<0.005	n/a	<0.005	0.005	n/a	<0.005	<0.005	n/a	<0.01	<0.01	n/a
antimony dissolved(ug/l)	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.1	0.1	0%	0.2	0.2	0%	<0.1	<0.1	n/a	-	-	n/a
antimony total(ug/l)	0.2	0.2	0%	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	0.4	n/a	0.4	0.4	0%	<0.1	<0.1	n/a	<0.1	<0.1	n/a
arsenic dissolved(ug/l)	-	-	n/a	0.2	0.2	0%	<0.2	0.2	n/a	<0.2	<0.2	n/a	0.2	<0.2	n/a	0.3	0.3	0%	<0.2	<0.2	n/a	-	-	n/a
arsenic total(ug/l)	0.3	0.3	0%	0.2	0.2	0%	0.2	0.2	0%	<0.2	<0.2	n/a	0.2	0.2	0%	0.3	0.3	0%	<0.2	<0.2	n/a	<0.2	<0.2	n/a
barium dissolved(ug/l)	-	-	n/a	1.4	1.4	0%	2.3	2.3	0%	1.4	1.5	7%	1.3	1.3	0%	2.2	2.2	0%	10.2	9.9	3%	-	-	n/a
barium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
barium total(ug/l)	1.6	1.7	6%	1.6	1.6	0%	2.4	2.3	4%	1.8	1.5	18%	1.6	1.5	6%	2.3	2.3	0%	9.8	9.6	2%	2.7	2.6	4%
beryllium dissolved(ug/l)	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
beryllium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
beryllium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
bicarbonate (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
bismuth dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
bismuth total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
boron dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
boron extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
boron total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
btex, benzene (mg/l)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
btex, ethylbenzene (mg/l)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
btex, m/p-xylene (mg/l)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
btex, o-xylene (mg/l)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
btex, toluene (mg/l)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cadmium dissolved(ug/l)	-	-	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	-	-	n/a
cadmium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cadmium total(ug/l)	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a
calcium dissolved(mg/l)	1.4	1.4	0%	2.1	2.1	0%	2.6	2.5	4%	2.3	2.2	4%	2.5	2.3	8%	1.5	1.5	0%	6.9	7.3	6%	2.3	2.3	0%
calcium extractable/unfiltered(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
carbon dissolved inorganic(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
carbon dissolved organic(mg/l)	3.3	3.6	9%	3.3	3.3	0%	2.8	2.9	4%	3.3	3.3	0%	3.5	3.2	9%	3.9	4	3%	1.6	1.5	6%	3	3.2	6%
carbon particulate organic(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
carbon total organic(mg/l)	3.3	3.3	0%	3.7	3.7	0%	2.9	3	3%	3.6	3.6	0%	3.5	3.5	0%	4	3.9	3%	1.4	1.5	7%	3.3	3.3	0%
carbonate (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cesium dissolved(ug/l)	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
cesium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
chloride dissolved(mg/l)	<0.7	<0.7	n/a	-	-	n/a	1.3	1.3	0%	0.7	<0.7	n/a	0.8	0.8	0%	1.5	1.5	0%	<0.7	<0.7	n/a	-	-	n/a
chromium dissolved(ug/l)	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
chromium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	Destaffany Lake			Destaffany Lake			Destaffany Lake			Destaffany Lake			Destaffany Lake			Destaffany Lake			Fairy Lake			King Lake		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	8/30/2011			8/8/2012			3/27/2013			8/7/2013			9/6/2013			3/21/2014			9/13/2007			8/10/2010		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
chromium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
cobalt dissolved(ug/l)	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
cobalt extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cobalt total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
colourapparent(rel units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<5	<5	n/a
colourtrue(rel units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
copper dissolved(ug/l)	-	-	n/a	<0.2	<0.2	n/a	<0.2	<0.2	n/a	0.4	0.4	0%	0.7	0.6	15%	0.3	0.3	0%	0.5	0.5	0%	-	-	n/a
copper extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
copper total(ug/l)	0.7	0.9	25%	0.5	0.5	0%	0.5	0.5	0%	0.5	0.4	22%	0.7	0.7	0%	0.8	0.8	0%	0.4	0.4	0%	0.6	0.6	0%
cyanide total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<0.001	<0.001	n/a
cyanide wad(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<0.002	<0.002	n/a
fluoride dissolved(mg/l)	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
free co2 (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
hardness non-carb (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
hardness total caco3 calcd(mg/l)	6.6	6.6	0%	9.9	9.9	0%	12.2	12.3	1%	11.1	10.3	7%	10.5	10.8	3%	7.8	7.8	0%	27.2	28.4	4%	8.9	9	1%
hydroxide (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
iron dissolved(ug/l)	-	-	n/a	5	6	18%	<5	<5	n/a	6	7	15%	5	<5	n/a	<5	<5	n/a	<50	<50	n/a	-	-	n/a
iron extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
iron total(ug/l)	32	33	3%	22	22	0%	<5	<5	n/a	21	21	0%	20	20	0%	38	24	45%	<50	<50	n/a	9	10	11%
lead dissolved(ug/l)	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
lead extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
lead total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
lithium dissolved(ug/l)	-	-	n/a	1.1	1.2	9%	1.6	1.8	12%	1.2	1.1	9%	1.1	1	10%	1.7	1.7	0%	<0.2	<0.2	n/a	-	-	n/a
lithium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
lithium total(ug/l)	1.3	1.2	8%	1.2	1.3	8%	1.8	1.7	6%	1.2	1.2	0%	1.2	1.2	0%	1.8	1.7	6%	<0.2	<0.2	n/a	1.1	1.2	9%
magnesium dissolved(mg/l)	0.8	0.8	0%	1.2	1.2	0%	1.4	1.5	7%	1.3	1.2	8%	1	1.2	18%	1	1	0%	2.4	2.5	4%	0.8	0.8	0%
magnesium extractable(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
magnesium total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
manganese dissolved(ug/l)	-	-	n/a	0.4	0.3	29%	0.5	0.5	0%	0.6	0.8	29%	0.2	0.2	0%	0.3	0.3	0%	0.2	0.2	0%	-	-	n/a
manganese extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
manganese total(ug/l)	1.9	1.8	5%	4.1	4.1	0%	0.9	0.9	0%	2.6	2.6	0%	2.4	2.6	8%	0.9	0.8	12%	1.5	1.4	7%	2.2	2.4	9%
mercury dissolved(ug/l)	-	-	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	-	-	n/a
mercury total(ug/l)	<0.01	0.001	n/a	<0.01	<0.01	n/a	<0	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	0	n/a	<0.01	<0.01	n/a	0	0	-
molybdenum dissolved(ug/l)	-	-	n/a	0.1	<0.1	n/a	0.2	0.2	0%	0.1	0.1	0%	<0.1	0.1	n/a	0.2	0.2	0%	<0.1	<0.1	n/a	-	-	n/a
molybdenum extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
molybdenum total(ug/l)	<0.1	<0.1	n/a	<0.1	0.1	n/a	0.2	0.2	0%	0.1	0.1	0%	0.1	0.1	0%	0.2	0.2	0%	<0.1	<0.1	n/a	<0.1	<0.1	n/a
nickel dissolved(ug/l)	-	-	n/a	0.7	0.7	0%	1	1.1	10%	0.7	0.7	0%	0.6	0.6	0%	1.9	2.2	15%	0.3	0.3	0%	-	-	n/a
nickel extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nickel total(ug/l)	0.4	0.6	40%	0.7	0.7	0%	1	1	0%	0.7	0.7	0%	0.8	0.7	13%	1.1	1.1	0%	<0.1	<0.1	n/a	0.4	0.4	0%
nitrate(mg/l)	<0.005	<0.005	n/a	<0.005	<0.005	n/a	<0.01	<0.01	n/a	0.03	<0.005	n/a	<0.005	<0.005	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.005	0.08	n/a
nitrate-nitrite dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nitrate-nitrite(mg/l)	0.03	0.03	0%	<0.01	<0.01	n/a	0.014	0.012	15%	<0.005	<0.005	n/a	0.03	0.03	0%	<0.01	<0.01	n/a	<0.01	<0.01	n/a	0.12	0.12	0%
nitrite(mg/l)	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.01	<0.01	n/a	<0.01	<0.001	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.001	0.03	n/a

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	Destaffany Lake			Destaffany Lake			Destaffany Lake			Destaffany Lake			Destaffany Lake			Destaffany Lake			Fairy Lake			King Lake		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	8/30/2011			8/8/2012			3/27/2013			8/7/2013			9/6/2013			3/21/2014			9/13/2007			8/10/2010		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
nitrogen particulate(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nitrogen total dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nitrogen total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
pH(ph units)	6.85	6.85	0%	6.87	6.89	0%	6.57	6.58	0%	6.75	6.72	0%	6.73	6.74	0%	6.74	6.74	0%	7.63	7.65	0%	7.1	7.09	0%
phosphate ortho(mg/l)	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.001	0.001	n/a	<0.001	<0.001	n/a	0.002	<0.002	n/a	<0.002	<0.001	n/a
phosphorous particulate (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
phosphorous total dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
phosphorous total(mg/l)	0.005	0.003	50%	0.003	0.003	0%	0.003	0.003	0%	0.004	0.004	0%	0.004	0.004	0%	0.003	0.004	29%	0.01	<0.01	n/a	<0.01	0.003	n/a
potassium dissolved(mg/l)	0.5	0.5	0%	0.5	0.5	0%	0.8	0.8	0%	0.6	0.6	0%	0.6	0.6	0%	0.8	0.8	0%	0.2	0.2	0%	0.5	0.5	0%
potassium extractable(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
rubidium dissolved(ug/l)	-	-	n/a	1.5	1.3	14%	1.8	1.8	0%	1.4	1.5	7%	1.3	1.3	0%	2.2	2.1	5%	0.4	0.4	0%	-	-	n/a
rubidium total(ug/l)	1.4	1.4	0%	1.5	1.5	0%	1.9	1.8	5%	1.5	1.4	7%	1.5	1.5	0%	2.2	2.2	0%	0.4	0.4	0%	1.2	1.2	0%
saturation index (calcd)(ph units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
selenium dissolved(ug/l)	-	-	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	-	-	n/a
selenium total(ug/l)	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a
silica reactive(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
silica(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
silver dissolved(ug/l)	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
silver total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
sodium dissolved(mg/l)	0.6	0.7	15%	0.7	0.7	0%	1.2	1.2	0%	0.8	0.8	0%	0.8	0.8	0%	1.3	1.3	0%	0.4	0.3	29%	0.8	0.8	0%
sodium extractable(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
sodium percentage (calcd)(%)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
sodium total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
specific conductance(usie/cm)	15.9	15.9	0%	16.5	16.7	1%	24.3	24.4	0%	17.9	17.6	2%	17.6	17.6	0%	25.9	26.1	1%	48.6	48.6	0%	22.3	22.2	0%
stability index (calcd)(ph units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
strontium dissolved(ug/l)	-	-	n/a	7.4	7	6%	11.8	11.8	0%	7.2	7.6	5%	6.8	6.8	0%	14	13.6	3%	7.3	7.3	0%	-	-	n/a
strontium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
strontium total(ug/l)	6.9	6.8	1%	7.9	7.9	0%	11.8	11.8	0%	7.8	7.6	3%	8.1	8.1	0%	13.7	14	2%	7.3	7.2	1%	9.9	10	1%
sulphate dissolved(mg/l)	2	2	0%	2	2	0%	3	3	0%	2	2	0%	2	2	0%	3	3	0%	<1	<1	n/a	2	2	0%
tds calc(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tds(mg/l)	<10	<10	n/a	<10	10	n/a	<10	<10	n/a	<10	<10	n/a	<10	10	n/a	14	18	25%	25	25	0%	<10	<10	n/a
temperature water(deg c)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
thallium dissolved(ug/l)	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
thallium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
tin dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tin total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
titanium dissolved(ug/l)	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
titanium total(ug/l)	0.3	0.3	0%	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.1	0.1	0%	0.2	0.2	0%	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
tss fixed(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tss(mg/l)	<3	<3	n/a	<3	<3	n/a	<3	<3	n/a	<3	<3	n/a	<3	<3	n/a	<3	<3	n/a	<3	<3	n/a	<3	<3	n/a
tungsten dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tungsten total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
turbidity(ntu)	0.37	0.32	14%	0.54	0.52	4%	0.14	0.66	130%	0.41	0.64	44%	0.48	0.46	4%	0.25	0.24	4%	0.36	0.37	3%	0.33	0.28	16%

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	Destaffany Lake			Destaffany Lake			Destaffany Lake			Destaffany Lake			Destaffany Lake			Destaffany Lake			Fairy Lake			King Lake		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	8/30/2011			8/8/2012			3/27/2013			8/7/2013			9/6/2013			3/21/2014			9/13/2007			8/10/2010		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
uranium dissolved(ug/l)	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
uranium total(ug/l)	0.1	0.1	0%	0.1	0.1	0%	<0.1	<0.1	n/a	0.1	0.1	0%	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
vanadium dissolved(ug/l)	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
vanadium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
vanadium total(ug/l)	0.3	0.3	0%	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
zinc dissolved(ug/l)	-	-	n/a	<0.4	<0.4	n/a	<0.4	<0.4	n/a	<0.4	2.1	n/a	<0.4	<0.4	n/a	0.9	1.2	29%	0.5	0.5	0%	-	-	n/a
zinc extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
zinc total(ug/l)	<0.4	<0.4	n/a	<0.4	<0.4	n/a	<0.4	<0.4	n/a	1.4	<0.4	n/a	<0.4	<0.4	n/a	<0.4	<0.4	n/a	<0.4	<0.4	n/a	<0.4	<0.4	n/a
			3			2			2			4			1			4			2			
			47			72			74			74			73			74			74			
% > 25 % RPD			1%			1%			1%			1%			0%			2%			1%			0%

RPD greater than 25%

Parameter	King Lake			King Lake			Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	7/9/2013			7/8/2014			4/13/2000			7/27/2005			1/31/2006			7/4/2006			9/19/2006			7/4/2007		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
alkalinity phenolphthalein caco3(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
alkalinity total caco3(mg/l)	5.9	5.9	0%	6.2	6.5	5%	3.9	3.9	0%	4.5	4.5	0%	5.2	5.2	0%	5.5	5.5	0%	4.3	4.3	0%	4.8	4.9	2%
aluminum dissolved(ug/l)	6.4	6.9	8%	4.2	4	5%	-	-	n/a	2.7	3.7	31%	-	-	n/a	37.6	18.3	69%	3.5	3.9	11%	3.5	3.2	9%
aluminum extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
aluminum total(ug/l)	9	8.7	3%	10.7	10.9	2%	<30	330	n/a	3.7	23.9	146%	2.9	2.5	15%	37	<30	n/a	5.1	5.6	9%	4.1	3.9	5%
ammonia dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
ammonia total(mg/l)	<0.005	<0.005	n/a	<0.005	<0.005	n/a	0.023	0.025	8%	<0.005	0.006	n/a	0.008	0.009	12%	<0.005	<0.005	n/a	<0.005	<0.005	n/a	<0.005	<0.005	n/a
antimony dissolved(ug/l)	0.2	0.2	0%	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	-	-	n/a	0.8	0.3	91%	<0.1	0.2	n/a	<0.1	<0.1	n/a
antimony total(ug/l)	0.3	0.3	0%	<0.1	<0.1	n/a	2.6	1.9	31%	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.8	0.6	29%	<0.1	0.1	n/a	<0.1	<0.1	n/a
arsenic dissolved(ug/l)	<0.2	<0.2	n/a	<0.2	<0.2	n/a	-	-	n/a	<0.2	<0.2	n/a	-	-	n/a	<0.2	<0.2	n/a	0.2	<0.2	n/a	<0.2	<0.2	n/a
arsenic total(ug/l)	<0.2	<0.2	n/a	<0.2	<0.2	n/a	<0.2	<0.2	n/a	<0.2	<0.2	n/a	0.2	0.2	0%	<0.2	<0.2	n/a	<0.2	0.3	n/a	<0.2	<0.2	n/a
barium dissolved(ug/l)	2.8	2.9	4%	2.9	2.9	0%	-	-	n/a	1.4	1.4	0%	-	-	n/a	7.1	3.8	61%	1.8	1.6	12%	1.4	1.7	19%
barium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
barium total(ug/l)	2.9	2.8	4%	3	3	0%	3	4	29%	1.7	4.8	95%	-	-	n/a	7.2	5.1	34%	1.8	1.7	6%	1.4	1.5	7%
beryllium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
beryllium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
beryllium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<2	<2	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
bicarbonate (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
bismuth dissolved(ug/l)	-	-	n/a	<0.2	<0.2	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
bismuth total(ug/l)	-	-	n/a	-	<0.2	n/a	<0.4	<0.4	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	King Lake			King Lake			Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	7/9/2013			7/8/2014			4/13/2000			7/27/2005			1/31/2006			7/4/2006			9/19/2006			7/4/2007		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
chromium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	5	<3	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	15.2	7.9	63%	0.3	0.2	40%	<0.1	<0.1	n/a
cobalt dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a
cobalt extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cobalt total(ug/l)	0.2	0.2	0%	<0.1	<0.1	n/a	<1	<1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
colourapparent(rel units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
colourtrue(rel units)	5	5	0%	<5	-	n/a	<5	<5	n/a	<5	5	n/a	<5	<5	n/a	<5	<5	n/a	5	6	18%	5	<5	n/a
copper dissolved(ug/l)	0.3	0.3	0%	0.5	0.6	18%	-	-	n/a	0.7	0.7	0%	-	-	n/a	2.8	1.8	43%	1	0.8	22%	0.7	0.7	0%
copper extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
copper total(ug/l)	0.3	0.3	0%	0.4	0.4	0%	3	2	40%	0.7	2.5	113%	0.7	0.7	0%	2.5	2	22%	0.9	0.8	12%	0.6	0.8	29%
cyanide total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cyanide wad(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
fluoride dissolved(mg/l)	-	-	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<1	<1	n/a
free co2 (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
hardness non-carb (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
hardness total caco3 calcd(mg/l)	12.6	12.6	0%	8.2	7.7	6%	4.62	4.62	0%	6.7	6.4	5%	6.9	6.2	11%	8.3	8.7	5%	9.2	9.2	0%	6.9	6.8	1%
hydroxide (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
iron dissolved(ug/l)	<5	<5	n/a	<5	<5	n/a	-	-	n/a	<50	<50	n/a	-	-	n/a	<50	<50	n/a	<50	<50	n/a	<50	<50	n/a
iron extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
iron total(ug/l)	10	9	11%	11	11	0%	40	30	29%	<50	<50	n/a	<50	<50	n/a	<50	<50	n/a	<50	<50	n/a	<50	<50	n/a
lead dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	-	-	n/a	65.3	28.5	78%	0.2	0.3	40%	<0.1	<0.1	n/a
lead extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
lead total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	1	<1	n/a	<0.1	0.3	n/a	<0.1	<0.1	n/a	62.6	36.9	52%	0.5	0.5	0%	<0.1	<0.1	n/a
lithium dissolved(ug/l)	1.2	1.1	9%	1.2	1.1	9%	-	-	n/a	0.9	0.8	12%	-	-	n/a	1.2	1.2	0%	1.2	1.2	0%	0.5	0.6	18%
lithium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
lithium total(ug/l)	1.2	1	18%	1.1	1.2	9%	<3	<3	n/a	0.9	0.9	0%	1.2	1.2	0%	1.3	1.3	0%	1.2	1.2	0%	0.6	0.6	0%
magnesium dissolved(mg/l)	1.1	1.2	9%	0.8	0.7	13%	0.57	0.57	0%	0.8	0.8	0%	0.8	0.7	13%	1	1	0%	1.1	1.1	0%	0.9	0.8	12%
magnesium extractable(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
magnesium total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	0.0013	0.0013	0%	0.004	0.0037	8%	-	-	n/a	-	-	n/a
manganese dissolved(ug/l)	0.7	0.7	0%	0.7	0.8	13%	-	-	n/a	1.8	1.8	0%	-	-	n/a	2.2	2.3	4%	0.9	0.8	12%	1.3	1.3	0%
manganese extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
manganese total(ug/l)	2.5	2.1	17%	2.4	2.4	0%	1	1	0%	3.8	4.1	8%	-	-	n/a	-	-	n/a	2.3	2.3	0%	1.8	1.8	0%
mercury dissolved(ug/l)	<0.01	<0.01	n/a	<0.01	<0.01	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.02	<0.02	n/a
mercury total(ug/l)	<0.01	<0.01	n/a	<0.01	0.001	n/a	-	-	n/a	-	-	n/a	<0.02	<0.02	n/a	<0.01	0.02	n/a	<0.01	<0.01	n/a	<0.02	<0.02	n/a
molybdenum dissolved(ug/l)	0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	-	-	n/a	1.5	0.7	73%	<0.1	0.2	n/a	<0.1	<0.1	n/a
molybdenum extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
molybdenum total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<1	<1	n/a	<0.1	0.1	n/a	0.1	<0.1	n/a	1.5	1	40%	0.2	0.2	0%	<0.1	<0.1	n/a
nickel dissolved(ug/l)	0.5	0.5	0%	0.3	0.3	0%	-	-	n/a	0.9	1.1	20%	-	-	n/a	1.1	1.1	0%	1	0.9	11%	0.9	0.9	0%
nickel extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nickel total(ug/l)	0.5	0.5	0%	0.3	0.4	29%	2	2	0%	0.9	1.1	20%	0.9	0.9	0%	1	1	0%	1	0.9	11%	0.9	0.9	0%
nitrate(mg/l)	<0.01	<0.005	n/a	0.04	<0.005	n/a	-	-	n/a	<0.01	<0.01	n/a	-	-	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<1	<1	n/a
nitrate-nitrite dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nitrate-nitrite(mg/l)	<0.005	<0.005	n/a	<0.005	0.04	n/a	<0.008	<0.008	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	-	-	n/a
nitrite(mg/l)	<0.01	<0.001	n/a	<0.01	<0.001	n/a	-	-	n/a	<0.01	<0.01	n/a	-	-	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<1	<1	n/a

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	King Lake			King Lake			Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	7/9/2013			7/8/2014			4/13/2000			7/27/2005			1/31/2006			7/4/2006			9/19/2006			7/4/2007		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
nitrogen particulate(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nitrogen total dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nitrogen total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
pH(ph units)	6.95	6.98	0%	7	7.01	0%	6.49	6.53	1%	6.63	6.64	0%	6.51	6.56	1%	6.86	6.86	0%	6.54	6.53	0%	6.69	6.68	0%
phosphate ortho(mg/l)	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.002	<0.002	n/a	<0.002	<0.002	n/a	-	-	n/a	-	-	n/a	<0.002	<0.002	n/a	-	-	n/a
phosphorous particulate (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
phosphorous total dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<0.01	<0.01	n/a	-	-	n/a	-	-	n/a	<0.01	<0.01	n/a
phosphorous total(mg/l)	0.003	0.003	0%	<0.002	<0.002	n/a	0.009	0.009	0%	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a
potassium dissolved(mg/l)	0.5	0.5	0%	0.6	0.6	0%	0.63	0.83	27%	0.5	0.5	0%	0.6	0.6	0%	0.5	0.6	18%	0.4	0.4	0%	0.5	0.5	0%
potassium extractable(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
rubidium dissolved(ug/l)	1.2	1.3	8%	1.3	1.2	8%	-	-	n/a	1.3	1.3	0%	-	-	n/a	1.1	1.1	0%	1.2	1.2	0%	0.9	0.9	0%
rubidium total(ug/l)	1.2	1.2	0%	1.3	1.3	0%	-	-	n/a	1.3	1.4	7%	1.4	1.4	0%	1.2	1.2	0%	1.2	1.2	0%	0.9	0.9	0%
saturation index (calcd)(ph units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
selenium dissolved(ug/l)	<0.3	<0.3	n/a	<0.3	<0.3	n/a	-	-	n/a	<0.3	<0.3	n/a	-	-	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	2	2	0%
selenium total(ug/l)	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<10	<10	n/a	<0.3	<0.3	n/a	1.5	<0.3	n/a	<1	<1	n/a	<0.3	0.3	n/a	2.1	2.2	5%
silica reactive(mg/l)	-	-	n/a	-	-	n/a	0.112	0.103	8%	0.04	0.04	0%	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
silica(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
silver dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
silver total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.3	<0.3	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	0.2	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
sodium dissolved(mg/l)	0.7	0.7	0%	0.8	0.8	0%	0.65	0.73	12%	0.5	0.4	22%	0.8	0.7	13%	0.5	0.5	0%	0.5	0.5	0%	0.5	0.5	0%
sodium extractable(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
sodium percentage (calcd)(%)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
sodium total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
specific conductance(usie/cm)	22.4	22.7	1%	21.7	21.8	0%	16.1	17.1	6%	15.2	15.1	1%	17	16.6	2%	15.1	15.2	1%	14.8	14.8	0%	14.9	14.9	0%
stability index (calcd)(ph units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
strontium dissolved(ug/l)	11.4	11.8	3%	11.6	11.4	2%	-	-	n/a	6.5	6.6	2%	-	-	n/a	7.2	6.5	10%	6	6.1	2%	4.6	4.6	0%
strontium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
strontium total(ug/l)	11.3	11.5	2%	12.1	12.2	1%	<6	6	n/a	6.9	7.1	3%	7	7	0%	7.5	6.9	8%	6.2	6.2	0%	4.6	4.6	0%
sulphate dissolved(mg/l)	2	2	0%	2	2	0%	<3	<3	n/a	2	2	0%	2	2	0%	2	2	0%	2	2	0%	2	2	0%
tds calc(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tds(mg/l)	<10	12	n/a	20	20	0%	<10	11	n/a	<10	<10	n/a	<10	<10	n/a	20	20	0%	<10	<10	n/a	<10	<10	n/a
temperature water(deg c)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
thallium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
thallium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.4	<0.4	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
tin dissolved(ug/l)	-	-	n/a	<0.1	<0.1	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tin total(ug/l)	-	-	n/a	-	<0.1	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
titanium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	-	-	n/a	1.1	0.5	75%	<0.1	<0.1	n/a	<0.1	<0.1	n/a
titanium total(ug/l)	<0.1	<0.1	n/a	0.1	<0.1	n/a	<3	<6	n/a	<0.1	0.1	n/a	<0.1	<0.1	n/a	1	0.7	35%	<0.1	<0.1	n/a	<0.1	<0.1	n/a
tss fixed(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tss(mg/l)	<3	<3	n/a	<3	<3	n/a	4	<3	n/a	<3	<3	n/a	<3	<3	n/a	<3	<3	n/a	<3	<3	n/a	20	18	11%
tungsten dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tungsten total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
turbidity(ntu)	0.35	0.5	35%	0.21	0.22	5%	0.9	1.2	29%	0.5	0.3	50%	0.92	0.41	77%	0.26	0.42	47%	0.23	0.24	4%	0.36	0.4	11%

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	King Lake			King Lake			Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	7/9/2013			7/8/2014			4/13/2000			7/27/2005			1/31/2006			7/4/2006			9/19/2006			7/4/2007		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
uranium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
uranium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.3	<0.3	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
vanadium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
vanadium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
vanadium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<1	<1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
zinc dissolved(ug/l)	<0.4	<0.4	n/a	<0.4	<0.4	n/a	-	-	n/a	4.3	3.7	15%	-	-	n/a	7.7	3.6	73%	1.2	1.4	15%	0.7	0.8	13%
zinc extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
zinc total(ug/l)	<0.4	<0.4	n/a	<0.4	<0.4	n/a	26	28	7%	2.4	6.3	90%	<0.4	<0.4	n/a	<10	<10	n/a	<0.4	0.5	n/a	0.5	0.4	22%
			2			2			7			9			1			17			4			4
			74			80			46			74			45			72			72			74
% > 25 % RPD			1%			1%			4%			4%			1%			11%			1%			1%

RPD greater than 25%

Parameter	Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras			Lake of the Enemy			Lake of the Enemy		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	9/10/2009			3/23/2011			3/27/2012			8/8/2012			9/5/2012			9/9/2014			8/12/2014			8/30/2011		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
alkalinity phenolphthalein caco3(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
alkalinity total caco3(mg/l)	1.2	2.9	83%	5.3	4.8	10%	4.3	4.5	5%	4	3.8	5%	3.9	3.8	3%	3.8	3.8	0%	3.8	4.3	12%	3.8	3.8	0%
aluminum dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	3.3	2.8	16%	3.5	4.5	25%	1.6	1.3	21%	1	<0.6	n/a	-	-	n/a
aluminum extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
aluminum total(ug/l)	2.3	2.2	4%	4.3	4.2	2%	3.2	3.2	0%	5.7	5.7	0%	6.9	4.4	44%	7.1	7.1	0%	6.5	32.2	133%	3.8	4.1	8%
ammonia dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
ammonia total(mg/l)	<0.01	<0.01	n/a	0.01	0.01	0%	0.01	0.01	0%	<0.01	<0.01	n/a	0.006	<0.005	n/a	<0.005	<0.005	n/a	0.007	<0.005	n/a	<0.01	<0.01	n/a
antimony dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
antimony total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.2	0.2	0%
arsenic dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	<0.2	<0.2	n/a	<0.2	<0.2	n/a	<0.2	<0.2	n/a	<0.2	<0.2	n/a	-	-	n/a
arsenic total(ug/l)	<0.2	<0.2	n/a	0.3	0.2	40%	<0.2	<0.2	n/a	<0.2	<0.2	n/a	0.2	0.2	0%	<0.2	<0.2	n/a	<0.2	<0.2	n/a	<0.2	<0.2	n/a
barium dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	1.6	1.6	0%	1.6	1.6	0%	1.8	1.7	6%	1.5	1.5	0%	-	-	n/a
barium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
barium total(ug/l)	1.8	1.7	6%	2.4	2.4	0%	2.1	2.3	9%	1.7	1.8	6%	1.8	1.6	12%	1.8	1.7	6%	1.5	1.9	24%	1.7	1.7	0%
beryllium dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
beryllium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
beryllium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
bicarbonate (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
bismuth dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
bismuth total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
boron dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
boron extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
boron total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
btex, benzene (mg/l)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
btex, ethylbenzene (mg/l)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
btex, m/p-xylene (mg/l)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
btex, o-xylene (mg/l)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
btex, toluene (mg/l)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cadmium dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	-	-	n/a
cadmium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cadmium total(ug/l)	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a
calcium dissolved(mg/l)	1.1	0.9	20%	1.8	1.8	0%	1.6	1.6	0%	2.2	2.2	0%	0.8	0.8	0%	1.4	1.3	7%	1.6	1.4	13%	1.6	1.6	0%
calcium extractable/unfiltered(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
carbon dissolved inorganic(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
carbon dissolved organic(mg/l)	2.1	2.1	0%	3	2.9	3%	2.8	2.8	0%	2.7	2.5	8%	2.9	2.8	4%	2.3	2.6	12%	1.7	1.7	0%	2.1	2	5%
carbon particulate organic(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
carbon total organic(mg/l)	2.4	2.4	0%	2.9	2.8	4%	2.8	2.8	0%	3	2.9	3%	2.6	2.6	0%	2.7	2.7	0%	1.9	1.9	0%	1.7	1.7	0%
carbonate (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cesium dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
cesium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
chloride dissolved(mg/l)	<0.7	<0.7	n/a	1.1	1.1	0%	1.3	1.2	8%	-	-	n/a	-	-	n/a	1.4	1.3	7%	<0.7	<0.7	n/a	<0.7	<0.7	n/a
chromium dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
chromium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras			Lake of the Enemy			Lake of the Enemy		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	9/10/2009			3/23/2011			3/27/2012			8/8/2012			9/5/2012			9/9/2014			8/12/2014			8/30/2011		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
chromium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
cobalt dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
cobalt extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cobalt total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
colourapparent(rel units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
colourtrue(rel units)	<5	<5	n/a	<5	<5	n/a	<5	<5	n/a	<5	<5	n/a	<5	-	n/a	-	<5	n/a	<5	<5	n/a	<5	-	n/a
copper dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	0.3	0.3	0%	0.3	0.3	0%	0.4	0.4	0%	<0.2	<0.2	n/a	-	-	n/a
copper extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
copper total(ug/l)	0.5	0.5	0%	0.9	0.8	12%	0.9	0.8	12%	0.4	0.4	0%	0.3	0.3	0%	0.4	0.5	22%	<0.2	<0.2	n/a	0.6	0.5	18%
cyanide total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cyanide wad(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
fluoride dissolved(mg/l)	<0.1	<0.1	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
free co2 (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
hardness non-carb (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
hardness total caco3 calcd(mg/l)	7.2	5.8	22%	8.9	8.9	0%	7.5	8.2	9%	9.9	10.5	6%	5	4.8	4%	6.7	6.7	0%	7.1	6.8	4%	7.7	7.7	0%
hydroxide (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
iron dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	<5	<5	n/a	<5	<5	n/a	<5	<5	n/a	<5	<5	n/a	-	-	n/a
iron extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
iron total(ug/l)	<5	<5	n/a	<5	<5	n/a	<5	<5	n/a	6	6	0%	<5	<5	n/a	<5	<5	n/a	<5	<5	n/a	6	<5	n/a
lead dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	0.1	n/a	-	-	n/a
lead extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
lead total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
lithium dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	1.2	1.2	0%	1.2	1.1	9%	1.2	1.2	0%	1.3	1.3	0%	-	-	n/a
lithium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
lithium total(ug/l)	1.3	1.2	8%	1.7	1.6	6%	1.5	1.5	0%	1.2	1.3	8%	1.1	1.3	17%	1.3	1.4	7%	1.2	1.4	15%	1.5	1.5	0%
magnesium dissolved(mg/l)	1.1	0.9	20%	1.1	1.1	0%	0.9	1	11%	1.1	1.2	9%	0.7	0.7	0%	0.8	0.8	0%	0.8	0.8	0%	0.9	0.9	0%
magnesium extractable(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
magnesium total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
manganese dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	0.2	0.2	0%	0.4	0.4	0%	0.6	0.5	18%	<0.1	<0.1	n/a	-	-	n/a
manganese extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
manganese total(ug/l)	1	0.7	35%	0.7	0.7	0%	0.7	0.8	13%	2.1	2.1	0%	1.9	1.5	24%	1.7	1.3	27%	1.2	1.1	9%	0.8	0.8	0%
mercury dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	-	-	n/a
mercury total(ug/l)	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.0001	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	0	n/a	<0.01	0.001	n/a
molybdenum dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	0.2	0.2	0%	0.3	0.2	40%	0.1	0.2	67%	<0.1	<0.1	n/a	-	-	n/a
molybdenum extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
molybdenum total(ug/l)	0.1	0.1	0%	0.1	0.1	0%	0.2	0.2	0%	0.2	0.2	0%	0.2	0.2	0%	0.2	0.1	67%	<0.1	<0.1	n/a	<0.1	<0.1	n/a
nickel dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	0.9	0.9	0%	0.7	0.8	13%	0.9	0.8	12%	0.4	0.4	0%	-	-	n/a
nickel extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nickel total(ug/l)	0.9	0.9	0%	1.2	1.2	0%	1.1	1.2	9%	0.9	0.9	0%	0.8	0.8	0%	0.9	0.8	12%	0.5	0.4	22%	0.2	0.3	40%
nitrate(mg/l)	0.03	0.02	40%	<0.005	<0.005	n/a	<0.005	<0.005	n/a	<0.005	<0.005	n/a	<0.005	<0.005	n/a	<0.005	0.05	n/a	<0.01	<0.01	n/a	<0.005	<0.005	n/a
nitrate-nitrite dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nitrate-nitrite(mg/l)	0.03	0.02	40%	0.02	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.005	<0.005	n/a	<0.01	<0.01	n/a	0.03	0.03	0%
nitrite(mg/l)	<0.01	<0.01	n/a	<0.001	0.001	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.001	<0.001	n/a

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras			Lake of the Enemy			Lake of the Enemy		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	9/10/2009			3/23/2011			3/27/2012			8/8/2012			9/5/2012			9/9/2014			8/12/2014			8/30/2011		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
nitrogen particulate(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nitrogen total dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nitrogen total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
pH(ph units)	6.76	6.78	0%	6.79	6.79	0%	6.69	6.7	0%	6.89	6.9	0%	7	6.98	0%	6.79	6.76	0%	6.88	6.86	0%	6.92	6.93	0%
phosphate ortho(mg/l)	<0.002	<0.002	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a
phosphorous particulate (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
phosphorous total dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
phosphorous total(mg/l)	<0.01	<0.01	n/a	0.002	0.003	40%	0.003	0.004	29%	0.004	0.003	29%	0.002	0.002	0%	<0.002	<0.002	n/a	<0.002	<0.002	n/a	<0.002	<0.002	n/a
potassium dissolved(mg/l)	0.4	0.3	29%	0.8	0.8	0%	0.7	0.7	0%	0.6	0.6	0%	0.6	0.6	0%	0.6	0.6	0%	0.6	0.5	18%	0.6	0.6	0%
potassium extractable(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
rubidium dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	1.4	1.4	0%	1.4	1.4	0%	1.6	1.6	0%	1	1	0%	-	-	n/a
rubidium total(ug/l)	1.3	1.3	0%	1.9	1.9	0%	1.8	1.9	5%	1.5	1.6	6%	1.4	1.4	0%	1.6	1.5	6%	1	1	0%	1	1	0%
saturation index (calcd)(ph units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
selenium dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	-	-	n/a
selenium total(ug/l)	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a
silica reactive(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
silica(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
silver dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
silver total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
sodium dissolved(mg/l)	0.5	0.5	0%	1.4	1.3	7%	1	1.1	10%	1	1	0%	0.9	0.9	0%	1.3	1.2	8%	0.6	0.5	18%	0.5	0.5	0%
sodium extractable(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
sodium percentage (calcd)(%)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
sodium total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
specific conductance(usie/cm)	17	17	0%	25.5	25.5	0%	23.2	23.8	3%	19.9	19.8	1%	20.6	20.6	0%	21.4	21.4	0%	16.9	16.7	1%	17.7	17.6	1%
stability index (calcd)(ph units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
strontium dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	9.6	9.6	0%	9.2	9.5	3%	11.1	11.1	0%	7	6.8	3%	-	-	n/a
strontium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
strontium total(ug/l)	7.6	7.5	1%	10.7	10.8	1%	11.6	11.8	2%	10.2	10.2	0%	9.9	9.1	8%	11.6	10.7	8%	7	7.5	7%	6.8	6.8	0%
sulphate dissolved(mg/l)	2	2	0%	3	3	0%	3	3	0%	2	2	0%	2	2	0%	3	3	0%	3	3	0%	3	3	0%
tds calc(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tds(mg/l)	<10	16	n/a	<10	<10	n/a	<10	14	n/a	<10	<10	n/a	<10	10	n/a	14	14	0%	16	14	13%	<10	<10	n/a
temperature water(deg c)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
thallium dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
thallium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
tin dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tin total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
titanium dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.1	<0.1	n/a	-	-	n/a
titanium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
tss fixed(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tss(mg/l)	4	<3	n/a	4	<3	n/a	<3	<3	n/a	<3	<3	n/a	<3	<3	n/a	<3	<3	n/a	<3	<3	n/a	<3	<3	n/a
tungsten dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tungsten total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
turbidity(ntu)	0.22	0.24	9%	0.13	0.13	0%	0.17	0.15	13%	0.35	0.33	6%	0.19	0.23	19%	0.28	0.27	4%	0.14	0.16	13%	0.16	0.18	12%

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras			Lac de Gras			Lake of the Enemy			Lake of the Enemy		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	9/10/2009			3/23/2011			3/27/2012			8/8/2012			9/5/2012			9/9/2014			8/12/2014			8/30/2011		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
uranium dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
uranium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
vanadium dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a
vanadium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
vanadium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.3	0.3	0%
zinc dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	<0.4	<0.4	n/a	<0.4	<0.4	n/a	0.7	0.5	33%	1	0.9	11%	-	-	n/a
zinc extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
zinc total(ug/l)	0.5	0.5	0%	0.9	0.8	12%	<0.4	0.7	n/a	<0.4	<0.4	n/a	<0.4	<0.4	n/a	<0.4	<0.4	n/a	0.8	<0.4	n/a	<0.4	<0.4	n/a
			8			2			1			1			5			7			5			2
			49			48			48			73			72			75			75			47
% > 25 % RPD			4%			1%			1%			1%			1%			3%			1%			1%

RPD greater than 25%

Parameter	Lake of the Enemy			Lake of the Enemy			Lake of the Enemy			Lake of the Enemy			Lake of the Enemy			MacKay Lake			MacKay Lake		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	8/8/2012			9/5/2012			8/7/2013			9/6/2013			3/21/2014			3/27/2012			9/9/2014		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
alkalinity phenolphthalein cacO3(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
alkalinity total cacO3(mg/l)	3.8	4	5%	3.9	4	3%	3.5	3.7	6%	4	3.9	3%	5.3	5.7	7%	7.2	6.8	6%	4.3	4.1	5%
aluminum dissolved(ug/l)	1.8	2.5	33%	3.2	3.1	3%	0.8	0.7	13%	0.7	0.8	13%	0.8	<0.6	n/a	-	-	n/a	2.4	2.2	9%
aluminum extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
aluminum total(ug/l)	4.8	5.8	19%	2.9	3.3	13%	3	2.2	31%	3.1	3.5	12%	3.3	2.4	32%	6.6	7.3	10%	9.1	10	9%
ammonia dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
ammonia total(mg/l)	<0.01	<0.01	n/a	<0.005	<0.005	n/a	<0.005	<0.005	n/a	<0.005	<0.005	n/a	<0.005	0.006	n/a	0.02	0.02	0%	<0.005	<0.005	n/a
antimony dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.2	0.1	67%	0.2	0.2	0%	-	-	n/a	<0.1	<0.1	n/a
antimony total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.4	0.4	0%	0.5	0.4	22%	<0.1	<0.1	n/a	<0.1	<0.1	n/a
arsenic dissolved(ug/l)	<0.2	<0.2	n/a	<0.2	<0.2	n/a	<0.2	<0.2	n/a	<0.2	<0.2	n/a	<0.2	<0.2	n/a	-	-	n/a	<0.2	<0.2	n/a
arsenic total(ug/l)	<0.2	<0.2	n/a	<0.2	<0.2	n/a	<0.2	<0.2	n/a	<0.2	0.3	n/a	<0.2	<0.2	n/a	0.3	0.3	0%	<0.2	<0.2	n/a
barium dissolved(ug/l)	1.5	1.5	0%	1.4	1.4	0%	1.4	1.4	0%	1.3	1.2	8%	1.9	1.9	0%	-	-	n/a	1.7	1.6	6%
barium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
barium total(ug/l)	1.8	1.8	0%	1.5	1.5	0%	1.9	1.8	5%	1.5	1.7	13%	2	2	0%	3	3.1	3%	1.7	1.7	0%
beryllium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a
beryllium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
beryllium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
bicarbonate (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
bismuth dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	<0.2	n/a	-	-	n/a	-	-	n/a
bismuth total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	<0.2	n/a	-	-	n/a	-	-	n/a
boron dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	3.8	n/a	-	-	n/a	-	-	n/a
boron extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
boron total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	3.9	n/a	-	-	n/a	-	-	n/a
btex, benzene (mg/l)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
btex, ethylbenzene (mg/l)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
btex, m/p-xylene (mg/l)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
btex, o-xylene (mg/l)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
btex, toluene (mg/l)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cadmium dissolved(ug/l)	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	-	-	n/a	<0.05	<0.05	n/a
cadmium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cadmium total(ug/l)	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a
calcium dissolved(mg/l)	2.4	2.3	4%	0.9	0.9	0%	2.4	2.5	4%	2.5	2.5	0%	1.7	1.6	6%	2.6	2.3	12%	1.4	1.3	7%
calcium extractable/unfiltered(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
carbon dissolved inorganic(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
carbon dissolved organic(mg/l)	1.8	1.8	0%	2.2	2.2	0%	2.2	1.9	15%	1.8	1.8	0%	3	2.7	11%	4.5	4.4	2%	3.1	3.1	0%
carbon particulate organic(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
carbon total organic(mg/l)	2.3	2.2	4%	1.9	1.9	0%	1.7	1.7	0%	1.8	1.9	5%	2.4	2.6	8%	4.5	4.6	2%	3.4	3.4	0%
carbonate (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cesium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a
cesium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
chloride dissolved(mg/l)	-	-	n/a	-	-	n/a	<0.7	<0.7	n/a	<0.7	<0.7	n/a	<0.7	<0.7	n/a	<0.7	<0.7	n/a	<0.7	<0.7	n/a
chromium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a
chromium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	Lake of the Enemy			Lake of the Enemy			Lake of the Enemy			Lake of the Enemy			Lake of the Enemy			MacKay Lake			MacKay Lake		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	8/8/2012			9/5/2012			8/7/2013			9/6/2013			3/21/2014			3/27/2012			9/9/2014		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
chromium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
cobalt dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a
cobalt extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cobalt total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
colourapparent(rel units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
colourtrue(rel units)	5	5	0%	<5	5	n/a	5	5	0%	5	5	0%	5	5	0%	<5	<5	n/a	<5	<5	n/a
copper dissolved(ug/l)	0.2	0.2	0%	<0.2	<0.2	n/a	0.2	0.2	0%	0.4	0.4	0%	0.5	0.6	18%	-	-	n/a	0.5	0.5	0%
copper extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
copper total(ug/l)	0.3	0.3	0%	<0.2	0.2	n/a	0.2	0.2	0%	0.5	0.6	18%	0.6	0.6	0%	0.9	0.9	0%	0.5	0.4	22%
cyanide total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cyanide wad(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
fluoride dissolved(mg/l)	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a
free co2 (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
hardness non-carb (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
hardness total caco3 calcd(mg/l)	10.7	10.7	0%	4.9	5.2	6%	11.5	11.8	3%	11.7	11.7	0%	8.2	8.1	1%	10.9	9.8	11%	6.2	5.7	8%
hydroxide (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
iron dissolved(ug/l)	<5	<5	n/a	<5	<5	n/a	<5	<5	n/a	<5	<5	n/a	<5	<5	n/a	-	-	n/a	<5	<5	n/a
iron extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
iron total(ug/l)	<5	<5	n/a	<5	<5	n/a	<5	<5	n/a	<5	6	n/a	<5	9	n/a	7	8	13%	7	10	35%
lead dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a
lead extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
lead total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	0.2	n/a	<0.1	<0.1	n/a
lithium dissolved(ug/l)	1.3	1.3	0%	1.4	1.3	7%	1.2	1.2	0%	1.2	1.1	9%	1.8	1.8	0%	-	-	n/a	1.2	1.1	9%
lithium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
lithium total(ug/l)	1.5	1.5	0%	1.5	1.3	14%	1.2	1.3	8%	1.3	1.4	7%	1.8	1.9	5%	1.8	1.8	0%	1.1	1.2	9%
magnesium dissolved(mg/l)	1.2	1.2	0%	0.7	0.7	0%	1.3	1.4	7%	1.3	1.3	0%	1	1	0%	1.1	1	10%	0.6	0.6	0%
magnesium extractable(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
magnesium total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
manganese dissolved(ug/l)	0.3	0.3	0%	0.2	0.2	0%	0.9	0.9	0%	0.2	0.1	67%	0.2	0.3	40%	-	-	n/a	0.6	0.5	18%
manganese extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
manganese total(ug/l)	1.1	1.1	0%	1.1	1.1	0%	1.5	1.8	18%	1.6	1.7	6%	0.7	0.8	13%	1.3	1.3	0%	2.3	2.8	20%
mercury dissolved(ug/l)	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	-	-	n/a	<0.01	<0.01	n/a
mercury total(ug/l)	0	0	-	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0	n/a	0.001	<0.01	n/a	<0.0001	<0.0001	n/a	<0.01	0	n/a
molybdenum dissolved(ug/l)	<0.1	<0.1	n/a	0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a
molybdenum extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
molybdenum total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
nickel dissolved(ug/l)	0.4	0.4	0%	0.4	0.3	29%	0.5	0.5	0%	0.4	0.4	0%	0.6	0.6	0%	-	-	n/a	1	0.9	11%
nickel extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nickel total(ug/l)	0.5	0.5	0%	0.4	0.4	0%	0.5	0.5	0%	0.5	0.6	18%	0.7	0.7	0%	1.6	1.6	0%	0.9	0.9	0%
nitrate(mg/l)	<0.005	<0.005	n/a	<0.005	<0.005	n/a	<0.005	<0.005	n/a	<0.005	<0.005	n/a	<0.005	<0.005	n/a	<0.005	0.005	n/a	0.03	0.04	29%
nitrate-nitrite dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nitrate-nitrite(mg/l)	<0.01	<0.01	n/a	<0.01	<0.01	n/a	0.03	0.02	40%	<0.005	0.02	n/a	<0.005	<0.01	n/a	<0.01	<0.01	n/a	<0.005	0.04	n/a
nitrite(mg/l)	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.01	<0.01	n/a	<0.001	<0.01	n/a	<0.01	<0.01	n/a	<0.001	<0.001	n/a	<0.01	<0.01	n/a

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	Lake of the Enemy			Lake of the Enemy			Lake of the Enemy			Lake of the Enemy			Lake of the Enemy			MacKay Lake			MacKay Lake		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	8/8/2012			9/5/2012			8/7/2013			9/6/2013			3/21/2014			3/27/2012			9/9/2014		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
nitrogen particulate(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nitrogen total dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nitrogen total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
pH(ph units)	6.99	6.98	0%	7.03	7.01	0%	6.75	6.83	1%	6.82	6.81	0%	6.93	6.91	0%	6.77	6.78	0%	6.83	6.75	1%
phosphate ortho(mg/l)	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a
phosphorous particulate (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
phosphorous total dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
phosphorous total(mg/l)	<0.002	<0.002	n/a	0.003	<0.002	n/a	<0.002	0.007	n/a	<0.002	<0.002	n/a	0.003	0.003	0%	0.003	0.003	0%	<0.002	0.002	n/a
potassium dissolved(mg/l)	0.5	0.5	0%	0.5	0.5	0%	0.6	0.6	0%	0.5	0.5	0%	0.7	0.7	0%	0.7	0.6	15%	0.4	0.4	0%
potassium extractable(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
rubidium dissolved(ug/l)	0.9	1	11%	1	0.9	11%	0.9	0.9	0%	0.8	0.8	0%	1.5	1.5	0%	-	-	n/a	1.2	1.2	0%
rubidium total(ug/l)	1.1	1	10%	1	1	0%	0.9	1	11%	1	1	0%	1.5	1.5	0%	2.1	2.1	0%	1.2	1.3	8%
saturation index (calcd)(ph units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
selenium dissolved(ug/l)	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	-	-	n/a	<0.3	<0.3	n/a
selenium total(ug/l)	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a
silica reactive(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
silica(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
silver dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a
silver total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
sodium dissolved(mg/l)	0.5	0.5	0%	0.5	0.5	0%	0.5	0.5	0%	0.5	0.5	0%	0.7	0.7	0%	0.9	0.8	12%	0.6	0.6	0%
sodium extractable(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
sodium percentage (calcd)(%)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
sodium total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
specific conductance(usie/cm)	18	18	0%	18.7	18.6	1%	18.3	18.5	1%	17.9	17.9	0%	23.6	23.6	0%	27.9	27.7	1%	15.4	15.2	1%
stability index (calcd)(ph units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
strontium dissolved(ug/l)	6.5	7	7%	6.7	6.4	5%	6.7	6.6	2%	6.1	6.1	0%	10.5	10.4	1%	-	-	n/a	7.2	7.1	1%
strontium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
strontium total(ug/l)	7.2	7.5	4%	6.9	6.9	0%	6.3	6.8	8%	7	7.3	4%	10.5	10.9	4%	12.3	12.3	0%	7	7.4	6%
sulphate dissolved(mg/l)	3	3	0%	3	3	0%	3	3	0%	3	3	0%	4	4	0%	3	3	0%	2	2	0%
tds calc(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tds(mg/l)	10	<10	n/a	<10	<10	n/a	10	12	18%	<10	10	n/a	<10	10	n/a	20	22	10%	18	16	12%
temperature water(deg c)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
thallium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a
thallium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
tin dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	<0.1	n/a	-	-	n/a	-	-	n/a
tin total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	<0.1	n/a	-	-	n/a	-	-	n/a
titanium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a
titanium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	0.2	n/a
tss fixed(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tss(mg/l)	<3	<3	n/a	<3	<3	n/a	<3	<3	n/a	<3	<3	n/a	<3	<3	n/a	6	6	0%	<3	<3	n/a
tungsten dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tungsten total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
turbidity(ntu)	0.35	0.38	8%	0.23	0.2	14%	0.3	0.28	7%	0.25	0.23	8%	0.87	0.38	78%	0.16	0.18	12%	0.26	0.3	14%

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	Lake of the Enemy			Lake of the Enemy			Lake of the Enemy			Lake of the Enemy			Lake of the Enemy			MacKay Lake			MacKay Lake		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	8/8/2012			9/5/2012			8/7/2013			9/6/2013			3/21/2014			3/27/2012			9/9/2014		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
uranium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a
uranium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.2	0.3	40%	<0.1	<0.1	n/a
vanadium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a
vanadium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
vanadium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	0.1	n/a	<0.1	<0.1	n/a
zinc dissolved(ug/l)	<0.4	<0.4	n/a	<0.4	<0.4	n/a	<0.4	<0.4	n/a	<0.4	<0.4	n/a	<0.4	<0.4	n/a	-	-	n/a	0.6	0.5	18%
zinc extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
zinc total(ug/l)	<0.4	<0.4	n/a	<0.4	<0.4	n/a	<0.4	<0.4	n/a	<0.4	<0.4	n/a	<0.4	<0.4	n/a	<0.4	<0.4	n/a	<0.4	<0.4	n/a
			2			1			4			4			5			1			6
			73			73			75			74			81			48			75
% > 25 % RPD			1%			1%			1%			1%			2%			1%			1%

RPD greater than 25%

[illegible]

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	Point Lake			Point Lake			Point Lake			Rocknest Lake			Rocknest Lake			Rocknest Lake			Lac de Gras			Lac de Gras		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	8/17/2007			7/9/2013			8/12/2014			7/6/2007			7/5/2011			3/27/2012			3/31/2008			6/13/2008		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
chromium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
cobalt dissolved(ug/l)	<0.1	<0.1	n/a	0.1	0.1	0%	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
cobalt extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cobalt total(ug/l)	<0.1	<0.1	n/a	0.1	0.1	0%	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
colourapparent(rel units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
colourtrue(rel units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
copper dissolved(ug/l)	0.8	0.9	12%	0.5	0.4	22%	0.3	0.3	0%	14.5	0.8	179%	-	-	n/a	-	-	n/a	0.8	0.9	12%	0.8	0.7	13%
copper extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
copper total(ug/l)	0.7	0.7	0%	0.4	0.5	22%	0.5	0.4	22%	0.7	0.7	0%	0.6	0.6	0%	0.8	0.8	0%	0.6	0.7	15%	0.7	0.7	0%
cyanide total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
cyanide wad(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
fluoride dissolved(mg/l)	<0.1	<0.1	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	-	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	0.6	<0.1	n/a
free co2 (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
hardness non-carb (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
hardness total caco3 calcd(mg/l)	5.8	5.9	2%	10	10.3	3%	6.4	6.2	3%	24	23.6	2%	10.5	10.8	3%	8.2	8.6	5%	8.5	8.7	2%	9.4	9	4%
hydroxide (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
iron dissolved(ug/l)	<50	<50	n/a	<5	<5	n/a	<5	<5	n/a	<50	<50	n/a	-	-	n/a	-	-	n/a	<50	<50	n/a	<5	<5	n/a
iron extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
iron total(ug/l)	<50	<50	n/a	<5	<5	n/a	<5	<5	n/a	<50	<50	n/a	11	10	10%	9	9	0%	<50	<50	n/a	8	7	13%
lead dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	0.1	0.1	0%
lead extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
lead total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	0.1	n/a
lithium dissolved(ug/l)	0.6	0.6	0%	0.8	0.9	12%	0.9	0.9	0%	0.5	0.5	0%	-	-	n/a	-	-	n/a	0.9	1.1	20%	1.1	1.1	0%
lithium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
lithium total(ug/l)	0.6	0.6	0%	1	0.9	11%	0.9	1	11%	0.5	0.5	0%	0.7	0.8	13%	0.9	0.9	0%	1.1	1.1	0%	1.2	1.2	0%
magnesium dissolved(mg/l)	0.7	0.7	0%	1	1.1	10%	0.7	0.7	0%	2.4	2.3	4%	1.5	1.3	14%	0.9	0.9	0%	1	1	0%	1.1	1.1	0%
magnesium extractable(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
magnesium total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
manganese dissolved(ug/l)	0.3	0.3	0%	0.5	0.5	0%	0.3	0.2	40%	2.4	0.9	91%	-	-	n/a	-	-	n/a	0.4	0.4	0%	1.4	1.3	7%
manganese extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
manganese total(ug/l)	0.5	0.5	0%	0.5	0.6	18%	0.5	0.5	0%	2.4	2.4	0%	1.4	1.4	0%	0.8	0.8	0%	0.7	0.8	13%	2.3	2.2	4%
mercury dissolved(ug/l)	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.02	<0.02	n/a	-	-	n/a	-	-	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a
mercury total(ug/l)	<0.01	<0.01	n/a	<0	<0	n/a	0	<0.01	n/a	<0.02	<0.02	n/a	<0.01	<0.01	n/a	<0.0001	<0.0001	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a
molybdenum dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	-	-	n/a	0.1	<0.1	n/a	<0.1	<0.1	n/a
molybdenum extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
molybdenum total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
nickel dissolved(ug/l)	0.7	0.7	0%	0.7	0.7	0%	0.7	0.7	0%	0.6	0.5	18%	-	-	n/a	-	-	n/a	1.1	1.1	0%	1.2	1	18%
nickel extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nickel total(ug/l)	0.7	0.7	0%	0.7	0.7	0%	0.7	0.8	13%	0.5	0.5	0%	0.5	0.5	0%	0.7	0.7	0%	1.1	1.1	0%	1.1	1	10%
nitrate(mg/l)	0.03	0.03	0%	0.063	0.04	45%	0.03	0.03	0%	<0.01	-	n/a	0.021	0.02	5%	0.082	0.082	0%	<0.01	<0.01	n/a	0.65	<0.01	n/a
nitrate-nitrite dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nitrate-nitrite(mg/l)	0.03	0.03	0%	0.05	0.04	22%	0.03	0.041	31%	-	-	n/a	0.01	0.01	0%	0.05	0.05	0%	<0.01	<0.01	n/a	0.65	0.01	194%
nitrite(mg/l)	<0.01	<0.01	n/a	<0.01	<0.001	n/a	<0.001	<0.01	n/a	<0.01	-	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	Point Lake			Point Lake			Point Lake			Rocknest Lake			Rocknest Lake			Rocknest Lake			Lac de Gras			Lac de Gras		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	8/17/2007			7/9/2013			8/12/2014			7/6/2007			7/5/2011			3/27/2012			3/31/2008			6/13/2008		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
nitrogen particulate(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nitrogen total dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
nitrogen total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
pH(ph units)	6.89	6.84	1%	6.62	6.65	0%	6.83	6.84	0%	7.57	7.58	0%	7.09	7.09	0%	6.76	6.77	0%	6.74	6.73	0%	6.76	6.76	0%
phosphate ortho(mg/l)	-	-	n/a	<0.001	<0.001	n/a	<0.001	<0.001	n/a	-	-	n/a	<0.002	<0.002	n/a	<0.001	<0.001	n/a	-	-	n/a	-	-	n/a
phosphorous particulate (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
phosphorous total dissolved(mg/l)	<0.01	<0.01	n/a	-	-	n/a	-	-	n/a	<0.01	<0.01	n/a	<0.001	<0.001	n/a	-	-	n/a	<0.01	<0.01	n/a	-	-	n/a
phosphorous total(mg/l)	<0.01	<0.01	n/a	0.003	0.002	40%	<0.002	<0.002	n/a	0.01	0.01	0%	0.003	0.003	0%	0.003	0.002	40%	<0.01	<0.01	n/a	<0.01	<0.01	n/a
potassium dissolved(mg/l)	0.4	0.4	0%	0.4	0.4	0%	0.5	0.4	22%	0.4	-	n/a	0.5	0.5	0%	0.5	0.5	0%	0.6	0.7	15%	0.6	0.6	0%
potassium extractable(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
rubidium dissolved(ug/l)	0.9	0.9	0%	1.2	1.3	8%	1.3	1.3	0%	0.9	0.8	12%	-	-	n/a	-	-	n/a	1.5	1.4	7%	1.2	1	18%
rubidium total(ug/l)	0.9	0.9	0%	1.3	1.2	8%	1.3	1.3	0%	0.8	0.8	0%	1.2	1.2	0%	1.5	1.5	0%	1.5	1.5	0%	1.2	1.2	0%
saturation index (calcd)(ph units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
selenium dissolved(ug/l)	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	1.8	1.8	0%	-	-	n/a	-	-	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a
selenium total(ug/l)	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	1.7	1.8	6%	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a
silica reactive(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
silica(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
silver dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
silver total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
sodium dissolved(mg/l)	0.5	0.5	0%	0.5	0.5	0%	0.6	0.5	18%	0.4	-	n/a	0.5	0.5	0%	0.6	0.6	0%	0.7	0.7	0%	0.7	0.7	0%
sodium extractable(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
sodium percentage (calcd)(%)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
sodium total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
specific conductance(usie/cm)	15.5	16	3%	16.5	16.3	1%	14.9	15	1%	42.3	42.3	0%	22.4	22.4	0%	21.3	21.4	0%	19.4	19.5	1%	15.7	15.5	1%
stability index (calcd)(ph units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
strontium dissolved(ug/l)	4.1	4.1	0%	5.8	6	3%	6	5.8	3%	13.2	8.2	47%	-	-	n/a	-	-	n/a	7.8	7.7	1%	7.8	7.8	0%
strontium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
strontium total(ug/l)	4.1	4.1	0%	6	5.8	3%	6.1	6	2%	8.4	8.4	0%	5.7	5.8	2%	7.4	7.3	1%	8	7.8	3%	7.9	7.8	1%
sulphate dissolved(mg/l)	2	2	0%	2	2	0%	2	2	0%	1	-	n/a	2	2	0%	2	2	0%	2	2	0%	<1	2	n/a
tds calc(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tds(mg/l)	24	31	25%	<10	10	n/a	20	18	11%	42	40	5%	10	<10	n/a	14	24	53%	10	<10	n/a	<10	12	n/a
temperature water(deg c)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
thallium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
thallium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
tin dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tin total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
titanium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.3	<0.1	n/a	-	-	n/a	-	-	n/a	0.2	<0.1	n/a	<0.1	<0.1	n/a
titanium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.1	0.1	0%	0.2	0.1	67%	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
tss fixed(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tss(mg/l)	<3	<3	n/a	<3	<3	n/a	<3	<3	n/a	4	<3	n/a	<3	<3	n/a	4	8	67%	<3	<3	n/a	<3	<3	n/a
tungsten dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
tungsten total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
turbidity(ntu)	0.19	0.17	11%	0.49	0.92	61%	0.17	0.18	6%	0.37	0.41	10%	0.27	0.35	26%	0.2	0.11	58%	0.13	0.17	27%	0.23	0.24	4%

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	Point Lake			Point Lake			Point Lake			Rocknest Lake			Rocknest Lake			Rocknest Lake			Lac de Gras			Lac de Gras		
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			GNWT		
	8/17/2007			7/9/2013			8/12/2014			7/6/2007			7/5/2011			3/27/2012			3/31/2008			6/13/2008		
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD
uranium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
uranium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	0.2	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
vanadium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.2	<0.1	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
vanadium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
vanadium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a
zinc dissolved(ug/l)	0.9	1.2	29%	<0.4	<0.4	n/a	1	3.8	117%	4.1	0.8	135%	-	-	n/a	-	-	n/a	0.9	0.9	0%	0.9	0.5	57%
zinc extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a
zinc total(ug/l)	0.5	0.7	33%	<0.4	<0.4	n/a	3	3.5	15%	0.4	0.4	0%	<0.4	<0.4	n/a	<0.4	<0.4	n/a	0.7	0.5	33%	0.5	0.6	18%
			3			7			6			6			2			5			4			6
			74			73			74			66			48			47			74			73
% > 25 % RPD		22%	25 % RPD			2%			2%			4%			1%			3%			1%			2%

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	Rocknest Lake			Lac de Gras			MacKay Lake			King Lake			Lac de Gras			Point Lake			Lockhart River			>25% RPD
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			EC			
	7/7/2008			7/28/2008			8/6/2008			9/3/2008			9/11/2008			8/30/2011			8/26/1994			
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	
alkalinity phenolphthalein caco3(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	0	0	-	-
alkalinity total caco3(mg/l)	9.2	8.7	6%	3.2	3.6	12%	4.1	4.2	2%	5.9	6	2%	3	3.3	10%	6.2	3.9	46%	5.6	5	11%	6%
aluminum dissolved(ug/l)	10.3	10.4	1%	0.6	2	108%	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	13%
aluminum extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<50	<50	n/a	-
aluminum total(ug/l)	12.9	14	8%	1.7	1	52%	3.4	3	13%	9.2	9.3	1%	7	6	15%	13.6	12.5	8%	6	10	50%	17%
ammonia dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	0.02	0.018	11%	-
ammonia total(mg/l)	<0.005	<0.005	n/a	0.012	<0.005	n/a	<0.005	<0.005	n/a	<0.005	<0.005	n/a	<0.005	<0.005	n/a	<0.01	<0.01	n/a	-	-	n/a	4%
antimony dissolved(ug/l)	<0.1	<0.1	n/a	0.1	0.4	120%	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	6%
antimony total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.2	<0.1	n/a	-	-	n/a	7%
arsenic dissolved(ug/l)	0.2	0.2	0%	0.2	0.4	67%	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<0.1	0.1	n/a	2%
arsenic total(ug/l)	0.2	0.2	0%	0.3	0.3	0%	0.2	0.2	0%	<0.2	<0.2	n/a	0.2	<0.2	n/a	0.3	<0.2	n/a	-	-	n/a	2%
barium dissolved(ug/l)	3.4	4.2	21%	1.6	6.8	124%	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	6%
barium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<2	2	n/a	-
barium total(ug/l)	3.2	3.2	0%	3.3	2.1	44%	2.3	2.7	16%	2.5	2.5	0%	1.7	1.6	6%	2.8	1.9	38%	2.3	2.3	0%	11%
beryllium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
beryllium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	2	2	0%	-
beryllium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.05	<0.05	n/a	-
bicarbonate (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	6.826	6.095	11%	-
bismuth dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
bismuth total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
boron dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	2%
boron extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<10	<10	n/a	-
boron total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
btex, benzene (mg/l)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
btex, ethylbenzene (mg/l)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
btex, m/p-xylene (mg/l)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
btex, o-xylene (mg/l)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
btex, toluene (mg/l)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
cadmium dissolved(ug/l)	<0.05	<0.05	n/a	<0.05	0.09	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
cadmium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<5	<5	n/a	-
cadmium total(ug/l)	<0.05	<0.05	n/a	<0.05	0.07	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.05	<0.05	n/a	<0.1	<0.1	n/a	-
calcium dissolved(mg/l)	4.2	4.1	2%	1.2	1.1	9%	2.5	2.6	4%	8.7	8.9	2%	1.1	1	10%	2.2	1.6	32%	1.3	1.29	1%	4%
calcium extractable/unfiltered(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	1.4	1.3	7%	-
carbon dissolved inorganic(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
carbon dissolved organic(mg/l)	3.8	3.9	3%	2.3	2.3	0%	2.9	2.9	0%	3.1	3.1	0%	2.3	2.3	0%	3.1	2.6	18%	3.3	3	10%	2%
carbon particulate organic(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	0.321	0.21	42%	2%
carbon total organic(mg/l)	4	4	0%	2.6	2.5	4%	2.9	3	3%	3.6	3.6	0%	2.3	2.3	0%	3.1	2.7	14%	3.621	3.21	12%	2%
carbonate (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	0	0	-	-
cesium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
cesium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	-
chloride dissolved(mg/l)	<0.7	<0.7	n/a	<0.7	<0.7	n/a	<0.7	<0.7	n/a	<0.7	<0.7	n/a	<0.7	<0.7	n/a	<0.7	<0.7	n/a	0.38	0.35	8%	-
chromium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	2.8	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
chromium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<5	<5	n/a	-

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	Rocknest Lake			Lac de Gras			MacKay Lake			King Lake			Lac de Gras			Point Lake			Lockhart River			>25% RPD
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			EC			
	7/7/2008			7/28/2008			8/6/2008			9/3/2008			9/11/2008			8/30/2011			8/26/1994			
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	
chromium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.1	<0.1	n/a	<0.2	<0.2	n/a	4%
cobalt dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
cobalt extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<5	<5	n/a	-
cobalt total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-
colourapparent(rel units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
colourtrue(rel units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
copper dissolved(ug/l)	0.8	0.8	0%	0.5	0.7	33%	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	9%
copper extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<5	<5	n/a	-
copper total(ug/l)	0.6	0.6	0%	0.6	0.5	18%	0.6	0.6	0%	0.6	0.6	0%	0.9	0.8	12%	0.8	0.7	13%	0.3	0.6	67%	11%
cyanide total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	0.001	0.001	0%	<0.001	<0.001	n/a	-	-	n/a	<0.001	<0.001	n/a	-
cyanide wad(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	<0.002	<0.002	n/a	<0.002	<0.002	n/a	-	-	n/a	-	-	n/a	-
fluoride dissolved(mg/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	0.3	n/a	0.1	0.1	0%	<0.1	<0.1	n/a	-	-	n/a	0.02	0.02	0%	-
free co2 (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	27.899	1.308	182%	2%
hardness non-carb (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	0.322	0.897	94%	2%
hardness total caco3 calcd(mg/l)	17.5	17	3%	5.7	6.3	10%	9.8	9.9	1%	29.1	29.7	2%	5.9	5.5	7%	9.3	6.8	31%	5.922	5.897	0%	4%
hydroxide (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	0	0	-	-
iron dissolved(ug/l)	11	12	9%	<5	6	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
iron extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	27	25	8%	-
iron total(ug/l)	20	20	0%	10	9	11%	8	7	13%	13	15	14%	14	10	33%	13	6	74%	26.7	25.4	5%	9%
lead dissolved(ug/l)	<0.1	0.4	n/a	<0.1	15.1	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	4%
lead extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<20	<20	n/a	-
lead total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.3	0.3	0%	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.2	<0.2	n/a	2%
lithium dissolved(ug/l)	3	3	0%	1.9	1.2	45%	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	4%
lithium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<5	<5	n/a	-
lithium total(ug/l)	3	3	0%	1.2	1.2	0%	1.1	1.1	0%	1.1	1.1	0%	1.8	1.7	6%	1.1	0.8	32%	0.7	0.7	0%	6%
magnesium dissolved(mg/l)	1.7	1.6	6%	0.7	0.9	25%	0.8	0.8	0%	1.8	1.8	0%	0.8	0.7	13%	1	0.7	35%	0.65	0.65	0%	4%
magnesium extractable(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<1	<1	n/a	-
magnesium total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	0.64	0.62	3%	-
manganese dissolved(ug/l)	0.7	0.8	13%	1.9	1.9	0%	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	15%
manganese extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	2	<2	n/a	-
manganese total(ug/l)	1.8	1.8	0%	3.1	3	3%	3.5	3.4	3%	3.3	3.3	0%	3.2	2.8	13%	1.4	0.2	150%	2.2	2	10%	7%
mercury dissolved(ug/l)	<0.01	<0.01	n/a	<0.01	<0.01	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
mercury total(ug/l)	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	-	-	n/a	-
molybdenum dissolved(ug/l)	<0.1	<0.1	n/a	0.1	0.6	143%	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	7%
molybdenum extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<5	5	n/a	-
molybdenum total(ug/l)	<0.1	<0.1	n/a	0.2	0.1	67%	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.1	0.1	0%	<0.1	<0.1	n/a	<0.1	<0.1	n/a	9%
nickel dissolved(ug/l)	0.5	0.5	0%	0.8	0.8	0%	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	4%
nickel extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<10	<10	n/a	-
nickel total(ug/l)	0.5	0.5	0%	0.9	0.8	12%	1	0.9	11%	0.4	0.4	0%	0.9	0.8	12%	0.4	0.5	22%	0.4	0.4	0%	7%
nitrate(mg/l)	0.03	0.02	40%	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	0.021	0.043	69%	-	-	n/a	11%
nitrate-nitrite dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	0.014	<0.01	n/a	-
nitrate-nitrite(mg/l)	0.26	0.25	4%	0.13	0.13	0%	0.08	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	0.03	0.04	29%	-	-	n/a	11%
nitrite(mg/l)	0.23	0.23	0%	0.13	0.13	0%	0.08	<0.01	n/a	<0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.001	<0.001	n/a	-	-	n/a	-

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	Rocknest Lake			Lac de Gras			MacKay Lake			King Lake			Lac de Gras			Point Lake			Lockhart River			>25% RPD
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			EC			
	7/7/2008			7/28/2008			8/6/2008			9/3/2008			9/11/2008			8/30/2011			8/26/1994			
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	
nitrogen particulate(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	0.033	0.025	28%	2%
nitrogen total dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	0.156	0.143	9%	-
nitrogen total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	0.189	0.168	12%	-
pH(ph units)	7.28	7.24	1%	6.84	6.85	0%	6.96	6.98	0%	7.03	7.02	0%	6.91	6.93	0%	7.08	6.84	3%	-	-	n/a	2%
phosphate ortho(mg/l)	<0.002	<0.002	n/a	0.002	<0.002	n/a	<0.002	<0.002	n/a	<0.002	<0.002	n/a	<0.002	<0.002	n/a	<0.001	<0.001	n/a	-	-	n/a	-
phosphorous particulate (calcd)(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<0.004	<0.004	n/a	-
phosphorous total dissolved(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<0.002	0.005	n/a	-
phosphorous total(mg/l)	0.01	<0.01	n/a	0.01	<0.01	n/a	<0.01	<0.01	n/a	<0.01	0.02	n/a	<0.01	<0.01	n/a	<0.002	<0.002	n/a	<0.002	0.006	n/a	13%
potassium dissolved(mg/l)	0.5	0.5	0%	0.5	0.5	0%	0.4	0.4	0%	0.5	0.5	0%	0.6	0.7	15%	0.4	0.4	0%	0.42	0.4	5%	6%
potassium extractable(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<2	<2	n/a	-
rubidium dissolved(ug/l)	1.2	1.2	0%	2	1.2	50%	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	4%
rubidium total(ug/l)	1.2	1.3	8%	1.3	1.2	8%	1.1	1.2	9%	1.2	1.2	0%	1.4	1.3	7%	1.3	1.3	0%	-	-	n/a	2%
saturation index (calcd)(ph units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-4.836	-3.618	-29%	-
selenium dissolved(ug/l)	<0.3	<0.3	n/a	<0.3	<0.3	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<0.1	<0.1	n/a	-
selenium total(ug/l)	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.3	<0.3	n/a	<0.5	<0.5	n/a	<0.3	<0.3	n/a	-	-	n/a	-
silica reactive(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
silica(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	0.03	0.11	114%	2%
silver dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
silver total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	-
sodium dissolved(mg/l)	0.6	0.6	0%	0.5	0.5	0%	0.6	0.5	18%	0.8	0.8	0%	0.7	0.7	0%	0.5	0.5	0%	0.46	0.49	6%	4%
sodium extractable(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<2	<2	n/a	-
sodium percentage (calcd)(%)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	13.422	14.269	6%	-
sodium total(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	0.13	0.14	7%	-
specific conductance(usie/cm)	24.9	24.3	2%	15	15	0%	14.9	15.2	2%	18.7	18.7	0%	16	15.9	1%	20.6	16.4	23%	21.2	17.7	18%	2%
stability index (calcd)(ph units)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	15.273	14.106	8%	-
strontium dissolved(ug/l)	6.6	6.6	0%	8.9	6.6	30%	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	6%
strontium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	6	5	18%	-
strontium total(ug/l)	6.7	6.7	0%	6.5	6.5	0%	6.5	6.5	0%	10	9.9	1%	7.5	7.2	4%	6.6	6.1	8%	5.8	5.8	0%	2%
sulphate dissolved(mg/l)	4	4	0%	2	2	0%	2	2	0%	1	1	0%	2	2	0%	2	2	0%	1.4	1.3	7%	4%
tds calc(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	8	7.59	5%	-
tds(mg/l)	20	24	18%	10	14	33%	18	<10	n/a	<10	<10	n/a	22	26	17%	<10	<10	n/a	44	13	109%	9%
temperature water(deg c)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
thallium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
thallium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	-
tin dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
tin total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
titanium dissolved(ug/l)	<0.1	<0.1	n/a	0.1	0.1	0%	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	2%
titanium total(ug/l)	0.1	0.1	0%	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.1	<0.1	n/a	0.3	<0.1	n/a	0.2	<0.1	n/a	-	-	n/a	7%
tss fixed(mg/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
tss(mg/l)	8	8	0%	<3	<3	n/a	4	<3	n/a	8	8	0%	<3	<3	n/a	<3	<3	n/a	<3	<3	n/a	2%
tungsten dissolved(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
tungsten total(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
turbidity(ntu)	0.35	0.35	0%	0.33	0.85	88%	0.25	0.24	4%	0.43	0.45	5%	0.5	0.45	11%	0.3	0.21	35%	0.2	0.6	100%	31%

Table A-2-1: Field duplicate results with associated relative percent differences (RPDs)

RPD greater than 25%

Parameter	Rocknest Lake			Lac de Gras			MacKay Lake			King Lake			Lac de Gras			Point Lake			Lockhart River			>25% RPD
	GNWT			GNWT			GNWT			GNWT			GNWT			GNWT			EC			
	7/7/2008			7/28/2008			8/6/2008			9/3/2008			9/11/2008			8/30/2011			8/26/1994			
	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	1	2	RPD	
uranium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	2%
uranium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	2%
vanadium dissolved(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-
vanadium extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<5	<5	n/a	-
vanadium total(ug/l)	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	<0.1	<0.1	n/a	0.1	0.1	0%	0.3	<0.1	n/a	<0.1	<0.1	n/a	2%
zinc dissolved(ug/l)	0.4	0.6	40%	0.7	2.3	107%	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	17%
zinc extractable(ug/l)	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	-	-	n/a	<5	<5	n/a	-
zinc total(ug/l)	<0.4	<0.4	n/a	0.7	0.4	55%	0.5	0.4	22%	<0.4	<0.4	n/a	0.4	0.5	22%	<0.4	0.5	n/a	0.2	0.3	40%	13%
			4			18			2			0			2			13			11	245
			74			74			48			50			50			47			77	3449
% > 25 % RPD			1%			12%			0%			0%			1%			8%			7%	7%

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	GNWT			RSD	GNWT			RSD	GNWT			RSD	EC			RSD	EC			RSD	EC			RSD
	7/17/2002				5/19/2004				9/20/2007				10/1/1996				5/1/1997				9/3/1998			
	Lac de Gras				Lac de Gras				Lac de Gras				Point Lake				Point Lake				Point Lake			
	Surface				Surface				Surface															
alkalinity phenolphthalein caco3 (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
alkalinity total caco3 (mg/l)	4	3.9	3.9	1%	5.8	5.6	5.7	2%	5.1	5.1	5.2	1%	3.3	3	2.7	10%	2.5	3	3	10%	-	-	-	n/a
aluminum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	3.9	2.8	2.9	19%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
aluminum extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<50	<50	<50	n/a	<50	<50	<50	n/a	-	-	-	n/a
aluminum total (ug/l)	36	<30	44	n/a	5.1	4.3	3.8	15%	5.1	5.1	4.3	10%	60	56	56	4%	15	13	15	8%	-	-	-	n/a
ammonia dissolved (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<0.002	<0.002	<0.002	n/a	0.005	0.005	<0.002	n/a	0.011	-	0.008	n/a
ammonia total (mg/l)	<0.005	<0.005	<0.005	n/a	0.01	0.009	0.009	6%	0.006	<0.005	<0.005	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
ammonia un-ionized (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
antimony dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
antimony total (ug/l)	<0.5	0.6	<0.5	n/a	0.7	0.7	0.6	9%	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
arsenic dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.2	<0.2	<0.2	n/a	0.1	<0.1	<0.1	n/a	0.1	0.1	0.1	0%	-	-	-	n/a
arsenic total (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.2	<0.2	<0.2	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
barium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	1.5	1.5	1.4	4%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
barium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<2	3	<2	n/a	3	2	<2	n/a	-	-	-	n/a
barium total (ug/l)	<1	1	1	n/a	1.8	1.7	1.6	6%	1.5	1.5	1.5	0%	2	2	1.9	3%	1.8	1.8	1.8	0%	-	-	-	n/a
beryllium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
beryllium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<1	<1	<1	n/a	<1	<1	<1	n/a	-	-	-	n/a
beryllium total (ug/l)	<2	<2	<2	n/a	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	<0.05	<0.05	<0.05	n/a	<0.05	<0.05	<0.05	n/a	-	-	-	n/a
bicarbonate (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
bismuth dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
bismuth total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
boron dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
boron extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<10	10	<10	n/a	70	40	20	58%	-	-	-	n/a
boron total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cadmium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.05	<0.05	<0.05	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cadmium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	<5	<5	n/a	<5	<5	<5	n/a	-	-	-	n/a
cadmium total (ug/l)	0.5	<0.3	<0.3	n/a	0.06	<0.05	<0.05	n/a	<0.05	<0.05	<0.05	n/a	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a
calcium dissolved (mg/l)	0.77	0.8	0.77	2%	1.6	1.4	1.5	7%	1.1	1.2	1.1	5%	1	0.9	0.9	6%	0.97	0.98	0.97	1%	-	-	-	n/a
calcium extractable/unfiltered (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	1	<1	<1	n/a	1	1	1	0%	-	-	-	n/a
carbon dissolved inorganic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	1.6	1.1	1.2	20%	-	-	-	n/a
carbon dissolved organic (mg/l)	2.5	2.4	2.5	2%	2.9	2.8	2.7	4%	1.8	1.7	1.9	6%	4.1	4.4	0.6	70%	2.9	2.6	2.5	8%	-	-	-	n/a
carbon dissolved total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon particulate organic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.416	0.401	0.373	6%	0.139	0.164	0.102	23%	-	-	-	n/a
carbon total organic (mg/l)	2.4	2.4	2.2	5%	2.7	2.8	2.7	2%	3	2.2	2.2	19%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbonate (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cerium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cerium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cesium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cesium total (ug/l)	2.2	<0.4	2.2	n/a	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
chloride dissolved (mg/l)	<0.2	<0.2	<0.2	n/a	0.5	0.4	0.4	13%	<0.7	<0.7	<0.7	n/a	0.43	0.46	0.46	4%	0.49	0.4	0.55	16%	-	-	-	n/a
chromium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
chromium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	<5	<5	n/a	<5	<5	<5	n/a	-	-	-	n/a

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	GNWT			RSD	GNWT			RSD	GNWT			RSD	EC			RSD	EC			RSD	EC			RSD
	7/17/2002				5/19/2004				9/20/2007				10/1/1996				5/1/1997				9/3/1998			
	Lac de Gras				Lac de Gras				Lac de Gras				Point Lake				Point Lake				Point Lake			
	Surface				Surface				Surface															
chromium total (ug/l)	<3	<3	<3	n/a	1.2	1.2	1	10%	<0.1	<0.1	<0.1	n/a	0.2	0.2	0.2	0%	<0.2	<0.2	<0.2	n/a	-	-	-	n/a
cobalt dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cobalt extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	<5	<5	n/a	<5	<5	<5	n/a	-	-	-	n/a
cobalt total (ug/l)	1	<1	1	n/a	0.2	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	0.1	0.2	0.2	35%	0.1	<0.1	<0.1	n/a	-	-	-	n/a
colourapparent (rel units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
colourtrue (rel units)	5	<5	5	n/a	5	5	5	0%	5	5	5	0%	<5	5	5	n/a	5	<5	5	n/a	20	<5	<5	n/a
copper dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	0.6	0.5	0.6	10%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
copper extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	<5	<5	n/a	<5	<5	<5	n/a	-	-	-	n/a
copper total (ug/l)	3	<2	3	n/a	1.6	1.7	2.6	28%	0.6	0.6	0.6	0%	1	1	1	0%	0.7	0.6	0.6	9%	-	-	-	n/a
cyanide thiocyanate (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cyanide total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	<0.001	<0.001	n/a	<0.001	0.002	<0.001	n/a	<0.001	0.001	<0.001	n/a
fluoride dissolved (mg/l)	-	-	-	n/a	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	0.03	0.03	0.02	22%	0.01	0.01	0.01	0%	-	-	-	n/a
free co2 (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
gallium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
gallium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
hardness non-carb (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
hardness total caco3 calcd (mg/l)	3.94	3.97	3.98	1%	7.3	6.6	6.6	6%	6.3	6.7	6.4	3%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
hcchlhexachlorobutadiene (ng/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
hydroxide (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
iron dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	<50	<50	<50	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
iron extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	49	45	34	18%	11	8	<5	n/a	-	-	-	n/a
iron total (ug/l)	61	<30	152	n/a	<50	<50	<50	n/a	<50	<50	<50	n/a	52.1	47.3	47	6%	5.8	5.8	4.9	9%	-	-	-	n/a
lanthanum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lanthanum total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lead dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.1	0.7	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lead extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<20	<20	<20	n/a	<20	<20	<20	n/a	-	-	-	n/a
lead total (ug/l)	2	1	1	43%	<0.1	0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	<0.2	<0.2	<0.2	n/a	0.5	<0.2	<0.2	n/a	-	-	-	n/a
lithium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	1.2	1.1	1	9%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lithium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	6	<5	n/a	<5	<5	<5	n/a	-	-	-	n/a
lithium total (ug/l)	<3	<3	<3	n/a	1.3	1.3	1.3	0%	1.1	1.1	1	5%	0.5	0.5	0.5	0%	0.5	0.5	0.9	36%	-	-	-	n/a
magnesium dissolved (mg/l)	0.49	0.48	0.5	2%	0.8	0.7	0.7	8%	0.9	0.9	0.9	0%	0.46	0.45	0.45	1%	0.49	0.48	0.48	1%	-	-	-	n/a
magnesium extractable (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<1	<1	<1	n/a	<1	<1	<1	n/a	-	-	-	n/a
magnesium total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.47	0.46	0.46	1%	0.47	0.48	0.47	1%	-	-	-	n/a
manganese dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	0.7	0.4	0.4	35%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
manganese extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	3	3	<2	n/a	2	2	<2	n/a	-	-	-	n/a
manganese total (ug/l)	<1	2	<1	n/a	1.2	1	1.1	9%	1.7	1.6	1.3	14%	3.8	3.6	3.6	3%	0.5	0.5	0.5	0%	-	-	-	n/a
mercury dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.01	<0.01	0.01	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
mercury total (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.01	0.01	<0.01	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
molybdenum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	0.1	<0.1	0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
molybdenum extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	<5	<5	n/a	<5	<5	<5	n/a	-	-	-	n/a
molybdenum total (ug/l)	3	<1	3	n/a	0.1	<0.1	<0.1	n/a	0.1	0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	0.1	n/a	-	-	-	n/a
nickel dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	1	0.9	0.8	11%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	GNWT			RSD	GNWT			RSD	GNWT			RSD	EC			RSD	EC			RSD	EC			RSD
	7/17/2002				5/19/2004				9/20/2007				10/1/1996				5/1/1997				9/3/1998			
	Lac de Gras				Lac de Gras				Lac de Gras				Point Lake				Point Lake				Point Lake			
	Surface				Surface				Surface															
nickel extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<10	<10	<10	n/a	<10	<10	<10	n/a	-	-	-	n/a
nickel total (ug/l)	<1	<1	2	n/a	1.1	1	1	6%	0.9	0.9	0.9	0%	0.8	0.8	0.8	0%	0.8	0.7	0.3	44%	-	-	-	n/a
niobium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
niobium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrate (mg/l)	<0.008	<0.008	<0.008	n/a	<0.1	<0.1	<0.1	n/a	<0.01	<0.01	<0.01	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrate-nitrite dissolved (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.019	0.019	0.008	41%	0.068	0.063	0.063	4%	0.02	0.02	0.019	3%
nitrate-nitrite (mg/l)	-	-	-	n/a	<0.2	<0.2	<0.2	n/a	0.01	0.01	0.01	0%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrite (mg/l)	<0.008	<0.008	<0.008	n/a	<0.05	<0.05	<0.05	n/a	<0.01	<0.01	<0.01	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrogen particulate (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.037	0.039	0.031	12%	0.019	0.023	0.014	24%	-	-	-	n/a
nitrogen total dissolved (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.452	0.49	0.444	5%	0.216	0.203	0.109	33%	<0.008	<0.008	<0.008	n/a
nitrogen total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
pH (ph units)	6.63	6.59	6.56	1%	6.63	6.6	6.63	0%	6.74	6.8	6.82	1%	6.39	6.39	6.39	0%	6.75	6.75	6.75	0%	-	-	-	n/a
phosphate ortho (mg/l)	<0.002	<0.002	0.003	n/a	0.01	0.003	0.002	87%	<0.002	<0.002	<0.002	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphate total inorganic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphorous particulate (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.004	0.006	0.004	25%	-	-	-	n/a	-	-	-	n/a
phosphorous total dissolved (mg/l)	-	-	-	n/a	-	-	-	n/a	<0.01	<0.01	<0.01	n/a	0.005	0.006	0.007	17%	0.004	0.004	<0.002	n/a	0.005	0.006	0.008	24%
phosphorous total (mg/l)	0.005	<0.004	0.004	n/a	0.02	0.01	0.01	43%	<0.01	<0.01	<0.01	n/a	0.009	0.012	0.011	14%	0.006	0.004	<0.002	n/a	0.008	0.009	-	n/a
platinum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
platinum total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
potassium dissolved (mg/l)	0.46	0.45	0.45	1%	0.8	0.6	0.6	17%	0.5	0.6	0.5	11%	0.44	0.44	0.44	0%	0.45	0.47	0.46	2%	-	-	-	n/a
potassium extractable (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<2	<2	<2	n/a	<2	<2	<2	n/a	-	-	-	n/a
rubidium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	1.4	1.3	1.3	4%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
rubidium total (ug/l)	2.5	1.1	<0.5	n/a	1.3	1.3	1.3	0%	1.3	1.4	1.2	8%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
saturation index (calcd) (ph units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
selenium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.3	<0.3	<0.3	n/a	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a
selenium total (ug/l)	<10	<10	<10	n/a	<0.3	<0.3	<0.3	n/a	<0.3	<0.3	<0.3	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
silica reactive (mg/l)	0.09	0.09	0.09	0%	0.07	0.07	0.069	1%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
silica (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	1.76	1.83	1.94	5%	0.41	0.41	0.41	0%	-	-	-	n/a
silver dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
silver total (ug/l)	<0.3	<0.3	<0.3	n/a	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a
sodium adsorption ratio (calcd) (rel units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
sodium dissolved (mg/l)	0.44	0.44	0.43	1%	0.7	0.7	0.7	0%	0.5	0.6	0.6	10%	0.51	0.53	0.53	2%	0.44	0.44	0.43	1%	-	-	-	n/a
sodium extractable (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<2	<2	<2	n/a	<2	<2	<2	n/a	-	-	-	n/a
sodium percentage (calcd) (%)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
sodium total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.4	0.4	0.39	1%	0.29	0.29	0.85	68%	-	-	-	n/a
specific conductance (usie/cm)	13.1	13.3	12.4	4%	18.9	18.7	18.7	1%	16.1	16.1	16.1	0%	12.7	13.5	12.5	4%	14.1	14.2	13.9	1%	14.2	14.3	14.2	0%
stability index (calcd) (ph units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
strontium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	7	6.7	6.8	2%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
strontium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	4	4	4	0%	8	5	4	37%	-	-	-	n/a
strontium total (ug/l)	6	5	7	17%	6.5	6.2	6.1	3%	6.9	7	6.4	5%	4.5	4.5	4.4	1%	5.1	5.2	5.1	1%	-	-	-	n/a
sulphate dissolved (mg/l)	<3	<3	<3	n/a	2	2.1	1.8	8%	2	2	2	0%	2.8	2.7	2.8	2%	1.8	1.6	1.3	16%	-	-	-	n/a
tds calc (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	GNWT			RSD	GNWT			RSD	GNWT			RSD	EC			RSD	EC			RSD	EC			RSD
	7/17/2002				5/19/2004				9/20/2007				10/1/1996				5/1/1997				9/3/1998			
	Lac de Gras				Lac de Gras				Lac de Gras				Point Lake				Point Lake				Point Lake			
	Surface				Surface				Surface															
tds (mg/l)	13	<10	<10	n/a	22	12	16	30%	17	<10	10	n/a	21	27	23	13%	33	27	28	11%	12	<3	14	n/a
temperature water (deg c)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	4	4	4	0%	1	1	1	0%	-	-	-	n/a
thallium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
thallium total (ug/l)	<0.4	<0.4	<0.4	n/a	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tin dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tin total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
titanium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
titanium total (ug/l)	<3	<3	<3	n/a	0.2	0.2	0.2	0%	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tss fixed (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tss (mg/l)	<3	<3	<3	n/a	<3	<3	<3	n/a	<3	<3	<3	n/a	<3	3	<3	n/a	<3	<3	<3	n/a	<3	<3	<3	n/a
tungsten dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tungsten total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
turbidity (ntu)	0.3	0.3	0.4	17%	0.61	0.62	0.78	14%	0.37	0.38	0.34	6%	0.5	0.4	0.7	29%	0.3	0.3	0.5	31%	0.2	0.2	0.2	0%
uranium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
uranium total (ug/l)	4.4	<0.3	4.4	n/a	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
vanadium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
vanadium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	<5	<5	n/a	<5	<5	<5	n/a	-	-	-	n/a
vanadium total (ug/l)	<1	<1	<1	n/a	0.3	0.3	0.2	22%	<0.1	<0.1	<0.1	n/a	0.2	0.2	0.2	0%	0.1	<0.1	<0.1	n/a	-	-	-	n/a
yttrium- dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
yttrium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
zinc dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	1	0.8	0.5	33%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
zinc extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	<5	<5	n/a	<5	<5	<5	n/a	-	-	-	n/a
zinc total (ug/l)	65	<10	65	n/a	9.6	8.8	11.4	13%	<0.4	<0.4	<0.4	n/a	2.3	2	1.8	12%	0.5	0.6	0.6	10%	-	-	-	n/a
# > 18% RSD				1				5				4				7				10				1
Total # Triplicate Results				46				47				76				68				68				10
% > 18% RSD				1%				3%				3%				5%				7%				1%

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	GNWT			RSD	GNWT			RSD	GNWT			RSD	EC			RSD	EC			RSD	EC			RSD
	1/25/2001				4/16/2002				3/19/2004				7/10/1991				9/9/1993				6/10/1994			
	Point Lake				Point Lake				Point Lake				Point Lake				Point Lake				Point Lake			
	Surface				Surface				Surface															
alkalinity phenolphthalein caco3 (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0	-	-	n/a	0	0	0	n/a	0	0	0	n/a
alkalinity total caco3 (mg/l)	3.5	3.5	3.5	0%	6	6	5.9	1%	7.7	8	7.7	2%	3.6	-	-	n/a	3.3	3.5	3.3	3%	3.1	2.8	3.3	8%
aluminum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
aluminum extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<50	67	<50	n/a	<50	<50	<50	n/a
aluminum total (ug/l)	<30	<30	<30	n/a	<30	<30	<30	n/a	19.4	21.2	21.8	6%	-	-	-	n/a	15	15	15	0%	15	15	14	4%
ammonia dissolved (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.009	0.009	0.009	0%	0.004	0.006	<0.001	n/a
ammonia total (mg/l)	0.007	0.009	0.01	18%	<0.005	<0.005	<0.005	n/a	<0.05	<0.05	<0.05	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
ammonia un-ionized (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0	-	-	n/a	-	-	-	n/a	-	-	-	n/a
antimony dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
antimony total (ug/l)	0.7	0.8	0.7	8%	0.6	0.6	0.6	0%	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
arsenic dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.2	-	-	n/a	0.1	<0.1	0.1	n/a	0.1	0.1	0.1	0%
arsenic total (ug/l)	<1	<1	<1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
barium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
barium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	3	4	2	33%	2	2	2	0%
barium total (ug/l)	2	2	2	0%	3	3	3	0%	2.9	3	3.1	3%	<80	<80	<80	n/a	1.7	1.7	1.7	0%	1.6	1.8	1.5	9%
beryllium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
beryllium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<1	<1	<1	n/a	<1	<1	<1	n/a
beryllium total (ug/l)	<2	<2	<2	n/a	<2	<2	<2	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	<0.05	<0.05	<0.05	n/a	<0.05	<0.05	<0.05	n/a
bicarbonate (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	4.4	-	-	n/a	4	4.3	4	4%	3.8	3.4	4	8%
bismuth dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
bismuth total (ug/l)	<5	<5	<5	n/a	<0.4	<0.4	<0.4	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
boron dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
boron extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<10	<10	<10	n/a
boron total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cadmium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cadmium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	<5	<5	n/a	<5	<5	<5	n/a
cadmium total (ug/l)	<0.3	<0.3	<0.3	n/a	<0.3	<0.3	<0.3	n/a	<0.05	<0.05	<0.05	n/a	0.1	0.1	0.1	0%	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a
calcium dissolved (mg/l)	0.97	0.97	0.98	1%	1.42	1.41	1.42	0%	2.6	2.7	2.4	6%	1.1	-	-	n/a	0.94	0.94	0.94	0%	1.07	1.04	0.99	4%
calcium extractable/unfiltered (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	1.1	1.1	1	5%
carbon dissolved inorganic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon dissolved organic (mg/l)	3.1	2.9	2.9	4%	3.5	3.4	3.4	2%	4.1	4	4.2	2%	4	-	-	n/a	1.8	1.8	1.8	0%	2.7	2.3	2	15%
carbon dissolved total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon particulate organic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.115	-	-	n/a	0.136	0.174	0.14	14%	0.132	0.142	0.17	13%
carbon total organic (mg/l)	2.9	2.8	2.9	2%	3.3	3.3	3.3	0%	4.2	4.1	4.1	1%	4.12	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbonate (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0	-	-	n/a	0	0	0	n/a	0	0	0	n/a
cerium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cerium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cesium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cesium total (ug/l)	<0.4	<0.4	<0.4	n/a	<0.4	<0.4	<0.4	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
chloride dissolved (mg/l)	0.2	0.2	0.3	25%	0.4	0.3	0.3	17%	0.5	0.7	0.5	20%	0.5	-	-	n/a	0.3	0.3	0.3	0%	0.39	0.37	0.38	3%
chromium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
chromium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	9	<5	n/a	<5	<5	<5	n/a

RSD greater than 18%

Parameter	GNWT			RSD	GNWT			RSD	GNWT			RSD	EC			RSD	EC			RSD	EC			RSD
	1/25/2001				4/16/2002				3/19/2004				7/10/1991				9/9/1993				6/10/1994			
	Point Lake				Point Lake				Point Lake				Point Lake				Point Lake				Point Lake			
	Surface				Surface				Surface				Surface				Surface				Surface			
chromium total (ug/l)	<3	<3	<3	n/a	<3	<3	<3	n/a	0.4	0.4	0.4	0%	-	-	-	n/a	<0.2	<0.2	<0.2	n/a	<0.2	<0.2	<0.2	n/a
cobalt dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cobalt extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	6	<5	n/a	<5	<5	<5	n/a
cobalt total (ug/l)	<1	<1	<1	n/a	<1	<1	<1	n/a	<0.1	<0.1	<0.1	n/a	<0.5	<0.5	<0.5	n/a	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a
colourapparent (rel units)	-	-	-	n/a	-	-	-	n/a	5	5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
colourtrue (rel units)	-	<5	<5	n/a	<5	<5	<5	n/a	-	-	-	n/a	<5	5	<5	n/a	<5	5	<5	n/a	-	-	7.5	n/a
copper dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
copper extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	9	<5	n/a	<5	<5	<5	n/a
copper total (ug/l)	<2	<2	<2	n/a	<2	<2	<2	n/a	2.1	1.1	1	43%	0.9	1.1	0.9	12%	0.7	0.7	0.7	0%	0.8	0.8	0.8	0%
cyanide thiocyanate (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cyanide total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.001	-	-	n/a	0.001	0.001	<0.001	n/a	0.002	0.002	<0.001	n/a
fluoride dissolved (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.03	-	-	n/a	0.01	0.01	0.02	43%	0.02	0.02	0.02	0%
free co2 (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	1.06	-	-	n/a	0.21	3.2	2.28	81%	3.18	2.13	-	n/a
gallium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
gallium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
hardness non-carb (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	1.3	-	-	n/a	1	0.8	1	12%	1.5	1.7	1.1	21%
hardness total caco3 calcd (mg/l)	4.6	4.6	4.93	4%	6.55	6.57	6.59	0%	10.3	10.6	8.9	9%	4.9	-	-	n/a	4.3	4.3	4.3	0%	4.6	4.5	4.4	2%
hcchlhexachlorobutadiene (ng/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
hydroxide (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0	-	-	n/a	0	0	0	n/a	0	0	0	n/a
iron dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
iron extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	28	116	12	108%	6	12	5	49%	13	7	8	34%
iron total (ug/l)	<30	<30	<30	n/a	<30	35	37	n/a	<50	<50	<50	n/a	-	-	-	n/a	6.7	8.1	6.7	11%	9.5	8.8	9	4%
lanthanum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lanthanum total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lead dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lead extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<20	49	<20	n/a	<20	<20	<20	n/a
lead total (ug/l)	<1	<1	<1	n/a	<1	<1	<1	n/a	0.6	0.7	0.7	9%	<0.7	<0.7	<0.7	n/a	<0.2	<0.2	<0.2	n/a	0.2	0.2	<0.2	n/a
lithium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lithium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	7	<5	n/a	<5	<5	<5	n/a
lithium total (ug/l)	<3	<3	<3	n/a	<3	<3	<3	n/a	1.2	1.1	1.1	5%	-	-	-	n/a	0.8	0.8	0.8	0%	0.4	0.5	0.4	13%
magnesium dissolved (mg/l)	0.53	0.53	0.53	0%	0.73	0.74	0.74	1%	1	1	0.7	19%	0.52	-	-	n/a	0.47	0.47	0.47	0%	0.47	0.47	0.47	0%
magnesium extractable (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<1	<1	<1	n/a
magnesium total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<1	<1	<1	n/a	0.41	0.41	0.41	0%
manganese dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
manganese extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	2	<2	<2	n/a	<2	2	<2	n/a	<2	<2	<2	n/a
manganese total (ug/l)	<1	<1	<1	n/a	<1	<1	<1	n/a	0.5	0.5	0.5	0%	-	-	-	n/a	0.6	0.6	0.6	0%	1	1	1	0%
mercury dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
mercury total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
molybdenum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
molybdenum extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	6	<5	n/a	<5	<5	<5	n/a
molybdenum total (ug/l)	<1	<1	<1	n/a	<1	<1	<1	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a
nickel dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	GNWT			RSD	GNWT			RSD	GNWT			RSD	EC			RSD	EC			RSD	EC			RSD
	1/25/2001				4/16/2002				3/19/2004				7/10/1991				9/9/1993				6/10/1994			
	Point Lake				Point Lake				Point Lake				Point Lake				Point Lake				Point Lake			
	Surface				Surface				Surface															
nickel extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<10	15	<10	n/a	<10	<10	<10	n/a
nickel total (ug/l)	<1	<1	<1	n/a	1	1	1	0%	1.1	1.1	1.2	5%	1.1	1.1	0.8	17%	0.6	0.6	0.6	0%	<0.2	<0.2	<0.2	n/a
niobium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
niobium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrate (mg/l)	0.062	0.062	0.065	3%	0.095	0.101	0.096	3%	<0.2	<0.2	<0.2	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrate-nitrite dissolved (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.036	-	-	n/a	-	-	-	n/a	0.041	0.052	0.062	20%
nitrate-nitrite (mg/l)	0.062	0.062	0.065	3%	-	-	-	n/a	0.1	0.1	0.1	0%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrite (mg/l)	<0.008	<0.008	<0.008	n/a	<0.008	<0.008	<0.008	n/a	<0.05	<0.05	<0.05	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrogen particulate (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.012	-	-	n/a	0.021	0.025	0.026	11%	0.021	0.018	0.026	19%
nitrogen total dissolved (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.098	-	-	n/a	0.155	0.133	0.203	22%	0.148	0.171	0.148	9%
nitrogen total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.11	-	-	n/a	-	-	-	n/a	-	-	-	n/a
pH (ph units)	6.57	6.61	6.61	0%	6.47	6.48	6.46	0%	6.87	6.87	6.83	0%	-	-	-	n/a	7.48	7.48	-	n/a	-	-	-	n/a
phosphate ortho (mg/l)	0.002	0.003	0.004	33%	0.01	0.01	0.007	19%	0.002	0.002	0.002	0%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphate total inorganic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphorous particulate (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<0.004	-	-	n/a	<0.004	<0.004	<0.004	n/a	<0.004	<0.004	<0.004	n/a
phosphorous total dissolved (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.011	-	-	n/a	0.004	0.005	0.005	12%	0.004	0.003	0.004	16%
phosphorous total (mg/l)	0.006	0.007	0.006	9%	0.008	0.02	0.01	51%	<0.01	<0.01	<0.01	n/a	-	-	-	n/a	0.018	0.018	0.024	17%	0.005	0.006	0.004	20%
platinum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
platinum total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
potassium dissolved (mg/l)	0.42	0.41	0.41	1%	0.6	0.6	0.61	1%	0.8	0.8	0.9	7%	0.41	-	-	n/a	0.41	0.41	0.41	0%	0.4	0.42	0.42	3%
potassium extractable (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<2	<2	<2	n/a
rubidium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
rubidium total (ug/l)	1.2	1.2	1.1	5%	1.6	1.6	1.5	4%	1.8	1.8	1.9	3%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
saturation index (calcd) (ph units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-3.879	-	-	n/a	-3.948	-5.073	-4.978	-13%	-5.084	-5.011	-100001	-173%
selenium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.2	-	-	n/a	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a
selenium total (ug/l)	<10	<10	<10	n/a	<10	<10	<10	n/a	0.5	0.6	0.5	11%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
silica reactive (mg/l)	0.49	0.48	0.46	3%	0.62	0.62	0.61	1%	0.66	0.77	0.67	9%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
silica (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.32	-	-	n/a	0.26	0.26	0.26	0%	0.28	0.28	0.27	2%
silver dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
silver total (ug/l)	<0.3	<0.3	<0.3	n/a	<0.3	<0.3	<0.3	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
sodium adsorption ratio (calcd) (rel units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
sodium dissolved (mg/l)	0.47	0.46	0.46	1%	0.65	0.65	0.7	4%	0.8	0.9	1	11%	0.56	-	-	n/a	0.44	0.44	0.45	1%	0.43	0.43	0.44	1%
sodium extractable (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<2	<2	<2	n/a
sodium percentage (calcd) (%)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	18.4	-	-	n/a	16.6	16.6	16.9	1%	15.5	15.6	16.2	2%
sodium total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<2	<2	<2	n/a	0.17	0.17	0.17	0%
specific conductance (usie/cm)	14.7	14.6	14.5	1%	18.8	18.8	19	1%	23.7	28	26.4	8%	10	-	-	n/a	10	13	12.8	14%	14.5	14.2	-	n/a
stability index (calcd) (ph units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	14.58	-	-	n/a	15.38	16.48	16.41	4%	16.45	16.43	1000020	173%
strontium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
strontium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	5	6	5	11%	5	5	5	0%
strontium total (ug/l)	6	5	5	11%	7	7	7	0%	9.1	9.1	8.8	2%	-	-	-	n/a	5	5	5	0%	4.8	4.9	4.8	1%
sulphate dissolved (mg/l)	5	8	4	37%	<3	<3	<3	n/a	2.7	2.7	2.7	0%	1.4	-	-	n/a	1.7	1.8	1.7	3%	1.7	1.8	1.8	3%
tds calc (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	7	-	-	n/a	7	7	7	0%	7	7	7	0%

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	GNWT			RSD	GNWT			RSD	GNWT			RSD	EC			RSD	EC			RSD	EC			RSD
	1/25/2001				4/16/2002				3/19/2004				7/10/1991				9/9/1993				6/10/1994			
	Point Lake				Point Lake				Point Lake				Point Lake				Point Lake				Point Lake			
	Surface				Surface				Surface															
tds (mg/l)	14	14	11	13%	12	20	18	25%	<10	10	<10	n/a	-	-	-	n/a	16	18	-	n/a	13	11	20	32%
temperature water (deg c)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	7	-	-	n/a	5	5	-	n/a	-	-	-	n/a
thallium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
thallium total (ug/l)	<0.4	<0.4	<0.4	n/a	<0.4	<0.4	<0.4	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tin dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tin total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
titanium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
titanium total (ug/l)	<3	<3	<3	n/a	<3	<3	<3	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tss fixed (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tss (mg/l)	<3	<3	<3	n/a	<3	<3	<3	n/a	<3	<3	<3	n/a	<1	-	-	n/a	<3	<3	-	n/a	<3	<3	<3	n/a
tungsten dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tungsten total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
turbidity (ntu)	0.5	0.9	0.7	29%	0.3	0.2	0.2	25%	3.33	3.02	1.51	37%	0.23	-	-	n/a	0.2	0.2	0.3	25%	0.3	0.3	0.4	17%
uranium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
uranium total (ug/l)	<0.3	<0.3	<0.3	n/a	<0.3	<0.3	<0.3	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
vanadium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
vanadium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	8	<5	n/a	<5	<5	<5	n/a
vanadium total (ug/l)	<1	<1	<1	n/a	<1	<1	<1	n/a	<0.1	<0.1	<0.1	n/a	<0.5	<0.5	<0.5	n/a	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a
yttrium- dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
yttrium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
zinc dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
zinc extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	5	<5	n/a	7	<5	<5	n/a
zinc total (ug/l)	<10	<10	<10	n/a	<10	<10	<10	n/a	11.5	8.4	6.9	26%	1.1	1.2	0.8	20%	0.5	1.2	0.4	62%	1.3	0.7	1	30%
# > 18% RSD				4				4				5				2				7				8
Total # Triplicate Results				49				47				47				11				68				74
% > 18% RSD				3%				3%				3%				1%				5%				5%

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	EC			RSD	GNWT			RSD	GNWT			RSD
	8/31/1995				9/29/1998				8/30/1999				9/9/2011				3/25/2003				2/3/2004			
	Point Lake				Desteffany Lake				Desteffany Lake				Desteffany Lake				Destaffany Lake				Destaffany Lake			
																	Surface				Surface			
alkalinity phenolphthalein caco3 (mg/l)	0	0	0	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
alkalinity total caco3 (mg/l)	4.1	-	4.3	n/a	3.5	4	3.4	9%	3.2	2.7	2.9	9%	34.4	33.9	33.9	1%	34.9	5	4.8	116%	4.4	4.6	4.9	5%
aluminum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	18	<0.5	20.7	n/a	-	-	-	n/a	-	-	-	n/a
aluminum extractable (ug/l)	50	<50	<50	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
aluminum total (ug/l)	79	17	13	102%	<25	<25	<25	n/a	<30	<30	<30	n/a	38.8	<0.5	39.3	n/a	7.49	8.74	6.64	14%	7.1	5	5.2	20%
ammonia dissolved (mg/l)	0.046	0.014	0.024	58%	0.007	0.009	-	n/a	<0.005	<0.005	<0.005	n/a	<0.01	<0.01	<0.01	n/a	-	-	-	n/a	-	-	-	n/a
ammonia total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.025	0.025	0.028	7%	0.012	0.015	0.008	30%
ammonia un-ionized (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
antimony dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.073	0.068	0.076	6%	-	-	-	n/a	-	-	-	n/a
antimony total (ug/l)	-	-	-	n/a	0.0003	0.0003	0.0004	17%	0.0006	0.0006	0.0006	0%	0.016	0.001	0.017	79%	0.715	0.691	0.615	8%	0.433	0.438	0.467	4%
arsenic dissolved (ug/l)	0.1	0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	0.21	<0.01	0.21	n/a	-	-	-	n/a	-	-	-	n/a
arsenic total (ug/l)	-	-	-	n/a	<0.2	<0.2	10.2	n/a	<0.2	<0.2	<0.2	n/a	0.22	<0.01	0.22	n/a	-	-	-	n/a	-	-	-	n/a
barium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	25.7	<0.05	25.9	n/a	-	-	-	n/a	-	-	-	n/a
barium extractable (ug/l)	3	2	2	25%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
barium total (ug/l)	3.4	1.8	1.8	40%	1.4	1.5	1.4	4%	1.4	1.3	1.3	4%	24.9	<0.05	26.4	n/a	1.87	1.97	1.84	4%	1.61	1.75	1.53	7%
beryllium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.002	0.001	0.002	35%	-	-	-	n/a	-	-	-	n/a
beryllium extractable (ug/l)	<1	<1	<1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
beryllium total (ug/l)	<0.05	<0.05	<0.05	n/a	<0.1	<0.1	<0.1	n/a	<2	<2	<2	n/a	0.003	0.001	0.004	57%	<0.02	<0.02	<0.02	n/a	0.02	0.02	0.02	0%
bicarbonate (calcd) (mg/l)	5	0.1	5.2	84%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
bismuth dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<0.001	<0.001	0.002	n/a	-	-	-	n/a	-	-	-	n/a
bismuth total (ug/l)	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
boron dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	2.1	<0.5	2.3	n/a	-	-	-	n/a	-	-	-	n/a
boron extractable (ug/l)	<10	<10	<10	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
boron total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	2	<0.5	2.2	n/a	-	-	-	n/a	-	-	-	n/a
cadmium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.004	0.006	0.005	20%	-	-	-	n/a	-	-	-	n/a
cadmium extractable (ug/l)	<5	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cadmium total (ug/l)	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	<0.3	<0.3	<0.3	n/a	0.003	0.002	0.003	22%	0.02	0.02	<0.02	n/a	0.04	0.03	0.02	33%
calcium dissolved (mg/l)	1.01	0.91	1.01	6%	0.89	1.13	0.83	17%	0.74	0.74	0.72	2%	7.84	7.63	7.8	1%	1.08	1.06	1.07	1%	1.3	1.3	1.3	0%
calcium extractable/unfiltered (mg/l)	1.1	1	1	6%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon dissolved inorganic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon dissolved organic (mg/l)	2.5	2.2	2.3	7%	-	-	-	n/a	3.1	3.2	3	3%	3.3	3.2	0.7	61%	2.7	2.9	3.9	20%	2.9	2.9	3.1	4%
carbon dissolved total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon particulate organic (mg/l)	0.113	0.161	0.183	23%	-	-	-	n/a	-	-	-	n/a	0.337	0.281	0.119	46%	-	-	-	n/a	-	-	-	n/a
carbon total organic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	2.6	2.6	2.7	2%	2.9	2.8	2.9	2%
carbonate (calcd) (mg/l)	0	0	0	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cerium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.057	<0.001	0.063	n/a	-	-	-	n/a	-	-	-	n/a
cerium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.116	<0.001	0.122	n/a	-	-	-	n/a	-	-	-	n/a
cesium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.005	<0.001	0.006	n/a	-	-	-	n/a	-	-	-	n/a
cesium total (ug/l)	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	<0.4	<0.4	<0.4	n/a	0.01	<0.001	0.009	n/a	0.015	0.037	<0.008	n/a	0.008	0.008	0.008	0%
chloride dissolved (mg/l)	0.28	0.26	0.28	4%	0.4	0.3	0.3	17%	<0.2	<0.2	0.2	n/a	0.33	0.32	0.33	2%	0.4	0.4	0.4	0%	0.4	0.4	0.3	16%
chromium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.08	0.01	0.1	75%	-	-	-	n/a	-	-	-	n/a
chromium extractable (ug/l)	<5	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	EC			RSD	GNWT			RSD	GNWT			RSD
	8/31/1995				9/29/1998				8/30/1999				9/9/2011				3/25/2003				2/3/2004			
	Point Lake				Desteffany Lake				Desteffany Lake				Desteffany Lake				Destaffany Lake				Destaffany Lake			
																	Surface				Surface			
chromium total (ug/l)	0.3	<0.2	0.4	n/a	<2	<2	0.2	n/a	<3	<3	<3	n/a	0.13	0.03	0.13	60%	<0.1	<0.1	<0.1	n/a	0.2	0.1	0.1	43%
cobalt dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.022	<0.002	0.024	n/a	-	-	-	n/a	-	-	-	n/a
cobalt extractable (ug/l)	<5	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cobalt total (ug/l)	0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	<1	<1	<1	n/a	0.039	0.003	0.039	77%	0.106	0.12	0.079	20%	0.03	0.048	0.041	23%
colourapparent (rel units)	-	-	-	n/a	10	5	<5	n/a	-	-	-	n/a	5	5	5	0%	-	-	-	n/a	-	-	-	n/a
colourtrue (rel units)	5	5	<5	n/a	-	-	-	n/a	-	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
copper dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.88	0.5	0.94	31%	-	-	-	n/a	-	-	-	n/a
copper extractable (ug/l)	<5	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
copper total (ug/l)	1.1	0.8	0.7	24%	-	1.1	1.7	n/a	<2	<2	<2	n/a	1.55	1.62	0.94	27%	0.39	0.62	0.35	32%	1.65	0.95	0.94	34%
cyanide thiocyanate (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cyanide total (mg/l)	<0.001	<0.001	0.001	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
fluoride dissolved (mg/l)	0.04	0.04	0.03	16%	-	-	-	n/a	-	-	-	n/a	0.02	0.02	0.02	0%	-	-	-	n/a	-	-	-	n/a
free co2 (calcd) (mg/l)	1.66	0.04	1.75	84%	-	-	-	n/a	-	-	-	n/a	1.002	0.987	1.01	1%	-	-	-	n/a	-	-	-	n/a
gallium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.007	<0.001	0.008	n/a	-	-	-	n/a	-	-	-	n/a
gallium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.014	<0.001	0.014	n/a	-	-	-	n/a	-	-	-	n/a
hardness non-carb (calcd) (mg/l)	0.4	4.1	0.1	145%	-	-	-	n/a	-	-	-	n/a	0.656	0.014	0.727	84%	-	-	-	n/a	-	-	-	n/a
hardness total caco3 calcd (mg/l)	4.5	4.2	4.4	3%	-	-	-	n/a	-	-	-	n/a	35.056	33.914	34.627	2%	7.51	7.46	7.41	1%	6.7	6.7	6.7	0%
hcchlhexachlorobutadiene (ng/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
hydroxide (calcd) (mg/l)	0	0	0	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
iron dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	33.9	<0.5	40.8	n/a	-	-	-	n/a	-	-	-	n/a
iron extractable (ug/l)	89	11	9	126%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
iron total (ug/l)	101	15.1	10.4	121%	30	50	40	25%	30	<30	<30	n/a	73.9	1.7	75.7	84%	<30	<30	<30	n/a	50	50	50	0%
lanthanum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.039	<0.001	0.044	n/a	-	-	-	n/a	-	-	-	n/a
lanthanum total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.07	<0.001	0.077	n/a	-	-	-	n/a	-	-	-	n/a
lead dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.019	0.031	0.022	26%	-	-	-	n/a	-	-	-	n/a
lead extractable (ug/l)	<20	<20	<20	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lead total (ug/l)	0.8	<0.2	0.3	n/a	-	-	-	n/a	-	-	-	n/a	0.041	0.118	0.038	69%	0.75	1.05	0.12	74%	0.71	0.34	0.35	45%
lithium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.73	<0.01	0.74	n/a	-	-	-	n/a	-	-	-	n/a
lithium extractable (ug/l)	<5	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lithium total (ug/l)	0.9	0.6	0.6	25%	1	<0.1	1.1	n/a	<3	<3	<3	n/a	0.74	<0.01	0.76	n/a	1.21	1.18	1.17	2%	1.1	1	0.7	22%
magnesium dissolved (mg/l)	0.47	0.46	0.46	1%	0.47	0.48	0.47	1%	0.48	0.48	0.48	0%	3.76	3.61	3.68	2%	1.17	1.17	1.15	1%	0.8	0.8	0.8	0%
magnesium extractable (mg/l)	<1	<1	<1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
magnesium total (mg/l)	0.6	0.45	0.45	17%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
manganese dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.94	<0.05	1.21	n/a	-	-	-	n/a	-	-	-	n/a
manganese extractable (ug/l)	3	<2	<2	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
manganese total (ug/l)	2.9	0.9	0.7	81%	2400	-	2100	n/a	3.3	1.8	1.8	38%	3.59	<0.05	3.77	n/a	0.95	0.92	0.9	3%	0.71	0.7	0.68	2%
mercury dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
mercury total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
molybdenum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.055	<0.005	0.06	n/a	-	-	-	n/a	-	-	-	n/a
molybdenum extractable (ug/l)	<5	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
molybdenum total (ug/l)	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	<1	<1	<1	n/a	0.054	<0.005	0.058	n/a	0.06	0.07	0.03	39%	0.05	0.1	0.07	34%
nickel dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.43	0.07	0.46	68%	-	-	-	n/a	-	-	-	n/a

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	EC			RSD	GNWT			RSD	GNWT			RSD
	8/31/1995				9/29/1998				8/30/1999				9/9/2011				3/25/2003				2/3/2004			
	Point Lake				Desteffany Lake				Desteffany Lake				Desteffany Lake				Destaffany Lake				Destaffany Lake			
																	Surface				Surface			
nickel extractable (ug/l)	<10	10	<10	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nickel total (ug/l)	0.8	0.8	0.8	0%	<0.1	<0.1	<0.1	n/a	<1	<1	<1	n/a	0.44	3.24	0.45	117%	1.03	0.99	1.02	2%	0.85	0.84	0.81	2%
niobium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<0.001	<0.001	0.006	n/a	-	-	-	n/a	-	-	-	n/a
niobium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.004	<0.001	0.004	n/a	-	-	-	n/a	-	-	-	n/a
nitrate (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<0.01	<0.01	<0.01	n/a	<0.008	<0.008	<0.008	n/a	0.022	0.021	0.021	3%
nitrate-nitrite dissolved (mg/l)	0.063	0.065	0.062	2%	<0.008	<0.008	<0.008	n/a	<0.008	0.016	<0.008	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrate-nitrite (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<0.01	<0.01	<0.01	n/a	0.043	0.014	0.107	87%	0.022	0.021	0.021	3%
nitrite (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<0.01	<0.01	<0.01	n/a	0.043	0.014	0.107	87%	0.009	0.009	0.009	0%
nitrogen particulate (mg/l)	0.021	0.023	0.027	13%	-	-	-	n/a	-	-	-	n/a	0.03	0.046	0.011	60%	-	-	-	n/a	-	-	-	n/a
nitrogen total dissolved (mg/l)	0.219	0.208	0.196	6%	-	-	-	n/a	0.4	0.39	0.4	1%	0.18	0.17	<0.06	n/a	-	-	-	n/a	-	-	-	n/a
nitrogen total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.18	0.2	0.07	47%	-	-	-	n/a	-	-	-	n/a
pH (ph units)	6.68	6.68	6.68	0%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	6.67	6.59	6.57	1%	6.04	6.16	6.28	2%
phosphate ortho (mg/l)	-	-	-	n/a	0.002	0.003	0.002	25%	0.002	0.002	0.002	0%	-	-	-	n/a	<0.002	<0.002	<0.002	n/a	0.002	0.002	0.002	0%
phosphate total inorganic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphorous particulate (calcd) (mg/l)	<0.004	<0.004	<0.004	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphorous total dissolved (mg/l)	0.01	0.005	0.006	38%	-	-	-	n/a	0.002	<0.002	<0.002	n/a	<0.01	0.01	<0.01	n/a	-	-	-	n/a	-	-	-	n/a
phosphorous total (mg/l)	0.014	0.007	0.007	43%	0.008	0.005	0.01	33%	0.004	0.004	<0.004	n/a	0.01	<0.01	<0.01	n/a	0.005	0.005	0.005	0%	0.01	0.01	0.01	0%
platinum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<0.001	<0.001	<0.001	n/a	-	-	-	n/a	-	-	-	n/a
platinum total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<0.001	<0.001	<0.001	n/a	-	-	-	n/a	-	-	-	n/a
potassium dissolved (mg/l)	0.44	0.43	0.42	2%	0.43	0.43	0.44	1%	0.36	0.38	0.36	3%	0.46	0.46	0.46	0%	0.54	0.53	0.53	1%	0.6	0.7	0.7	9%
potassium extractable (mg/l)	<2	<2	<2	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
rubidium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.89	0.002	0.926	86%	-	-	-	n/a	-	-	-	n/a
rubidium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.97	0.002	0.969	86%	1.37	1.35	1.38	1%	1.31	1.28	1.26	2%
saturation index (calcd) (ph units)	-4.52	-6.172	-4.5	-19%	-	-	-	n/a	-	-	-	n/a	-1.55	-1.098	-1.098	-21%	-	-	-	n/a	-	-	-	n/a
selenium dissolved (ug/l)	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	0.01	<0.01	0.02	n/a	-	-	-	n/a	-	-	-	n/a
selenium total (ug/l)	-	-	-	n/a	<10000	<10000	<1000	n/a	<10	<10	<10	n/a	0.02	<0.01	0.02	n/a	<0.3	<0.3	<0.3	n/a	0.3	0.3	0.3	0%
silica reactive (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.21	0.21	0.2	3%	0.162	0.159	0.165	2%
silica (mg/l)	0.34	0.33	0.34	2%	-	-	-	n/a	-	-	-	n/a	1.07	1.02	1.04	2%	-	-	-	n/a	-	-	-	n/a
silver dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<0.001	<0.001	0.001	n/a	-	-	-	n/a	-	-	-	n/a
silver total (ug/l)	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	<0.3	<0.3	<0.3	n/a	0.001	0.001	0.001	0%	<0.006	<0.006	<0.006	n/a	0.006	0.006	0.006	0%
sodium adsorption ratio (calcd) (rel units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.04	0.04	0.04	0%	-	-	-	n/a	-	-	-	n/a
sodium dissolved (mg/l)	0.47	0.45	0.44	3%	0.44	0.43	0.44	1%	0.4	0.39	0.4	1%	0.59	0.6	0.61	2%	0.54	0.53	0.54	1%	0.7	0.7	0.7	0%
sodium extractable (mg/l)	<2	<2	<2	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
sodium percentage (calcd) (%)	16.9	17.2	16.2	3%	-	-	-	n/a	-	-	-	n/a	3.478	3.648	3.634	3%	-	-	-	n/a	-	-	-	n/a
sodium total (mg/l)	0.42	0.31	0.31	18%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
specific conductance (usie/cm)	11.3	11.3	11.3	0%	-	-	-	n/a	-	-	-	n/a	69	67.3	67.6	1%	15.9	15.8	15.7	1%	15.6	15.5	16.7	4%
stability index (calcd) (ph units)	15.72	19.02	15.68	11%	-	-	-	n/a	-	-	-	n/a	10.921	10.015	10.006	5%	-	-	-	n/a	-	-	-	n/a
strontium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	9.43	<0.05	9.88	n/a	-	-	-	n/a	-	-	-	n/a
strontium extractable (ug/l)	5	5	5	0%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
strontium total (ug/l)	6.5	4.8	4.9	18%	0.005	0.0047	0.005	4%	0.0046	0.0046	0.0046	0%	9.59	<0.05	9.48	n/a	6.72	6.6	6.78	1%	5.84	5.89	5.46	4%
sulphate dissolved (mg/l)	1.5	1.4	1.4	4%	<3	<3	<3	n/a	<3	<3	<3	n/a	1.92	1.92	1.91	0%	<3	<3	3	n/a	10	10	10	0%
tds calc (mg/l)	7	4	7	29%	-	-	-	n/a	-	-	-	n/a	36.61	35.9	36.17	1%	-	-	-	n/a	-	-	-	n/a

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	EC			RSD	GNWT			RSD	GNWT			RSD
	8/31/1995				9/29/1998				8/30/1999				9/9/2011				3/25/2003				2/3/2004			
	Point Lake				Desteffany Lake				Desteffany Lake				Desteffany Lake				Destaffany Lake				Destaffany Lake			
																	Surface				Surface			
tds (mg/l)	-	16	15	n/a	23	34	63	52%	<10	27	18	n/a	34	34	<10	n/a	13	<10	<10	n/a	18	10	10	36%
temperature water (deg c)	8	8	8	0%	-	-	-	n/a	-	-	-	n/a	9.5	-	-	n/a	-	-	-	n/a	-	-	-	n/a
thallium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.001	0.001	0.003	69%	-	-	-	n/a	-	-	-	n/a
thallium total (ug/l)	-	-	-	n/a	<0.0001	<0.0001	<0.0001	n/a	<0.4	<0.4	<0.4	n/a	0.002	<0.001	0.002	n/a	<0.1	<0.1	<0.1	n/a	0.1	0.1	0.1	0%
tin dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<0.005	<0.005	<0.005	n/a	-	-	-	n/a	-	-	-	n/a
tin total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<0.005	<0.005	<0.005	n/a	-	-	-	n/a	-	-	-	n/a
titanium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
titanium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.18	0.18	0.08	39%	0.08	0.18	0.16	38%
tss fixed (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tss (mg/l)	-	3	<3	n/a	<3	5	<3	n/a	<3	<3	<3	n/a	<3	<3	<3	n/a	8	6	8	16%	3	3	3	0%
tungsten dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.003	<0.001	0.003	n/a	-	-	-	n/a	-	-	-	n/a
tungsten total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.002	0.001	0.003	50%	-	-	-	n/a	-	-	-	n/a
turbidity (ntu)	-	0.9	0.9	n/a	1	0.5	1.1	37%	0.7	0.9	0.6	21%	2.26	1.75	0.08	84%	0.1	0.1	0.1	0%	0.42	0.55	0.51	13%
uranium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.13	<0.0005	0.134	n/a	-	-	-	n/a	-	-	-	n/a
uranium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.135	0.0005	0.139	86%	0.061	0.061	0.059	2%	0.058	0.064	0.06	5%
vanadium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.106	0.017	0.11	68%	-	-	-	n/a	-	-	-	n/a
vanadium extractable (ug/l)	<5	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
vanadium total (ug/l)	0.2	0.1	0.1	43%	<100	<100	<100	n/a	<1	<1	<1	n/a	0.16	0.017	0.153	73%	<0.03	<0.03	<0.03	n/a	0.03	0.03	0.03	0%
yttrium- dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.037	<0.001	0.04	n/a	-	-	-	n/a	-	-	-	n/a
yttrium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.052	<0.001	0.054	n/a	-	-	-	n/a	-	-	-	n/a
zinc dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	1	0.7	0.6	27%	-	-	-	n/a	-	-	-	n/a
zinc extractable (ug/l)	14	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
zinc total (ug/l)	6	2	1.1	86%	<10	<10	<10	n/a	<10	<10	<10	n/a	0.4	0.7	0.3	45%	2.23	3.66	2.04	34%	3.9	3	3.1	15%
# > 18% RSD				19				5				2				30				10				11
Total # Triplicate Results				78				36				39				100				46				46
% > 18% RSD				13%				3%				1%				20%				7%				7%

RSD greater than 18%

Parameter	EC			RSD	GNWT			RSD	GNWT			RSD	GNWT			RSD	GNWT			RSD	GNWT			RSD
	6/17/1995				5/1/2003				3/14/2001				8/27/2001				10/17/2002				7/8/2004			
	Desteffany Lake				Daring Lake				Fairy Lake River				Fairy Lake River				Coppermine River-Fairy Lake River				Coppermine River-Fairy Lake River			
					Surface																			
alkalinity phenolphthalein caco3 (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
alkalinity total caco3 (mg/l)	7.3	4.1	4.3	34%	5.8	5.8	5.7	1%	23.5	23.6	23.6	0%	21.9	21.9	21.9	0%	18.7	18.7	18.7	0%	32.7	33	32.8	0%
aluminum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
aluminum extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
aluminum total (ug/l)	-	-	-	n/a	<30	9.6	11.4	n/a	<30	<30	<30	n/a	<30	<30	<30	n/a	14.8	16.9	15	7%	21.2	24.3	24	7%
ammonia dissolved (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
ammonia total (mg/l)	0.008	0.005	0.007	23%	0.01	0.013	0.009	20%	<0.005	<0.005	<0.005	n/a	<0.005	<0.005	<0.005	n/a	<0.005	<0.005	<0.005	n/a	<0.005	<0.005	<0.005	n/a
ammonia un-ionized (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
antimony dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
antimony total (ug/l)	-	-	-	n/a	0.6	0.792	0.899	20%	<0.5	<0.5	<0.5	n/a	1.1	0.8	0.9	16%	0.74	0.83	0.953	13%	0.3	0.3	0.5	31%
arsenic dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
arsenic total (ug/l)	<300	300	<300	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
barium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
barium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
barium total (ug/l)	-	-	-	n/a	2	1.92	1.98	2%	11	10	10	6%	10	9	9	6%	5.78	5.74	5.64	1%	13.1	12.9	13	1%
beryllium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
beryllium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
beryllium total (ug/l)	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	<2	<2	<2	n/a	<2	<2	<2	n/a	<0.02	<0.02	<0.02	n/a	<0.1	<0.1	<0.1	n/a
bicarbonate (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
bismuth dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
bismuth total (ug/l)	-	-	-	n/a	-	-	-	n/a	<1	<1	<1	n/a	0.5	<0.4	<0.4	n/a	-	-	-	n/a	-	-	-	n/a
boron dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
boron extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
boron total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cadmium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cadmium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cadmium total (ug/l)	<0.1	2.8	<0.1	n/a	<0.1	0.02	0.03	n/a	<0.3	<0.3	<0.3	n/a	<0.3	<0.3	<0.3	n/a	<0.02	<0.02	<0.02	n/a	<0.05	<0.05	<0.05	n/a
calcium dissolved (mg/l)	0.81	0.81	0.81	0%	1.02	1.03	1.04	1%	5.56	5.6	5.5	1%	5.98	5.95	5.94	0%	4.73	4.64	4.15	7%	8.8	8.8	8.8	0%
calcium extractable/unfiltered (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon dissolved inorganic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon dissolved organic (mg/l)	-	-	-	n/a	3	2.9	3.5	10%	1.8	1.9	2.9	28%	1.6	1.7	1.7	3%	2.8	2.7	2.8	2%	2.3	2.4	2.2	4%
carbon dissolved total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon particulate organic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon total organic (mg/l)	-	-	-	n/a	3.5	3.6	3.5	2%	2	2	1.9	3%	1.8	1.7	1.7	3%	2.8	2.6	2.6	4%	2.5	2.2	2.3	7%
carbonate (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cerium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cerium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cesium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cesium total (ug/l)	-	-	-	n/a	<0.1	<0.008	<0.008	n/a	<0.4	<0.4	<0.4	n/a	<0.4	<0.4	<0.4	n/a	<0.008	<0.008	<0.008	n/a	<0.1	<0.1	<0.1	n/a
chloride dissolved (mg/l)	0.44	0.6	0.45	18%	0.5	0.5	0.5	0%	0.5	0.5	0.5	0%	<0.2	0.2	<0.2	n/a	<0.2	<0.2	0.4	n/a	0.3	0.3	0.3	0%
chromium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
chromium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a

RSD greater than 18%

Parameter	EC			RSD	GNWT			RSD	GNWT			RSD	GNWT			RSD	GNWT			RSD	GNWT			RSD
	6/17/1995				5/1/2003				3/14/2001				8/27/2001				10/17/2002				7/8/2004			
	Desteffany Lake				Daring Lake				Fairy Lake River				Fairy Lake River				Coppermine River-Fairy Lake River				Coppermine River-Fairy Lake River			
	Surface																							
chromium total (ug/l)	<0.2	<0.2	<0.2	n/a	1.2	<0.1	<0.1	n/a	<3	<3	<3	n/a	<3	<3	<3	n/a	<0.1	<0.1	<0.1	n/a	0.2	0.2	0.3	25%
cobalt dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cobalt extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cobalt total (ug/l)	<0.1	<0.1	<0.1	n/a	<0.1	0.195	0.238	n/a	<1	<1	<1	n/a	<1	<1	<1	n/a	0.088	0.102	0.151	29%	<0.1	<0.1	<0.1	n/a
colourapparent (rel units)	-	-	-	n/a	5	5	5	0%	-	-	-	n/a	-	-	-	n/a	<5	<5	5	n/a	5	5	-	n/a
colourtrue (rel units)	<5	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
copper dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
copper extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
copper total (ug/l)	0.8	0.9	0.5	28%	2.1	1.27	1.74	24%	<2	<2	<2	n/a	<2	<2	<2	n/a	1.84	0.87	1.82	37%	0.4	0.5	0.6	20%
cyanide thiocyanate (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cyanide total (mg/l)	0.004	0.005	0.004	13%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
fluoride dissolved (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
free co2 (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
gallium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
gallium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
hardness non-carb (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
hardness total caco3 calcd (mg/l)	3.5	3.5	3.5	0%	5.02	5.08	5.11	1%	22.4	23.2	22.4	2%	22.9	22.6	22.5	1%	20	19.6	17.9	6%	43.8	43.8	43.8	0%
hcchlhexachlorobutadiene (ng/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
hydroxide (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
iron dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
iron extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
iron total (ug/l)	31000	28000	28000	6%	<30	<30	<30	n/a	<30	<30	<30	n/a	<30	<30	<30	n/a	<30	2300	<30	n/a	<50	<50	<50	n/a
lanthanum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lanthanum total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lead dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lead extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lead total (ug/l)	-	-	-	n/a	0.2	0.1	0.84	106%	<1	<1	<1	n/a	<1	<1	<1	n/a	0.47	0.45	0.76	31%	<0.1	<0.1	<0.1	n/a
lithium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lithium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lithium total (ug/l)	-	-	-	n/a	1.3	1.2	1.3	5%	<3	<3	<3	n/a	<3	<3	<3	n/a	0.5	0.6	0.6	10%	0.3	0.3	<0.2	n/a
magnesium dissolved (mg/l)	0.37	0.37	0.37	0%	0.6	0.61	0.61	1%	2.08	2.25	2.1	4%	1.94	1.88	1.86	2%	1.99	1.94	1.84	4%	3.1	3.1	3.1	0%
magnesium extractable (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
magnesium total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
manganese dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
manganese extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
manganese total (ug/l)	4200	4200	4100	1%	2.1	2.03	2.08	2%	<1	<1	<1	n/a	2	2	2	0%	1.79	2.06	1.84	8%	2	1.9	1.9	3%
mercury dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
mercury total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
molybdenum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
molybdenum extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
molybdenum total (ug/l)	-	-	-	n/a	<0.1	<0.02	<0.02	n/a	<1	<1	<1	n/a	<1	<1	<1	n/a	0.02	0.05	0.06	48%	<0.1	<0.1	<0.1	n/a
nickel dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a

RSD greater than 18%

Parameter	EC			RSD	GNWT			RSD	GNWT			RSD	GNWT			RSD	GNWT			RSD	GNWT			RSD
	6/17/1995				5/1/2003				3/14/2001				8/27/2001				10/17/2002				7/8/2004			
	Desteffany Lake				Daring Lake				Fairy Lake River				Fairy Lake River				Coppermine River-Fairy Lake River				Coppermine River-Fairy Lake River			
	Surface																							
nickel extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nickel total (ug/l)	0.7	1	0.8	18%	0.5	0.42	0.4	12%	<1	<1	<1	n/a	<1	<1	<1	n/a	0.5	0.5	0.48	2%	<0.1	<0.1	<0.1	n/a
niobium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
niobium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrate (mg/l)	-	-	-	n/a	<0.008	<0.008	<0.008	n/a	<0.008	<0.008	<0.008	n/a	-	-	-	n/a	0.027	0.025	0.024	6%	0.08	0.08	<0.01	n/a
nitrate-nitrite dissolved (mg/l)	0.01	0.01	0.011	6%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrate-nitrite (mg/l)	-	-	-	n/a	<0.008	<0.008	<0.008	n/a	<0.008	<0.008	<0.008	n/a	<0.008	<0.008	<0.008	n/a	0.027	0.025	0.024	6%	0.09	0.09	<0.01	n/a
nitrite (mg/l)	-	-	-	n/a	<0.009	<0.009	<0.009	n/a	<0.008	<0.008	<0.008	n/a	<0.008	<0.008	<0.008	n/a	<0.008	<0.008	<0.008	n/a	<0.01	<0.01	<0.01	n/a
nitrogen particulate (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrogen total dissolved (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrogen total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
pH (ph units)	-	-	-	n/a	6.6	6.62	6.63	0%	7.33	7.42	7.45	1%	7.43	7.47	7.47	0%	7.52	7.49	7.59	1%	7.74	7.75	7.75	0%
phosphate ortho (mg/l)	<0.002	<0.002	<0.002	n/a	<0.002	0.002	<0.002	n/a	<0.002	<0.002	<0.002	n/a	0.002	0.003	0.002	25%	<0.002	<0.002	<0.002	n/a	<0.002	<0.002	<0.002	n/a
phosphate total inorganic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphorous particulate (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphorous total dissolved (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphorous total (mg/l)	0.004	0.003	0.003	17%	0.011	0.011	0.008	17%	<0.004	2.45	0.007	n/a	0.009	0.01	0.008	11%	0.057	0.065	0.059	7%	<0.01	<0.01	<0.01	n/a
platinum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
platinum total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
potassium dissolved (mg/l)	0.64	0.63	0.63	1%	0.61	0.63	0.73	10%	0.27	0.27	0.28	2%	0.23	0.23	0.23	0%	0.44	0.41	0.44	4%	0.3	0.3	0.3	0%
potassium extractable (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
rubidium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
rubidium total (ug/l)	-	-	-	n/a	1.7	1.64	1.66	2%	0.5	0.5	0.5	0%	<0.5	<0.5	<0.5	n/a	0.92	0.92	0.92	0%	0.5	0.4	0.5	12%
saturation index (calcd) (ph units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
selenium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
selenium total (ug/l)	-	-	-	n/a	<1	<0.3	<0.3	n/a	<10	<10	<10	n/a	<10	<10	<10	n/a	<0.3	<0.3	<0.3	n/a	<0.3	0.4	<0.3	n/a
silica reactive (mg/l)	-	-	-	n/a	0.08	0.08	0.08	0%	0.28	0.29	0.3	3%	0.32	0.32	0.32	0%	0.59	0.6	0.59	1%	0.759	0.828	0.712	8%
silica (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
silver dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
silver total (ug/l)	-	-	-	n/a	<0.1	<0.006	<0.006	n/a	<0.3	<0.3	<0.3	n/a	<0.3	<0.3	<0.3	n/a	<0.006	<0.006	<0.006	n/a	<0.1	<0.1	<0.1	n/a
sodium adsorption ratio (calcd) (rel units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
sodium dissolved (mg/l)	0.4	0.41	0.4	1%	0.65	0.64	0.76	10%	0.4	0.4	0.4	0%	0.31	0.33	0.28	8%	0.49	0.51	0.51	2%	0.4	0.5	0.4	13%
sodium extractable (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
sodium percentage (calcd) (%)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
sodium total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
specific conductance (usie/cm)	-	-	-	n/a	17	17.6	17.3	2%	50.6	50.1	49.9	1%	47.9	47.7	48	0%	43.9	43.6	43.6	0%	69.1	69.1	69.2	0%
stability index (calcd) (ph units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
strontium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
strontium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
strontium total (ug/l)	-	-	-	n/a	7.6	7.41	7.4	2%	8	7	8	8%	9	8	9	7%	7.5	7.33	7.39	1%	8	7.8	7.9	1%
sulphate dissolved (mg/l)	<3	<3	<3	n/a	<3	<3	<3	n/a	<3	<3	<3	n/a	0.8	0.8	0.8	0%	<3	<3	<3	n/a	<1	<1	<1	n/a
tds calc (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	EC			RSD	GNWT			RSD	GNWT			RSD	GNWT			RSD	GNWT			RSD	GNWT			RSD
	6/17/1995				5/1/2003				3/14/2001				8/27/2001				10/17/2002				7/8/2004			
	Desteffany Lake				Daring Lake				Fairy Lake River				Fairy Lake River				Coppermine River-Fairy Lake River				Coppermine River-Fairy Lake River			
					Surface																			
tds (mg/l)	13	11	15	15%	<10	18	10	n/a	31	30	30	2%	<10	18	18	n/a	40	36	34	8%	30	34	28	10%
temperature water (deg c)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
thallium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
thallium total (ug/l)	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	<0.4	<0.4	<0.4	n/a	<0.4	<0.4	<0.4	n/a	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a
tin dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tin total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
titanium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
titanium total (ug/l)	-	-	-	n/a	0.9	0.52	<0.02	n/a	<3	<3	<3	n/a	<3	<3	<3	n/a	0.2	0.3	0.29	21%	2.2	2.3	2	7%
tss fixed (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tss (mg/l)	4	9	5	44%	4	<3	<3	n/a	<3	<3	<3	n/a	<3	<3	<3	n/a	8	8	4	35%	<3	<3	<3	n/a
tungsten dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tungsten total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
turbidity (ntu)	0.3	0.3	0.3	0%	0.2	0.3	0.2	25%	0.6	0.8	0.5	24%	0.4	0.5	0.5	12%	0.6	0.7	0.5	17%	2.21	1.87	3.46	33%
uranium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
uranium total (ug/l)	-	-	-	n/a	<0.1	0.044	0.04	n/a	<0.3	<0.3	<0.3	n/a	<0.3	<0.3	<0.3	n/a	0.1	0.103	0.097	3%	<0.1	<0.1	<0.1	n/a
vanadium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
vanadium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
vanadium total (ug/l)	-	-	-	n/a	<1	<0.1	<0.1	n/a	<1	<1	<1	n/a	<1	<1	<1	n/a	<0.03	<0.03	<0.03	n/a	<0.1	<0.1	<0.1	n/a
yttrium- dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
yttrium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
zinc dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
zinc extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
zinc total (ug/l)	<5	5	<5	n/a	11	8.9	9.9	11%	<10	<10	<10	n/a	<10	<10	<10	n/a	4.7	2.44	4.01	31%	3.1	2.7	2.7	8%
				6				5				2				1				7				4
				26				47				47				46				47				46
> 18% RSD				4%				3%				1%				1%				5%				3%

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD
	8/28/2000				8/30/2001				4/26/2002				6/8/2003				9/1/2004				4/21/2005			
	Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek			
alkalinity phenolphthalein caco3 (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
alkalinity total caco3 (mg/l)	26.6	26.7	26.8	0%	21.3	26.3	18.9	17%	17.9	19.8	18.1	6%	56.2	58.2	57.1	2%	34.9	34.7	34.8	0%	19.3	19	19.3	1%
aluminum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
aluminum extractable (ug/l)	90	80	<50	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
aluminum total (ug/l)	85	110	51	36%	88	88	91	2%	-	-	-	n/a	15.8	15.1	21	19%	98.3	96.5	104	4%	140	145	128	6%
ammonia dissolved (mg/l)	0.015	0.016	0.015	4%	0.007	0.014	0.012	33%	0.015	0.025	0.013	36%	<0.005	0.007	0.005	n/a	0.008	<0.005	0.005	n/a	0.013	0.009	0.015	25%
ammonia total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
ammonia un-ionized (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
antimony dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
antimony total (ug/l)	-	-	-	n/a	-	-	-	n/a	0.04	0.03	0.03	17%	<0.001	<0.001	<0.001	n/a	0.014	0.025	0.017	30%	0.163	0.161	0.151	4%
arsenic dissolved (ug/l)	0.1	0.1	0.1	0%	0.1	0.1	0.1	0%	0.1	0.2	0.1	43%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
arsenic total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.23	0.27	0.24	8%	0.22	0.22	0.22	0%	0.24	0.25	0.23	4%
barium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
barium extractable (ug/l)	25	23	22	7%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
barium total (ug/l)	22.6	23.3	22.1	3%	10.6	10.5	10.7	1%	8.46	8.59	8.31	2%	42.5	40.9	41.5	2%	23.4	24.1	23.3	2%	9.87	9.82	9.89	0%
beryllium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
beryllium extractable (ug/l)	<1	<1	<1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
beryllium total (ug/l)	<0.05	<0.05	<0.05	n/a	<0.05	<0.05	<0.05	n/a	0.002	<0.002	<0.002	n/a	0.002	0.002	0.002	0%	0.004	0.004	0.004	0%	0.003	0.002	0.002	25%
bicarbonate (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
bismuth dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
bismuth total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<0.001	<0.001	<0.001	n/a	0.002	0.008	0.002	87%	0.003	0.003	0.002	22%
boron dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
boron extractable (ug/l)	<10	<10	<10	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
boron total (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	4.9	4.7	4.7	2%	1.8	1.4	2.2	22%	1.5	2	1.7	15%
cadmium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cadmium extractable (ug/l)	<5	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cadmium total (ug/l)	<0.1	<0.1	<0.1	n/a	0.1	0.2	0.2	35%	0.109	0.101	0.065	26%	0.043	0.045	0.037	10%	0.002	0.01	0.006	67%	0.59	0.551	0.566	3%
calcium dissolved (mg/l)	6.8	6.83	6.84	0%	4.9	4.79	4.87	1%	4.47	4.33	4.52	2%	12.6	11.2	12.8	7%	8.23	8.16	<0.05	n/a	4.53	4.26	4.72	5%
calcium extractable/unfiltered (mg/l)	7.1	7	6.8	2%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon dissolved inorganic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon dissolved organic (mg/l)	4.2	3.9	3.9	4%	2.9	2.8	2.8	2%	3.5	3.9	3.3	9%	6	5.9	6	1%	7.5	4.2	4.3	35%	3	3	4	17%
carbon dissolved total (mg/l)	-	3.9	3.9	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon particulate organic (mg/l)	0.258	0.277	0.365	19%	0.1	0.104	0.101	2%	0.38	0.356	0.417	8%	0.553	0.591	0.693	12%	0.308	0.389	0.349	12%	0.586	0.466	0.547	11%
carbon total organic (mg/l)	4.458	4.177	4.265	3%	3	2.904	2.901	2%	3.88	4.256	3.717	7%	6.553	6.491	6.693	2%	7.808	4.589	4.649	32%	3.586	3.466	4.547	15%
carbonate (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cerium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cerium total (ug/l)	-	-	-	n/a	-	-	-	n/a	0.05	0.049	0.054	5%	-	-	-	n/a	0.205	0.215	0.211	2%	0.288	0.286	0.265	5%
cesium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cesium total (ug/l)	-	-	-	n/a	-	-	-	n/a	0.003	0.004	0.003	17%	0.01	0.009	0.005	33%	0.012	0.011	0.013	8%	0.022	0.022	0.02	5%
chloride dissolved (mg/l)	0.36	0.37	0.34	4%	0.3	0.3	0.29	2%	0.39	0.4	0.38	3%	0.86	0.88	0.96	6%	0.32	0.31	<0.02	n/a	0.88	0.63	0.74	17%
chromium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
chromium extractable (ug/l)	<5	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a

RSD greater than 18%

[illegible]

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD
	8/28/2000				8/30/2001				4/26/2002				6/8/2003				9/1/2004				4/21/2005			
	Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek			
nickel extractable (ug/l)	16	<10	<10	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nickel total (ug/l)	0.6	0.7	0.4	27%	<0.2	<0.2	<0.2	n/a	0.71	0.5	0.53	20%	0.84	0.81	0.8	3%	0.59	0.65	0.63	5%	1.21	1.12	1.05	7%
niobium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
niobium total (ug/l)	-	-	-	n/a	-	-	-	n/a	0.003	<0.002	<0.002	n/a	<0.001	<0.001	<0.001	n/a	0.006	0.005	0.006	10%	0.008	0.014	0.008	35%
nitrate (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrate-nitrite dissolved (mg/l)	0.021	0.02	0.023	7%	0.024	0.022	0.018	14%	0.075	0.08	0.076	3%	0.019	0.017	0.016	9%	-	-	-	n/a	-	-	-	n/a
nitrate-nitrite (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrite (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrogen particulate (mg/l)	0.032	0.036	0.035	6%	0.017	0.018	0.019	6%	0.057	0.041	0.061	20%	0.061	0.063	0.066	4%	0.101	0.068	0.072	22%	0.037	0.029	0.036	13%
nitrogen total dissolved (mg/l)	0.185	0.219	0.174	12%	0.197	0.211	0.34	32%	0.576	0.625	0.468	14%	0.081	0.091	0.095	8%	0.046	0.048	0.061	16%	0.35	0.348	0.362	2%
nitrogen total (mg/l)	0.217	0.255	0.209	11%	0.214	0.229	0.359	30%	0.633	0.666	0.529	12%	0.142	0.154	0.161	6%	0.147	0.116	0.133	12%	0.387	0.377	0.398	3%
pH (ph units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphate ortho (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphate total inorganic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphorous particulate (calcd) (mg/l)	<0.004	0.006	0.011	n/a	0.004	<0.004	0.016	n/a	0.014	0.021	0.077	92%	0.065	0.051	0.056	12%	-	-	-	n/a	0.016	0.012	0.013	15%
phosphorous total dissolved (mg/l)	0.006	0.004	0.006	22%	0.007	0.611	0.011	166%	0.016	0.009	0.005	56%	0.007	0.007	0.006	9%	-	-	-	n/a	0.062	0.053	0.06	8%
phosphorous total (mg/l)	0.006	0.01	0.017	51%	0.011	0.012	0.027	54%	0.03	0.03	0.082	63%	0.072	0.058	0.062	11%	-	-	-	n/a	0.078	0.065	0.073	9%
platinum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
platinum total (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.002	<0.002	<0.002	n/a	<0.001	<0.001	<0.001	n/a	0.004	<0.001	0.003	n/a	<0.001	<0.001	<0.001	n/a
potassium dissolved (mg/l)	0.43	0.44	0.44	1%	0.42	0.43	0.42	1%	0.44	0.43	0.44	1%	0.64	0.62	0.67	4%	0.44	0.46	0.01	84%	0.93	0.75	0.82	11%
potassium extractable (mg/l)	<2	<2	<2	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
rubidium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
rubidium total (ug/l)	-	-	-	n/a	-	-	-	n/a	0.987	0.925	0.953	3%	0.71	0.7	0.66	4%	0.9	0.91	0.92	1%	1.45	1.47	1.42	2%
saturation index (calcd) (ph units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
selenium dissolved (ug/l)	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	0.1	0.1	0.1	0%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
selenium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.1	<0.05	0.05	n/a	0.06	<0.05	<0.05	n/a	<0.05	<0.05	<0.05	n/a
silica reactive (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
silica (mg/l)	0.91	0.89	0.92	2%	0.6	0.55	0.56	5%	0.58	0.58	0.53	5%	2.65	2.32	2.67	8%	1.15	1.15	<0.02	n/a	0.56	0.55	0.57	2%
silver dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
silver total (ug/l)	<0.1	<0.1	0.1	n/a	0.9	0.7	0.6	21%	-	-	-	n/a	<0.001	<0.001	<0.001	n/a	0.001	0.008	0.001	121%	<0.001	<0.001	<0.001	n/a
sodium adsorption ratio (calcd) (rel units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
sodium dissolved (mg/l)	0.54	0.56	0.55	2%	0.48	0.49	0.48	1%	0.55	0.54	0.55	1%	0.66	0.65	0.73	6%	0.53	0.53	0.02	82%	1	0.76	0.85	14%
sodium extractable (mg/l)	<2	<2	<2	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
sodium percentage (calcd) (%)	3.645	3.765	3.688	2%	4.652	4.809	4.702	2%	5.949	5.979	5.888	1%	2.223	2.485	2.402	6%	3.011	3.009	19.58	112%	9.8	8.023	-	n/a
sodium total (mg/l)	0.47	0.46	0.44	3%	0.37	0.36	0.37	2%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
specific conductance (usie/cm)	60.5	60.9	61.2	1%	62.5	99.7	44.1	41%	30.1	34	30.2	7%	113	117	115	2%	75.9	75.9	75.9	0%	45.7	45.4	45.9	1%
stability index (calcd) (ph units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
strontium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
strontium extractable (ug/l)	9	8	8	7%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
strontium total (ug/l)	8.3	8.4	8.2	1%	7.5	7.4	7.5	1%	7.49	7.07	7.21	3%	9.89	9.73	9.84	1%	9.87	9.34	9.07	4%	7.21	7.18	7.28	1%
sulphate dissolved (mg/l)	1.7	1.7	1.6	3%	3.9	4.2	1.2	53%	1	1	0.8	12%	1.37	1.26	1.29	4%	1.7	1.69	<0.02	n/a	2.05	1.99	2.05	2%
tds calc (mg/l)	30.123	30.219	30.212	0%	25.616	28.757	21.33	15%	20.302	21.304	20.227	3%	60.134	58.475	61.221	2%	-	-	-	n/a	23.36	22.13	-	n/a

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD
	8/28/2000				8/30/2001				4/26/2002				6/8/2003				9/1/2004				4/21/2005			
	Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek			
tds (mg/l)	48	45	44	5%	38	59	14	61%	26	30	22	15%	68	68	70	2%	40	34	32	12%	24	22	20	9%
temperature water (deg c)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
thallium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
thallium total (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.001	<0.001	0.002	n/a	0.001	0.001	0.001	0%	0.002	0.002	0.003	25%	0.001	0.001	<0.001	n/a
tin dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tin total (ug/l)	-	-	-	n/a	-	-	-	n/a	0.008	0.007	0.01	18%	<0.005	<0.005	<0.005	n/a	<0.005	0.014	0.009	n/a	0.066	0.069	0.057	10%
titanium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
titanium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tss fixed (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tss (mg/l)	4	<3	<3	n/a	<3	4	5	n/a	6	4	6	22%	48	38	40	13%	4	4	8	43%	4	4	10	58%
tungsten dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tungsten total (ug/l)	-	-	-	n/a	-	-	-	n/a	0.01	<0.002	0.009	n/a	<0.001	<0.001	<0.001	n/a	0.002	0.002	0.002	0%	0.004	0.006	<0.001	n/a
turbidity (ntu)	0.7	1.7	2.2	50%	2.6	2.1	1.5	27%	1.6	1.5	1.6	4%	24.9	17.3	23.1	18%	3.2	3.6	3.8	9%	4.28	4.25	3.74	7%
uranium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
uranium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.181	0.172	0.171	3%	0.157	0.157	0.154	1%	0.0746	0.0762	0.0758	1%
vanadium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
vanadium extractable (ug/l)	5	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
vanadium total (ug/l)	0.3	0.3	0.1	49%	0.3	0.3	0.3	0%	0.06	0.07	0.05	17%	0.227	0.229	0.219	2%	0.209	0.218	0.226	4%	0.324	0.333	0.303	5%
yttrium- dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
yttrium total (ug/l)	-	-	-	n/a	-	-	-	n/a	0.03	0.029	0.026	7%	0.071	0.074	0.061	10%	0.071	0.073	0.072	1%	0.072	0.072	0.071	1%
zinc dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
zinc extractable (ug/l)	<5	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
zinc total (ug/l)	0.2	0.3	<0.2	n/a	0.4	<0.2	<0.2	n/a	2.26	1.67	1.24	30%	0.24	0.25	0.16	23%	0.41	1.13	0.81	46%	16.6	16.5	15	6%
# > 18% RSD				11				16				16				7				18				5
Total # Triplicate Results				73				52				61				64				59				58
% > 18% RSD				7%				11%				11%				5%				12%				3%

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD	GNWT			RSD
	6/4/2006				4/9/2009				6/17/2009				8/31/2010				6/3/2011				4/24/2001			
	Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River below Copper Creek			
alkalinity phenolphthalein caco3 (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
alkalinity total caco3 (mg/l)	79.6	90.6	75.4	10%	20.1	18.2	20.6	6%	59	58.8	59.2	0%	33.8	33.6	33.4	1%	43	43.8	42.8	1%	16.2	15.6	16.2	2%
aluminum dissolved (ug/l)	16.3	16.9	15	6%	104	121	109	8%	65.2	40.7	53.4	23%	18.1	17.7	18.7	3%	26.1	24.2	30.2	11%	-	-	-	n/a
aluminum extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
aluminum total (ug/l)	132	86	87.7	26%	200	205	204	1%	556	582	586	3%	35.7	32.6	34	5%	324	315	317	1%	<30	<30	<30	n/a
ammonia dissolved (mg/l)	<0.005	0.006	<0.005	n/a	<0.01	0.02	0.01	n/a	0.01	0.01	0.01	0%	<0.01	<0.01	<0.01	n/a	<0.01	<0.01	0.01	n/a	-	-	-	n/a
ammonia total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<0.005	<0.005	<0.005	n/a
ammonia un-ionized (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
antimony dissolved (ug/l)	0.073	0.049	0.063	20%	0.166	0.167	0.171	2%	0.06	0.062	0.062	2%	0.079	0.07	0.079	7%	0.082	0.073	0.086	8%	-	-	-	n/a
antimony total (ug/l)	0.027	0.026	0.024	6%	0.085	0.104	0.092	10%	0.02	0.02	0.018	6%	0.013	0.014	0.014	4%	0.019	0.02	0.019	3%	0.8	0.8	0.8	0%
arsenic dissolved (ug/l)	0.22	0.22	0.23	3%	0.3	0.31	0.29	3%	0.21	0.2	0.21	3%	0.22	0.22	0.22	0%	0.2	0.19	0.2	3%	-	-	-	n/a
arsenic total (ug/l)	0.24	0.25	0.23	4%	0.29	0.3	0.31	3%	0.31	0.32	0.31	2%	0.23	0.22	0.22	3%	0.3	0.3	0.3	0%	-	-	-	n/a
barium dissolved (ug/l)	48.5	54.6	51.6	6%	10	10.4	10.3	2%	34.3	35	34.9	1%	23.2	23	23.5	1%	22.1	21.3	22.2	2%	-	-	-	n/a
barium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
barium total (ug/l)	51.7	63.4	61.6	11%	11.3	11.1	11.5	2%	40.2	40.7	40.7	1%	24.3	24	23.8	1%	26.8	26.5	26.9	1%	8	8	8	0%
beryllium dissolved (ug/l)	0.003	0.003	0.002	22%	0.005	0.005	0.005	0%	0.007	0.004	0.004	35%	0.003	0.002	0.002	25%	0.004	0.004	0.004	0%	-	-	-	n/a
beryllium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
beryllium total (ug/l)	0.006	0.005	0.005	11%	0.007	0.007	0.007	0%	0.021	0.02	0.02	3%	0.004	0.003	0.003	17%	0.015	0.015	0.015	0%	<2	<2	<2	n/a
bicarbonate (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
bismuth dissolved (ug/l)	0.001	0.001	<0.001	n/a	0.006	0.007	0.006	9%	0.001	0.001	0.001	0%	<0.001	<0.001	<0.001	n/a	0.001	0.001	0.001	0%	-	-	-	n/a
bismuth total (ug/l)	0.002	0.001	0.001	43%	0.012	0.012	0.011	5%	0.009	0.009	0.009	0%	-	-	-	n/a	-	-	-	n/a	<5	<5	<5	n/a
boron dissolved (ug/l)	4.3	4.7	4.2	6%	1.6	1.5	1.4	7%	3.5	4.1	3.3	11%	2	1.8	2.2	10%	2.8	2.3	3.1	15%	-	-	-	n/a
boron extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
boron total (ug/l)	4.3	5.3	5.3	12%	1.4	1.8	1.4	15%	4	3.2	4.1	13%	1.7	1.8	2.1	11%	2.8	2.8	2.7	2%	-	-	-	n/a
cadmium dissolved (ug/l)	0.012	0.005	0.004	62%	0.165	0.194	0.167	9%	0.011	0.007	0.008	24%	0.002	0.004	0.003	33%	0.004	0.003	0.004	16%	-	-	-	n/a
cadmium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cadmium total (ug/l)	0.018	0.008	0.005	66%	0.167	0.169	0.184	5%	0.008	0.006	0.008	16%	0.003	0.002	0.001	50%	0.007	0.009	0.009	14%	<0.3	<0.3	<0.3	n/a
calcium dissolved (mg/l)	19.7	20	18.7	3%	4.86	4.87	4.81	1%	12.3	12.3	12.4	0%	7.7	7.7	7.63	1%	9.1	9.16	8.97	1%	4.13	4.06	4.1	1%
calcium extractable/unfiltered (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon dissolved inorganic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon dissolved organic (mg/l)	8.2	8.2	8.1	1%	3.4	3.7	4.3	12%	5.4	5.9	6	6%	3.7	3.6	3.7	2%	6	6	6.1	1%	2.9	2.7	2.7	4%
carbon dissolved total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon particulate organic (mg/l)	0.258	0.292	0.208	17%	1.16	0.774	0.517	40%	8.14	2.24	0.972	101%	0.271	0.385	0.35	17%	0.69	0.536	0.469	20%	-	-	-	n/a
carbon total organic (mg/l)	8.458	8.492	8.308	1%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	2.8	2.8	2.7	2%
carbonate (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cerium dissolved (ug/l)	0.103	0.095	0.096	4%	0.243	0.262	0.25	4%	0.236	0.185	0.219	12%	0.05	0.052	0.055	5%	0.169	0.17	0.178	3%	-	-	-	n/a
cerium total (ug/l)	0.331	0.218	0.216	26%	0.426	0.415	0.431	2%	1.34	1.31	1.31	1%	0.102	0.096	0.1	3%	0.882	0.898	0.905	1%	-	-	-	n/a
cesium dissolved (ug/l)	<0.005	<0.005	<0.005	n/a	0.024	0.026	0.024	5%	0.009	0.006	0.008	20%	0.005	0.005	0.005	0%	0.005	0.004	0.006	20%	-	-	-	n/a
cesium total (ug/l)	0.023	0.014	0.014	31%	0.042	0.042	0.041	1%	0.064	0.067	0.067	3%	0.007	0.008	0.008	8%	0.051	0.052	0.051	1%	<0.4	<0.4	<0.4	n/a
chloride dissolved (mg/l)	0.24	0.23	0.24	2%	0.48	0.51	0.46	5%	0.36	0.36	0.36	0%	0.3	0.31	0.3	2%	0.39	0.39	0.42	4%	0.4	0.4	0.4	0%
chromium dissolved (ug/l)	0.218	0.178	0.144	21%	0.535	0.586	0.546	5%	0.209	0.138	0.159	22%	0.08	0.08	0.09	7%	0.1	0.09	0.1	6%	-	-	-	n/a
chromium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD	GNWT			RSD
	6/4/2006				4/9/2009				6/17/2009				8/31/2010				6/3/2011				4/24/2001			
	Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River below Copper Creek			
chromium total (ug/l)	0.384	0.289	0.276	19%	0.811	0.913	0.842	6%	1.02	1.03	1.05	1%	0.12	0.11	0.11	5%	0.71	0.72	0.71	1%	<3	<3	<3	n/a
cobalt dissolved (ug/l)	0.036	0.035	0.035	2%	0.099	0.106	0.106	4%	0.062	0.045	0.051	16%	0.019	0.021	0.022	7%	0.036	0.037	0.036	2%	-	-	-	n/a
cobalt extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cobalt total (ug/l)	0.106	0.085	0.086	13%	0.17	0.166	0.173	2%	0.329	0.337	0.331	1%	0.035	0.031	0.032	6%	0.267	0.265	0.266	0%	<1	<1	<1	n/a
colourapparent (rel units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
colourtrue (rel units)	45	50	45	6%	<5	14	22	n/a	-	-	-	n/a	6	7	6	9%	32	29	30	5%	-	-	-	n/a
copper dissolved (ug/l)	1.86	1.74	1.72	4%	2.28	2.34	2.21	3%	1.81	1.76	1.74	2%	0.94	0.93	0.95	1%	1.43	1.38	1.42	2%	-	-	-	n/a
copper extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
copper total (ug/l)	1.84	1.89	1.84	2%	2.26	2.85	2.34	13%	2.18	2.24	2.21	1%	0.97	0.93	0.93	2%	1.86	1.9	1.93	2%	<2	<2	<2	n/a
cyanide thiocyanate (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cyanide total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
fluoride dissolved (mg/l)	0.03	0.03	0.03	0%	0.03	0.03	0.03	0%	0.03	0.03	0.03	0%	0.03	0.03	0.03	0%	0.03	0.03	0.03	0%	-	-	-	n/a
free co2 (calcd) (mg/l)	1.599	1.62	1.587	1%	1.777	1.936	2.044	7%	1.362	1.209	1.399	8%	1.362	1.323	1.346	1%	1.693	1.646	1.647	2%	-	-	-	n/a
gallium dissolved (ug/l)	0.004	0.005	0.003	25%	0.041	0.052	0.043	13%	0.023	0.014	0.018	25%	0.006	0.006	0.006	0%	0.009	0.008	0.009	7%	-	-	-	n/a
gallium total (ug/l)	0.038	0.024	0.027	25%	0.077	0.079	0.08	2%	0.182	0.188	0.185	2%	0.011	0.011	0.012	5%	0.11	0.109	0.11	1%	-	-	-	n/a
hardness non-carb (calcd) (mg/l)	13.231	3.804	12.876	54%	0.475	2.483	0	134%	1.726	1.556	1.899	10%	0.125	0	0.185	91%	0	0	0	n/a	-	-	-	n/a
hardness total caco3 calcd (mg/l)	92.831	94.404	88.276	3%	20.575	20.683	20.492	0%	60.726	60.356	61.099	1%	33.925	33.513	33.585	1%	42.649	43.087	42.119	1%	17.6	17.3	17.5	1%
hcchlhexachlorobutadiene (ng/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
hydroxide (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
iron dissolved (ug/l)	40	37.8	36.4	5%	160	180	163	6%	96.8	67.7	82.7	18%	28.8	30.8	31.7	5%	66.4	65.9	70.3	4%	-	-	-	n/a
iron extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
iron total (ug/l)	189	124	125	26%	296	294	300	1%	644	665	660	2%	57.8	56.9	58.3	1%	484	493	500	2%	<30	<30	<30	n/a
lanthanum dissolved (ug/l)	0.089	0.082	0.083	4%	0.135	0.147	0.144	4%	0.148	0.126	0.142	8%	0.035	0.037	0.039	5%	0.121	0.119	0.123	2%	-	-	-	n/a
lanthanum total (ug/l)	0.198	0.136	0.139	22%	0.229	0.225	0.233	2%	0.681	0.663	0.659	2%	0.061	0.06	0.061	1%	0.459	0.464	0.464	1%	-	-	-	n/a
lead dissolved (ug/l)	0.246	0.075	0.057	83%	0.427	0.552	0.446	14%	0.049	0.035	0.041	17%	0.011	0.013	0.012	8%	0.036	0.034	0.036	3%	-	-	-	n/a
lead extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lead total (ug/l)	0.107	0.063	0.06	34%	0.48	0.516	0.504	4%	0.28	0.283	0.281	1%	0.027	0.024	0.025	6%	0.227	0.239	0.24	3%	<1	<1	<1	n/a
lithium dissolved (ug/l)	1	1.1	1	6%	1	1.1	1	6%	0.9	0.9	0.9	0%	0.71	0.74	0.74	2%	0.61	0.61	0.62	1%	-	-	-	n/a
lithium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lithium total (ug/l)	1.2	1.3	1.3	5%	1.2	1.2	1.2	0%	1.5	1.5	1.5	0%	0.76	0.75	0.74	1%	1.07	1.03	1.03	2%	<3	<3	<3	n/a
magnesium dissolved (mg/l)	10.6	10.8	10.1	3%	2.05	2.07	2.06	0%	7.29	7.2	7.32	1%	3.57	3.47	3.53	1%	4.84	4.91	4.79	1%	1.78	1.75	1.76	1%
magnesium extractable (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
magnesium total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
manganese dissolved (ug/l)	1.77	1.83	1.82	2%	3.17	3.4	3.2	4%	4.99	3.96	4.37	12%	0.98	1.09	1.18	9%	3.22	3.24	3.53	5%	-	-	-	n/a
manganese extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
manganese total (ug/l)	7.12	5.41	5.2	18%	5.28	5.37	5.35	1%	21.1	22	22.1	3%	4.17	4	4.2	3%	22.2	22.3	23	2%	<1	<1	<1	n/a
mercury dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
mercury total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
molybdenum dissolved (ug/l)	0.072	0.074	0.075	2%	0.061	0.068	0.067	6%	0.072	0.071	0.065	5%	0.149	0.053	0.055	64%	0.073	0.067	0.067	5%	-	-	-	n/a
molybdenum extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
molybdenum total (ug/l)	0.073	0.076	0.074	2%	0.063	0.058	0.064	5%	0.067	0.066	0.06	6%	0.052	0.05	0.049	3%	0.067	0.071	0.067	3%	<1	<1	<1	n/a
nickel dissolved (ug/l)	1.17	1.04	1.09	6%	0.73	0.78	0.74	4%	0.86	0.8	0.82	4%	0.43	0.45	0.46	3%	0.72	0.68	0.7	3%	-	-	-	n/a

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD	GNWT			RSD
	6/4/2006				4/9/2009				6/17/2009				8/31/2010				6/3/2011				4/24/2001			
	Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River below Copper Creek			
nickel extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nickel total (ug/l)	1.18	1.15	1.13	2%	0.88	0.91	0.93	3%	1.48	1.48	1.51	1%	0.46	0.44	0.45	2%	1.28	1.23	1.25	2%	<1	4	<1	n/a
niobium dissolved (ug/l)	0.002	0.002	0.002	0%	0.013	0.013	0.013	0%	0.005	0.003	0.004	25%	0.002	0.002	0.002	0%	0.003	0.002	0.003	22%	-	-	-	n/a
niobium total (ug/l)	0.012	0.007	0.008	29%	0.024	0.027	0.026	6%	0.045	0.048	0.047	3%	0.003	0.002	0.003	22%	0.03	0.03	0.031	2%	-	-	-	n/a
nitrate (mg/l)	-	-	-	n/a	0.06	0.06	0.06	0%	0.01	0.01	<0.01	n/a	0.07	0.07	0.07	0%	0.02	0.02	0.03	25%	-	-	-	n/a
nitrate-nitrite dissolved (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrate-nitrite (mg/l)	<0.01	<0.01	<0.01	n/a	0.06	0.06	0.06	0%	0.01	0.01	<0.01	n/a	0.07	0.07	0.07	0%	0.02	0.02	0.03	25%	0.125	0.104	0.086	19%
nitrite (mg/l)	-	-	-	n/a	<0.01	<0.01	<0.01	n/a	<0.01	<0.01	<0.01	n/a	<0.01	<0.01	<0.01	n/a	<0.01	<0.01	<0.01	n/a	-	-	-	n/a
nitrogen particulate (mg/l)	0.042	0.045	0.025	29%	<0.002	<0.002	<0.002	n/a	0.275	0.2	0.103	45%	0.023	0.036	0.016	41%	0.111	0.062	0.056	40%	-	-	-	n/a
nitrogen total dissolved (mg/l)	0.13	0.14	0.11	12%	0.42	0.44	0.31	18%	0.27	0.22	0.21	14%	0.2	0.19	0.2	3%	0.37	0.35	0.37	3%	-	-	-	n/a
nitrogen total (mg/l)	0.172	0.185	0.135	16%	0.38	0.51	0.39	17%	0.44	0.32	0.47	19%	0.19	0.2	0.18	5%	0.37	0.35	0.37	3%	-	-	-	n/a
pH (ph units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	8.43	8.43	8.43	0%	7.14	7.1	7.1	0%
phosphate ortho (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<0.002	<0.002	<0.002	n/a
phosphate total inorganic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphorous particulate (calcd) (mg/l)	0.015	0.015	<0.004	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphorous total dissolved (mg/l)	<0.01	<0.01	0.02	n/a	0.01	<0.01	0.01	n/a	0.02	<0.01	<0.01	n/a	<0.01	<0.01	<0.01	n/a	0.02	0.02	0.02	0%	-	-	-	n/a
phosphorous total (mg/l)	0.02	0.02	0.01	35%	0.01	0.02	0.03	50%	0.03	0.01	0.01	69%	<0.01	<0.01	<0.01	n/a	0.03	0.04	0.02	33%	0.004	0.015	0.005	76%
platinum dissolved (ug/l)	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	-	-	-	n/a
platinum total (ug/l)	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	-	-	-	n/a
potassium dissolved (mg/l)	0.47	0.48	0.49	2%	0.61	0.63	0.61	2%	0.53	0.53	0.51	2%	0.41	0.43	0.44	4%	0.74	0.69	0.73	4%	0.4	0.4	0.39	1%
potassium extractable (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
rubidium dissolved (ug/l)	0.67	0.65	0.65	2%	1.39	1.44	1.4	2%	0.68	0.64	0.65	3%	0.89	0.905	0.917	1%	0.747	0.751	0.766	1%	-	-	-	n/a
rubidium total (ug/l)	0.89	0.76	0.78	9%	1.58	1.59	1.64	2%	1.38	1.39	1.37	1%	0.942	0.942	0.934	0%	1.28	1.27	1.29	1%	0.8	0.9	0.9	7%
saturation index (calcd) (ph units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-1.8	-1.77	-1.798	-1%	-	-	-	n/a
selenium dissolved (ug/l)	0.05	<0.05	<0.05	n/a	<0.05	<0.05	<0.05	n/a	<0.05	<0.05	<0.05	n/a	0.02	0.02	<0.01	n/a	0.02	0.02	0.02	0%	-	-	-	n/a
selenium total (ug/l)	<0.05	<0.05	<0.05	n/a	<0.05	<0.05	<0.05	n/a	<0.05	<0.05	<0.05	n/a	<0.01	<0.01	<0.01	n/a	0.02	0.02	0.02	0%	<10	<10	<10	n/a
silica reactive (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.73	0.72	0.74	1%
silica (mg/l)	3.53	3.5	3.35	3%	0.67	0.67	0.67	0%	2.42	2.43	2.45	1%	1.02	1.02	1.02	0%	1.85	1.89	1.85	1%	-	-	-	n/a
silver dissolved (ug/l)	0.001	0.001	0.002	43%	0.011	0.008	0.008	19%	<0.001	<0.001	<0.001	n/a	0.001	0.001	0.001	0%	0.001	0.002	0.001	43%	-	-	-	n/a
silver total (ug/l)	0.003	0.002	0.002	25%	0.01	0.015	0.012	20%	0.001	0.001	0.001	0%	0.001	<0.001	0.001	n/a	0.003	0.004	0.004	16%	<0.3	<0.3	<0.3	n/a
sodium adsorption ratio (calcd) (rel units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.03	0.03	0.03	0%	-	-	-	n/a
sodium dissolved (mg/l)	0.73	0.71	0.71	2%	0.74	0.77	0.73	3%	0.5	0.53	0.53	3%	0.6	0.61	0.59	2%	0.52	0.47	0.49	5%	0.48	0.47	0.49	2%
sodium extractable (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
sodium percentage (calcd) (%)	1.672	1.601	1.709	3%	7.014	7.236	6.951	2%	1.742	1.855	1.834	3%	3.653	3.752	3.625	2%	2.531	2.274	2.418	5%	-	-	-	n/a
sodium total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
specific conductance (usie/cm)	156	175	148	9%	47.4	43.3	45.1	5%	112	111	113	1%	63.2	63	63.4	0%	78	79.8	78.9	1%	38.6	38.9	38.6	0%
stability index (calcd) (ph units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	11.29	11.249	11.296	0%	-	-	-	n/a
strontium dissolved (ug/l)	12.3	13	12.5	3%	8.52	8.7	8.54	1%	10.5	10.5	10.2	2%	9.12	9.25	9.61	3%	8.84	8.7	9.17	3%	-	-	-	n/a
strontium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
strontium total (ug/l)	12.8	13.9	13.8	5%	8.65	8.65	8.61	0%	11.3	11.2	11.4	1%	9.3	9.53	9.57	2%	9.4	9.46	9.6	1%	7	7	7	0%
sulphate dissolved (mg/l)	1.35	1.29	1.36	3%	2.14	2.13	2.14	0%	1.26	1.26	1.26	0%	1.79	1.82	1.8	1%	1.36	1.36	1.33	1%	<3	<3	<3	n/a
tds calc (mg/l)	84.38	91.37	80.19	7%	23.61	22.57	23.84	3%	60.06	59.89	60.35	0%	35.67	35.52	35.35	0%	44.6	45.15	44.26	1%	-	-	-	n/a

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD	GNWT			RSD
	6/4/2006				4/9/2009				6/17/2009				8/31/2010				6/3/2011				4/24/2001			
	Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River above Copper Creek				Coppermine River below Copper Creek			
tds (mg/l)	78	90	70	13%	60	64	64	4%	78	78	74	3%	24	24	26	5%	84	74	78	6%	24	18	20	15%
temperature water (deg c)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	1.6	1.6	1.6	0%	-	-	-	n/a
thallium dissolved (ug/l)	0.001	0.001	0.002	43%	0.003	0.002	0.003	22%	0.002	0.001	0.002	35%	0.002	0.002	0.002	0%	0.002	0.002	0.002	0%	-	-	-	n/a
thallium total (ug/l)	0.002	0.002	0.002	0%	0.004	0.004	0.004	0%	0.006	0.006	0.006	0%	0.002	0.001	0.002	35%	0.005	0.005	0.005	0%	<0.4	<0.4	<0.4	n/a
tin dissolved (ug/l)	0.007	0.007	0.006	9%	0.041	0.041	0.037	6%	0.007	0.006	0.006	9%	<0.005	<0.005	<0.005	n/a	<0.005	<0.005	<0.005	n/a	-	-	-	n/a
tin total (ug/l)	0.021	0.009	<0.005	n/a	0.045	0.094	0.052	42%	0.009	0.009	0.008	7%	<0.005	<0.005	0.006	n/a	0.006	0.011	0.007	33%	-	-	-	n/a
titanium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
titanium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<3	<3	<3	n/a
tss fixed (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tss (mg/l)	6	<3	6	n/a	6	6	6	0%	29	37	28	16%	4	4	<3	n/a	26	28	20	17%	<3	3	<3	n/a
tungsten dissolved (ug/l)	0.012	0.125	0.008	137%	0.007	0.01	0.007	22%	0.005	0.001	0.003	67%	0.001	0.001	<0.001	n/a	0.002	0.002	0.002	0%	-	-	-	n/a
tungsten total (ug/l)	0.003	0.002	0.003	22%	0.009	0.01	0.012	15%	0.007	0.006	0.005	17%	0.001	0.001	0.001	0%	0.007	0.007	0.007	0%	-	-	-	n/a
turbidity (ntu)	4.6	4.24	4.15	5%	7.73	8.73	6.77	13%	17	17.7	15.6	6%	1.32	1.55	1.47	8%	10.9	12.6	11	8%	0.9	1	0.9	6%
uranium dissolved (ug/l)	0.195	0.218	0.207	6%	0.0911	0.089	0.0895	1%	0.255	0.259	0.255	1%	0.124	0.122	0.124	1%	0.191	0.184	0.189	2%	-	-	-	n/a
uranium total (ug/l)	0.217	0.229	0.224	3%	0.0976	0.0958	0.0993	2%	0.291	0.293	0.292	0%	0.129	0.133	0.131	2%	0.222	0.224	0.218	1%	<0.3	<0.3	<0.3	n/a
vanadium dissolved (ug/l)	0.148	0.184	0.169	11%	0.352	0.366	0.336	4%	0.252	0.195	0.222	13%	0.11	0.104	0.099	5%	0.139	0.132	0.137	3%	-	-	-	n/a
vanadium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
vanadium total (ug/l)	0.364	0.299	0.289	13%	0.554	0.568	0.558	1%	1.01	1.04	1.05	2%	0.134	0.126	0.127	3%	0.705	0.652	0.724	5%	<1	<1	<1	n/a
yttrium- dissolved (ug/l)	0.097	0.096	0.096	1%	0.067	0.074	0.069	5%	0.119	0.111	0.115	3%	0.033	0.033	0.034	2%	0.113	0.113	0.116	2%	-	-	-	n/a
yttrium total (ug/l)	0.145	0.121	0.121	11%	0.099	0.097	0.097	1%	0.324	0.345	0.33	3%	0.045	0.045	0.044	1%	0.278	0.278	0.274	1%	-	-	-	n/a
zinc dissolved (ug/l)	1.85	0.72	0.87	54%	6.52	8.31	6.41	15%	0.91	0.79	0.79	8%	0.2	0.3	0.2	25%	0.6	0.5	0.6	10%	-	-	-	n/a
zinc extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
zinc total (ug/l)	1.08	0.75	0.66	27%	6.44	6.39	6.94	5%	2.14	2.19	2.19	1%	0.4	0.2	0.3	33%	1.9	2	2.1	5%	<10	<10	<10	n/a
# > 18% RSD				27				8				13				10				9				2
Total # Triplicate Results				98				98				97				97				102				
% > 18% RSD				18%				5%				9%				7%				6%				1%

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	GNWT			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD
	8/28/2002				11/10/1992				2/4/1993				1/21/1994				9/19/1995				9/16/1996			
	Coppermine River Mouth				Coppermine River mouth				Coppermine River mouth				Lockhart River				Lockhart River				Lockhart River			
alkalinity phenolphthalein caco3 (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0	0	0	n/a	0	0	0	n/a	-	-	-	n/a
alkalinity total caco3 (mg/l)	35.1	35.2	57	30%	19	19	19	0%	94	20.6	21	94%	4.2	5.3	6	18%	6.5	6.3	5.5	9%	5	4.7	5.9	12%
aluminum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
aluminum extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<50	<50	<50	n/a	<50	<50	<50	n/a	<50	<50	<50	n/a
aluminum total (ug/l)	58	63	60	4%	-	-	-	n/a	-	-	-	n/a	23	18	8	47%	2	<2	<2	n/a	4	10	6	46%
ammonia dissolved (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.02	0.02	0.022	6%	<0.005	0.006	0.006	n/a	0.015	<0.002	<0.002	n/a
ammonia total (mg/l)	<0.005	<0.005	<0.005	n/a	0.053	0.056	0.054	3%	0.182	0.156	0.091	33%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
ammonia un-ionized (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0	-	-	n/a	-	-	-	n/a	-	-	-	n/a
antimony dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
antimony total (ug/l)	0.9	1	0.9	6%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
arsenic dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	<0.1	0.1	<0.1	n/a
arsenic total (ug/l)	-	-	-	n/a	0.5	0.5	0.5	0%	<300	<300	<300	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
barium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
barium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	3	3	4	17%	6	4	3	35%	4	3	2	33%
barium total (ug/l)	21	21	20	3%	-	-	-	n/a	-	-	-	n/a	2.5	2.4	2.3	4%	2.4	2.4	2.3	2%	2.4	2.2	2.4	5%
beryllium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
beryllium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<1	<1	<1	n/a	<1	<1	<1	n/a	<1	<1	<1	n/a
beryllium total (ug/l)	<2	<2	<2	n/a	-	-	-	n/a	-	-	-	n/a	<0.05	<0.05	<0.05	n/a	<0.05	<0.05	<0.05	n/a	<0.05	<0.05	<0.05	n/a
bicarbonate (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	5.12	6.461	7.314	18%	7.924	7.68	6.705	9%	-	-	-	n/a
bismuth dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
bismuth total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
boron dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
boron extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<10	<10	<10	n/a	<10	<10	<10	n/a
boron total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cadmium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cadmium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	<5	<5	n/a	<5	<5	<5	n/a	<5	<5	<5	n/a
cadmium total (ug/l)	<0.3	<0.3	<0.3	n/a	<200	<200	<200	n/a	<0.2	<0.2	<0.2	n/a	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	0.1	n/a	<0.1	<0.1	<0.1	n/a
calcium dissolved (mg/l)	8.09	8.13	8.2	1%	5	5	5	0%	5	5.4	5	4%	1.2	1.1	1	9%	-	1.23	1.22	n/a	1.1	1.1	1.2	5%
calcium extractable/unfiltered (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	1.3	1.3	1.3	0%	1.3	1.2	1.3	5%
carbon dissolved inorganic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon dissolved organic (mg/l)	2.7	2.7	2.8	2%	-	-	-	n/a	-	-	-	n/a	1.7	1.4	1.3	14%	2.2	2	2.2	5%	1.8	1.9	2	5%
carbon dissolved total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon particulate organic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.266	0.185	0.13	35%	0.091	0.147	0.159	27%	0.178	0.166	0.146	10%
carbon total organic (mg/l)	2.8	2.8	2.7	2%	-	-	-	n/a	-	-	-	n/a	1.966	1.585	1.43	17%	2.291	2.147	2.359	5%	1.978	2.066	2.146	4%
carbonate (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0	0	0	n/a	0	0	0	n/a	-	-	-	n/a
cerium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cerium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cesium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cesium total (ug/l)	<0.4	<0.4	<0.4	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
chloride dissolved (mg/l)	0.4	0.8	0.4	43%	0.7	0.9	0.7	15%	1	0.94	1	4%	0.44	0.44	0.43	1%	0.42	0.43	0.43	1%	0.38	1	0.38	61%
chromium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
chromium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	<5	6	n/a	<5	<5	<5	n/a	<5	<5	<5	n/a

RSD greater than 18%

Parameter	GNWT			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD
	8/28/2002				11/10/1992				2/4/1993				1/21/1994				9/19/1995				9/16/1996			
	Coppermine River Mouth				Coppermine River mouth				Coppermine River mouth				Lockhart River				Lockhart River				Lockhart River			
chromium total (ug/l)	<3	<3	<3	n/a	5000	5000	4000	12%	<1	<1	<1	n/a	0.3	0.3	<0.2	n/a	<0.2	<0.2	<0.2	n/a	<0.2	0.3	<0.2	n/a
cobalt dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cobalt extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	<5	<5	n/a	<5	<5	<5	n/a	<5	<5	<5	n/a
cobalt total (ug/l)	<1	<1	<1	n/a	<1000	<1000	<1000	n/a	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	0.1	<0.1	0.1	n/a	<0.1	<0.1	<0.1	n/a
colourapparent (rel units)	-	-	-	n/a	50	10	<5	n/a	<5	<5	5	n/a	-	-	-	n/a	20	<5	15	n/a	5	5	<5	n/a
colourtrue (rel units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
copper dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
copper extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	<5	5	n/a	<5	<5	<5	n/a	<5	<5	<5	n/a
copper total (ug/l)	<2	<2	<2	n/a	5000	6000	5000	11%	-	-	-	n/a	0.6	0.6	0.5	10%	0.5	0.5	0.5	0%	0.9	6	0.7	119%
cyanide thiocyanate (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cyanide total (mg/l)	-	-	-	n/a	<0.003	<0.003	<0.003	n/a	<0.004	<0.004	<0.004	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	8.1	n/a	0.001	<0.001	0.002	n/a
fluoride dissolved (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.03	0.03	0.02	22%	0.03	0.03	0.03	0%	0.04	0.03	0.03	17%
free co2 (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	2.969	3.041	3.953	17%	2.46	1.648	1.406	30%	-	-	-	n/a
gallium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
gallium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
hardness non-carb (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	1.39	0	0	173%	-	0	0.099	n/a	-	-	-	n/a
hardness total caco3 calcd (mg/l)	37	37.2	36.8	1%	21.1	21.5	21.1	1%	20.7	21.7	21.1	2%	5.59	5.176	4.885	7%	-	5.583	5.599	n/a	-	-	-	n/a
hcchlhexachlorobutadiene (ng/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
hydroxide (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0	0	0	n/a	0	0	0	n/a	-	-	-	n/a
iron dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
iron extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	6	7	6	9%	<5	<5	<5	n/a	8	<5	6	n/a
iron total (ug/l)	79	75	79	3%	2740000	2730000	2380000	8%	462000	399000	387000	10%	14.3	10.1	2.8	64%	4.3	3.6	4.2	9%	4.7	14.7	4.3	75%
lanthanum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lanthanum total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lead dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lead extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	45	32	31	22%	<20	28	<20	n/a	<20	<20	<20	n/a
lead total (ug/l)	<1	<1	<1	n/a	<1000	1000	1000	n/a	-	-	-	n/a	0.2	0.3	<0.2	n/a	<0.2	<0.2	<0.2	n/a	0.3	<0.2	0.3	n/a
lithium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lithium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	<5	<5	n/a	<5	<5	<5	n/a	<5	<5	<5	n/a
lithium total (ug/l)	<3	<3	<3	n/a	-	-	-	n/a	-	-	-	n/a	1	1	0.9	6%	0.9	0.9	0.8	7%	0.8	0.7	0.8	8%
magnesium dissolved (mg/l)	4.08	4.1	3.97	2%	2.1	2.2	2.1	3%	2	2	2.1	3%	0.63	0.59	0.58	4%	0.61	0.61	0.62	1%	0.6	0.64	0.58	5%
magnesium extractable (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<1	<1	<1	n/a	<1	<1	<1	n/a
magnesium total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<1	<1	<1	n/a	0.59	0.59	0.58	1%	0.59	0.57	0.61	3%
manganese dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
manganese extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	2	<2	<2	n/a	<2	<2	<2	n/a	<2	<2	<2	n/a
manganese total (ug/l)	3	3	3	0%	-	-	-	n/a	-	-	-	n/a	1	0.4	0.4	58%	0.6	0.5	0.5	11%	0.6	0.6	0.6	0%
mercury dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
mercury total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
molybdenum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
molybdenum extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	<5	<5	n/a	<5	<5	<5	n/a	<5	<5	<5	n/a
molybdenum total (ug/l)	<1	<1	<1	n/a	-	-	-	n/a	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a
nickel dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	GNWT			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD
	8/28/2002				11/10/1992				2/4/1993				1/21/1994				9/19/1995				9/16/1996			
	Coppermine River Mouth				Coppermine River mouth				Coppermine River mouth				Lockhart River				Lockhart River				Lockhart River			
nickel extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	18	17	15	9%	<10	<10	10	n/a	<10	<10	<10	n/a
nickel total (ug/l)	<1	<1	<1	n/a	3000	2000	3000	22%	-	-	-	n/a	0.5	0.6	0.5	11%	0.5	0.5	0.4	12%	0.6	0.4	0.7	27%
niobium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
niobium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrate (mg/l)	<0.008	0.009	0.008	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrate-nitrite dissolved (mg/l)	-	-	-	n/a	0.05	0.06	0.05	11%	0.11	0.1	0.1	6%	-	-	-	n/a	0.036	0.023	0.023	27%	0.014	0.014	0.023	31%
nitrate-nitrite (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrite (mg/l)	<0.008	<0.008	<0.008	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrogen particulate (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.035	0.011	0.012	70%	0.028	0.026	0.027	4%	0.02	0.018	0.017	8%
nitrogen total dissolved (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.099	0.128	0.124	13%	0.027	0.14	0.162	66%	0.029	0.03	0.025	9%
nitrogen total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.134	0.139	0.136	2%	0.055	0.166	0.189	52%	0.049	0.048	0.042	8%
pH (ph units)	7.36	7.39	7.48	1%	6.63	6.63	6.63	0%	4.8	-	-	n/a	-	-	-	n/a	7.2	7.2	7.2	0%	-	-	-	n/a
phosphate ortho (mg/l)	0.002	0.003	0.003	22%	-	-	-	n/a	<0.005	<0.005	<0.005	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphate total inorganic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphorous particulate (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<0.004	<0.004	<0.004	n/a	<0.004	<0.004	<0.004	n/a	<0.004	0.004	0.004	n/a
phosphorous total dissolved (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<0.002	<0.002	0.003	n/a	0.003	0.004	0.003	17%	0.004	0.003	0.004	16%
phosphorous total (mg/l)	0.058	0.066	0.064	7%	0.037	0.02	0.026	31%	0.014	0.01	0.011	18%	<0.002	0.004	0.005	n/a	0.003	0.004	0.005	25%	0.006	0.007	0.008	14%
platinum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
platinum total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
potassium dissolved (mg/l)	0.45	0.46	0.45	1%	0.6	0.7	0.7	9%	0.8	0.7	0.7	8%	0.41	0.41	0.41	0%	0.44	0.44	0.45	1%	0.41	0.44	0.41	4%
potassium extractable (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<2	<2	<2	n/a	<2	<2	<2	n/a
rubidium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
rubidium total (ug/l)	0.9	0.9	0.9	0%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
saturation index (calcd) (ph units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-4.815	-	-	n/a	-	-4.235	-4.287	n/a	-	-	-	n/a
selenium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	<0.1	0.3	1.4	n/a	<0.1	0.1	<0.1	n/a
selenium total (ug/l)	<10	<10	<10	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
silica reactive (mg/l)	0.91	0.92	0.92	1%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
silica (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.09	0.09	0.09	0%	0.11	0.1	0.1	6%	0.09	0.09	0.08	7%
silver dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
silver total (ug/l)	<0.3	<0.3	<0.3	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.2	<0.1	<0.1	n/a
sodium adsorption ratio (calcd) (rel units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
sodium dissolved (mg/l)	0.66	0.68	0.67	1%	0.7	0.8	0.7	8%	0.9	0.9	0.9	0%	0.46	0.46	0.46	0%	0.44	0.52	0.53	10%	0.46	0.51	0.46	6%
sodium extractable (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<2	<2	<2	n/a	<2	<2	<2	n/a
sodium percentage (calcd) (%)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	14.072	14.942	15.62	5%	-	15.554	15.744	n/a	-	-	-	n/a
sodium total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<2	<2	<2	n/a	0.32	0.31	0.31	2%	0.2	0.19	0.2	3%
specific conductance (usie/cm)	73.6	73.7	231	72%	-	-	-	n/a	-	-	-	n/a	16.8	16.5	16.3	2%	14.7	14.7	14.7	0%	15.1	15.6	15.2	2%
stability index (calcd) (ph units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	16.069	-	-	n/a	-	15.341	15.454	n/a	-	-	-	n/a
strontium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
strontium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	6	6	6	0%	6	6	6	0%	6	6	6	0%
strontium total (ug/l)	12	10	10	11%	-	-	-	n/a	-	-	-	n/a	6.3	5.7	5.7	6%	5.5	5.6	5.4	2%	5.6	5.3	5.6	3%
sulphate dissolved (mg/l)	<3	<3	<3	n/a	<2	<2	<2	n/a	4	4	4	0%	1.6	1.6	1.8	7%	1.2	1.2	1.2	0%	2.6	2.9	2.5	8%
tds calc (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	7.35	7.87	8.37	6%	-	8.31	7.85	n/a	-	-	-	n/a

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	GNWT			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD
	8/28/2002				11/10/1992				2/4/1993				1/21/1994				9/19/1995				9/16/1996			
	Coppermine River Mouth				Coppermine River mouth				Coppermine River mouth				Lockhart River				Lockhart River				Lockhart River			
tds (mg/l)	48	44	44	5%	40	43	39	5%	25	26	30	10%	20	21	10	36%	<10	17	24	n/a	11	<10	30	n/a
temperature water (deg c)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0	-	-	n/a	3	3	3	0%	-	-	-	n/a
thallium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
thallium total (ug/l)	<0.4	<0.4	<0.4	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tin dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tin total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
titanium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
titanium total (ug/l)	<3	<3	<3	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tss fixed (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tss (mg/l)	<3	<3	<3	n/a	127	101	80	23%	11	11	9	11%	<3	<3	<3	n/a	6	4	9	40%	<3	<3	<3	n/a
tungsten dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tungsten total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
turbidity (ntu)	1.5	1.5	1.8	11%	71	37	38	40%	7.1	8.5	6.2	16%	0.6	0.2	0.2	69%	1	0.5	0.5	43%	0.5	1.1	0.3	66%
uranium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
uranium total (ug/l)	<0.3	<0.3	<0.3	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
vanadium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
vanadium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	<5	5	n/a	<5	<5	<5	n/a	<5	<5	<5	n/a
vanadium total (ug/l)	<1	<1	<1	n/a	-	-	-	n/a	-	-	-	n/a	0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a
yttrium- dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
yttrium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
zinc dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
zinc extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	19	7	<5	n/a	<5	<5	<5	n/a	<5	<5	<5	n/a
zinc total (ug/l)	<10	<10	<10	n/a	13000	13000	12000	5%	39	16	18	52%	-	4	1.2	n/a	0.4	0.2	0.3	33%	1.8	0.3	0.4	101%
# > 18% RSD				4				4				3				10				10				9
Total # Triplicate Results				45				26				22				69				80				68
% > 18% RSD				3%				3%				2%				7%				7%				6%

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD
	8/23/2000				8/25/2001				8/16/2002				5/7/2003				6/15/2004				9/21/2005			
	Lockhart River				Lockhart River				Lockhart River				Lockhart River				Lockhart River				Lockhart River			
alkalinity phenolphthalein caco3 (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
alkalinity total caco3 (mg/l)	4.2	4.2	4.2	0%	4.9	4.8	6.9	21%	-	4.9	5	n/a	6.2	6.3	6.4	2%	6.7	6.8	6.9	1%	7	7.1	7	1%
aluminum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
aluminum extractable (ug/l)	<50	<50	<50	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
aluminum total (ug/l)	3	3	14	95%	9	4	5	44%	-	-	-	n/a	3.1	3.1	3.2	2%	5.1	5.1	4.9	2%	6	6	6.1	1%
ammonia dissolved (mg/l)	<0.005	<0.005	<0.005	n/a	<0.005	<0.005	<0.005	n/a	0.024	0.007	0.026	55%	0.011	0.016	0.009	30%	0.008	0.006	0.005	24%	0.006	<0.005	<0.005	n/a
ammonia total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
ammonia un-ionized (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
antimony dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
antimony total (ug/l)	-	-	-	n/a	-	-	-	n/a	0.01	0.01	<0.01	n/a	<0.001	<0.001	<0.001	n/a	0.005	0.006	0.004	20%	0.007	0.008	0.008	8%
arsenic dissolved (ug/l)	<0.1	<0.1	<0.1	n/a	0.1	0.1	0.1	0%	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
arsenic total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.11	0.09	0.11	11%	0.09	0.11	0.09	12%	0.09	0.09	0.1	6%
barium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
barium extractable (ug/l)	<2	2	3	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
barium total (ug/l)	2.2	2.2	2.5	8%	2.3	2.2	2.4	4%	2.4	2.53	2.43	3%	2.58	2.59	2.61	1%	2.76	2.67	2.69	2%	2.45	2.44	2.46	0%
beryllium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
beryllium extractable (ug/l)	<1	<1	<1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
beryllium total (ug/l)	<0.05	<0.05	<0.05	n/a	<0.05	<0.05	<0.05	n/a	<0.002	<0.002	<0.002	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	0.001	<0.001	0.001	n/a
bicarbonate (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
bismuth dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
bismuth total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a
boron dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
boron extractable (ug/l)	<10	<10	<10	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
boron total (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.1	<0.1	<0.1	n/a	1.5	1.4	1.5	4%	0.1	<0.1	<0.1	n/a	1.3	1.4	1.5	7%
cadmium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cadmium extractable (ug/l)	<5	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cadmium total (ug/l)	<0.1	<0.1	<0.1	n/a	0.2	0.2	0.2	0%	0.005	0.013	<0.005	n/a	0.022	0.023	0.023	3%	0.005	0.011	<0.001	n/a	0.006	0.007	0.006	9%
calcium dissolved (mg/l)	1.25	1.25	1.26	0%	1.23	1.25	<0.05	n/a	1.34	1.36	-	n/a	1.24	1.25	1.27	1%	1.4	1.38	1.36	1%	1.31	1.32	1.41	4%
calcium extractable/unfiltered (mg/l)	1.2	1.1	1.2	5%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon dissolved inorganic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon dissolved organic (mg/l)	2.8	2.7	2.5	6%	2.4	2.2	2.3	4%	2.4	2.3	2.3	2%	2.7	2.4	2.6	6%	2.6	2.6	2.7	2%	2.8	2.7	2.5	6%
carbon dissolved total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon particulate organic (mg/l)	1.43	1.02	1.26	17%	0.085	0.121	0.228	51%	0.202	0.165	0.273	26%	0.146	0.106	0.114	17%	0.037	0.035	0.032	7%	0.215	0.196	0.146	19%
carbon total organic (mg/l)	4.23	3.72	3.76	7%	2.485	2.321	2.528	4%	2.602	2.465	2.573	3%	2.846	2.506	2.714	6%	2.637	2.635	2.732	2%	3.015	2.896	2.646	7%
carbonate (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cerium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cerium total (ug/l)	-	-	-	n/a	-	-	-	n/a	0.023	0.021	0.022	5%	-	-	-	n/a	0.027	0.026	0.027	2%	0.022	0.021	0.022	3%
cesium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cesium total (ug/l)	-	-	-	n/a	-	-	-	n/a	0.005	0.006	0.005	11%	0.005	0.005	0.005	0%	0.006	0.006	0.006	0%	0.006	0.006	0.006	0%
chloride dissolved (mg/l)	0.39	0.39	0.39	0%	0.33	0.33	<0.05	n/a	0.89	0.84	-	n/a	0.49	0.48	0.56	9%	0.37	0.35	0.38	4%	0.38	0.37	0.37	2%
chromium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
chromium extractable (ug/l)	<5	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD
	8/23/2000				8/25/2001				8/16/2002				5/7/2003				6/15/2004				9/21/2005			
	Lockhart River				Lockhart River				Lockhart River				Lockhart River				Lockhart River				Lockhart River			
chromium total (ug/l)	<0.2	<0.2	<0.2	n/a	1.2	0.3	0.2	97%	0.04	0.03	0.03	17%	0.042	0.032	0.029	20%	0.043	0.049	0.037	14%	0.035	0.038	0.04	7%
cobalt dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cobalt extractable (ug/l)	<5	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cobalt total (ug/l)	<0.1	<0.1	<0.1	n/a	0.3	0.3	0.3	0%	0.009	0.005	0.007	29%	0.004	0.004	0.004	0%	0.01	0.009	0.008	11%	0.01	0.008	0.008	13%
colourapparent (rel units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<5	<5	<5	n/a
colourtrue (rel units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
copper dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
copper extractable (ug/l)	<5	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
copper total (ug/l)	0.4	0.4	0.7	35%	1	1.4	0.8	29%	0.67	0.51	0.62	14%	0.59	0.59	0.59	0%	0.58	0.58	0.54	4%	0.63	0.66	0.66	3%
cyanide thiocyanate (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cyanide total (mg/l)	<0.002	<0.002	<0.002	n/a	<0.003	<0.003	<0.003	n/a	<0.003	<0.003	<0.003	n/a	<0.003	<0.003	<0.003	n/a	-	-	-	n/a	-	-	-	n/a
fluoride dissolved (mg/l)	0.04	0.03	0.03	17%	0.02	0.02	<0.01	n/a	0.02	0.02	-	n/a	0.02	0.04	0.03	33%	0.03	0.03	0.03	0%	0.03	0.03	0.03	0%
free co2 (calcd) (mg/l)	0.893	0.935	0.935	3%	1.374	1.511	224.824	170%	-	1.224	1.113	n/a	2.515	2.125	2.014	12%	1.967	1.951	1.934	1%	1.128	1.171	1.154	2%
gallium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
gallium total (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.002	<0.002	<0.002	n/a	<0.001	<0.001	<0.001	n/a	0.001	0.001	0.001	0%	0.001	<0.001	0.001	n/a
hardness non-carb (calcd) (mg/l)	1.721	1.433	1.416	11%	0.724	0.915	0	88%	-	1.254	-	n/a	0	0	0	n/a	0	0	0	n/a	0	0	0	n/a
hardness total caco3 calcd (mg/l)	5.921	5.633	5.616	3%	5.624	5.715	0.166	83%	6.104	6.154	-	n/a	5.69	5.756	5.806	1%	6.295	6.204	6.195	1%	6.276	6.343	6.485	2%
hcchlhexachlorobutadiene (ng/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
hydroxide (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
iron dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
iron extractable (ug/l)	5	<5	14	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
iron total (ug/l)	5.1	4.1	21	94%	15.5	7.9	6.3	50%	6	2	5	48%	1.3	1.3	1.4	4%	4.4	4.2	4.4	3%	4.2	4	4	3%
lanthanum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lanthanum total (ug/l)	-	-	-	n/a	-	-	-	n/a	0.022	0.023	0.023	3%	0.024	0.024	0.024	0%	0.027	0.026	0.027	2%	0.023	0.022	0.024	4%
lead dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lead extractable (ug/l)	<20	<20	<20	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lead total (ug/l)	<0.2	<0.2	0.2	n/a	<0.2	<0.2	<0.2	n/a	<0.005	0.033	<0.005	n/a	0.034	0.012	<0.005	n/a	<0.005	0.019	<0.005	n/a	0.01	0.016	0.013	23%
lithium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lithium extractable (ug/l)	<5	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lithium total (ug/l)	0.7	0.7	0.8	8%	0.9	1.1	1.1	11%	1.09	0.9	0.84	14%	1	1	1	0%	1	1	1	0%	0.9	0.8	0.9	7%
magnesium dissolved (mg/l)	0.68	0.61	0.6	7%	0.62	0.63	0.01	85%	0.67	0.67	-	n/a	0.63	0.64	0.64	1%	0.68	0.67	0.68	1%	0.73	0.74	0.72	1%
magnesium extractable (mg/l)	<1	<1	<1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
magnesium total (mg/l)	0.56	0.57	0.58	2%	0.63	0.63	0.63	0%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
manganese dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
manganese extractable (ug/l)	<2	<2	<2	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
manganese total (ug/l)	0.5	0.5	1.1	49%	0.7	0.6	0.7	9%	0.696	0.287	0.519	41%	0.33	0.33	0.33	0%	1.13	1.11	1.12	1%	0.56	0.53	0.53	3%
mercury dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
mercury total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
molybdenum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
molybdenum extractable (ug/l)	<5	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
molybdenum total (ug/l)	<0.1	<0.1	<0.1	n/a	0.6	0.4	0.3	35%	0.02	0.02	0.02	0%	<0.005	<0.005	<0.005	n/a	0.013	0.01	0.011	13%	0.007	0.005	0.005	20%
nickel dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD
	8/23/2000				8/25/2001				8/16/2002				5/7/2003				6/15/2004				9/21/2005			
	Lockhart River				Lockhart River				Lockhart River				Lockhart River				Lockhart River				Lockhart River			
nickel extractable (ug/l)	<10	<10	<10	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nickel total (ug/l)	0.4	0.4	0.5	13%	<0.2	<0.2	<0.2	n/a	0.52	0.42	0.49	11%	0.52	0.53	0.54	2%	0.52	0.5	0.54	4%	0.48	0.51	0.48	4%
niobium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
niobium total (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.002	<0.002	<0.002	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a
nitrate (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrate-nitrite dissolved (mg/l)	<0.008	<0.008	<0.008	n/a	0.017	0.015	0.016	6%	<0.008	0.013	0.01	n/a	0.008	<0.008	0.008	n/a	<0.2	<0.2	<0.2	n/a	-	-	-	n/a
nitrate-nitrite (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<0.01	0.01	0.01	n/a
nitrite (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrogen particulate (mg/l)	0.08	0.046	0.114	43%	0.011	0.016	0.036	63%	0.018	0.017	0.032	38%	0.021	0.012	0.018	27%	0.005	0.002	0.002	58%	0.02	0.016	0.004	62%
nitrogen total dissolved (mg/l)	0.177	0.17	0.128	17%	0.015	0.01	0.033	63%	0.167	0.17	0.204	11%	0.11	0.12	0.119	5%	0.12	0.1	0.1	11%	0.154	0.127	0.146	10%
nitrogen total (mg/l)	0.257	0.216	0.242	9%	0.026	0.026	0.069	62%	0.185	0.187	0.236	14%	0.131	0.132	0.137	2%	0.125	0.102	0.102	12%	0.174	0.143	0.15	10%
pH (ph units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphate ortho (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphate total inorganic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphorous particulate (calcd) (mg/l)	<0.004	<0.004	0.007	n/a	<0.004	<0.004	<0.004	n/a	0.067	0.006	0.01	123%	<0.004	<0.004	<0.004	n/a	<0.004	<0.004	<0.004	n/a	<0.004	<0.004	<0.004	n/a
phosphorous total dissolved (mg/l)	<0.004	<0.004	0.004	n/a	0.005	0.009	0.007	29%	<0.004	<0.004	0.013	n/a	0.004	<0.004	<0.004	n/a	<0.01	<0.01	<0.01	n/a	<0.01	<0.01	<0.01	n/a
phosphorous total (mg/l)	<0.004	<0.004	0.011	n/a	0.008	0.01	0.008	13%	0.069	0.008	0.023	95%	0.003	0.005	0.003	31%	<0.01	<0.01	<0.01	n/a	<0.01	<0.01	<0.01	n/a
platinum dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
platinum total (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.002	<0.002	<0.002	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	0.001	n/a
potassium dissolved (mg/l)	0.42	0.42	0.43	1%	0.41	0.43	0.04	75%	0.44	0.42	-	n/a	0.45	0.46	0.45	1%	0.51	0.51	0.49	2%	0.44	0.43	0.44	1%
potassium extractable (mg/l)	<2	<2	<2	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
rubidium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
rubidium total (ug/l)	-	-	-	n/a	-	-	-	n/a	1.1	1.09	1.06	2%	1.15	1.15	1.16	1%	1.11	1.08	1.09	1%	0.96	0.99	0.99	2%
saturation index (calcd) (ph units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
selenium dissolved (ug/l)	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
selenium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	<0.05	<0.05	<0.05	n/a	<0.05	<0.05	<0.05	n/a	<0.05	<0.05	<0.05	n/a
silica reactive (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
silica (mg/l)	0.12	0.11	0.1	9%	<0.02	0.04	<0.02	n/a	0.27	0.24	-	n/a	0.12	0.13	0.12	5%	0.14	0.14	0.14	0%	0.07	0.07	0.07	0%
silver dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
silver total (ug/l)	<0.1	<0.1	<0.1	n/a	0.7	0.8	0.8	8%	-	-	-	n/a	<0.001	<0.001	<0.001	n/a	0.011	0.014	0.013	12%	0.001	<0.001	0.002	n/a
sodium adsorption ratio (calcd) (rel units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
sodium dissolved (mg/l)	0.47	0.47	0.48	1%	0.46	0.47	0.04	76%	0.57	0.54	-	n/a	0.5	0.51	0.5	1%	0.56	0.53	0.54	3%	0.5	0.5	0.5	0%
sodium extractable (mg/l)	<2	<2	<2	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
sodium percentage (calcd) (%)	13.676	14.224	14.489	3%	14.006	14.038	28.617	45%	15.69	14.942	-	n/a	14.8	14.892	14.57	1%	14.927	14.403	14.698	2%	13.729	13.638	13.377	1%
sodium total (mg/l)	0.36	0.38	0.39	4%	0.33	0.33	0.33	0%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
specific conductance (usie/cm)	15.4	15.3	15.2	1%	15.6	15.3	15.3	1%	16.6	16.5	16.6	0%	17.7	17.3	17.7	1%	17.7	17.8	17.9	1%	17.4	17.5	17.5	0%
stability index (calcd) (ph units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
strontium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
strontium extractable (ug/l)	5	5	5	0%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
strontium total (ug/l)	5.3	5.4	5.6	3%	5.7	5.7	5.7	0%	5.67	5.74	5.39	3%	6.27	6.28	6.36	1%	6.33	6.25	6.18	1%	5.41	5.52	5.57	1%
sulphate dissolved (mg/l)	1.1	1	1.2	9%	1.5	1.6	0.8	34%	1.5	1.5	-	n/a	1.52	1.58	1.49	3%	1.37	1.39	1.37	1%	1.46	1.58	1.54	4%
tds calc (mg/l)	7.025	6.835	7.045	2%	7.605	7.716	5.231	20%	-	8.588	-	n/a	8.725	8.905	8.935	1%	9.966	9.966	10.016	0%	9.09	9.27	9.25	1%

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD
	8/23/2000				8/25/2001				8/16/2002				5/7/2003				6/15/2004				9/21/2005			
	Lockhart River				Lockhart River				Lockhart River				Lockhart River				Lockhart River				Lockhart River			
tds (mg/l)	29	32	29	6%	<10	<10	11	n/a	16	12	16	16%	14	10	22	40%	20	13	13	26%	<10	<10	<10	n/a
temperature water (deg c)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
thallium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
thallium total (ug/l)	-	-	-	n/a	-	-	-	n/a	0.002	0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	0.001	0.001	0.001	0%	0.001	0.001	0.001	0%
tin dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tin total (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.005	<0.005	<0.005	n/a	<0.005	<0.005	<0.005	n/a	<0.005	<0.005	<0.005	n/a	<0.005	<0.005	<0.005	n/a
titanium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
titanium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tss fixed (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tss (mg/l)	<3	<3	<3	n/a	<3	<3	5	n/a	8	4	6	33%	<3	<3	<3	n/a	<3	<3	3	n/a	<3	<3	<3	n/a
tungsten dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tungsten total (ug/l)	-	-	-	n/a	-	-	-	n/a	<0.002	<0.002	<0.002	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a
turbidity (ntu)	0.1	0.1	0.1	0%	0.3	0.2	0.5	46%	0.9	2.4	1.7	45%	0.6	0.3	1.2	65%	0.7	1	1.6	42%	0.32	0.65	0.47	34%
uranium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
uranium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.015	0.015	0.015	0%	0.0181	0.018	0.0175	2%	0.0162	0.0168	0.0168	2%
vanadium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
vanadium extractable (ug/l)	<5	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
vanadium total (ug/l)	<0.1	<0.1	<0.1	n/a	<0.1	<0.1	<0.1	n/a	0.03	0.02	0.02	25%	0.033	0.025	0.022	21%	0.059	0.079	0.066	15%	0.018	0.019	0.018	3%
yttrium- dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
yttrium total (ug/l)	-	-	-	n/a	-	-	-	n/a	0.01	0.009	0.01	6%	0.009	0.009	0.009	0%	0.01	0.01	0.01	0%	0.009	0.009	0.009	0%
zinc dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
zinc extractable (ug/l)	<5	<5	<5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
zinc total (ug/l)	0.2	<0.2	0.5	n/a	<0.2	<0.2	<0.2	n/a	0.65	1.02	0.5	37%	0.66	0.39	0.31	40%	0.41	0.55	0.4	18%	0.46	0.56	0.51	10%
# > 18% RSD				5				21				12				9				6				5
Total # Triplicate Results				72				51				48				63				63				64
% > 18% RSD				3%				14%				8%				6%				4%				3%

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD
	4/28/2006				7/3/2009				6/16/2010				9/14/2011				3/6/2013				9/7/2013			
	Lockhart River				Lockhart River				Lockhart River				Lockhart River				Lockhart River				Lockhart River			
alkalinity phenolphthalein caco3 (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
alkalinity total caco3 (mg/l)	6.2	6.2	6.2	0%	5.5	5.2	5.3	3%	4.7	5.5	5.3	8%	5.4	5.4	5.4	0%	5.7	5.7	3.5	26%	5.3	5.3	5.4	1%
aluminum dissolved (ug/l)	1.8	2.1	2.5	16%	4.6	4.2	4.3	5%	4.1	4.5	5.7	17%	2.9	3.1	3.7	13%	3.7	6	3.8	29%	3.2	3.5	3.9	10%
aluminum extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
aluminum total (ug/l)	3.9	2.9	3.6	15%	4.5	5	4.6	6%	5.6	5.7	4.3	15%	3.9	4.3	3.6	9%	3.9	5.4	3.6	22%	4.5	4.1	4	6%
ammonia dissolved (mg/l)	0.01	0.007	0.016	42%	<0.01	<0.01	<0.01	n/a	<0.01	<0.01	<0.01	n/a	<0.01	<0.01	<0.01	n/a	<0.005	0.03	0.042	n/a	<0.005	<0.005	<0.005	n/a
ammonia total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
ammonia un-ionized (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
antimony dissolved (ug/l)	0.029	0.027	0.037	17%	0.13	0.23	0.114	40%	0.07	0.112	0.109	24%	0.049	0.059	0.067	15%	0.052	0.063	0.064	11%	0.086	0.087	0.08	4%
antimony total (ug/l)	0.026	0.01	0.018	44%	0.003	0.004	0.004	16%	0.012	0.018	0.005	56%	0.005	0.016	0.009	56%	0.01	0.008	0.009	11%	0.009	0.025	0.017	47%
arsenic dissolved (ug/l)	0.08	0.12	0.14	27%	0.09	0.09	0.1	6%	0.11	0.11	0.1	5%	0.09	0.09	0.09	0%	0.1	0.1	0.1	0%	0.09	0.1	0.1	6%
arsenic total (ug/l)	0.09	0.09	0.09	0%	0.09	0.09	0.09	0%	0.1	0.1	0.1	0%	0.09	0.1	0.09	6%	0.1	0.1	0.11	6%	0.11	0.1	0.09	10%
barium dissolved (ug/l)	2.43	2.3	2.36	3%	2.64	2.72	2.74	2%	2.52	2.65	2.71	4%	2.41	2.45	2.48	1%	2.8	2.69	2.83	3%	2.51	2.45	2.59	3%
barium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
barium total (ug/l)	2.51	2.39	2.5	3%	2.84	2.89	2.81	1%	2.75	2.65	2.79	3%	2.39	2.55	2.63	5%	2.74	2.82	2.79	1%	2.65	2.62	2.57	2%
beryllium dissolved (ug/l)	<0.001	<0.001	<0.001	n/a	0.001	0.001	0.003	69%	0.001	0.001	0.001	0%	0.001	0.001	0.001	0%	0.001	0.001	0.002	43%	0.001	0.001	0.001	0%
beryllium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
beryllium total (ug/l)	<0.001	<0.001	<0.001	n/a	0.001	0.002	0.001	43%	0.001	0.002	0.001	43%	0.001	0.002	0.001	43%	0.002	0.001	0.001	43%	0.001	0.001	0.001	0%
bicarbonate (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
bismuth dissolved (ug/l)	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a
bismuth total (ug/l)	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
boron dissolved (ug/l)	1.2	1.3	1.3	5%	1.3	1.4	2	24%	1.5	1.1	1.8	24%	1.5	1.6	1.9	12%	1.9	1.5	1.9	13%	1.5	2.2	1.4	26%
boron extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
boron total (ug/l)	3.3	1.4	1.4	54%	1.2	1.5	1.8	20%	1.7	1.8	1.5	9%	1.6	1.9	1.7	9%	1.7	2.2	1.9	13%	1.5	2.3	1.3	31%
cadmium dissolved (ug/l)	0.071	0.024	0.048	49%	0.005	0.005	0.003	27%	0.004	0.006	0.031	110%	0.003	0.004	0.004	16%	0.014	0.003	0.006	74%	0.015	0.017	0.006	46%
cadmium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cadmium total (ug/l)	0.108	0.039	0.089	45%	0.001	0.001	0.001	0%	0.016	0.025	0.003	75%	0.003	0.008	0.006	44%	0.002	0.002	0.003	25%	0.01	0.015	0.008	33%
calcium dissolved (mg/l)	1.36	1.41	1.34	3%	1.45	1.47	1.45	1%	1.52	1.44	1.44	3%	1.51	1.48	1.49	1%	1.57	1.57	1.57	0%	1.47	1.41	1.43	2%
calcium extractable/unfiltered (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon dissolved inorganic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon dissolved organic (mg/l)	2.5	2.4	2.8	8%	2.3	2.5	2.3	5%	2.5	2.5	2.5	0%	2.3	2.6	2.4	6%	2.8	2.7	2.8	2%	2.8	2.6	2.6	4%
carbon dissolved total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbon particulate organic (mg/l)	0.114	0.163	0.123	20%	0.157	0.153	0.138	7%	0.145	0.182	0.151	12%	0.197	0.255	0.203	15%	0.144	0.15	0.177	11%	0.325	0.223	0.265	19%
carbon total organic (mg/l)	2.614	2.563	2.923	7%	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
carbonate (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cerium dissolved (ug/l)	0.018	0.017	0.017	3%	0.022	0.022	0.022	0%	0.023	0.023	0.03	16%	0.015	0.016	0.015	4%	0.017	0.017	0.019	7%	0.016	0.016	0.014	8%
cerium total (ug/l)	0.021	0.019	0.021	6%	0.025	0.026	0.025	2%	0.03	0.029	0.026	7%	0.02	0.02	0.019	3%	0.019	0.019	0.019	0%	0.025	0.027	0.029	7%
cesium dissolved (ug/l)	0.005	0.006	0.005	11%	0.005	0.006	0.005	11%	0.006	0.006	0.006	0%	0.005	0.006	0.006	10%	0.006	0.007	0.006	9%	0.005	0.006	0.006	10%
cesium total (ug/l)	0.005	0.005	0.005	0%	0.006	0.006	0.006	0%	0.007	0.006	0.006	9%	0.006	0.006	0.007	9%	0.007	0.007	0.007	0%	0.007	0.006	0.005	17%
chloride dissolved (mg/l)	0.41	0.4	0.4	1%	0.42	0.4	0.4	3%	0.43	0.44	0.43	1%	0.41	0.44	0.46	6%	0.46	0.46	0.46	0%	0.44	0.4	0.39	6%
chromium dissolved (ug/l)	0.065	0.057	0.065	7%	0.04	0.049	0.054	15%	0.04	0.04	0.07	35%	0.03	0.03	0.04	17%	0.08	0.05	0.08	25%	0.04	0.04	0.07	35%
chromium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD
	4/28/2006				7/3/2009				6/16/2010				9/14/2011				3/6/2013				9/7/2013			
	Lockhart River				Lockhart River				Lockhart River				Lockhart River				Lockhart River				Lockhart River			
chromium total (ug/l)	0.083	0.041	0.061	34%	0.034	0.028	0.029	11%	0.05	0.05	0.03	27%	0.03	0.04	0.03	17%	0.04	0.03	0.05	25%	0.03	0.03	0.04	17%
cobalt dissolved (ug/l)	0.005	0.005	0.005	0%	0.011	0.012	0.01	9%	0.007	0.011	0.012	26%	0.005	0.007	0.007	18%	0.004	0.004	0.006	25%	0.006	0.006	0.006	0%
cobalt extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cobalt total (ug/l)	0.009	0.006	0.006	25%	0.008	0.006	0.007	14%	0.009	0.009	0.008	7%	0.01	0.009	0.008	11%	0.004	0.005	0.004	13%	0.01	0.009	0.01	6%
colourapparent (rel units)	<5	<5	5	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
colourtrue (rel units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
copper dissolved (ug/l)	0.76	0.63	0.72	9%	1.29	1.38	1.22	6%	0.65	0.71	1.44	47%	0.54	0.53	0.57	4%	1.91	1.84	2.08	6%	0.61	0.63	0.55	7%
copper extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
copper total (ug/l)	0.96	0.66	0.86	18%	0.58	0.57	0.55	3%	0.92	1.33	0.54	42%	0.53	0.65	0.58	10%	0.63	0.52	0.65	12%	0.6	0.61	0.53	8%
cyanide thiocyanate (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
cyanide total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
fluoride dissolved (mg/l)	0.03	0.03	0.03	0%	0.03	0.03	0.03	0%	0.02	0.02	0.02	0%	0.02	0.02	0.02	0%	0.03	0.03	0.03	0%	0.02	0.02	0.02	0%
free co2 (calcd) (mg/l)	1.699	1.699	1.585	4%	2.231	2.159	2.252	2%	1.121	1.253	1.207	6%	0.812	0.831	0.85	2%	1.424	1.391	0.797	29%	1.153	1.101	1.148	3%
gallium dissolved (ug/l)	<0.001	<0.001	<0.001	n/a	0.001	0.001	0.001	0%	0.001	0.001	0.001	0%	<0.001	0.001	<0.001	n/a	0.001	0.001	0.001	0%	<0.001	0.001	<0.001	n/a
gallium total (ug/l)	0.001	0.001	<0.001	n/a	0.001	0.001	0.001	0%	0.001	0.001	0.001	0%	0.001	0.001	0.001	0%	0.001	0.001	0.001	0%	<0.001	0.001	<0.001	n/a
hardness non-carb (calcd) (mg/l)	0	0.203	0	173%	1.167	1.517	1.367	13%	2.101	1.06	1.26	37%	1.458	1.383	1.408	3%	-	-	-	n/a	1.458	1.061	1.094	18%
hardness total caco3 calcd (mg/l)	6.072	6.403	5.94	4%	6.667	6.717	6.667	0%	6.801	6.56	6.56	2%	6.858	6.783	6.808	1%	-	-	-	n/a	6.758	6.361	6.494	3%
hcchlhexachlorobutadiene (ng/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
hydroxide (calcd) (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
iron dissolved (ug/l)	<0.5	<0.5	<0.5	n/a	3.4	3.8	3.4	7%	2.6	2.8	4.6	33%	2.3	2.5	2.7	8%	1.3	1	1.3	14%	2	2.2	1.5	19%
iron extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
iron total (ug/l)	2.8	1.3	2	37%	5.4	5.1	5.5	4%	6.1	6.7	4.5	20%	4.4	6.1	5.2	16%	2	1.6	2	12%	6.6	7	7.1	4%
lanthanum dissolved (ug/l)	0.019	0.018	0.019	3%	0.023	0.023	0.023	0%	0.024	0.024	0.024	0%	0.016	0.017	0.017	3%	0.019	0.019	0.019	0%	0.018	0.017	0.016	6%
lanthanum total (ug/l)	0.022	0.021	0.022	3%	0.027	0.026	0.026	2%	0.028	0.028	0.026	4%	0.02	0.021	0.021	3%	0.022	0.022	0.022	0%	0.027	0.025	0.026	4%
lead dissolved (ug/l)	0.03	0.035	0.01	53%	0.014	0.015	0.01	20%	0.009	0.012	0.062	108%	<0.005	0.016	0.036	n/a	0.011	0.009	0.026	61%	0.021	0.029	0.008	55%
lead extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lead total (ug/l)	0.028	0.006	0.022	61%	<0.005	<0.005	<0.005	n/a	0.047	0.058	<0.005	n/a	<0.005	0.028	0.017	n/a	<0.005	<0.005	<0.005	n/a	0.024	0.043	0.019	44%
lithium dissolved (ug/l)	0.8	0.8	0.8	0%	1	1	1	0%	1.01	1.02	1.02	1%	0.97	1	1.06	5%	1.05	1.09	1.1	2%	1.01	0.96	0.98	3%
lithium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
lithium total (ug/l)	0.8	0.8	0.8	0%	1	1	1	0%	1.01	1.06	1.04	2%	1.03	1.01	1.03	1%	1.11	1.11	1.11	0%	0.98	0.97	0.99	1%
magnesium dissolved (mg/l)	0.65	0.7	0.63	5%	0.74	0.74	0.74	0%	0.73	0.72	0.72	1%	0.75	0.75	0.75	0%	0.79	0.78	0.78	1%	0.75	0.69	0.71	4%
magnesium extractable (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
magnesium total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
manganese dissolved (ug/l)	0.18	0.19	0.19	3%	0.7	0.65	0.62	6%	0.4	0.41	0.47	9%	0.3	0.29	0.37	14%	0.22	0.2	0.23	7%	0.24	0.28	0.26	8%
manganese extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
manganese total (ug/l)	0.35	0.31	0.34	6%	1.02	1.01	1.04	1%	0.87	0.76	0.64	15%	0.75	0.84	0.82	6%	0.36	0.31	0.41	14%	1	1.01	0.94	4%
mercury dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
mercury total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
molybdenum dissolved (ug/l)	0.005	0.006	0.006	10%	0.017	0.016	0.084	100%	0.016	0.016	0.016	0%	0.022	0.026	0.024	8%	0.017	0.016	0.017	3%	0.013	0.019	0.017	19%
molybdenum extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
molybdenum total (ug/l)	0.007	<0.005	<0.005	n/a	0.017	0.018	0.016	6%	0.016	0.016	0.015	4%	0.024	0.026	0.026	5%	0.016	0.012	0.013	15%	0.015	0.018	0.015	11%
nickel dissolved (ug/l)	0.65	0.51	0.56	12%	0.52	0.49	0.53	4%	0.52	0.53	0.61	9%	0.47	0.48	0.52	5%	0.51	0.49	0.52	3%	0.48	0.46	0.42	7%

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD
	4/28/2006				7/3/2009				6/16/2010				9/14/2011				3/6/2013				9/7/2013			
	Lockhart River				Lockhart River				Lockhart River				Lockhart River				Lockhart River				Lockhart River			
nickel extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nickel total (ug/l)	0.55	0.52	0.56	4%	0.5	0.49	0.49	1%	0.55	0.63	0.5	12%	0.46	0.47	0.46	1%	0.53	0.48	0.53	6%	0.47	0.45	0.43	4%
niobium dissolved (ug/l)	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a
niobium total (ug/l)	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a
nitrate (mg/l)	-	-	-	n/a	0.02	0.02	0.02	0%	0.04	0.04	0.05	13%	<0.01	<0.01	<0.01	n/a	0.05	0.05	0.05	0%	0.03	0.03	0.03	0%
nitrate-nitrite dissolved (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
nitrate-nitrite (mg/l)	0.01	0.02	0.02	35%	0.02	0.02	0.02	0%	0.06	0.06	0.07	9%	<0.01	<0.01	<0.01	n/a	0.07	0.06	0.06	9%	0.03	0.03	0.03	0%
nitrite (mg/l)	-	-	-	n/a	<0.01	<0.01	<0.01	n/a	0.02	0.02	0.02	0%	<0.01	<0.01	<0.01	n/a	0.02	0.01	0.01	43%	<0.01	<0.01	<0.01	n/a
nitrogen particulate (mg/l)	0.008	0.009	<0.002	n/a	0.04	0.063	0.036	31%	0.018	0.016	0.026	26%	0.019	0.031	0.019	30%	0.029	0.028	0.045	28%	0.1	0.06	0.102	27%
nitrogen total dissolved (mg/l)	0.14	0.13	0.18	18%	0.08	<0.06	0.1	n/a	0.16	0.16	0.14	8%	0.13	0.16	0.14	11%	0.25	0.21	0.28	14%	0.21	0.18	0.16	14%
nitrogen total (mg/l)	0.148	0.139	0.181	14%	0.11	0.1	0.12	9%	0.16	0.15	0.16	4%	0.16	0.22	0.16	19%	0.22	0.18	0.25	16%	0.21	0.15	0.16	19%
pH (ph units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	7.12	-	-	n/a	-	-	-	n/a	7.91	-	-	n/a
phosphate ortho (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphate total inorganic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphorous particulate (calcd) (mg/l)	<0.004	<0.004	<0.004	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
phosphorous total dissolved (mg/l)	<0.01	<0.01	0.016	n/a	<0.01	<0.01	<0.01	n/a	<0.01	<0.01	<0.01	n/a	<0.01	<0.01	<0.01	n/a	<0.002	<0.002	0.004	n/a	0.002	<0.002	0.003	n/a
phosphorous total (mg/l)	<0.01	<0.01	0.016	n/a	<0.01	<0.01	0.01	n/a	<0.01	<0.01	<0.01	n/a	<0.01	<0.01	<0.01	n/a	<0.002	<0.002	<0.002	n/a	0.016	0.006	0.002	90%
platinum dissolved (ug/l)	<0.001	<0.001	<0.001	n/a	<0.001	0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a
platinum total (ug/l)	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a
potassium dissolved (mg/l)	0.54	0.52	0.47	7%	0.48	0.48	0.46	2%	0.43	0.44	0.45	2%	0.43	0.47	0.5	8%	0.49	0.48	0.49	1%	0.5	0.42	0.44	9%
potassium extractable (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
rubidium dissolved (ug/l)	1.08	1.05	1.06	1%	1.03	1.03	1.02	1%	1.1	1.1	1.12	1%	1.07	1.08	1.07	1%	1.13	1.11	1.15	2%	1.03	1.04	1.03	1%
rubidium total (ug/l)	1.08	1.06	1.09	1%	1.05	1.06	1.05	1%	1.14	1.14	1.12	1%	1.09	1.09	1.09	0%	1.15	1.14	1.12	1%	1.09	1.05	1.08	2%
saturation index (calcd) (ph units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-3.739	-3.298	-3.305	-7%	-	-	-	n/a	-3.979	-	-	n/a
selenium dissolved (ug/l)	<0.05	<0.05	<0.05	n/a	<0.05	<0.05	<0.05	n/a	0.01	0.01	0.01	0%	0.01	0.01	0.01	0%	0.05	0.02	0.05	43%	0.01	0.01	0.01	0%
selenium total (ug/l)	<0.05	<0.05	<0.05	n/a	<0.05	<0.05	<0.05	n/a	0.02	0.02	0.02	0%	0.01	0.01	0.01	0%	0.07	0.04	0.04	35%	0.02	0.01	0.01	43%
silica reactive (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
silica (mg/l)	0.05	0.06	0.07	17%	0.16	0.16	0.16	0%	0.1	0.09	0.09	6%	0.13	0.12	0.12	5%	0.14	0.13	0.14	4%	0.1	0.1	0.09	6%
silver dissolved (ug/l)	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a
silver total (ug/l)	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	0.001	<0.001	n/a	<0.001	<0.001	0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a
sodium adsorption ratio (calcd) (rel units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	0.09	0.1	0.11	10%	0.1	0.09	0.09	6%	0.1	0.1	0.09	6%
sodium dissolved (mg/l)	0.61	0.57	0.54	6%	0.53	0.53	0.53	0%	0.55	0.59	0.56	4%	0.52	0.63	0.64	11%	0.59	0.58	0.58	1%	0.57	0.56	0.53	4%
sodium extractable (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
sodium percentage (calcd) (%)	16.412	14.934	15.234	5%	13.678	13.597	13.72	0%	14.006	15.277	14.591	4%	13.254	15.663	15.758	10%	-	-	-	n/a	14.363	15.017	14.052	3%
sodium total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
specific conductance (usie/cm)	17.2	17.2	17.3	0%	18.2	18.3	18.2	0%	17.2	17.1	16.8	1%	18.7	18.8	18.7	0%	18.9	19	18.2	2%	18.3	18	18	1%
stability index (calcd) (ph units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	14.588	13.695	13.699	4%	-	-	-	n/a	14.908	-	-	n/a
strontium dissolved (ug/l)	6.08	5.89	5.94	2%	6.37	6.3	6.41	1%	6.42	6.61	6.53	1%	6.38	6.37	6.52	1%	6.96	6.77	6.96	2%	6.24	6.29	6.28	0%
strontium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
strontium total (ug/l)	6.08	5.86	6.03	2%	6.28	6.69	6.59	3%	6.73	6.62	6.62	1%	6.25	6.3	6.64	3%	7.11	6.8	7.04	2%	6.2	6.31	6.28	1%
sulphate dissolved (mg/l)	1.58	1.58	1.56	1%	1.51	1.5	1.5	0%	1.58	1.6	1.59	1%	1.65	1.65	1.64	0%	1.77	1.76	1.76	0%	1.6	1.48	1.51	4%
tds calc (mg/l)	8.92	8.96	8.73	1%	8.59	8.4	8.42	1%	8.16	8.62	8.46	3%	8.64	8.78	8.84	1%	-	-	-	n/a	8.61	8.24	8.34	2%

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD	EC			RSD
	4/28/2006				7/3/2009				6/16/2010				9/14/2011				3/6/2013				9/7/2013			
	Lockhart River				Lockhart River				Lockhart River				Lockhart River				Lockhart River				Lockhart River			
tds (mg/l)	<10	<10	<10	n/a	<10	<10	<10	n/a	10	<10	10	n/a	16	10	20	33%	10	12	16	24%	14	10	14	18%
temperature water (deg c)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	9.8	-	-	n/a	0.5	-	-	n/a	8	-	-	n/a
thallium dissolved (ug/l)	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	0.001	n/a	0.001	<0.001	0.001	n/a	0.001	0.001	0.003	69%	0.001	0.001	0.001	0%	0.001	<0.001	0.001	n/a
thallium total (ug/l)	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	0.001	<0.001	<0.001	n/a	<0.001	<0.001	0.004	n/a	0.001	0.001	0.001	0%	0.001	0.001	0.001	0%
tin dissolved (ug/l)	0.017	0.068	<0.005	n/a	<0.005	<0.005	<0.005	n/a	0.005	0.008	0.026	87%	<0.005	<0.005	<0.005	n/a	<0.005	<0.005	0.006	n/a	<0.005	<0.005	<0.005	n/a
tin total (ug/l)	<0.005	<0.005	<0.005	n/a	<0.005	<0.005	<0.005	n/a	0.012	0.032	0.014	57%	<0.005	<0.005	<0.005	n/a	<0.005	<0.005	<0.005	n/a	0.006	<0.005	<0.005	n/a
titanium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
titanium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tss fixed (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
tss (mg/l)	<3	<3	<3	n/a	<3	<3	<3	n/a	<3	<3	<3	n/a	<3	<3	<3	n/a	<3	<3	<3	n/a	4	<3	4	n/a
tungsten dissolved (ug/l)	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	0.001	n/a	0.001	0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	<0.001	0.002	<0.001	n/a
tungsten total (ug/l)	<0.001	<0.001	<0.001	n/a	<0.001	<0.001	<0.001	n/a	0.001	<0.001	<0.001	n/a	<0.001	0.001	0.001	n/a	0.001	0.001	<0.001	n/a	0.001	0.003	<0.001	n/a
turbidity (ntu)	0.4	0.4	0.7	35%	<0.05	<0.05	<0.05	n/a	0.23	0.22	0.39	34%	0.21	0.25	0.19	14%	0.13	0.11	0.16	19%	0.26	0.24	0.2	13%
uranium dissolved (ug/l)	0.0118	0.0124	0.0121	2%	0.0176	0.0172	0.0171	2%	0.0154	0.0162	0.0161	3%	0.0392	0.0389	0.0423	5%	0.0147	0.0153	0.0148	2%	0.0159	0.0157	0.0154	2%
uranium total (ug/l)	0.0134	0.0126	0.0141	6%	0.0172	0.0184	0.0177	3%	0.0159	0.0158	0.0163	2%	0.0402	0.0417	0.0412	2%	0.014	0.0154	0.0158	6%	0.0171	0.0168	0.0188	6%
vanadium dissolved (ug/l)	<0.005	0.005	0.02	n/a	0.027	0.017	0.027	24%	0.027	0.03	0.023	13%	0.024	0.024	0.024	0%	0.05	0.011	0.039	60%	0.073	0.078	0.056	17%
vanadium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
vanadium total (ug/l)	<0.005	<0.005	<0.005	n/a	0.036	0.033	0.034	4%	0.028	0.025	0.023	10%	0.029	0.019	0.019	26%	0.033	0.018	0.032	30%	0.02	0.032	0.027	23%
yttrium- dissolved (ug/l)	0.007	0.007	0.007	0%	0.009	0.009	0.009	0%	0.008	0.008	0.011	19%	0.008	0.007	0.007	8%	0.008	0.007	0.008	8%	0.006	0.007	0.007	9%
yttrium total (ug/l)	0.008	0.008	0.008	0%	0.009	0.01	0.009	6%	0.009	0.009	0.009	0%	0.009	0.008	0.009	7%	0.008	0.008	0.008	0%	0.01	0.009	0.012	15%
zinc dissolved (ug/l)	1.65	0.92	1.16	30%	0.79	0.78	0.62	13%	0.5	0.6	1.6	68%	1.7	3.7	7.4	68%	0.6	0.8	1.1	30%	0.9	1.1	0.3	54%
zinc extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a
zinc total (ug/l)	1.72	0.75	1.38	38%	0.31	0.28	0.26	9%	1	1.3	0.4	51%	2.1	9.2	4.7	67%	0.4	0.4	0.4	0%	1.2	1	0.5	40%
# > 18% RSD				18				10				22				11				21				20
Total # Triplicate Results				98				97				96				99				93				97
% > 18% RSD				12%				7%				15%				7%				14%				13%

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	> 18% RSD
	6/16/2014				8/28/1991				3/4/1993				
	Lockhart River				Lockhart River				Lockhart River				
alkalinity phenolphthalein caco3 (mg/l)	-	-	-	n/a	0	0	0	n/a	0	0	0	n/a	-
alkalinity total caco3 (mg/l)	6.4	6	6.2	3%	5.1	4.4	4.4	9%	4.5	4.6	4.4	2%	11%
aluminum dissolved (ug/l)	3.7	4.2	4.2	7%	-	-	-	n/a	-	-	-	n/a	5%
aluminum extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
aluminum total (ug/l)	4.7	4.5	4.9	4%	-	-	-	n/a	-	-	-	n/a	18%
ammonia dissolved (mg/l)	<0.005	<0.005	<0.005	n/a	-	-	-	n/a	-	-	-	n/a	14%
ammonia total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	7%
ammonia un-ionized (calcd) (mg/l)	-	-	-	n/a	0	0	0	n/a	0	0	0	n/a	-
antimony dissolved (ug/l)	0.03	0.027	0.053	39%	-	-	-	n/a	-	-	-	n/a	7%
antimony total (ug/l)	0.004	0.007	0.004	35%	-	-	-	n/a	-	-	-	n/a	18%
arsenic dissolved (ug/l)	0.09	0.09	0.08	7%	0.1	0.2	0.2	35%	0.1	0.1	0.1	0%	5%
arsenic total (ug/l)	0.09	0.09	0.09	0%	-	-	-	n/a	-	-	-	n/a	-
barium dissolved (ug/l)	2.87	2.97	2.84	2%	-	-	-	n/a	-	-	-	n/a	-
barium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	7%
barium total (ug/l)	3.08	3.01	2.9	3%	<80	<80	<80	n/a	<80	<80	<80	n/a	2%
beryllium dissolved (ug/l)	0.001	0.001	0.001	0%	-	-	-	n/a	-	-	-	n/a	11%
beryllium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
beryllium total (ug/l)	0.003	<0.001	0.001	n/a	-	-	-	n/a	-	-	-	n/a	11%
bicarbonate (calcd) (mg/l)	-	-	-	n/a	6.2	5.4	5.4	8%	5.5	5.6	5.4	2%	2%
bismuth dissolved (ug/l)	<0.001	<0.001	<0.001	n/a	-	-	-	n/a	-	-	-	n/a	-
bismuth total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	5%
boron dissolved (ug/l)	1.5	1.5	1.4	4%	-	-	-	n/a	-	-	-	n/a	5%
boron extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	2%
boron total (ug/l)	1.5	1.5	1.5	0%	-	-	-	n/a	-	-	-	n/a	7%
cadmium dissolved (ug/l)	0.002	0.004	0.003	33%	-	-	-	n/a	-	-	-	n/a	18%
cadmium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
cadmium total (ug/l)	0.002	0.001	0.001	43%	<0.1	<0.1	<0.1	n/a	0.1	0.1	0.1	0%	23%
calcium dissolved (mg/l)	1.69	1.69	1.68	0%	1.3	1.3	1.2	5%	1.2	1.2	1.2	0%	-
calcium extractable/unfiltered (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
carbon dissolved inorganic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	2%
carbon dissolved organic (mg/l)	2.8	2.8	2.9	2%	2	1.89	2.01	3%	1.96	1.96	2	1%	9%
carbon dissolved total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
carbon particulate organic (mg/l)	0.181	0.193	0.274	23%	0.344	0.254	0.32	15%	0.067	0.054	0.067	12%	26%
carbon total organic (mg/l)	-	-	-	n/a	2.34	2.14	2.33	5%	2.03	2.01	2.07	2%	4%
carbonate (calcd) (mg/l)	-	-	-	n/a	0	0	0	n/a	0	0	0	n/a	-
cerium dissolved (ug/l)	0.024	0.025	0.024	2%	-	-	-	n/a	-	-	-	n/a	-
cerium total (ug/l)	0.031	0.03	0.029	3%	-	-	-	n/a	-	-	-	n/a	2%
cesium dissolved (ug/l)	0.004	0.005	0.004	13%	-	-	-	n/a	-	-	-	n/a	4%
cesium total (ug/l)	0.006	0.006	0.005	10%	-	-	-	n/a	-	-	-	n/a	4%
chloride dissolved (mg/l)	0.44	0.45	0.45	1%	0.7	0.7	0.7	0%	0.4	0.5	0.5	12%	9%
chromium dissolved (ug/l)	0.05	0.06	0.07	17%	-	-	-	n/a	-	-	-	n/a	11%
chromium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	> 18% RSD
	6/16/2014				8/28/1991				3/4/1993				
	Lockhart River				Lockhart River				Lockhart River				
chromium total (ug/l)	0.05	0.04	0.03	25%	-	-	-	n/a	-	-	-	n/a	21%
cobalt dissolved (ug/l)	0.008	0.006	0.006	17%	-	-	-	n/a	-	-	-	n/a	5%
cobalt extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
cobalt total (ug/l)	0.009	0.01	0.008	11%	1.3	<0.5	0.8	n/a	<0.5	<0.5	<0.5	n/a	12%
colourapparent (rel units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
colourtrue (rel units)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
copper dissolved (ug/l)	0.94	0.88	2.48	63%	-	-	-	n/a	-	-	-	n/a	5%
copper extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
copper total (ug/l)	0.6	0.54	0.51	8%	0.9	0.5	0.9	30%	0.6	0.6	0.6	0%	30%
cyanide thiocyanate (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
cyanide total (mg/l)	-	-	-	n/a	0.001	<0.001	0.001	n/a	0.002	0.002	0.004	43%	2%
fluoride dissolved (mg/l)	0.02	0.02	0.02	0%	0.03	0.02	0.02	25%	0.02	0.02	0.01	35%	14%
free co2 (calcd) (mg/l)	1.562	1.465	1.513	3%	0.3	0.31	0.31	2%	0.91	1.59	1.45	27%	12%
gallium dissolved (ug/l)	0.001	0.001	0.001	0%	-	-	-	n/a	-	-	-	n/a	4%
gallium total (ug/l)	0.001	0.001	0.001	0%	-	-	-	n/a	-	-	-	n/a	5%
hardness non-carb (calcd) (mg/l)	1.319	1.719	1.494	13%	0.7	1.3	1	30%	0.8	0.7	0.9	13%	28%
hardness total caco3 calcd (mg/l)	7.719	7.719	7.694	0%	5.8	5.7	5.4	4%	5.3	5.3	5.3	0%	4%
hcchlhexachlorobutadiene (ng/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
hydroxide (calcd) (mg/l)	-	-	-	n/a	0	0	0	n/a	0	0	0	n/a	-
iron dissolved (ug/l)	4.1	4.1	3.7	6%	-	-	-	n/a	-	-	-	n/a	4%
iron extractable (ug/l)	-	-	-	n/a	12	13	9	18%	<7	7	11	n/a	12%
iron total (ug/l)	7.8	8	8.4	4%	-	-	-	n/a	-	-	-	n/a	21%
lanthanum dissolved (ug/l)	0.024	0.025	0.022	6%	-	-	-	n/a	-	-	-	n/a	-
lanthanum total (ug/l)	0.027	0.03	0.027	6%	-	-	-	n/a	-	-	-	n/a	2%
lead dissolved (ug/l)	0.007	0.007	0.064	127%	-	-	-	n/a	-	-	-	n/a	14%
lead extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	2%
lead total (ug/l)	<0.005	<0.005	<0.005	n/a	1.1	<0.7	<0.7	n/a	0.7	<0.7	<0.7	n/a	21%
lithium dissolved (ug/l)	0.94	0.96	0.93	2%	-	-	-	n/a	-	-	-	n/a	-
lithium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
lithium total (ug/l)	0.97	0.97	0.95	1%	-	-	-	n/a	-	-	-	n/a	5%
magnesium dissolved (mg/l)	0.85	0.85	0.85	0%	0.61	0.6	0.58	3%	0.56	0.56	0.56	0%	5%
magnesium extractable (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
magnesium total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
manganese dissolved (ug/l)	0.8	0.78	0.7	7%	-	-	-	n/a	-	-	-	n/a	2%
manganese extractable (ug/l)	-	-	-	n/a	<2	<2	<2	n/a	4	2	4	35%	4%
manganese total (ug/l)	1.29	1.28	1.23	3%	-	-	-	n/a	-	-	-	n/a	11%
mercury dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
mercury total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
molybdenum dissolved (ug/l)	0.017	0.016	0.014	10%	-	-	-	n/a	-	-	-	n/a	5%
molybdenum extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
molybdenum total (ug/l)	0.018	0.019	0.016	9%	-	-	-	n/a	-	-	-	n/a	11%
nickel dissolved (ug/l)	0.48	0.48	0.45	4%	-	-	-	n/a	-	-	-	n/a	2%

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	> 18% RSD
	6/16/2014				8/28/1991				3/4/1993				
	Lockhart River				Lockhart River				Lockhart River				
nickel extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
nickel total (ug/l)	0.47	0.48	0.45	3%	31.9	3.8	22.5	74%	<0.5	0.5	0.5	n/a	14%
niobium dissolved (ug/l)	<0.001	<0.001	<0.001	n/a	-	-	-	n/a	-	-	-	n/a	4%
niobium total (ug/l)	<0.001	<0.001	<0.001	n/a	-	-	-	n/a	-	-	-	n/a	5%
nitrate (mg/l)	0.02	0.01	0.01	43%	-	-	-	n/a	-	-	-	n/a	4%
nitrate-nitrite dissolved (mg/l)	-	-	-	n/a	0.01	0.01	0.01	0%	0.022	0.022	0.022	0%	7%
nitrate-nitrite (mg/l)	0.02	0.01	0.01	43%	-	-	-	n/a	-	-	-	n/a	9%
nitrite (mg/l)	<0.01	<0.01	<0.01	n/a	-	-	-	n/a	-	-	-	n/a	4%
nitrogen particulate (mg/l)	0.064	0.056	0.126	47%	0.032	0.026	0.028	11%	<0.01	<0.01	<0.01	n/a	39%
nitrogen total dissolved (mg/l)	0.19	0.16	0.19	10%	0.06	0.06	0.06	0%	0.085	0.085	0.09	3%	9%
nitrogen total (mg/l)	0.15	0.16	0.18	9%	0.09	0.09	0.09	0%	0.1	0.1	0.1	0%	12%
pH (ph units)	8.25	-	-	n/a	7.52	7.44	7.44	1%	-	-	-	n/a	-
phosphate ortho (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	11%
phosphate total inorganic (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
phosphorous particulate (calcd) (mg/l)	-	-	-	n/a	0.004	<0.004	<0.004	n/a	<0.004	<0.004	<0.004	n/a	5%
phosphorous total dissolved (mg/l)	<0.002	<0.002	<0.002	n/a	0.003	0.003	0.003	0%	<0.002	0.002	0.004	n/a	11%
phosphorous total (mg/l)	<0.002	<0.002	<0.002	n/a	0.007	0.006	0.006	9%	<0.002	0.003	0.004	n/a	32%
platinum dissolved (ug/l)	0.001	<0.001	<0.001	n/a	-	-	-	n/a	-	-	-	n/a	-
platinum total (ug/l)	<0.001	<0.001	<0.001	n/a	-	-	-	n/a	-	-	-	n/a	-
potassium dissolved (mg/l)	0.46	0.46	0.47	1%	0.39	0.4	0.39	1%	0.43	0.44	0.43	1%	4%
potassium extractable (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
rubidium dissolved (ug/l)	1.05	1.05	1.03	1%	-	-	-	n/a	-	-	-	n/a	2%
rubidium total (ug/l)	1.08	1.11	1.04	3%	-	-	-	n/a	-	-	-	n/a	2%
saturation index (calcd) (ph units)	-3.756	-	-3.384	n/a	-2.958	-3.1	-3.135	-3%	-3.585	-3.803	-3.802	-3%	-
selenium dissolved (ug/l)	0.01	0.01	0.01	0%	0.1	0.1	0.1	0%	<0.1	<0.1	0.1	n/a	2%
selenium total (ug/l)	0.01	0.01	0.01	0%	-	-	-	n/a	-	-	-	n/a	4%
silica reactive (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
silica (mg/l)	0.18	0.18	0.19	3%	0.13	0.12	0.11	8%	0.13	0.19	0.14	21%	2%
silver dissolved (ug/l)	<0.001	<0.001	<0.001	n/a	-	-	-	n/a	-	-	-	n/a	5%
silver total (ug/l)	<0.001	<0.001	<0.001	n/a	-	-	-	n/a	-	-	-	n/a	7%
sodium adsorption ratio (calcd) (rel units)	0.08	0.08	0.08	0%	-	-	-	n/a	-	-	-	n/a	-
sodium dissolved (mg/l)	0.51	0.52	0.51	1%	0.5	0.48	0.46	4%	0.48	0.5	0.48	2%	4%
sodium extractable (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
sodium percentage (calcd) (%)	11.788	11.991	11.803	1%	14.8	14.4	14.5	1%	15.2	15.7	15.2	2%	4%
sodium total (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	4%
specific conductance (usie/cm)	19.4	19.1	19	1%	10	10	10	0%	15.5	15.9	15.9	1%	4%
stability index (calcd) (ph units)	14.412	-	13.669	n/a	13.44	13.64	13.71	1%	14.15	14.36	14.37	1%	2%
strontium dissolved (ug/l)	6.93	6.97	6.42	5%	-	-	-	n/a	-	-	-	n/a	-
strontium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	2%
strontium total (ug/l)	7.03	7.13	6.82	2%	-	-	-	n/a	-	-	-	n/a	-
sulphate dissolved (mg/l)	1.63	1.63	1.63	0%	1.4	0.9	1.3	22%	1.3	<0.2	<0.2	n/a	7%
tds calc (mg/l)	9.6	9.38	9.5	1%	8	7	7	8%	7	6	6	9%	4%

Table A-2-2: Field triplicate results with associated relative percent differences (RPDs)

RSD greater than 18%

Parameter	EC			RSD	EC			RSD	EC			RSD	> 18% RSD
	6/16/2014				8/28/1991				3/4/1993				
	Lockhart River				Lockhart River				Lockhart River				
tds (mg/l)	10	<10	10	n/a	-	-	-	n/a	-	-	-	n/a	21%
temperature water (deg c)	12	-	-	n/a	8	8	8	0%	-	-	-	n/a	-
thallium dissolved (ug/l)	<0.001	<0.001	<0.001	n/a	-	-	-	n/a	-	-	-	n/a	9%
thallium total (ug/l)	<0.001	0.001	<0.001	n/a	-	-	-	n/a	-	-	-	n/a	4%
tin dissolved (ug/l)	<0.005	<0.005	<0.005	n/a	-	-	-	n/a	-	-	-	n/a	2%
tin total (ug/l)	<0.005	<0.005	<0.005	n/a	-	-	-	n/a	-	-	-	n/a	7%
titanium dissolved (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
titanium total (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	5%
tss fixed (mg/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
tss (mg/l)	<3	<3	<3	n/a	1.2	<1	1.2	n/a	<1	<1	<1	n/a	14%
tungsten dissolved (ug/l)	<0.001	<0.001	<0.001	n/a	-	-	-	n/a	-	-	-	n/a	5%
tungsten total (ug/l)	<0.001	<0.001	<0.001	n/a	-	-	-	n/a	-	-	-	n/a	4%
turbidity (ntu)	0.23	0.22	0.24	4%	0.56	0.43	0.48	13%	0.65	0.16	0.19	82%	49%
uranium dissolved (ug/l)	0.0151	0.016	0.0163	4%	-	-	-	n/a	-	-	-	n/a	-
uranium total (ug/l)	0.0179	0.0188	0.0191	3%	-	-	-	n/a	-	-	-	n/a	2%
vanadium dissolved (ug/l)	0.019	0.018	0.02	5%	-	-	-	n/a	-	-	-	n/a	5%
vanadium extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
vanadium total (ug/l)	0.021	0.031	0.019	27%	<0.5	<0.5	<0.5	n/a	<0.5	<0.5	<0.5	n/a	18%
yttrium- dissolved (ug/l)	0.009	0.009	0.009	0%	-	-	-	n/a	-	-	-	n/a	2%
yttrium total (ug/l)	0.01	0.01	0.009	6%	-	-	-	n/a	-	-	-	n/a	-
zinc dissolved (ug/l)	0.6	0.6	1.1	38%	-	-	-	n/a	-	-	-	n/a	18%
zinc extractable (ug/l)	-	-	-	n/a	-	-	-	n/a	-	-	-	n/a	-
zinc total (ug/l)	0.3	0.3	0.3	0%	0.6	0.3	0.4	35%	0.8	0.9	0.8	7%	42%
# > 18% RSD				13				8				6	529
Total # Triplicate Results				99				49				47	3520
% > 18% RSD				9%				5%				4%	15%

Table A-2-5: Total:dissolved metal ratios (total concentration / dissolved concentration)

Ratio > 1.2																	
Ratio > 1.5																	
Site Name	Owner	Date	Depth	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Cerium	Cesium	Chromium	Cobalt	Copper	Gallium
Coppermine Watershed																	
Lac de Gras	GNWT	6/9/2005	Surface	0.881	0.333	n/a	1.063	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.900	n/a
Lac de Gras	GNWT	7/27/2005	Surface	0.730	n/a	n/a	0.824	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Lac de Gras	GNWT	7/27/2005	Surface	0.155	n/a	n/a	0.292	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.280	n/a
Lac de Gras	GNWT	1/31/2006	Surface	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lac de Gras	GNWT	1/31/2006	Surface	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lac de Gras	GNWT	3/22/2006	Surface	n/a	n/a	n/a	0.682	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.096	n/a
Lac de Gras	GNWT	7/4/2006	Surface	1.016	1.000	n/a	0.986	n/a	n/a	n/a	n/a	n/a	n/a	1.145	n/a	1.120	n/a
Lac de Gras	GNWT	7/4/2006	Surface	n/a	0.500	n/a	0.745	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.900	n/a
Lac de Gras	GNWT	9/19/2006	Surface	0.686	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.111	n/a
Lac de Gras	GNWT	9/19/2006	Surface	0.696	2.000	n/a	0.941	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a	1.000	n/a
Lac de Gras	GNWT	7/4/2007	Surface	0.854	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.167	n/a
Lac de Gras	GNWT	7/4/2007	Surface	0.821	n/a	n/a	1.133	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.875	n/a
Lac de Gras	GNWT	9/20/2007	Surface	0.765	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Lac de Gras	GNWT	9/20/2007	Surface	0.549	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.833	n/a
Lac de Gras	GNWT	9/20/2007	Surface	0.674	n/a	n/a	0.933	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Lac de Gras	GNWT	3/31/2008	Surface	1.032	n/a	1.000	1.300	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.333	n/a
Lac de Gras	GNWT	3/31/2008	Surface	0.788	n/a	1.000	1.222	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.286	n/a
Lac de Gras	GNWT	6/13/2008	Surface	1.254	n/a	n/a	0.704	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.143	n/a
Lac de Gras	GNWT	6/13/2008	Surface	0.964	n/a	n/a	0.531	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Lac de Gras	GNWT	7/28/2008	Surface	0.353	n/a	0.667	0.485	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.833	n/a
Lac de Gras	GNWT	7/28/2008	Surface	2.000	n/a	1.333	3.238	n/a	n/a	n/a	1.286	n/a	n/a	n/a	n/a	1.400	n/a
Lac de Gras	GNWT	8/5/2009	Surface	0.660	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Lac de Gras	GNWT	7/6/2010	Bottom	0.633	n/a	n/a	0.789	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Lac de Gras	GNWT	7/6/2010	Surface	1.091	n/a	n/a	0.833	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Destaffany Lake	GNWT	7/27/2005	Surface	0.738	n/a	n/a	0.867	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.692	n/a
Destaffany Lake	GNWT	3/22/2006	Surface	n/a	n/a	n/a	0.773	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.109	n/a
Destaffany Lake	GNWT	3/22/2006	Surface	n/a	n/a	n/a	0.857	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.500	n/a
Destaffany Lake	GNWT	7/4/2006	Surface	0.758	0.857	1.500	0.851	n/a	n/a	n/a	n/a	n/a	n/a	1.181	n/a	0.800	n/a
Destaffany Lake	GNWT	9/19/2006	Surface	0.722	n/a	n/a	0.938	n/a	n/a	n/a	n/a	n/a	n/a	0.667	n/a	1.111	n/a
Destaffany Lake	GNWT	7/4/2007	Surface	0.637	n/a	n/a	0.941	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.125	n/a
Destaffany Lake	GNWT	8/17/2007	Surface	0.598	n/a	0.667	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.333	n/a
Destaffany Lake	GNWT	9/13/2007	Surface	0.946	n/a	n/a	0.684	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.167	n/a
Destaffany Lake	GNWT	3/31/2008	Surface	0.831	n/a	1.000	0.821	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.250	n/a
Destaffany Lake	GNWT	7/7/2008	Surface	0.448	n/a	1.000	1.238	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.167	n/a
Destaffany Lake	GNWT	8/5/2009	Surface	0.750	n/a	1.000	0.941	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Destaffany Lake	GNWT	8/5/2009	Surface	0.794	n/a	1.000	0.941	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.167	n/a
Destaffany Lake	GNWT	7/6/2010	Bottom	0.654	n/a	1.000	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Destaffany Lake	GNWT	7/6/2010	Surface	0.663	n/a	n/a	0.941	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Daring Lake	GNWT	7/27/2005	Surface	0.750	n/a	n/a	0.625	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.714	n/a
Daring Lake	GNWT	3/22/2006	Surface	n/a	n/a	n/a	0.938	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.500	n/a
Daring Lake	GNWT	7/26/2006	Surface	0.631	0.333	n/a	0.714	n/a	n/a	n/a	n/a	n/a	n/a	0.472	n/a	1.000	n/a
Daring Lake	GNWT	9/19/2006	Surface	1.096	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Daring Lake	GNWT	7/6/2007	Surface	0.977	n/a	n/a	1.077	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	11.250	n/a
Daring Lake	GNWT	8/17/2007	Surface	0.553	n/a	n/a	0.917	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a

Table A-2-5: Total:dissolved metal ratios (total concentration / dissolved concentration)

[illegible]

Table A-2-5: Total:dissolved metal ratios (total concentration / dissolved concentration)

Ratio > 1.2																	
Ratio > 1.5																	
Site Name	Owner	Date	Depth	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Cerium	Cesium	Chromium	Cobalt	Copper	Gallium
Point Lake	GNWT	7/6/2010	Surface	0.809	n/a	n/a	0.895	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Rocknest Lake	GNWT	9/19/2006	Surface	0.706	n/a	1.000	0.933	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a	1.333	n/a
Rocknest Lake	GNWT	7/6/2007	Surface	1.372	n/a	1.000	1.077	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	20.714	n/a
Rocknest Lake	GNWT	7/6/2007	Surface	0.901	n/a	1.000	0.974	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.143	n/a
Rocknest Lake	GNWT	8/17/2007	Surface	0.696	n/a	0.667	0.885	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.286	n/a
Rocknest Lake	GNWT	9/13/2007	Surface	0.862	n/a	n/a	0.912	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Rocknest Lake	GNWT	3/31/2008	Surface	0.993	n/a	1.000	1.033	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.182	n/a
Rocknest Lake	GNWT	7/7/2008	Surface	0.798	n/a	1.000	1.063	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.333	n/a
Rocknest Lake	GNWT	7/7/2008	Surface	0.743	n/a	1.000	1.313	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.333	n/a
Rocknest Lake	GNWT	8/5/2009	Surface	0.840	n/a	1.000	0.973	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.143	n/a
Rocknest Lake	GNWT	7/6/2010	Bottom	0.627	n/a	n/a	0.800	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Rocknest Lake	GNWT	7/6/2010	Surface	0.658	n/a	n/a	0.893	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.875	n/a
Fairy Lake	GNWT	7/27/2005	-	0.609	n/a	n/a	0.938	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.750	n/a
Fairy Lake	GNWT	3/22/2006	-	n/a	n/a	n/a	0.990	n/a	n/a	n/a	n/a	n/a	n/a	0.050	n/a	0.300	n/a
Fairy Lake	GNWT	7/26/2006	-	n/a	n/a	1.000	0.943	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a	1.000	n/a
Fairy Lake	GNWT	7/26/2006	Surface	0.821	n/a	n/a	1.033	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Fairy Lake	GNWT	9/19/2006	Surface	0.579	n/a	n/a	0.941	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Fairy Lake	GNWT	7/6/2007	Surface	3.333	n/a	n/a	0.989	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	12.400	n/a
Fairy Lake	GNWT	8/17/2007	Surface	0.600	n/a	n/a	1.090	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.250	n/a
Fairy Lake	GNWT	9/13/2007	Surface	0.750	n/a	n/a	1.041	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.250	n/a
Fairy Lake	GNWT	9/13/2007	Surface	0.513	n/a	n/a	1.031	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.250	n/a
Fairy Lake	GNWT	7/7/2008	Surface	n/a	n/a	n/a	0.991	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.250	n/a
Fairy Lake	GNWT	8/5/2009	Surface	0.875	n/a	n/a	0.950	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.250	n/a
Coppermine River-Fairy Lake River	GNWT	7/27/2005	-	0.680	n/a	n/a	0.977	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.143	n/a
Coppermine River-Fairy Lake River	GNWT	3/22/2006	-	n/a	n/a	n/a	0.988	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.333	n/a
Coppermine River Above Copper Creek	EC	6/13/2000	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	8/28/2000	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	8/28/2000	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	8/28/2000	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	5/2/2001	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	8/30/2001	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	8/30/2001	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	8/30/2001	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	5/17/2006	-	0.135	0.604	0.826	0.923	0.125	0.667	1.167	0.277	0.374	n/a	0.220	0.302	0.719	0.115
Coppermine River Above Copper Creek	EC	6/4/2006	-	0.123	2.704	0.917	0.938	0.500	0.500	1.000	0.667	0.311	n/a	0.568	0.340	1.011	0.105
Coppermine River Above Copper Creek	EC	6/4/2006	-	0.197	1.885	0.880	0.861	0.600	1.000	0.887	0.625	0.436	n/a	0.616	0.412	0.921	0.208
Coppermine River Above Copper Creek	EC	6/4/2006	-	0.171	2.625	1.000	0.838	0.400	n/a	0.792	0.800	0.444	n/a	0.522	0.407	0.935	0.111
Coppermine River Above Copper Creek	EC	8/15/2006	-	0.741	4.400	0.917	0.984	0.667	1.000	1.000	4.500	0.764	0.750	0.904	0.655	1.011	0.810
Coppermine River Above Copper Creek	EC	4/19/2007	-	0.229	0.597	0.864	0.922	1.500	0.364	0.971	0.899	0.310	n/a	0.404	0.909	0.728	0.313
Coppermine River Above Copper Creek	EC	6/14/2007	-	0.067	1.735	0.769	0.890	0.250	0.500	1.091	1.083	0.175	n/a	0.607	0.167	0.967	0.065
Coppermine River Above Copper Creek	EC	8/29/2007	-	0.647	2.933	0.720	0.983	0.500	1.000	0.964	1.500	0.642	0.714	0.833	1.194	1.036	0.700
Coppermine River Above Copper Creek	EC	4/18/2008	-	2.011	1.603	1.267	1.090	2.000	7.000	1.067	1.339	1.640	n/a	1.799	1.444	1.357	1.500
Coppermine River Above Copper Creek	EC	6/3/2008	-	0.068	0.704	0.636	0.854	0.333	0.125	0.913	0.411	0.234	n/a	0.312	0.169	0.687	0.063
Coppermine River Above Copper Creek	EC	8/20/2008	-	0.501	6.500	0.871	0.945	0.500	n/a	1.000	2.000	0.506	0.500	0.787	0.536	1.018	0.522
Coppermine River Above Copper Creek	EC	4/9/2009	-	0.520	1.953	1.034	0.885	0.714	0.500	1.143	0.988	0.570	0.571	0.660	0.582	1.009	0.532

Table A-2-5: Total:dissolved metal ratios (total concentration / dissolved concentration)

Ratio > 1.2																	
Ratio > 1.5																	
Site Name	Owner	Date	Depth	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Cerium	Cesium	Chromium	Cobalt	Copper	Gallium
Coppermine River Above Copper Creek	EC	4/9/2009	-	0.590	1.606	1.033	0.937	0.714	0.583	0.833	1.148	0.631	0.619	0.642	0.639	0.821	0.658
Coppermine River Above Copper Creek	EC	4/9/2009	-	0.534	1.859	0.935	0.896	0.714	0.545	1.000	0.908	0.580	0.585	0.648	0.613	0.944	0.538
Coppermine River Above Copper Creek	EC	6/17/2009	-	0.117	3.000	0.677	0.853	0.333	0.111	0.875	1.375	0.176	0.141	0.205	0.188	0.830	0.126
Coppermine River Above Copper Creek	EC	6/17/2009	-	0.070	3.100	0.625	0.860	0.200	0.111	1.281	1.167	0.141	0.090	0.134	0.134	0.786	0.074
Coppermine River Above Copper Creek	EC	6/17/2009	-	0.091	3.444	0.677	0.857	0.200	0.111	0.805	1.000	0.167	0.119	0.151	0.154	0.787	0.097
Coppermine River Above Copper Creek	EC	9/3/2009	-	1.011	0.923	1.045	0.991	1.500	1.000	1.636	0.889	0.992	0.900	1.078	1.125	1.010	1.063
Coppermine River Above Copper Creek	EC	4/17/2010	-	0.571	1.500	1.063	1.018	1.000	n/a	1.167	0.556	0.683	0.750	0.857	0.667	0.601	0.600
Coppermine River Above Copper Creek	EC	6/8/2010	-	0.079	3.263	0.600	0.838	0.211	n/a	1.130	0.800	0.138	0.104	0.130	0.123	0.721	0.088
Coppermine River Above Copper Creek	EC	8/31/2010	-	0.507	6.077	0.957	0.955	0.750	n/a	1.176	0.667	0.490	0.714	0.667	0.543	0.969	0.545
Coppermine River Above Copper Creek	EC	8/31/2010	-	0.543	5.000	1.000	0.958	0.667	n/a	1.000	2.000	0.542	0.625	0.727	0.677	1.000	0.545
Coppermine River Above Copper Creek	EC	8/31/2010	-	0.550	5.643	1.000	0.987	0.667	n/a	1.048	3.000	0.550	0.625	0.818	0.688	1.022	0.500
Coppermine River Above Copper Creek	EC	6/3/2011	-	0.081	4.316	0.667	0.825	0.267	n/a	1.000	0.571	0.192	0.098	0.141	0.135	0.769	0.082
Coppermine River Above Copper Creek	EC	6/3/2011	-	0.077	3.650	0.633	0.804	0.267	n/a	0.821	0.333	0.189	0.077	0.125	0.140	0.726	0.073
Coppermine River Above Copper Creek	EC	6/3/2011	-	0.095	4.526	0.667	0.825	0.267	n/a	1.148	0.444	0.197	0.118	0.141	0.135	0.736	0.082
Coppermine River Above Copper Creek	EC	9/9/2011	-	0.464	4.563	0.955	1.032	0.667	n/a	1.050	1.333	0.491	0.500	0.615	0.564	0.568	0.500
Coppermine River Above Copper Creek	EC	9/9/2011	-	n/a	68.000	n/a	n/a	1.000	n/a	n/a	3.000	n/a	n/a	0.333	n/a	0.309	n/a
Coppermine River Above Copper Creek	EC	9/9/2011	-	0.527	4.471	0.955	0.981	0.500	n/a	1.045	1.667	0.516	0.667	0.769	0.615	1.000	0.571
Coppermine River Above Copper Creek	EC	6/5/2012	-	0.106	2.842	0.700	0.894	0.200	n/a	1.227	0.500	0.217	0.120	0.185	0.114	1.287	0.117
Coppermine River Above Copper Creek	EC	4/17/2013	-	0.296	1.141	0.905	0.955	0.667	n/a	1.385	1.317	0.272	0.375	1.028	0.543	1.251	0.294
Coppermine River Above Copper Creek	EC	6/11/2013	-	0.163	3.053	0.833	0.896	0.750	n/a	1.000	4.600	0.252	n/a	0.333	0.227	1.657	0.154
Coppermine River Above Copper Creek	EC	1/27/2014	-	0.614	3.138	0.944	0.913	1.000	n/a	1.071	1.147	0.649	0.667	0.941	0.947	1.165	0.400
Coppermine River Above Copper Creek	EC	4/10/2014	-	0.474	1.086	0.833	0.910	1.000	n/a	1.316	0.878	0.307	0.667	0.691	0.651	0.945	0.091
Coppermine River Above Copper Creek	EC	6/3/2014	-	0.092	2.500	0.731	0.957	0.250	n/a	0.947	1.250	0.242	0.079	0.170	0.170	1.093	0.109
Lockhart Watershed																	
King Lake	GNWT	7/26/2006	Surface	0.633	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	1.167	n/a	1.143	n/a
King Lake	GNWT	9/19/2006	Surface	0.553	n/a	n/a	0.893	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a	1.250	n/a
King Lake	GNWT	7/6/2007	Surface	0.659	n/a	n/a	0.960	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.200	n/a
King Lake	GNWT	8/17/2007	Surface	0.667	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.167	n/a
King Lake	GNWT	9/13/2007	Surface	0.694	n/a	n/a	0.781	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.167	n/a
King Lake	GNWT	7/7/2008	Surface	0.539	n/a	n/a	1.088	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.167	n/a
King Lake	GNWT	8/5/2009	Surface	0.730	n/a	n/a	0.964	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
King Lake	GNWT	7/6/2010	Bottom	0.624	n/a	n/a	0.926	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.333	n/a
King Lake	GNWT	7/6/2010	Surface	0.516	n/a	n/a	0.889	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Lake of the Enemy	GNWT	7/26/2006	Surface	1.000	n/a	n/a	1.278	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.857	n/a
Lake of the Enemy	GNWT	9/19/2006	Surface	0.778	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a	0.875	n/a
Lake of the Enemy	GNWT	7/6/2007	Surface	0.719	n/a	n/a	0.867	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Lake of the Enemy	GNWT	8/17/2007	Surface	0.680	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.167	n/a
Lake of the Enemy	GNWT	9/13/2007	Surface	0.839	n/a	n/a	0.739	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Lake of the Enemy	GNWT	7/7/2008	Surface	n/a	n/a	n/a	1.348	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.500	n/a
Lake of the Enemy	GNWT	8/5/2009	Surface	0.577	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.800	n/a
Lake of the Enemy	GNWT	7/6/2010	Bottom	0.600	n/a	n/a	0.941	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Lake of the Enemy	GNWT	7/6/2010	Surface	0.593	n/a	n/a	0.941	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
MacKay Lake	GNWT	7/26/2006	Surface	0.714	n/a	1.000	1.105	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
MacKay Lake	GNWT	9/19/2006	Surface	0.711	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a	1.125	n/a
MacKay Lake	GNWT	7/6/2007	Surface	0.716	n/a	n/a	0.941	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.167	n/a

Table A-2-5: Total:dissolved metal ratios (total concentration / dissolved concentration)

Ratio > 1.2																	
Ratio > 1.5																	
Site Name	Owner	Date	Depth	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Cerium	Cesium	Chromium	Cobalt	Copper	Gallium
MacKay Lake	GNWT	8/17/2007	Surface	0.815	n/a	n/a	1.056	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.333	n/a
MacKay Lake	GNWT	9/13/2007	Surface	0.794	n/a	n/a	0.720	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.167	n/a
MacKay Lake	GNWT	3/31/2008	Surface	0.986	n/a	1.000	1.043	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.500	n/a
MacKay Lake	GNWT	7/7/2008	Surface	1.949	n/a	n/a	1.091	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.200	n/a
MacKay Lake	GNWT	8/5/2009	Surface	0.725	n/a	1.000	0.947	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
MacKay Lake	GNWT	7/6/2010	Bottom	0.735	n/a	n/a	0.810	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.857	n/a
MacKay Lake	GNWT	7/6/2010	Surface	0.849	n/a	n/a	0.864	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.143	n/a
Lockhart River	EC	5/17/1994	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	6/6/1994	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/26/1994	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/26/1994	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/26/1994	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	11/15/1994	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	1/31/1995	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	5/5/1995	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	6/9/1995	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	9/19/1995	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	9/19/1995	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	9/19/1995	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	11/27/1995	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	2/3/1996	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	6/18/1996	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	9/16/1996	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	9/16/1996	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	9/16/1996	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	2/10/1998	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	2/4/1999	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	6/13/1999	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	1/17/2000	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	4/10/2000	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	6/17/2000	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/23/2000	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/23/2000	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/23/2000	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/25/2001	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/25/2001	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/25/2001	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	1/11/2002	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	4/28/2006	-	0.462	1.115	0.889	0.968	n/a	n/a	0.364	0.657	0.857	1.000	0.783	0.556	0.792	n/a
Lockhart River	EC	4/28/2006	-	0.724	2.700	1.333	0.962	n/a	n/a	0.929	0.615	0.895	1.200	1.390	0.833	0.955	n/a
Lockhart River	EC	4/28/2006	-	0.694	2.056	1.556	0.944	n/a	n/a	0.929	0.539	0.810	1.000	1.066	0.833	0.837	n/a
Lockhart River	EC	6/20/2006	-	0.922	13.000	1.333	0.959	2.000	n/a	1.000	1.813	1.000	1.000	5.000	1.400	1.404	n/a
Lockhart River	EC	8/24/2006	-	0.792	8.000	1.100	0.927	1.000	n/a	0.947	0.976	0.680	1.000	1.227	1.000	1.083	n/a
Lockhart River	EC	6/21/2007	-	0.887	4.700	0.909	0.980	1.000	2.000	1.000	1.421	0.933	1.000	1.191	1.800	1.041	1.000
Lockhart River	EC	9/27/2007	-	0.761	4.300	1.000	0.947	n/a	1.000	1.059	0.776	0.818	1.167	0.827	1.083	1.068	1.000

Table A-2-5: Total:dissolved metal ratios (total concentration / dissolved concentration)

Ratio > 1.2																	
Ratio > 1.5																	
Site Name	Owner	Date	Depth	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Cerium	Cesium	Chromium	Cobalt	Copper	Gallium
Lockhart River	EC	1/22/2008	-	0.850	3.000	1.286	0.948	n/a	n/a	0.882	1.000	0.739	1.200	1.222	0.714	1.019	1.000
Lockhart River	EC	6/23/2008	-	1.000	5.750	1.000	0.993	1.000	n/a	1.000	3.000	1.040	0.833	1.920	2.500	1.196	n/a
Lockhart River	EC	9/22/2008	-	0.795	12.200	1.100	1.000	1.000	n/a	1.063	2.000	0.750	1.000	1.962	1.833	1.519	n/a
Lockhart River	EC	7/3/2009	-	1.022	43.333	1.000	0.930	1.000	n/a	1.083	5.000	0.880	0.833	1.176	1.375	2.224	1.000
Lockhart River	EC	7/3/2009	-	0.840	57.500	1.000	0.941	0.500	n/a	0.933	5.000	0.846	1.000	1.750	2.000	2.421	1.000
Lockhart River	EC	7/3/2009	-	0.935	28.500	1.111	0.975	3.000	n/a	1.111	3.000	0.880	0.833	1.862	1.429	2.218	1.000
Lockhart River	EC	8/20/2009	-	0.825	38.000	1.000	1.012	1.000	n/a	0.500	4.000	0.842	1.000	1.926	1.286	2.608	n/a
Lockhart River	EC	1/12/2010	-	0.971	7.923	1.000	0.977	2.000	n/a	0.950	9.000	0.833	1.000	1.113	1.500	1.814	n/a
Lockhart River	EC	6/16/2010	-	0.732	5.833	1.100	0.916	1.000	n/a	0.882	0.250	0.767	0.857	0.800	0.778	0.707	1.000
Lockhart River	EC	6/16/2010	-	0.789	6.222	1.100	1.000	0.500	n/a	0.611	0.240	0.793	1.000	0.800	1.222	0.534	1.000
Lockhart River	EC	6/16/2010	-	1.326	21.800	1.000	0.971	1.000	n/a	1.200	10.333	1.154	1.000	2.333	1.500	2.667	1.000
Lockhart River	EC	9/9/2010	-	1.107	18.250	1.333	0.960	1.000	n/a	1.833	3.000	0.824	1.000	1.000	1.167	1.077	n/a
Lockhart River	EC	1/19/2011	-	1.174	0.067	1.100	1.040	2.000	n/a	0.714	n/a	1.214	1.167	1.000	0.800	0.925	1.000
Lockhart River	EC	6/18/2011	-	0.820	11.167	0.818	0.962	0.500	n/a	0.684	3.000	0.840	1.000	1.333	1.000	0.335	1.000
Lockhart River	EC	9/14/2011	-	0.744	9.800	1.000	1.008	1.000	n/a	0.938	1.000	0.750	0.833	1.000	0.500	1.019	n/a
Lockhart River	EC	9/14/2011	-	0.721	3.688	0.900	0.961	0.500	n/a	0.842	0.500	0.800	1.000	0.750	0.778	0.815	1.000
Lockhart River	EC	9/14/2011	-	1.028	7.444	1.000	0.943	1.000	n/a	1.118	0.667	0.789	0.857	1.333	0.875	0.983	n/a
Lockhart River	EC	1/19/2012	-	1.000	2.737	0.900	0.946	1.000	n/a	1.000	1.593	0.850	1.000	1.375	1.167	1.606	1.000
Lockhart River	EC	6/6/2012	-	0.652	2.471	0.900	0.927	1.000	n/a	0.611	0.137	0.800	0.857	1.000	0.625	1.593	0.500
Lockhart River	EC	8/27/2012	-	0.667	7.000	1.000	0.973	1.000	n/a	0.875	1.000	0.696	1.000	1.333	0.750	0.503	n/a
Lockhart River	EC	3/6/2013	-	0.949	5.200	1.000	1.022	0.500	n/a	1.118	7.000	0.895	0.857	2.000	1.000	3.032	1.000
Lockhart River	EC	3/6/2013	-	1.111	7.875	1.000	0.954	1.000	n/a	0.682	1.500	0.895	1.000	1.667	0.800	3.538	1.000
Lockhart River	EC	3/6/2013	-	1.056	7.111	0.909	1.014	2.000	n/a	1.000	2.000	1.000	0.857	1.600	1.500	3.200	1.000
Lockhart River	EC	6/13/2013	-	0.946	3.500	0.889	0.993	1.000	n/a	n/a	0.800	0.759	n/a	1.167	0.750	1.779	1.000
Lockhart River	EC	9/7/2013	-	0.711	9.556	0.818	0.947	1.000	n/a	1.000	1.500	0.640	0.714	1.333	0.600	1.017	n/a
Lockhart River	EC	9/7/2013	-	0.854	3.480	1.000	0.935	1.000	n/a	0.957	1.133	0.593	1.000	1.333	0.667	1.033	1.000
Lockhart River	EC	9/7/2013	-	0.975	4.706	1.111	1.008	1.000	n/a	1.077	0.750	0.483	1.200	1.750	0.600	1.038	n/a
Lockhart River	EC	3/19/2014	-	0.809	n/a	1.000	0.918	2.000	n/a	1.118	9.000	0.773	1.000	1.000	1.167	1.109	n/a
Lockhart River	EC	6/16/2014	-	0.787	7.500	1.000	0.932	0.333	n/a	1.000	1.000	0.774	0.667	1.000	0.889	1.567	1.000
Lockhart River	EC	6/16/2014	-	0.933	3.857	1.000	0.987	n/a	n/a	1.000	4.000	0.833	0.833	1.500	0.600	1.630	1.000
Lockhart River	EC	6/16/2014	-	0.857	13.250	0.889	0.979	1.000	n/a	0.933	3.000	0.828	0.800	2.333	0.750	4.863	1.000
> 1.2				2%	36%	5%	2%	6%	1%	1%	21%	1%	0%	23%	12%	23%	0%

Table A-2-5: Total:dissolved metal ratios (total concentration / dissolved concentration)

Ratio > 1.2																
Ratio > 1.5																
Site Name	Owner	Date	Depth	Iron	Lanthanum	Lead	Lithium	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Niobium	Platinum	Rubidium	Selenium
Coppermine Watershed																
Lac de Gras	GNWT	6/9/2005	Surface	n/a	n/a	n/a	1.000	n/a	0.909	n/a	n/a	1.000	n/a	n/a	1.000	n/a
Lac de Gras	GNWT	7/27/2005	Surface	n/a	n/a	n/a	1.000	n/a	0.474	n/a	n/a	1.000	n/a	n/a	1.000	n/a
Lac de Gras	GNWT	7/27/2005	Surface	n/a	n/a	n/a	0.889	n/a	0.439	n/a	n/a	1.000	n/a	n/a	0.929	n/a
Lac de Gras	GNWT	1/31/2006	Surface	n/a	n/a	n/a	n/a	615.385	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lac de Gras	GNWT	1/31/2006	Surface	n/a	n/a	n/a	n/a	538.462	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lac de Gras	GNWT	3/22/2006	Surface	n/a	n/a	n/a	0.933	636.364	n/a	n/a	n/a	1.000	n/a	n/a	1.071	n/a
Lac de Gras	GNWT	7/4/2006	Surface	n/a	n/a	1.043	0.923	250.000	n/a	n/a	1.000	1.100	n/a	n/a	0.917	n/a
Lac de Gras	GNWT	7/4/2006	Surface	n/a	n/a	0.772	0.923	270.270	n/a	n/a	0.700	1.100	n/a	n/a	0.917	n/a
Lac de Gras	GNWT	9/19/2006	Surface	n/a	n/a	0.400	1.000	n/a	0.391	n/a	n/a	1.000	n/a	n/a	1.000	n/a
Lac de Gras	GNWT	9/19/2006	Surface	n/a	n/a	0.600	1.000	n/a	0.348	n/a	1.000	1.000	n/a	n/a	1.000	n/a
Lac de Gras	GNWT	7/4/2007	Surface	n/a	n/a	n/a	0.833	n/a	0.722	n/a	n/a	1.000	n/a	n/a	1.000	0.952
Lac de Gras	GNWT	7/4/2007	Surface	n/a	n/a	n/a	1.000	n/a	0.722	n/a	n/a	1.000	n/a	n/a	1.000	0.909
Lac de Gras	GNWT	9/20/2007	Surface	n/a	n/a	n/a	1.091	n/a	0.412	n/a	1.000	1.111	n/a	n/a	1.077	n/a
Lac de Gras	GNWT	9/20/2007	Surface	n/a	n/a	n/a	1.000	n/a	0.250	n/a	n/a	1.000	n/a	n/a	0.929	n/a
Lac de Gras	GNWT	9/20/2007	Surface	n/a	n/a	n/a	1.000	n/a	0.308	n/a	n/a	0.889	n/a	n/a	1.083	n/a
Lac de Gras	GNWT	3/31/2008	Surface	n/a	n/a	n/a	0.818	n/a	0.571	n/a	n/a	1.000	n/a	n/a	1.000	n/a
Lac de Gras	GNWT	3/31/2008	Surface	n/a	n/a	n/a	1.000	n/a	0.500	n/a	n/a	1.000	n/a	n/a	0.933	n/a
Lac de Gras	GNWT	6/13/2008	Surface	n/a	n/a	n/a	0.917	n/a	0.609	n/a	n/a	1.091	n/a	n/a	1.000	n/a
Lac de Gras	GNWT	6/13/2008	Surface	n/a	n/a	1.000	0.917	n/a	0.591	n/a	n/a	1.000	n/a	n/a	0.833	n/a
Lac de Gras	GNWT	7/28/2008	Surface	n/a	n/a	n/a	1.583	n/a	0.613	n/a	0.500	0.889	n/a	n/a	1.538	n/a
Lac de Gras	GNWT	7/28/2008	Surface	0.667	n/a	n/a	1.000	n/a	0.633	n/a	6.000	1.000	n/a	n/a	1.000	n/a
Lac de Gras	GNWT	8/5/2009	Surface	n/a	n/a	n/a	1.083	n/a	0.333	n/a	1.000	1.000	n/a	n/a	1.000	n/a
Lac de Gras	GNWT	7/6/2010	Bottom	n/a	n/a	n/a	0.846	n/a	0.448	n/a	n/a	0.909	n/a	n/a	0.923	n/a
Lac de Gras	GNWT	7/6/2010	Surface	n/a	n/a	n/a	1.300	n/a	0.462	n/a	n/a	0.909	n/a	n/a	0.923	n/a
Destaffany Lake	GNWT	7/27/2005	Surface	n/a	n/a	n/a	0.875	n/a	0.375	n/a	n/a	0.857	n/a	n/a	0.857	n/a
Destaffany Lake	GNWT	3/22/2006	Surface	n/a	n/a	n/a	1.000	888.889	n/a	n/a	n/a	0.900	n/a	n/a	1.133	n/a
Destaffany Lake	GNWT	3/22/2006	Surface	n/a	n/a	n/a	1.000	888.889	n/a	n/a	n/a	1.000	n/a	n/a	1.063	n/a
Destaffany Lake	GNWT	7/4/2006	Surface	n/a	n/a	0.977	0.833	200.000	n/a	n/a	0.833	1.000	n/a	n/a	0.917	n/a
Destaffany Lake	GNWT	9/19/2006	Surface	n/a	n/a	0.571	1.000	n/a	0.381	n/a	n/a	1.143	n/a	n/a	1.000	n/a
Destaffany Lake	GNWT	7/4/2007	Surface	n/a	n/a	n/a	1.000	n/a	0.703	n/a	n/a	1.000	n/a	n/a	1.000	1.000
Destaffany Lake	GNWT	8/17/2007	Surface	n/a	n/a	n/a	0.857	n/a	0.267	n/a	n/a	1.000	n/a	n/a	1.000	n/a
Destaffany Lake	GNWT	9/13/2007	Surface	n/a	n/a	n/a	1.167	n/a	0.417	n/a	n/a	1.000	n/a	n/a	1.000	n/a
Destaffany Lake	GNWT	3/31/2008	Surface	n/a	n/a	n/a	1.000	n/a	0.625	n/a	n/a	1.000	n/a	n/a	1.000	n/a
Destaffany Lake	GNWT	7/7/2008	Surface	0.444	n/a	n/a	1.000	n/a	0.606	n/a	n/a	1.000	n/a	n/a	1.000	n/a
Destaffany Lake	GNWT	8/5/2009	Surface	0.304	n/a	n/a	1.000	n/a	0.440	n/a	n/a	1.000	n/a	n/a	1.000	n/a
Destaffany Lake	GNWT	8/5/2009	Surface	0.348	n/a	n/a	1.000	n/a	0.480	n/a	n/a	0.875	n/a	n/a	1.000	n/a
Destaffany Lake	GNWT	7/6/2010	Bottom	0.321	n/a	n/a	0.923	n/a	0.515	n/a	n/a	1.000	n/a	n/a	1.000	n/a
Destaffany Lake	GNWT	7/6/2010	Surface	0.300	n/a	n/a	0.917	n/a	0.515	n/a	n/a	0.889	n/a	n/a	1.000	n/a
Daring Lake	GNWT	7/27/2005	Surface	n/a	n/a	n/a	0.800	n/a	1.083	n/a	n/a	1.000	n/a	n/a	0.917	n/a
Daring Lake	GNWT	3/22/2006	Surface	n/a	n/a	n/a	1.091	1200.000	n/a	n/a	n/a	0.667	n/a	n/a	1.133	n/a
Daring Lake	GNWT	7/26/2006	Surface	n/a	n/a	0.494	n/a	n/a	0.625	n/a	1.000	1.000	n/a	n/a	1.000	n/a
Daring Lake	GNWT	9/19/2006	Surface	n/a	n/a	5.000	1.000	n/a	0.385	n/a	n/a	1.000	n/a	n/a	1.000	n/a
Daring Lake	GNWT	7/6/2007	Surface	n/a	n/a	n/a	1.200	n/a	0.885	n/a	n/a	1.000	n/a	n/a	1.000	1.000
Daring Lake	GNWT	8/17/2007	Surface	n/a	n/a	n/a	1.000	n/a	0.375	n/a	n/a	1.000	n/a	n/a	0.889	n/a

Table A-2-5: Total:dissolved metal ratios (total concentration / dissolved concentration)

Ratio > 1.2																
Ratio > 1.5																
Site Name	Owner	Date	Depth	Iron	Lanthanum	Lead	Lithium	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Niobium	Platinum	Rubidium	Selenium
Daring Lake	GNWT	9/13/2007	Surface	n/a	n/a	n/a	1.000	n/a	0.444	n/a	n/a	1.000	n/a	n/a	1.091	n/a
Daring Lake	GNWT	3/31/2008	Surface	n/a	n/a	n/a	0.889	n/a	1.000	n/a	n/a	1.333	n/a	n/a	1.000	n/a
Daring Lake	GNWT	7/7/2008	Surface	n/a	n/a	n/a	0.970	n/a	0.643	n/a	n/a	1.000	n/a	n/a	0.917	n/a
Daring Lake	GNWT	8/5/2009	Surface	n/a	n/a	n/a	1.125	n/a	0.385	n/a	n/a	1.000	n/a	n/a	1.000	n/a
Daring Lake	GNWT	7/6/2010	Bottom	n/a	n/a	n/a	0.778	n/a	0.500	n/a	n/a	1.000	n/a	n/a	0.900	n/a
Daring Lake	GNWT	7/6/2010	Surface	n/a	n/a	n/a	1.000	n/a	0.407	n/a	n/a	1.500	n/a	n/a	0.909	n/a
Point Lake	EC	6/10/1994	-	n/a	n/a	n/a	n/a	1.146	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	6/10/1994	-	n/a	n/a	n/a	n/a	1.146	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	6/10/1994	-	n/a	n/a	n/a	n/a	1.146	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	7/14/1994	-	n/a	n/a	n/a	n/a	0.958	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	9/9/1994	-	n/a	n/a	n/a	n/a	1.022	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	3/1/1995	-	n/a	n/a	n/a	n/a	1.060	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	5/10/1995	-	n/a	n/a	n/a	n/a	0.980	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	6/18/1995	-	n/a	n/a	n/a	n/a	1.042	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	8/31/1995	-	n/a	n/a	n/a	n/a	0.783	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	8/31/1995	-	n/a	n/a	n/a	n/a	1.022	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	8/31/1995	-	n/a	n/a	n/a	n/a	1.022	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	8/31/1995	-	n/a	n/a	n/a	n/a	0.956	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	2/15/1996	-	n/a	n/a	n/a	n/a	1.106	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	5/7/1996	-	n/a	n/a	n/a	n/a	0.891	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	6/12/1996	-	n/a	n/a	n/a	n/a	1.125	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	9/3/1996	-	n/a	n/a	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	10/1/1996	-	n/a	n/a	n/a	n/a	0.979	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	10/1/1996	-	n/a	n/a	n/a	n/a	0.978	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	10/1/1996	-	n/a	n/a	n/a	n/a	0.978	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	5/1/1997	-	n/a	n/a	n/a	n/a	1.043	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	5/1/1997	-	n/a	n/a	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	5/1/1997	-	n/a	n/a	n/a	n/a	1.021	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	6/16/1997	-	n/a	n/a	n/a	n/a	1.021	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	9/5/1997	-	n/a	n/a	n/a	n/a	0.956	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	2/5/1998	-	n/a	n/a	n/a	n/a	0.979	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	5/5/1998	-	n/a	n/a	n/a	n/a	0.957	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	6/4/1998	-	n/a	n/a	n/a	n/a	0.992	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	GNWT	7/27/2005	Surface	n/a	n/a	n/a	0.833	n/a	0.667	n/a	n/a	1.000	n/a	n/a	0.846	n/a
Point Lake	GNWT	3/22/2006	Surface	n/a	n/a	n/a	1.000	2333.333	n/a	n/a	n/a	1.000	n/a	n/a	1.154	n/a
Point Lake	GNWT	7/26/2006	Surface	n/a	n/a	n/a	n/a	n/a	0.571	n/a	n/a	1.143	n/a	n/a	1.000	n/a
Point Lake	GNWT	9/19/2006	Surface	n/a	n/a	1.000	1.000	n/a	0.333	n/a	1.000	1.000	n/a	n/a	1.000	n/a
Point Lake	GNWT	7/6/2007	Surface	n/a	n/a	n/a	1.000	n/a	3.250	n/a	n/a	1.143	n/a	n/a	1.111	0.941
Point Lake	GNWT	8/17/2007	Surface	n/a	n/a	n/a	1.000	n/a	0.600	n/a	n/a	1.000	n/a	n/a	1.000	n/a
Point Lake	GNWT	8/17/2007	Surface	n/a	n/a	n/a	1.000	n/a	0.600	n/a	n/a	1.000	n/a	n/a	1.000	n/a
Point Lake	GNWT	9/13/2007	Surface	n/a	n/a	n/a	1.000	n/a	0.500	n/a	n/a	1.125	n/a	n/a	1.000	n/a
Point Lake	GNWT	3/31/2008	Surface	n/a	n/a	n/a	n/a	n/a	0.429	n/a	n/a	1.100	n/a	n/a	1.000	n/a
Point Lake	GNWT	7/7/2008	Surface	n/a	n/a	n/a	1.029	n/a	1.200	n/a	n/a	1.000	n/a	n/a	1.083	n/a
Point Lake	GNWT	8/5/2009	Surface	n/a	n/a	n/a	1.125	n/a	0.833	n/a	n/a	1.000	n/a	n/a	1.000	n/a
Point Lake	GNWT	7/6/2010	Bottom	n/a	n/a	n/a	1.000	n/a	0.667	n/a	n/a	1.000	n/a	n/a	1.000	n/a

Table A-2-5: Total:dissolved metal ratios (total concentration / dissolved concentration)

Ratio > 1.2																
Ratio > 1.5																
Site Name	Owner	Date	Depth	Iron	Lanthanum	Lead	Lithium	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Niobium	Platinum	Rubidium	Selenium
Point Lake	GNWT	7/6/2010	Surface	n/a	n/a	n/a	0.800	n/a	0.500	n/a	n/a	1.000	n/a	n/a	0.917	n/a
Rocknest Lake	GNWT	9/19/2006	Surface	n/a	n/a	n/a	1.000	n/a	0.318	n/a	3.000	1.167	n/a	n/a	1.000	n/a
Rocknest Lake	GNWT	7/6/2007	Surface	n/a	n/a	n/a	1.000	n/a	1.000	n/a	n/a	1.200	n/a	n/a	1.125	1.059
Rocknest Lake	GNWT	7/6/2007	Surface	n/a	n/a	n/a	1.000	n/a	0.375	n/a	n/a	1.000	n/a	n/a	1.000	1.000
Rocknest Lake	GNWT	8/17/2007	Surface	n/a	n/a	n/a	1.500	n/a	0.444	n/a	n/a	1.000	n/a	n/a	1.000	n/a
Rocknest Lake	GNWT	9/13/2007	Surface	n/a	n/a	n/a	1.000	n/a	0.385	n/a	n/a	1.167	n/a	n/a	1.000	n/a
Rocknest Lake	GNWT	3/31/2008	Surface	n/a	n/a	n/a	0.909	n/a	0.900	n/a	n/a	1.000	n/a	n/a	0.944	n/a
Rocknest Lake	GNWT	7/7/2008	Surface	0.550	n/a	n/a	1.000	n/a	0.389	n/a	n/a	1.000	n/a	n/a	1.000	n/a
Rocknest Lake	GNWT	7/7/2008	Surface	0.600	n/a	n/a	1.000	n/a	0.444	n/a	n/a	1.000	n/a	n/a	0.923	n/a
Rocknest Lake	GNWT	8/5/2009	Surface	0.429	n/a	n/a	1.000	n/a	0.176	n/a	n/a	1.000	n/a	n/a	0.917	n/a
Rocknest Lake	GNWT	7/6/2010	Bottom	0.333	n/a	n/a	0.800	n/a	0.219	n/a	n/a	0.833	n/a	n/a	0.917	n/a
Rocknest Lake	GNWT	7/6/2010	Surface	0.350	n/a	n/a	0.778	n/a	0.304	n/a	n/a	1.000	n/a	n/a	0.833	n/a
Fairy Lake	GNWT	7/27/2005	-	n/a	n/a	n/a	n/a	n/a	0.231	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Fairy Lake	GNWT	3/22/2006	-	n/a	n/a	n/a	1.000	3833.333	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Fairy Lake	GNWT	7/26/2006	-	n/a	n/a	n/a	n/a	894.737	n/a	n/a	n/a	0.833	n/a	n/a	1.000	n/a
Fairy Lake	GNWT	7/26/2006	Surface	n/a	n/a	n/a	n/a	n/a	0.150	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Fairy Lake	GNWT	9/19/2006	Surface	n/a	n/a	0.800	1.000	n/a	0.158	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Fairy Lake	GNWT	7/6/2007	Surface	n/a	n/a	n/a	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	1.000	1.077
Fairy Lake	GNWT	8/17/2007	Surface	n/a	n/a	n/a	n/a	n/a	0.167	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Fairy Lake	GNWT	9/13/2007	Surface	n/a	n/a	n/a	n/a	n/a	0.133	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Fairy Lake	GNWT	9/13/2007	Surface	n/a	n/a	n/a	n/a	n/a	0.143	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Fairy Lake	GNWT	7/7/2008	Surface	n/a	n/a	2.000	1.000	n/a	0.450	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Fairy Lake	GNWT	8/5/2009	Surface	n/a	n/a	n/a	1.000	n/a	0.667	n/a	n/a	n/a	n/a	n/a	1.000	n/a
Coppermine River-Fairy Lake River	GNWT	7/27/2005	-	n/a	n/a	n/a	1.000	n/a	0.593	n/a	n/a	1.000	n/a	n/a	0.917	n/a
Coppermine River-Fairy Lake River	GNWT	3/22/2006	-	n/a	n/a	n/a	1.000	1666.667	n/a	n/a	n/a	1.000	n/a	n/a	1.143	n/a
Coppermine River Above Copper Creek	EC	6/13/2000	-	n/a	n/a	n/a	n/a	0.975	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	8/28/2000	-	n/a	n/a	n/a	n/a	1.012	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	8/28/2000	-	n/a	n/a	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	8/28/2000	-	n/a	n/a	n/a	n/a	1.028	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	5/2/2001	-	n/a	n/a	n/a	n/a	1.036	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	8/30/2001	-	n/a	n/a	n/a	n/a	0.955	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	8/30/2001	-	n/a	n/a	n/a	n/a	0.946	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	8/30/2001	-	n/a	n/a	n/a	n/a	0.920	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	5/17/2006	-	0.201	0.465	0.365	0.750	n/a	0.565	n/a	1.246	0.768	0.294	n/a	0.752	n/a
Coppermine River Above Copper Creek	EC	6/4/2006	-	0.212	0.449	2.299	0.833	n/a	0.249	n/a	0.986	0.992	0.167	n/a	0.753	n/a
Coppermine River Above Copper Creek	EC	6/4/2006	-	0.305	0.603	1.190	0.846	n/a	0.338	n/a	0.974	0.904	0.286	n/a	0.855	n/a
Coppermine River Above Copper Creek	EC	6/4/2006	-	0.291	0.597	0.950	0.769	n/a	0.350	n/a	1.014	0.965	0.250	n/a	0.833	n/a
Coppermine River Above Copper Creek	EC	8/15/2006	-	0.649	0.750	1.659	1.000	n/a	0.408	n/a	1.020	1.630	0.667	n/a	0.940	n/a
Coppermine River Above Copper Creek	EC	4/19/2007	-	0.207	0.411	0.460	0.875	n/a	0.521	n/a	0.763	3.397	0.200	n/a	0.933	n/a
Coppermine River Above Copper Creek	EC	6/14/2007	-	0.130	0.258	0.471	0.667	n/a	0.140	n/a	1.016	1.043	0.050	n/a	0.724	n/a
Coppermine River Above Copper Creek	EC	8/29/2007	-	0.630	0.704	0.727	1.000	n/a	0.392	n/a	1.000	1.083	1.000	n/a	0.964	n/a
Coppermine River Above Copper Creek	EC	4/18/2008	-	2.141	1.400	1.213	1.143	n/a	1.595	n/a	1.133	1.245	1.000	n/a	1.068	n/a
Coppermine River Above Copper Creek	EC	6/3/2008	-	0.132	0.322	0.150	0.600	n/a	0.226	n/a	0.915	0.812	0.071	n/a	0.600	n/a
Coppermine River Above Copper Creek	EC	8/20/2008	-	0.500	0.592	0.486	0.875	n/a	0.302	n/a	0.871	0.906	0.333	n/a	0.919	n/a
Coppermine River Above Copper Creek	EC	4/9/2009	-	0.541	0.590	0.890	0.833	n/a	0.600	n/a	0.968	0.830	0.542	n/a	0.880	n/a

Table A-2-5: Total:dissolved metal ratios (total concentration / dissolved concentration)

Ratio > 1.2																
Ratio > 1.5																
Site Name	Owner	Date	Depth	Iron	Lanthanum	Lead	Lithium	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Niobium	Platinum	Rubidium	Selenium
Coppermine River Above Copper Creek	EC	4/9/2009	-	0.612	0.653	1.070	0.917	n/a	0.633	n/a	1.172	0.857	0.481	n/a	0.906	n/a
Coppermine River Above Copper Creek	EC	4/9/2009	-	0.543	0.618	0.885	0.833	n/a	0.598	n/a	1.047	0.796	0.500	n/a	0.854	n/a
Coppermine River Above Copper Creek	EC	6/17/2009	-	0.150	0.217	0.175	0.600	n/a	0.236	n/a	1.075	0.581	0.111	n/a	0.493	n/a
Coppermine River Above Copper Creek	EC	6/17/2009	-	0.102	0.190	0.124	0.600	n/a	0.180	n/a	1.076	0.541	0.063	n/a	0.460	n/a
Coppermine River Above Copper Creek	EC	6/17/2009	-	0.125	0.215	0.146	0.600	n/a	0.198	n/a	1.083	0.543	0.085	n/a	0.474	n/a
Coppermine River Above Copper Creek	EC	9/3/2009	-	0.989	1.000	0.947	1.000	n/a	1.023	n/a	1.152	1.044	1.333	n/a	1.019	n/a
Coppermine River Above Copper Creek	EC	4/17/2010	-	1.515	0.833	0.391	1.000	n/a	0.735	n/a	0.938	0.854	0.500	n/a	1.003	2.000
Coppermine River Above Copper Creek	EC	6/8/2010	-	0.110	0.184	0.137	0.479	n/a	0.167	n/a	0.969	0.475	0.091	n/a	0.473	0.667
Coppermine River Above Copper Creek	EC	8/31/2010	-	0.498	0.574	0.407	0.934	n/a	0.235	n/a	2.865	0.935	0.667	n/a	0.945	n/a
Coppermine River Above Copper Creek	EC	8/31/2010	-	0.541	0.617	0.542	0.987	n/a	0.273	n/a	1.060	1.023	1.000	n/a	0.961	n/a
Coppermine River Above Copper Creek	EC	8/31/2010	-	0.544	0.639	0.480	1.000	n/a	0.281	n/a	1.122	1.022	0.667	n/a	0.982	n/a
Coppermine River Above Copper Creek	EC	6/3/2011	-	0.137	0.264	0.159	0.570	n/a	0.145	n/a	1.090	0.563	0.100	n/a	0.584	1.000
Coppermine River Above Copper Creek	EC	6/3/2011	-	0.134	0.256	0.142	0.592	n/a	0.145	n/a	0.944	0.553	0.067	n/a	0.591	1.000
Coppermine River Above Copper Creek	EC	6/3/2011	-	0.141	0.265	0.150	0.602	n/a	0.153	n/a	1.000	0.560	0.097	n/a	0.594	1.000
Coppermine River Above Copper Creek	EC	9/9/2011	-	0.459	0.557	0.463	0.986	n/a	0.262	n/a	1.019	0.977	n/a	n/a	0.918	0.500
Coppermine River Above Copper Creek	EC	9/9/2011	-	n/a	n/a	0.263	n/a	n/a	n/a	n/a	n/a	0.022	n/a	n/a	1.000	n/a
Coppermine River Above Copper Creek	EC	9/9/2011	-	0.539	0.571	0.579	0.974	n/a	0.321	n/a	1.034	1.022	1.500	n/a	0.956	1.000
Coppermine River Above Copper Creek	EC	6/5/2012	-	0.159	0.279	0.237	0.637	n/a	0.130	n/a	1.015	0.569	0.100	n/a	0.604	0.667
Coppermine River Above Copper Creek	EC	4/17/2013	-	0.366	0.417	0.634	0.978	n/a	0.450	n/a	0.673	1.016	0.286	n/a	0.982	1.000
Coppermine River Above Copper Creek	EC	6/11/2013	-	0.206	0.350	0.711	0.724	n/a	0.245	n/a	0.958	0.638	0.167	n/a	0.685	0.500
Coppermine River Above Copper Creek	EC	1/27/2014	-	0.524	0.688	0.873	0.911	n/a	0.679	n/a	0.963	1.044	1.000	1.000	0.975	1.000
Coppermine River Above Copper Creek	EC	4/10/2014	-	0.222	0.431	0.449	0.933	n/a	0.544	n/a	0.957	0.924	n/a	n/a	0.912	0.500
Coppermine River Above Copper Creek	EC	6/3/2014	-	0.150	0.328	0.244	0.722	n/a	0.216	n/a	1.207	0.667	n/a	n/a	0.609	0.500
Lockhart Watershed																
King Lake	GNWT	7/26/2006	Surface	n/a	n/a	1.280	n/a	n/a	0.371	n/a	n/a	1.000	n/a	n/a	1.000	n/a
King Lake	GNWT	9/19/2006	Surface	n/a	n/a	n/a	1.000	n/a	0.093	n/a	n/a	1.000	n/a	n/a	1.000	n/a
King Lake	GNWT	7/6/2007	Surface	n/a	n/a	n/a	1.000	n/a	0.273	n/a	n/a	1.000	n/a	n/a	1.000	0.958
King Lake	GNWT	8/17/2007	Surface	n/a	n/a	n/a	1.000	n/a	0.150	n/a	n/a	1.000	n/a	n/a	1.000	n/a
King Lake	GNWT	9/13/2007	Surface	n/a	n/a	n/a	0.857	n/a	0.097	n/a	n/a	1.250	n/a	n/a	1.000	n/a
King Lake	GNWT	7/7/2008	Surface	n/a	n/a	n/a	1.024	n/a	0.385	n/a	n/a	1.000	n/a	n/a	1.000	n/a
King Lake	GNWT	8/5/2009	Surface	n/a	n/a	n/a	0.917	n/a	0.050	n/a	n/a	0.800	n/a	n/a	1.000	n/a
King Lake	GNWT	7/6/2010	Bottom	n/a	n/a	n/a	1.091	n/a	0.075	n/a	n/a	1.250	n/a	n/a	0.917	n/a
King Lake	GNWT	7/6/2010	Surface	n/a	n/a	n/a	1.000	n/a	0.075	n/a	n/a	1.250	n/a	n/a	0.917	n/a
Lake of the Enemy	GNWT	7/26/2006	Surface	n/a	n/a	14.000	n/a	n/a	0.600	n/a	n/a	0.833	n/a	n/a	1.000	n/a
Lake of the Enemy	GNWT	9/19/2006	Surface	n/a	n/a	n/a	1.000	n/a	0.364	n/a	n/a	1.200	n/a	n/a	1.000	n/a
Lake of the Enemy	GNWT	7/6/2007	Surface	n/a	n/a	n/a	1.000	n/a	0.667	n/a	n/a	1.000	n/a	n/a	1.000	1.000
Lake of the Enemy	GNWT	8/17/2007	Surface	n/a	n/a	n/a	1.000	n/a	0.375	n/a	n/a	1.000	n/a	n/a	1.000	n/a
Lake of the Enemy	GNWT	9/13/2007	Surface	n/a	n/a	n/a	1.000	n/a	0.250	n/a	n/a	0.833	n/a	n/a	1.000	n/a
Lake of the Enemy	GNWT	7/7/2008	Surface	n/a	n/a	n/a	1.000	n/a	0.833	n/a	n/a	1.000	n/a	n/a	1.000	n/a
Lake of the Enemy	GNWT	8/5/2009	Surface	n/a	n/a	n/a	1.000	n/a	0.615	n/a	n/a	1.000	n/a	n/a	1.000	n/a
Lake of the Enemy	GNWT	7/6/2010	Bottom	n/a	n/a	n/a	1.000	n/a	0.545	n/a	n/a	1.200	n/a	n/a	0.889	n/a
Lake of the Enemy	GNWT	7/6/2010	Surface	n/a	n/a	n/a	1.167	n/a	0.600	n/a	n/a	1.200	n/a	n/a	0.889	n/a
MacKay Lake	GNWT	7/26/2006	Surface	n/a	n/a	n/a	n/a	n/a	0.250	n/a	n/a	0.909	n/a	n/a	1.000	n/a
MacKay Lake	GNWT	9/19/2006	Surface	n/a	n/a	1.000	1.000	n/a	0.200	n/a	n/a	1.000	n/a	n/a	1.000	n/a
MacKay Lake	GNWT	7/6/2007	Surface	n/a	n/a	n/a	1.000	n/a	0.741	n/a	n/a	1.000	n/a	n/a	1.000	1.059

Table A-2-5: Total:dissolved metal ratios (total concentration / dissolved concentration)

Ratio > 1.2																
Ratio > 1.5																
Site Name	Owner	Date	Depth	Iron	Lanthanum	Lead	Lithium	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Niobium	Platinum	Rubidium	Selenium
MacKay Lake	GNWT	8/17/2007	Surface	n/a	n/a	n/a	1.000	n/a	0.190	n/a	n/a	1.000	n/a	n/a	1.000	n/a
MacKay Lake	GNWT	9/13/2007	Surface	n/a	n/a	n/a	1.167	n/a	0.111	n/a	n/a	1.111	n/a	n/a	0.923	n/a
MacKay Lake	GNWT	3/31/2008	Surface	n/a	n/a	n/a	1.125	n/a	0.556	n/a	n/a	1.333	n/a	n/a	1.000	n/a
MacKay Lake	GNWT	7/7/2008	Surface	0.385	n/a	n/a	1.000	n/a	0.792	n/a	n/a	1.000	n/a	n/a	1.000	n/a
MacKay Lake	GNWT	8/5/2009	Surface	n/a	n/a	n/a	1.091	n/a	0.386	n/a	n/a	1.000	n/a	n/a	1.091	n/a
MacKay Lake	GNWT	7/6/2010	Bottom	n/a	n/a	n/a	1.100	n/a	0.457	n/a	n/a	0.917	n/a	n/a	0.909	n/a
MacKay Lake	GNWT	7/6/2010	Surface	0.478	n/a	n/a	1.667	n/a	0.633	n/a	n/a	1.000	n/a	n/a	1.000	n/a
Lockhart River	EC	5/17/1994	-	n/a	n/a	n/a	n/a	1.096	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	6/6/1994	-	n/a	n/a	n/a	n/a	1.093	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/26/1994	-	n/a	n/a	n/a	n/a	1.016	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/26/1994	-	n/a	n/a	n/a	n/a	1.049	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/26/1994	-	n/a	n/a	n/a	n/a	1.048	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	11/15/1994	-	n/a	n/a	n/a	n/a	0.934	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	1/31/1995	-	n/a	n/a	n/a	n/a	1.018	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	5/5/1995	-	n/a	n/a	n/a	n/a	0.983	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	6/9/1995	-	n/a	n/a	n/a	n/a	1.196	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	9/19/1995	-	n/a	n/a	n/a	n/a	1.034	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	9/19/1995	-	n/a	n/a	n/a	n/a	1.034	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	9/19/1995	-	n/a	n/a	n/a	n/a	1.069	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	11/27/1995	-	n/a	n/a	n/a	n/a	1.135	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	2/3/1996	-	n/a	n/a	n/a	n/a	1.033	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	6/18/1996	-	n/a	n/a	n/a	n/a	1.016	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	9/16/1996	-	n/a	n/a	n/a	n/a	1.017	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	9/16/1996	-	n/a	n/a	n/a	n/a	1.123	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	9/16/1996	-	n/a	n/a	n/a	n/a	0.951	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	2/10/1998	-	n/a	n/a	n/a	n/a	0.948	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	2/4/1999	-	n/a	n/a	n/a	n/a	1.018	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	6/13/1999	-	n/a	n/a	n/a	n/a	1.036	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	1/17/2000	-	n/a	n/a	n/a	n/a	1.086	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	4/10/2000	-	n/a	n/a	n/a	n/a	1.086	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	6/17/2000	-	n/a	n/a	n/a	n/a	1.219	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/23/2000	-	n/a	n/a	n/a	n/a	1.214	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/23/2000	-	n/a	n/a	n/a	n/a	1.070	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/23/2000	-	n/a	n/a	n/a	n/a	1.034	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/25/2001	-	n/a	n/a	n/a	n/a	0.984	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/25/2001	-	n/a	n/a	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/25/2001	-	n/a	n/a	n/a	n/a	0.016	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	1/11/2002	-	n/a	n/a	n/a	n/a	0.968	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	4/28/2006	-	n/a	0.864	1.071	1.000	n/a	0.514	n/a	0.714	1.182	n/a	n/a	1.000	n/a
Lockhart River	EC	4/28/2006	-	n/a	0.857	5.833	1.000	n/a	0.613	n/a	n/a	0.981	n/a	n/a	0.991	n/a
Lockhart River	EC	4/28/2006	-	n/a	0.864	0.455	1.000	n/a	0.559	n/a	n/a	1.000	n/a	n/a	0.972	n/a
Lockhart River	EC	6/20/2006	-	1.310	0.960	5.250	1.000	n/a	0.649	n/a	1.286	1.153	n/a	n/a	0.981	n/a
Lockhart River	EC	8/24/2006	-	0.477	0.750	0.846	0.900	n/a	0.358	n/a	1.059	0.982	1.000	n/a	0.982	n/a
Lockhart River	EC	6/21/2007	-	0.757	0.897	1.412	1.000	n/a	0.667	n/a	1.167	1.111	n/a	n/a	0.981	n/a
Lockhart River	EC	9/27/2007	-	0.545	0.870	0.424	1.000	n/a	0.443	n/a	1.421	1.189	2.000	n/a	0.981	n/a

Table A-2-5: Total:dissolved metal ratios (total concentration / dissolved concentration)

Ratio > 1.2																
Ratio > 1.5																
Site Name	Owner	Date	Depth	Iron	Lanthanum	Lead	Lithium	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Niobium	Platinum	Rubidium	Selenium
Lockhart River	EC	1/22/2008	-	0.483	0.792	n/a	0.900	n/a	0.479	n/a	0.786	0.815	n/a	n/a	0.928	n/a
Lockhart River	EC	6/23/2008	-	0.656	0.926	n/a	1.000	n/a	0.667	n/a	1.063	1.529	n/a	n/a	0.972	n/a
Lockhart River	EC	9/22/2008	-	0.471	0.857	n/a	1.100	n/a	0.359	n/a	1.250	2.681	n/a	n/a	1.019	n/a
Lockhart River	EC	7/3/2009	-	0.630	0.852	n/a	1.000	n/a	0.686	n/a	1.000	1.040	n/a	n/a	0.981	n/a
Lockhart River	EC	7/3/2009	-	0.745	0.885	n/a	1.000	n/a	0.644	n/a	0.889	1.000	n/a	n/a	0.972	n/a
Lockhart River	EC	7/3/2009	-	0.618	0.885	n/a	1.000	n/a	0.596	n/a	5.250	1.082	n/a	n/a	0.971	n/a
Lockhart River	EC	8/20/2009	-	0.724	0.850	n/a	0.900	n/a	0.529	n/a	1.067	1.021	n/a	n/a	0.971	n/a
Lockhart River	EC	1/12/2010	-	0.480	0.850	3.350	1.100	n/a	0.647	n/a	1.067	1.137	n/a	n/a	1.035	n/a
Lockhart River	EC	6/16/2010	-	0.426	0.857	0.191	1.000	n/a	0.460	n/a	1.000	0.945	n/a	n/a	0.965	0.500
Lockhart River	EC	6/16/2010	-	0.418	0.857	0.207	0.962	n/a	0.539	n/a	1.000	0.841	n/a	n/a	0.965	0.500
Lockhart River	EC	6/16/2010	-	1.022	0.923	n/a	0.981	n/a	0.734	n/a	1.067	1.220	n/a	n/a	1.000	0.500
Lockhart River	EC	9/9/2010	-	0.516	0.789	n/a	1.053	n/a	0.600	n/a	1.000	1.000	n/a	n/a	0.991	0.500
Lockhart River	EC	1/19/2011	-	2.500	1.176	n/a	0.939	n/a	1.889	n/a	1.071	1.000	n/a	n/a	1.000	1.000
Lockhart River	EC	6/18/2011	-	0.649	0.880	0.130	1.020	n/a	0.701	n/a	0.895	0.958	n/a	n/a	0.947	0.500
Lockhart River	EC	9/14/2011	-	0.523	0.800	n/a	0.942	n/a	0.400	n/a	0.917	1.022	n/a	n/a	0.982	1.000
Lockhart River	EC	9/14/2011	-	0.410	0.810	0.571	0.990	n/a	0.345	n/a	1.000	1.021	n/a	n/a	0.991	1.000
Lockhart River	EC	9/14/2011	-	0.519	0.810	2.118	1.029	n/a	0.451	n/a	0.923	1.130	n/a	n/a	0.982	1.000
Lockhart River	EC	1/19/2012	-	0.604	0.900	0.966	0.963	n/a	0.583	n/a	1.200	0.983	n/a	n/a	1.009	1.000
Lockhart River	EC	6/6/2012	-	0.454	0.893	0.268	0.907	n/a	0.583	n/a	0.774	0.926	n/a	n/a	0.966	0.500
Lockhart River	EC	8/27/2012	-	0.462	0.850	n/a	1.020	n/a	0.553	n/a	1.000	0.917	n/a	n/a	0.991	1.000
Lockhart River	EC	3/6/2013	-	0.650	0.864	n/a	0.946	n/a	0.611	n/a	1.063	0.962	n/a	n/a	0.983	0.714
Lockhart River	EC	3/6/2013	-	0.625	0.864	n/a	0.982	n/a	0.645	n/a	1.333	1.021	n/a	n/a	0.974	0.500
Lockhart River	EC	3/6/2013	-	0.650	0.864	n/a	0.991	n/a	0.561	n/a	1.308	0.981	n/a	n/a	1.027	1.250
Lockhart River	EC	6/13/2013	-	0.550	0.815	1.120	1.066	n/a	0.548	n/a	0.762	0.936	n/a	n/a	0.968	1.000
Lockhart River	EC	9/7/2013	-	0.303	0.667	0.875	1.031	n/a	0.240	n/a	0.867	1.021	n/a	n/a	0.945	0.500
Lockhart River	EC	9/7/2013	-	0.314	0.680	0.674	0.990	n/a	0.277	n/a	1.056	1.022	n/a	n/a	0.990	1.000
Lockhart River	EC	9/7/2013	-	0.211	0.615	0.421	0.990	n/a	0.277	n/a	1.133	0.977	n/a	n/a	0.954	1.000
Lockhart River	EC	3/19/2014	-	0.667	0.826	n/a	0.982	n/a	0.512	n/a	0.857	0.925	n/a	n/a	0.975	1.000
Lockhart River	EC	6/16/2014	-	0.526	0.889	n/a	0.969	n/a	0.620	n/a	0.944	1.021	n/a	n/a	0.972	1.000
Lockhart River	EC	6/16/2014	-	0.513	0.833	n/a	0.990	n/a	0.609	n/a	0.842	1.000	n/a	n/a	0.946	1.000
Lockhart River	EC	6/16/2014	-	0.440	0.815	n/a	0.979	n/a	0.569	n/a	0.875	1.000	n/a	n/a	0.990	1.000
> 1.2				2%	0%	7%	1%	2%	1%	n/a	6%	7%	1%	n/a	0%	1%

Table A-2-5: Total:dissolved metal ratios (total concentration / dissolved concentration)

Ratio > 1.2
Ratio > 1.5

Site Name	Owner	Date	Depth	Silver	Sodium	Strontium	Thallium	Tin	Titanium	Tungsten	Uranium	Vanadium	Yttrium	Zinc
Coppermine Watershed														
Lac de Gras	GNWT	6/9/2005	Surface	n/a	n/a	1.036	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.607
Lac de Gras	GNWT	7/27/2005	Surface	n/a	n/a	0.942	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.792
Lac de Gras	GNWT	7/27/2005	Surface	n/a	n/a	0.930	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.587
Lac de Gras	GNWT	1/31/2006	Surface	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lac de Gras	GNWT	1/31/2006	Surface	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lac de Gras	GNWT	3/22/2006	Surface	n/a	n/a	1.085	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lac de Gras	GNWT	7/4/2006	Surface	n/a	n/a	0.960	n/a	n/a	1.100	n/a	n/a	n/a	n/a	n/a
Lac de Gras	GNWT	7/4/2006	Surface	n/a	n/a	0.942	n/a	n/a	0.714	n/a	n/a	n/a	n/a	n/a
Lac de Gras	GNWT	9/19/2006	Surface	n/a	n/a	0.968	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lac de Gras	GNWT	9/19/2006	Surface	n/a	n/a	0.984	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.800
Lac de Gras	GNWT	7/4/2007	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.400
Lac de Gras	GNWT	7/4/2007	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.000
Lac de Gras	GNWT	9/20/2007	Surface	n/a	n/a	1.014	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lac de Gras	GNWT	9/20/2007	Surface	n/a	n/a	0.957	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lac de Gras	GNWT	9/20/2007	Surface	n/a	n/a	1.063	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lac de Gras	GNWT	3/31/2008	Surface	n/a	n/a	0.975	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.286
Lac de Gras	GNWT	3/31/2008	Surface	n/a	n/a	0.987	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.800
Lac de Gras	GNWT	6/13/2008	Surface	n/a	n/a	0.987	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.800
Lac de Gras	GNWT	6/13/2008	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.833
Lac de Gras	GNWT	7/28/2008	Surface	n/a	n/a	1.369	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000
Lac de Gras	GNWT	7/28/2008	Surface	n/a	n/a	1.015	n/a	n/a	n/a	n/a	n/a	n/a	n/a	5.750
Lac de Gras	GNWT	8/5/2009	Surface	n/a	n/a	1.000	n/a	n/a	1.000	n/a	n/a	n/a	n/a	5.000
Lac de Gras	GNWT	7/6/2010	Bottom	n/a	n/a	0.897	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lac de Gras	GNWT	7/6/2010	Surface	n/a	n/a	0.883	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Destaffany Lake	GNWT	7/27/2005	Surface	n/a	n/a	0.897	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.839
Destaffany Lake	GNWT	3/22/2006	Surface	n/a	n/a	1.068	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Destaffany Lake	GNWT	3/22/2006	Surface	n/a	n/a	1.066	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Destaffany Lake	GNWT	7/4/2006	Surface	n/a	n/a	0.896	n/a	n/a	0.611	n/a	0.500	n/a	n/a	n/a
Destaffany Lake	GNWT	9/19/2006	Surface	n/a	n/a	0.981	n/a	n/a	n/a	n/a	1.000	n/a	n/a	5.200
Destaffany Lake	GNWT	7/4/2007	Surface	n/a	n/a	0.977	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.500
Destaffany Lake	GNWT	8/17/2007	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.600
Destaffany Lake	GNWT	9/13/2007	Surface	n/a	n/a	1.055	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000
Destaffany Lake	GNWT	3/31/2008	Surface	n/a	n/a	0.978	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.682
Destaffany Lake	GNWT	7/7/2008	Surface	n/a	n/a	1.016	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Destaffany Lake	GNWT	8/5/2009	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	0.500	n/a	n/a	0.857
Destaffany Lake	GNWT	8/5/2009	Surface	n/a	n/a	0.983	n/a	n/a	0.667	n/a	1.000	n/a	n/a	1.200
Destaffany Lake	GNWT	7/6/2010	Bottom	n/a	n/a	0.941	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.625
Destaffany Lake	GNWT	7/6/2010	Surface	n/a	n/a	0.924	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Daring Lake	GNWT	7/27/2005	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.346
Daring Lake	GNWT	3/22/2006	Surface	n/a	n/a	1.127	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Daring Lake	GNWT	7/26/2006	Surface	n/a	n/a	0.980	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.929
Daring Lake	GNWT	9/19/2006	Surface	n/a	n/a	0.980	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Daring Lake	GNWT	7/6/2007	Surface	n/a	n/a	2.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Daring Lake	GNWT	8/17/2007	Surface	n/a	n/a	0.974	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.625

Table A-2-5: Total:dissolved metal ratios (total concentration / dissolved concentration)

Ratio > 1.2
Ratio > 1.5

Site Name	Owner	Date	Depth	Silver	Sodium	Strontium	Thallium	Tin	Titanium	Tungsten	Uranium	Vanadium	Yttrium	Zinc
Daring Lake	GNWT	9/13/2007	Surface	n/a	n/a	1.040	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Daring Lake	GNWT	3/31/2008	Surface	n/a	n/a	0.987	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.885
Daring Lake	GNWT	7/7/2008	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.818
Daring Lake	GNWT	8/5/2009	Surface	n/a	n/a	1.000	n/a	n/a	1.000	n/a	n/a	n/a	n/a	1.250
Daring Lake	GNWT	7/6/2010	Bottom	n/a	n/a	0.854	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.500
Daring Lake	GNWT	7/6/2010	Surface	n/a	n/a	0.900	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	6/10/1994	-	n/a	2.529	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	6/10/1994	-	n/a	2.529	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	6/10/1994	-	n/a	2.588	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	7/14/1994	-	n/a	4.909	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	9/9/1994	-	n/a	4.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	3/1/1995	-	n/a	2.133	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	5/10/1995	-	n/a	1.500	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	6/18/1995	-	n/a	1.464	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	8/31/1995	-	n/a	1.119	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	8/31/1995	-	n/a	1.452	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	8/31/1995	-	n/a	1.419	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	8/31/1995	-	n/a	1.452	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	2/15/1996	-	n/a	1.441	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	5/7/1996	-	n/a	0.841	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	6/12/1996	-	n/a	2.136	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	9/3/1996	-	n/a	1.957	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	10/1/1996	-	n/a	1.275	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	10/1/1996	-	n/a	1.325	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	10/1/1996	-	n/a	1.359	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	5/1/1997	-	n/a	1.517	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	5/1/1997	-	n/a	1.517	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	5/1/1997	-	n/a	0.506	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	6/16/1997	-	n/a	1.500	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	9/5/1997	-	n/a	1.679	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	2/5/1998	-	n/a	1.250	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	5/5/1998	-	n/a	1.704	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	EC	6/4/1998	-	n/a	1.897	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	GNWT	7/27/2005	Surface	n/a	n/a	0.898	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.880
Point Lake	GNWT	3/22/2006	Surface	n/a	n/a	1.111	n/a	n/a	0.333	n/a	n/a	n/a	n/a	0.164
Point Lake	GNWT	7/26/2006	Surface	n/a	n/a	0.982	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.429
Point Lake	GNWT	9/19/2006	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000
Point Lake	GNWT	7/6/2007	Surface	n/a	n/a	2.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	7.000
Point Lake	GNWT	8/17/2007	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.800
Point Lake	GNWT	8/17/2007	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.714
Point Lake	GNWT	9/13/2007	Surface	n/a	n/a	0.966	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.400
Point Lake	GNWT	3/31/2008	Surface	n/a	n/a	0.960	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.690
Point Lake	GNWT	7/7/2008	Surface	n/a	n/a	1.018	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Point Lake	GNWT	8/5/2009	Surface	n/a	n/a	1.000	n/a	n/a	1.000	n/a	n/a	n/a	n/a	2.000
Point Lake	GNWT	7/6/2010	Bottom	n/a	n/a	0.947	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.833

Table A-2-5: Total:dissolved metal ratios (total concentration / dissolved concentration)

Ratio > 1.2														
Ratio > 1.5														
Site Name	Owner	Date	Depth	Silver	Sodium	Strontium	Thallium	Tin	Titanium	Tungsten	Uranium	Vanadium	Yttrium	Zinc
Point Lake	GNWT	7/6/2010	Surface	n/a	n/a	0.912	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Rocknest Lake	GNWT	9/19/2006	Surface	n/a	n/a	0.984	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.125
Rocknest Lake	GNWT	7/6/2007	Surface	n/a	n/a	1.571	n/a	n/a	3.000	n/a	n/a	n/a	n/a	10.250
Rocknest Lake	GNWT	7/6/2007	Surface	n/a	n/a	0.976	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.000
Rocknest Lake	GNWT	8/17/2007	Surface	n/a	n/a	0.978	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.333
Rocknest Lake	GNWT	9/13/2007	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000
Rocknest Lake	GNWT	3/31/2008	Surface	n/a	n/a	1.000	n/a	n/a	1.000	n/a	n/a	n/a	n/a	0.866
Rocknest Lake	GNWT	7/7/2008	Surface	n/a	n/a	0.985	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Rocknest Lake	GNWT	7/7/2008	Surface	n/a	n/a	0.985	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Rocknest Lake	GNWT	8/5/2009	Surface	1.000	n/a	0.986	n/a	n/a	1.000	n/a	n/a	n/a	n/a	1.091
Rocknest Lake	GNWT	7/6/2010	Bottom	n/a	n/a	0.841	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.529
Rocknest Lake	GNWT	7/6/2010	Surface	n/a	n/a	0.897	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Fairy Lake	GNWT	7/27/2005	-	n/a	n/a	0.952	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.760
Fairy Lake	GNWT	3/22/2006	-	n/a	n/a	1.091	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Fairy Lake	GNWT	7/26/2006	-	n/a	n/a	0.959	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Fairy Lake	GNWT	7/26/2006	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Fairy Lake	GNWT	9/19/2006	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	1.000	n/a	n/a
Fairy Lake	GNWT	7/6/2007	Surface	n/a	n/a	1.500	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Fairy Lake	GNWT	8/17/2007	Surface	n/a	n/a	0.981	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Fairy Lake	GNWT	9/13/2007	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Fairy Lake	GNWT	9/13/2007	Surface	n/a	n/a	1.014	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Fairy Lake	GNWT	7/7/2008	Surface	n/a	n/a	0.988	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Fairy Lake	GNWT	8/5/2009	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.074
Coppermine River-Fairy Lake River	GNWT	7/27/2005	-	n/a	n/a	0.986	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.364
Coppermine River-Fairy Lake River	GNWT	3/22/2006	-	n/a	n/a	1.093	n/a	n/a	0.333	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	6/13/2000	-	n/a	1.143	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	8/28/2000	-	n/a	1.149	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	8/28/2000	-	n/a	1.217	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	8/28/2000	-	n/a	1.250	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	5/2/2001	-	n/a	1.526	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	8/30/2001	-	n/a	1.297	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	8/30/2001	-	n/a	1.361	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	8/30/2001	-	n/a	1.297	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Coppermine River Above Copper Creek	EC	5/17/2006	-	0.500	n/a	0.983	1.000	n/a	n/a	0.857	0.902	0.314	0.649	0.613
Coppermine River Above Copper Creek	EC	6/4/2006	-	0.333	n/a	0.961	0.500	0.333	n/a	4.000	0.899	0.407	0.669	1.713
Coppermine River Above Copper Creek	EC	6/4/2006	-	0.500	n/a	0.935	0.500	0.778	n/a	62.500	0.952	0.615	0.793	0.960
Coppermine River Above Copper Creek	EC	6/4/2006	-	1.000	n/a	0.906	1.000	n/a	n/a	2.667	0.924	0.585	0.793	1.318
Coppermine River Above Copper Creek	EC	8/15/2006	-	2.000	n/a	1.001	1.500	1.500	n/a	1.000	0.994	0.893	0.755	3.680
Coppermine River Above Copper Creek	EC	4/19/2007	-	0.357	n/a	0.965	1.000	0.367	n/a	0.500	0.865	0.545	0.500	0.885
Coppermine River Above Copper Creek	EC	6/14/2007	-	0.500	n/a	0.939	1.000	4.286	n/a	0.333	0.882	0.228	0.418	1.202
Coppermine River Above Copper Creek	EC	8/29/2007	-	n/a	n/a	1.000	0.500	n/a	n/a	n/a	1.941	0.917	0.795	1.192
Coppermine River Above Copper Creek	EC	4/18/2008	-	1.125	n/a	1.068	4.000	2.409	n/a	1.500	1.097	1.023	1.000	1.378
Coppermine River Above Copper Creek	EC	6/3/2008	-	0.286	n/a	0.954	n/a	n/a	n/a	0.222	0.868	0.189	0.476	0.543
Coppermine River Above Copper Creek	EC	8/20/2008	-	n/a	n/a	0.971	n/a	n/a	n/a	1.000	0.941	0.726	0.702	1.154
Coppermine River Above Copper Creek	EC	4/9/2009	-	1.100	n/a	0.985	0.750	0.911	n/a	0.778	0.933	0.635	0.677	1.012

Table A-2-5: Total:dissolved metal ratios (total concentration / dissolved concentration)

Ratio > 1.2														
Ratio > 1.5														
Site Name	Owner	Date	Depth	Silver	Sodium	Strontium	Thallium	Tin	Titanium	Tungsten	Uranium	Vanadium	Yttrium	Zinc
Coppermine River Above Copper Creek	EC	4/9/2009	-	0.533	n/a	1.006	0.500	0.436	n/a	1.000	0.929	0.644	0.763	1.300
Coppermine River Above Copper Creek	EC	4/9/2009	-	0.667	n/a	0.992	0.750	0.712	n/a	0.583	0.901	0.602	0.711	0.924
Coppermine River Above Copper Creek	EC	6/17/2009	-	n/a	n/a	0.929	0.333	0.778	n/a	0.714	0.876	0.250	0.367	0.425
Coppermine River Above Copper Creek	EC	6/17/2009	-	n/a	n/a	0.938	0.167	0.667	n/a	0.167	0.884	0.188	0.322	0.361
Coppermine River Above Copper Creek	EC	6/17/2009	-	n/a	n/a	0.895	0.333	0.750	n/a	0.600	0.873	0.211	0.348	0.361
Coppermine River Above Copper Creek	EC	9/3/2009	-	n/a	n/a	1.007	1.000	n/a	n/a	2.000	0.974	1.070	1.050	1.013
Coppermine River Above Copper Creek	EC	4/17/2010	-	1.000	n/a	1.005	1.000	0.333	n/a	1.000	0.924	1.589	0.815	0.692
Coppermine River Above Copper Creek	EC	6/8/2010	-	0.250	n/a	0.904	0.400	n/a	n/a	0.375	0.804	0.187	0.313	0.200
Coppermine River Above Copper Creek	EC	8/31/2010	-	1.000	n/a	0.981	1.000	n/a	n/a	1.000	0.961	0.821	0.733	0.500
Coppermine River Above Copper Creek	EC	8/31/2010	-	n/a	n/a	0.971	2.000	n/a	n/a	1.000	0.917	0.825	0.733	1.500
Coppermine River Above Copper Creek	EC	8/31/2010	-	1.000	n/a	1.004	1.000	n/a	n/a	n/a	0.947	0.780	0.773	0.667
Coppermine River Above Copper Creek	EC	6/3/2011	-	0.333	n/a	0.940	0.400	n/a	n/a	0.286	0.860	0.197	0.406	0.316
Coppermine River Above Copper Creek	EC	6/3/2011	-	0.500	n/a	0.920	0.400	n/a	n/a	0.286	0.821	0.202	0.406	0.250
Coppermine River Above Copper Creek	EC	6/3/2011	-	0.250	n/a	0.955	0.400	n/a	n/a	0.286	0.867	0.189	0.423	0.286
Coppermine River Above Copper Creek	EC	9/9/2011	-	n/a	n/a	0.983	0.500	n/a	n/a	1.500	0.963	0.663	0.712	2.500
Coppermine River Above Copper Creek	EC	9/9/2011	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000	n/a	1.000
Coppermine River Above Copper Creek	EC	9/9/2011	-	1.000	n/a	1.042	1.500	n/a	n/a	1.000	0.964	0.719	0.741	2.000
Coppermine River Above Copper Creek	EC	6/5/2012	-	0.333	n/a	0.891	0.375	n/a	n/a	1.333	0.885	0.236	0.424	0.471
Coppermine River Above Copper Creek	EC	4/17/2013	-	1.125	n/a	0.980	1.000	0.807	n/a	0.538	0.937	0.787	0.564	1.184
Coppermine River Above Copper Creek	EC	6/11/2013	-	1.000	n/a	0.890	0.250	1.000	n/a	0.500	0.832	0.358	0.530	1.167
Coppermine River Above Copper Creek	EC	1/27/2014	-	n/a	n/a	0.951	1.000	1.063	n/a	1.000	0.887	0.937	0.815	1.567
Coppermine River Above Copper Creek	EC	4/10/2014	-	n/a	n/a	0.906	0.333	0.816	n/a	0.667	0.855	0.606	0.563	0.970
Coppermine River Above Copper Creek	EC	6/3/2014	-	0.333	n/a	0.992	0.250	n/a	n/a	n/a	1.036	0.217	0.485	0.643
Lockhart Watershed														
King Lake	GNWT	7/26/2006	Surface	n/a	n/a	0.969	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.000
King Lake	GNWT	9/19/2006	Surface	n/a	n/a	0.968	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
King Lake	GNWT	7/6/2007	Surface	n/a	n/a	1.011	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
King Lake	GNWT	8/17/2007	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000
King Lake	GNWT	9/13/2007	Surface	n/a	n/a	0.980	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
King Lake	GNWT	7/7/2008	Surface	n/a	n/a	0.980	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
King Lake	GNWT	8/5/2009	Surface	n/a	n/a	1.000	n/a	n/a	0.667	n/a	n/a	n/a	n/a	n/a
King Lake	GNWT	7/6/2010	Bottom	n/a	n/a	0.969	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.167
King Lake	GNWT	7/6/2010	Surface	n/a	n/a	0.939	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lake of the Enemy	GNWT	7/26/2006	Surface	n/a	n/a	0.985	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.000
Lake of the Enemy	GNWT	9/19/2006	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lake of the Enemy	GNWT	7/6/2007	Surface	n/a	n/a	0.730	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lake of the Enemy	GNWT	8/17/2007	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.000
Lake of the Enemy	GNWT	9/13/2007	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lake of the Enemy	GNWT	7/7/2008	Surface	n/a	n/a	0.969	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lake of the Enemy	GNWT	8/5/2009	Surface	n/a	n/a	1.000	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a
Lake of the Enemy	GNWT	7/6/2010	Bottom	n/a	n/a	0.910	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lake of the Enemy	GNWT	7/6/2010	Surface	n/a	n/a	0.897	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MacKay Lake	GNWT	7/26/2006	Surface	n/a	n/a	1.016	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.200
MacKay Lake	GNWT	9/19/2006	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3.000
MacKay Lake	GNWT	7/6/2007	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.800

Table A-2-5: Total:dissolved metal ratios (total concentration / dissolved concentration)

Ratio > 1.2														
Ratio > 1.5														
Site Name	Owner	Date	Depth	Silver	Sodium	Strontium	Thallium	Tin	Titanium	Tungsten	Uranium	Vanadium	Yttrium	Zinc
MacKay Lake	GNWT	8/17/2007	Surface	n/a	n/a	0.980	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.500
MacKay Lake	GNWT	9/13/2007	Surface	n/a	n/a	0.986	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MacKay Lake	GNWT	3/31/2008	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.897
MacKay Lake	GNWT	7/7/2008	Surface	n/a	n/a	0.985	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MacKay Lake	GNWT	8/5/2009	Surface	n/a	n/a	0.985	n/a	n/a	1.000	n/a	n/a	n/a	n/a	1.200
MacKay Lake	GNWT	7/6/2010	Bottom	n/a	n/a	0.910	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MacKay Lake	GNWT	7/6/2010	Surface	n/a	n/a	1.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.750
Lockhart River	EC	5/17/1994	-	n/a	2.333	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	6/6/1994	-	n/a	2.474	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/26/1994	-	n/a	3.538	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/26/1994	-	n/a	3.833	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/26/1994	-	n/a	3.500	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	11/15/1994	-	n/a	3.308	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	1/31/1995	-	n/a	1.656	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	5/5/1995	-	n/a	1.767	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	6/9/1995	-	n/a	1.667	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	9/19/1995	-	n/a	1.375	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	9/19/1995	-	n/a	1.677	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	9/19/1995	-	n/a	1.710	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	11/27/1995	-	n/a	2.368	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	2/3/1996	-	n/a	1.447	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	6/18/1996	-	n/a	0.804	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	9/16/1996	-	n/a	2.300	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	9/16/1996	-	n/a	2.684	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	9/16/1996	-	n/a	2.300	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	2/10/1998	-	n/a	1.229	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	2/4/1999	-	n/a	1.514	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	6/13/1999	-	n/a	1.044	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	1/17/2000	-	n/a	1.412	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	4/10/2000	-	n/a	1.600	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	6/17/2000	-	n/a	1.351	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/23/2000	-	n/a	1.306	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/23/2000	-	n/a	1.237	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/23/2000	-	n/a	1.231	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/25/2001	-	n/a	1.394	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/25/2001	-	n/a	1.424	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	8/25/2001	-	n/a	0.121	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	1/11/2002	-	n/a	1.114	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lockhart River	EC	4/28/2006	-	n/a	n/a	1.000	n/a	n/a	n/a	n/a	0.881	n/a	0.875	0.959
Lockhart River	EC	4/28/2006	-	n/a	n/a	1.005	n/a	n/a	n/a	n/a	0.984	n/a	0.875	1.227
Lockhart River	EC	4/28/2006	-	n/a	n/a	0.985	n/a	n/a	n/a	n/a	0.858	n/a	0.875	0.841
Lockhart River	EC	6/20/2006	-	n/a	n/a	0.971	n/a	n/a	n/a	n/a	0.931	1.200	0.800	1.792
Lockhart River	EC	8/24/2006	-	1.000	n/a	1.008	1.000	0.700	n/a	1.000	1.007	0.643	0.750	0.988
Lockhart River	EC	6/21/2007	-	2.000	n/a	0.988	1.000	0.882	n/a	n/a	0.987	0.909	0.846	1.360
Lockhart River	EC	9/27/2007	-	n/a	n/a	0.987	2.000	1.500	n/a	n/a	1.162	1.739	1.000	1.105

Table A-2-5: Total:dissolved metal ratios (total concentration / dissolved concentration)

Ratio > 1.2														
Ratio > 1.5														
Site Name	Owner	Date	Depth	Silver	Sodium	Strontium	Thallium	Tin	Titanium	Tungsten	Uranium	Vanadium	Yttrium	Zinc
Lockhart River	EC	1/22/2008	-	n/a	n/a	0.942	n/a	n/a	n/a	n/a	0.920	1.182	0.778	2.000
Lockhart River	EC	6/23/2008	-	n/a	n/a	0.975	1.000	n/a	n/a	n/a	1.011	1.500	1.000	3.321
Lockhart River	EC	9/22/2008	-	n/a	n/a	1.030	n/a	n/a	n/a	n/a	1.072	1.579	1.000	8.333
Lockhart River	EC	7/3/2009	-	n/a	n/a	1.014	n/a	n/a	n/a	n/a	1.023	0.750	1.000	2.548
Lockhart River	EC	7/3/2009	-	n/a	n/a	0.942	n/a	n/a	n/a	n/a	0.935	0.515	0.900	2.786
Lockhart River	EC	7/3/2009	-	n/a	n/a	0.973	n/a	n/a	n/a	n/a	0.966	0.794	1.000	2.385
Lockhart River	EC	8/20/2009	-	n/a	n/a	0.997	1.000	n/a	n/a	n/a	0.943	2.111	1.000	3.652
Lockhart River	EC	1/12/2010	-	n/a	n/a	0.992	n/a	n/a	n/a	n/a	1.056	0.471	1.000	5.063
Lockhart River	EC	6/16/2010	-	n/a	n/a	0.954	1.000	0.417	n/a	n/a	0.969	0.964	0.889	0.500
Lockhart River	EC	6/16/2010	-	n/a	n/a	0.998	n/a	0.250	n/a	n/a	1.025	1.200	0.889	0.462
Lockhart River	EC	6/16/2010	-	n/a	n/a	0.986	n/a	1.857	n/a	n/a	0.988	1.000	1.222	4.000
Lockhart River	EC	9/9/2010	-	n/a	n/a	0.994	1.000	n/a	n/a	n/a	0.918	0.676	0.857	2.500
Lockhart River	EC	1/19/2011	-	n/a	n/a	1.026	n/a	n/a	n/a	n/a	1.064	0.545	1.000	0.667
Lockhart River	EC	6/18/2011	-	1.000	n/a	0.974	1.000	n/a	n/a	n/a	0.977	0.700	0.889	1.333
Lockhart River	EC	9/14/2011	-	n/a	n/a	1.021	n/a	n/a	n/a	n/a	0.975	0.828	0.889	0.810
Lockhart River	EC	9/14/2011	-	n/a	n/a	1.011	n/a	n/a	n/a	1.000	0.933	1.263	0.875	0.402
Lockhart River	EC	9/14/2011	-	1.000	n/a	0.982	0.750	n/a	n/a	n/a	1.027	1.263	0.778	1.574
Lockhart River	EC	1/19/2012	-	n/a	n/a	1.023	1.000	n/a	n/a	n/a	0.911	0.231	1.000	3.308
Lockhart River	EC	6/6/2012	-	n/a	n/a	0.993	1.500	0.327	n/a	1.091	0.897	0.732	0.833	0.400
Lockhart River	EC	8/27/2012	-	n/a	n/a	0.984	1.000	n/a	n/a	1.000	0.940	1.613	0.889	1.000
Lockhart River	EC	3/6/2013	-	n/a	n/a	0.979	1.000	n/a	n/a	n/a	1.050	1.515	1.000	1.500
Lockhart River	EC	3/6/2013	-	n/a	n/a	0.996	1.000	n/a	n/a	n/a	0.994	0.611	0.875	2.000
Lockhart River	EC	3/6/2013	-	n/a	n/a	0.989	1.000	n/a	n/a	n/a	0.937	1.219	1.000	2.750
Lockhart River	EC	6/13/2013	-	n/a	n/a	0.960	1.000	1.727	n/a	n/a	0.940	1.324	1.100	1.286
Lockhart River	EC	9/7/2013	-	n/a	n/a	1.006	1.000	n/a	n/a	n/a	0.930	3.650	0.600	0.750
Lockhart River	EC	9/7/2013	-	n/a	n/a	0.997	n/a	n/a	n/a	0.667	0.935	2.438	0.778	1.100
Lockhart River	EC	9/7/2013	-	n/a	n/a	1.000	1.000	n/a	n/a	n/a	0.819	2.074	0.583	0.600
Lockhart River	EC	3/19/2014	-	n/a	n/a	0.975	n/a	n/a	n/a	n/a	0.897	1.088	0.778	2.000
Lockhart River	EC	6/16/2014	-	n/a	n/a	0.986	n/a	n/a	n/a	n/a	0.844	0.905	0.900	2.000
Lockhart River	EC	6/16/2014	-	n/a	n/a	0.978	n/a	n/a	n/a	n/a	0.851	0.581	0.900	2.000
Lockhart River	EC	6/16/2014	-	n/a	n/a	0.941	n/a	n/a	n/a	n/a	0.853	1.053	1.000	3.667
> 1.2				1%	28%	0%	2%	3%	0%	0%	0%	13%	1%	30%

Table A-2-6: Detection limits for Environment Canada (EC) and Government of the Northwest Territories (GNWT) compared to water quality guidelines.

DL > guideline

* Reference values for hardness dependent guidelines. Actual guidelines will vary relative to hardness.

CCME st / It = Canadian Council of Ministers of the Environment short term and long term water quality guidelines

HC DWQG = Health Canada Drinking Water Quality Guidelines

All units mg/L unless noted otherwise.

Parameter	CCME st	CCME It	HC DWQG	Coppermine		Lockhart	
				EC	GNWT	EC	GNWT
Physical Tests							
Flow	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-
Apparent Colour (relative units)	-	-	-	5	5	5	5
True Colour (relative units)	-	-	-	5	5	-	5
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-
TDS	-	-	-	-	10	10	10
Water Temperature (°C)	-	-	15	-	-	-	-
TSS fixed	-	-	-	-	-	-	-
TSS	-	-	-	3	3	3	3
Turbidity (NTU)	-	-	0.1	-	-	-	-
Major Ions							
Alkalinity Phenolphthalein (CaCO ₃)	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO ₃)	-	-	-	-	-	-	0.7
Chloride, Dissolved	640	120	-	-	0.7	-	0.7
Fluoride, Dissolved	-	0.12	1.5	-	0.1	-	0.1
Hardness non-carb	-	-	-	-	-	-	-
Hardness, Total (as CaCO ₃)	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-
pH (pH units)	-	6.5 - 9.0	-	-	-	-	-

Table A-2-6: Detection limits for Environment Canada (EC) and Government of the Northwest Territories (GNWT) compared to water quality guidelines.

DL > guideline

* Reference values for hardness dependent guidelines. Actual guidelines will vary relative to hardness.

CCME st / It = Canadian Council of Ministers of the Environment short term and long term water quality guidelines

HC DWQG = Health Canada Drinking Water Quality Guidelines

All units mg/L unless noted otherwise.

Parameter	CCME st	CCME It	HC DWQG	Coppermine		Lockhart	
				EC	GNWT	EC	GNWT
Silica, Reactive	-	-	-	-	-	-	-
Silica	-	-	-	-	-	-	-
Sulphate, Dissolved	-	-	-	-	1	-	0.1
Nutrients							
Ammonia, Dissolved	-	-	-	0.005	-	0.005	-
Ammonia, Total	-	0.044	-	-	0.005	-	0.005
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-
Nitrate	124	2.9	45	0.01	0.01	0.01	0.01
Nitrate-Nitrite, Dissolved	-	-	-	-	-	-	-
Nitrate-Nitrite	-	-	-	0.01	0.01	0.01	0.01
Nitrite	-	0.06	3	0.01	0.01	0.01	0.01
Nitrogen, Particulate	-	-	-	0.002	-	-	-
Nitrogen, Total Dissolved	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-
Nitrogen, Total	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-
Phosphate, Ortho	-	-	-	-	0.001	-	0.001
Phosphate, Total Inorganic	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	-	-	-	0.004	-	0.004	-
Organic/Inorganic Carbon							
Bicarbonate (calcd)	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-
Carbon, Dissolved Organic	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-
Carbon, Particulate Organic	-	-	-	-	-	-	-
Carbon, Total Inorganic	-	-	-	-	-	-	-
Carbon, Total Organic	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-

Table A-2-6: Detection limits for Environment Canada (EC) and Government of the Northwest Territories (GNWT) compared to water quality guidelines.

DL > guideline

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CCME st / It = Canadian Council of Ministers of the Environment short term and long term water quality guidelines

HC DWQG = Health Canada Drinking Water Quality Guidelines

All units mg/L unless noted otherwise.

Parameter	CCME st	CCME It	HC DWQG	Coppermine		Lockhart	
				EC	GNWT	EC	GNWT
Free CO2 (calcd)	-	-	-	-	-	-	-
Cyanide							
Cyanide Thiocyanate	-	-	-	-	-	-	-
Cyanide, Total	-	0.005	0.2	-	0.001	-	0.001
Cyanide, wad	-	-	-	-	0.002	-	0.002
Dissolved Metals							
Aluminum	-	-	-	-	-	-	0.0006
Antimony	-	-	-	-	0.0001	-	0.0001
Arsenic	-	-	-	-	0.0002	-	0.0002
Barium	-	-	-	-	-	-	-
Beryllium	-	-	-	-	0.0001	0.000001	0.0001
Bismuth	-	-	-	0.000001	0.0002	0.000001	0.0002
Boron	-	-	-	-	-	-	-
Cadmium	-	-	-	-	0.00005	-	0.00005
Calcium	-	-	-	-	-	-	-
Cerium	-	-	-	-	-	-	-
Cesium	-	-	-	0.000005	0.0001	-	0.0001
Chromium	-	-	-	-	0.0001	-	0.0001
Cobalt	-	-	-	-	0.0001	-	0.0001
Copper	-	-	-	-	0.0002	-	0.0002
Gallium	-	-	-	-	-	0.000001	-
Iron	-	-	-	-	0.005	-	0.005
Lanthanum	-	-	-	-	-	-	-
Lead	-	-	-	-	0.0001	0.000005	0.0001
Lithium	-	-	-	-	0.0002	-	0.0002
Magnesium	-	-	-	-	-	-	-
Manganese	-	-	-	-	-	-	0.0001
Mercury	-	-	-	-	0.00001	-	0.00001

Table A-2-6: Detection limits for Environment Canada (EC) and Government of the Northwest Territories (GNWT) compared to water quality guidelines.

DL > guideline

* Reference values for hardness dependent guidelines. Actual guidelines will vary relative to hardness.

CCME st / It = Canadian Council of Ministers of the Environment short term and long term water quality guidelines

HC DWQG = Health Canada Drinking Water Quality Guidelines

All units mg/L unless noted otherwise.

Parameter	CCME st	CCME It	HC DWQG	Coppermine		Lockhart	
				EC	GNWT	EC	GNWT
Molybdenum	-	-	-	-	0.0001	-	0.0001
Nickel	-	-	-	-	0.0001	-	-
Niobium	-	-	-	0.000001	-	0.000001	-
Phosphorous, Total	-	-	-	0.01	0.01	0.01	0.01
Platinum	-	-	-	0.000001	-	0.000001	-
Potassium	-	-	-	-	-	-	-
Rubidium	-	-	-	-	-	-	-
Selenium	-	-	-	0.00005	0.0003	0.00005	0.0003
Silver	-	-	-	0.000001	0.0001	0.000001	0.0001
Sodium	-	-	-	-	-	-	-
Strontium	-	-	-	-	-	-	-
Thallium	-	-	-	-	0.0001	0.000001	0.0001
Tin	-	-	-	0.000005	0.0001	0.000005	0.0001
Titanium	-	-	-	-	0.0001	-	0.0001
Tungsten	-	-	-	0.000001	-	0.000001	0.0001
Uranium	-	-	-	-	0.0001	-	0.0001
Vanadium	-	-	-	-	0.0001	-	0.0001
Yttrium	-	-	-	-	-	-	-
Zinc	-	-	-	-	0.0004	-	0.0004
Extractable Metals							
Aluminum	-	-	-	-	-	-	-
Barium	-	-	-	-	-	-	-
Beryllium	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-
Cadmium	-	-	-	-	-	-	-
Calcium (unfiltered)	-	-	-	-	-	-	-
Chromium	-	-	-	-	-	-	-
Cobalt	-	-	-	-	-	-	-

Table A-2-6: Detection limits for Environment Canada (EC) and Government of the Northwest Territories (GNWT) compared to water quality guidelines.

DL > guideline

* Reference values for hardness dependent guidelines. Actual guidelines will vary relative to hardness.

CCME st / It = Canadian Council of Ministers of the Environment short term and long term water quality guidelines

HC DWQG = Health Canada Drinking Water Quality Guidelines

All units mg/L unless noted otherwise.

Parameter	CCME st	CCME It	HC DWQG	Coppermine		Lockhart	
				EC	GNWT	EC	GNWT
Copper	-	-	-	-	-	-	-
Iron	-	-	-	-	-	-	-
Lead	-	-	-	-	-	-	-
Lithium	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-
Manganese	-	-	-	-	-	-	-
Molybdenum	-	-	-	-	-	-	-
Nickel	-	-	-	-	-	-	-
Potassium	-	-	-	-	-	-	-
Sodium	-	-	-	-	-	-	-
Strontium	-	-	-	-	-	-	-
Vanadium	-	-	-	-	-	-	-
Zinc	-	-	-	-	-	-	-
Total Metals							
Aluminum	-	0.005 at pH < 6.5, 0.1 at pH ≥ 6.5	-	-	0.03	-	0.0006
Antimony	-	-	0.006	-	0.0001	0.000001	0.0001
Arsenic	-	0.005	0.01	-	0.0002	-	0.0002
Barium	-	-	1	-	-	-	-
Beryllium	-	-	-	-	0.0001	0.000001	0.0001
Bismuth	-	-	-	-	-	0.000001	-
Boron	29	1.5	5	-	-	0.0001	-
Cadmium	0.00002 at hardness 10; 0.001 at hardness 50*	0.00004 at hardness 10; 0.00009 at hardness 50*	0.005	-	0.00005	-	0.00005
Cerium	-	-	-	-	-	-	-
Cesium	-	-	-	-	0.0001	-	0.0001

Table A-2-6: Detection limits for Environment Canada (EC) and Government of the Northwest Territories (GNWT) compared to water quality guidelines.

DL > guideline

* Reference values for hardness dependent guidelines. Actual guidelines will vary relative to hardness.

CCME st / It = Canadian Council of Ministers of the Environment short term and long term water quality guidelines

HC DWQG = Health Canada Drinking Water Quality Guidelines

All units mg/L unless noted otherwise.

Parameter	CCME st	CCME It	HC DWQG	Coppermine		Lockhart	
				EC	GNWT	EC	GNWT
Chromium	-	0.0089	0.05	-	0.0001	-	0.0001
Cobalt	-	-	-	-	0.0001	-	0.0001
Copper	-	0.002 at hardness < 82*	-	-	0.0002	-	0.0002
Gallium	-	-	-	-	-	0.000001	-
Iron	-	0.3	-	-	0.05	-	0.005
Lanthanum	-	-	-	-	-	-	-
Lead	-	0.001 at hardness ≤ 60*	0.01	-	0.0001	0.000005	0.0001
Lithium	-	-	-	-	0.0002	-	0.0002
Magnesium	-	-	-	-	-	-	-
Manganese	-	-	-	-	-	-	-
Mercury	-	0.000026	0.001	-	0.00001	-	0.00001
Molybdenum	-	0.073	-	-	0.0001	-	0.0001
Nickel	-	0.025 at hardness ≤ 60*	-	-	0.0001	-	-
Niobium	-	-	-	-	-	0.000001	-
Phosphorous	-	-	-	0.01	0.01	0.01	0.01
Platinum	-	-	-	0.000001	-	0.000001	-
Rubidium	-	-	-	-	-	-	-
Selenium	-	0.001	0.05	0.00005	0.0003	0.00005	0.0003
Silver	-	0.0001	-	0.000001	0.0001	0.000001	0.0001
Sodium	-	-	-	-	-	-	-
Strontium	-	-	-	-	-	-	-
Thallium	-	0.0008	-	0.000001	0.0001	0.000001	0.0001
Tin	-	-	-	0.000005	-	0.000005	-

Table A-2-6: Detection limits for Environment Canada (EC) and Government of the Northwest Territories (GNWT) compared to water quality guidelines.

DL > guideline

* Reference values for hardness dependent guidelines. Actual guidelines will vary relative to hardness.

CCME st / It = Canadian Council of Ministers of the Environment short term and long term water quality guidelines

HC DWQG = Health Canada Drinking Water Quality Guidelines

All units mg/L unless noted otherwise.

Parameter	CCME st	CCME It	HC DWQG	Coppermine		Lockhart	
				EC	GNWT	EC	GNWT
Titanium	-	-	-	-	0.0001	-	0.0001
Tungsten	-	-	-	-	-	0.000001	-
Uranium	-	0.15	0.02	-	0.0001	-	0.0001
Vanadium	-	-	-	-	0.0001	-	0.0001
Yttrium	-	-	-	-	-	-	-
Zinc	-	0.03	-	-	0.0004	-	0.0004
BTEX							
Benzene	-	-	0.005	-	0.005	-	-
Ethylbenzene	-	-	0.14	-	0.005	-	-
m/p-Xylene	-	-	-	-	0.005	-	-
o-Xylene	-	-	-	-	0.005	-	-
Toluene	-	-	0.06	-	0.005	-	-
Total Xylene	-	-	0.09	-	-	-	-
Hydrocarbons							
Extractable Hydrocarbons C10-C16				-	-	-	-
Extractable Hydrocarbons C16-C34				-	-	-	-
Extractable Hydrocarbons C34-C50				-	-	-	-
Purgeable hydrocarbons				-	-	-	-
total extractable hydrocarbons (TEH)				-	0.05	-	-
PAHs							
1,2,3,4-Tetrahydronaphthalene	-	-	-	0.000017	-	-	-
1-Methylnaphthalene	-	-	-	-	-	-	-
2-Chloronaphthalene	-	-	-	0.0000223	-	-	-
2-Methylnaphthalene	-	-	-	-	-	-	-
Acenaphthene	-	0.0058	-	0.0000239	-	-	-
Acenaphthylene	-	-	-	-	-	-	-
Alpha-Chlordane	-	-	-	-	-	-	-
Anthracene	-	0.000012	-	0.00002	-	-	-

Table A-2-6: Detection limits for Environment Canada (EC) and Government of the Northwest Territories (GNWT) compared to water quality guidelines.

DL > guideline

* Reference values for hardness dependent guidelines. Actual guidelines will vary relative to hardness.

CCME st / It = Canadian Council of Ministers of the Environment short term and long term water quality guidelines

HC DWQG = Health Canada Drinking Water Quality Guidelines

All units mg/L unless noted otherwise.

Parameter	CCME st	CCME It	HC DWQG	Coppermine		Lockhart	
				EC	GNWT	EC	GNWT
Benzo(a)anthracene	-	0.000018	-	0.00002	-	-	-
Benzo(a)pyrene	-	0.000015	0.00001	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	-	-
Benzo(e)pyrene	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	-	-
Chrysene	-	-	-	0.00002	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	-	-
Fluoranthene	-	0.00004	-	0.0000087	-	-	-
Fluorene	-	0.003	-	0.0000251	-	-	-
Fluorene-d10 (surrogate) (%)	-	-	-	-	-	-	-
Indene	-	-	-	0.0000145	-	-	-
Indeno(1,2,3-c,d)pyrene	-	-	-	-	-	-	-
Naphthalene	-	0.0011	-	-	-	-	-
Naphthalene-d8 (surrogate) (%)	-	0.0004	-	-	-	-	-
Perylene	-	-	-	-	-	-	-
Phenanthrene	-	-	-	0.0000338	-	-	-
Pyrene	-	0.000025	-	0.00000782	-	-	-
Pyrene-d10 (surrogate) (%)	-	-	-	-	-	-	-

**STATUS AND TRENDS OF WATER CHEMISTRY AND FLOW IN THE COPPERMINE AND LOCKHART RIVER
BASINS
FINAL REPORT**

Appendix B Water Chemistry Summary Statistics
March 31, 2015

Appendix B WATER CHEMISTRY SUMMARY STATISTICS

**STATUS AND TRENDS OF WATER CHEMISTRY AND FLOW IN THE COPPERMINE AND LOCKHART RIVER
BASINS
FINAL REPORT**

Appendix B Water Chemistry Summary Statistics
March 31, 2015

B.1 COPPERMINE WATERSHED ALL DATA PLOTS

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Client/Project

Northwest
Territories

B-1-1- a

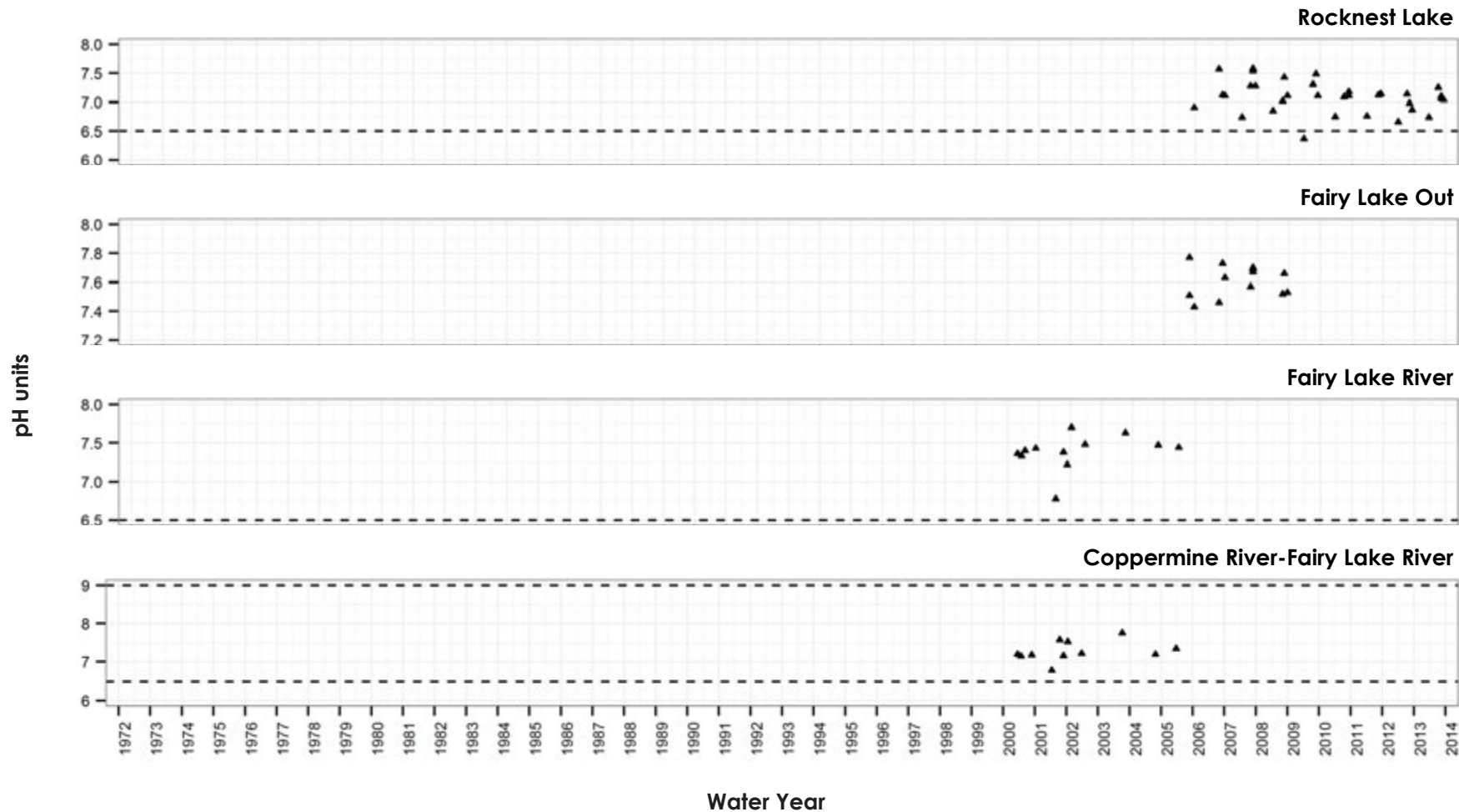
Report Title



Data Source: Environment Canada, Government of Northwest Territories

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Coppermine Watershed



NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Parameter	CCME (Long term)
Line type	-----
Guideline value	6.5 - 9.0

Data Source: Environment Canada, Government of Northwest Territories

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Government of Northwest Territories



Appendix No.

B-1-1-b

Appendix Title

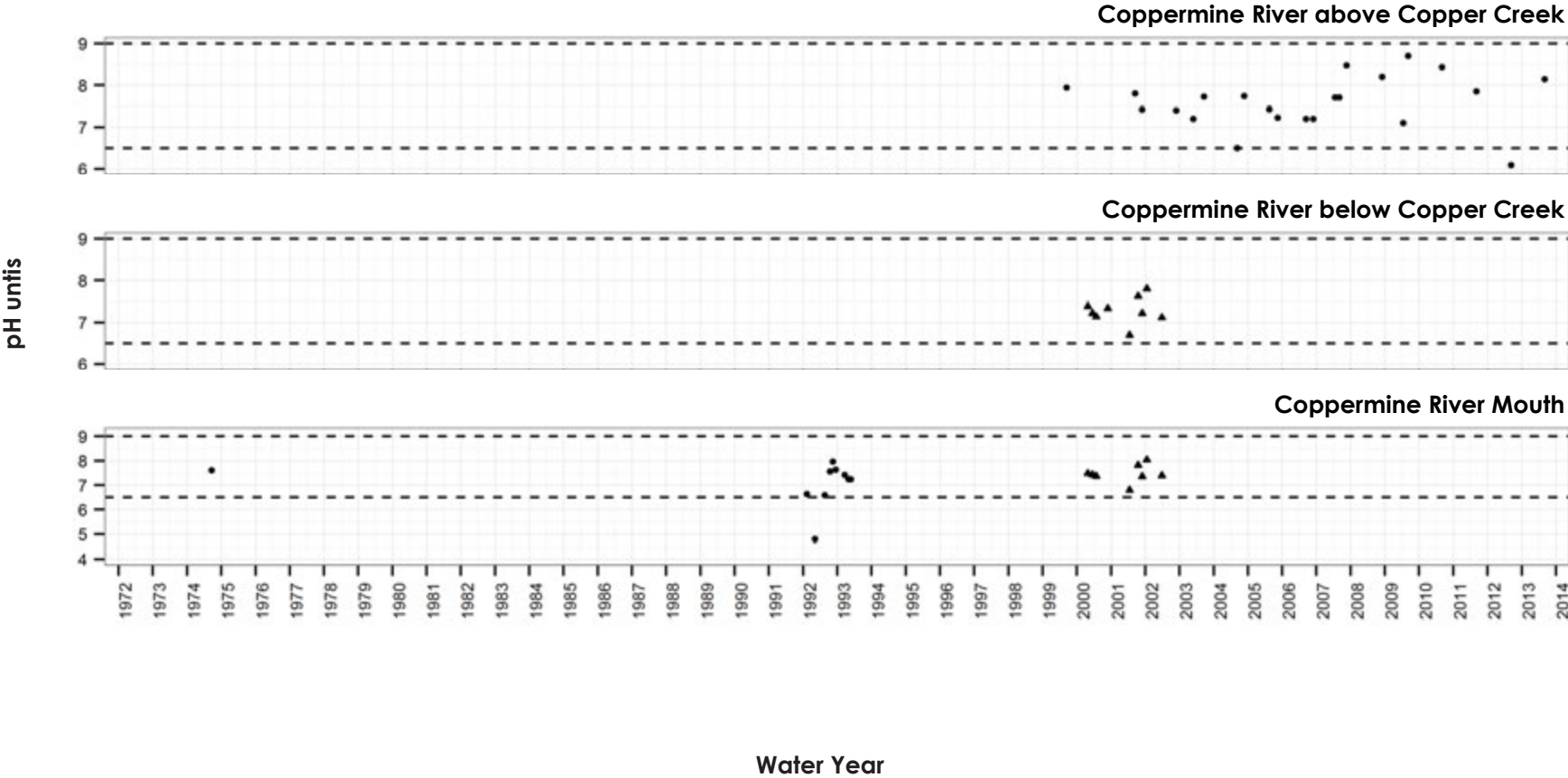
Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Coppermine Watershed



NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Parameter	CCME (Long term)
Line type	-----
Guideline value	6.5 - 9.0

Client/Project

Government of Northwest Territories

Appendix No.

B-1-1-c

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



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The figure consists of four vertically stacked scatter plots, each representing a different lake. The y-axis for all plots is 'Conductivity (µS/cm)' ranging from 0 to 300. The x-axis for all plots is 'Water Year' ranging from 1971 to 2014. The lakes are: Lac De Gras, Desteffany Lake, Daring Lake, and Point Lake. The data points are mostly clustered near zero, with some higher values in the later years for Lac De Gras and Desteffany Lake.

Lake	Water Year	Conductivity (µS/cm)
Lac De Gras	1999	20
	2000	20
	2001	20
	2002	20
	2003	20
	2004	20
	2005	20
	2006	20
	2007	20
	2008	20
Desteffany Lake	1997	20
	1998	20
	1999	20
	2000	20
	2001	20
	2002	20
	2003	20
	2004	20
	2005	20
	2006	20
Daring Lake	2002	20
	2003	20
	2004	20
	2005	20
	2006	20
	2007	20
	2008	20
	2009	20
	2010	20
	2011	20
Point Lake	1971	10
	1972	10
	1973	10
	1974	10
	1975	10
	1976	10
	1977	10
	1978	10
	1979	10
	1980	10

GNWT = ▲ EC = ● Empty symbols = below detection limit



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Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



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Coppermine Watershed

Rocknest Lake



Fairy Lake Out



Fairy Lake River



Coppermine River-Fairy Lake River



Water Year

NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

B-1-2- b

Appendix Title

Water Quality Data

Report Title

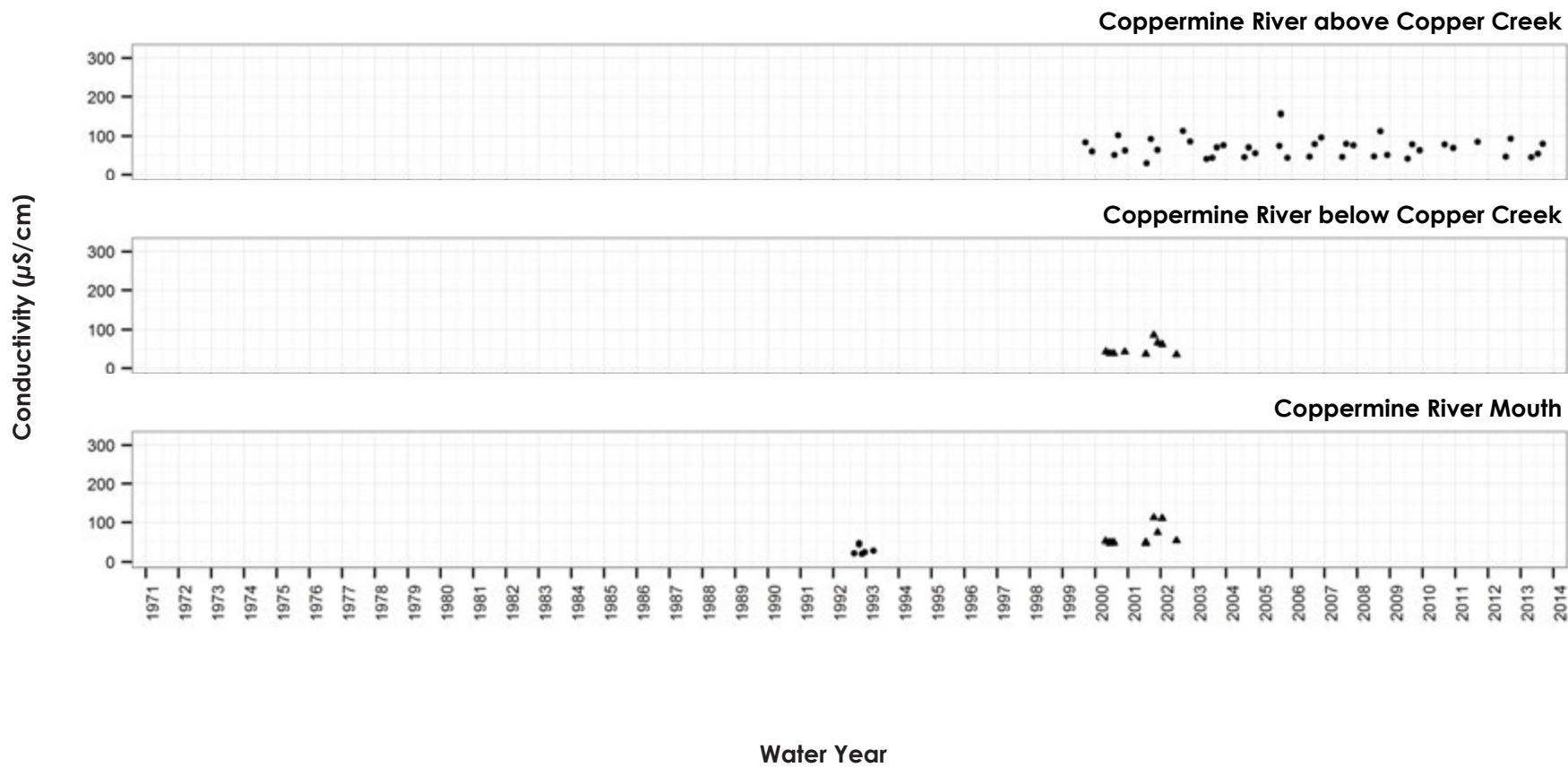
Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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Coppermine Watershed



NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

B-1-2- c

Appendix Title

Water Quality Data

Report Title

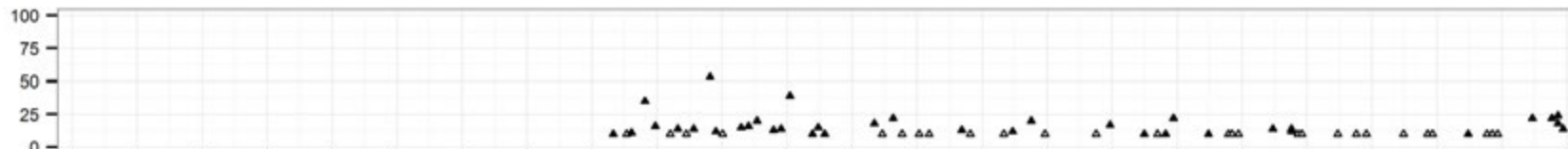
Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

Data Source: Environment Canada, Government of Northwest Territories

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Coppermine Watershed

Lac De Gras



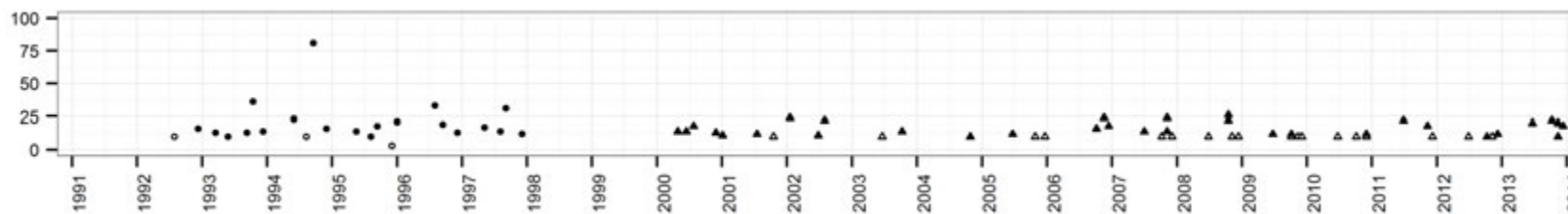
Desteffany Lake



Daring Lake



Point Lake



Water Year

NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

B-1-3-a

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report



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The figure consists of four vertically stacked scatter plots, each representing a different water body. The y-axis for all plots is 'TDS (mg/L)' ranging from 0 to 100 in increments of 25. The x-axis for all plots is 'Water Year' ranging from 1991 to 2014. Data points are represented by black triangles.

- Rocknest Lake:** Data points are clustered between 2006 and 2014, with TDS values generally between 10 and 40 mg/L.
- Fairy Lake Out:** Data points are clustered between 2006 and 2009, with TDS values generally between 10 and 40 mg/L.
- Fairy Lake River:** Data points are scattered from 2000 to 2006, with TDS values generally between 10 and 40 mg/L.
- Coppermine River-Fairy Lake River:** Data points are scattered from 2000 to 2006, with TDS values generally between 10 and 40 mg/L.

GNWT = ▲ EC = ● Empty symbols = below detection limit

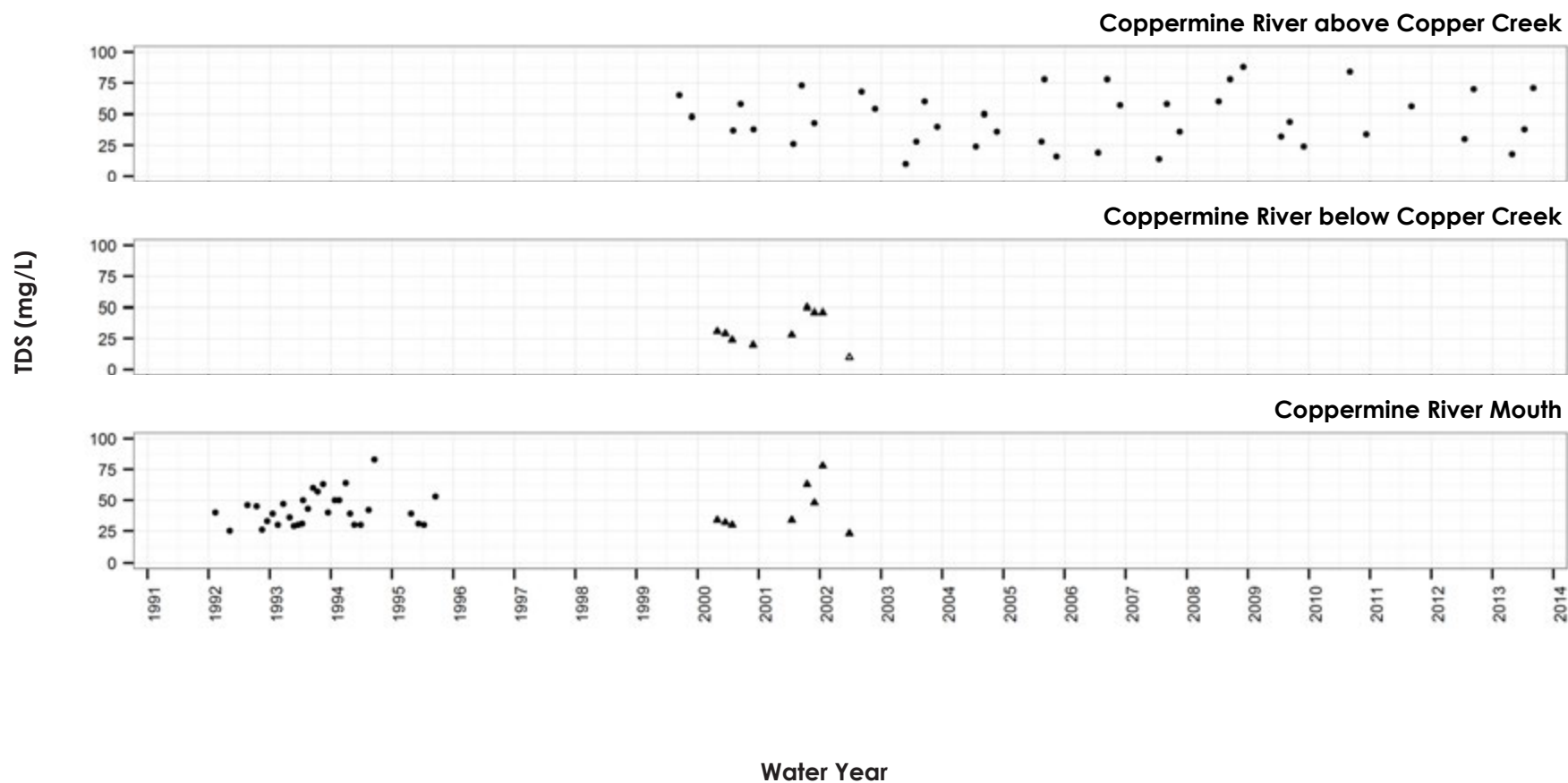


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Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

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Coppermine Watershed



NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

B-1-3- c

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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Parameter	HC DWQG (Health Canada Drinking Water Quality Guidelines)
Line type	
Guideline value (ntu)	0.1

GNWT = ▲ EC = ● Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

Appendix No.
B-1-4- b

Appendix Title

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

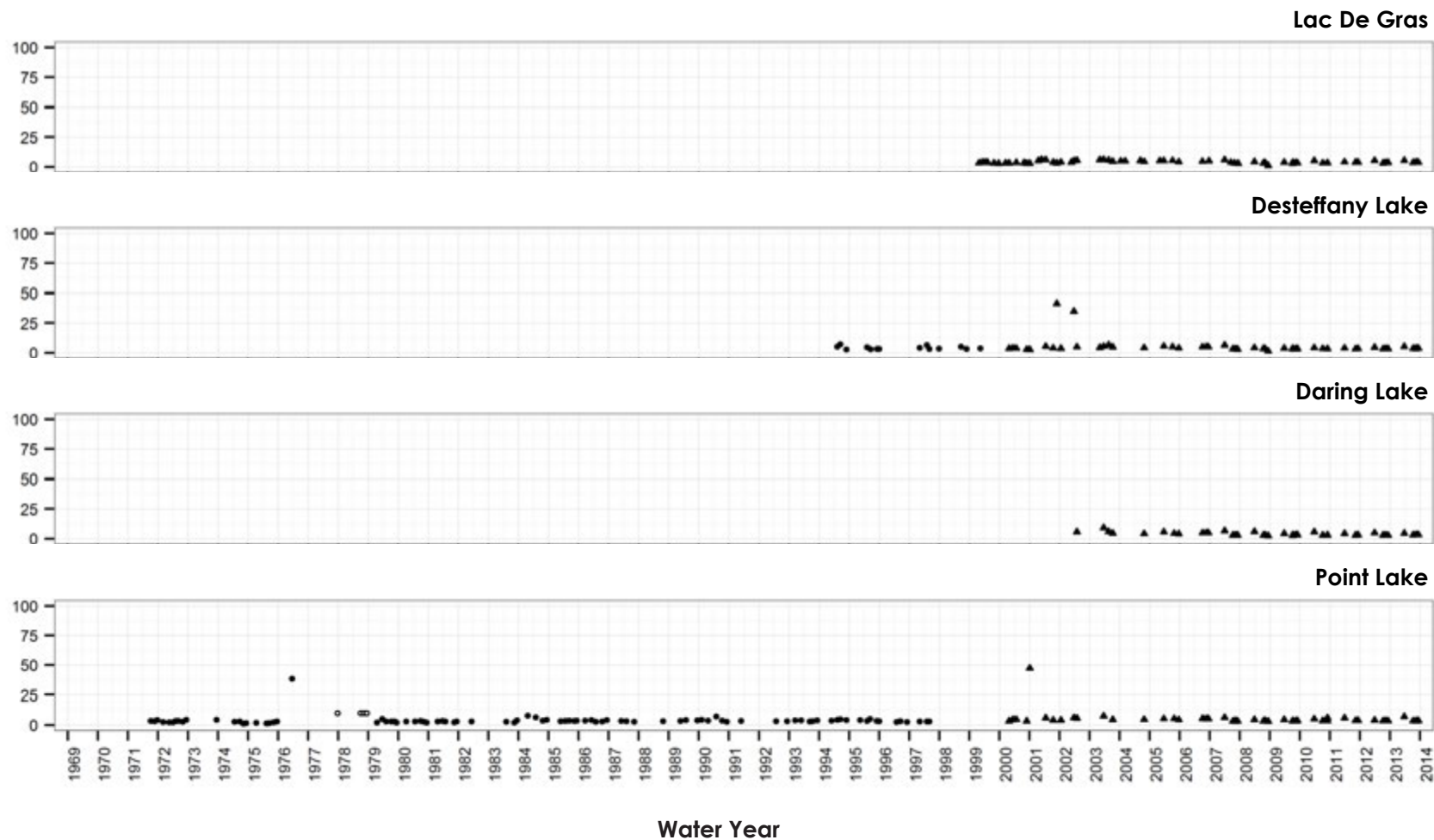
Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

\\agssd\gfs_y_drive\templates\standard\standard_and_a_L_HorizontalBar_TileRight.mxd



Client/Project	Government of Northwest Territories Appendix No. B-1-4- c Appendix Title Water Quality Data Report Title Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report	 Northwest Territories



Alkalinity (mg/L as CaCO_3)

NOTE: Water year begins October 1 of previous calendar year.

Client/Project

Government of Northwest Territories



Appendix No.

Appendix No.
B-1-5- a

Appendix Title

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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Coppermine Watershed

Rocknest Lake



Fairy Lake Out



Fairy Lake River



Coppermine River-Fairy Lake River



Water Year

NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

B-1-5- b

Appendix Title

Water Quality Data

Report Title

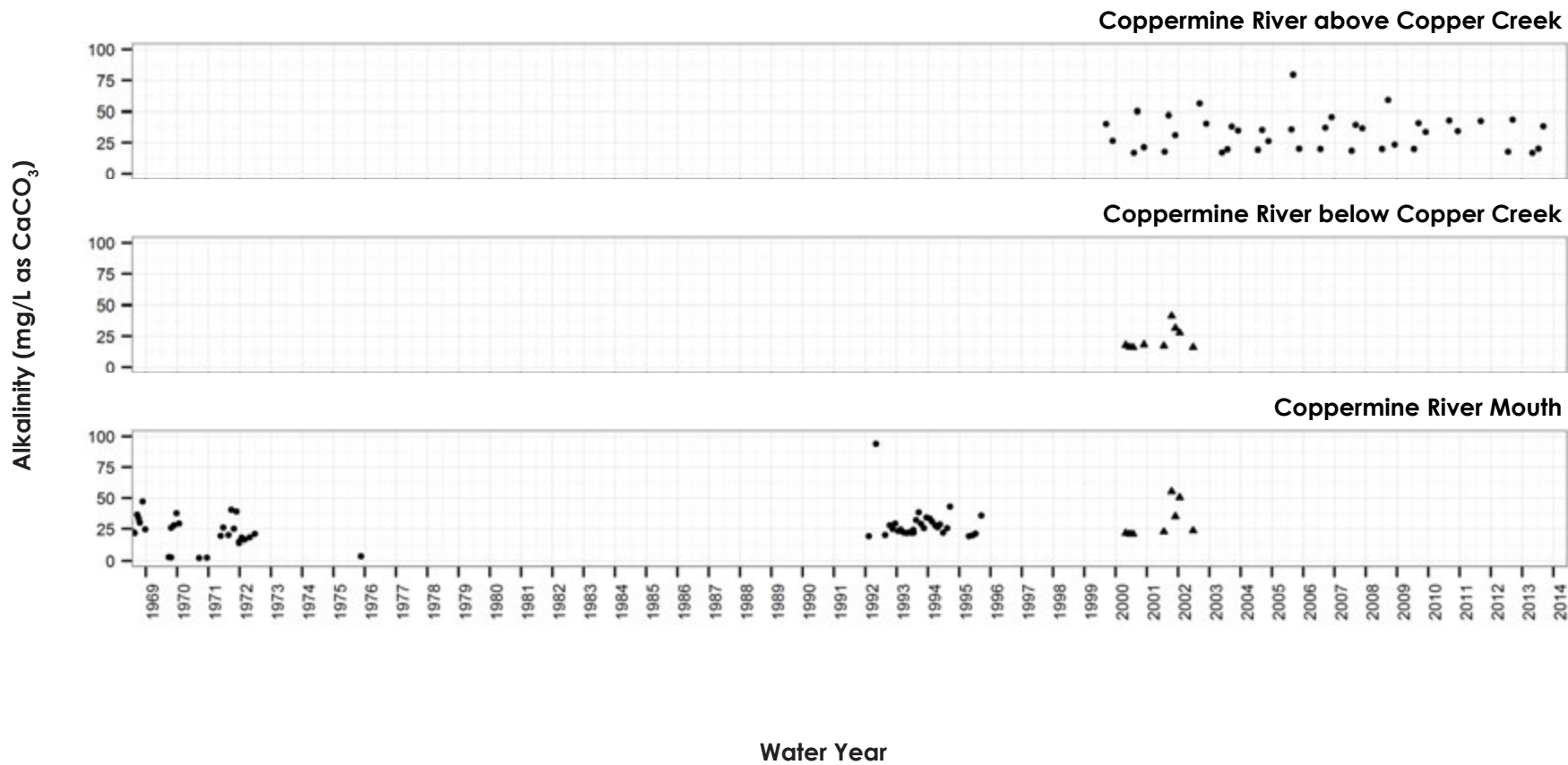
Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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Coppermine Watershed



NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

B-1-5- c

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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Coppermine Watershed

Lac De Gras



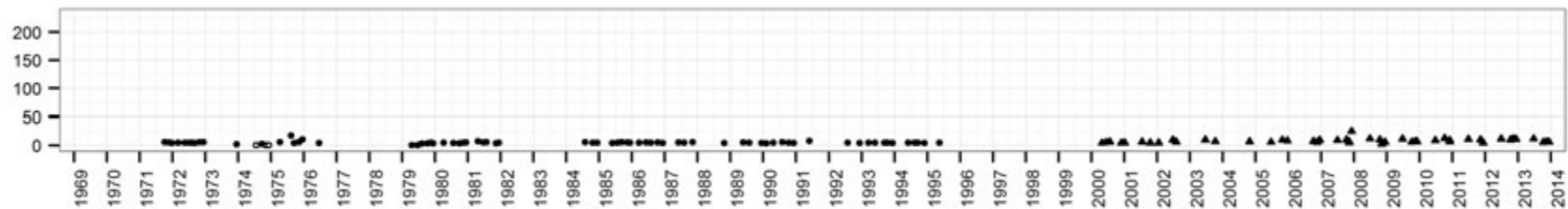
Desteffany Lake



Daring Lake



Point Lake



Water Year

NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

B-1-6-a

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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The figure consists of four vertically stacked scatter plots, each representing a different water body. The x-axis for all plots is 'Water Year' from 1969 to 2014. The y-axis for all plots is 'Hardness (mg/L as CaCO₃)' from 0 to 200. Data points are represented by black triangles.

- Rocknest Lake:** Data points are clustered between 2006 and 2014, with hardness values ranging from approximately 10 to 50 mg/L.
- Fairy Lake Out:** Data points are clustered between 2006 and 2009, with hardness values ranging from approximately 10 to 30 mg/L.
- Fairy Lake River:** Data points are clustered between 2000 and 2005, with hardness values ranging from approximately 10 to 30 mg/L.
- Coppermine River-Fairy Lake River:** Data points are clustered between 2000 and 2005, with hardness values ranging from approximately 10 to 50 mg/L.

GNWT = ▲ EC = ● Empty symbols = below detection limit



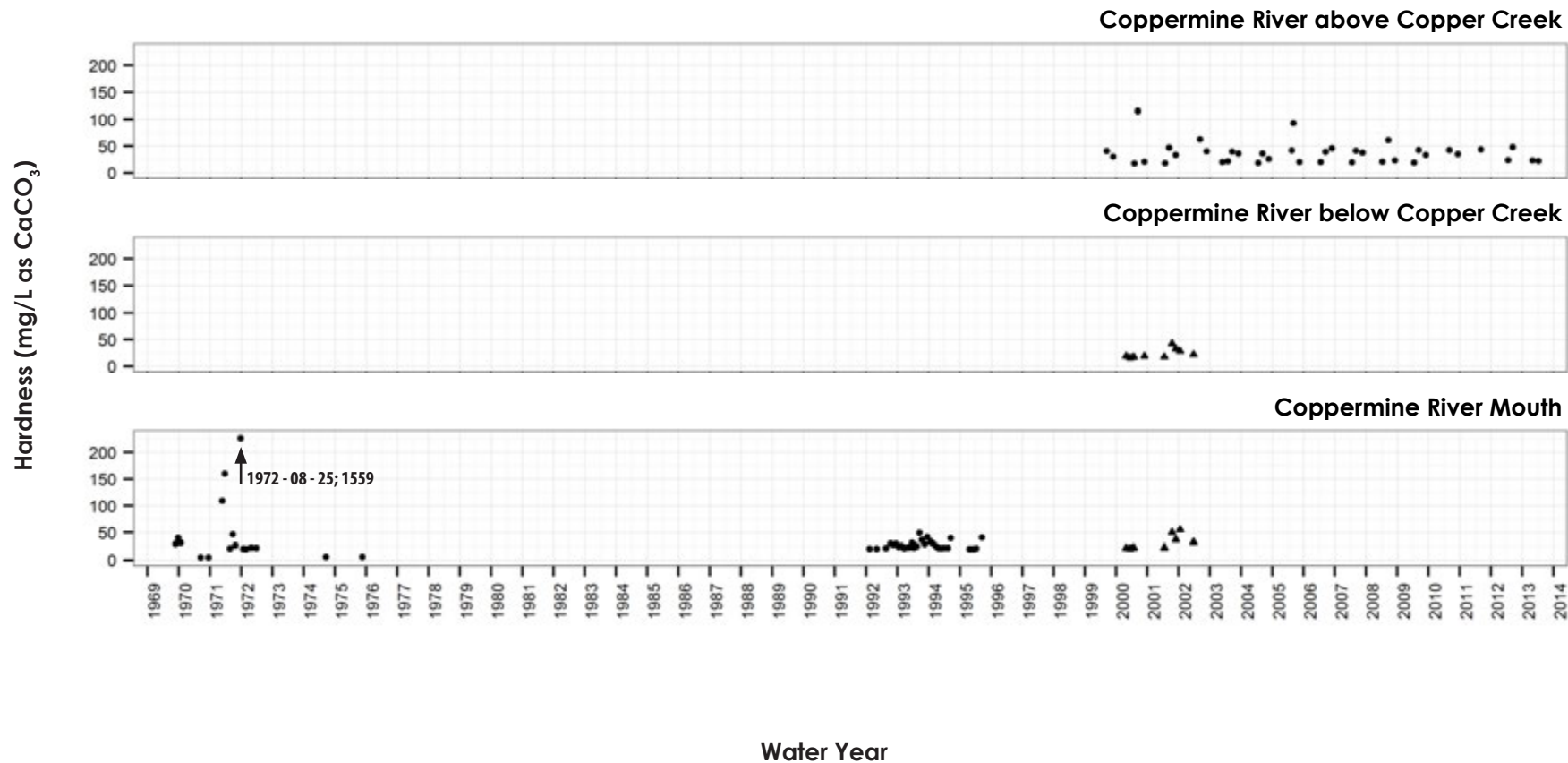
Northwest
Territories

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



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Coppermine Watershed



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Client/Project

Government of Northwest Territories



Appendix No.

B-1-6-c

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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The figure consists of four vertically stacked scatter plots, each representing a different lake. The y-axis for all plots is 'Dissolved Calcium (mg/L)' ranging from 0 to 20. The x-axis for all plots is 'Water Year' ranging from 1959 to 2014. Data points are represented by black triangles.

- Lac De Gras:** Data points are clustered between 1999 and 2014, with values mostly between 1 and 4 mg/L.
- Desteffany Lake:** Data points are clustered between 1994 and 2014, with values mostly between 1 and 4 mg/L.
- Daring Lake:** Data points are clustered between 2002 and 2014, with values mostly between 1 and 4 mg/L, with a notable peak around 2008.
- Point Lake:** Data points are clustered between 1971 and 2014, with values mostly between 1 and 4 mg/L, with a notable peak around 2008.

GNWT = ▲ EC = ● Empty symbols = below detection limit



Northwest
Territories

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



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The figure consists of four vertically stacked scatter plots, each representing a different water body. The y-axis for all plots is 'Dissolved Calcium (mg/L)' ranging from 0 to 20. The x-axis is 'Water Year' ranging from 1959 to 2014. Data points are represented by black triangles.

- Rocknest Lake:** Data points are clustered between 2006 and 2013, with values ranging from approximately 2 to 14 mg/L.
- Fairy Lake Out:** Data points are clustered between 2006 and 2009, with values ranging from approximately 5 to 10 mg/L.
- Fairy Lake River:** Data points are clustered between 2000 and 2005, with values ranging from approximately 6 to 7 mg/L.
- Coppermine River-Fairy Lake River:** Data points are clustered between 2000 and 2005, with values ranging from approximately 3 to 9 mg/L.

GNWT = ▲ EC = ● Empty symbols = below detection limit



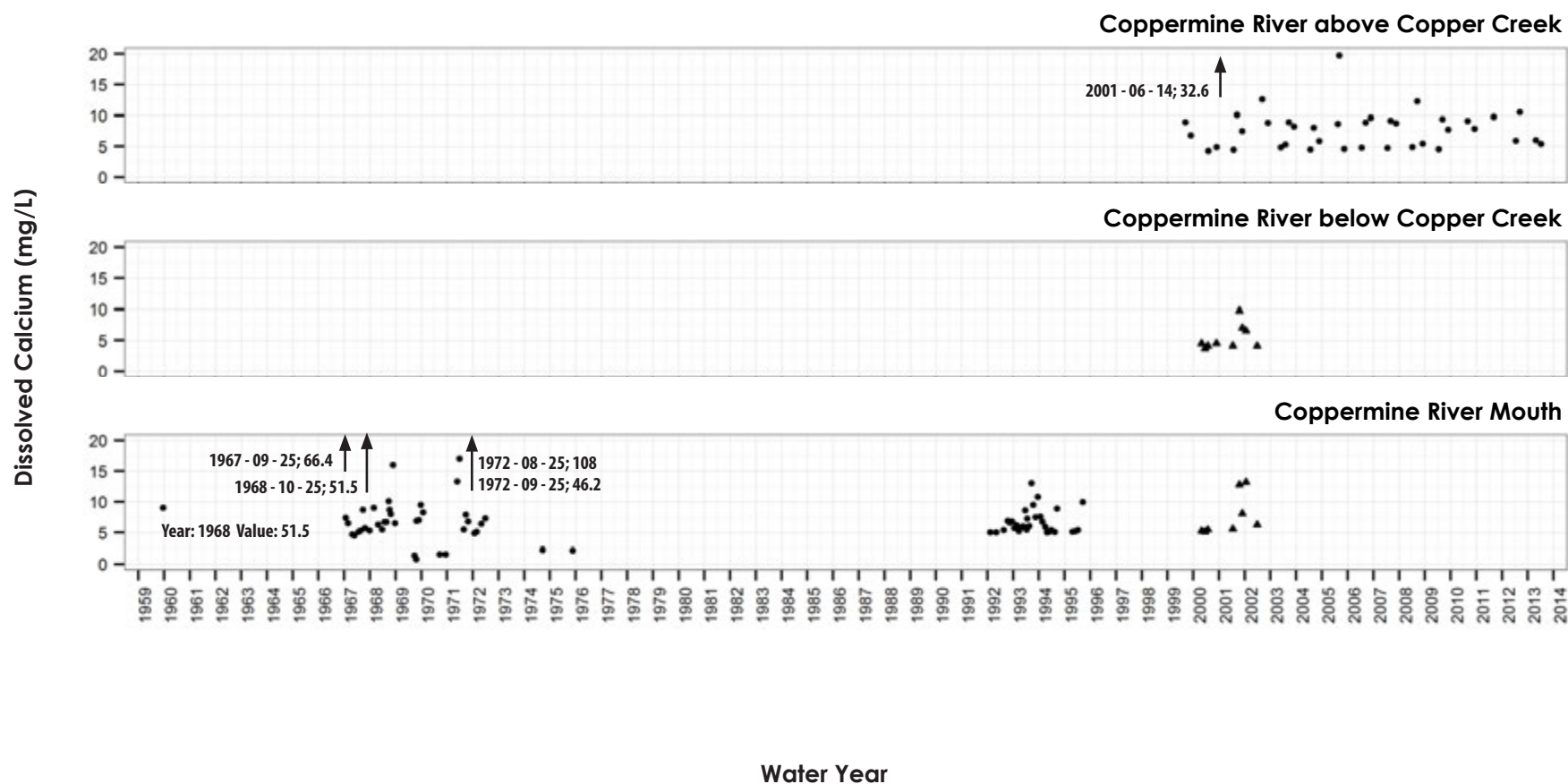
Northwest
Territories

Report Title
Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report



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Coppermine Watershed



NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

B-1-7- c

Appendix Title

Water Quality Data

Report Title

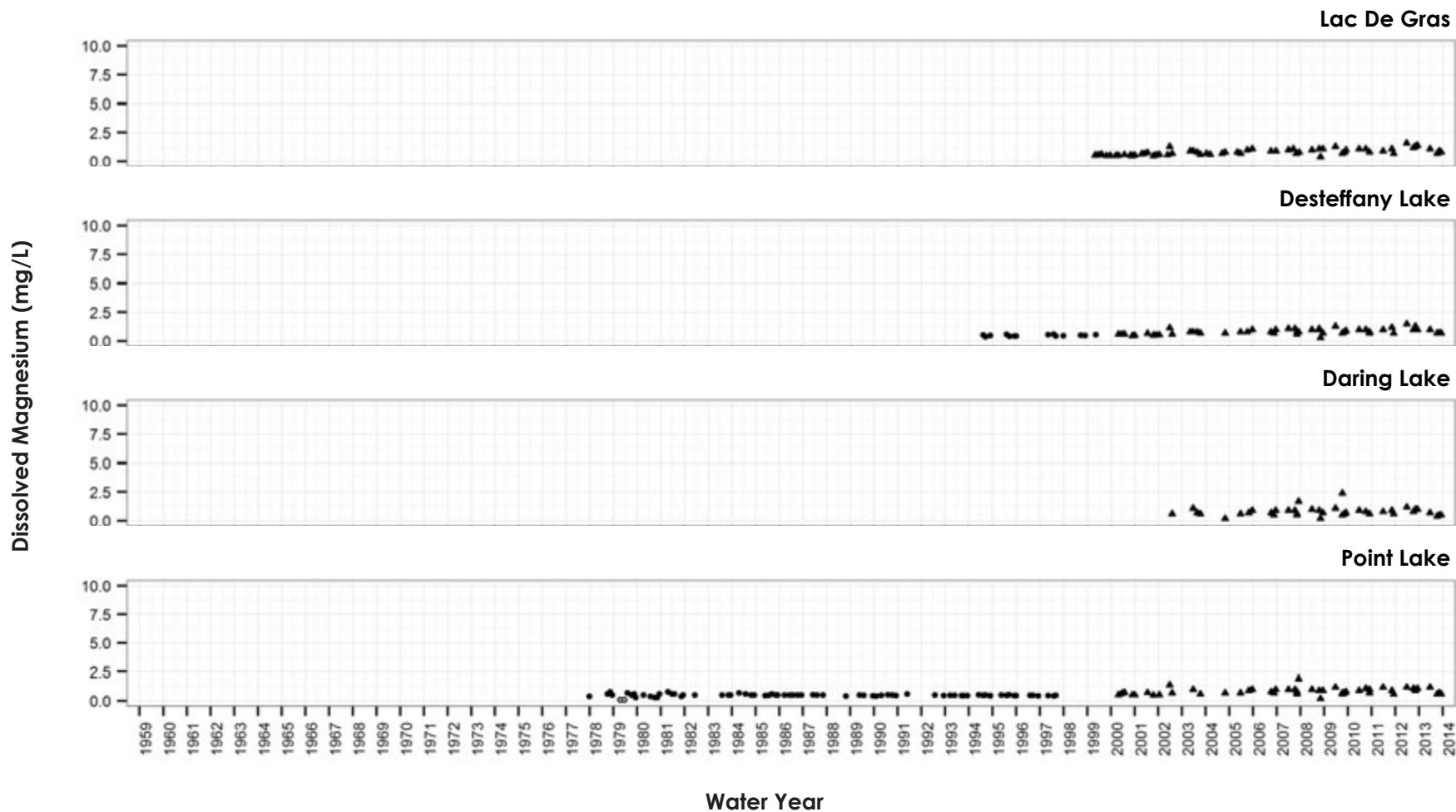
Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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Coppermine Watershed



NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

B-1-8- a

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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Coppermine Watershed

Rocknest Lake



Fairy Lake Out



Fairy Lake River



Coppermine River-Fairy Lake River



Water Year

NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

B-1-8- b

Appendix Title

Water Quality Data

Report Title

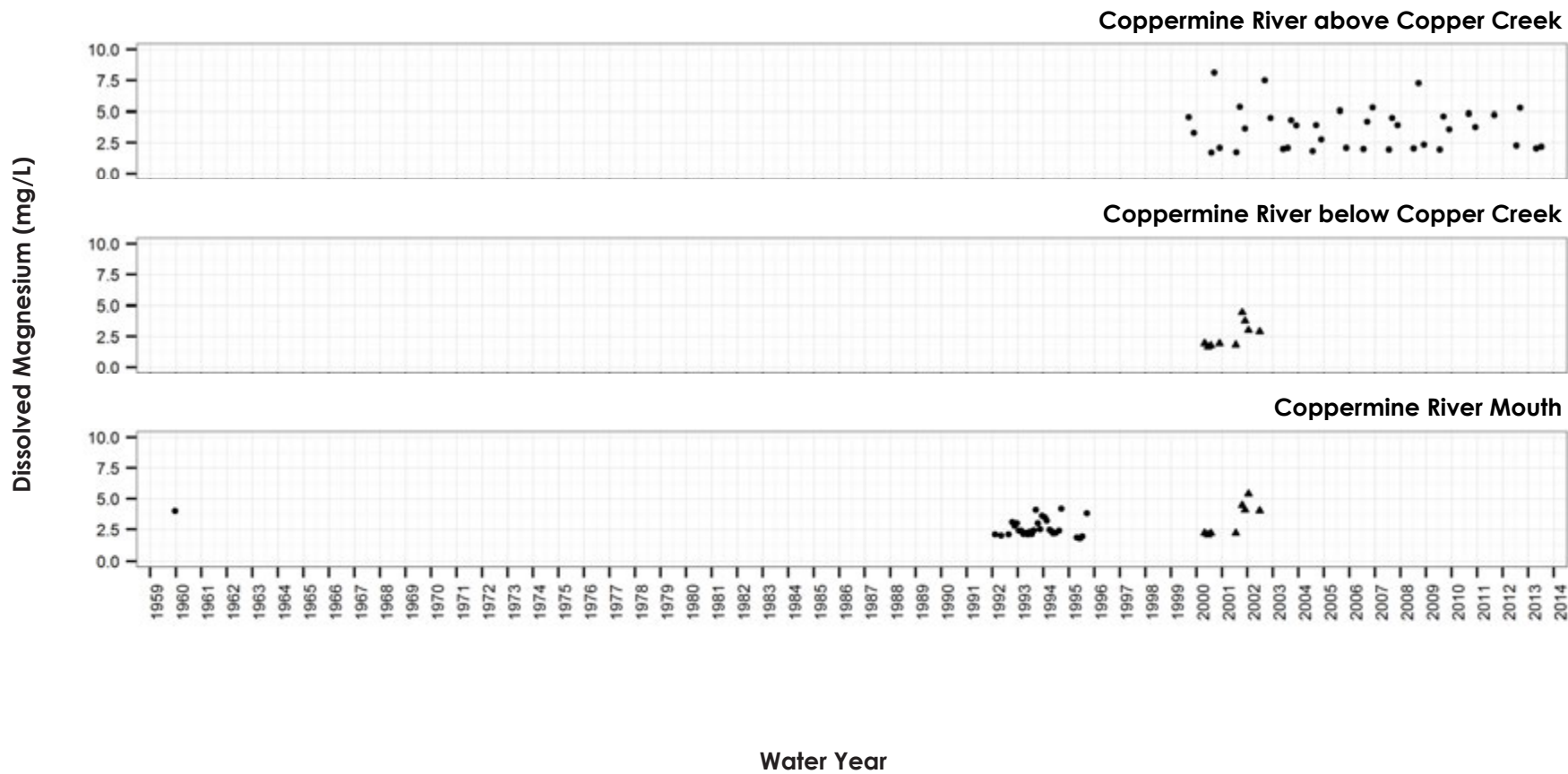
Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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Coppermine Watershed



NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

B-1-8- c

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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The figure consists of four vertically stacked scatter plots, each representing a different lake. The y-axis for all plots is 'Dissolved Chloride (mg/L)' ranging from 0.0 to 10.0. The x-axis for all plots is 'Water Year' ranging from 1959 to 2014.

- Lac De Gras:** Data points are sparse, starting around 1999 and ending around 2013. Most values are below 2.5 mg/L, with one notable peak around 4.0 mg/L in 2000.
- Desteffany Lake:** Data points are sparse, starting around 1994 and ending around 2013. Most values are below 2.5 mg/L, with a few points around 1.0 mg/L in the early 1990s.
- Daring Lake:** Data points are sparse, starting around 2002 and ending around 2013. Most values are below 2.5 mg/L, with a few points around 1.0 mg/L in the early 2000s.
- Point Lake:** Data points are more numerous, starting around 1971 and ending around 2013. Most values are below 2.5 mg/L, with a few points around 2.5 mg/L in the early 1970s and around 2.5 mg/L in 1993.

GNWT = ▲ EC = ● Empty symbols = below detection limit

*Guidelines not shown on graphs.

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Northwest
Territories

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Coppermine Watershed

Rocknest Lake



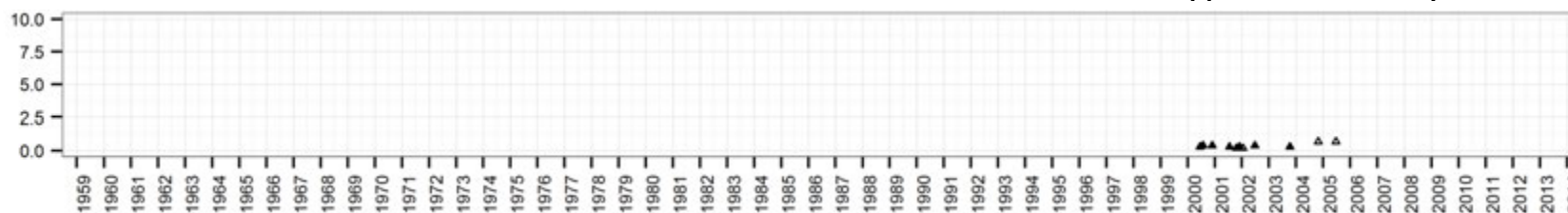
Fairy Lake Out



Fairy Lake River



Coppermine River-Fairy Lake River



Water Year

NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Parameter	CCME (Long term)	CCME (Short term)
Guideline value (mg/l)	120*	640*

*Guidelines not shown on graphs.



Client/Project
Government of Northwest Territories

Appendix No.
B-1-9- b

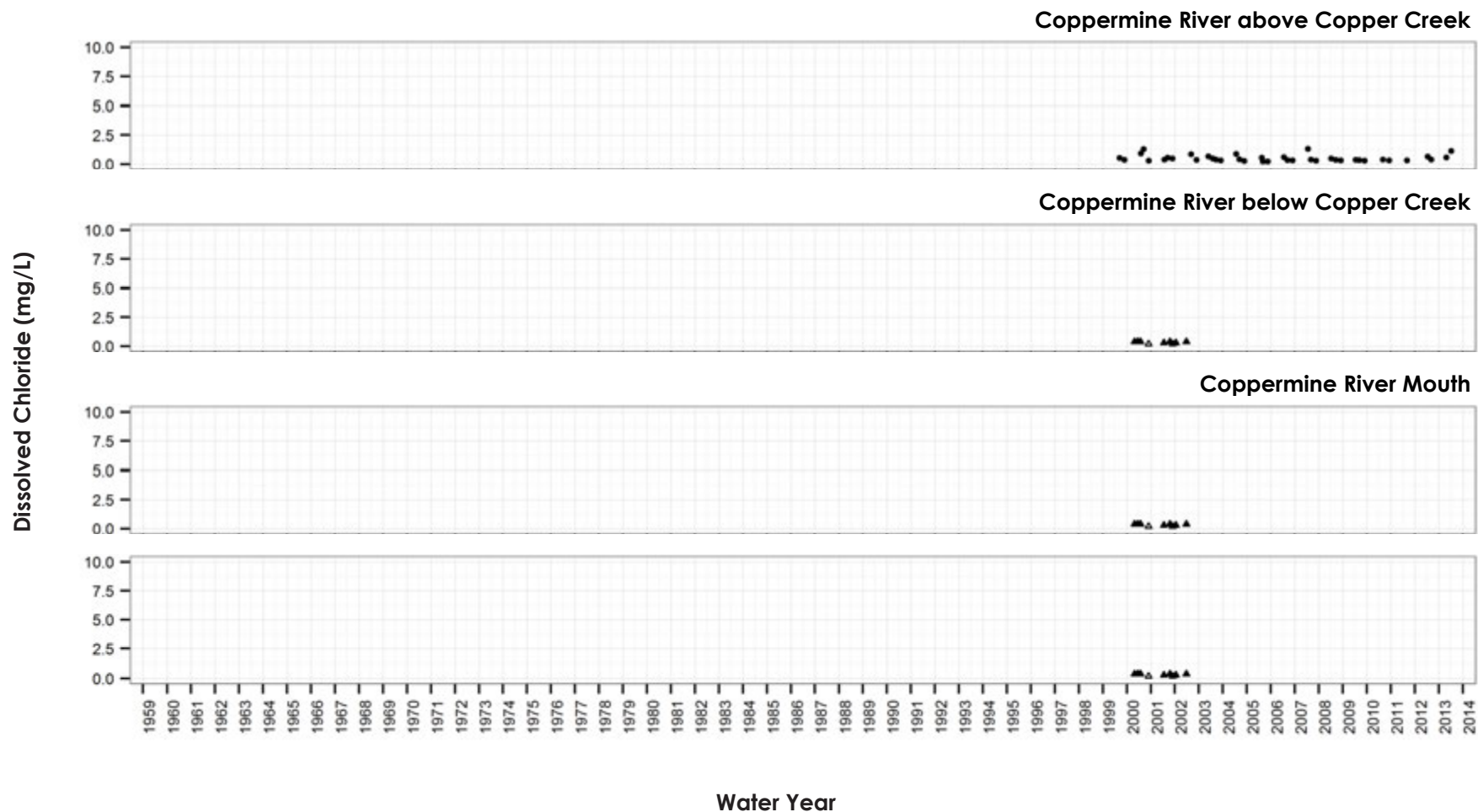
Appendix Title
Water Quality Data

Report Title
Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

Data Source: Environment Canada, Government of Northwest Territories

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Coppermine Watershed



NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Parameter	CCME (Long term)	CCME (Short term)
Guideline value (mg/l)	120*	640*

*Guidelines not shown on graphs.

Data Source: Environment Canada, Government of Northwest Territories

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Client/Project

Government of Northwest Territories



Appendix No.

B-1-9- c

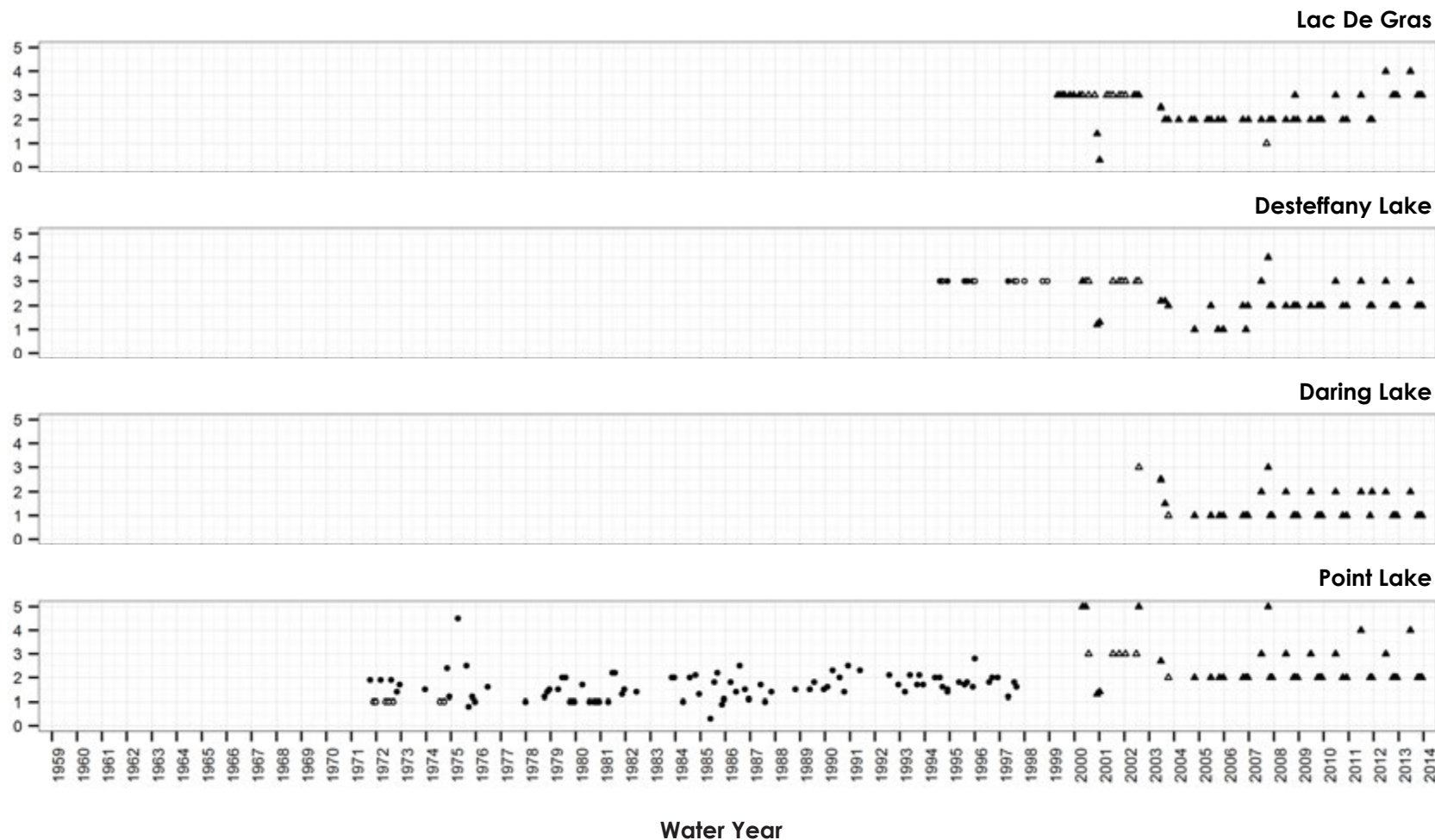
Appendix Title
Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Sulphate (mg/L)



NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

Appendix No.
B-1-10- a

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



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Rocknest Lake



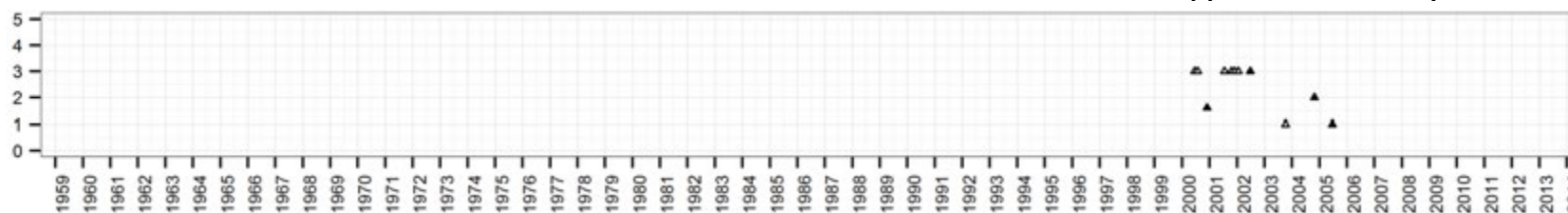
Fairy Lake Out



Fairy Lake River



Coppermine River-Fairy Lake River



Water Year

NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

Appendix No.
B-1-10- b

Appendix Title

Water Quality Data

Report Title

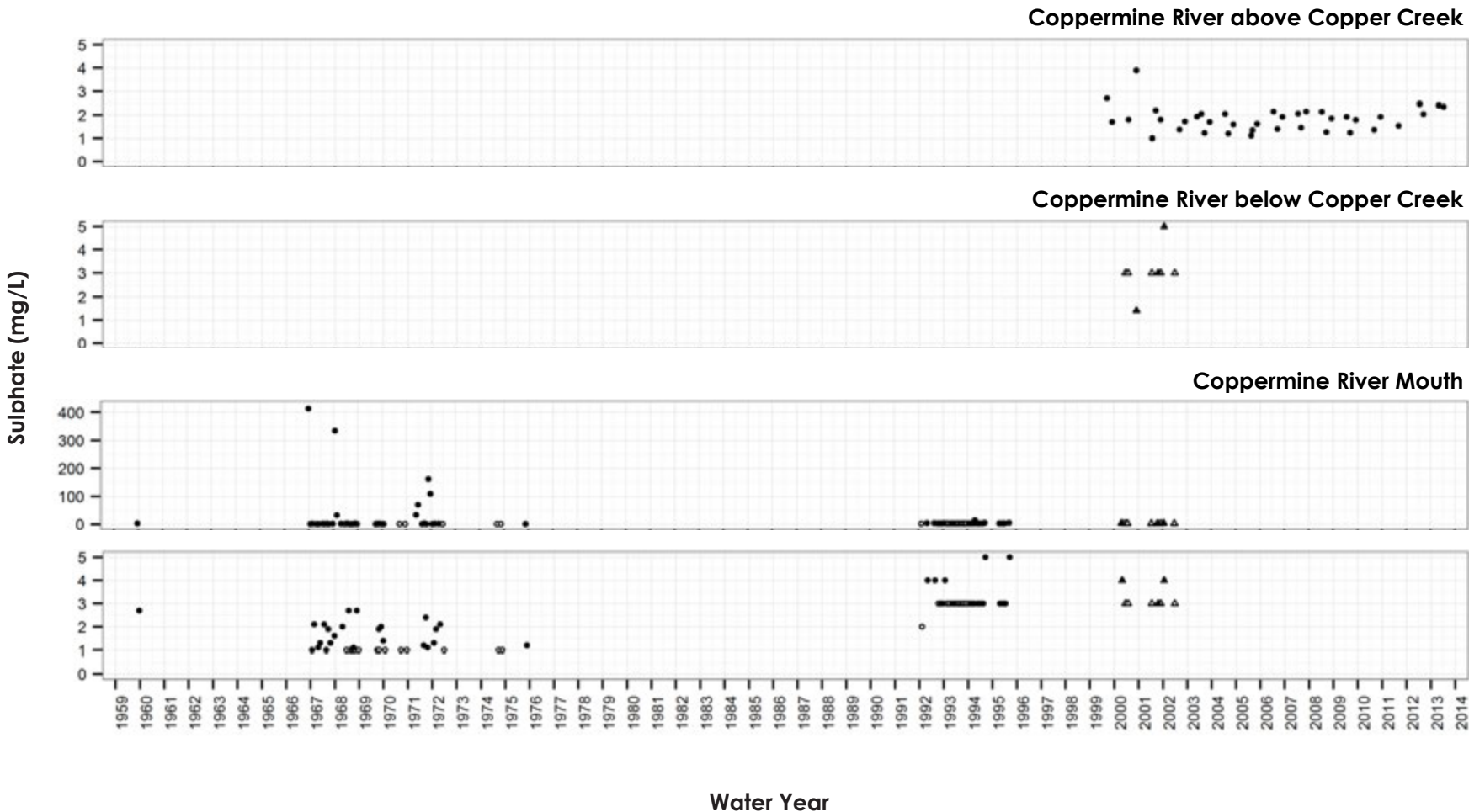
Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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Coppermine Watershed



NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

Appendix No.
B-1-10- c

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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Coppermine Watershed

Lac De Gras



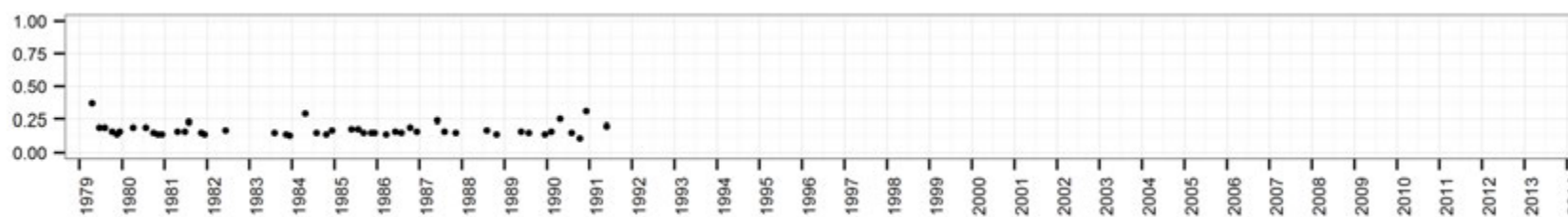
Desteffany Lake



Daring Lake



Point Lake



Water Year

NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

Appendix No.
B-1-11-a

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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Rocknest Lake



Client/Project

Government of Northwest Territories



Appendix No.

Appendix No.
B-1-11-b

Appendix Title

Water Quality Data

Report Title

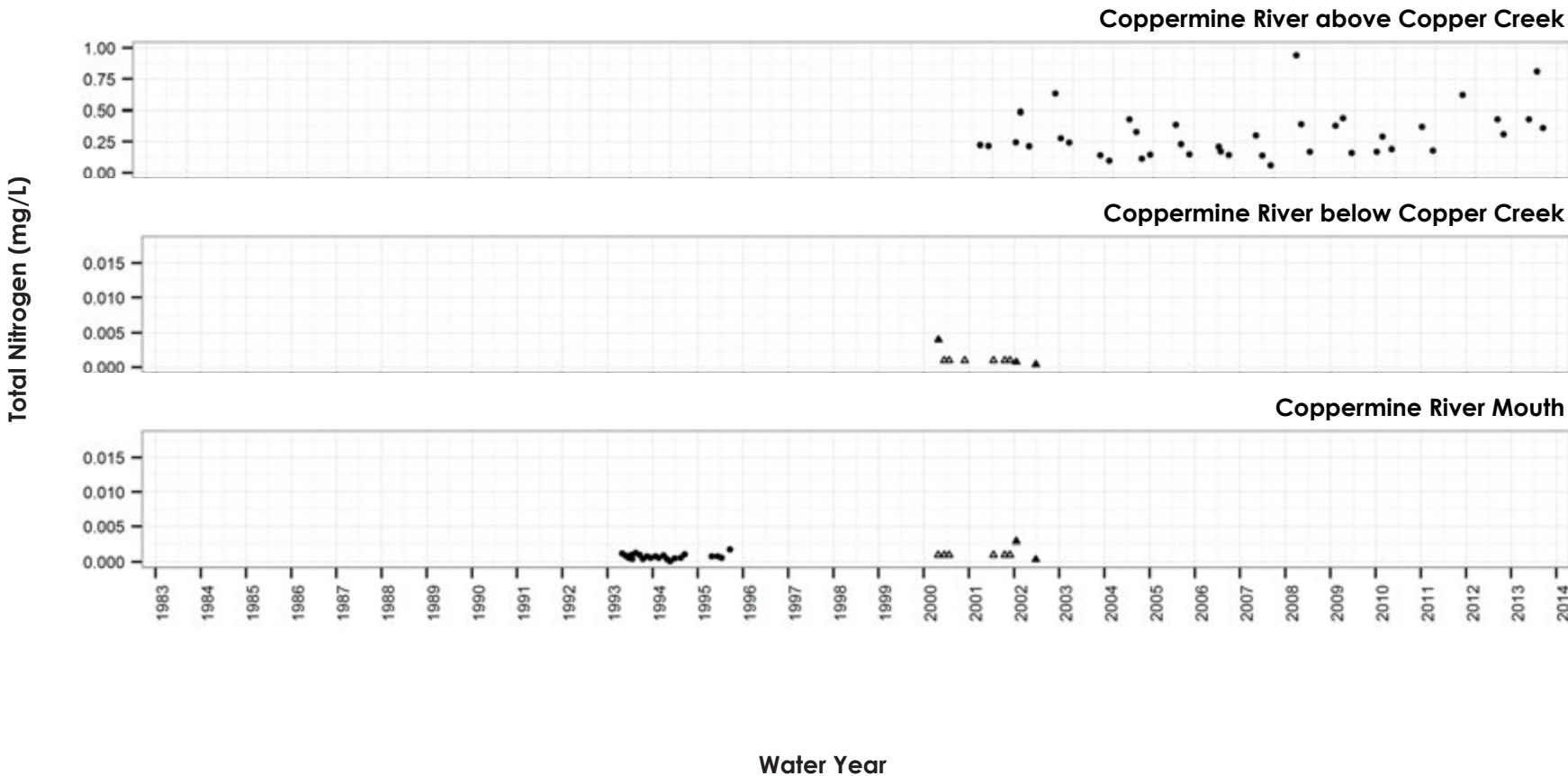
Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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Coppermine Watershed



NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

B-1-11- c

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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Total Phosphorus (mg/L)



Client/Project

Government of Northwest Territories



Appendix No.

Appendix No.
B-1-12- a

Appendix Title

Appendix Title

Water Quality Data

Report Title

Report Title
Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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Rocknest Lake



Client/Project

Government of Northwest Territories



Appendix No.

Appendix No.
B-1-12- b

Appendix Title

Appendix title

Water Quality Data

Report Title

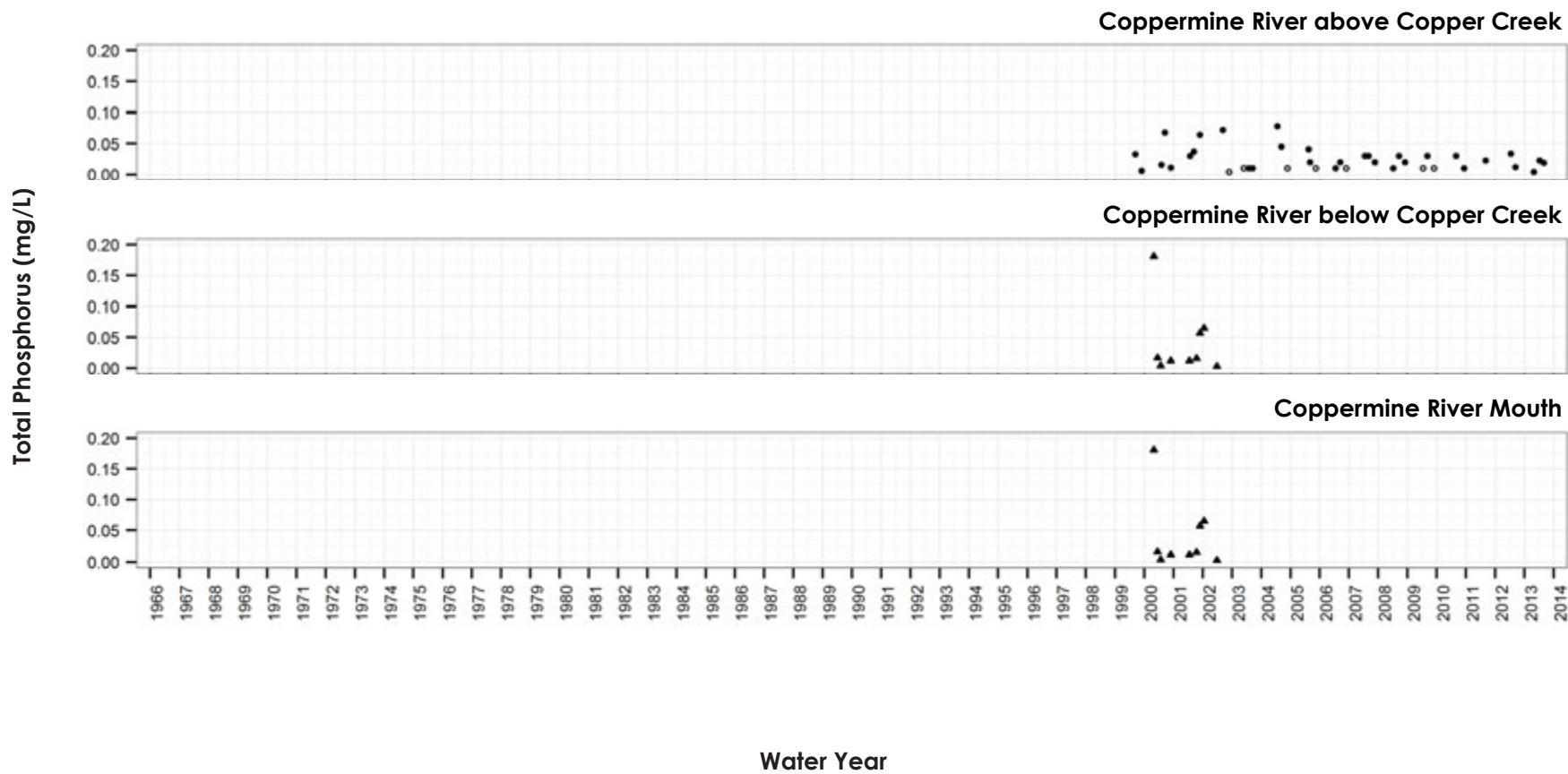
Report Title
Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

Data Source: Environment Canada, Government of Northwest Territories

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Coppermine Watershed



NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

B-1-12- c

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

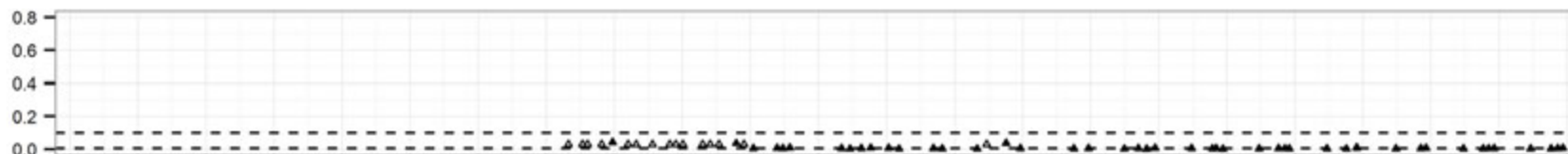


Data Source: Environment Canada, Government of Northwest Territories

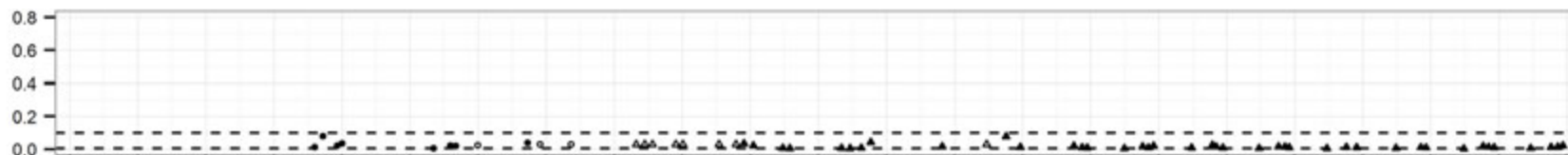
Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Coppermine Watershed

Lac De Gras



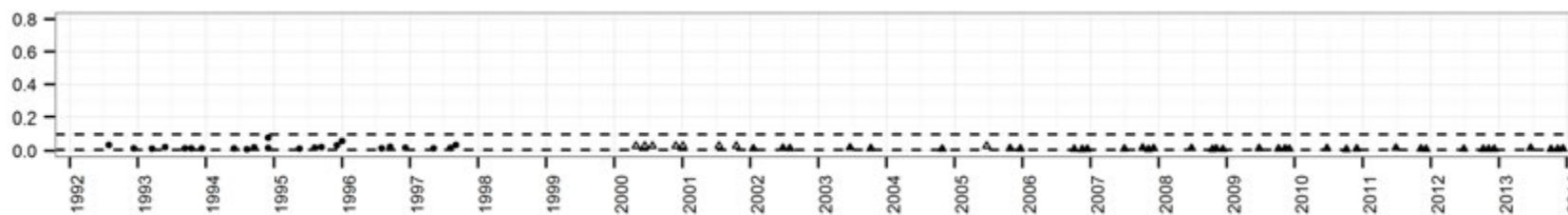
Desteffany Lake



Daring Lake



Point Lake



Water Year

NOTE: Water year begins October 1 of previous calendar year.

Parameter CCME (Long term)

Line type	-----
Guideline value (mg/L)	0.005 at pH < 6.5, 0.1 at pH ≥ 6.5

GNWT = ▲ EC = ● Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

B-1-13-a

Appendix Title

Water Quality Data

Report Title

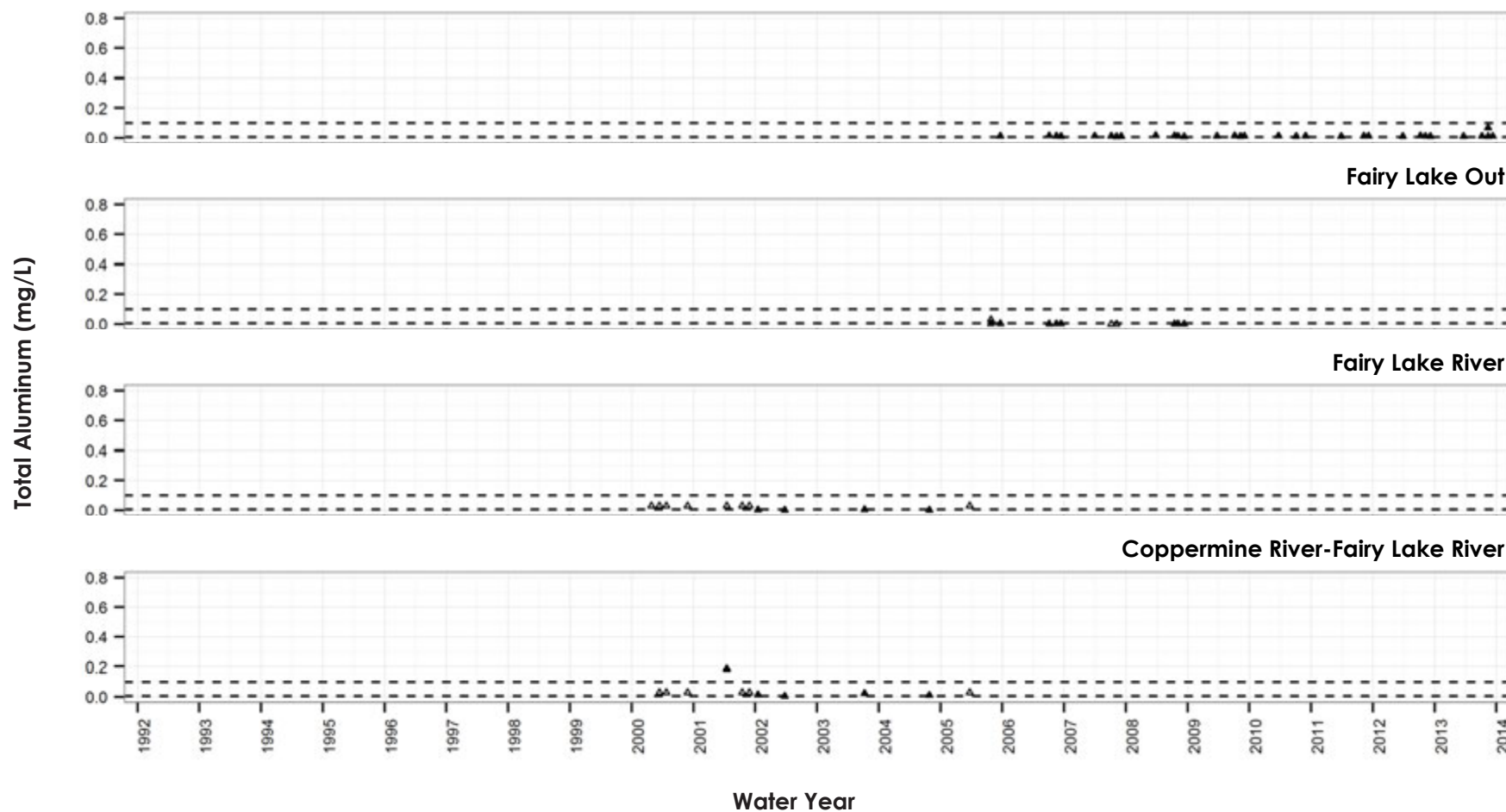
Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Rocknest Lake



NOTE: Water year begins October 1 of previous calendar year.

Parameter	CCME (Long term)
Line type	-----
Guideline value (mg/L)	0.005 at pH < 6.5, 0.1 at pH ≥ 6.5

GNWT = ▲ EC = ● Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

Appendix No.
B-1-13- b

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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Coppermine Watershed

Lac De Gras



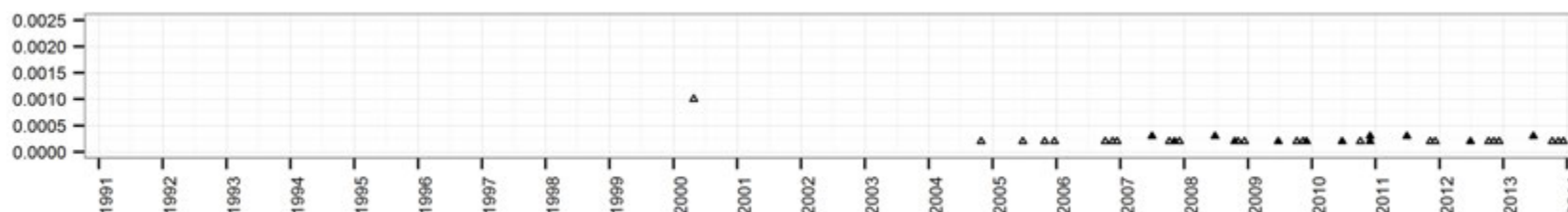
Desteffany Lake



Daring Lake



Point Lake



Total Arsenic (mg/L)

Parameter	CCME (Long term)	HC DWQG (Health Canada Drinking Water Quality Guidelines)
Line type	-----	*
Guideline value (mg/L)	0.005	0.01

*Guidelines not shown on graphs.

Data Source: Environment Canada, Government of Northwest Territories

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Water Year

NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ●

Empty symbols = below detection limit



Client/Project

Government of Northwest Territories



Appendix No.

B-1-14-a

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

Coppermine Watershed

Rocknest Lake



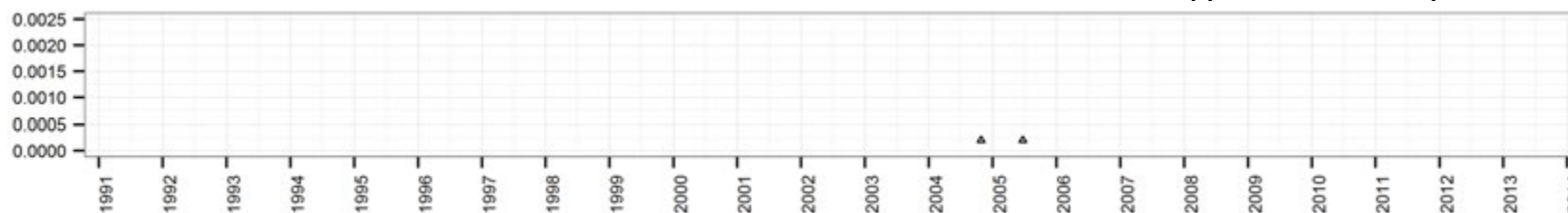
Fairy Lake Out



Fairy Lake River



Coppermine River-Fairy Lake River



Water Year

NOTE: Water year begins October 1 of previous calendar year.

Parameter	CCME (Long term)	HC DWQG (Health Canada Drinking Water Quality Guidelines)
Line type	-----	*
Guideline value (mg/L)	0.005	0.01

*Guidelines not shown on graphs.

Data Source: Environment Canada, Government of Northwest Territories

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

GNWT = ▲ EC = ●
Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

B-1-14- b

Appendix Title

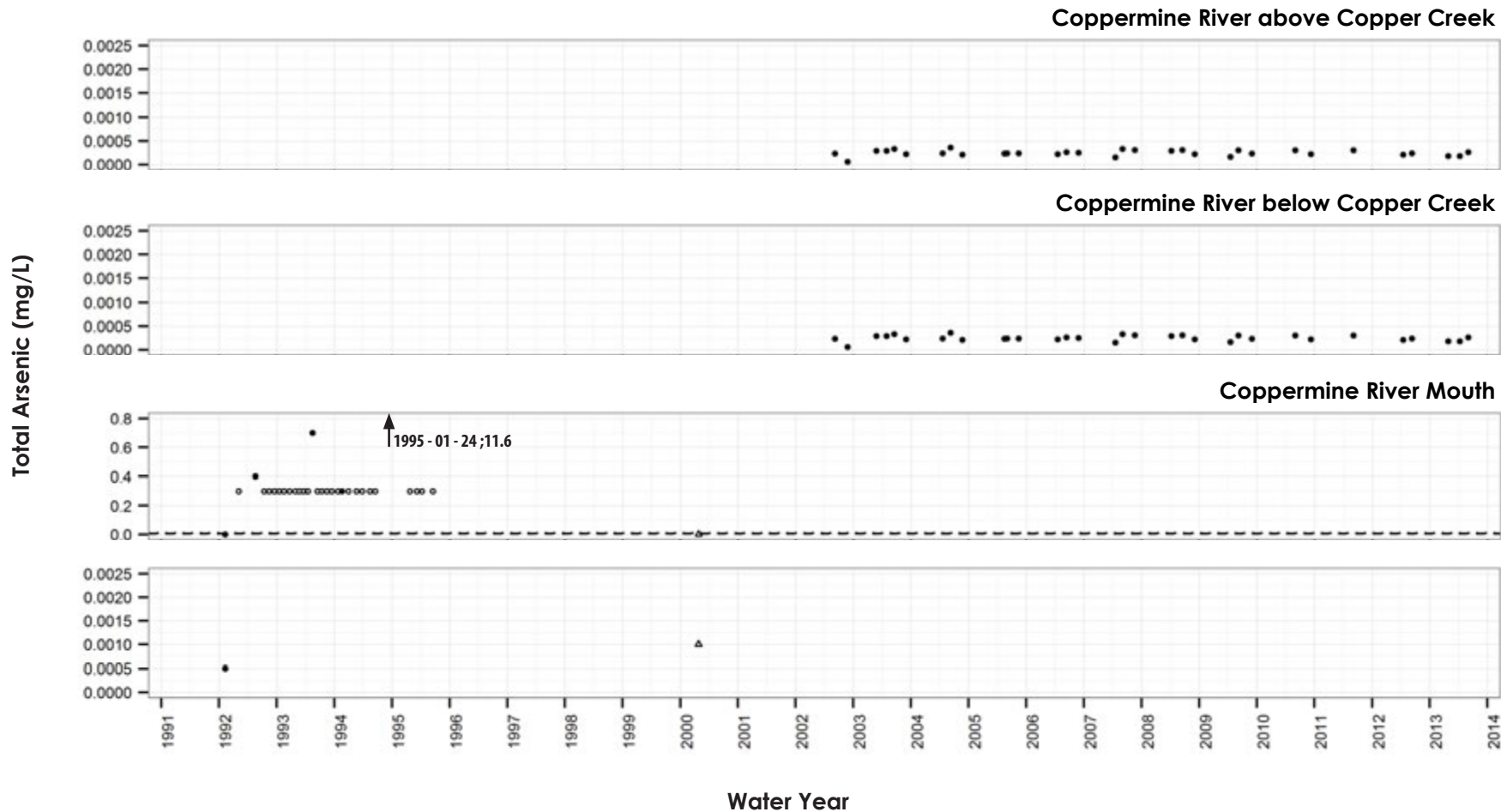
Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Coppermine Watershed



Parameter	CCME (Long term)	HC DWQG (Health Canada Drinking Water Quality Guidelines)
Line type	-----	*
Guideline value (mg/L)	0.005	0.01

*Guidelines not shown on graphs.

Data Source: Environment Canada, Government of Northwest Territories

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Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

B-1-14- c

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Coppermine Watershed

Lac De Gras



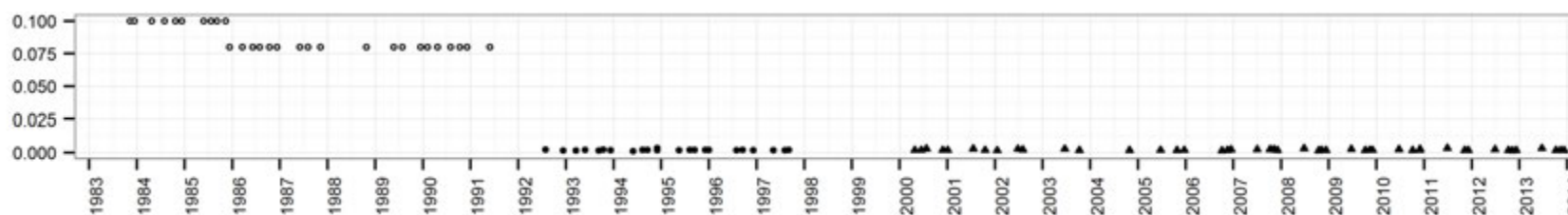
Desteffany Lake



Daring Lake



Point Lake



Water Year

NOTE: Water year begins October 1 of previous calendar year.

Parameter	HC DWQG (Health Canada Drinking Water Quality Guidelines)
Line type	*
Guideline value (mg/L)	1.0

*Guideline not shown on graphs.

Data Source: Environment Canada, Government of Northwest Territories

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Client/Project

Government of Northwest Territories



Appendix No.

B-1-15-a

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Coppermine Watershed

Rocknest Lake



Fairy Lake Out



Fairy Lake River



Coppermine River-Fairy Lake River



Water Year

NOTE: Water year begins October 1 of previous calendar year.

Parameter

HC DWQG (Health
Canada Drinking Water
Quality Guidelines)

Line type	*
Guideline value (mg/L)	1.0

*Guideline not shown on graphs.

Data Source: Environment Canada, Government of Northwest Territories

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GNWT = ▲ EC = ● Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

B-1-15- b

Appendix Title

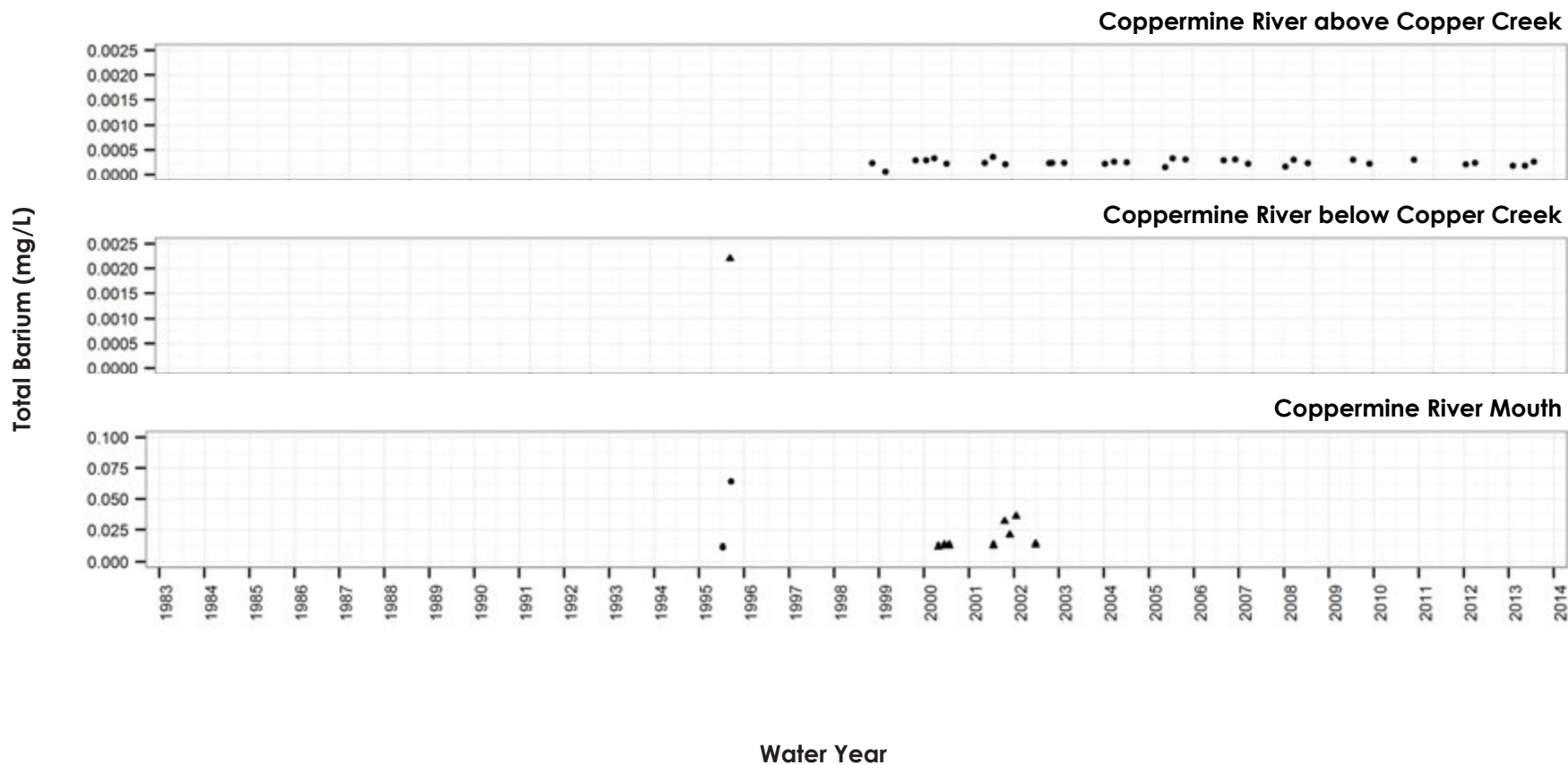
Water Quality Data

Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report



Coppermine Watershed



Parameter	HC DWQG (Health Canada Drinking Water Quality Guidelines)
Line type	*
Guideline value (mg/L)	1.0

*Guideline not shown on graphs.

Data Source: Environment Canada, Government of Northwest Territories

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Client/Project

Government of Northwest Territories



Appendix No.

B-1-15- c

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

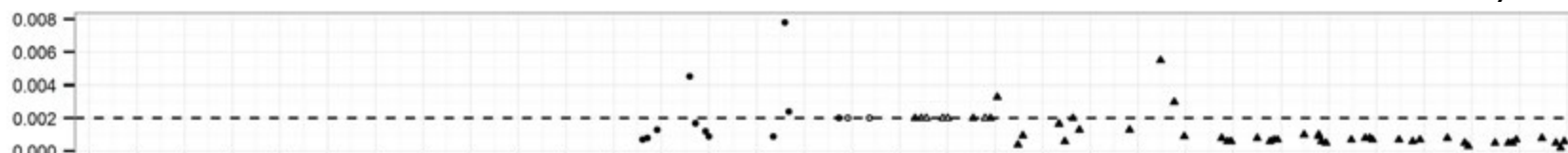


Coppermine Watershed

Lac De Gras



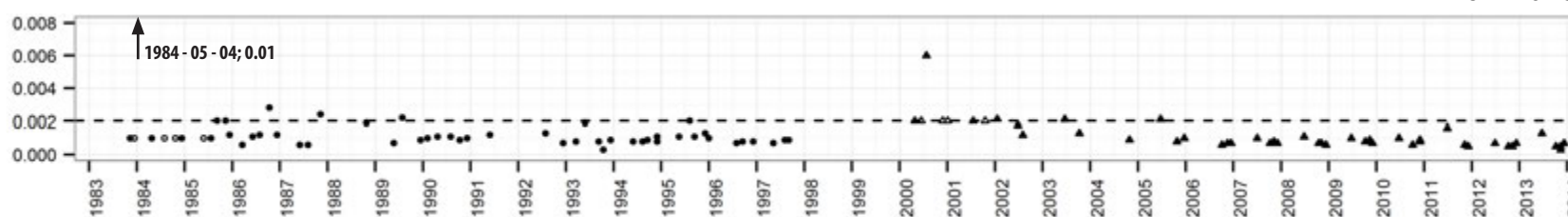
Desteffany Lake



Daring Lake



Point Lake



Water Year

NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ● Empty symbols = below detection limit

Parameter	CCME (Long term)
Line type	-----
Guideline value (mg/L)	0.002 at 50 mg/L hardness

Data Source: Environment Canada, Government of Northwest Territories

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Client/Project

Government of Northwest Territories



Appendix No.

B-1-16-a

Appendix Title

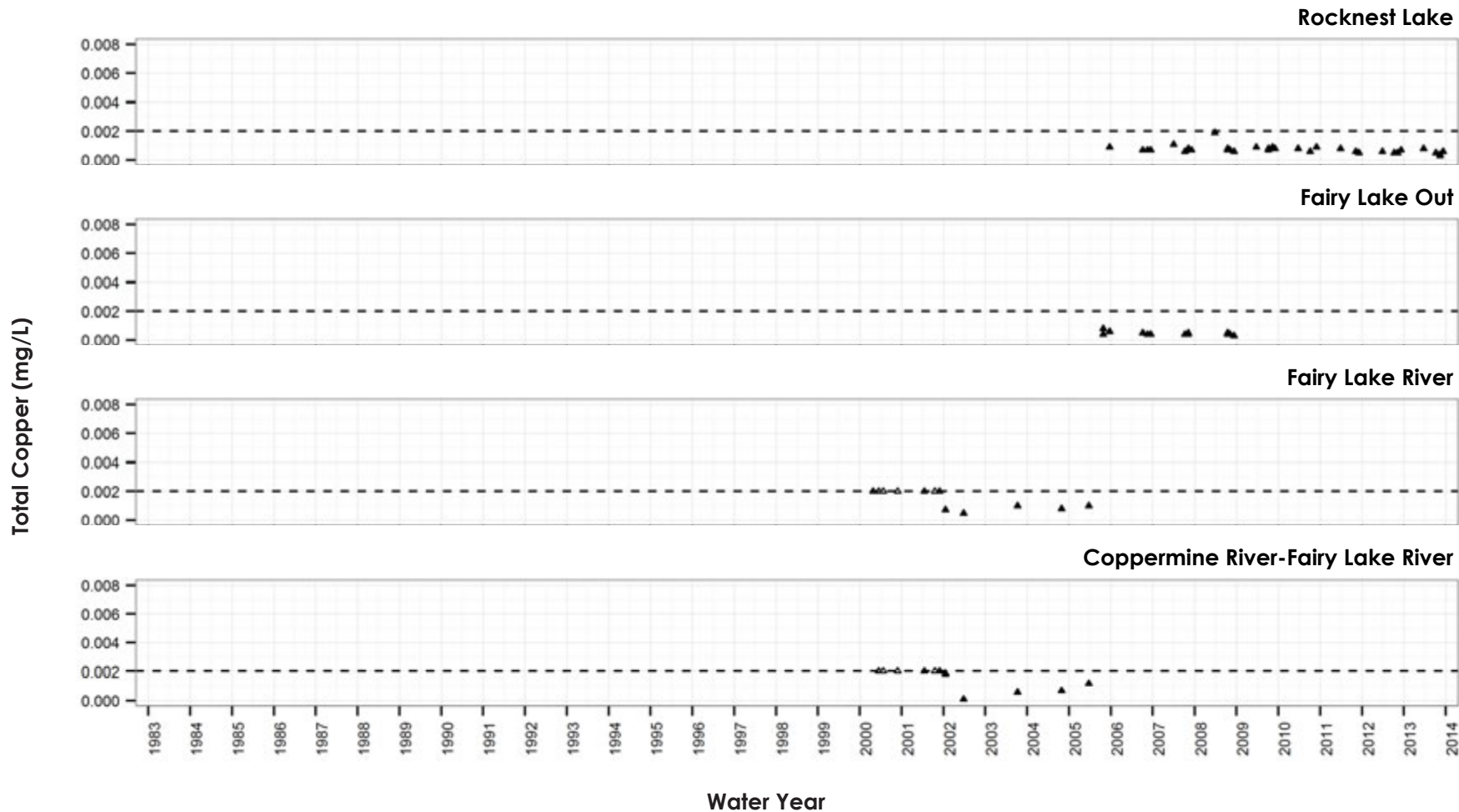
Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Coppermine Watershed



GNWT = ▲ EC = ● Empty symbols = below detection limit

Parameter	CCME (Long term)
Line type	-----
Guideline value (mg/L)	0.002 at 50 mg/L hardness

Data Source: Environment Canada, Government of Northwest Territories

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Government of Northwest Territories



Appendix No.

B-1-16- b

Appendix Title

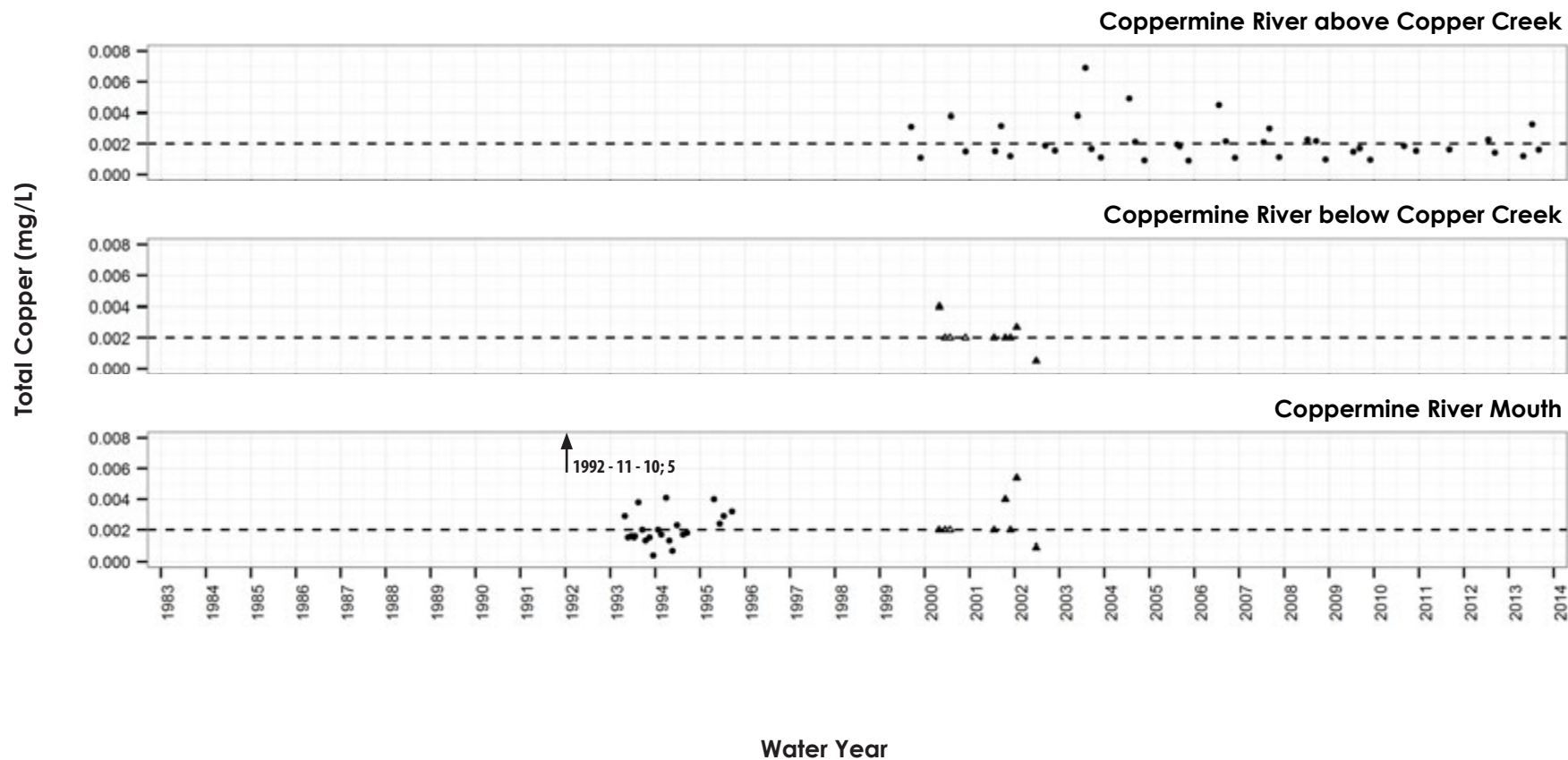
Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Coppermine Watershed



GNWT = ▲ EC = ● Empty symbols = below detection limit

Parameter	CCME (Long term)
Line type	-----
Guideline value (mg/L)	0.002 at 50 mg/L hardness

Data Source: Environment Canada, Government of Northwest Territories

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Government of Northwest Territories



Appendix No.

B-1-16-c

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Coppermine Watershed

Lac De Gras



Desteffany Lake



Daring Lake



Point Lake



Water Year

NOTE: Water year begins October 1 of previous calendar year.

Parameter	CCME (Long term)	HC DWQG (Health Canada Drinking Water Quality Guidelines)
Line type	-----	*
Guideline value (mg/L)	0.000026	0.001

*Guideline not shown on graphs.

Data Source: Environment Canada, Government of Northwest Territories

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

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Appendix No.

B-1-17-a

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Coppermine Watershed

Rocknest Lake



Fairy Lake Out



Fairy Lake River



Coppermine River-Fairy Lake River



Water Year

NOTE: Water year begins October 1 of previous calendar year.

Parameter	CCME (Long term)	HC DWQG (Health Canada Drinking Water Quality Guidelines)
Line type	-----	*
Guideline value (mg/L)	0.000026	0.001

*Guideline not shown on graphs.

Data Source: Environment Canada, Government of Northwest Territories

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

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Client/Project

Government of Northwest Territories



Appendix No.

B-1-17- b

Appendix Title

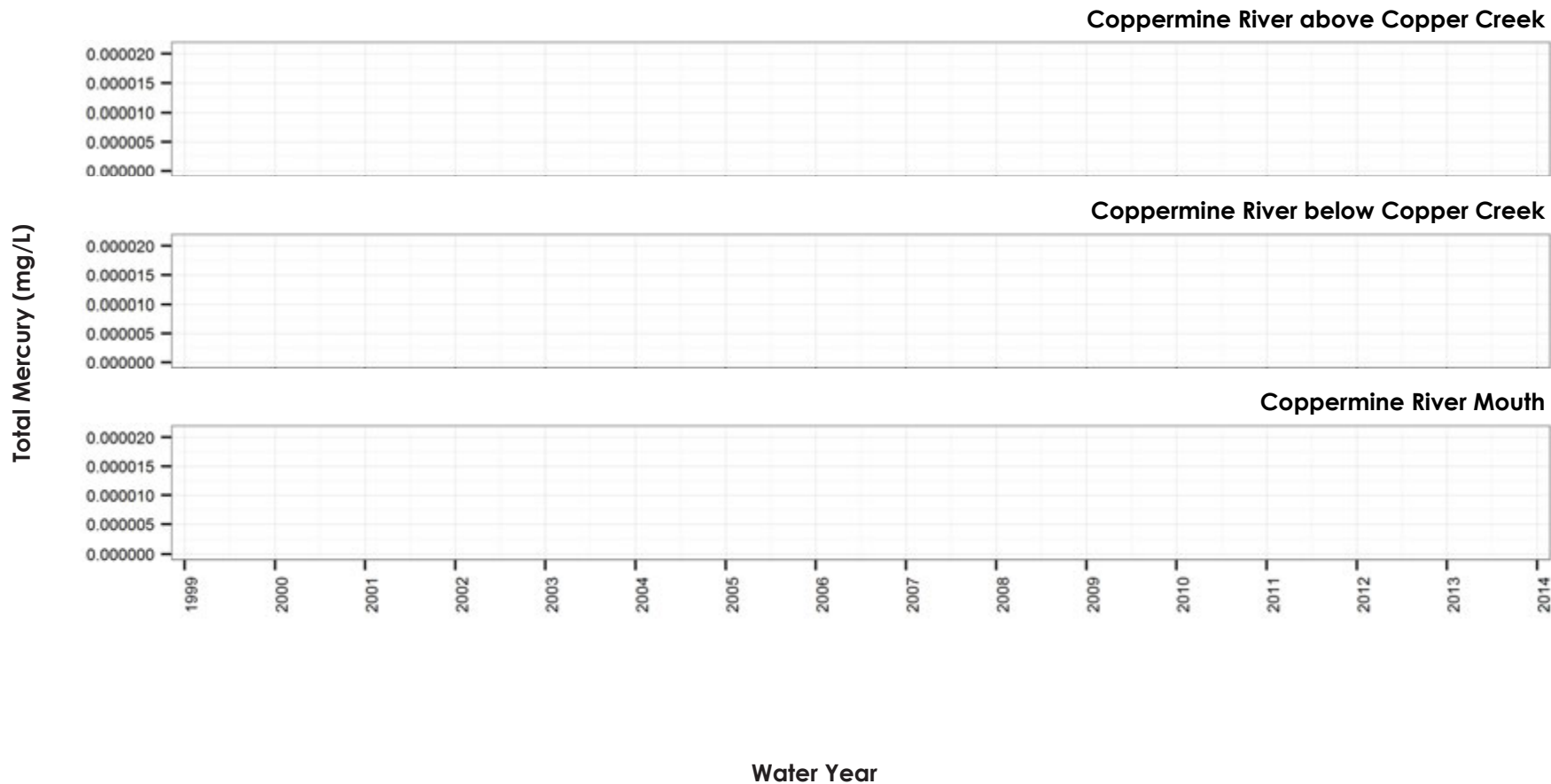
Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Coppermine Watershed



Parameter	CCME (Long term)	HC DWQG (Health Canada Drinking Water Quality Guidelines)
Line type	-----	*
Guideline value (mg/L)	0.000026	0.001

*Guideline not shown on graphs.

Data Source: Environment Canada, Government of Northwest Territories

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

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Appendix No.

B-1-17- c

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



The figure consists of four vertically stacked scatter plots, each representing a different lake. The y-axis for all plots is 'Total Molybdenum (mg/L)' ranging from 0.000 to 0.003. The x-axis is 'Water Year' from 1992 to 2014.

- Lac De Gras:** Data points are mostly triangles. There is a notable peak in 2002 reaching approximately 0.003 mg/L. Other points are clustered around 0.001 mg/L between 1999 and 2002, and around 0.0005 mg/L from 2003 onwards.
- Desteffany Lake:** Data points include circles and triangles. An annotation '1998 - 02 -05;0.1' with an arrow points to a data point in early 1998. Most data points are below 0.001 mg/L, with a peak around 0.0012 mg/L in 2006.
- Daring Lake:** Data points are mostly triangles. Most values are very low, near 0.000 mg/L, with a few small peaks around 0.0002 mg/L in 2003 and 2006.
- Point Lake:** Data points are mostly circles. Most values are near 0.000 mg/L, with a small cluster of points around 0.001 mg/L between 2000 and 2002.

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*Guideline not shown on graphs.

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Government of Northwest Territories



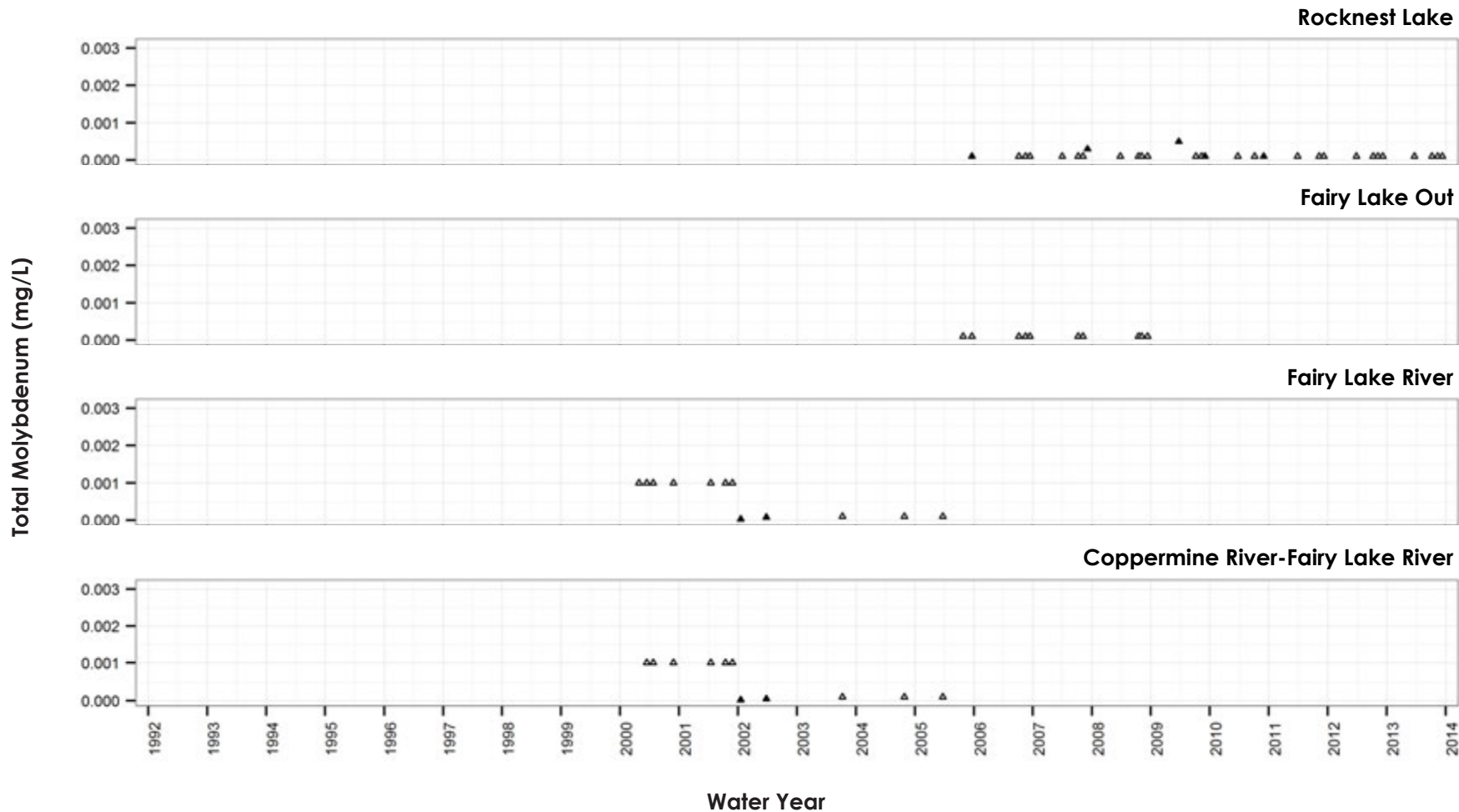
B-1-18- a

Water Quality Data

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Coppermine Watershed



Parameter	CCME (Long term)
Line type	*
Guideline value (mg/L)	0.073

*Guideline not shown on graphs.

GNWT = ▲ EC = ● Empty symbols = below detection limit



Client/Project
Government of Northwest Territories

Appendix No.
B-1-18- b

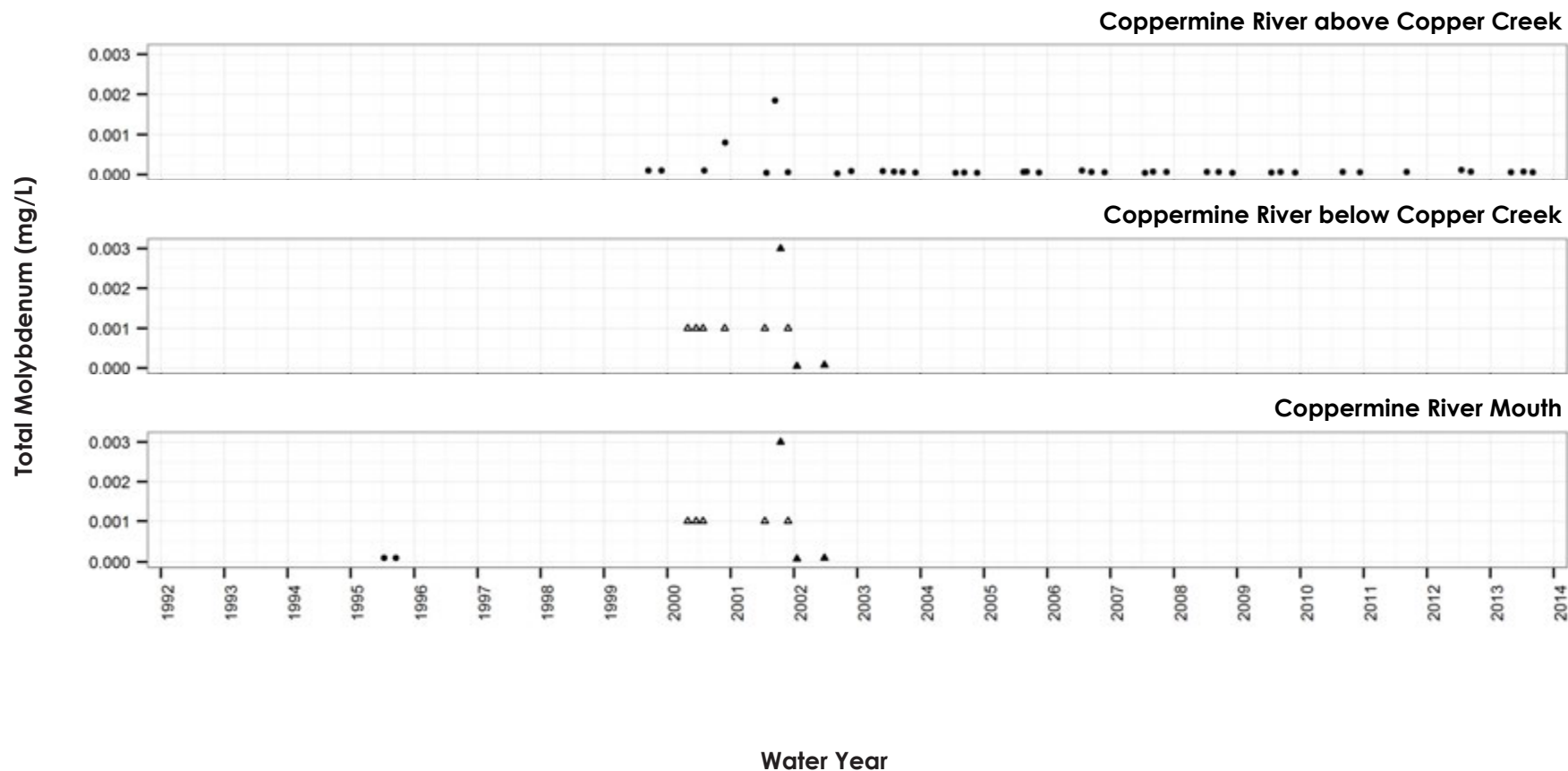
Appendix Title
Water Quality Data

Report Title
Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

Data Source: Environment Canada, Government of Northwest Territories

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Coppermine Watershed



Parameter CCME (Long term)

Line type	*
Guideline value (mg/L)	0.073

*Guideline not shown on graphs.

GNWT = ▲ EC = ● Empty symbols = below detection limit



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Government of Northwest Territories



Appendix No.

B-1-18- c

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

Data Source: Environment Canada, Government of Northwest Territories

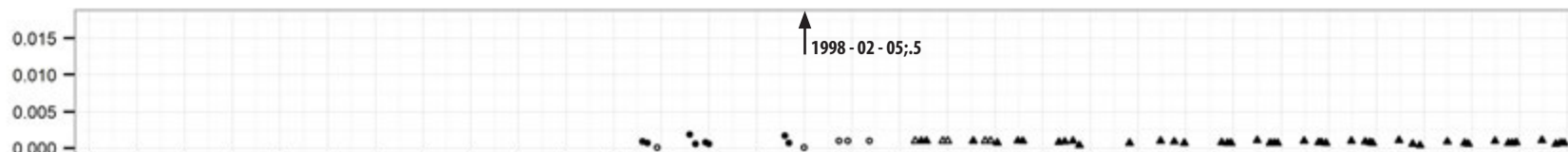
Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Coppermine Watershed

Lac De Gras



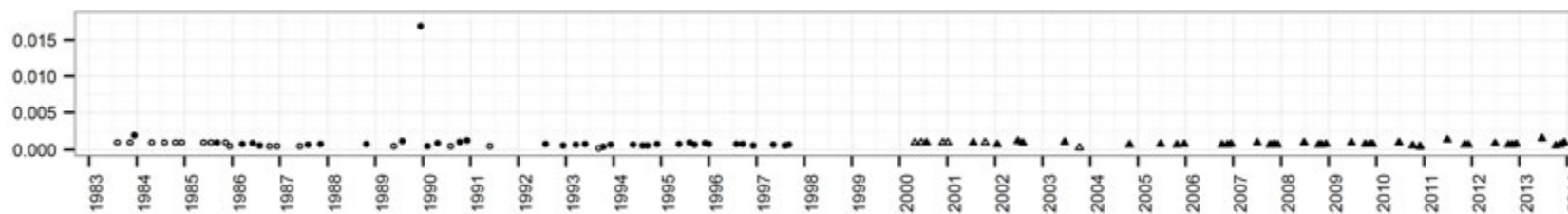
Desteffany Lake



Daring Lake



Point Lake



Water Year

NOTE: Water year begins October 1 of previous calendar year.

Parameter	CCME (Long term)
Line type	*
Guideline value (mg/L)	0.056 at 50 mg/L hardness

*Guideline not shown on graphs.

Data Source: Environment Canada, Government of Northwest Territories

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Government of Northwest Territories



Appendix No.

B-1-19-a

Appendix Title

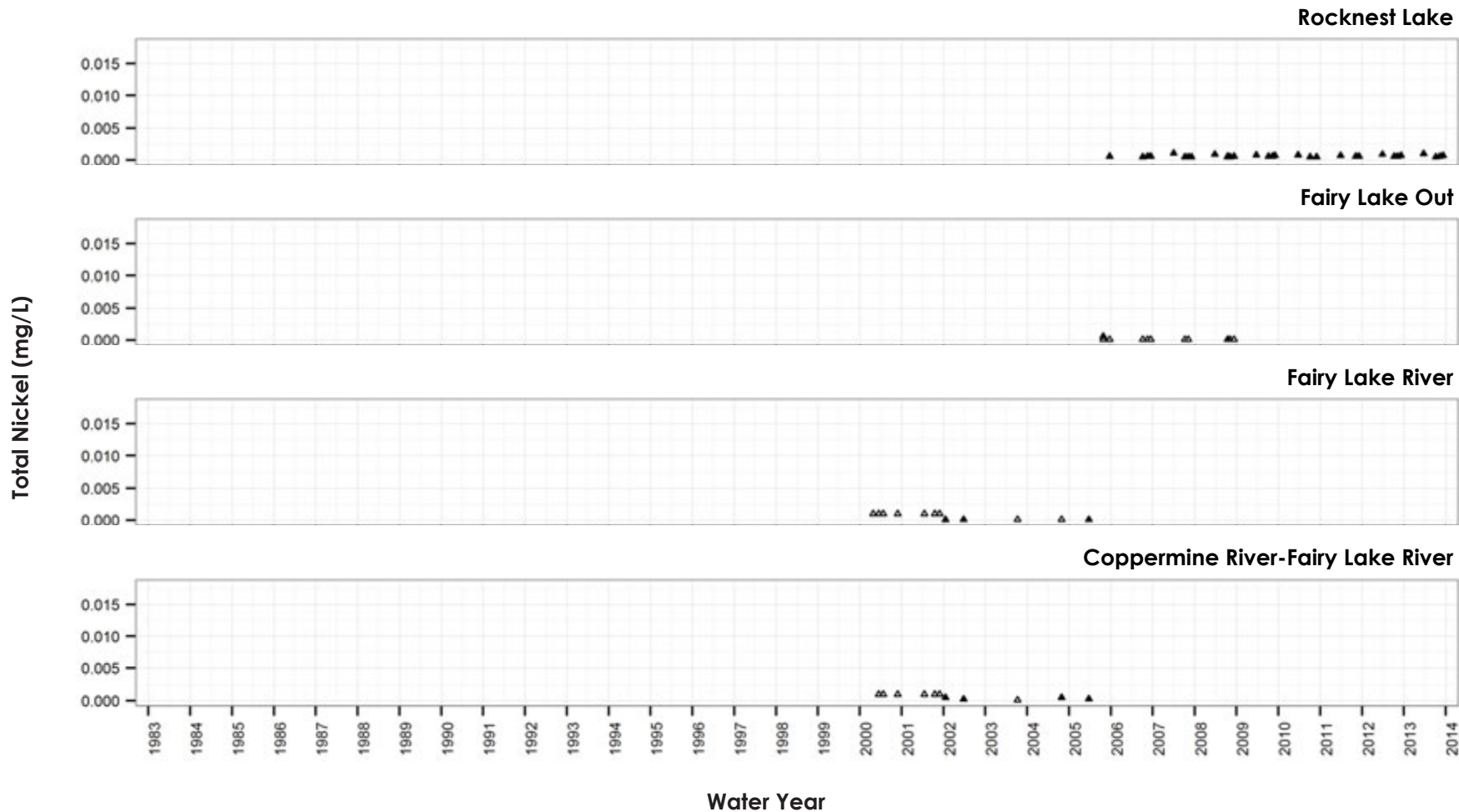
Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Coppermine Watershed



Parameter	CCME (Long term)
Line type	*
Guideline value (mg/L)	0.056 at 50 mg/L hardness

*Guideline not shown on graphs.

Data Source: Environment Canada, Government of Northwest Territories

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Client/Project

Government of Northwest Territories



Appendix No.

B-1-19- b

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



The figure consists of four vertically stacked scatter plots, each representing a different lake. The y-axis for all plots is 'Total Strontium (mg/L)' ranging from 0.000 to 0.015. The x-axis for all plots is 'Water Year' ranging from 1992 to 2014. The lakes are: Lac De Gras (top), Desteffany Lake, Daring Lake, and Point Lake (bottom). Lac De Gras and Desteffany Lake use solid triangles for data points, while Daring Lake and Point Lake use solid circles. All lakes show a general increase in strontium levels over time, with Lac De Gras and Desteffany Lake reaching higher concentrations (up to 0.015 mg/L) than Daring Lake and Point Lake (up to 0.012 mg/L).

GNWT = ▲ EC = ● Empty symbols = below detection limit



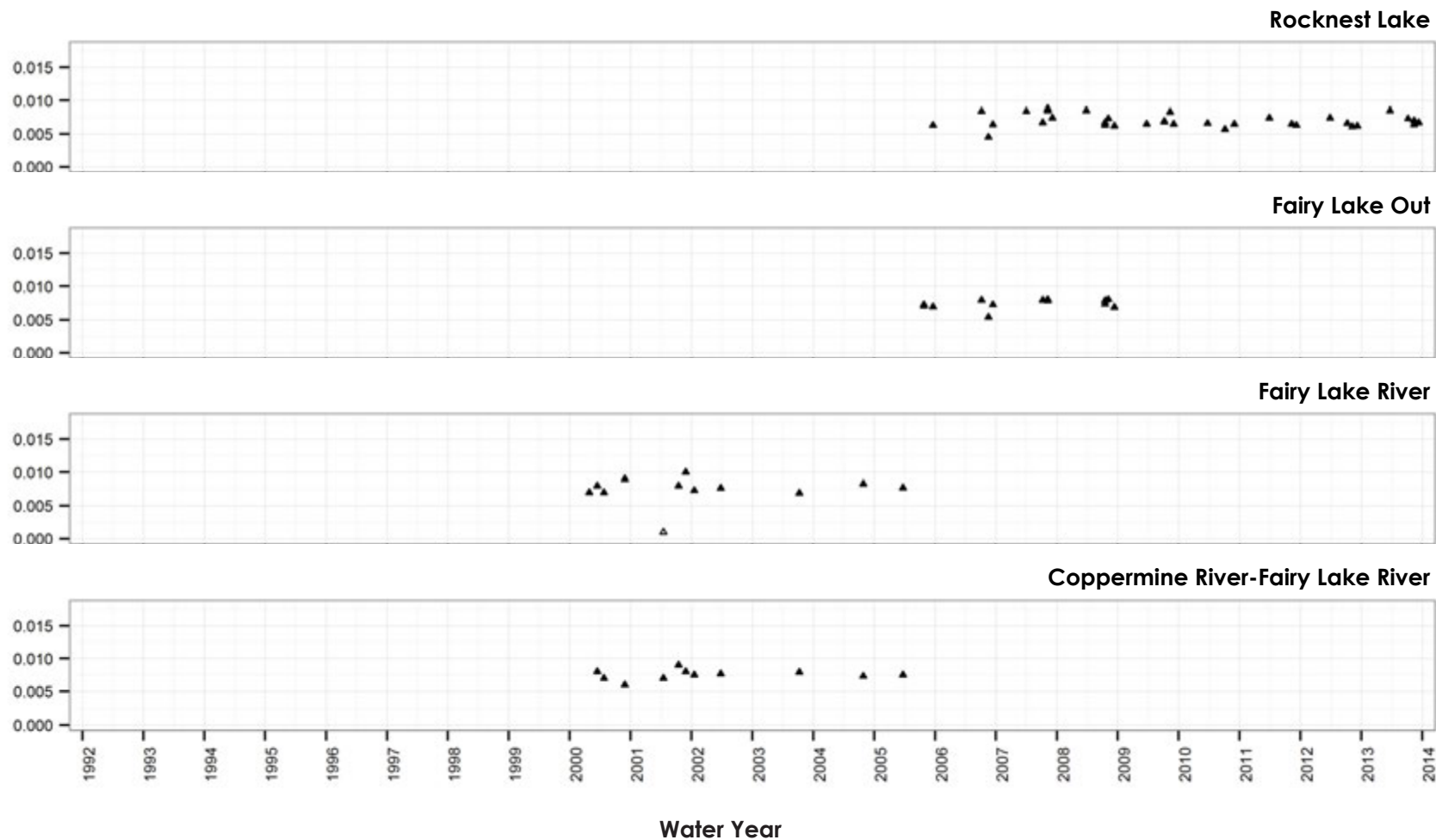
Northwest
Territories

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



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Total Strontium (mg/L)



NOTE: Water year begins October 1 of previous calendar year.

Empty symbols = below detection limit

Government of Northwest Territories



Appendix No.
B-1-20- b

Appendix Title

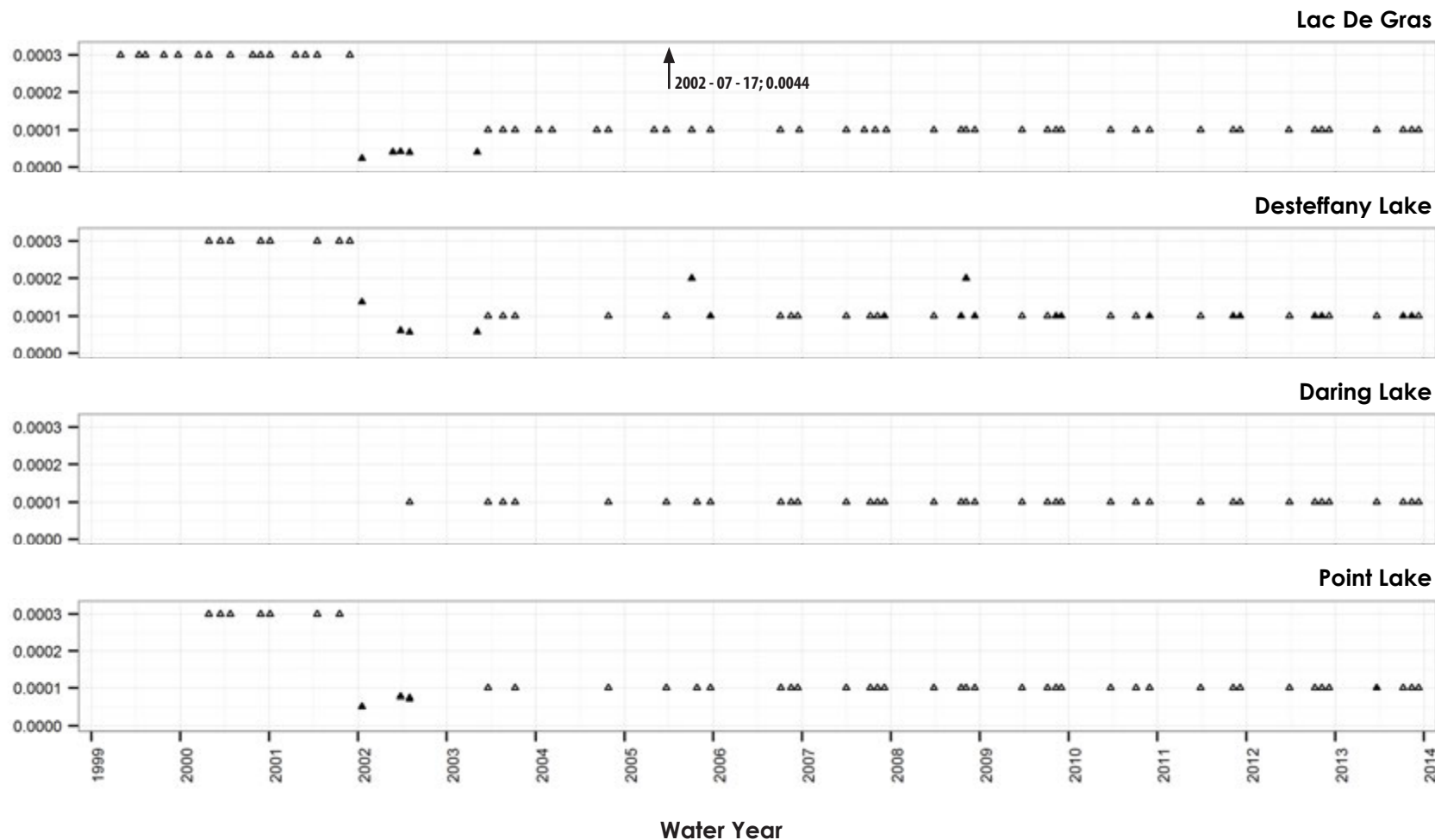
Water Quality Data

Report Title
Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report



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Total Uranium (mg/L)



NOTE: Water year begins October 1 of previous calendar year.

Parameter	CCME (Long term)	HC DWQG (Health Canada Drinking Water Quality Guidelines)
Guideline value (mg/L)	0.15*	0.02*

Data Source: Environment Canada, Government of Northwest Territories

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Empty symbols = below detection limit



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Government of Northwest Territories



Appendix No.

Appendix No.
B-1-21- a

Appendix Title

Appendix title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

Coppermine Watershed

Rocknest Lake



Fairy Lake Out



Fairy Lake River



Coppermine River-Fairy Lake River



Water Year

NOTE: Water year begins October 1 of previous calendar year.

Parameter

CCME (Long term)

HC DWQG (Health
Canada Drinking Water
Quality Guidelines)

Guideline value (mg/L)

0.15*

0.02*

*Guideline not shown on graphs.

Data Source: Environment Canada, Government of Northwest Territories

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Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

B-1-21- b

Appendix Title

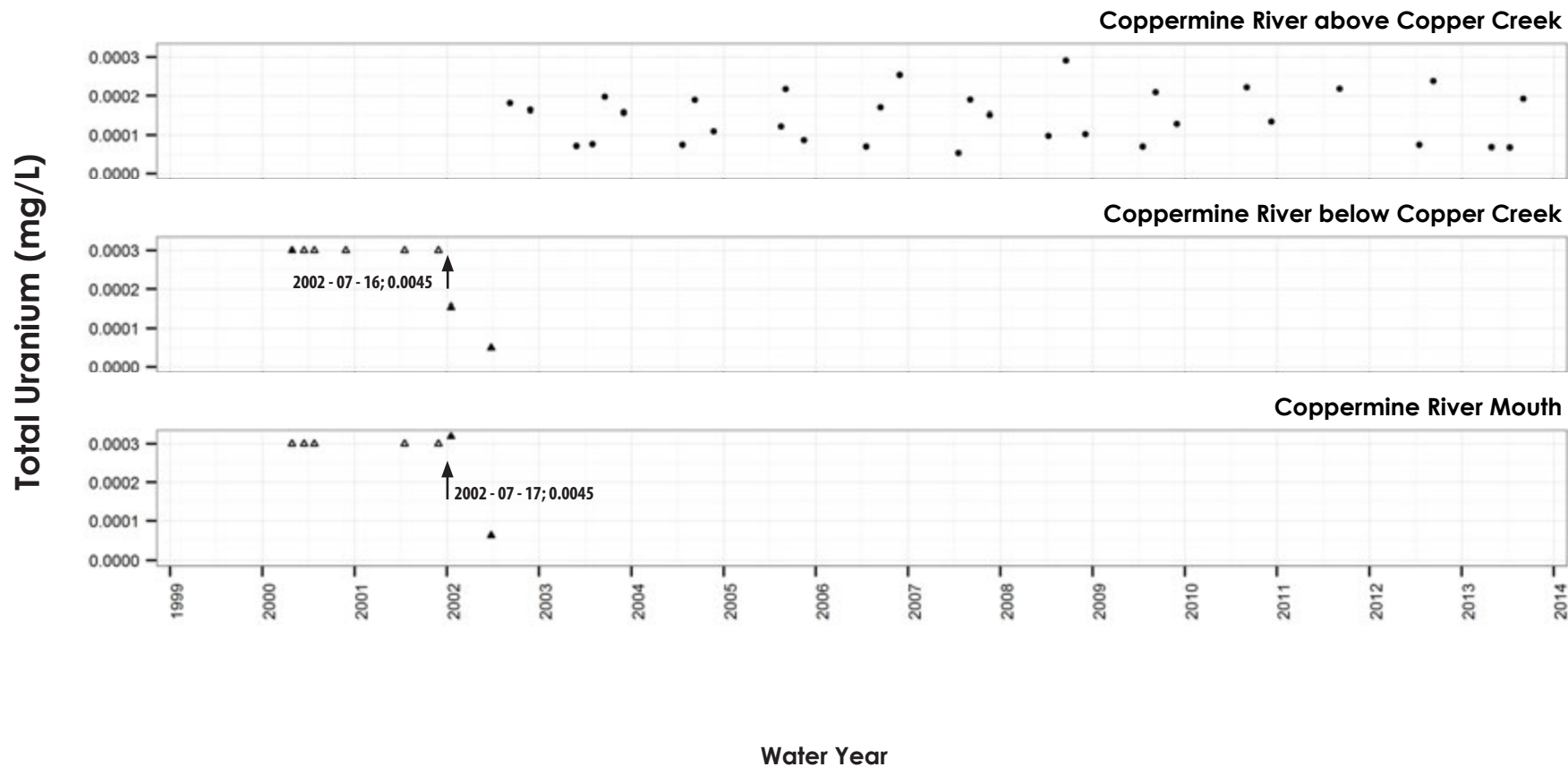
Water Quality Data

Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report



Coppermine Watershed



Parameter	CCME (Long term)	HC DWQG (Health Canada Drinking Water Quality Guidelines)
Guideline value (mg/L)	0.15*	0.02*

*Guideline not shown on graphs.

Data Source: Environment Canada, Government of Northwest Territories

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Empty symbols = below detection limit



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Government of Northwest Territories



Appendix No.

B-1-21- c

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

**STATUS AND TRENDS OF WATER CHEMISTRY AND FLOW IN THE COPPERMINE AND LOCKHART RIVER
BASINS
FINAL REPORT**

Appendix B Water Chemistry Summary Statistics
March 31, 2015

B.2 LOCKHART WATERSHED ALL DATA PLOTS

\\agssd\gfs_y_drive\templates\standard\standard_and_a_L_HorizontalBar_TileRight.mxd



Client/Project

Government of Northwest Territories



Appendix No.

Appendix No.
B-2-1-a

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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King Lake



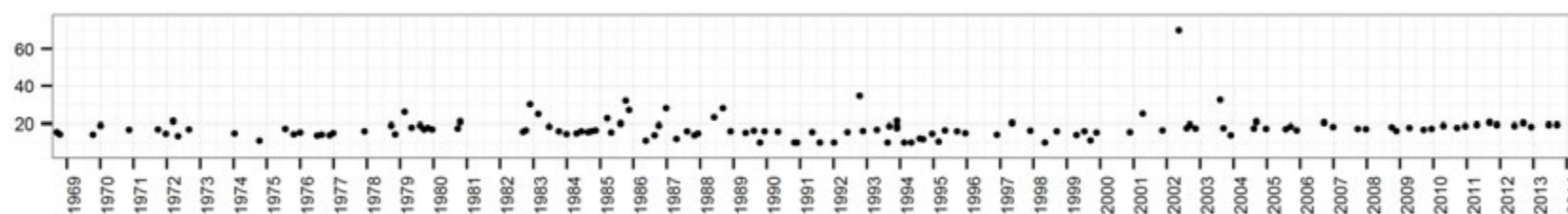
Lake of the Enemy



Mackay Lake



Lockhart River



Water Year

NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ●

Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

Appendix No.
B-2-2- a

Appendix Title

Water Quality Data

Report Title

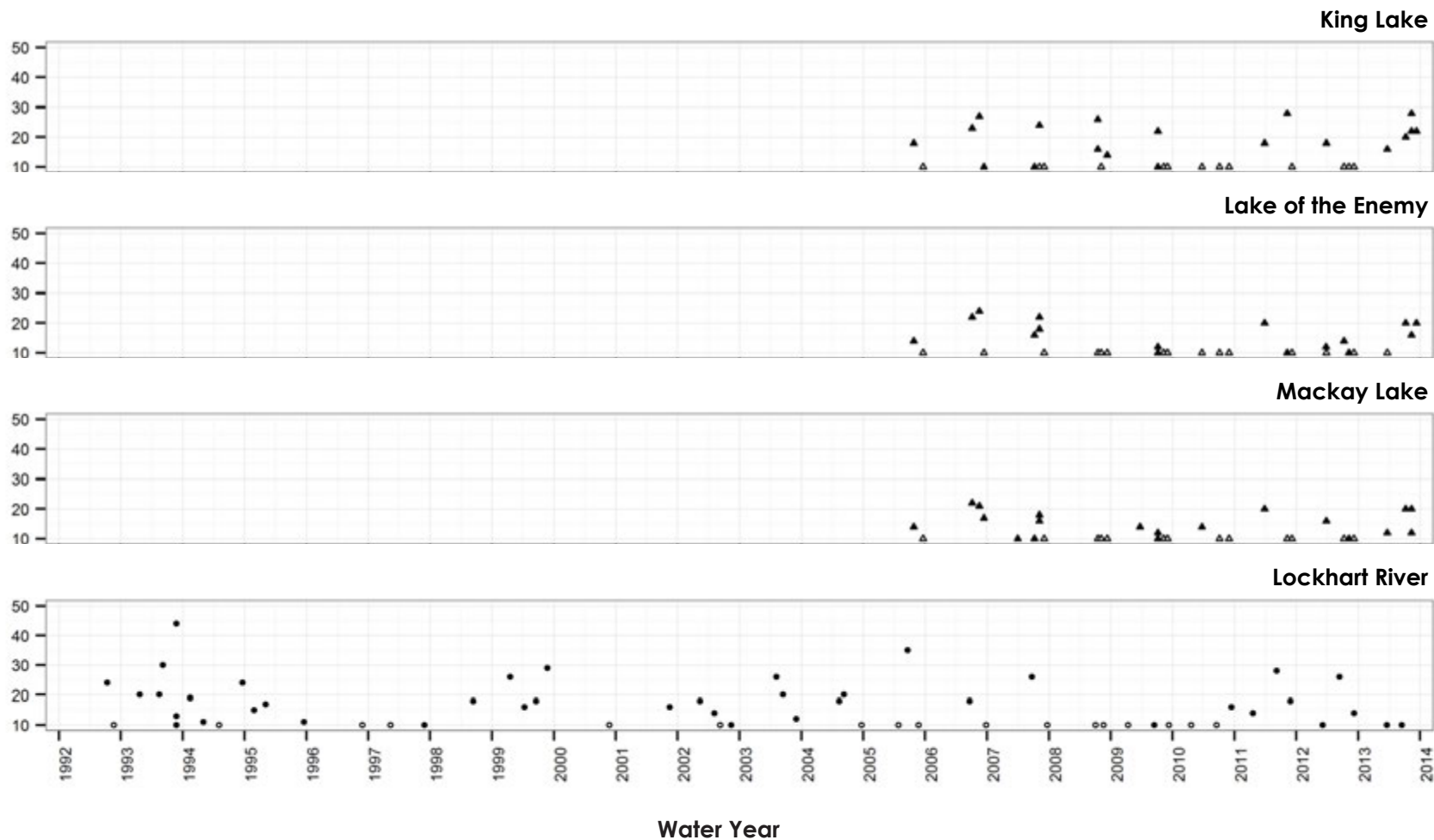
Report Title
Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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TDS (mg/L)



NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ●
Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

Appendix No.
B-2-3- a

Appendix Title

Appendix Title

Water Quality Data

Report Title

Report Title
Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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King Lake



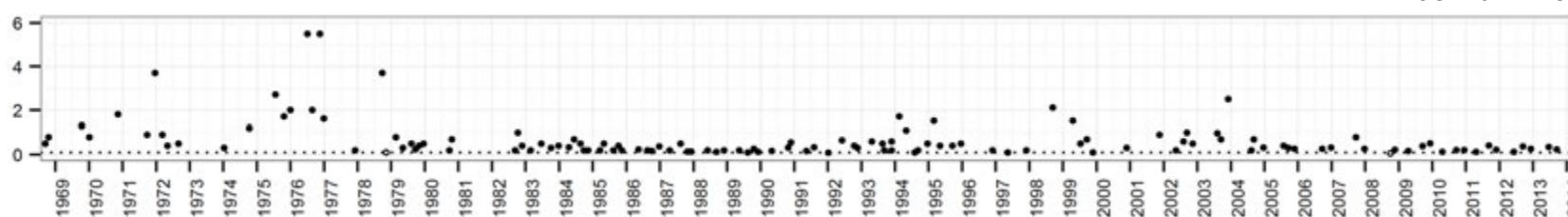
Lake of the Enemy



Mackay Lake



Lockhart River



Water Year

NOTE: Water year begins October 1 of previous calendar year.

Parameter	HC DWQG (Health Canada Drinking Water Quality Guidelines)
Line type	
Guideline value (ntu)	0.1

GNWT = ▲ EC = ●
Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

Appendix No.
B-2-4- a

Appendix Title
Water Quality Data

Report Title

Report Title
Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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The figure consists of four vertically stacked scatter plots, each representing the alkalinity of a different water body over time. The y-axis for all plots is 'Alkalinity (mg/L as CaCO₃)' ranging from 0 to 15. The x-axis for all plots is 'Water Year' ranging from 1969 to 2014.

- King Lake:** Data points are shown from 2006 to 2014. Alkalinity values are mostly between 6 and 11 mg/L, with a peak around 2010.
- Lake of the Enemy:** Data points are shown from 2006 to 2014. Alkalinity values are mostly between 3 and 6 mg/L, with a peak around 2010.
- Mackay Lake:** Data points are shown from 2006 to 2014. Alkalinity values are mostly between 4 and 8 mg/L, with a peak around 2010.
- Lockhart River:** Data points are shown from 1969 to 2014. Alkalinity values are mostly between 0 and 10 mg/L, with a peak around 2010.

GNWT = ▲ EC = ●
Empty symbols = below detection limit

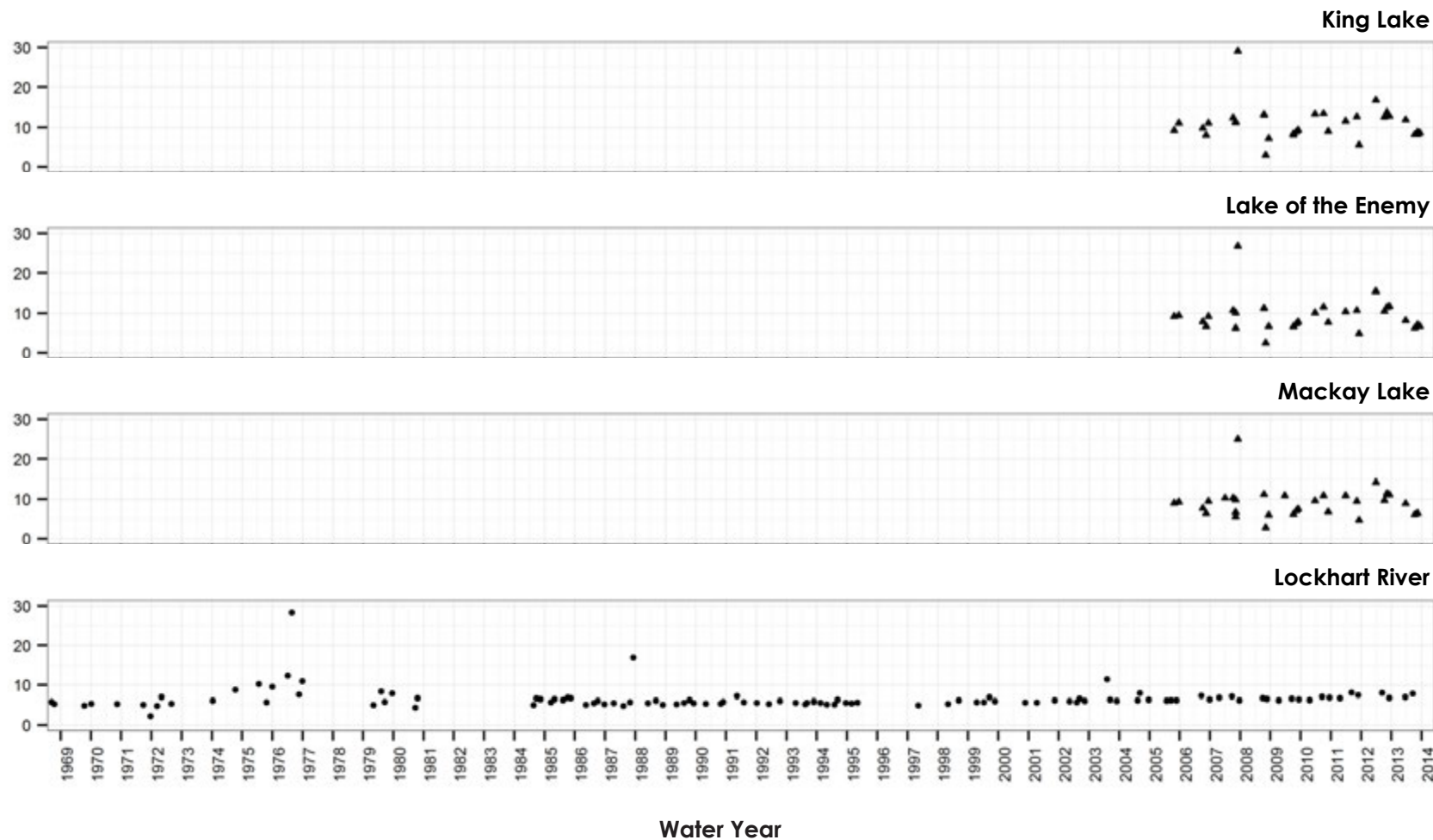


Northwest
Territories

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



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Hardness (mg/L as CaCO_3)

NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ●
Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

B-2-6- a

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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King Lake



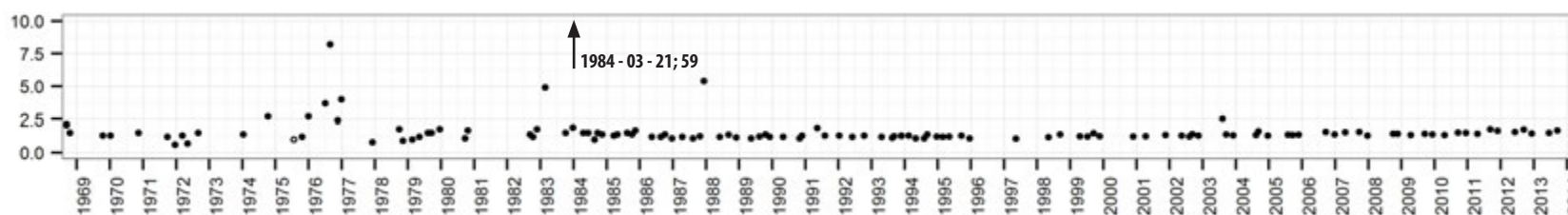
Lake of the Enemy



Mackay Lake



Lockhart River



Water Year

NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ●

Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

Appendix No.
B-2-7- a

Appendix Title

Water Quality Data

Report Title

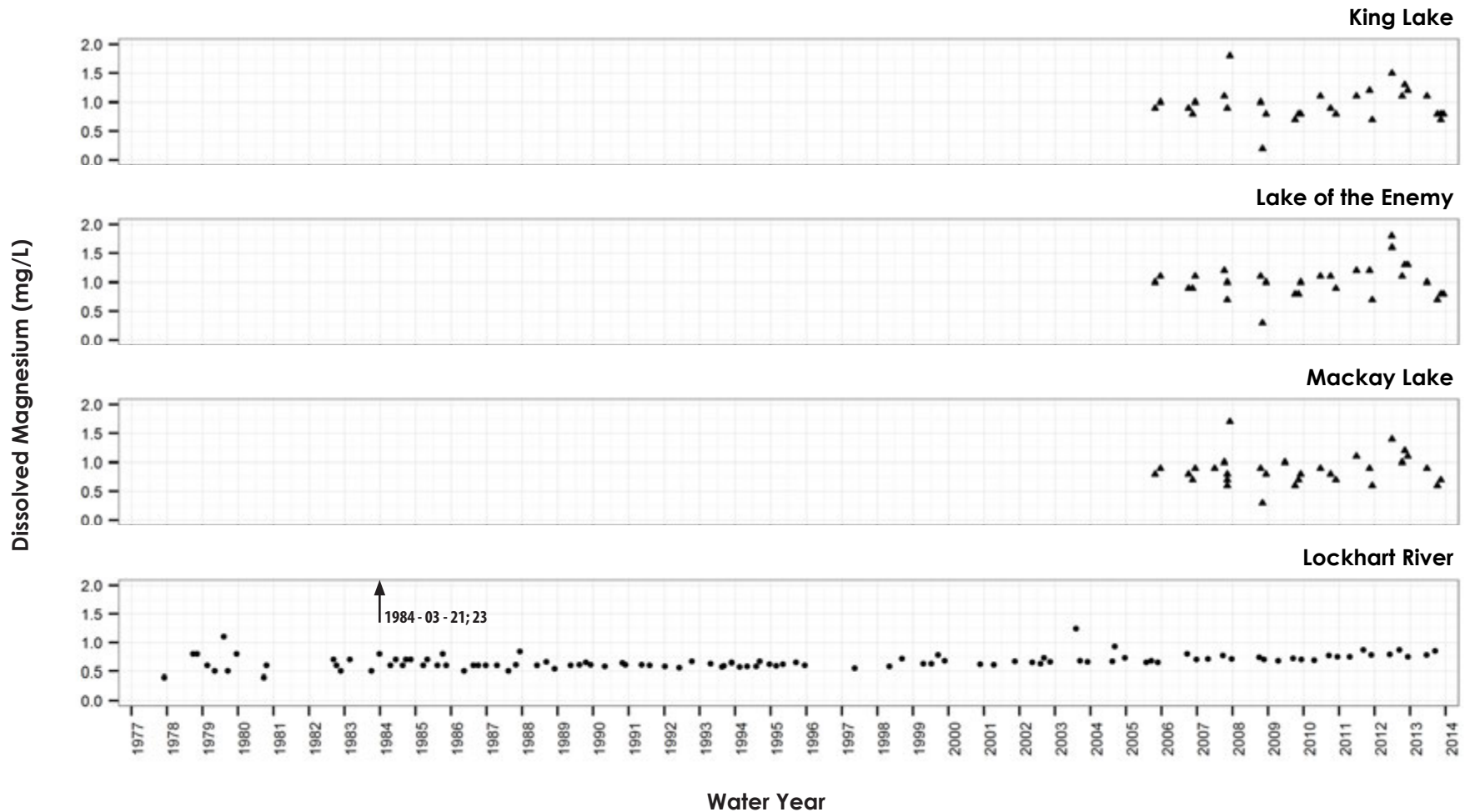
Report Title
Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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Lockhart Watershed



GNWT = ▲ EC = ●
Empty symbols = below detection limit

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Government of Northwest Territories



Appendix No.

B-2-8-a

Appendix Title

Water Quality Data

Report Title

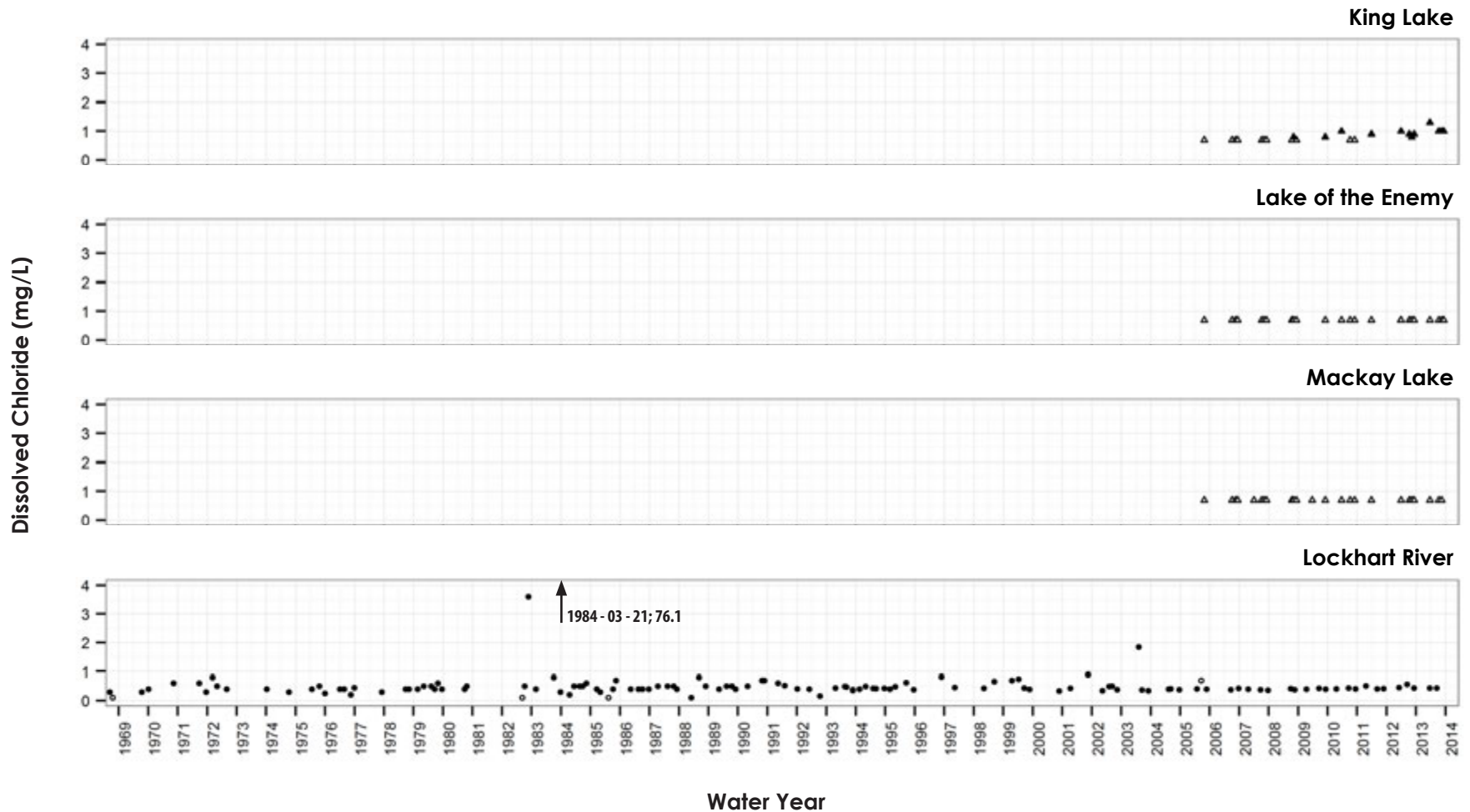
Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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Lockhart Watershed



Parameter	CCME (Long term)	CCME (Short term)
Guideline value (mg/l)	120 *	640 *

*Guideline not shown on graphs.

GNWT = ▲ EC = ●
Empty symbols = below detection limit



Client/Project
Government of Northwest Territories 

Appendix No.
B-2-9-a

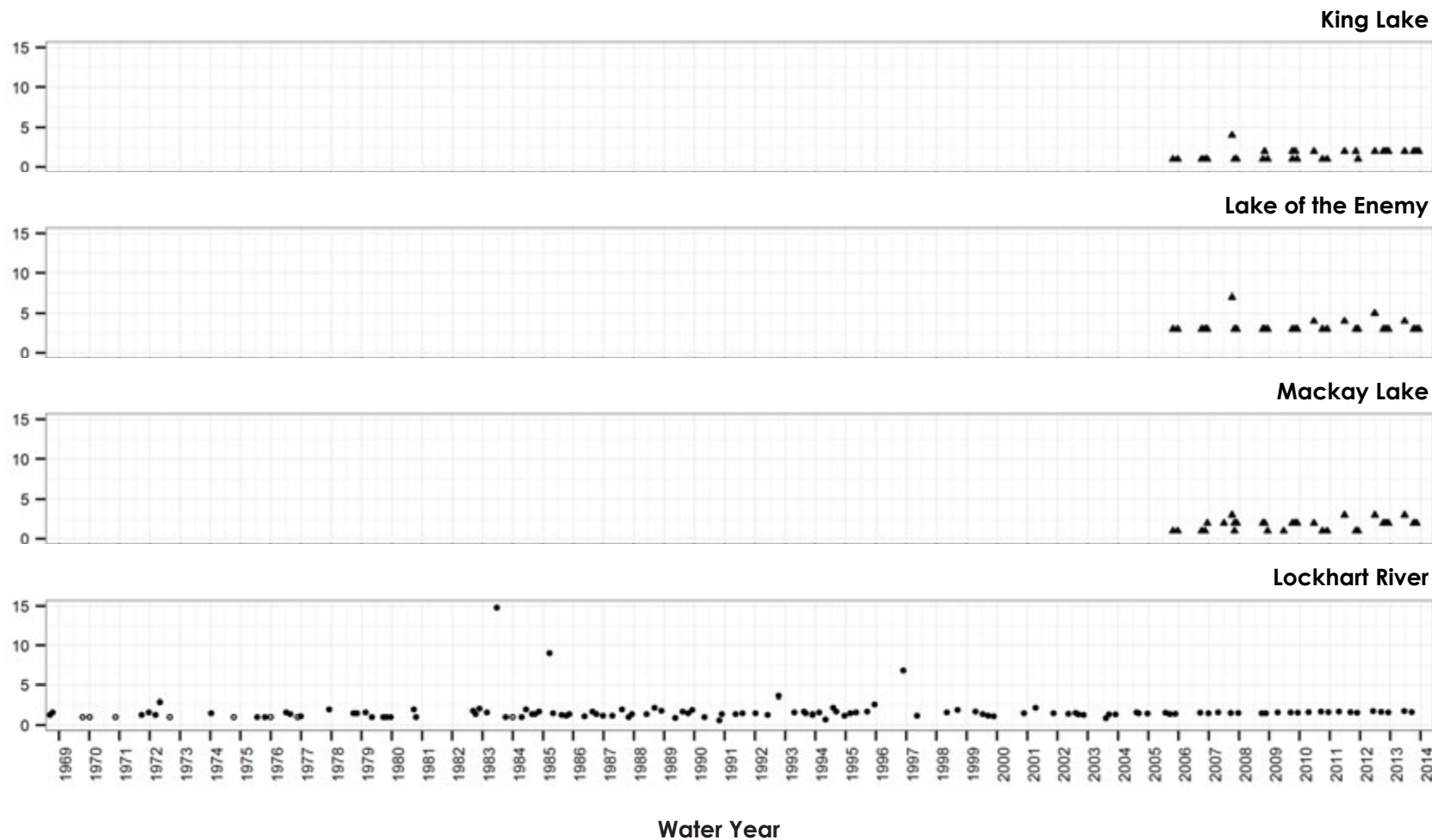
Appendix Title
Water Quality Data

Report Title
Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

Data Source: Environment Canada, Government of Northwest Territories

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Sulphate (mg/L)



NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ●
Empty symbols = below detection limit

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Appendix No.

Appendix No.
B-2-10- a

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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Lockhart Watershed

King Lake



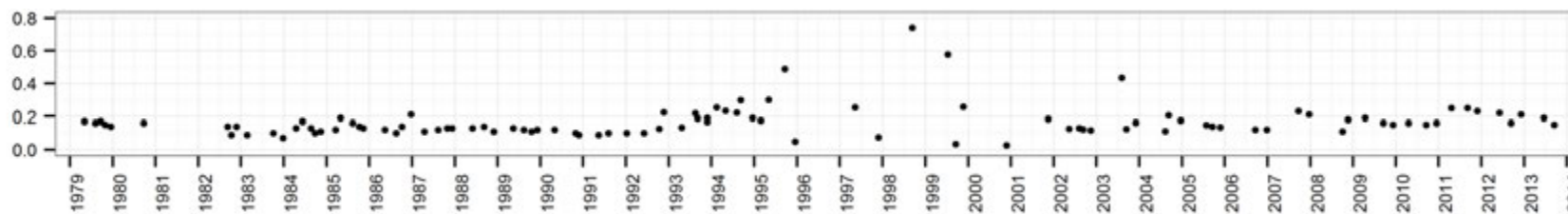
Lake of the Enemy



Mackay Lake



Lockhart River



Water Year

NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ●
Empty symbols = below detection limit



Client/Project

Government of Northwest Territories



Appendix No.

B-2-11-a

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

Data Source: Environment Canada, Government of Northwest Territories

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Lockhart Watershed

King Lake



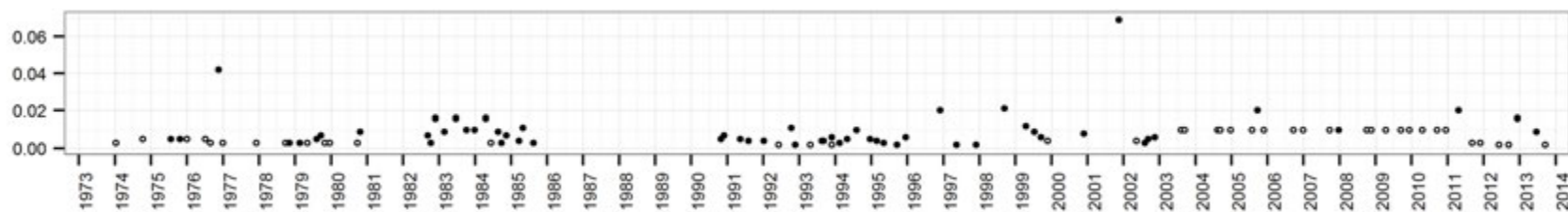
Lake of the Enemy



Mackay Lake



Lockhart River



Water Year

NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ●
Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

B-2-12- a

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report



Data Source: Environment Canada, Government of Northwest Territories

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Lockhart Watershed

King Lake



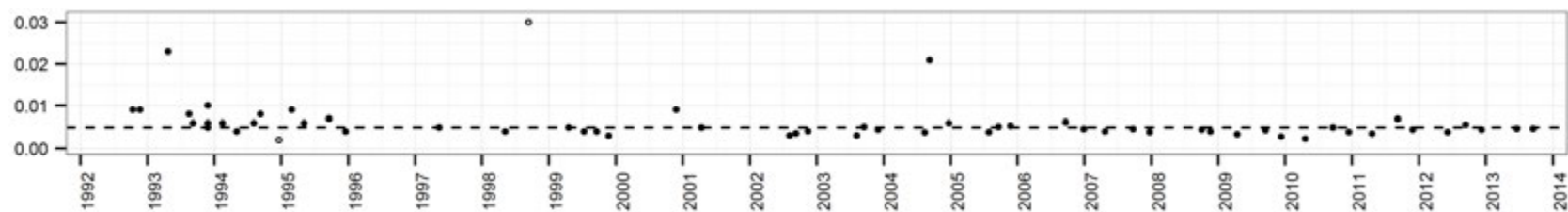
Lake of the Enemy



Mackay Lake



Lockhart River



Water Year

NOTE: Water year begins October 1 of previous calendar year.

Parameter CCME (Long term)

Guideline value (mg/L)

0.005 at pH < 6.5, 0.1
at pH ≥ 6.5

*Guideline not shown on graphs.

Data Source: Environment Canada, Government of Northwest Territories

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

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Client/Project

Government of Northwest Territories



Appendix No.

B-2-13-a

Appendix Title

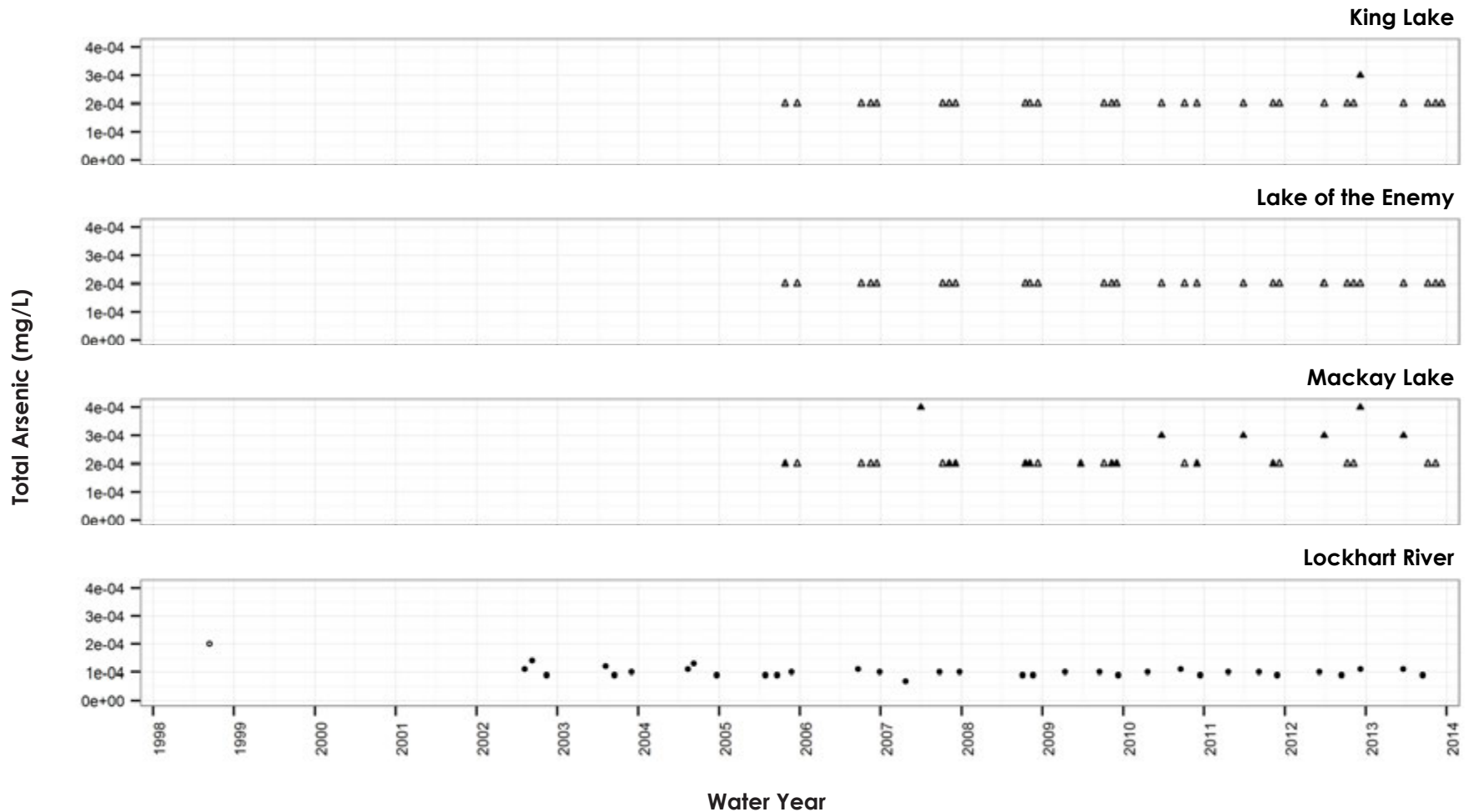
Water Quality Data

Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report



Lockhart Watershed



Parameter

CCME (Long term)

HC DWQG (Health Canada Drinking Water Quality Guidelines)

Guideline value (mg/L)

0.005*

0.01*

*Guidelines not shown on graphs.

Data Source: Environment Canada, Government of Northwest Territories

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Client/Project

Government of Northwest Territories



Appendix No.

B-2-14- a

Appendix Title

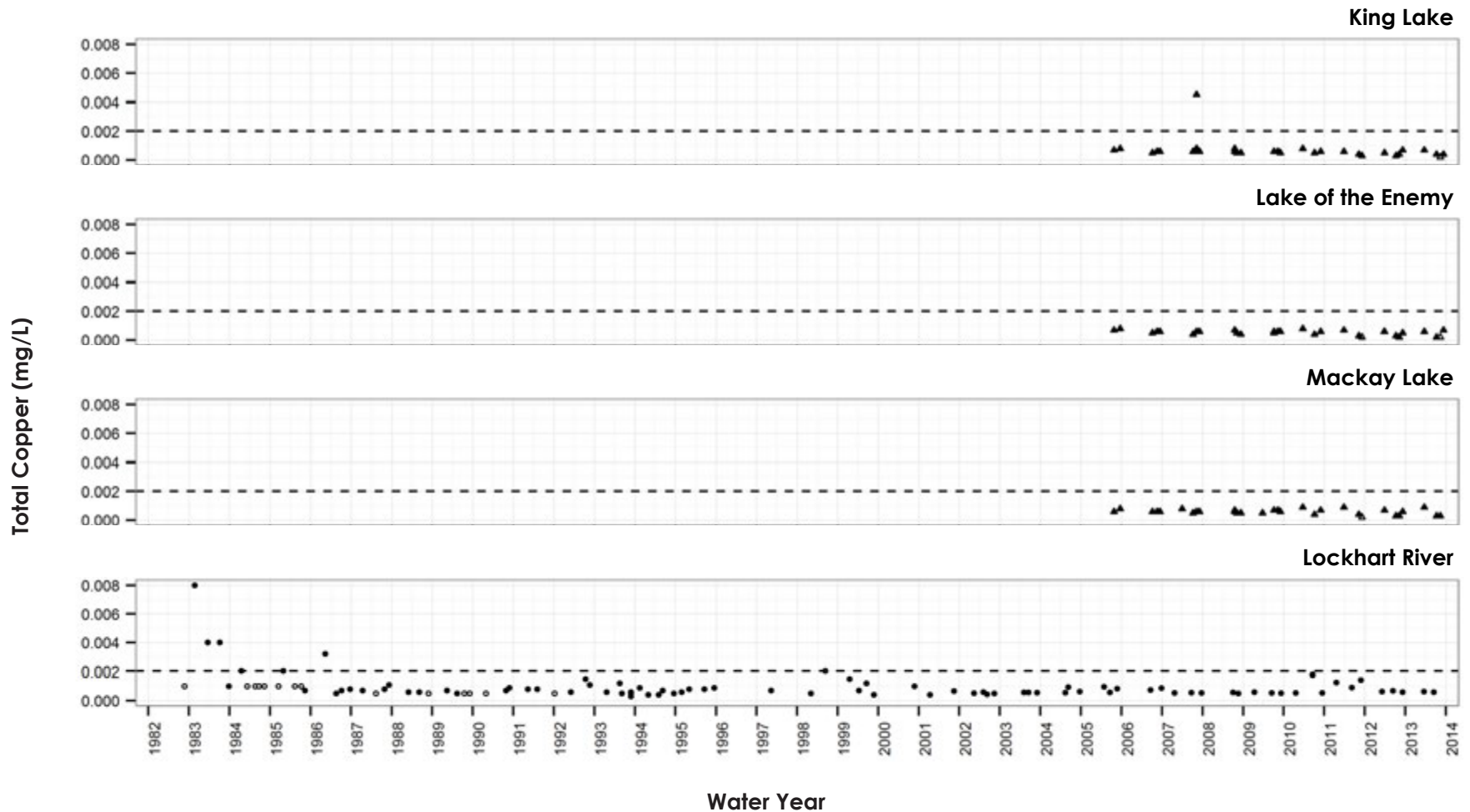
Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Lockhart Watershed



GNWT = ▲ EC = ●
Empty symbols = below detection limit

Parameter	CCME (Long term)
Line type	-----
Guideline value (mg/L)	0.002 at 50mg/L hardness.

Data Source: Environment Canada, Government of Northwest Territories

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Government of Northwest Territories



Appendix No.

B-2-16-a

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Lockhart Watershed

King Lake



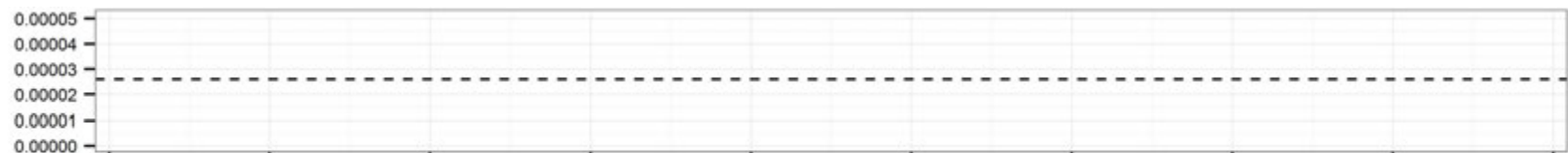
Lake of the Enemy



Mackay Lake



Lockhart River



Water Year

NOTE: Water year begins October 1 of previous calendar year.

Parameter	CCME (Long term)	HC DWQG (Health Canada Drinking Water Quality Guidelines)
Line type	-----	*
Guideline value (mg/L)	0.000026	0.001

*Guideline not shown on graphs.

Data Source: Environment Canada, Government of Northwest Territories

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Government of Northwest Territories



Appendix No.

B-2-17- a

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



King Lake



GNWT = ▲ EC = ●
Empty symbols = below detection limit

Parameter	CCME (Long term)
Guideline value (mg/L)	0.073*



Client/Project

Government of Northwest Territories



Appendix No.

Appendix No.
B-2-18- a

Appendix Title

Water Quality Data

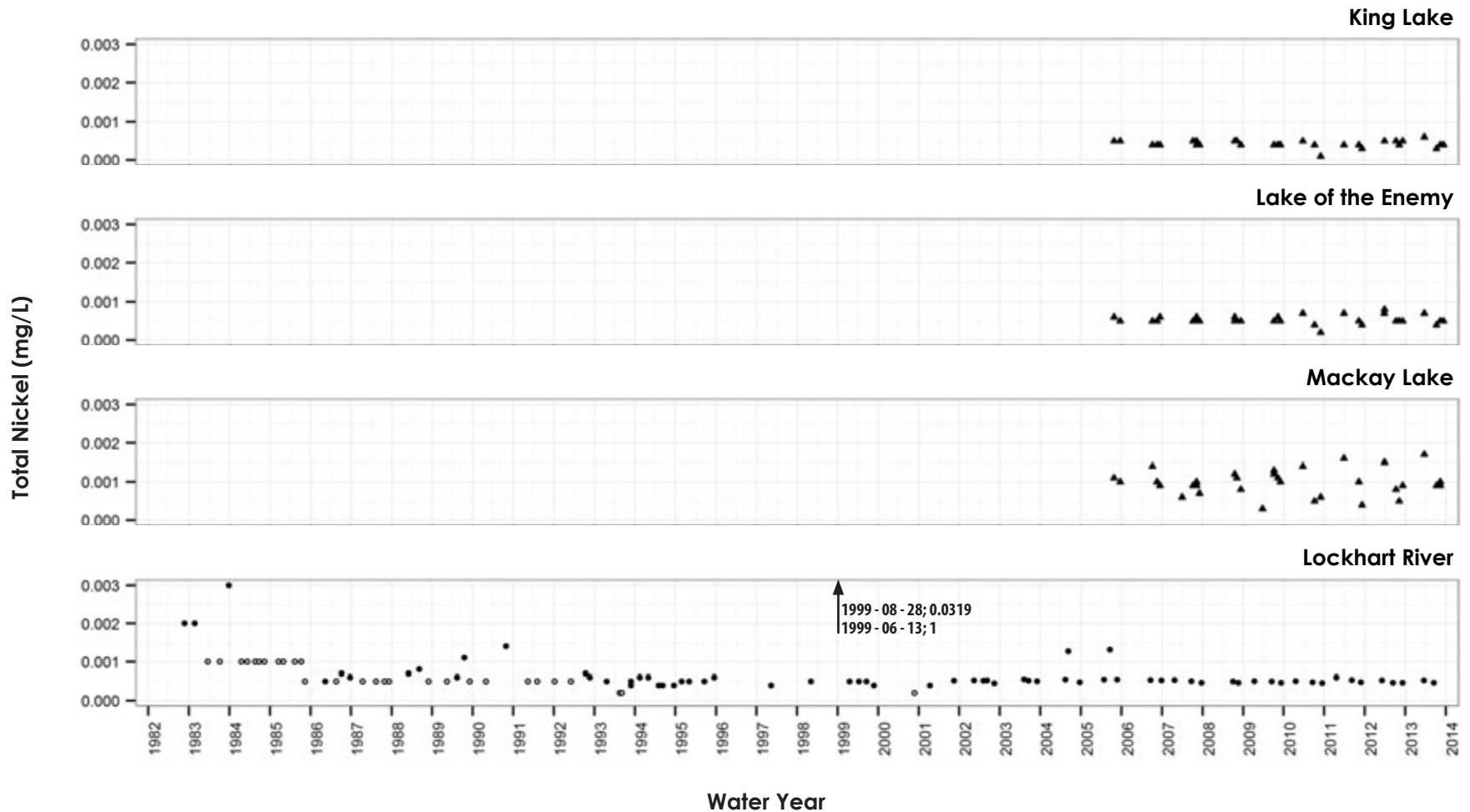
Report Title

Report Title
Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

Data Source: Environment Canada, Government of Northwest Territories

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Lockhart Watershed



NOTE: Water year begins October 1 of previous calendar year.

GNWT = ▲ EC = ●
Empty symbols = below detection limit

Client/Project

Government of Northwest Territories



Appendix No.

B-2-19-a

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report



Parameter CCME (Long term)

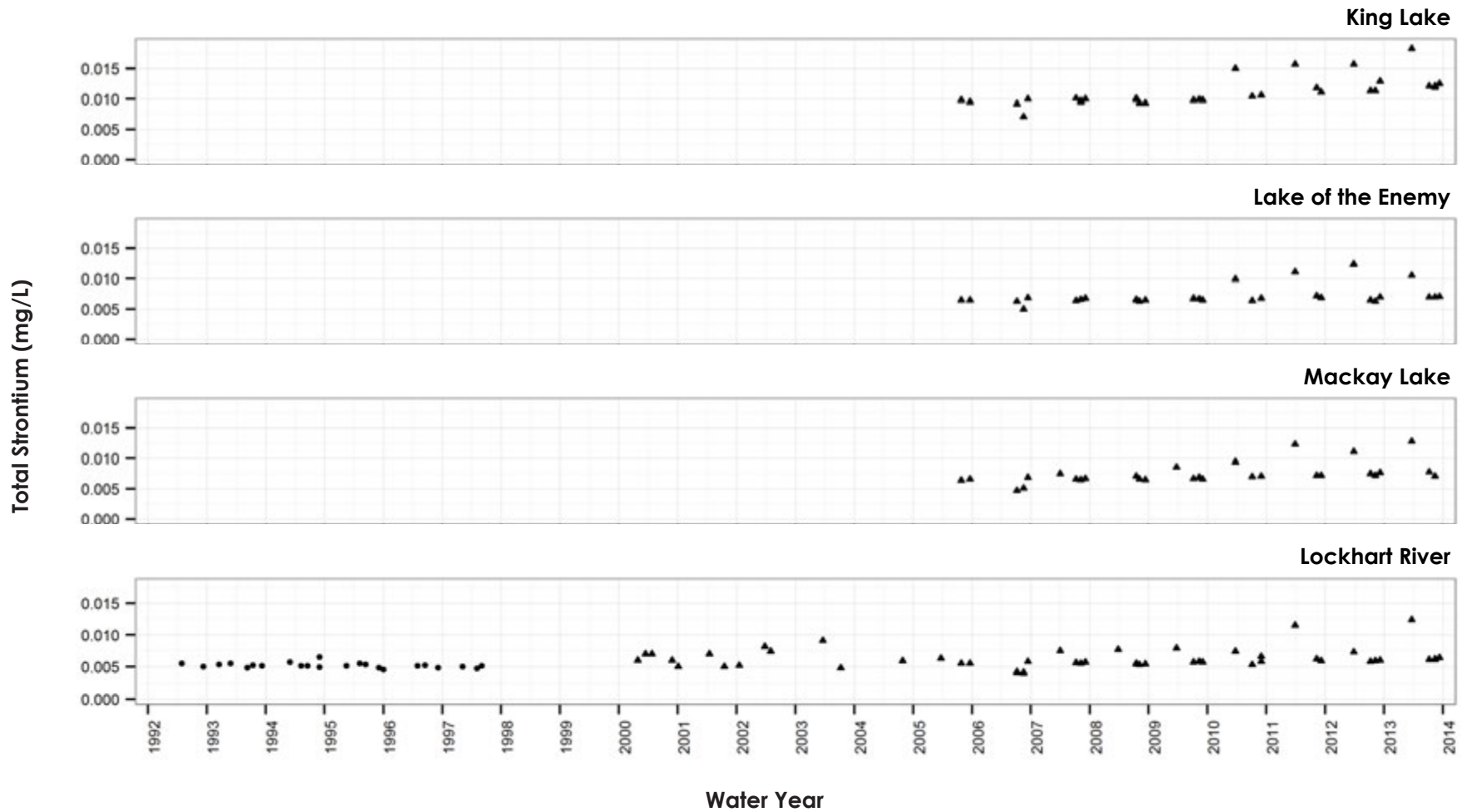
Guideline value (mg/L) 0.056* at 50mg/L hardness.

*Guideline not shown on graphs.

Data Source: Environment Canada, Government of Northwest Territories

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Lockhart Watershed



GNWT = ▲ EC = ●
Empty symbols = below detection limit



Client/Project

Government of Northwest Territories



Appendix No.

B-2-20- a

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

Data Source: Environment Canada, Government of Northwest Territories

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The figure consists of four vertically stacked scatter plots, each representing a different lake. The y-axis for all plots is 'Total Uranium (mg/L)' ranging from 0.0000 to 0.0006. The x-axis for all plots is 'Water Year' from 2002 to 2014.

- Lac De Gras:** Data points begin in 2006. Most values are around 0.0001 mg/L, with a peak of approximately 0.0002 mg/L in 2011.
- Desteffany Lake:** Data points begin in 2006. Most values are around 0.0001 mg/L, with a peak of approximately 0.0007 mg/L in 2011.
- Daring Lake:** Data points begin in 2006. Most values are around 0.0001 mg/L, with a peak of approximately 0.0002 mg/L in 2011.
- Point Lake:** Data points begin in 2003 and continue through 2014. All values are very low, generally below 0.0001 mg/L.

GNWT = ▲ EC = ●
Empty symbols = below detection limit

Client/Project	Government of Northwest Territories Appendix No. B-2-21-a Appendix Title Water Quality Data Report Title Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report	



Report Title
Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

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**STATUS AND TRENDS OF WATER CHEMISTRY AND FLOW IN THE COPPERMINE AND LOCKHART RIVER
BASINS
FINAL REPORT**

Appendix B Water Chemistry Summary Statistics
March 31, 2015

B.3 SUMMARY STATISTICS FOR THE COPPERMINE WATERSHED

Appendix B-3-1-a: Water chemistry summary for Lac de Gras Outlet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit; High = upper limit; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (relative units)	43 / 60	72	5	-	-	-	5.1	-	-	-	-	10	0.72	0.093	0.14	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 65	0	12.4	12.4	13.38	15	18	16.7	19.8	21.4	25.5	30.3	3.7	0.46	0.21	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	29 / 65	45	10	10	10	10	14	10	15	22	22	53	7.6	0.94	0.54	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	50 / 64	78	3	-	-	-	3.5	-	-	-	-	20	2.2	0.28	0.64	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 65	0	0.1	0.1	0.19	0.22	0.43	0.3	0.5	0.7	0.9	2.4	0.39	0.048	0.90	-	-	64	-	-	0	-	-	64
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 65	0	1.2	1.2	3.2	3.4	4.2	3.9	5.1	5.6	6.4	6.4	1	0.13	0.25	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	20 / 59	34	0.2	0.2	0.3	0.5	0.78	0.7	0.9	1.3	1.3	3.6	0.55	0.071	0.70	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	21 / 22	95	0.1	-	-	-	0.16	-	-	-	-	1	0.22	0.046	1.31	-	2	0	-	1	0	-	1	0

Appendix B-3-1-a: Water chemistry summary for Lac de Gras Outlet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit; High = upper limit; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-3-1-a: Water chemistry summary for Lac de Gras Outlet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit; High = upper limit; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ
Carbon, Dissolved Organic	0 / 66	0	1.6	1.6	1.95	2.1	2.5	2.5	2.8	3.05	3.6	3.9	0.49	0.06	0.20	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Organic	0 / 65	0	1.8	1.8	2.164	2.3	2.6	2.6	2.8	3.06	3.4	3.9	0.41	0.051	0.16	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide																								
Cyanide Thiocyanate	0 / 1	0	0.3	-	-	-	0.3	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-	
Cyanide, Total	2 / 3	67	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	0	0	-	0	0	-	0	
Cyanide, wad	2 / 3	67	0.002	-	-	-	0.002	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	
Dissolved Metals																								
Aluminum	0 / 24	0	0.0006	0.0006	0.0013	0.00185	0.0044	0.00295	0.0035	0.00576	0.0052	0.0376	0.0072	0.0015	1.64	-	-	-	-	-	-	-	-	
Antimony	18 / 24	75	0.0001	-	-	-	0.00014	-	-	-	-	0.0008	0.00014	0.000029	1.02	-	-	-	-	-	-	-	-	
Arsenic	18 / 24	75	0.0002	-	-	-	0.00021	-	-	-	-	0.0003	0.000028	0.0000058	0.14	-	-	-	-	-	-	-	-	
Barium	0 / 24	0	0.0014	0.0014	0.0015	0.001575	0.002	0.0017	0.0019	0.00254	0.0019	0.0071	0.0011	0.00023	0.56	-	-	-	-	-	-	-	-	
Beryllium	24 / 24	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Bismuth	0 / 1	0	0.0007	-	-	-	0.0007	-	-	-	-	0.0007	-	-	-	-	-	-	-	-	-	-	-	
Boron	1 / 1	100	0.0009	-	-	-	0.0009	-	-	-	-	0.0009	-	-	-	-	-	-	-	-	-	-	-	
Cadmium	24 / 24	100	0.00005	-	-	-	0.00005	-	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	
Calcium	0 / 65	0	0.6	0.6	0.794	0.91	1.4	1.2	1.7	2.32	2.8	2.9	0.58	0.072	0.41	-	-	-	-	-	-	-	-	
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cesium	24 / 24	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Chromium	23 / 24	96	0.0001	-	-	-	0.00082	-	-	-	-	0.0174	0.0035	0.00072	4.30	-	-	-	-	-	-	-	-	
Cobalt	20 / 21	95	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Copper	3 / 24	13	0.0002	0.0002	0.00023	0.000375	0.00063	0.00055	0.000725	0.00087	0.001	0.0028	0.00051	0.0001	0.81	-	-	-	-	-	-	-	-	
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Iron	24 / 24	100	0.005	-	-	-	0.02	-	-	-	-	0.05	0.022	0.0044	1.08	-	-	-	-	-	-	-	-	
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lead	21 / 24	88	0.0001	-	-	-	0.0028	-	-	-	-	0.0653	0.013	0.0027	4.72	-	-	-	-	-	-	-	-	
Lithium	0 / 24	0	0.0005	0.001	0.00093	0.001175	0.0012	0.0012	0.0013	0.00175	0.0014	0.0019	0.00031	0.000064	0.25	-	-	-	-	-	-	-	-	
Magnesium	0 / 65	0	0.4	0.4	0.524	0.6	0.82	0.8	1	1.1	1.4	1.6	0.26	0.032	0.32	-	-	-	-	-	-	-	-	
Manganese	0 / 24	0	0.0002	0.0002	0.0004	0.0004	0.0012	0.001	0.001825	0.00214	0.003	0.003	0.00084	0.00017	0.70	-	-	-	-	-	-	-	-	
Mercury	22 / 22	100	0.00001	-	-	-	0.000011	-	-	-	-	0.00002	0.0000029	0.00000063	0.27	-	-	-	-	-	-	-	-	

Appendix B-3-1-a: Water chemistry summary for Lac de Gras Outlet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit; High = upper limit; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ
Molybdenum	7 / 24	29	0.0001	0.0001	0.0001	0.0001	0.00023	0.0002	0.000225	0.0003	0.0003	0.0015	0.00028	0.000058	1.23	-	-	-	-	-	-	-	-	-
Nickel	0 / 24	0	0.0007	0.0007	0.0008	0.0009	0.00097	0.00095	0.0011	0.00117	0.0013	0.0013	0.00016	0.000033	0.17	-	-	-	-	-	-	-	-	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	7 / 7	100	0.001	-	-	-	0.0087	-	-	-	-	0.01	0.0034	0.0013	0.39	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 65	0	0.4	0.4	0.43	0.5	0.59	0.6	0.66	0.752	0.8	0.9	0.12	0.015	0.21	-	-	-	-	-	-	-	-	-
Rubidium	0 / 24	0	0.0009	0.0009	0.00113	0.0012	0.0015	0.0014	0.001525	0.00191	0.002	0.0024	0.00034	0.00007	0.23	-	-	-	-	-	-	-	-	-
Selenium	23 / 24	96	0.0003	-	-	-	0.00037	-	-	-	-	0.002	0.00035	0.000071	0.94	-	-	-	-	-	-	-	-	-
Silver	23 / 24	96	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	0 / 65	0	0.35	0.35	0.48	0.5	0.75	0.7	0.9	1.2	1.4	1.6	0.28	0.035	0.38	-	-	-	-	-	-	-	-	-
Strontium	0 / 24	0	0.0046	0.0046	0.00615	0.007	0.009	0.0086	0.0103	0.0111	0.0147	0.0166	0.0028	0.00056	0.31	-	-	-	-	-	-	-	-	-
Thallium	24 / 24	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tin	1 / 1	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	19 / 24	79	0.0001	-	-	-	0.00015	-	-	-	-	0.0011	0.0002	0.000042	1.36	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	24 / 24	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	24 / 24	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	9 / 24	38	0.0004	0.0004	0.0004	0.0004	0.0015	0.0007	0.000925	0.00406	0.0012	0.0077	0.0021	0.00043	1.42	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	15 / 64	23	0.0017	0.0017	0.00313	0.004	0.012	0.0056	0.03	0.03	0.043	0.043	0.012	0.0015	0.98	-	4	-	-	3	-	-	1	-
Antimony	36 / 64	56	0.0001	-	-	-	0.00046	-	-	-	-	0.0026	0.00053	0.000066	1.15	-	-	0	-	-	0	-	-	0
Arsenic	30 / 46	65	0.0002	-	-	-	0.00035	-	-	-	-	0.002	0.00035	0.000052	1.01	-	0	0	-	0	0	-	0	0
Barium	2 / 63	3	0.001	0.001	0.001	0.0015	0.0019	0.0018	0.002	0.00248	0.0027	0.0072	0.00084	0.00011	0.45	-	-	0	-	-	0	-	-	0
Beryllium	62 / 63	98	0.00002	-	-	-	0.00058	-	-	-	-	0.002	0.00084	0.00011	1.45	-	-	-	-	-	-	-	-	-
Bismuth	14 / 14	100	0.0004	-	-	-	0.0027	-	-	-	-	0.01	0.0031	0.00082	1.12	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	60 / 65	92	0.00002	-	-	-	0.00012	-	-	-	-	0.0005	0.00012	0.000015	0.98	0	62	0	0	58	0	0	4	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	60 / 64	94	0.000008	-	-	-	0.00021	-	-	-	-	0.0022	0.0003	0.000038	1.47	-	-	-	-	-	-	-	-	-
Chromium	54 / 65	83	0.0001	-	-	-	0.0012	-	-	-	-	0.0152	0.0022	0.00027	1.85	-	1	0	-	0	0	-	1	0
Cobalt	55 / 64	86	0.000038	-	-	-	0.00033	-	-	-	-	0.001	0.00039	0.000049	1.17	-	-	-	-	-	-	-	-	-
Copper	14 / 65	22	0.0002	0.0002	0.0005	0.0006	0.0012	0.0007	0.002	0.002264	0.00301	0.0052	0.00094	0.00012	0.77	-	7	-	-	0	-	-	7	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	42 / 64	66	0.005	-	-	-	0.036	-	-	-	-	0.69	0.085	0.011	2.37	-	1	-	-	0	-	-	1	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	49 / 65	75	0.0001	-	-	-	0.0014	-	-	-	-	0.0626	0.0077	0.00096	5.60	-	3	1	-	0	0	-	3	1
Lithium	16 / 64	25	0.0005	0.0005	0.0011	0.0012	0.0017	0.00135	0.00225	0.003	0.003	0.003	0.00079	0.000098	0.46	-	-	-	-	-	-	-	-	-
Magnesium	0 / 3	0	0.0011	-	-	-	0.0021	-	-	-	-	0.004	0.0016	0.00094	0.76	-	-	-	-	-	-	-	-	-

Appendix B-3-1-a: Water chemistry summary for Lac de Gras Outlet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit; High = upper limit; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Manganese	4 / 62	6	0.0007	0.0007	0.001	0.001	0.002	0.00179	0.0024	0.00329	0.0038	0.0067	0.0013	0.00017	0.65	-	-	-	-	-	-	-	-	-
Mercury	31 / 35	89	0.000001	-	-	-	0.0000098	-	-	-	-	0.00002	0.0000043	0.00000072	0.44	-	0	0	-	0	0	-	0	0
Molybdenum	29 / 64	45	0.00002	0.00002	0.0001	0.0001	0.0004	0.0002	0.001	0.001	0.0015	0.003	0.00052	0.000065	1.28	-	0	-	-	0	-	-	0	-
Nickel	8 / 65	12	0.0006	0.0006	0.0008	0.0009	0.001	0.001	0.0011	0.001232	0.00138	0.002	0.00024	0.000029	0.23	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 59	0	0.0009	0.0009	0.0011	0.00124	0.0014	0.0014	0.00152	0.001684	0.0019	0.0025	0.0003	0.000039	0.21	-	-	-	-	-	-	-	-	-
Selenium	58 / 63	92	0.0003	-	-	-	0.0027	-	-	-	-	0.01	0.0041	0.00052	1.54	-	17	0	-	15	0	-	2	0
Silver	59 / 64	92	0.000006	-	-	-	0.00015	-	-	-	-	0.0003	0.000097	0.000012	0.66	-	18	-	-	15	-	-	3	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	1 / 64	2	0.0046	0.0046	0.005	0.006	0.0077	0.007135	0.00865	0.01077	0.0116	0.0167	0.0024	0.0003	0.31	-	-	-	-	-	-	-	-	-
Thallium	62 / 64	97	0.0001	-	-	-	0.00018	-	-	-	-	0.0004	0.00013	0.000016	0.75	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	49 / 64	77	0.0001	-	-	-	0.00099	-	-	-	-	0.00761	0.0015	0.00019	1.54	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	58 / 64	91	0.000024	-	-	-	0.00021	-	-	-	-	0.0044	0.00054	0.000067	2.58	-	0	0	-	0	0	-	0	0
Vanadium	57 / 64	89	0.00003	-	-	-	0.00033	-	-	-	-	0.001	0.00039	0.000049	1.17	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	32 / 65	49	0.0004	0.0004	0.0004	0.0004	0.0058	0.0011	0.01	0.01	0.024	0.065	0.0095	0.0012	1.63	-	1	-	-	0	-	-	1	-
BTEX																								
Benzene	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	0	-	-	0	-	-	0
Ethylbenzene	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	0	-	-	0	-	-	0
m/p-Xylene	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	0	-	-	0	-	-	0
Total Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
Organics																								
Total Extractable Hydrocarbons (TEH)	1 / 1	100	0.2	-	-	-	0.2	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-1-b: Water chemistry summary for Lac de Gras Outlet during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit; High = upper limit; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (relative units)	18 / 22	82	5	-	-	-	5.2	-	-	-	-	10	1.1	0.23	0.20	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 23	0	12.9	12.9	13.82	15.4	19	17.9	20.25	25.04	25.5	30.3	4.7	0.98	0.25	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	8 / 23	35	10	10	10	10	13	10	14.5	17.6	20	22	3.6	0.76	0.29	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	16 / 22	73	3	-	-	-	3.3	-	-	-	-	8	1.1	0.23	0.33	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 23	0	0.1	0.1	0.134	0.2	0.58	0.3	0.7	1.144	1.2	2.4	0.58	0.12	1.00	-	-	22	-	-	0	-	-	22
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 23	0	3.2	3.2	3.46	3.9	4.8	5.2	5.55	6.1	6.4	6.4	1	0.22	0.21	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	5 / 23	22	0.2	0.2	0.32	0.5	0.85	0.7	0.75	1.62	1.1	3.6	0.74	0.15	0.87	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	6 / 6	100	0.1	-	-	-	0.1	-	-	-	-	0.1	-	-	-	-	0	0	-	0	0	-	0	0

Appendix B-3-1-b: Water chemistry summary for Lac de Gras Outlet during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit; High = upper limit; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hardness, Total (as CaCO3)	0 / 23	0	4.01	4.01	4.304	4.635	6.9	6.06	8.4	10.18	13.5	13.5	2.6	0.54	0.37	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH (pH units)	0 / 23	0	6.41	6.41	6.474	6.555	6.7	6.67	6.73	6.782	6.82	7.06	0.14	0.03	0.02	-	0	-	-	0	-	-	0	-
Silica, Reactive	0 / 13	0	0.053	0.053	0.08	0.086	0.1	0.11	0.12	0.12	0.14	0.14	0.023	0.0064	0.23	-	-	-	-	-	-	-	-	-
Silica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	7 / 23	30	2	2	2	2.25	3.1	3	3	3.8	4	10	1.6	0.34	0.52	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	5 / 24	21	0.005	0.005	0.005	0.0095	0.017	0.0135	0.02075	0.0307	0.031	0.05	0.013	0.0026	0.74	-	2	-	-	2	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	14 / 21	67	0.005	-	-	-	0.018	-	-	-	-	0.2	0.042	0.0091	2.26	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	12 / 20	60	0.006	-	-	-	0.02	-	-	-	-	0.2	0.043	0.0095	2.15	-	-	-	-	-	-	-	-	-
Nitrite	17 / 21	81	0.001	-	-	-	0.0092	-	-	-	-	0.05	0.0099	0.0022	1.07	-	0	0	-	0	0	-	0	0
Nitrogen, Particulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	13 / 21	62	0.001	-	-	-	0.016	-	-	-	-	0.281	0.061	0.013	3.83	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	6 / 24	25	0.002	0.002	0.003	0.004	0.011	0.009	0.01	0.0176	0.012	0.05	0.012	0.0025	1.14	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-1-b: Water chemistry summary for Lac de Gras Outlet during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit; High = upper limit; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Carbon, Dissolved Organic	0 / 24	0	1.7	2.1	2.16	2.5	2.8	2.8	3.025	3.57	3.6	3.9	0.53	0.11	0.19	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Organic	0 / 23	0	1.8	1.8	2.2	2.4	2.8	2.8	3	3.28	3.4	3.9	0.49	0.1	0.18	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide																								
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide, Total	0 / 1	0	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	0	0	-	0	0	-	0	0
Cyanide, wad	0 / 1	0	0.002	-	-	-	0.002	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																								
Aluminum	0 / 4	0	0.0023	-	-	-	0.0027	-	-	-	-	0.0032	0.0004	0.0002	0.15	-	-	-	-	-	-	-	-	-
Antimony	3 / 4	75	0.0001	-	-	-	0.00013	-	-	-	-	0.0002	0.00005	0.000025	0.40	-	-	-	-	-	-	-	-	-
Arsenic	0 / 4	0	0.0002	-	-	-	0.00025	-	-	-	-	0.0003	0.000058	0.000029	0.23	-	-	-	-	-	-	-	-	-
Barium	0 / 4	0	0.0015	-	-	-	0.0023	-	-	-	-	0.0026	0.00053	0.00026	0.23	-	-	-	-	-	-	-	-	-
Beryllium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	4 / 4	100	0.00005	-	-	-	0.00005	-	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	0 / 23	0	0.75	0.75	0.842	0.9	1.4	1.18	1.7	2.04	2.8	2.9	0.6	0.13	0.43	-	-	-	-	-	-	-	-	-
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Copper	1 / 4	25	0.0002	-	-	-	0.00058	-	-	-	-	0.0008	0.00029	0.00014	0.50	-	-	-	-	-	-	-	-	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	4 / 4	100	0.005	-	-	-	0.028	-	-	-	-	0.05	0.026	0.013	0.94	-	-	-	-	-	-	-	-	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Lithium	0 / 4	0	0.0009	-	-	-	0.0015	-	-	-	-	0.0019	0.00048	0.00024	0.31	-	-	-	-	-	-	-	-	-
Magnesium	0 / 23	0	0.51	0.51	0.542	0.58	0.83	0.78	1	1.26	1.6	1.6	0.3	0.062	0.36	-	-	-	-	-	-	-	-	-
Manganese	0 / 4	0	0.0004	-	-	-	0.0004	-	-	-	-	0.0004	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	4 / 4	100	0.00001	-	-	-	0.000013	-	-	-	-	0.00002	0.000005	0.0000025	0.40	-	-	-	-	-	-	-	-	-

Appendix B-3-1-b: Water chemistry summary for Lac de Gras Outlet during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit; High = upper limit; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	0 / 4	0	0.0001	-	-	-	0.0002	-	-	-	-	0.0003	0.00012	0.000058	0.58	-	-	-	-	-	-	-	-	-
Nickel	0 / 4	0	0.0009	-	-	-	0.0012	-	-	-	-	0.0013	0.00019	0.000096	0.17	-	-	-	-	-	-	-	-	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	4 / 4	100	0.01	-	-	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 23	0	0.43	0.43	0.474	0.6	0.66	0.66	0.72	0.8	0.8	0.9	0.13	0.027	0.19	-	-	-	-	-	-	-	-	-
Rubidium	0 / 4	0	0.0015	-	-	-	0.0019	-	-	-	-	0.0024	0.00047	0.00023	0.25	-	-	-	-	-	-	-	-	-
Selenium	4 / 4	100	0.0003	-	-	-	0.0003	-	-	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-
Silver	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	0 / 23	0	0.45	0.45	0.484	0.595	0.78	0.69	0.87	1.32	1	1.6	0.31	0.065	0.40	-	-	-	-	-	-	-	-	-
Strontium	0 / 4	0	0.0077	-	-	-	0.012	-	-	-	-	0.0166	0.0046	0.0023	0.40	-	-	-	-	-	-	-	-	-
Thallium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	3 / 4	75	0.0001	-	-	-	0.00013	-	-	-	-	0.0002	0.00005	0.000025	0.40	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	2 / 4	50	0.0004	-	-	-	0.00065	-	-	-	-	0.0009	0.00029	0.00014	0.44	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	9 / 22	41	0.0027	0.0027	0.00301	0.00345	0.015	0.00555	0.03	0.03	0.03	0.03	0.013	0.0028	0.89	-	3	-	-	2	-	-	1	-
Antimony	10 / 22	45	0.0001	0.0001	0.0001	0.0001	0.00051	0.00045	0.0006	0.000894	0.001	0.0026	0.00055	0.00012	1.09	-	-	0	-	-	0	-	-	0
Arsenic	6 / 14	43	0.0002	0.0002	0.0002	0.0002	0.00037	0.00025	0.0003	0.00088	0.0003	0.001	0.00029	0.000077	0.77	-	0	0	-	0	0	-	0	0
Barium	0 / 21	0	0.001	0.0015	0.001	0.00182	0.002	0.002	0.0023	0.0025	0.003	0.003	0.00054	0.00012	0.27	-	-	0	-	-	0	-	-	0
Beryllium	20 / 21	95	0.00002	-	-	-	0.00082	-	-	-	-	0.002	0.00095	0.00021	1.17	-	-	-	-	-	-	-	-	-
Bismuth	8 / 8	100	0.0004	-	-	-	0.0021	-	-	-	-	0.005	0.0024	0.00084	1.12	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	21 / 23	91	0.00002	-	-	-	0.00015	-	-	-	-	0.0003	0.00012	0.000025	0.79	22	22	0	20	20	0	2	2	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	19 / 22	86	0.000008	-	-	-	0.00023	-	-	-	-	0.001	0.00023	0.000049	1.02	-	-	-	-	-	-	-	-	-
Chromium	18 / 23	78	0.0001	-	-	-	0.0014	-	-	-	-	0.005	0.0016	0.00032	1.07	-	0	0	-	0	0	-	0	0
Cobalt	19 / 22	86	0.000038	-	-	-	0.00043	-	-	-	-	0.001	0.00044	0.000095	1.05	-	-	-	-	-	-	-	-	-
Copper	5 / 23	22	0.00051	0.00051	0.0006	0.00075	0.0016	0.00125	0.002	0.002888	0.003	0.0052	0.0011	0.00023	0.69	-	4	-	-	0	-	-	4	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	16 / 22	73	0.005	-	-	-	0.031	-	-	-	-	0.06	0.018	0.0039	0.59	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	16 / 23	70	0.0001	-	-	-	0.00057	-	-	-	-	0.00109	0.00044	0.000091	0.77	-	1	0	-	0	0	-	1	0
Lithium	8 / 22	36	0.001	0.001	0.00121	0.0014775	0.002	0.00165	0.003	0.003	0.003	0.003	0.00078	0.00017	0.38	-	-	-	-	-	-	-	-	-
Magnesium	0 / 2	0	0.0011	-	-	-	0.0012	-	-	-	-	0.0013	0.00014	0.0001	0.12	-	-	-	-	-	-	-	-	-

Appendix B-3-1-b: Water chemistry summary for Lac de Gras Outlet during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit; High = upper limit; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ
Manganese	2 / 21	10	0.0007	0.0007	0.0007	0.001	0.001	0.001	0.0012	0.00129	0.0013	0.0019	0.00027	0.000058	0.26	-	-	-	-	-	-	-	-	-
Mercury	10 / 10	100	0.00001	-	-	-	0.000012	-	-	-	-	0.00002	0.0000042	0.0000013	0.35	-	0	0	-	0	0	-	0	0
Molybdenum	12 / 22	55	0.00007	-	-	-	0.00045	-	-	-	-	0.001	0.00043	0.000092	0.97	-	0	-	-	0	-	-	0	-
Nickel	3 / 23	13	0.0009	0.0009	0.00092	0.001	0.0011	0.0011	0.001215	0.0013	0.0014	0.002	0.00024	0.000049	0.21	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 19	0	0.0011	0.0011	0.00118	0.0014	0.0016	0.00154	0.00165	0.00196	0.0019	0.0024	0.00033	0.000075	0.21	-	-	-	-	-	-	-	-	-
Selenium	17 / 21	81	0.0003	-	-	-	0.0036	-	-	-	-	0.01	0.0046	0.001	1.27	-	8	0	-	7	0	-	1	0
Silver	19 / 22	86	0.000006	-	-	-	0.00016	-	-	-	-	0.0003	0.00011	0.000024	0.68	-	9	-	-	8	-	-	1	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	1 / 22	5	0.005	0.005	0.00505	0.006	0.008	0.00705	0.0086	0.01151	0.0116	0.0167	0.0031	0.00065	0.38	-	-	-	-	-	-	-	-	-
Thallium	20 / 22	91	0.0001	-	-	-	0.00021	-	-	-	-	0.0004	0.00015	0.000031	0.71	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	18 / 22	82	0.0001	-	-	-	0.0012	-	-	-	-	0.003	0.0014	0.0003	1.19	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	19 / 22	86	0.000041	-	-	-	0.00016	-	-	-	-	0.0003	0.00011	0.000023	0.65	-	0	0	-	0	0	-	0	0
Vanadium	19 / 22	86	0.00003	-	-	-	0.00043	-	-	-	-	0.001	0.00044	0.000094	1.03	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	11 / 23	48	0.0004	0.0004	0.0004	0.0008	0.0077	0.005	0.01	0.0192	0.021	0.026	0.0075	0.0016	0.97	-	0	-	-	0	-	-	0	-
BTEX																								
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
m/p-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
Total Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
Organics																								
Total Extractable Hydrocarbons (TEH)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-1-c: Water chemistry summary for Lac de Gras Outlet during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (relative units)	3 / 4	75	5	-	-	-	5	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 5	0	13.9	13.9	14.62	15.7	17	15.8	18.9	18.9	18.9	18.9	2.2	0.98	0.13	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	1 / 5	20	10	10	10	10	13	11	13	18.4	13	22	5.1	2.3	0.38	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	5 / 5	100	3	-	-	-	3	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 5	0	0.2	0.2	0.212	0.23	0.41	0.3	0.61	0.664	0.7	0.7	0.23	0.1	0.57	-	-	5	-	-	0	-	-	5
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 5	0	3.7	3.7	3.76	3.85	4.9	5.3	5.6	5.72	5.8	5.8	1	0.45	0.21	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	1 / 5	20	0.4	0.4	0.44	0.5	0.54	0.5	0.6	0.66	0.7	0.7	0.11	0.051	0.21	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	1 / 2	50	0.1	-	-	-	0.35	-	-	-	-	0.6	0.35	0.25	1.01	-	1	0	-	0	0	-	1	0

Appendix B-3-1-c: Water chemistry summary for Lac de Gras Outlet during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-3-1-c: Water chemistry summary for Lac de Gras Outlet during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Carbon, Dissolved Organic	0 / 5	0	1.9	1.9	2.14	2.5	2.7	2.5	2.9	3.26	2.9	3.5	0.59	0.26	0.22	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Total Organic	0 / 5	0	2.2	2.2	2.28	2.4	2.7	2.5	2.7	3.3	2.7	3.7	0.59	0.26	0.22	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide																								
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Cyanide, wad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																								
Aluminum	0 / 2	0	0.0052	-	-	-	0.0063	-	-	-	-	0.0074	0.0016	0.0011	0.25	-	-	-	-	-	-	-	-	-
Antimony	1 / 2	50	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	2 / 2	100	0.0002	-	-	-	0.0002	-	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	-	-	-
Barium	0 / 2	0	0.0017	-	-	-	0.0018	-	-	-	-	0.0019	0.00014	0.0001	0.08	-	-	-	-	-	-	-	-	-
Beryllium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	2 / 2	100	0.00005	-	-	-	0.00005	-	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	0 / 5	0	0.93	0.93	0.93	0.93	1.3	1.2	1.6	1.84	2	2	0.46	0.21	0.35	-	-	-	-	-	-	-	-	-
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Copper	0 / 2	0	0.0008	-	-	-	0.00085	-	-	-	-	0.0009	0.000071	0.00005	0.08	-	-	-	-	-	-	-	-	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	2 / 2	100	0.005	-	-	-	0.028	-	-	-	-	0.05	0.032	0.023	1.16	-	-	-	-	-	-	-	-	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	1 / 2	50	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Lithium	0 / 2	0	0.001	-	-	-	0.0011	-	-	-	-	0.0011	0.000071	0.00005	0.07	-	-	-	-	-	-	-	-	-
Magnesium	0 / 5	0	0.61	0.61	0.642	0.69	0.78	0.7	0.8	0.98	0.8	1.1	0.19	0.085	0.25	-	-	-	-	-	-	-	-	-
Manganese	0 / 2	0	0.0014	-	-	-	0.0017	-	-	-	-	0.002	0.00042	0.0003	0.25	-	-	-	-	-	-	-	-	-
Mercury	1 / 1	100	0.00001	-	-	-	0.00001	-	-	-	-	0.00001	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-1-c: Water chemistry summary for Lac de Gras Outlet during Spring Freshet

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Nickel	0 / 2	0	0.0011	-	-	-	0.0012	-	-	-	-	0.0012	0.000071	0.000005	0.06	-	-	-	-	-	-	-	-	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 5	0	0.45	0.45	0.47	0.5	0.62	0.6	0.77	0.788	0.8	0.8	0.16	0.07	0.25	-	-	-	-	-	-	-	-	-
Rubidium	0 / 2	0	0.0011	-	-	-	0.0012	-	-	-	-	0.0012	0.000071	0.000005	0.06	-	-	-	-	-	-	-	-	-
Selenium	2 / 2	100	0.0003	-	-	-	0.0003	-	-	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-
Silver	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	0 / 5	0	0.5	0.5	0.504	0.51	0.62	0.7	0.7	0.7	0.7	0.7	0.11	0.048	0.17	-	-	-	-	-	-	-	-	-
Strontium	0 / 2	0	0.0058	-	-	-	0.0068	-	-	-	-	0.0078	0.0014	0.001	0.21	-	-	-	-	-	-	-	-	-
Thallium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	1 / 2	50	0.0001	-	-	-	0.00015	-	-	-	-	0.0002	0.000071	0.000005	0.47	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	0 / 2	0	0.0009	-	-	-	0.0041	-	-	-	-	0.0073	0.0045	0.0032	1.10	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	1 / 5	20	0.0051	0.0051	0.00542	0.0059	0.011	0.0059	0.0096	0.02184	0.0096	0.03	0.011	0.0047	0.94	-	0	-	-	0	-	-	0	-
Antimony	1 / 5	20	0.0001	0.0001	0.00018	0.0003	0.00076	0.0007	0.00112	0.001408	0.0016	0.0016	0.00061	0.00027	0.80	-	-	0	-	-	0	-	-	0
Arsenic	3 / 3	100	0.0002	-	-	-	0.0008	-	-	-	-	0.002	0.001	0.0006	1.30	-	0	0	-	0	0	-	0	0
Barium	0 / 5	0	0.0013	0.0013	0.00142	0.0016	0.0019	0.0018	0.00187	0.002368	0.00187	0.0027	0.00052	0.00023	0.28	-	-	0	-	-	0	-	-	0
Beryllium	5 / 5	100	0.00002	-	-	-	0.00046	-	-	-	-	0.002	0.00086	0.00038	1.85	-	-	-	-	-	-	-	-	-
Bismuth	1 / 1	100	0.0004	-	-	-	0.0004	-	-	-	-	0.0004	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	3 / 5	60	0.00002	-	-	-	0.000096	-	-	-	-	0.0003	0.00012	0.0000051	1.20	4	4	0	3	3	0	1	1	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	5 / 5	100	0.000008	-	-	-	0.00014	-	-	-	-	0.0004	0.00015	0.0000067	1.06	-	-	-	-	-	-	-	-	-
Chromium	4 / 5	80	0.0001	-	-	-	0.0009	-	-	-	-	0.003	0.0013	0.00057	1.41	-	0	0	-	0	0	-	0	0
Cobalt	2 / 5	40	0.0001	0.0001	0.0001	0.0001	0.00033	0.0002	0.000231	0.0006924	0.000231	0.001	0.00038	0.00017	1.17	-	-	-	-	-	-	-	-	-
Copper	1 / 5	20	0.0007	0.0007	0.00082	0.001	0.0017	0.0016	0.002	0.002606	0.00301	0.00301	0.00091	0.00041	0.55	-	1	-	-	0	-	-	1	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	4 / 5	80	0.008	-	-	-	0.034	-	-	-	-	0.05	0.017	0.0078	0.52	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	4 / 5	80	0.0001	-	-	-	0.0003	-	-	-	-	0.001	0.00039	0.00018	1.29	-	0	0	-	0	0	-	0	0
Lithium	1 / 5	20	0.001	0.001	0.00108	0.0012	0.0016	0.0013	0.0016	0.00244	0.0016	0.003	0.0008	0.00036	0.49	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-1-c: Water chemistry summary for Lac de Gras Outlet during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-3-1-d: Water chemistry summary for Lac de Gras Outlet during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (relative units)	22 / 34	65	5	-	-	-	5.1	-	-	-	-	7.5	0.43	0.074	0.08	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 37	0	12.4	12.4	12.94	14.9	17	16.1	19.8	21.4	22.1	22.1	3	0.5	0.18	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	20 / 37	54	10	-	-	-	15	-	-	-	-	53	9.4	1.5	0.63	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	29 / 37	78	3	-	-	-	3.6	-	-	-	-	20	2.8	0.46	0.77	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 37	0	0.17	0.17	0.196	0.22	0.33	0.3	0.37	0.5	0.5	1	0.17	0.027	0.50	-	-	37	-	-	0	-	-	37
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 37	0	1.2	3	3	3.3	3.7	3.6	4.1	4.68	5.1	5.5	0.76	0.12	0.20	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	14 / 31	45	0.2	0.2	0.2	0.45	0.76	0.7	1.05	1.3	1.6	1.6	0.41	0.073	0.53	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	14 / 14	100	0.1	-	-	-	0.16	-	-	-	-	1	0.24	0.064	1.46	-	1	0	-	1	0	-	0	0

Appendix B-3-1-d: Water chemistry summary for Lac de Gras Outlet during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-3-1-d: Water chemistry summary for Lac de Gras Outlet during Summer Recession

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All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Carbon, Dissolved Organic	0 / 37	0	1.6	1.6	1.9	2	2.3	2.3	2.5	2.604	3	3	0.32	0.053	0.14	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Organic	0 / 37	0	2	2	2.124	2.2	2.4	2.4	2.6	2.74	3.1	3.1	0.27	0.045	0.11	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide																								
Cyanide Thiocyanate	0 / 1	0	0.3	-	-	-	0.3	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-	
Cyanide, Total	2 / 2	100	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	0	0	-	0	0	-	0	0
Cyanide, wad	2 / 2	100	0.002	-	-	-	0.002	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	
Dissolved Metals																								
Aluminum	0 / 18	0	0.0006	0.0006	0.00121	0.00155	0.0046	0.00295	0.0035	0.00453	0.006	0.0376	0.0083	0.002	1.82	-	-	-	-	-	-	-	-	
Antimony	14 / 18	78	0.0001	-	-	-	0.00015	-	-	-	-	0.0008	0.00017	0.000039	1.10	-	-	-	-	-	-	-	-	
Arsenic	16 / 18	89	0.0002	-	-	-	0.0002	-	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	-	-	
Barium	0 / 18	0	0.0014	0.0014	0.00147	0.001525	0.002	0.0017	0.001875	0.0019	0.0019	0.0071	0.0013	0.0003	0.65	-	-	-	-	-	-	-	-	
Beryllium	18 / 18	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Bismuth	0 / 1	0	0.0007	-	-	-	0.0007	-	-	-	-	0.0007	-	-	-	-	-	-	-	-	-	-	-	
Boron	1 / 1	100	0.0009	-	-	-	0.0009	-	-	-	-	0.0009	-	-	-	-	-	-	-	-	-	-	-	
Cadmium	18 / 18	100	0.00005	-	-	-	0.00005	-	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	
Calcium	0 / 37	0	0.6	0.6	0.776	0.84	1.4	1.3	1.7	2.44	2.7	2.7	0.59	0.097	0.42	-	-	-	-	-	-	-	-	
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cesium	18 / 18	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Chromium	17 / 18	94	0.0001	-	-	-	0.0011	-	-	-	-	0.0174	0.0041	0.00096	3.84	-	-	-	-	-	-	-	-	
Cobalt	15 / 16	94	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Copper	2 / 18	11	0.0002	0.0002	0.00027	0.000325	0.00062	0.0005	0.0006	0.00079	0.001	0.0028	0.00058	0.00014	0.93	-	-	-	-	-	-	-	-	
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Iron	18 / 18	100	0.005	-	-	-	0.018	-	-	-	-	0.05	0.021	0.0049	1.19	-	-	-	-	-	-	-	-	
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lead	16 / 18	89	0.0001	-	-	-	0.0037	-	-	-	-	0.0653	0.015	0.0036	4.12	-	-	-	-	-	-	-	-	
Lithium	0 / 18	0	0.0005	0.0011	0.00104	0.0012	0.0012	0.0012	0.001275	0.0013	0.0013	0.0019	0.00026	0.00006	0.21	-	-	-	-	-	-	-	-	
Magnesium	0 / 37	0	0.4	0.4	0.506	0.6	0.82	0.8	1	1.1	1.4	1.4	0.25	0.041	0.31	-	-	-	-	-	-	-	-	
Manganese	0 / 18	0	0.0002	0.0002	0.00034	0.000725	0.0013	0.00115	0.001875	0.00244	0.003	0.003	0.00086	0.0002	0.65	-	-	-	-	-	-	-	-	
Mercury	17 / 17	100	0.00001	-	-	-	0.000011	-	-	-	-	0.00002	0.0000024	0.00000059	0.23	-	-	-	-	-	-	-	-	

Appendix B-3-1-d: Water chemistry summary for Lac de Gras Outlet during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	5 / 18	28	0.0001	0.0001	0.0001	0.0001	0.00025	0.0002	0.0002	0.0003	0.0003	0.0015	0.00032	0.000076	1.28	-	-	-	-	-	-	-	-	-
Nickel	0 / 18	0	0.0007	0.0007	0.00077	0.000825	0.00091	0.0009	0.001	0.00103	0.0011	0.0011	0.00012	0.000028	0.13	-	-	-	-	-	-	-	-	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	3 / 3	100	0.001	-	-	-	0.007	-	-	-	-	0.01	0.0052	0.003	0.74	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 37	0	0.4	0.4	0.412	0.48	0.54	0.5	0.6	0.64	0.7	0.7	0.091	0.015	0.17	-	-	-	-	-	-	-	-	-
Rubidium	0 / 18	0	0.0009	0.0009	0.00117	0.001225	0.0014	0.0014	0.0015	0.00163	0.0017	0.002	0.00024	0.000058	0.17	-	-	-	-	-	-	-	-	-
Selenium	17 / 18	94	0.0003	-	-	-	0.00039	-	-	-	-	0.002	0.0004	0.000094	1.02	-	-	-	-	-	-	-	-	-
Silver	17 / 18	94	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	0 / 37	0	0.35	0.35	0.458	0.5	0.75	0.7	0.9	1.2	1.3	1.3	0.28	0.047	0.38	-	-	-	-	-	-	-	-	-
Strontium	0 / 18	0	0.0046	0.0046	0.00635	0.007	0.0086	0.00905	0.010175	0.01096	0.0111	0.0111	0.002	0.00047	0.23	-	-	-	-	-	-	-	-	-
Thallium	18 / 18	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tin	1 / 1	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	15 / 18	83	0.0001	-	-	-	0.00016	-	-	-	-	0.0011	0.00024	0.000056	1.52	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	18 / 18	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	18 / 18	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	7 / 18	39	0.0004	0.0004	0.0004	0.0004	0.0014	0.0007	0.000925	0.00374	0.0012	0.0077	0.0019	0.00045	1.41	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	5 / 37	14	0.0017	0.0017	0.00358	0.0041	0.011	0.0056	0.0083	0.03	0.0114	0.043	0.012	0.002	1.07	-	1	-	-	1	-	-	0	-
Antimony	25 / 37	68	0.0001	-	-	-	0.00039	-	-	-	-	0.0018	0.0005	0.000082	1.28	-	-	0	-	-	0	-	-	0
Arsenic	21 / 29	72	0.0002	-	-	-	0.00029	-	-	-	-	0.001	0.00025	0.000046	0.84	-	0	0	-	0	0	-	0	0
Barium	2 / 37	5	0.001	0.001	0.001	0.0015	0.0018	0.0017	0.0019	0.002	0.0024	0.0072	0.001	0.00017	0.55	-	-	0	-	-	0	-	-	0
Beryllium	37 / 37	100	0.00002	-	-	-	0.00046	-	-	-	-	0.002	0.00076	0.00012	1.65	-	-	-	-	-	-	-	-	-
Bismuth	5 / 5	100	0.0004	-	-	-	0.0042	-	-	-	-	0.01	0.004	0.0018	0.96	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	36 / 37	97	0.00002	-	-	-	0.0001	-	-	-	-	0.0005	0.00011	0.000019	1.11	36	36	0	35	35	0	1	1	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	36 / 37	97	0.000008	-	-	-	0.0002	-	-	-	-	0.0022	0.00036	0.000059	1.76	-	-	-	-	-	-	-	-	-
Chromium	32 / 37	86	0.0001	-	-	-	0.0011	-	-	-	-	0.0152	0.0026	0.00043	2.46	-	1	0	-	0	0	-	1	0
Cobalt	34 / 37	92	0.0001	-	-	-	0.00028	-	-	-	-	0.001	0.00036	0.000059	1.26	-	-	-	-	-	-	-	-	-
Copper	8 / 37	22	0.0002	0.0002	0.0004	0.0005	0.00092	0.0006	0.0009	0.002	0.00114	0.003	0.00072	0.00012	0.78	-	2	-	-	0	-	-	2	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	22 / 37	59	0.005	-	-	-	0.039	-	-	-	-	0.69	0.11	0.018	2.85	-	1	-	-	0	-	-	1	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	29 / 37	78	0.0001	-	-	-	0.002	-	-	-	-	0.0626	0.01	0.0017	5.06	-	2	1	-	0	0	-	2	1
Lithium	7 / 37	19	0.0005	0.0005	0.00106	0.0011	0.0015	0.0013	0.0015	0.003	0.0018	0.003	0.00075	0.00012	0.48	-	-	-	-	-	-	-	-	-
Magnesium	0 / 1	0	0.004	-	-	-	0.004	-	-	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-

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nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Manganese	1 / 36	3	0.001	0.001	0.0017	0.0018	0.0027	0.00225	0.003025	0.00495	0.0038	0.0067	0.0014	0.00023	0.51	-	-	-	-	-	-	-	-	-
Mercury	19 / 23	83	0.000001	-	-	-	0.0000089	-	-	-	-	0.00002	0.0000042	0.00000088	0.48	-	0	0	-	0	0	-	0	0
Molybdenum	13 / 37	35	0.00002	0.00002	0.0001	0.0001	0.0004	0.0002	0.0002	0.001	0.0003	0.003	0.00058	0.000095	1.46	-	0	-	-	0	-	-	0	-
Nickel	4 / 37	11	0.0006	0.0008	0.0007	0.0009	0.00094	0.0009	0.001	0.0011	0.0011	0.002	0.00022	0.000036	0.23	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 36	0	0.0009	0.0009	0.0011	0.0012	0.0013	0.0013	0.001425	0.0015	0.0016	0.0025	0.00026	0.000043	0.19	-	-	-	-	-	-	-	-	-
Selenium	36 / 37	97	0.0003	-	-	-	0.0022	-	-	-	-	0.01	0.0038	0.00063	1.73	-	8	0	-	7	0	-	1	0
Silver	35 / 37	95	0.000006	-	-	-	0.00014	-	-	-	-	0.0003	0.000086	0.000014	0.61	-	8	-	-	6	-	-	2	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 37	0	0.0046	0.0046	0.005	0.006	0.0076	0.0075	0.0089	0.01074	0.0114	0.0114	0.002	0.00033	0.27	-	-	-	-	-	-	-	-	-
Thallium	37 / 37	100	0.0001	-	-	-	0.00016	-	-	-	-	0.0004	0.00012	0.00002	0.76	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	28 / 37	76	0.0001	-	-	-	0.00072	-	-	-	-	0.004	0.0012	0.0002	1.68	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	35 / 37	95	0.000024	-	-	-	0.00025	-	-	-	-	0.0044	0.00071	0.00012	2.86	-	0	0	-	0	0	-	0	0
Vanadium	34 / 37	92	0.00003	-	-	-	0.00028	-	-	-	-	0.001	0.00036	0.000059	1.28	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	20 / 37	54	0.0004	-	-	-	0.0045	-	-	-	-	0.065	0.011	0.0018	2.44	-	1	-	-	0	-	-	1	-
BTEX																								
Benzene	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	0	-	-	0	-	-	0
Ethylbenzene	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	0	-	-	0	-	-	0
m/p-Xylene	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	0	-	-	0	-	-	0
Total Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
Organics																								
Total Extractable Hydrocarbons (TEH)	1 / 1	100	0.2	-	-	-	0.2	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-2-a: Water chemistry summary for Desteffany Lake

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	0 / 61	0	9.81	9.81	11.6	15.5	32	26	42.1	50.2	70	111	20	2.6	0.64	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	2 / 5	40	5	5	5	5	7	5	10	10	10	10	2.7	1.2	0.39	-	-	-	-	-	-	-	-	-
True Colour (relative units)	4 / 5	80	5	-	-	-	5	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 61	0	11	11	13.1	13.8	22	15.5	17.6	21.2	22.9	309	39	5	1.76	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	22 / 66	33	10	10	10	10	16	13.5	18	22	29	84	10	1.2	0.64	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	0 / 3	0	0.5	-	-	-	3.5	-	-	-	-	6	2.8	1.6	0.80	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	53 / 67	79	3	-	-	-	4	-	-	-	-	19	3.2	0.4	0.80	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 67	0	0.1	0.1	0.182	0.33	0.6	0.49	0.68	1.04	1.2	3.23	0.5	0.061	0.83	-	-	64	-	-	0	-	-	64
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 67	0	1.5	1.5	3.2	3.4	5.1	3.8	4.95	5.58	6.8	41.4	6	0.73	1.17	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	26 / 61	43	0.11	0.11	0.2	0.4	0.59	0.7	0.7	0.9	1	1.5	0.27	0.035	0.46	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	23 / 23	100	0.1	-	-	-	0.14	-	-	-	-	1	0.19	0.039	1.35	-	1	0	-	1	0	-	0	0

Appendix B-3-2-a: Water chemistry summary for Desteffany Lake

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hardness, Total (as CaCO3)	0 / 60	0	2.4	2.4	3.788	4.7975	6.8	6.3	8.425	10.61	12.3	12.3	2.5	0.33	0.38	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
pH (pH units)	0 / 60	0	6.04	6.34	6.529	6.6075	6.7	6.7	6.8	6.851	7.01	7.4	0.19	0.024	0.03	-	0	-	-	0	-	-	0	-
Silica, Reactive	0 / 16	0	0.126	0.126	0.135	0.15525	0.22	0.17	0.21075	0.37	0.213	0.54	0.11	0.028	0.53	-	-	-	-	-	-	-	-	-
Silica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	16 / 67	24	1	1	2	2	2.5	2	3	3	4	10	1.2	0.15	0.48	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	2 / 7	29	0.005	0.005	0.005	0.006	0.041	0.011	0.019	0.1016	0.02	0.224	0.081	0.031	1.95	-	-	-	-	-	-	-	-	-
Ammonia, Total	40 / 60	67	0.002	-	-	-	0.0095	-	-	-	-	0.05	0.009	0.0012	0.95	-	2	-	-	2	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nitrate	37 / 51	73	0.005	-	-	-	0.041	-	-	-	-	1	0.15	0.02	3.53	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	7 / 14	50	0.008	0.008	0.008	0.008	0.014	0.0085	0.0175	0.0262	0.028	0.037	0.0093	0.0025	0.68	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	23 / 48	48	0.005	0.005	0.0094	0.01	0.044	0.012	0.04075	0.126	0.05	0.3	0.063	0.0091	1.44	-	-	-	-	-	-	-	-	-
Nitrite	46 / 52	88	0.001	-	-	-	0.034	-	-	-	-	1	0.14	0.019	4.08	-	4	0	-	1	0	-	3	0
Nitrogen, Particulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nitrogen, Total Dissolved	0 / 5	0	0.166	0.166	0.2172	0.294	0.53	0.4	0.469	0.9856	0.469	1.33	0.46	0.21	0.87	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nitrogen, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphate, Ortho	51 / 62	82	0.001	-	-	-	0.0018	-	-	-	-	0.005	0.00064	0.000082	0.37	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorous, Particulate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorous, Total	21 / 67	31	0.002	0.002	0.003	0.004	0.0084	0.007	0.01	0.01	0.015	0.061	0.0091	0.0011	1.08	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Appendix B-3-2-a: Water chemistry summary for Desteffany Lake

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	13 / 23	57	0.0001	-	-	-	0.00015	-	-	-	-	0.001	0.00019	0.000039	1.24	-	-	-	-	-	-	-	-	-
Nickel	0 / 23	0	0.0006	0.0006	0.0006	0.00065	0.0008	0.0007	0.00085	0.00106	0.0011	0.0019	0.00028	0.000058	0.35	-	-	-	-	-	-	-	-	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	5 / 9	56	0.001	-	-	-	0.0057	-	-	-	-	0.01	0.004	0.0013	0.71	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 67	0	0.3	0.3	0.41	0.48	0.57	0.5	0.6	0.7	0.7	2.19	0.24	0.029	0.42	-	-	-	-	-	-	-	-	-
Rubidium	0 / 23	0	0.001	0.001	0.00112	0.0013	0.0014	0.0014	0.0015	0.0017	0.0017	0.0022	0.00027	0.000056	0.19	-	-	-	-	-	-	-	-	-
Selenium	22 / 23	96	0.0003	-	-	-	0.00036	-	-	-	-	0.0017	0.00029	0.000061	0.81	-	-	-	-	-	-	-	-	-
Silver	23 / 23	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	0 / 67	0	0.33	0.33	0.4	0.47	0.63	0.6	0.75	0.9	1.09	1.3	0.22	0.027	0.34	-	-	-	-	-	-	-	-	-
Strontium	0 / 23	0	0.0043	0.0043	0.0052	0.00595	0.0073	0.0072	0.0081	0.00872	0.0088	0.014	0.0022	0.00046	0.30	-	-	-	-	-	-	-	-	-
Thallium	23 / 23	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tin	1 / 1	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	22 / 23	96	0.0001	-	-	-	0.00014	-	-	-	-	0.0011	0.00021	0.000043	1.45	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	18 / 23	78	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	23 / 23	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	8 / 23	35	0.0004	0.0004	0.0004	0.0004	0.0011	0.0006	0.00115	0.0026	0.0015	0.0057	0.0013	0.00026	1.13	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	11 / 64	17	0.0043	0.0043	0.00646	0.01015	0.02	0.01545	0.0273	0.03	0.0422	0.0806	0.014	0.0018	0.74	-	10	-	-	3	-	-	7	-
Antimony	34 / 59	58	0.0000001	-	-	-	0.00026	-	-	-	-	0.00142	0.00029	0.000038	1.12	-	-	0	-	-	0	-	-	0
Arsenic	23 / 53	43	0.0002	0.0002	0.0002	0.0002	0.04	0.0002	0.0003	0.3	0.0003	0.3	0.1	0.014	2.57	-	7	7	-	7	7	-	0	0
Barium	1 / 64	2	0.001	0.001	0.0015	0.0016	0.0019	0.0018	0.0021	0.00237	0.0028	0.0067	0.00071	0.000089	0.37	-	-	0	-	-	0	-	-	0
Beryllium	58 / 60	97	0.00002	-	-	-	0.00045	-	-	-	-	0.002	0.00074	0.000096	1.66	-	-	-	-	-	-	-	-	-
Bismuth	10 / 10	100	0.0001	-	-	-	0.0013	-	-	-	-	0.005	0.002	0.00063	1.58	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	60 / 67	90	0.00002	-	-	-	0.00014	-	-	-	-	0.0011	0.00019	0.000023	1.35	63	63	0	58	58	0	5	5	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	56 / 60	93	0.000008	-	-	-	0.00015	-	-	-	-	0.0004	0.00012	0.000016	0.82	-	-	-	-	-	-	-	-	-
Chromium	49 / 67	73	0.0001	-	-	-	0.00093	-	-	-	-	0.0127	0.0018	0.00022	1.95	-	1	0	-	0	0	-	1	0
Cobalt	57 / 67	85	0.00003	-	-	-	0.00028	-	-	-	-	0.0017	0.00038	0.000046	1.35	-	-	-	-	-	-	-	-	-
Copper	11 / 66	17	0.0002	0.0002	0.0005	0.000625	0.0013	0.0008	0.002	0.002	0.00329	0.0078	0.0013	0.00015	0.95	-	6	-	-	0	-	-	6	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	19 / 67	28	0.005	0.005	0.015	0.0235	4.8	0.03	0.05	8.1092	0.072	98	16	2	3.34	-	7	-	-	0	-	-	7	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	36 / 53	68	0.00009	-	-	-	0.0013	-	-	-	-	0.0531	0.0073	0.001	5.43	-	2	1	-	0	0	-	2	1
Lithium	11 / 64	17	0.0006	0.0006	0.001	0.0011	0.0016	0.001205	0.001525	0.003	0.0018	0.0045	0.00081	0.0001	0.52	-	-	-	-	-	-	-	-	-
Magnesium	0 / 2	0	0.0009	-	-	-	0.0025	-	-	-	-	0.004	0.0022	0.0016	0.89	-	-	-	-	-	-	-	-	-

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Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Manganese	5 / 65	8	0.0004	0.0004	0.0009	0.001	0.63	0.0025	0.0044	2.28	0.0089	13.8	2	0.25	3.14	-	-	-	-	-	-	-	-	-
Mercury	33 / 35	94	0.000001	-	-	-	0.00001	-	-	-	-	0.00002	0.0000031	0.00000053	0.31	-	0	0	-	0	0	-	0	0
Molybdenum	42 / 64	66	0.00002	-	-	-	0.0018	-	-	-	-	0.1	0.012	0.0016	6.75	-	1	-	-	1	-	-	0	-
Nickel	10 / 67	15	0.0001	0.0004	0.0006	0.0007	0.0083	0.0008	0.001	0.001012	0.0011	0.5	0.061	0.0075	7.37	-	1	-	-	0	-	-	1	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	1 / 54	2	0.0000011	0.001	0.001118	0.0013	0.0014	0.0014	0.0015	0.0016	0.0017	0.0022	0.00031	0.000042	0.22	-	-	-	-	-	-	-	-	-
Selenium	59 / 64	92	0.0003	-	-	-	0.27	-	-	-	-	10	1.3	0.16	4.76	-	20	8	-	18	7	-	2	1
Silver	62 / 64	97	0.000006	-	-	-	0.0017	-	-	-	-	0.1	0.012	0.0016	7.37	-	13	-	-	12	-	-	1	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	1 / 60	2	0.0000046	0.0043	0.000901	0.0058	0.0063	0.006525	0.0078	0.00864	0.0102	0.0137	0.0028	0.00036	0.44	-	-	-	-	-	-	-	-	-
Thallium	58 / 60	97	0.0000001	-	-	-	0.00017	-	-	-	-	0.0015	0.00021	0.000027	1.25	-	1	-	-	0	-	-	1	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	18 / 53	34	0.00002	0.00002	0.0001	0.0001	0.00069	0.0002	0.0004	0.003	0.0005	0.003	0.001	0.00014	1.50	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	33 / 53	62	0.000057	-	-	-	0.00013	-	-	-	-	0.0003	0.000075	0.00001	0.57	-	0	0	-	0	0	-	0	0
Vanadium	53 / 64	83	0.00003	-	-	-	0.014	-	-	-	-	0.2	0.039	0.0049	2.74	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	29 / 67	43	0.0004	0.0004	0.0004	0.0005	0.042	0.0015	0.00955	0.01	0.021	2.5	0.3	0.037	7.23	-	2	-	-	0	-	-	2	-

Appendix B-3-2-b: Water chemistry summary for Desteffany Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Physical Tests																								
Flow	0 / 16	0	9.83	9.83	11.1	12.1	15	13.9	16.5	19.55	22.9	22.9	3.6	0.9	0.24	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	0 / 1	0	5	-	-	-	5	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (relative units)	0 / 1	0	5	-	-	-	5	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 19	0	12.2	12.2	14.06	15.45	22	17.9	21.45	24.7	25.9	90	17	3.9	0.77	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	3 / 16	19	10	10	10	11.5	18	14	14.25	18	18	84	18	4.5	1.01	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	13 / 17	76	3	-	-	-	4.2	-	-	-	-	18	3.8	0.91	0.89	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 17	0	0.1	0.1	0.124	0.16	0.47	0.27	0.66	1.14	1.35	1.5	0.44	0.11	0.93	-	-	15	-	-	0	-	-	15
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 17	0	3.6	3.6	3.76	4.1	6.4	4.3	5.5	6.02	6.5	34.9	7.4	1.8	1.16	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	4 / 17	24	0.2	0.2	0.3	0.4	0.64	0.6	0.7	1.06	0.9	1.5	0.36	0.087	0.56	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	6 / 6	100	0.1	-	-	-	0.1	-	-	-	-	0.1	-	-	-	-	0	0	-	0	0	-	0	0

Appendix B-3-2-b: Water chemistry summary for Desteffany Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hardness, Total (as CaCO3)	0 / 15	0	4.55	4.55	4.724	5.96	7.6	7.51	8.8	11.04	12.3	12.3	2.4	0.62	0.32	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
pH (pH units)	0 / 19	0	6.04	6.54	6.3	6.55	6.6	6.6	6.655	6.81	6.8	7.4	0.27	0.063	0.04	-	0	-	-	0	-	-	0	-
Silica, Reactive	0 / 7	0	0.13	0.13	0.136	0.15	0.17	0.162	0.185	0.204	0.21	0.21	0.029	0.011	0.17	-	-	-	-	-	-	-	-	-
Silica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	4 / 17	24	2	3	2	3	3.4	3	3	4.2	3	10	1.9	0.47	0.57	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	0 / 2	0	0.011	-	-	-	0.016	-	-	-	-	0.02	0.0064	0.0045	0.41	-	-	-	-	-	-	-	-	-
Ammonia, Total	5 / 15	33	0.005	0.005	0.005	0.006	0.015	0.01	0.0135	0.04	0.014	0.05	0.015	0.0039	0.98	-	2	-	-	2	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	7 / 14	50	0.008	0.008	0.01	0.01	0.027	0.0105	0.01925	0.0269	0.029	0.2	0.05	0.013	1.87	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	2 / 2	100	0.008	-	-	-	0.008	-	-	-	-	0.008	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	6 / 13	46	0.01	0.01	0.01	0.01	0.034	0.012	0.029	0.0486	0.05	0.2	0.052	0.014	1.53	-	-	-	-	-	-	-	-	-
Nitrite	11 / 14	79	0.001	-	-	-	0.013	-	-	-	-	0.05	0.015	0.0039	1.14	-	0	0	-	0	0	-	0	0
Nitrogen, Particulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	0 / 1	0	0.294	-	-	-	0.29	-	-	-	-	0.294	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	11 / 15	73	0.001	-	-	-	0.0019	-	-	-	-	0.005	0.00099	0.00026	0.53	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	5 / 17	29	0.002	0.002	0.003	0.003	0.006	0.005	0.01	0.01	0.01	0.01	0.0031	0.00075	0.51	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-2-b: Water chemistry summary for Desteffany Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL			
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	
Carbon, Dissolved Organic	0 / 16	0	1.6	2.6	2.65	2.7	2.9	2.9	3	3.15	3.2	3.9	0.45	0.11	0.16	-	-	-	-	-	-	-	-	-	
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Organic	0 / 15	0	2.6	2.6	2.7	2.8	3	2.9	3	3.16	3.2	4	0.33	0.084	0.11	-	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide																									
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide, Total	2 / 2	100	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	0	0	-	0	0	-	0	0	
Cyanide, wad	0 / 1	0	0.002	-	-	-	0.002	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	
Dissolved Metals																									
Aluminum	0 / 4	0	0.0039	-	-	-	0.0044	-	-	-	-	0.0049	0.00048	0.00024	0.11	-	-	-	-	-	-	-	-	-	-
Antimony	3 / 4	75	0.0001	-	-	-	0.00013	-	-	-	-	0.0002	0.00005	0.000025	0.40	-	-	-	-	-	-	-	-	-	-
Arsenic	0 / 4	0	0.0002	-	-	-	0.00025	-	-	-	-	0.0003	0.000058	0.000029	0.23	-	-	-	-	-	-	-	-	-	-
Barium	0 / 4	0	0.0017	-	-	-	0.0021	-	-	-	-	0.0023	0.00029	0.00014	0.14	-	-	-	-	-	-	-	-	-	-
Beryllium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	4 / 4	100	0.00005	-	-	-	0.00005	-	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	0 / 17	0	0.85	0.85	0.866	1	1.5	1.4	1.7	2.26	2.5	2.9	0.6	0.15	0.41	-	-	-	-	-	-	-	-	-	-
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	1 / 4	25	0.0002	-	-	-	0.00053	-	-	-	-	0.001	0.00036	0.00018	0.68	-	-	-	-	-	-	-	-	-	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	4 / 4	100	0.005	-	-	-	0.028	-	-	-	-	0.05	0.026	0.013	0.94	-	-	-	-	-	-	-	-	-	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithium	0 / 4	0	0.0011	-	-	-	0.0015	-	-	-	-	0.0018	0.00032	0.00016	0.21	-	-	-	-	-	-	-	-	-	-
Magnesium	0 / 17	0	0.55	0.55	0.576	0.61	0.89	0.8	1	1.222	1.5	1.5	0.28	0.068	0.32	-	-	-	-	-	-	-	-	-	-
Manganese	0 / 4	0	0.0003	-	-	-	0.00048	-	-	-	-	0.0006	0.00013	0.000063	0.26	-	-	-	-	-	-	-	-	-	-
Mercury	4 / 4	100	0.00001	-	-	-	0.000013	-	-	-	-	0.00002	0.000005	0.0000025	0.40	-	-	-	-	-	-	-	-	-	-

Appendix B-3-2-b: Water chemistry summary for Desteffany Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

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Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	2 / 4	50	0.0001	-	-	-	0.00015	-	-	-	-	0.0002	0.000058	0.000029	0.38	-	-	-	-	-	-	-	-	-
Nickel	0 / 4	0	0.0009	-	-	-	0.0013	-	-	-	-	0.0019	0.00044	0.00022	0.35	-	-	-	-	-	-	-	-	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	2 / 3	67	0.002	-	-	-	0.0073	-	-	-	-	0.01	0.0046	0.0027	0.63	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 17	0	0.49	0.49	0.496	0.59	0.72	0.6	0.7	0.8	0.8	2.19	0.39	0.095	0.54	-	-	-	-	-	-	-	-	-
Rubidium	0 / 4	0	0.0017	-	-	-	0.0019	-	-	-	-	0.0022	0.00024	0.00012	0.13	-	-	-	-	-	-	-	-	-
Selenium	4 / 4	100	0.0003	-	-	-	0.0003	-	-	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-
Silver	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	0 / 17	0	0.5	0.5	0.512	0.53	0.76	0.7	0.9	1.2	1.3	1.3	0.27	0.065	0.35	-	-	-	-	-	-	-	-	-
Strontium	0 / 4	0	0.0079	-	-	-	0.011	-	-	-	-	0.014	0.0028	0.0014	0.26	-	-	-	-	-	-	-	-	-
Thallium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	2 / 4	50	0.0004	-	-	-	0.0012	-	-	-	-	0.003	0.0012	0.00062	1.05	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	6 / 17	35	0.0043	0.0043	0.00512	0.0059	0.015	0.0074	0.03	0.03	0.03	0.03	0.012	0.0028	0.80	-	3	-	-	1	-	-	2	-
Antimony	8 / 16	50	0.0000008	8E-07	0.0001	0.0001	0.00033	0.0002	0.000525	0.0007575	0.0008	0.0008	0.00028	0.00007	0.86	-	-	0	-	-	0	-	-	0
Arsenic	5 / 11	45	0.0002	0.0002	0.0002	0.0002	0.00031	0.0002	0.0003	0.0003	0.0003	0.001	0.00023	0.000071	0.76	-	0	0	-	0	0	-	0	0
Barium	0 / 17	0	0.0015	0.00161	0.001766	0.002	0.0021	0.002	0.0023	0.0025	0.0025	0.0028	0.00032	0.000079	0.15	-	-	0	-	-	0	-	-	0
Beryllium	16 / 17	94	0.00002	-	-	-	0.00065	-	-	-	-	0.002	0.0009	0.00022	1.38	-	-	-	-	-	-	-	-	-
Bismuth	5 / 5	100	0.0001	-	-	-	0.0023	-	-	-	-	0.005	0.0025	0.0011	1.08	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	14 / 17	82	0.00002	-	-	-	0.00014	-	-	-	-	0.0003	0.00012	0.000028	0.85	15	15	0	14	14	0	1	1	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	14 / 17	82	0.000008	-	-	-	0.00018	-	-	-	-	0.0004	0.00015	0.000037	0.85	-	-	-	-	-	-	-	-	-
Chromium	13 / 17	76	0.0001	-	-	-	0.0011	-	-	-	-	0.003	0.0013	0.00032	1.22	-	0	0	-	0	0	-	0	0
Cobalt	15 / 17	88	0.00003	-	-	-	0.00036	-	-	-	-	0.001	0.00043	0.0001	1.18	-	-	-	-	-	-	-	-	-
Copper	5 / 17	29	0.00039	0.00039	0.00056	0.0007	0.0014	0.0009	0.002	0.002	0.002	0.0055	0.0012	0.00029	0.85	-	1	-	-	0	-	-	1	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	10 / 17	59	0.005	-	-	-	0.028	-	-	-	-	0.05	0.017	0.0041	0.61	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	10 / 15	67	0.0001	-	-	-	0.00047	-	-	-	-	0.001	0.00041	0.00011	0.87	-	0	0	-	0	0	-	0	0
Lithium	5 / 17	29	0.0011	0.0011	0.00116	0.00121	0.0019	0.0016	0.003	0.003	0.003	0.003	0.00077	0.00019	0.41	-	-	-	-	-	-	-	-	-
Magnesium	0 / 1	0	0.0009	-	-	-	0.0009	-	-	-	-	0.0009	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-2-b: Water chemistry summary for Desteffany Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Manganese	4 / 16	25	0.00071	0.00071	0.0008	0.000875	0.07	0.000925	0.001	0.0011	0.001	1.1	0.27	0.069	3.95	-	-	-	-	-	-	-	-	-
Mercury	7 / 7	100	0.00001	-	-	-	0.000011	-	-	-	-	0.00002	0.0000038	0.0000014	0.33	-	0	0	-	0	0	-	0	0
Molybdenum	9 / 17	53	0.00005	-	-	-	0.0063	-	-	-	-	0.1	0.024	0.0059	3.86	-	1	-	-	1	-	-	0	-
Nickel	2 / 17	12	0.00085	0.001	0.0009	0.001	0.03	0.001	0.00103	0.0011	0.00103	0.5	0.12	0.029	3.99	-	1	-	-	0	-	-	1	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 15	0	0.0012	0.0012	0.001304	0.001385	0.0016	0.0015	0.00175	0.0018	0.0022	0.0022	0.00026	0.000067	0.16	-	-	-	-	-	-	-	-	-
Selenium	15 / 17	88	0.0003	-	-	-	0.062	-	-	-	-	1	0.24	0.059	3.90	-	6	1	-	6	1	-	0	0
Silver	16 / 17	94	0.000006	-	-	-	0.006	-	-	-	-	0.1	0.024	0.0059	4.02	-	6	-	-	6	-	-	0	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 17	0	0.000006	0.00584	0.005936	0.0064	0.0077	0.0072	0.009	0.01084	0.0118	0.0137	0.0029	0.00071	0.38	-	-	-	-	-	-	-	-	-
Thallium	16 / 17	94	0.0001	-	-	-	0.00019	-	-	-	-	0.0004	0.00014	0.000034	0.75	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	9 / 15	60	0.00008	-	-	-	0.0009	-	-	-	-	0.003	0.0013	0.00034	1.45	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	13 / 15	87	0.000058	-	-	-	0.00015	-	-	-	-	0.0003	0.000096	0.000025	0.65	-	0	0	-	0	0	-	0	0
Vanadium	15 / 17	88	0.00003	-	-	-	0.0063	-	-	-	-	0.1	0.024	0.0059	3.87	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	10 / 17	59	0.0004	-	-	-	0.15	-	-	-	-	2.5	0.61	0.15	3.98	-	1	-	-	0	-	-	1	-

Appendix B-3-2-c: Water chemistry summary for Desteffany Lake during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	0 / 9	0	9.81	9.81	10.282	11.6	43	15.5	86.4	91.4	111	111	41	14	0.95	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	2 / 3	67	5	-	-	-	6.7	-	-	-	-	10	2.9	1.7	0.43	-	-	-	-	-	-	-	-	-
True Colour (relative units)	3 / 3	100	5	-	-	-	5	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 6	0	11	11	11.35	11.875	15	13.85	16.575	19.1	21.2	21.2	3.9	1.6	0.26	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	1 / 9	11	10	10	10	10	16	15	18	21	29	29	6.1	2	0.39	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	0 / 3	0	0.5	-	-	-	3.5	-	-	-	-	6	2.8	1.6	0.80	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	6 / 9	67	3	-	-	-	5.3	-	-	-	-	19	5.3	1.8	0.99	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 9	0	0.1	0.1	0.26	0.3	0.91	0.6	1	1.526	1.1	3.23	0.94	0.31	1.02	-	-	8	-	-	0	-	-	8
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 9	0	3	3	3.16	4.7	5.2	5.1	6.6	6.9	7.3	7.3	1.5	0.5	0.29	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	1 / 9	11	0.2	0.2	0.272	0.3	0.43	0.4	0.44	0.676	0.44	0.7	0.17	0.055	0.39	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0

Appendix B-3-2-c: Water chemistry summary for Desteffany Lake during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hardness, Total (as CaCO3)	0 / 6	0	3.5	3.5	3.5	3.7	4.8	4.4	4.77	6.63	4.86	8.4	1.8	0.75	0.38	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
pH (pH units)	0 / 5	0	6.56	6.56	6.6	6.66	6.7	6.7	6.8	6.926	6.8	7.01	0.17	0.076	0.03	-	0	-	-	0	-	-	0	-
Silica, Reactive	0 / 2	0	0.126	-	-	-	0.15	-	-	-	-	0.17	0.031	0.022	0.21	-	-	-	-	-	-	-	-	-
Silica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	5 / 9	56	2.2	-	-	-	2.9	-	-	-	-	3	0.27	0.089	0.09	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	1 / 3	33	0.005	-	-	-	0.082	-	-	-	-	0.224	0.12	0.071	1.49	-	-	-	-	-	-	-	-	-
Ammonia, Total	1 / 6	17	0.005	0.005	0.0055	0.0065	0.012	0.009	0.01	0.0215	0.01	0.033	0.01	0.0043	0.87	-	0	-	-	0	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	1 / 2	50	0.011	-	-	-	0.056	-	-	-	-	0.1	0.063	0.045	1.13	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	0 / 7	0	0.009	0.009	0.0096	0.01	0.019	0.02	0.025	0.0316	0.037	0.037	0.011	0.004	0.55	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	1 / 2	50	0.011	-	-	-	0.11	-	-	-	-	0.2	0.13	0.095	1.27	-	-	-	-	-	-	-	-	-
Nitrite	2 / 2	100	0.009	-	-	-	0.03	-	-	-	-	0.05	0.029	0.021	0.98	-	0	0	-	0	0	-	0	0
Nitrogen, Particulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	0 / 3	0	0.166	-	-	-	0.66	-	-	-	-	1.33	0.6	0.35	0.92	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	8 / 9	89	0.002	-	-	-	0.002	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	1 / 9	11	0.004	0.004	0.004	0.006	0.0082	0.008	0.01	0.011	0.015	0.015	0.0034	0.0011	0.42	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-2-c: Water chemistry summary for Desteffany Lake during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL			
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	
Carbon, Dissolved Organic	0 / 2	0	2.7	-	-	-	2.8	-	-	-	-	2.9	0.14	0.1	0.05	-	-	-	-	-	-	-	-	-	
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Organic	0 / 2	0	2.8	-	-	-	2.9	-	-	-	-	2.9	0.071	0.05	0.02	-	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide																									
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide, Total	3 / 4	75	0.004	-	-	-	0.004	-	-	-	-	0.004	-	-	-	-	0	0	-	0	0	-	0	0	
Cyanide, wad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Dissolved Metals																									
Aluminum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Antimony	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Arsenic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Barium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Beryllium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cadmium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Calcium	0 / 9	0	0.7	0.7	0.764	0.81	1	0.84	0.94	1.376	0.94	2	0.4	0.13	0.40	-	-	-	-	-	-	-	-	-	
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chromium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cobalt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Copper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lead	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lithium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Magnesium	0 / 9	0	0.37	0.37	0.41	0.432	0.54	0.53	0.596	0.648	0.8	0.8	0.13	0.043	0.24	-	-	-	-	-	-	-	-	-	
Manganese	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Appendix B-3-2-c: Water chemistry summary for Desteffany Lake during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nickel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorous, Total	1 / 3	33	0.002	-	-	-	0.0053	-	-	-	-	0.009	0.0035	0.002	0.66	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Potassium	0 / 9	0	0.41	0.41	0.418	0.46	0.64	0.64	0.7	0.886	1.03	1.03	0.21	0.069	0.33	-	-	-	-	-	-	-	-	-
Rubidium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Selenium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sodium	0 / 9	0	0.39	0.39	0.398	0.42	0.58	0.51	0.65	0.778	0.7	1.09	0.22	0.074	0.38	-	-	-	-	-	-	-	-	-
Strontium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Thallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Uranium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Vanadium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Zinc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Metals																								
Aluminum	0 / 7	0	0.0061	0.0061	0.0073	0.0109	0.027	0.0201	0.03025	0.05516	0.0382	0.0806	0.026	0.0098	0.96	-	3	-	-	0	-	-	3	-
Antimony	0 / 5	0	0.0000001	1E-07	1E-07	0.0000001	0.0003	0.0000006	0.0006	0.0007752	0.000892	0.000892	0.00042	0.00019	1.41	-	-	0	-	-	0	-	-	0
Arsenic	7 / 7	100	0.0002	-	-	-	0.17	-	-	-	-	0.3	0.16	0.061	0.93	-	4	4	-	4	4	-	0	0
Barium	0 / 7	0	0.0017	0.0017	0.00176	0.0018	0.002	0.00182	0.00225	0.00244	0.0025	0.0025	0.00032	0.00012	0.16	-	-	0	-	-	0	-	-	0
Beryllium	4 / 5	80	0.00002	-	-	-	0.0005	-	-	-	-	0.002	0.00084	0.00038	1.67	-	-	-	-	-	-	-	-	-
Bismuth	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	6 / 9	67	0.00002	-	-	-	0.00034	-	-	-	-	0.0011	0.00038	0.00013	1.12	8	8	0	5	5	0	3	3	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	4 / 5	80	0.000008	-	-	-	0.00014	-	-	-	-	0.0004	0.00015	0.000067	1.06	-	-	-	-	-	-	-	-	-
Chromium	5 / 9	56	0.0001	-	-	-	0.001	-	-	-	-	0.003	0.00098	0.00033	0.96	-	0	0	-	0	0	-	0	0
Cobalt	3 / 9	33	0.0001	0.0001	0.0001	0.0001	0.00042	0.0002	0.0003	0.00114	0.0003	0.0017	0.00056	0.00019	1.32	-	-	-	-	-	-	-	-	-
Copper	1 / 9	11	0.0007	0.0007	0.00078	0.00095	0.0025	0.002	0.0024	0.00516	0.0045	0.0078	0.0023	0.00076	0.90	-	3	-	-	0	-	-	3	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	2 / 9	22	0.028	0.028	0.0296	0.035	22	0.072	31	58.8	49	98	34	11	1.52	-	4	-	-	0	-	-	4	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	1 / 2	50	0.00009	-	-	-	0.000095	-	-	-	-	0.0001	0.0000071	0.000005	0.07	-	0	0	-	0	0	-	0	0
Lithium	1 / 7	14	0.0008	0.0008	0.0008	0.0011	0.0015	0.0014	0.0014	0.00204	0.0014	0.003	0.00074	0.00028	0.51	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-2-c: Water chemistry summary for Desteffany Lake during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Manganese	0 / 9	0	0.0012	0.0012	0.00136	0.0067	3.4	2.1	4.2	7.32	5.7	13.8	4.4	1.5	1.29	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Molybdenum	5 / 7	71	0.00002	-	-	-	0.00023	-	-	-	-	0.001	0.00034	0.00013	1.48	-	0	-	-	0	-	-	0	-
Nickel	1 / 9	11	0.0006	0.0006	0.00068	0.0007	0.0011	0.00098	0.001	0.00174	0.001	0.0019	0.00045	0.00015	0.43	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 3	0	0.0000011	-	-	-	0.00092	-	-	-	-	0.0014	0.00079	0.00046	0.87	-	-	-	-	-	-	-	-	-
Selenium	6 / 7	86	0.0003	-	-	-	0.57	-	-	-	-	1	0.53	0.2	0.93	-	5	4	-	4	3	-	1	1
Silver	6 / 7	86	0.000006	-	-	-	0.00016	-	-	-	-	0.0004	0.00014	0.000052	0.88	-	2	-	-	1	-	-	1	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 5	0	0.0000046	4.6E-06	4.84E-06	0.0000052	0.0027	0.0000073	0.00655	0.00682	0.007	0.007	0.0037	0.0017	1.37	-	-	-	-	-	-	-	-	-
Thallium	4 / 5	80	0.0000001	-	-	-	0.00034	-	-	-	-	0.0015	0.00065	0.00029	1.91	-	1	-	-	0	-	-	1	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	1 / 2	50	0.00002	-	-	-	0.00011	-	-	-	-	0.0002	0.00013	0.00009	1.16	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	1 / 2	50	0.000057	-	-	-	0.000079	-	-	-	-	0.0001	0.00003	0.000022	0.39	-	0	0	-	0	0	-	0	0
Vanadium	3 / 7	43	0.0001	0.0001	0.00022	0.00065	0.072	0.1	0.1	0.14	0.2	0.2	0.075	0.028	1.05	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	1 / 9	11	0.0017	0.0017	0.00274	0.005	0.015	0.0085	0.016	0.0299	0.021	0.0655	0.02	0.0066	1.30	-	1	-	-	0	-	-	1	-

Appendix B-3-2-d: Water chemistry summary for Desteffany Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	0 / 36	0	20.2	20.2	22.85	26	37	34.8	45.3	50.2	70	70	12	2	0.32	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	0 / 1	0	10	-	-	-	10	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (relative units)	1 / 1	100	5	-	-	-	5	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 36	0	12	12	13.35	13.8	23	14.65	17.125	17.6	17.9	309	49	8.2	2.11	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	18 / 41	44	10	10	10	10	15	12	18	22	26	32	5.6	0.88	0.38	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	34 / 41	83	3	-	-	-	3.7	-	-	-	-	16	2.4	0.37	0.65	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 41	0	0.19	0.19	0.33	0.37	0.58	0.5	0.61	0.9	0.9	2.07	0.36	0.056	0.62	-	-	41	-	-	0	-	-	41
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 41	0	1.5	2.8	3	3.3	4.5	3.5	3.8	5	4.3	41.4	5.9	0.93	1.31	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	21 / 35	60	0.11	-	-	-	0.6	-	-	-	-	1	0.23	0.039	0.39	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	17 / 17	100	0.1	-	-	-	0.15	-	-	-	-	1	0.22	0.053	1.43	-	1	0	-	1	0	-	0	0

Appendix B-3-2-d: Water chemistry summary for Desteffany Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL			
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	
Hardness non-carb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hardness, Total (as CaCO3)	0 / 39	0	2.4	2.4	3.776	4.95	6.7	6.2	8.75	10.62	12.3	12.3	2.6	0.41	0.38	-	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
pH (pH units)	0 / 36	0	6.52	6.52	6.57	6.63	6.7	6.74	6.8225	6.855	6.94	6.94	0.11	0.019	0.02	-	0	-	-	0	-	-	0	-	-
Silica, Reactive	0 / 7	0	0.141	0.141	0.1584	0.175	0.28	0.213	0.37	0.45	0.54	0.54	0.15	0.056	0.52	-	-	-	-	-	-	-	-	-	-
Silica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	7 / 41	17	1	2	1.2	2	2.1	2	2	3	2	4	0.64	0.1	0.31	-	-	-	-	-	-	-	-	-	-
Nutrients																									
Ammonia, Dissolved	1 / 2	50	0.005	-	-	-	0.006	-	-	-	-	0.007	0.0014	0.001	0.24	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	34 / 39	87	0.002	-	-	-	0.0069	-	-	-	-	0.012	0.0026	0.00042	0.39	-	0	-	-	0	-	-	0	-	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	29 / 35	83	0.005	-	-	-	0.046	-	-	-	-	1	0.17	0.029	3.74	0	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	5 / 5	100	0.008	-	-	-	0.008	-	-	-	-	0.008	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	16 / 33	48	0.005	0.005	0.0056	0.01	0.044	0.011	0.04	0.118	0.05	0.3	0.063	0.011	1.44	-	-	-	-	-	-	-	-	-	-
Nitrite	33 / 36	92	0.001	-	-	-	0.043	-	-	-	-	1	0.17	0.028	3.92	-	4	0	-	1	0	-	3	0	0
Nitrogen, Particulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	0 / 1	0	0.4	-	-	-	0.4	-	-	-	-	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	32 / 38	84	0.001	-	-	-	0.0017	-	-	-	-	0.003	0.00053	0.000087	0.32	-	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	15 / 41	37	0.002	0.002	0.004	0.004	0.0095	0.007	0.01	0.01	0.01	0.061	0.011	0.0018	1.19	-	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																									
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-2-d: Water chemistry summary for Desteffany Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ
Carbon, Dissolved Organic	0 / 37	0	2.2	2.4	2.66	3	3.2	3.1	3.5	3.7	4.1	4.38	0.45	0.074	0.14	-	-	-	-	-	-	-	-	
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Organic	0 / 36	0	2.6	2.6	2.7	3.075	3.3	3.3	3.625	3.9	4.15	4.15	0.43	0.072	0.13	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide																								
Cyanide Thiocyanate	0 / 1	0	0.3	-	-	-	0.3	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	4 / 5	80	0.001	-	-	-	0.0016	-	-	-	-	0.004	0.0013	0.0006	0.84	-	0	0	-	0	0	-	0	0
Cyanide, wad	2 / 2	100	0.002	-	-	-	0.002	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																								
Aluminum	0 / 19	0	0.0048	0.0048	0.00488	0.0067	0.011	0.0077	0.0115	0.01224	0.0128	0.0591	0.012	0.0027	1.08	-	-	-	-	-	-	-	-	-
Antimony	15 / 19	79	0.0001	-	-	-	0.00013	-	-	-	-	0.0006	0.00012	0.000027	0.88	-	-	-	-	-	-	-	-	-
Arsenic	6 / 19	32	0.0002	0.0002	0.0002	0.0002	0.00021	0.0002	0.0002	0.00022	0.0002	0.0003	0.000032	0.0000072	0.15	-	-	-	-	-	-	-	-	-
Barium	0 / 19	0	0.0013	0.0013	0.0013	0.0014	0.0018	0.0016	0.0017	0.00204	0.0019	0.0057	0.00099	0.00023	0.55	-	-	-	-	-	-	-	-	-
Beryllium	19 / 19	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	1 / 1	100	0.0002	-	-	-	0.0002	-	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	-	-	-
Boron	0 / 1	0	0.0021	-	-	-	0.0021	-	-	-	-	0.0021	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	19 / 19	100	0.00005	-	-	-	0.00005	-	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	0 / 41	0	0.5	0.5	0.75	0.88	1.4	1.2	1.8	2.5	2.9	3.6	0.71	0.11	0.50	-	-	-	-	-	-	-	-	-
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	19 / 19	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	17 / 19	89	0.0001	-	-	-	0.00089	-	-	-	-	0.015	0.0034	0.00078	3.84	-	-	-	-	-	-	-	-	-
Cobalt	16 / 17	94	0.0001	-	-	-	0.00012	-	-	-	-	0.0004	0.000073	0.000018	0.62	-	-	-	-	-	-	-	-	-
Copper	1 / 19	5	0.0002	0.0002	0.0003	0.0004	0.00072	0.0007	0.00085	0.001	0.001	0.0024	0.00048	0.00011	0.66	-	-	-	-	-	-	-	-	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	9 / 19	47	0.005	0.005	0.005	0.0055	0.021	0.009	0.05	0.05	0.05	0.05	0.02	0.0047	0.98	-	-	-	-	-	-	-	-	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	15 / 19	79	0.0001	-	-	-	0.0029	-	-	-	-	0.0519	0.012	0.0027	4.16	-	-	-	-	-	-	-	-	-
Lithium	0 / 19	0	0.0006	0.0007	0.00068	0.001	0.0012	0.0011	0.0012	0.0013	0.0013	0.0045	0.00082	0.00019	0.67	-	-	-	-	-	-	-	-	-
Magnesium	0 / 41	0	0.3	0.3	0.47	0.55	0.74	0.7	0.9	1	1.3	1.3	0.23	0.036	0.31	-	-	-	-	-	-	-	-	-
Manganese	0 / 19	0	0.0002	0.0002	0.0003	0.0004	0.0011	0.0008	0.00165	0.00212	0.0034	0.0034	0.00088	0.0002	0.80	-	-	-	-	-	-	-	-	-
Mercury	18 / 18	100	0.00001	-	-	-	0.000011	-	-	-	-	0.00002	0.0000024	0.00000056	0.22	-	-	-	-	-	-	-	-	-

Appendix B-3-2-d: Water chemistry summary for Desteffany Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	11 / 19	58	0.0001	-	-	-	0.00015	-	-	-	-	0.001	0.00021	0.000047	1.35	-	-	-	-	-	-	-	-	-
Nickel	0 / 19	0	0.0006	0.0006	0.0006	0.0006	0.00071	0.0007	0.0008	0.00082	0.0009	0.0009	0.000099	0.000023	0.14	-	-	-	-	-	-	-	-	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	2 / 3	67	0.001	-	-	-	0.0043	-	-	-	-	0.01	0.0049	0.0028	1.14	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 41	0	0.3	0.36	0.4	0.44	0.49	0.5	0.5	0.6	0.5	0.6	0.074	0.012	0.15	-	-	-	-	-	-	-	-	-
Rubidium	0 / 19	0	0.001	0.001	0.00108	0.00125	0.0013	0.0013	0.0015	0.0015	0.0016	0.0016	0.00017	0.00004	0.13	-	-	-	-	-	-	-	-	-
Selenium	18 / 19	95	0.0003	-	-	-	0.00037	-	-	-	-	0.0017	0.00032	0.000074	0.86	-	-	-	-	-	-	-	-	-
Silver	19 / 19	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	0 / 41	0	0.33	0.33	0.4	0.44	0.59	0.6	0.7	0.8	0.9	0.9	0.17	0.027	0.29	-	-	-	-	-	-	-	-	-
Strontium	0 / 19	0	0.0043	0.0043	0.00502	0.00585	0.0066	0.0064	0.0076	0.0082	0.0084	0.0084	0.0013	0.00029	0.20	-	-	-	-	-	-	-	-	-
Thallium	19 / 19	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tin	1 / 1	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	18 / 19	95	0.0001	-	-	-	0.00015	-	-	-	-	0.0011	0.00023	0.000053	1.50	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	14 / 19	74	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	19 / 19	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	6 / 19	32	0.0004	0.0004	0.0004	0.0004	0.0011	0.0006	0.00115	0.0026	0.0015	0.0057	0.0013	0.0003	1.17	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	5 / 40	13	0.0092	0.0092	0.01029	0.0123	0.02	0.0163	0.02505	0.0305	0.0422	0.078	0.013	0.002	0.62	-	4	-	-	2	-	-	2	-
Antimony	26 / 38	68	0.0000003	-	-	-	0.00023	-	-	-	-	0.00142	0.00028	0.000045	1.23	-	-	0	-	-	0	-	-	0
Arsenic	11 / 35	31	0.0002	0.0002	0.0002	0.0002	0.026	0.0002	0.0003	0.0003	0.0003	0.3	0.085	0.014	3.28	-	3	3	-	3	3	-	0	0
Barium	1 / 40	3	0.001	0.0014	0.0014	0.001575	0.0018	0.0017	0.0018	0.0021	0.0021	0.0067	0.00085	0.00013	0.47	-	-	0	-	-	0	-	-	0
Beryllium	38 / 38	100	0.00002	-	-	-	0.00035	-	-	-	-	0.002	0.00065	0.00011	1.87	-	-	-	-	-	-	-	-	-
Bismuth	3 / 3	100	0.0001	-	-	-	0.0003	-	-	-	-	0.0004	0.00017	0.0001	0.58	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	40 / 41	98	0.00002	-	-	-	0.000098	-	-	-	-	0.0006	0.00012	0.000018	1.18	40	40	0	39	39	0	1	1	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	38 / 38	100	0.000008	-	-	-	0.00014	-	-	-	-	0.0004	0.0001	0.000017	0.76	-	-	-	-	-	-	-	-	-
Chromium	31 / 41	76	0.0001	-	-	-	0.00085	-	-	-	-	0.0127	0.0021	0.00033	2.52	-	1	0	-	0	0	-	1	0
Cobalt	39 / 41	95	0.0001	-	-	-	0.00021	-	-	-	-	0.001	0.0003	0.000046	1.39	-	-	-	-	-	-	-	-	-
Copper	5 / 40	13	0.0002	0.0002	0.0005	0.0006	0.001	0.0007	0.001225	0.002	0.002	0.00329	0.0007	0.00011	0.70	-	2	-	-	0	-	-	2	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	7 / 41	17	0.006	0.006	0.02	0.023	3	0.03	0.05	0.125	0.062	52	11	1.7	3.66	-	3	-	-	0	-	-	3	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	25 / 36	69	0.0001	-	-	-	0.0018	-	-	-	-	0.0531	0.0088	0.0015	4.99	-	2	1	-	0	0	-	2	1
Lithium	5 / 40	13	0.0006	0.0008	0.00098	0.0011	0.0014	0.0012	0.0013	0.003	0.0014	0.0045	0.00082	0.00013	0.57	-	-	-	-	-	-	-	-	-
Magnesium	0 / 1	0	0.004	-	-	-	0.004	-	-	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-2-d: Water chemistry summary for Desteffany Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Manganese	1 / 40	3	0.0004	0.0004	0.00147	0.0020825	0.24	0.00285	0.0038	0.21134	0.0048	2.6	0.72	0.11	3.01	-	-	-	-	-	-	-	-	-
Mercury	26 / 28	93	0.000001	-	-	-	0.0000098	-	-	-	-	0.00002	0.0000029	0.00000055	0.30	-	0	0	-	0	0	-	0	0
Molybdenum	28 / 40	70	0.00002	-	-	-	0.00025	-	-	-	-	0.0012	0.00034	0.000053	1.35	-	0	-	-	0	-	-	0	-
Nickel	7 / 41	17	0.0001	0.0006	0.0004	0.0007	0.00071	0.0007	0.0008	0.001	0.0009	0.001	0.0002	0.000032	0.29	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	1 / 36	3	0.0005	0.001	0.0011	0.001275	0.0013	0.0014	0.0015	0.0015	0.0016	0.0016	0.00021	0.000034	0.16	-	-	-	-	-	-	-	-	-
Selenium	38 / 40	95	0.0003	-	-	-	0.3	-	-	-	-	10	1.6	0.25	5.27	-	9	3	-	8	3	-	1	0
Silver	40 / 40	100	0.000006	-	-	-	0.00012	-	-	-	-	0.0003	0.000069	0.000011	0.57	-	5	-	-	5	-	-	0	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	1 / 38	3	0.0000046	0.0043	0.00437	0.005575	0.0061	0.0063	0.00745	0.00816	0.0086	0.0086	0.002	0.00033	0.34	-	-	-	-	-	-	-	-	-
Thallium	38 / 38	100	0.0000001	-	-	-	0.00014	-	-	-	-	0.0004	0.00011	0.000017	0.77	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	8 / 36	22	0.0001	0.0001	0.0001	0.0002	0.00063	0.0002	0.0004	0.0024	0.0005	0.003	0.00093	0.00015	1.47	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	19 / 36	53	0.0001	-	-	-	0.00013	-	-	-	-	0.0003	0.000066	0.000011	0.51	-	0	0	-	0	0	-	0	0
Vanadium	35 / 40	88	0.00003	-	-	-	0.0077	-	-	-	-	0.1	0.027	0.0042	3.45	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	18 / 41	44	0.0004	0.0004	0.0004	0.0004	0.0026	0.0007	0.0031	0.01	0.0047	0.011	0.0036	0.00056	1.38	-	0	-	-	0	-	-	0	-

Appendix B-3-3-a: Water chemistry summary for Daring Lake

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	0 / 32	0	0.06	0.06	1.199	20.85	30	33.1	42.85	51.39	59.2	59.2	17	3.1	0.57	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	10 / 23	43	5	5	5	5	6.5	5	8.5	10	10	10	2.2	0.46	0.34	-	-	-	-	-	-	-	-	-
True Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 42	0	9.9	9.9	10.7	11.35	14	11.95	15.25	18.45	20.7	31.9	4.2	0.65	0.31	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	24 / 42	57	10	-	-	-	12	-	-	-	-	22	3.4	0.53	0.28	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	35 / 42	83	3	-	-	-	3.6	-	-	-	-	16	2.2	0.35	0.61	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 42	0	0.12	0.12	0.211	0.26	0.42	0.28	0.3775	0.588	0.52	3.31	0.5	0.077	1.18	-	-	42	-	-	0	-	-	42
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 42	0	2.6	2.6	3	3.1	4.1	3.4	4.925	5.8	6.7	9.3	1.4	0.21	0.34	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	33 / 37	89	0.3	-	-	-	0.68	-	-	-	-	0.9	0.094	0.015	0.14	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	24 / 24	100	0.1	-	-	-	0.14	-	-	-	-	1	0.18	0.038	1.34	-	1	0	-	1	0	-	0	0

Appendix B-3-3-a: Water chemistry summary for Daring Lake

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

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[illegible]

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All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL			
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	
Carbon, Dissolved Organic	0 / 42	0	1.3	1.8	1.81	2.1	2.4	2.3	2.4	3.09	2.8	4.4	0.57	0.088	0.24	-	-	-	-	-	-	-	-	-	
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Organic	0 / 42	0	1.8	1.8	1.91	2.2	2.5	2.4	2.6	3.18	3	4.4	0.51	0.079	0.21	-	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide																									
Cyanide Thiocyanate	0 / 1	0	0.5	-	-	-	0.5	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide, Total	2 / 3	67	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	0	0	-	0	0	-	0	0	
Cyanide, wad	2 / 3	67	0.002	-	-	-	0.002	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	
Dissolved Metals																									
Aluminum	0 / 23	0	0.001	0.001	0.00134	0.00235	0.004	0.0032	0.0049	0.00674	0.008	0.0129	0.0027	0.00056	0.67	-	-	-	-	-	-	-	-	-	
Antimony	18 / 23	78	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000029	0.000006	0.27	-	-	-	-	-	-	-	-	-	
Arsenic	23 / 23	100	0.0002	-	-	-	0.0002	-	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	
Barium	0 / 23	0	0.0009	0.0009	0.001	0.0011	0.0014	0.0011	0.00145	0.00202	0.0017	0.0036	0.00062	0.00013	0.45	-	-	-	-	-	-	-	-	-	
Beryllium	23 / 23	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	
Bismuth	1 / 1	100	0.0002	-	-	-	0.0002	-	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	
Boron	0 / 1	0	0.0019	-	-	-	0.0019	-	-	-	-	0.0019	-	-	-	-	-	-	-	-	-	-	-	-	
Cadmium	23 / 23	100	0.00005	-	-	-	0.00005	-	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	-	
Calcium	0 / 42	0	0.4	0.4	0.9	1	1.7	1.25	1.975	2.39	3	6.1	1.2	0.18	0.70	-	-	-	-	-	-	-	-	-	
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cesium	23 / 23	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	
Chromium	21 / 23	91	0.0001	-	-	-	0.00018	-	-	-	-	0.0017	0.00033	0.00007	1.88	-	-	-	-	-	-	-	-	-	
Cobalt	19 / 20	95	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	
Copper	6 / 23	26	0.0002	0.0002	0.0002	0.0002	0.00057	0.0004	0.0005	0.00078	0.0008	0.0045	0.00088	0.00018	1.53	-	-	-	-	-	-	-	-	-	
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Iron	23 / 23	100	0.005	-	-	-	0.021	-	-	-	-	0.05	0.022	0.0046	1.06	-	-	-	-	-	-	-	-	-	
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lead	19 / 23	83	0.0001	-	-	-	0.00057	-	-	-	-	0.0085	0.0018	0.00037	3.11	-	-	-	-	-	-	-	-	-	
Lithium	1 / 23	4	0.0002	0.0006	0.0004	0.0007	0.00086	0.0008	0.00085	0.0012	0.0009	0.0032	0.00057	0.00012	0.66	-	-	-	-	-	-	-	-	-	
Magnesium	0 / 42	0	0.2	0.2	0.5	0.6	0.78	0.7	0.9	1.09	1.2	2.4	0.37	0.058	0.48	-	-	-	-	-	-	-	-	-	
Manganese	0 / 23	0	0.0002	0.0002	0.0003	0.0004	0.00067	0.0005	0.0009	0.00108	0.0013	0.0023	0.00047	0.000098	0.70	-	-	-	-	-	-	-	-	-	
Mercury	22 / 22	100	0.00001	-	-	-	0.000011	-	-	-	-	0.00002	0.0000029	0.00000063	0.27	-	-	-	-	-	-	-	-	-	

Appendix B-3-3-a: Water chemistry summary for Daring Lake

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	22 / 23	96	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000021	0.0000043	0.20	-	-	-	-	-	-	-	-	-
Nickel	2 / 23	9	0.0001	0.0002	0.0001	0.0002	0.0002	0.0002	0.0002	0.0003	0.0002	0.0004	0.000074	0.000015	0.37	-	-	-	-	-	-	-	-	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	6 / 6	100	0.001	-	-	-	0.0085	-	-	-	-	0.01	0.0037	0.0015	0.43	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 42	0	0.2	0.3	0.31	0.4	0.47	0.4	0.5	0.609	0.61	1.37	0.18	0.028	0.39	-	-	-	-	-	-	-	-	-
Rubidium	0 / 23	0	0.0008	0.001	0.00092	0.0011	0.0012	0.0011	0.0012	0.00168	0.0012	0.0018	0.00026	0.000055	0.22	-	-	-	-	-	-	-	-	-
Selenium	22 / 23	96	0.0003	-	-	-	0.00037	-	-	-	-	0.0018	0.00031	0.000065	0.86	-	-	-	-	-	-	-	-	-
Silver	23 / 23	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	0 / 42	0	0.3	0.3	0.4	0.5	0.6	0.5	0.7	0.8	0.8	1.4	0.2	0.031	0.34	-	-	-	-	-	-	-	-	-
Strontium	0 / 23	0	0.0037	0.0045	0.00456	0.0049	0.0056	0.0052	0.00535	0.008	0.0054	0.0083	0.0014	0.00029	0.25	-	-	-	-	-	-	-	-	-
Thallium	23 / 23	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tin	1 / 1	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	22 / 23	96	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000021	0.0000043	0.20	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	23 / 23	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	23 / 23	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	9 / 23	39	0.0004	0.0004	0.0004	0.0004	0.001	0.0005	0.0011	0.00156	0.0016	0.0054	0.0012	0.00025	1.18	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	2 / 42	5	0.0027	0.0027	0.0044	0.005525	0.0096	0.007	0.0086	0.01301	0.0132	0.0585	0.0097	0.0015	1.01	-	1	-	-	0	-	-	1	-
Antimony	34 / 42	81	0.0001	-	-	-	0.00015	-	-	-	-	0.0006	0.00013	0.000021	0.86	-	-	0	-	-	0	-	-	0
Arsenic	35 / 38	92	0.0002	-	-	-	0.00021	-	-	-	-	0.0004	0.000036	0.0000058	0.17	-	0	0	-	0	0	-	0	0
Barium	0 / 42	0	0.001	0.001	0.0011	0.001125	0.0015	0.0012	0.0017	0.00236	0.0025	0.0039	0.00065	0.0001	0.42	-	-	0	-	-	0	-	-	0
Beryllium	42 / 42	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	42 / 42	100	0.00005	-	-	-	0.000054	-	-	-	-	0.0001	0.000013	0.000002	0.24	42	42	0	42	42	0	0	0	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	42 / 42	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	32 / 42	76	0.0001	-	-	-	0.00032	-	-	-	-	0.0036	0.00064	0.000099	2.04	-	0	0	-	0	0	-	0	0
Cobalt	40 / 42	95	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000022	0.0000033	0.21	-	-	-	-	-	-	-	-	-
Copper	8 / 42	19	0.0002	0.0002	0.0002	0.0003	0.00053	0.0004	0.0006	0.00079	0.0008	0.0021	0.00046	0.00007	0.85	-	1	-	-	0	-	-	1	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	15 / 42	36	0.005	0.005	0.008	0.01025	0.031	0.015	0.05	0.05	0.05	0.287	0.046	0.0071	1.48	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	33 / 42	79	0.0001	-	-	-	0.00055	-	-	-	-	0.0172	0.0026	0.00041	4.78	-	2	1	-	0	0	-	2	1
Lithium	1 / 42	2	0.0002	0.0004	0.00052	0.0008	0.00095	0.0008	0.001075	0.0013	0.0013	0.0033	0.00047	0.000072	0.49	-	-	-	-	-	-	-	-	-
Magnesium	0 / 1	0	0.0005	-	-	-	0.0005	-	-	-	-	0.0005	-	-	-	-	-	-	-	-	-	-	-	-

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All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ
Manganese	0 / 41	0	0.0003	0.0003	0.0009	0.0011	0.0015	0.0013	0.0017	0.0021	0.0021	0.0067	0.001	0.00016	0.65	-	-	-	-	-	-	-	-	-
Mercury	32 / 36	89	0.000001	-	-	-	0.0000094	-	-	-	-	0.00002	0.0000039	0.00000065	0.42	-	0	0	-	0	0	-	0	0
Molybdenum	39 / 42	93	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000022	0.0000033	0.21	-	0	-	-	0	-	-	0	-
Nickel	4 / 42	10	0.0001	0.0001	0.0001	0.000125	0.00029	0.0002	0.0002	0.0003	0.0003	0.0034	0.00051	0.000078	1.75	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 42	0	0.0009	0.0009	0.0011	0.0011	0.0013	0.0012	0.00135	0.0018	0.0017	0.0024	0.00032	0.00005	0.25	-	-	-	-	-	-	-	-	-
Selenium	38 / 42	90	0.0003	-	-	-	0.00039	-	-	-	-	0.0018	0.00028	0.000043	0.71	-	1	0	-	0	0	-	1	0
Silver	42 / 42	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 42	0	0.0038	0.0038	0.0048	0.005025	0.0059	0.0053	0.006575	0.00827	0.0087	0.0129	0.0017	0.00027	0.29	-	-	-	-	-	-	-	-	-
Thallium	42 / 42	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	17 / 42	40	0.0001	0.0001	0.0001	0.0001	0.0003	0.0001	0.0002	0.00029	0.0003	0.0061	0.00093	0.00014	3.06	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	42 / 42	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	0	-	0	0	-	0	0
Vanadium	37 / 42	88	0.0001	-	-	-	0.00014	-	-	-	-	0.001	0.00015	0.000024	1.07	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	24 / 42	57	0.0004	-	-	-	0.0016	-	-	-	-	0.011	0.0026	0.0004	1.61	-	0	-	-	0	-	-	0	-
BTEX																								
Benzene	12 / 12	100	0.001	-	-	-	0.0033	-	-	-	-	0.005	0.0021	0.00059	0.62	-	-	0	-	-	0	-	-	0
Ethylbenzene	12 / 12	100	0.001	-	-	-	0.0033	-	-	-	-	0.005	0.0021	0.00059	0.62	-	-	0	-	-	0	-	-	0
m/p-Xylene	7 / 7	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	7 / 7	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	12 / 12	100	0.001	-	-	-	0.0034	-	-	-	-	0.005	0.002	0.00057	0.58	-	-	0	-	-	0	-	-	0
Total Xylene	1 / 1	100	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	-	0	-	-	0	-	-	0
Organics																								
Extractable Hydrocarbons (c10-c16)	1 / 1	100	0.2	-	-	-	0.2	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Extractable Hydrocarbons (c14-c24)	1 / 1	100	0.2	-	-	-	0.2	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Extractable Hydrocarbons (c24-c50)	1 / 1	100	0.2	-	-	-	0.2	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Purgeable Hydrocarbons	1 / 1	100	0.01	-	-	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Unextractable Hydrocarbons (TEH)	11 / 12	92	0.05	-	-	-	0.11	-	-	-	-	0.2	0.07	0.02	0.65	-	-	-	-	-	-	-	-	-

Appendix B-3-3-b: Water chemistry summary for Daring Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	0 / 4	0	0.06	-	-	-	0.96	-	-	-	-	2.63	1.2	0.6	1.26	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	2 / 4	50	5	-	-	-	6.3	-	-	-	-	10	2.5	1.3	0.40	-	-	-	-	-	-	-	-	-
True Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 9	0	15.8	15.8	16.68	16.9	20	18.5	20.7	24.14	22.2	31.9	4.9	1.6	0.24	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	6 / 9	67	10	-	-	-	12	-	-	-	-	20	3.4	1.1	0.30	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	8 / 9	89	3	-	-	-	4.4	-	-	-	-	16	4.3	1.4	0.98	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 9	0	0.12	0.12	0.144	0.17	0.68	0.28	0.43	1.59	0.43	3.31	1	0.35	1.51	-	-	9	-	-	0	-	-	9
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 9	0	4.4	4.4	4.4	4.7	5.8	5.8	6.1	7.22	6.7	9.3	1.5	0.51	0.27	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	8 / 9	89	0.7	-	-	-	0.72	-	-	-	-	0.9	0.067	0.022	0.09	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	6 / 6	100	0.1	-	-	-	0.1	-	-	-	-	0.1	-	-	-	-	0	0	-	0	0	-	0	0

Appendix B-3-3-b: Water chemistry summary for Daring Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-3-3-b: Water chemistry summary for Daring Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

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Appendix B-3-3-b: Water chemistry summary for Daring Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	0 / 4	0	0.0002	-	-	-	0.00028	-	-	-	-	0.0004	0.000096	0.000048	0.35	-	-	-	-	-	-	-	-	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	3 / 3	100	0.01	-	-	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 9	0	0.5	0.5	0.5	0.5	0.7	0.6	0.7	0.914	0.8	1.37	0.27	0.091	0.39	-	-	-	-	-	-	-	-	-
Rubidium	0 / 4	0	0.0016	-	-	-	0.0017	-	-	-	-	0.0018	0.000082	0.000041	0.05	-	-	-	-	-	-	-	-	-
Selenium	4 / 4	100	0.0003	-	-	-	0.0003	-	-	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-
Silver	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	0 / 9	0	0.7	0.7	0.7	0.7	0.89	0.8	1	1.16	1.4	1.4	0.24	0.079	0.27	-	-	-	-	-	-	-	-	-
Strontium	0 / 4	0	0.0076	-	-	-	0.0081	-	-	-	-	0.0083	0.00033	0.00017	0.04	-	-	-	-	-	-	-	-	-
Thallium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	2 / 4	50	0.0004	-	-	-	0.0017	-	-	-	-	0.0054	0.0025	0.0012	1.42	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	1 / 9	11	0.0031	0.0031	0.0035	0.0043	0.014	0.0051	0.0071	0.0357	0.0071	0.0585	0.019	0.0063	1.37	-	1	-	-	0	-	-	1	-
Antimony	7 / 9	78	0.0001	-	-	-	0.00014	-	-	-	-	0.0004	0.0001	0.000034	0.70	-	-	0	-	-	0	-	-	0
Arsenic	6 / 8	75	0.0002	-	-	-	0.00021	-	-	-	-	0.0003	0.000035	0.000013	0.17	-	0	0	-	0	0	-	0	0
Barium	0 / 9	0	0.0016	0.0016	0.00168	0.0018	0.0023	0.002	0.0025	0.00302	0.0028	0.0039	0.00073	0.00024	0.32	-	-	0	-	-	0	-	-	0
Beryllium	9 / 9	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	9 / 9	100	0.00005	-	-	-	0.000061	-	-	-	-	0.0001	0.000022	0.0000073	0.36	9	9	0	9	9	0	0	0	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	9 / 9	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	5 / 9	56	0.0001	-	-	-	0.0004	-	-	-	-	0.0016	0.00052	0.00017	1.30	-	0	0	-	0	0	-	0	0
Cobalt	8 / 9	89	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000033	0.000011	0.30	-	-	-	-	-	-	-	-	-
Copper	0 / 9	0	0.0003	0.0005	0.00046	0.0006	0.00076	0.0006	0.0007	0.00104	0.0008	0.002	0.00049	0.00016	0.65	-	0	-	-	0	-	-	0	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	5 / 9	56	0.005	-	-	-	0.066	-	-	-	-	0.287	0.089	0.03	1.35	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	8 / 9	89	0.0001	-	-	-	0.00028	-	-	-	-	0.0017	0.00053	0.00018	1.92	-	1	0	-	0	0	-	1	0
Lithium	0 / 9	0	0.0009	0.0009	0.00106	0.0012	0.0013	0.0013	0.0015	0.0015	0.0015	0.0015	0.0002	0.000068	0.16	-	-	-	-	-	-	-	-	-
Magnesium	0 / 1	0	0.0005	-	-	-	0.0005	-	-	-	-	0.0005	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-3-b: Water chemistry summary for Daring Lake during Winter Baseflow

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Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Manganese	0 / 8	0	0.0004	0.0004	0.00075	0.0009	0.0022	0.00165	0.00225	0.00411	0.003	0.0067	0.002	0.00071	0.93	-	-	-	-	-	-	-	-	-
Mercury	8 / 8	100	0.00001	-	-	-	0.000011	-	-	-	-	0.00002	0.0000035	0.0000013	0.31	-	0	0	-	0	0	-	0	0
Molybdenum	7 / 9	78	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000033	0.000011	0.30	-	0	-	-	0	-	-	0	-
Nickel	0 / 9	0	0.0002	0.0003	0.0002	0.0003	0.00033	0.0003	0.0003	0.00046	0.0003	0.0007	0.00015	0.00005	0.45	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 9	0	0.0015	0.0015	0.00158	0.0017	0.0018	0.0018	0.0019	0.002	0.0019	0.0024	0.00025	0.000085	0.14	-	-	-	-	-	-	-	-	-
Selenium	8 / 9	89	0.0003	-	-	-	0.00044	-	-	-	-	0.001	0.00025	0.000084	0.56	-	0	0	-	0	0	-	0	0
Silver	9 / 9	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 9	0	0.0071	0.0071	0.0075	0.0077	0.0086	0.0083	0.0087	0.00978	0.009	0.0129	0.0017	0.00057	0.20	-	-	-	-	-	-	-	-	-
Thallium	9 / 9	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	5 / 9	56	0.0001	-	-	-	0.00079	-	-	-	-	0.0061	0.002	0.00066	2.53	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	9 / 9	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	0	-	0	0	-	0	0
Vanadium	7 / 9	78	0.0001	-	-	-	0.00014	-	-	-	-	0.0004	0.0001	0.000034	0.70	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	4 / 9	44	0.0004	0.0004	0.0004	0.0005	0.0036	0.0017	0.0061	0.00832	0.01	0.01	0.0037	0.0012	1.03	-	0	-	-	0	-	-	0	-
BTEX																								
Benzene	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	0	-	-	0	-	-	0
Ethylbenzene	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	0	-	-	0	-	-	0
m/p-Xylene	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	0	-	-	0	-	-	0
Total Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
Organics																								
Extractable Hydrocarbons (c10-c16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Extractable Hydrocarbons (c17-c24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Extractable Hydrocarbons (c24-c50)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Purgeable Hydrocarbons	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Extractable Hydrocarbons (TEH)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-3-c: Water chemistry summary for Daring Lake during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	0 / 1	0	0.982	-	-	-	0.98	-	-	-	-	0.982	#DIV/0!	#DIV/0!	###	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	0 / 2	0	5	-	-	-	7.5	-	-	-	-	10	3.5	2.5	0.47	-	-	-	-	-	-	-	-	-
True Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 2	0	17	-	-	-	17	-	-	-	-	17.5	0.35	0.25	0.02	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	1 / 2	50	10	-	-	-	12	-	-	-	-	14	2.8	2	0.24	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	1 / 2	50	3	-	-	-	3.5	-	-	-	-	4	0.71	0.5	0.20	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 2	0	0.2	-	-	-	0.4	-	-	-	-	0.59	0.28	0.2	0.70	-	-	2	-	-	0	-	-	2
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 2	0	5.8	-	-	-	6	-	-	-	-	6.1	0.21	0.15	0.04	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	0 / 2	0	0.4	-	-	-	0.45	-	-	-	-	0.5	0.071	0.05	0.16	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0

Appendix B-3-3-c: Water chemistry summary for Daring Lake during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ
Hardness non-carb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hardness, Total (as CaCO3)	0 / 2	0	5.02	-	-	-	5.6	-	-	-	-	6.2	0.83	0.59	0.15	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
pH (pH units)	0 / 2	0	6.54	-	-	-	6.6	-	-	-	-	6.6	0.042	0.03	0.01	-	0	-	-	0	-	-	0	-
Silica, Reactive	0 / 2	0	0.08	-	-	-	0.11	-	-	-	-	0.143	0.045	0.032	0.40	-	-	-	-	-	-	-	-	-
Silica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	1 / 2	50	1.5	-	-	-	2.3	-	-	-	-	3	1.1	0.75	0.47	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	0 / 2	0	0.01	-	-	-	0.013	-	-	-	-	0.016	0.0042	0.003	0.33	-	0	-	-	0	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	2 / 2	100	0.008	-	-	-	0.054	-	-	-	-	0.1	0.065	0.046	1.20	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	2 / 2	100	0.008	-	-	-	0.1	-	-	-	-	0.2	0.14	0.096	1.31	-	-	-	-	-	-	-	-	-
Nitrite	2 / 2	100	0.009	-	-	-	0.03	-	-	-	-	0.05	0.029	0.021	0.98	-	0	0	-	0	0	-	0	0
Nitrogen, Particulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	2 / 2	100	0.002	-	-	-	0.002	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	1 / 2	50	0.01	-	-	-	0.011	-	-	-	-	0.011	0.00071	0.0005	0.07	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-3-c: Water chemistry summary for Daring Lake during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-3-3-c: Water chemistry summary for Daring Lake during Spring Freshet

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All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nickel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorous, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Potassium	0 / 2	0	0.6	-	-	-	0.61	-	-	-	-	0.61	0.0071	0.005	0.01	-	-	-	-	-	-	-	-	-
Rubidium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Selenium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sodium	0 / 2	0	0.65	-	-	-	0.68	-	-	-	-	0.7	0.035	0.025	0.05	-	-	-	-	-	-	-	-	-
Strontium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Thallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Uranium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Vanadium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Zinc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Metals																								
Aluminum	1 / 2	50	0.0044	-	-	-	0.017	-	-	-	-	0.03	0.018	0.013	1.05	-	0	-	-	0	-	-	0	-
Antimony	0 / 2	0	0.0006	-	-	-	0.0006	-	-	-	-	0.0006	-	-	-	-	-	0	-	-	0	-	-	0
Arsenic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Barium	0 / 2	0	0.0017	-	-	-	0.0019	-	-	-	-	0.002	0.00021	0.00015	0.11	-	-	0	-	-	0	-	-	0
Beryllium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	2 / 2	100	0.00005	-	-	-	0.000075	-	-	-	-	0.0001	0.000035	0.000025	0.47	2	2	0	2	2	0	0	0	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	0 / 2	0	0.0012	-	-	-	0.0015	-	-	-	-	0.0017	0.00035	0.00025	0.24	-	0	0	-	0	0	-	0	0
Cobalt	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Copper	0 / 2	0	0.0019	-	-	-	0.002	-	-	-	-	0.0021	0.00014	0.0001	0.07	-	1	-	-	0	-	-	1	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	2 / 2	100	0.03	-	-	-	0.04	-	-	-	-	0.05	0.014	0.01	0.35	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	1 / 2	50	0.0001	-	-	-	0.00015	-	-	-	-	0.0002	0.000071	0.00005	0.47	-	0	0	-	0	0	-	0	0
Lithium	0 / 2	0	0.0011	-	-	-	0.0012	-	-	-	-	0.0013	0.00014	0.0001	0.12	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Manganese	0 / 2	0	0.0005	-	-	-	0.0013	-	-	-	-	0.0021	0.0011	0.0008	0.87	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Molybdenum	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Nickel	0 / 2	0	0.0005	-	-	-	0.002	-	-	-	-	0.0034	0.0021	0.0015	1.05	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 2	0	0.0014	-	-	-	0.0016	-	-	-	-	0.0017	0.00021	0.00015	0.14	-	-	-	-	-	-	-	-	-
Selenium	1 / 2	50	0.0004	-	-	-	0.0007	-	-	-	-	0.001	0.00042	0.0003	0.61	-	0	0	-	0	0	-	0	0
Silver	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 2	0	0.0069	-	-	-	0.0073	-	-	-	-	0.0076	0.00049	0.00035	0.07	-	-	-	-	-	-	-	-	-
Thallium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	0 / 2	0	0.0003	-	-	-	0.0006	-	-	-	-	0.0009	0.00042	0.0003	0.71	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	0	-	0	0	-	0	0
Vanadium	1 / 2	50	0.0004	-	-	-	0.0007	-	-	-	-	0.001	0.00042	0.0003	0.61	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	0 / 2	0	0.0035	-	-	-	0.0073	-	-	-	-	0.011	0.0053	0.0038	0.73	-	0	-	-	0	-	-	0	-
BTEX																								
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
m/p-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
Total Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
Organics																								
Extractable Hydrocarbons (c10-c16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Extractable Hydrocarbons (c17-c24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Extractable Hydrocarbons (c24-c50)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Purgeable Hydrocarbons	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Extractable Hydrocarbons (TEH)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-3-d: Water chemistry summary for Daring Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	0 / 27	0	14.8	14.8	20.4	25.2	36	36.4	44.2	53.48	59.2	59.2	13	2.5	0.36	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	8 / 17	47	5	5	5	5	6.4	5	7	10	7	10	2.2	0.52	0.34	-	-	-	-	-	-	-	-	-
True Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 31	0	9.9	9.9	10.7	11.2	12	11.7	12.2	12.5	13.6	13.6	0.8	0.14	0.07	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	17 / 31	55	10	-	-	-	12	-	-	-	-	22	3.5	0.63	0.29	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	26 / 31	84	3	-	-	-	3.4	-	-	-	-	8	1.3	0.23	0.37	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 31	0	0.21	0.21	0.24	0.26	0.35	0.28	0.37	0.57	0.52	1.04	0.17	0.03	0.48	-	-	31	-	-	0	-	-	31
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 31	0	2.6	2.6	2.9	3	3.5	3.2	3.45	4.6	3.5	5	0.7	0.13	0.20	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	25 / 26	96	0.3	-	-	-	0.68	-	-	-	-	0.7	0.078	0.015	0.11	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	18 / 18	100	0.1	-	-	-	0.15	-	-	-	-	1	0.21	0.05	1.41	-	1	0	-	1	0	-	0	0

Appendix B-3-3-d: Water chemistry summary for Daring Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hardness, Total (as CaCO3)	0 / 31	0	1.9	1.9	4.1	4.4	6.5	5.2	7.95	9.2	9.3	22.4	3.6	0.65	0.56	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
pH (pH units)	0 / 31	0	6.58	6.58	6.65	6.72	6.8	6.75	6.82	6.86	6.91	6.91	0.081	0.015	0.01	-	0	-	-	0	-	-	0	-
Silica, Reactive	0 / 2	0	0.071	-	-	-	0.1	-	-	-	-	0.136	0.046	0.033	0.44	-	-	-	-	-	-	-	-	-
Silica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sulphate, Dissolved	1 / 31	3	1	1	1	1	1.1	1	1	1	1	3	0.4	0.071	0.36	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ammonia, Total	28 / 31	90	0.005	-	-	-	0.0072	-	-	-	-	0.01	0.0025	0.00044	0.34	-	0	-	-	0	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nitrate	27 / 31	87	0.005	-	-	-	0.01	-	-	-	-	0.03	0.0056	0.001	0.56	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nitrate-Nitrite	16 / 30	53	0.005	-	-	-	0.037	-	-	-	-	0.14	0.045	0.0083	1.23	-	-	-	-	-	-	-	-	-
Nitrite	28 / 31	90	0.001	-	-	-	0.017	-	-	-	-	0.12	0.035	0.0062	2.05	-	3	0	-	0	0	-	3	0
Nitrogen, Particulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nitrogen, Total Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nitrogen, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphate, Ortho	27 / 29	93	0.001	-	-	-	0.0016	-	-	-	-	0.004	0.00068	0.00013	0.43	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorous, Particulate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorous, Total	12 / 31	39	0.002	0.002	0.003	0.003	0.0079	0.01	0.01	0.01	0.02	0.03	0.0058	0.001	0.74	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Appendix B-3-3-d: Water chemistry summary for Daring Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL			
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	
Carbon, Dissolved Organic	0 / 31	0	1.3	1.5	1.8	2	2.1	2.1	2.35	2.4	2.8	2.8	0.33	0.059	0.15	-	-	-	-	-	-	-	-	-	
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Organic	0 / 31	0	1.8	1.8	1.9	2.1	2.3	2.2	2.4	2.6	2.8	3.2	0.31	0.056	0.14	-	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide																									
Cyanide Thiocyanate	0 / 1	0	0.5	-	-	-	0.5	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide, Total	2 / 2	100	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	0	0	-	0	0	-	0	0	
Cyanide, wad	2 / 2	100	0.002	-	-	-	0.002	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	
Dissolved Metals																									
Aluminum	0 / 19	0	0.001	0.001	0.00126	0.0021	0.0043	0.0041	0.0052	0.0072	0.008	0.0129	0.0029	0.00067	0.68	-	-	-	-	-	-	-	-	-	
Antimony	15 / 19	79	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000023	0.0000053	0.22	-	-	-	-	-	-	-	-	-	
Arsenic	19 / 19	100	0.0002	-	-	-	0.0002	-	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	
Barium	0 / 19	0	0.0009	0.0009	0.001	0.00105	0.0013	0.0011	0.00115	0.00162	0.0012	0.0036	0.00065	0.00015	0.50	-	-	-	-	-	-	-	-	-	
Beryllium	19 / 19	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	
Bismuth	1 / 1	100	0.0002	-	-	-	0.0002	-	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	
Boron	0 / 1	0	0.0019	-	-	-	0.0019	-	-	-	-	0.0019	-	-	-	-	-	-	-	-	-	-	-	-	
Cadmium	19 / 19	100	0.00005	-	-	-	0.00005	-	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	-	
Calcium	0 / 31	0	0.4	0.4	0.8	0.9	1.6	1.2	1.85	2.3	2.4	6.1	1.3	0.23	0.80	-	-	-	-	-	-	-	-	-	
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cesium	19 / 19	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	
Chromium	17 / 19	89	0.0001	-	-	-	0.00019	-	-	-	-	0.0017	0.00037	0.000084	1.89	-	-	-	-	-	-	-	-	-	
Cobalt	16 / 17	94	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	
Copper	5 / 19	26	0.0002	0.0002	0.0002	0.0002	0.00059	0.0004	0.0005	0.00072	0.0008	0.0045	0.00096	0.00022	1.62	-	-	-	-	-	-	-	-	-	
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Iron	19 / 19	100	0.005	-	-	-	0.019	-	-	-	-	0.05	0.021	0.0049	1.12	-	-	-	-	-	-	-	-	-	
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lead	16 / 19	84	0.0001	-	-	-	0.00067	-	-	-	-	0.0085	0.002	0.00045	2.90	-	-	-	-	-	-	-	-	-	
Lithium	1 / 19	5	0.0002	0.0006	0.0004	0.00065	0.00081	0.0007	0.0008	0.0009	0.0009	0.0032	0.00061	0.00014	0.76	-	-	-	-	-	-	-	-	-	
Magnesium	0 / 31	0	0.2	0.2	0.5	0.5	0.75	0.7	0.9	1	1	2.4	0.41	0.074	0.55	-	-	-	-	-	-	-	-	-	
Manganese	0 / 19	0	0.0002	0.0002	0.00028	0.0004	0.00073	0.0006	0.00095	0.00114	0.0013	0.0023	0.0005	0.00011	0.68	-	-	-	-	-	-	-	-	-	
Mercury	18 / 18	100	0.00001	-	-	-	0.000011	-	-	-	-	0.00002	0.0000024	0.00000056	0.22	-	-	-	-	-	-	-	-	-	

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Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	18 / 19	95	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000023	0.0000053	0.22	-	-	-	-	-	-	-	-	-
Nickel	2 / 19	11	0.0001	0.0001	0.0001	0.00015	0.00018	0.0002	0.0002	0.00022	0.0002	0.0003	0.00006	0.000014	0.33	-	-	-	-	-	-	-	-	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	3 / 3	100	0.001	-	-	-	0.007	-	-	-	-	0.01	0.0052	0.003	0.74	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 31	0	0.2	0.4	0.3	0.4	0.39	0.4	0.4	0.5	0.4	0.5	0.063	0.011	0.16	-	-	-	-	-	-	-	-	-
Rubidium	0 / 19	0	0.0008	0.0011	0.0009	0.0011	0.0011	0.0011	0.0011	0.0012	0.0011	0.0012	0.00011	0.000025	0.10	-	-	-	-	-	-	-	-	-
Selenium	18 / 19	95	0.0003	-	-	-	0.00038	-	-	-	-	0.0018	0.00034	0.000079	0.91	-	-	-	-	-	-	-	-	-
Silver	19 / 19	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	0 / 31	0	0.3	0.5	0.4	0.5	0.51	0.5	0.55	0.6	0.6	0.7	0.092	0.017	0.18	-	-	-	-	-	-	-	-	-
Strontium	0 / 19	0	0.0037	0.0045	0.00442	0.00485	0.0051	0.005	0.0052	0.00532	0.0054	0.008	0.00082	0.00019	0.16	-	-	-	-	-	-	-	-	-
Thallium	19 / 19	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tin	1 / 1	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	18 / 19	95	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000023	0.0000053	0.22	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	19 / 19	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	19 / 19	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	7 / 19	37	0.0004	0.0004	0.0004	0.0004	0.00086	0.0005	0.0011	0.00144	0.0016	0.0035	0.00076	0.00017	0.89	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	0 / 31	0	0.0027	0.0027	0.0049	0.006	0.0079	0.0073	0.0085	0.0111	0.0113	0.0211	0.0033	0.0006	0.42	-	0	-	-	0	-	-	0	-
Antimony	27 / 31	87	0.0001	-	-	-	0.00013	-	-	-	-	0.0005	0.000086	0.000016	0.67	-	-	0	-	-	0	-	-	0
Arsenic	29 / 30	97	0.0002	-	-	-	0.00021	-	-	-	-	0.0004	0.000037	0.0000067	0.18	-	0	0	-	0	0	-	0	0
Barium	0 / 31	0	0.001	0.001	0.0011	0.0011	0.0013	0.0012	0.0013	0.0015	0.0015	0.0035	0.00044	0.00008	0.34	-	-	0	-	-	0	-	-	0
Beryllium	31 / 31	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	31 / 31	100	0.00005	-	-	-	0.00005	-	-	-	-	0.00005	-	-	-	31	31	0	31	31	0	0	0	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	31 / 31	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	27 / 31	87	0.0001	-	-	-	0.00022	-	-	-	-	0.0036	0.00063	0.00011	2.86	-	0	0	-	0	0	-	0	0
Cobalt	30 / 31	97	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000018	0.0000032	0.17	-	-	-	-	-	-	-	-	-
Copper	8 / 31	26	0.0002	0.0002	0.0002	0.00025	0.00037	0.0004	0.0004	0.0005	0.0005	0.0011	0.00019	0.000033	0.50	-	0	-	-	0	-	-	0	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	8 / 31	26	0.005	0.005	0.008	0.0095	0.02	0.014	0.019	0.05	0.02	0.05	0.017	0.003	0.81	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	24 / 31	77	0.0001	-	-	-	0.00066	-	-	-	-	0.0172	0.0031	0.00055	4.67	-	1	1	-	0	0	-	1	1
Lithium	1 / 31	3	0.0002	0.0007	0.0005	0.0008	0.00084	0.0008	0.0009	0.0009	0.001	0.0033	0.00049	0.000088	0.58	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-3-d: Water chemistry summary for Daring Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ
Manganese	0 / 31	0	0.0003	0.0008	0.001	0.0012	0.0014	0.0013	0.00155	0.0019	0.002	0.0027	0.00047	0.000085	0.34	-	-	-	-	-	-	-	-	-
Mercury	24 / 28	86	0.000001	-	-	-	0.0000089	-	-	-	-	0.00002	0.0000039	0.00000074	0.44	-	0	0	-	0	0	-	0	0
Molybdenum	30 / 31	97	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000018	0.0000032	0.17	-	0	-	-	0	-	-	0	-
Nickel	4 / 31	13	0.0001	0.0001	0.0001	0.0001	0.00017	0.0002	0.0002	0.0002	0.0003	0.0003	0.000054	0.0000097	0.32	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 31	0	0.0009	0.001	0.0011	0.0011	0.0011	0.0011	0.0012	0.0012	0.0012	0.0012	0.000083	0.000015	0.07	-	-	-	-	-	-	-	-	-
Selenium	29 / 31	94	0.0003	-	-	-	0.00036	-	-	-	-	0.0018	0.00027	0.000049	0.76	-	1	0	-	0	0	-	1	0
Silver	31 / 31	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 31	0	0.0038	0.0046	0.0046	0.005	0.0051	0.0051	0.0053	0.0054	0.0056	0.0056	0.0004	0.000072	0.08	-	-	-	-	-	-	-	-	-
Thallium	31 / 31	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	12 / 31	39	0.0001	0.0001	0.0001	0.0001	0.00014	0.0001	0.0002	0.0002	0.0003	0.0003	0.000062	0.000011	0.44	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	31 / 31	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	0	-	0	0	-	0	0
Vanadium	29 / 31	94	0.0001	-	-	-	0.00011	-	-	-	-	0.0003	0.000036	0.0000065	0.34	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	20 / 31	65	0.0004	-	-	-	0.00066	-	-	-	-	0.0026	0.00056	0.0001	0.84	-	0	-	-	0	-	-	0	-
BTEX																								
Benzene	11 / 11	100	0.001	-	-	-	0.0032	-	-	-	-	0.005	0.0021	0.00063	0.66	-	-	0	-	-	0	-	-	0
Ethylbenzene	11 / 11	100	0.001	-	-	-	0.0032	-	-	-	-	0.005	0.0021	0.00063	0.66	-	-	0	-	-	0	-	-	0
m/p-Xylene	6 / 6	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	6 / 6	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	11 / 11	100	0.001	-	-	-	0.0033	-	-	-	-	0.005	0.002	0.0006	0.61	-	-	0	-	-	0	-	-	0
Total Xylene	1 / 1	100	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	-	0	-	-	0	-	-	0
Organics																								
Extractable Hydrocarbons (c10-c16)	1 / 1	100	0.2	-	-	-	0.2	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Extractable Hydrocarbons (c14-c24)	1 / 1	100	0.2	-	-	-	0.2	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Extractable Hydrocarbons (c24-c50)	1 / 1	100	0.2	-	-	-	0.2	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Purgeable Hydrocarbons	1 / 1	100	0.01	-	-	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Unextractable Hydrocarbons (TEH)	11 / 12	92	0.05	-	-	-	0.11	-	-	-	-	0.2	0.07	0.02	0.65	-	-	-	-	-	-	-	-	-

Appendix B-3-4-a: Water chemistry summary for Point Lake Outlet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Physical Tests																								
Flow	0 / 143	0	23.2	23.2	35.48	45.2	120	113	171	239.8	342	433	84	7.1	0.69	-	-	-	-	-	-	-	-	-
Chlorophyll a	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	11 / 36	31	5	5	5	5	7.2	5	10	10	10	40	6	1	0.83	-	-	-	-	-	-	-	-	-
True Colour (relative units)	43 / 79	54	5	-	-	-	7.4	-	-	-	-	28	5.3	0.6	0.72	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	5 / 10	50	10	10	10	10	15	11.45	19.6	23.3	27.8	27.8	6.7	2.1	0.45	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	0 / 38	0	12.4	12.4	14.5	15.725	17	16.9	18.375	19.26	21	21	2	0.33	0.12	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 153	0	7.1	10	11.3	13	15	14.1	15.3	18.96	18	29.7	3.4	0.27	0.23	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	0 / 38	0	12.86	12.86	13.891	14.215	26000	14.655	15.705	16.379	16.66	1000020	160000	26000	6.16	-	-	-	-	-	-	-	-	-
TDS calc	0 / 54	0	4	4	5.66	6.075	7.2	7	8	8	10	12	1.4	0.19	0.20	-	-	-	-	-	-	-	-	-
TDS	21 / 74	28	3	3	10	10	16	13	18	23.7	26	81	9.8	1.1	0.62	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	0 / 63	0	0.1	0.1	0.5	1	5	5	7.65	9.4	14	21.3	4.1	0.52	0.81	-	-	1	-	-	0	-	-	1
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	99 / 124	80	1	-	-	-	2.7	-	-	-	-	12	1.8	0.16	0.66	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	1 / 147	1	0.07	0.07	0.16	0.2	0.64	0.3	0.585	1.68	1.1	5	0.91	0.075	1.42	-	-	141	-	-	0	-	-	141
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	4 / 146	3	1.1	1.1	2.55	3.1	4.5	3.6	4.475	6	6.5	47.3	4.8	0.4	1.08	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	38 / 140	27	0.1	0.1	0.227	0.3	0.49	0.4	0.7	0.7	0.9	2.4	0.31	0.027	0.64	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	51 / 115	44	0.01	0.01	0.02	0.02	0.058	0.05	0.06	0.1	0.1	1	0.095	0.0089	1.63	-	3	0	-	1	0	-	2	0

Appendix B-3-4-a: Water chemistry summary for Point Lake Outlet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	0 / 35	0	0.1	0.1	0.24	0.7	1.3	1.2	1.65	2.12	2.9	4.5	0.89	0.15	0.70	-	-	-	-	-	-	-	-	-
Hardness, Total (as CaCO3)	3 / 127	2	0.5	2.3	3.778	4.6	6.1	5.3	6.795	10.3	9.9	25.5	3.3	0.29	0.53	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH (pH units)	0 / 92	0	5.75	6.3	6.571	6.6775	6.9	6.8	6.99	7.39	7.43	8.58	0.41	0.043	0.06	-	0	-	-	0	-	-	0	-
Silica, Reactive	4 / 77	5	0.1	0.1	0.18	0.2	0.33	0.3	0.34	0.484	0.49	2.25	0.26	0.029	0.78	-	-	-	-	-	-	-	-	-
Silica	0 / 31	0	0.16	0.23	0.27	0.305	0.38	0.33	0.355	0.45	0.41	1.76	0.26	0.048	0.70	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	13 / 146	9	0.3	0.8	1	1.4	2.1	2	2	3	2.8	33	2.7	0.22	1.27	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	2 / 24	8	0.002	0.002	0.005	0.00675	0.021	0.011	0.0165	0.0359	0.024	0.18	0.036	0.0073	1.73	-	-	-	-	-	-	-	-	-
Ammonia, Total	46 / 51	90	0.005	-	-	-	0.009	-	-	-	-	0.05	0.0093	0.0013	1.03	-	2	-	-	2	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	2 / 49	4	0.008	0.008	0.03	0.035	0.059	0.048	0.07	0.0862	0.095	0.32	0.049	0.007	0.83	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	1 / 91	1	0.019	0.019	0.034	0.046	0.059	0.054	0.068	0.08	0.09	0.34	0.035	0.0037	0.59	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	2 / 47	4	0.01	0.01	0.03	0.04	0.074	0.05	0.0915	0.15	0.16	0.32	0.057	0.0084	0.77	-	-	-	-	-	-	-	-	-
Nitrite	45 / 50	90	0.001	-	-	-	0.019	-	-	-	-	0.12	0.034	0.0049	1.84	-	5	0	-	0	0	-	5	0
Nitrogen, Particulate	19 / 74	26	0.006	0.006	0.01	0.01	0.022	0.0145	0.03	0.0391	0.05	0.227	0.027	0.0031	1.20	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	1 / 76	1	0.008	0.085	0.1275	0.13	0.17	0.148	0.17175	0.235	0.232	0.567	0.082	0.0094	0.48	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	9 / 13	69	0.05	-	-	-	0.39	-	-	-	-	0.64	0.19	0.052	0.48	-	-	-	-	-	-	-	-	-
Nitrogen, Total	0 / 48	0	0.11	0.11	0.14	0.15	0.17	0.16	0.1825	0.233	0.23	0.37	0.048	0.007	0.28	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	6 / 6	100	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	46 / 54	85	0.001	-	-	-	0.0019	-	-	-	-	0.01	0.0015	0.0002	0.79	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	1 / 2	50	0.003	-	-	-	0.006	-	-	-	-	0.009	0.0042	0.003	0.71	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	37 / 51	73	0.001	-	-	-	0.0085	-	-	-	-	0.096	0.015	0.0022	1.81	-	-	-	-	-	-	-	-	-
Phosphorous	49 / 119	41	0.002	0.002	0.002	0.003	0.0092	0.006	0.01	0.015	0.02	0.1	0.013	0.0012	1.41	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	0 / 55	0	2.4	2.4	3.34	3.7	4.4	4.3	4.9	5.5	6.1	8.8	1.1	0.15	0.26	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	2 / 11	18	0.9	0.9	1	1	3.5	1.1	1.4	10	1.6	19	5.8	1.7	1.63	-	-	-	-	-	-	-	-	-

Appendix B-3-4-a: Water chemistry summary for Point Lake Outlet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-3-4-a: Water chemistry summary for Point Lake Outlet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

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[illegible]

Appendix B-3-4-a: Water chemistry summary for Point Lake Outlet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ
Vanadium	31 / 31	100	0.001	-	-	-	0.0071	-	-	-	-	0.05	0.012	0.0021	1.62	-	-	-	-	-	-	-	-	-
Zinc	20 / 42	48	0.001	0.003	0.0011	0.004	0.0082	0.005	0.005	0.008	0.005	0.13	0.02	0.003	2.40	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	8 / 74	11	0.0089	0.0089	0.01006	0.0124	0.018	0.014	0.018825	0.03	0.025	0.079	0.011	0.0013	0.62	-	12	-	-	1	-	-	11	-
Antimony	35 / 51	69	0.0001	-	-	-	0.00024	-	-	-	-	0.000872	0.00023	0.000032	0.98	-	-	0	-	-	0	-	-	0
Arsenic	26 / 40	65	0.0002	-	-	-	0.00023	-	-	-	-	0.001	0.00013	0.00002	0.55	-	0	0	-	0	0	-	0	0
Barium	29 / 103	28	0.0012	0.0012	0.0018	0.0019	0.026	0.0021	0.08	0.08	0.1	0.1	0.039	0.0038	1.49	-	-	0	-	-	0	-	-	0
Beryllium	74 / 74	100	0.00002	-	-	-	0.00026	-	-	-	-	0.002	0.00057	0.000066	2.17	-	-	-	-	-	-	-	-	-
Bismuth	6 / 6	100	0.0004	-	-	-	0.002	-	-	-	-	0.005	0.0023	0.00094	1.14	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	84 / 104	81	0.00002	-	-	-	0.00022	-	-	-	-	0.0011	0.0003	0.00003	1.39	101	101	0	82	82	0	19	19	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	50 / 51	98	0.000008	-	-	-	0.00014	-	-	-	-	0.0004	0.00011	0.000015	0.79	-	-	-	-	-	-	-	-	-
Chromium	55 / 74	74	0.0001	-	-	-	0.00046	-	-	-	-	0.003	0.00086	0.0001	1.88	-	0	0	-	0	0	-	0	0
Cobalt	91 / 104	88	0.000084	-	-	-	0.00033	-	-	-	-	0.001	0.00035	0.000034	1.05	-	-	-	-	-	-	-	-	-
Copper	10 / 104	10	0.0003	0.0003	0.0006	0.0007	0.0012	0.00095	0.0012	0.002	0.0019	0.01	0.0011	0.00011	0.93	-	8	-	-	0	-	-	8	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	39 / 74	53	0.0004	-	-	-	0.021	-	-	-	-	0.132	0.023	0.0027	1.13	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	81 / 104	78	0.0001	-	-	-	0.00047	-	-	-	-	0.0021	0.00042	0.000041	0.89	-	4	0	-	0	0	-	4	0
Lithium	9 / 74	12	0.0002	0.0004	0.0006	0.0007	0.0011	0.0009	0.001	0.00261	0.0013	0.0034	0.00073	0.000085	0.67	-	-	-	-	-	-	-	-	-
Magnesium	4 / 24	17	0.0003	0.41	0.45	0.46	0.55	0.48	0.5125	1	0.55	1	0.23	0.047	0.42	-	-	-	-	-	-	-	-	-
Manganese	7 / 73	10	0.0002	0.0002	0.0004	0.0005	0.00078	0.0006	0.0009	0.0013	0.0014	0.0038	0.0006	0.000071	0.77	-	-	-	-	-	-	-	-	-
Mercury	32 / 35	91	0.0000001	-	-	-	0.0000092	-	-	-	-	0.00002	0.0000041	0.0000007	0.45	-	0	0	-	0	0	-	0	0
Molybdenum	65 / 74	88	0.00002	-	-	-	0.00019	-	-	-	-	0.001	0.00027	0.000031	1.42	-	0	-	-	0	-	-	0	-
Nickel	23 / 104	22	0.0002	0.0003	0.0005	0.0007	0.00097	0.0008	0.001	0.001	0.0014	0.0169	0.0016	0.00016	1.65	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 51	0	0.0009	0.0009	0.0011	0.0012	0.0014	0.0013	0.0014	0.0017	0.00161	0.0026	0.00033	0.000046	0.24	-	-	-	-	-	-	-	-	-
Selenium	49 / 51	96	0.0003	-	-	-	0.0017	-	-	-	-	0.01	0.0034	0.00047	1.99	-	8	0	-	7	0	-	1	0
Silver	61 / 61	100	0.000006	-	-	-	0.00012	-	-	-	-	0.0003	0.000069	0.0000088	0.58	-	7	-	-	7	-	-	0	-
Sodium	4 / 23	17	0.11	0.11	0.18	0.275	0.59	0.3	0.41	2	0.42	2	0.67	0.14	1.13	-	-	-	-	-	-	-	-	-
Strontium	0 / 74	0	0.0041	0.0041	0.00483	0.0051175	0.0059	0.00555	0.006175	0.0074	0.0077	0.0124	0.0014	0.00016	0.23	-	-	-	-	-	-	-	-	-
Thallium	51 / 51	100	0.0001	-	-	-	0.00014	-	-	-	-	0.0004	0.0001	0.000015	0.74	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	37 / 51	73	0.00002	-	-	-	0.00051	-	-	-	-	0.003	0.001	0.00014	1.97	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-4-a: Water chemistry summary for Point Lake Outlet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Uranium	47 / 51	92	0.000052	-	-	-	0.00013	-	-	-	-	0.0003	0.000071	0.0000099	0.56	-	0	0	-	0	0	-	0	0
Vanadium	84 / 101	83	0.00003	-	-	-	0.00028	-	-	-	-	0.001	0.00027	0.000026	0.96	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	16 / 104	15	0.0003	0.0003	0.00043	0.000675	0.0031	0.00125	0.00365	0.01	0.006	0.0197	0.0038	0.00038	1.23	-	0	-	-	0	-	-	0	-

Appendix B-3-4-b: Water chemistry summary for Point Lake Outlet during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Physical Tests																								
Flow	0 / 47	0	23.2	23.2	31.72	36.65	47	45	52.8	68.56	75	106	16	2.4	0.34	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	4 / 12	33	5	5	5	5	6.7	5	10	10	10	10	2.5	0.71	0.37	-	-	-	-	-	-	-	-	-
True Colour (relative units)	17 / 27	63	5	-	-	-	7.1	-	-	-	-	26	5	0.96	0.71	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	2 / 3	67	10	-	-	-	14	-	-	-	-	21.8	6.8	3.9	0.49	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	0 / 17	0	12.7	13.8	14.64	16.5	17	17.1	19	19.68	20.8	20.8	2.2	0.52	0.12	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 49	0	8.8	8.8	10.64	13	16	14.2	18	20.82	23.7	29.7	4.6	0.65	0.29	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	0 / 17	0	12.88	12.88	13.942	14.2	59000	14.67	16.35	16.504	16.66	1000020	240000	59000	4.12	-	-	-	-	-	-	-	-	-
TDS calc	0 / 24	0	4	5.9	6.18	6.95	7.4	7.4	8	8	9	10	1.2	0.24	0.16	-	-	-	-	-	-	-	-	-
TDS	5 / 20	25	10	10	10	10	14	12.5	14.75	20.2	20	23	4.1	0.92	0.30	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	0 / 11	0	0.1	0.5	0.5	0.5	0.79	0.5	0.55	2	0.6	2.5	0.74	0.22	0.94	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	33 / 41	80	1	-	-	-	2.5	-	-	-	-	8	1.6	0.24	0.63	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 47	0	0.07	0.07	0.132	0.2	0.73	0.4	0.8	1.52	1.2	4.5	0.96	0.14	1.31	-	-	44	-	-	0	-	-	44
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 47	0	1.8	1.8	2.66	3	4.9	3.8	4.9	6.44	7.7	38.4	5.2	0.76	1.07	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	9 / 47	19	0.1	0.1	0.266	0.3	0.45	0.4	0.6	0.7	0.7	0.7	0.18	0.026	0.40	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	14 / 37	38	0.01	0.01	0.02	0.02	0.054	0.05	0.06	0.1	0.1	0.21	0.041	0.0067	0.76	-	2	0	-	0	0	-	2	0

Appendix B-3-4-b: Water chemistry summary for Point Lake Outlet during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

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Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	0 / 15	0	0.5	0.5	0.68	0.9	1.4	1.2	1.65	2	2	4.5	0.96	0.25	0.67	-	-	-	-	-	-	-	-	-
Hardness, Total (as CaCO3)	1 / 44	2	0.5	3.7	4.218	4.7	6.1	5.05	6.8275	10.86	9.84	12	2.8	0.43	0.47	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH (pH units)	0 / 24	0	6.3	6.3	6.456	6.665	6.9	6.755	6.98	7.619	7.43	8.4	0.49	0.1	0.07	-	0	-	-	0	-	-	0	-
Silica, Reactive	2 / 29	7	0.1	0.1	0.14	0.2	0.33	0.3	0.34	0.628	0.49	0.68	0.17	0.032	0.52	-	-	-	-	-	-	-	-	-
Silica	0 / 10	0	0.29	0.31	0.308	0.32	0.33	0.33	0.3375	0.342	0.36	0.36	0.019	0.006	0.06	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	6 / 47	13	0.3	0.3	1	1.5	2.2	2	3	3.4	5	5	1.1	0.15	0.48	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	1 / 6	17	0.005	0.005	0.0055	0.00725	0.043	0.0125	0.03425	0.1105	0.041	0.18	0.068	0.028	1.60	-	-	-	-	-	-	-	-	-
Ammonia, Total	12 / 14	86	0.005	-	-	-	0.014	-	-	-	-	0.05	0.016	0.0043	1.14	-	2	-	-	2	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	2 / 13	15	0.008	0.05	0.0524	0.07	0.084	0.081	0.087	0.1182	0.095	0.2	0.044	0.012	0.52	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	0 / 30	0	0.05	0.05	0.05	0.06	0.077	0.0665	0.07	0.0809	0.08	0.34	0.052	0.0096	0.68	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	0 / 12	0	0.05	0.05	0.0602	0.068	0.082	0.081	0.09625	0.1126	0.117	0.117	0.021	0.0061	0.26	-	-	-	-	-	-	-	-	-
Nitrite	12 / 13	92	0.001	-	-	-	0.019	-	-	-	-	0.114	0.031	0.0086	1.61	-	1	0	-	0	0	-	1	0
Nitrogen, Particulate	6 / 26	23	0.008	0.008	0.01	0.01	0.019	0.0115	0.029	0.035	0.05	0.06	0.014	0.0027	0.73	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	0 / 27	0	0.13	0.13	0.14	0.149	0.18	0.16	0.2155	0.2464	0.314	0.34	0.055	0.011	0.30	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	4 / 4	100	0.1	-	-	-	0.4	-	-	-	-	0.5	0.2	0.1	0.50	-	-	-	-	-	-	-	-	-
Nitrogen, Total	0 / 21	0	0.14	0.14	0.15	0.16	0.19	0.18	0.2	0.25	0.25	0.37	0.056	0.012	0.29	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	1 / 1	100	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	10 / 14	71	0.001	-	-	-	0.0026	-	-	-	-	0.01	0.0028	0.00074	1.05	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	0 / 1	0	0.009	-	-	-	0.009	-	-	-	-	0.009	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	14 / 20	70	0.004	-	-	-	0.014	-	-	-	-	0.096	0.024	0.0053	1.73	-	-	-	-	-	-	-	-	-
Phosphorous	11 / 36	31	0.002	0.002	0.003	0.00375	0.012	0.006	0.01	0.0235	0.016	0.1	0.02	0.0033	1.62	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	0 / 24	0	2.4	2.4	3.7	3.85	4.5	4.3	4.925	5.38	6.1	7.9	1.1	0.22	0.24	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	0 / 3	0	1.1	-	-	-	10	-	-	-	-	19	9	5.2	0.89	-	-	-	-	-	-	-	-	-

Appendix B-3-4-b: Water chemistry summary for Point Lake Outlet during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

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																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Carbon, Dissolved Organic	0 / 40	0	1	1	2	2.2	2.7	2.4	3.35	4.01	4.6	6	0.94	0.15	0.34	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Particulate Organic	0 / 26	0	0.03	0.03	0.0685	0.08	0.13	0.103	0.16	0.232	0.26	0.32	0.075	0.015	0.57	-	-	-	-	-	-	-	-	-
Carbon, Total Inorganic	0 / 2	0	1	-	-	-	1.5	-	-	-	-	2	0.71	0.5	0.47	-	-	-	-	-	-	-	-	-
Carbon, Total Organic	1 / 34	3	1.13	1.13	2.18	2.3225	3	2.7	3.525	4.242	4.8	4.8	0.89	0.15	0.30	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Free CO2 (calcd)	0 / 16	0	0.03	0.03	0.23	0.4875	1.8	1.27	2.545	3.915	4.74	5.95	1.7	0.43	0.96	-	-	-	-	-	-	-	-	-
Cyanide																								
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide, Total	8 / 14	57	0.001	-	-	-	0.0011	-	-	-	-	0.002	0.00027	0.000071	0.25	-	0	0	-	0	0	-	0	0
Cyanide, wad	0 / 1	0	0.002	-	-	-	0.002	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																								
Aluminum	0 / 4	0	0.0114	-	-	-	0.013	-	-	-	-	0.0167	0.0024	0.0012	0.19	-	-	-	-	-	-	-	-	-
Antimony	3 / 4	75	0.0001	-	-	-	0.00015	-	-	-	-	0.0003	0.0001	0.00005	0.67	-	-	-	-	-	-	-	-	-
Arsenic	11 / 32	34	0.0001	0.0001	0.0001	0.0001	0.00051	0.00015	0.0005	0.0005	0.0005	0.008	0.0014	0.00025	2.76	-	-	-	-	-	-	-	-	-
Barium	0 / 4	0	0.002	-	-	-	0.0026	-	-	-	-	0.0033	0.00059	0.00029	0.22	-	-	-	-	-	-	-	-	-
Beryllium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	9 / 16	56	0.02	-	-	-	0.023	-	-	-	-	0.04	0.0058	0.0014	0.26	-	-	-	-	-	-	-	-	-
Cadmium	4 / 4	100	0.00005	-	-	-	0.00005	-	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	3 / 47	6	0.1	0.5	0.942	1.055	1.5	1.2	1.675	2.6	2.6	4.2	0.78	0.11	0.54	-	-	-	-	-	-	-	-	-
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	2 / 4	50	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Copper	2 / 5	40	0.0002	0.0002	0.0004	0.0007	0.00088	0.001	0.0011	0.00128	0.0014	0.0014	0.00045	0.0002	0.52	-	-	-	-	-	-	-	-	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	5 / 5	100	0.001	-	-	-	0.022	-	-	-	-	0.05	0.025	0.011	1.15	-	-	-	-	-	-	-	-	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	2 / 5	40	0.0001	0.0001	0.0001	0.0001	0.0009	0.0001	0.0002	0.00248	0.0002	0.004	0.0017	0.00078	1.93	-	-	-	-	-	-	-	-	-
Lithium	0 / 4	0	0.0007	-	-	-	0.0011	-	-	-	-	0.0017	0.00042	0.00021	0.37	-	-	-	-	-	-	-	-	-
Magnesium	2 / 41	5	0.1	0.4	0.47	0.49	0.65	0.53	0.74	1.2	1	1.39	0.29	0.045	0.44	-	-	-	-	-	-	-	-	-
Manganese	1 / 5	20	0.0003	0.0003	0.0003	0.0003	0.0023	0.0003	0.0004	0.00616	0.0004	0.01	0.0043	0.0019	1.91	-	-	-	-	-	-	-	-	-
Mercury	4 / 4	100	0.00001	-	-	-	0.000013	-	-	-	-	0.00002	0.000005	0.0000025	0.40	-	-	-	-	-	-	-	-	-

Appendix B-3-4-b: Water chemistry summary for Point Lake Outlet during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	0 / 4	0	0.0008	-	-	-	0.0011	-	-	-	-	0.0015	0.00031	0.00015	0.29	-	-	-	-	-	-	-	-	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	18 / 30	60	0.002	-	-	-	0.0039	-	-	-	-	0.01	0.0023	0.00042	0.59	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 47	0	0.2	0.2	0.4	0.42	0.51	0.48	0.58	0.7	0.81	0.9	0.14	0.021	0.28	-	-	-	-	-	-	-	-	-
Rubidium	0 / 4	0	0.0015	-	-	-	0.0018	-	-	-	-	0.0027	0.00059	0.00029	0.32	-	-	-	-	-	-	-	-	-
Selenium	25 / 30	83	0.0001	-	-	-	0.00026	-	-	-	-	0.0007	0.00019	0.000035	0.75	-	-	-	-	-	-	-	-	-
Silver	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	1 / 47	2	0.1	0.4	0.4	0.495	0.58	0.55	0.645	0.788	0.8	1.1	0.17	0.025	0.30	-	-	-	-	-	-	-	-	-
Strontium	0 / 4	0	0.007	-	-	-	0.0084	-	-	-	-	0.0124	0.0027	0.0013	0.31	-	-	-	-	-	-	-	-	-
Thallium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	3 / 4	75	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	3 / 4	75	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	3 / 4	75	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	1 / 5	20	0.0004	0.0014	0.0008	0.0014	0.0017	0.0018	0.002	0.0026	0.002	0.003	0.00094	0.00042	0.55	-	-	-	-	-	-	-	-	-
Extractable Metals																								
Aluminum	9 / 9	100	0.05	-	-	-	0.067	-	-	-	-	0.1	0.025	0.0083	0.38	-	-	-	-	-	-	-	-	-
Barium	7 / 11	64	0.002	-	-	-	0.033	-	-	-	-	0.1	0.039	0.012	1.18	-	-	-	-	-	-	-	-	-
Beryllium	6 / 6	100	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Boron	1 / 3	33	0.01	-	-	-	0.023	-	-	-	-	0.05	0.023	0.013	0.99	-	-	-	-	-	-	-	-	-
Cadmium	11 / 11	100	0.001	-	-	-	0.0032	-	-	-	-	0.005	0.0021	0.00063	0.66	-	-	-	-	-	-	-	-	-
Calcium (unfiltered)	1 / 3	33	1	-	-	-	1	-	-	-	-	1.1	0.058	0.033	0.06	-	-	-	-	-	-	-	-	-
Chromium	10 / 10	100	0.005	-	-	-	0.007	-	-	-	-	0.01	0.0026	0.00082	0.37	-	-	-	-	-	-	-	-	-
Cobalt	10 / 12	83	0.001	-	-	-	0.0035	-	-	-	-	0.006	0.0019	0.00056	0.55	-	-	-	-	-	-	-	-	-
Copper	6 / 12	50	0.001	0.001	0.001	0.00175	0.0035	0.005	0.005	0.005	0.005	0.005	0.0019	0.00054	0.54	-	-	-	-	-	-	-	-	-
Iron	14 / 29	48	0.005	0.005	0.0066	0.014	0.036	0.033	0.04	0.06	0.05	0.15	0.036	0.0067	1.00	-	-	-	-	-	-	-	-	-
Lead	11 / 11	100	0.001	-	-	-	0.013	-	-	-	-	0.02	0.0086	0.0026	0.69	-	-	-	-	-	-	-	-	-
Lithium	7 / 7	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	3 / 3	100	1	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	24 / 29	83	0.002	-	-	-	0.008	-	-	-	-	0.05	0.0097	0.0018	1.21	-	-	-	-	-	-	-	-	-
Molybdenum	9 / 10	90	0.005	-	-	-	0.051	-	-	-	-	0.28	0.087	0.027	1.70	-	-	-	-	-	-	-	-	-
Nickel	10 / 10	100	0.001	-	-	-	0.0069	-	-	-	-	0.01	0.0041	0.0013	0.60	-	-	-	-	-	-	-	-	-
Potassium	3 / 3	100	2	-	-	-	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	3 / 3	100	2	-	-	-	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	1 / 7	14	0.004	0.004	0.0046	0.005	0.0073	0.005	0.006	0.0116	0.006	0.02	0.0056	0.0021	0.78	-	-	-	-	-	-	-	-	-

Appendix B-3-4-b: Water chemistry summary for Point Lake Outlet during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Uranium	12 / 14	86	0.000077	-	-	-	0.00016	-	-	-	-	0.0003	0.000095	0.000025	0.61	-	0	0	-	0	0	-	0	0
Vanadium	25 / 32	78	0.00003	-	-	-	0.00037	-	-	-	-	0.001	0.00031	0.000054	0.83	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	5 / 33	15	0.0003	0.0003	0.00054	0.0009	0.0043	0.0021	0.0051	0.0108	0.011	0.0197	0.0048	0.00084	1.11	-	0	-	-	0	-	-	0	-

Appendix B-3-4-c: Water chemistry summary for Point Lake Outlet during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Physical Tests																								
Flow	0 / 25	0	24.3	24.3	33.7	36.2	91	45.8	121	176.4	235	378	83	17	0.91	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	3 / 7	43	5	5	5	5	5.7	5	5	7	5	10	1.9	0.71	0.33	-	-	-	-	-	-	-	-	-
True Colour (relative units)	6 / 17	35	5	5	5	5	7.1	5	5	14	5	21	5.2	1.3	0.73	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	1 / 3	33	10	-	-	-	17	-	-	-	-	27.8	9.5	5.5	0.56	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	0 / 6	0	14.8	14.8	15.15	15.5	16	15.65	16.4	17.3	16.6	18	1.1	0.46	0.07	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 24	0	12	12	12.06	13.4	15	14	14.75	17.4	16	28	3.3	0.67	0.22	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	0 / 6	0	13.76	13.76	13.96	14.4375	15	15.4	15.6275	16.055	16.45	16.45	1	0.41	0.07	-	-	-	-	-	-	-	-	-
TDS calc	0 / 8	0	5.6	5.6	5.81	5.975	7.6	7.5	8.25	9.6	11	11	1.8	0.65	0.24	-	-	-	-	-	-	-	-	-
TDS	1 / 10	10	10	10	10	13.25	25	18.5	28.75	37.8	33	81	21	6.7	0.84	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	0 / 17	0	0.5	0.5	0.5	1	2.3	2	3.3	4.8	6	6	1.8	0.44	0.78	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	12 / 17	71	1	-	-	-	3.2	-	-	-	-	12	2.7	0.66	0.84	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	1 / 22	5	0.1	0.1	0.127	0.225	0.61	0.35	0.4	1.54	0.4	3	0.71	0.15	1.18	-	-	20	-	-	0	-	-	20
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 21	0	1.4	2.5	2.5	3	3.6	3.3	3.7	5.1	4.5	7.2	1.3	0.29	0.38	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	1 / 21	5	0.1	0.27	0.3	0.33	0.46	0.4	0.41	0.6	0.5	1.6	0.3	0.066	0.66	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	3 / 19	16	0.01	0.01	0.018	0.02	0.03	0.02	0.04	0.05	0.05	0.07	0.016	0.0037	0.53	-	0	0	-	0	0	-	0	0

Appendix B-3-4-c: Water chemistry summary for Point Lake Outlet during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	0 / 4	0	0.3	-	-	-	1.4	-	-	-	-	2.3	0.82	0.41	0.61	-	-	-	-	-	-	-	-	-
Hardness, Total (as CaCO3)	0 / 14	0	2.4	2.4	3.235	4.025	5.4	4.6	5.4	6.196	6.28	17.8	3.7	0.99	0.68	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH (pH units)	0 / 14	0	5.75	6.3	6.414	6.72	6.9	6.91	7.1875	7.333	7.4	7.4	0.44	0.12	0.06	-	0	-	-	0	-	-	0	-
Silica, Reactive	1 / 11	9	0.1	0.2	0.1	0.23	0.45	0.3	0.31	0.59	0.32	2.25	0.61	0.18	1.34	-	-	-	-	-	-	-	-	-
Silica	0 / 10	0	0.28	0.28	0.298	0.3175	0.37	0.35	0.4025	0.482	0.5	0.5	0.074	0.023	0.20	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	2 / 21	10	0.8	1	1	1.6	3.3	1.8	2	2.5	2.5	33	6.9	1.5	2.08	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	0 / 9	0	0.004	0.004	0.0048	0.005	0.0093	0.008	0.012	0.0146	0.021	0.021	0.0054	0.0018	0.57	-	-	-	-	-	-	-	-	-
Ammonia, Total	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	0	-	-	0	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	0 / 1	0	0.086	-	-	-	0.086	-	-	-	-	0.086	-	-	-	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	0 / 20	0	0.03	0.03	0.0372	0.05	0.061	0.0625	0.07	0.0767	0.083	0.118	0.02	0.0044	0.32	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	0 / 1	0	0.086	-	-	-	0.086	-	-	-	-	0.086	-	-	-	-	-	-	-	-	-	-	-	-
Nitrite	1 / 1	100	0.009	-	-	-	0.009	-	-	-	-	0.009	-	-	-	-	0	0	-	0	0	-	0	0
Nitrogen, Particulate	2 / 16	13	0.01	0.01	0.01	0.011	0.021	0.0195	0.0265	0.034	0.04	0.04	0.0098	0.0024	0.48	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	0 / 16	0	0.136	0.136	0.139	0.14375	0.21	0.153	0.2145	0.3515	0.238	0.567	0.13	0.031	0.60	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	1 / 3	33	0.45	-	-	-	0.53	-	-	-	-	0.64	0.098	0.057	0.19	-	-	-	-	-	-	-	-	-
Nitrogen, Total	0 / 7	0	0.15	0.15	0.15	0.15	0.16	0.15	0.165	0.178	0.17	0.19	0.015	0.0058	0.10	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	1 / 1	100	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	2 / 2	100	0.002	-	-	-	0.002	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	9 / 10	90	0.004	-	-	-	0.0056	-	-	-	-	0.012	0.0025	0.00078	0.44	-	-	-	-	-	-	-	-	-
Phosphorous	1 / 16	6	0.003	0.003	0.004	0.00575	0.011	0.0085	0.015	0.017	0.018	0.045	0.01	0.0025	0.90	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	0 / 8	0	3.7	3.7	3.77	3.95	5.1	4.4	5.625	6.84	6	8.8	1.7	0.61	0.34	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	0 / 4	0	0.9	-	-	-	1.2	-	-	-	-	1.6	0.29	0.14	0.23	-	-	-	-	-	-	-	-	-

Appendix B-3-4-c: Water chemistry summary for Point Lake Outlet during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-3-4-c: Water chemistry summary for Point Lake Outlet during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nickel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorous, Total	5 / 15	33	0.002	0.002	0.003	0.003	0.0047	0.004	0.005	0.0072	0.006	0.013	0.0027	0.00071	0.59	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Potassium	0 / 21	0	0.3	0.3	0.4	0.41	0.47	0.45	0.5	0.63	0.63	0.77	0.11	0.025	0.24	-	-	-	-	-	-	-	-	-
Rubidium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Selenium	15 / 15	100	0.0001	-	-	-	0.00015	-	-	-	-	0.0005	0.00014	0.000036	0.92	-	-	-	-	-	-	-	-	-
Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sodium	0 / 21	0	0.4	0.4	0.41	0.44	0.49	0.5	0.53	0.6	0.62	0.62	0.07	0.015	0.14	-	-	-	-	-	-	-	-	-
Strontium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Thallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Uranium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Vanadium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Zinc	0 / 1	0	0.012	-	-	-	0.012	-	-	-	-	0.012	-	-	-	-	-	-	-	-	-	-	-	
Extractable Metals																								
Aluminum	12 / 12	100	0.05	-	-	-	0.063	-	-	-	-	0.1	0.023	0.0065	0.36	-	-	-	-	-	-	-	-	-
Barium	8 / 13	62	0.002	-	-	-	0.032	-	-	-	-	0.1	0.047	0.013	1.46	-	-	-	-	-	-	-	-	-
Beryllium	9 / 9	100	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	
Boron	6 / 9	67	0.01	-	-	-	0.019	-	-	-	-	0.07	0.02	0.0068	1.07	-	-	-	-	-	-	-	-	-
Cadmium	10 / 12	83	0.001	-	-	-	0.004	-	-	-	-	0.005	0.0018	0.00052	0.45	-	-	-	-	-	-	-	-	-
Calcium (unfiltered)	0 / 9	0	1	1	1	1	1	1	1.1	1.1	1.1	1.1	0.05	0.017	0.05	-	-	-	-	-	-	-	-	-
Chromium	10 / 10	100	0.005	-	-	-	0.0055	-	-	-	-	0.01	0.0016	0.0005	0.29	-	-	-	-	-	-	-	-	-
Cobalt	12 / 12	100	0.001	-	-	-	0.004	-	-	-	-	0.005	0.0018	0.00052	0.45	-	-	-	-	-	-	-	-	-
Copper	10 / 12	83	0.001	-	-	-	0.0046	-	-	-	-	0.007	0.0016	0.00045	0.34	-	-	-	-	-	-	-	-	-
Iron	9 / 17	53	0.005	-	-	-	0.025	-	-	-	-	0.09	0.022	0.0054	0.89	-	-	-	-	-	-	-	-	-
Lead	11 / 12	92	0.005	-	-	-	0.018	-	-	-	-	0.04	0.0096	0.0028	0.54	-	-	-	-	-	-	-	-	-
Lithium	8 / 9	89	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	
Magnesium	9 / 9	100	1	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	
Manganese	11 / 17	65	0.002	-	-	-	0.0062	-	-	-	-	0.02	0.0062	0.0015	0.99	-	-	-	-	-	-	-	-	-
Molybdenum	10 / 10	100	0.005	-	-	-	0.0095	-	-	-	-	0.05	0.014	0.0045	1.50	-	-	-	-	-	-	-	-	-
Nickel	12 / 12	100	0.005	-	-	-	0.0088	-	-	-	-	0.01	0.0023	0.00065	0.26	-	-	-	-	-	-	-	-	-
Potassium	9 / 9	100	2	-	-	-	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	
Sodium	9 / 9	100	2	-	-	-	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	
Strontium	0 / 9	0	0.004	0.005	0.004	0.005	0.0051	0.005	0.005	0.0056	0.005	0.008	0.0012	0.00039	0.23	-	-	-	-	-	-	-	-	-

Appendix B-3-4-c: Water chemistry summary for Point Lake Outlet during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ
Vanadium	9 / 9	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	
Zinc	7 / 12	58	0.001	-	-	-	0.005	-	-	-	-	0.008	0.0017	0.00048	0.33	-	-	-	-	-	-	-	-	
Total Metals																								
Aluminum	0 / 10	0	0.009	0.009	0.0144	0.015075	0.019	0.017	0.02225	0.026	0.025	0.035	0.0072	0.0023	0.38	-	4	-	-	0	-	-	4	-
Antimony	0 / 1	0	0.000743	-	-	-	0.00074	-	-	-	-	0.000743	-	-	-	-	-	0	-	-	0	-	-	0
Arsenic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Barium	3 / 13	23	0.0016	0.0016	0.0018	0.002	0.022	0.002	0.00239	0.08	0.00239	0.1	0.037	0.01	1.74	-	-	0	-	-	0	-	-	0
Beryllium	10 / 10	100	0.00002	-	-	-	0.000047	-	-	-	-	0.00005	0.0000095	0.000003	0.20	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	10 / 14	71	0.00003	-	-	-	0.00026	-	-	-	-	0.001	0.00033	0.000089	1.28	13	13	0	10	10	0	3	3	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	1 / 1	100	0.000008	-	-	-	0.000008	-	-	-	-	0.000008	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	9 / 10	90	0.0001	-	-	-	0.00024	-	-	-	-	0.0007	0.00016	0.000052	0.69	-	0	0	-	0	0	-	0	0
Cobalt	9 / 14	64	0.0001	-	-	-	0.00029	-	-	-	-	0.001	0.00033	0.000089	1.17	-	-	-	-	-	-	-	-	-
Copper	0 / 14	0	0.0006	0.0006	0.00073	0.0008	0.0017	0.0009	0.0011675	0.002	0.00119	0.01	0.0024	0.00065	1.43	-	1	-	-	0	-	-	1	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	1 / 10	10	0.0027	0.0027	0.00549	0.0092	0.016	0.0142	0.026	0.02937	0.03	0.03	0.01	0.0032	0.62	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	9 / 14	64	0.0002	-	-	-	0.00045	-	-	-	-	0.001	0.0003	0.00008	0.67	-	0	0	-	0	0	-	0	0
Lithium	0 / 10	0	0.0004	0.0004	0.00049	0.0006	0.00075	0.0007	0.0009	0.00094	0.0013	0.0013	0.00026	0.000082	0.35	-	-	-	-	-	-	-	-	-
Magnesium	0 / 9	0	0.41	0.46	0.45	0.47	0.48	0.48	0.48	0.51	0.48	0.55	0.037	0.012	0.08	-	-	-	-	-	-	-	-	-
Manganese	0 / 10	0	0.0002	0.0002	0.00047	0.00055	0.0011	0.000925	0.0013	0.00194	0.0023	0.0023	0.00066	0.00021	0.62	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Molybdenum	8 / 10	80	0.00002	-	-	-	0.000092	-	-	-	-	0.0001	0.000025	0.000008	0.27	-	0	-	-	0	-	-	0	-
Nickel	3 / 14	21	0.0002	0.0002	0.00053	0.0006	0.00073	0.0007	0.0009275	0.001	0.001	0.001	0.00023	0.000061	0.31	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 1	0	0.00161	-	-	-	0.0016	-	-	-	-	0.00161	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	1 / 1	100	0.0003	-	-	-	0.0003	-	-	-	-	0.0003	-	-	-	-	0	0	-	0	0	-	0	0
Silver	7 / 7	100	0.000006	-	-	-	0.000087	-	-	-	-	0.0001	0.000036	0.000013	0.41	-	0	-	-	0	-	-	0	-
Sodium	0 / 9	0	0.17	0.27	0.21	0.27	0.31	0.29	0.3	0.366	0.3	0.63	0.13	0.043	0.42	-	-	-	-	-	-	-	-	-
Strontium	0 / 10	0	0.0047	0.0051	0.00479	0.0051	0.0053	0.0051	0.005275	0.00569	0.0055	0.0074	0.00076	0.00024	0.14	-	-	-	-	-	-	-	-	-
Thallium	1 / 1	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	1 / 1	100	0.00002	-	-	-	0.00002	-	-	-	-	0.00002	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-4-c: Water chemistry summary for Point Lake Outlet during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Uranium	0 / 1	0	0.000073	-	-	-	0.000073	-	-	-	-	0.000073	-	-	-	-	0	0	-	0	0	-	0	0
Vanadium	10 / 13	77	0.0001	-	-	-	0.00019	-	-	-	-	0.0005	0.00018	0.000049	0.91	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	0 / 14	0	0.0005	0.0005	0.00076	0.001025	0.0029	0.0021	0.0036	0.00564	0.006	0.0099	0.0026	0.0007	0.91	-	0	-	-	0	-	-	0	-

Appendix B-3-4-d: Water chemistry summary for Point Lake Outlet during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Physical Tests																								
Flow	0 / 71	0	84.7	84.7	115	140	180	166	212.5	267	302	433	64	7.6	0.35	-	-	-	-	-	-	-	-	-
Chlorophyll a	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	4 / 17	24	5	5	5	5	8.2	5	10	10	10	40	8.5	2.1	1.03	-	-	-	-	-	-	-	-	-
True Colour (relative units)	20 / 35	57	5	-	-	-	7.8	-	-	-	-	28	5.7	0.96	0.73	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	2 / 4	50	10	-	-	-	14	-	-	-	-	22.8	6.1	3	0.44	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	0 / 15	0	12.4	15.2	13.88	16.15	17	16.9	18	18.4	18.4	21	2.1	0.55	0.13	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 80	0	7.1	10	11.27	12.775	14	14.1	15	16.32	18	20.6	2.2	0.25	0.16	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	0 / 15	0	12.86	13.9	13.98	14.485	15	14.58	15.195	15.584	16.07	16.07	0.78	0.2	0.05	-	-	-	-	-	-	-	-	-
TDS calc	0 / 22	0	4.8	4.8	5.41	5.925	6.8	7	7	7.9	8	12	1.4	0.31	0.21	-	-	-	-	-	-	-	-	-
TDS	15 / 44	34	3	3	10	10	14	12	18	23.4	26	36	6.1	0.92	0.42	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	0 / 35	0	1	3	4.24	5.95	7.7	7	8.45	10.6	11	21.3	3.5	0.59	0.45	-	-	1	-	-	0	-	-	1
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	54 / 66	82	1	-	-	-	2.7	-	-	-	-	11.2	1.6	0.2	0.60	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 78	0	0.1	0.1	0.16	0.2	0.6	0.275	0.46	1.45	0.8	5	0.94	0.11	1.56	-	-	77	-	-	0	-	-	77
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	4 / 78	5	1.1	2	2.64	3.2	4.5	3.6	4.175	5.43	5.6	47.3	5.2	0.59	1.16	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	28 / 72	39	0.1	0.1	0.2	0.3	0.52	0.415	0.7	0.7	0.9	2.4	0.38	0.045	0.73	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	34 / 59	58	0.01	-	-	-	0.07	-	-	-	-	1	0.13	0.017	1.81	-	1	0	-	1	0	-	0	0

Appendix B-3-4-d: Water chemistry summary for Point Lake Outlet during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	0 / 16	0	0.1	0.1	0.1	0.275	1.1	1.1	1.475	2.05	2.9	2.9	0.84	0.21	0.79	-	-	-	-	-	-	-	-	-
Hardness, Total (as CaCO3)	2 / 69	3	0.5	2.3	3.962	4.6	6.3	5.5	7	10.3	10.4	25.5	3.4	0.41	0.54	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH (pH units)	0 / 54	0	6.2	6.39	6.61	6.67	6.9	6.8	6.9225	7.328	7.3	8.58	0.37	0.051	0.05	-	0	-	-	0	-	-	0	-
Silica, Reactive	1 / 37	3	0.1	0.1	0.2	0.2	0.3	0.3	0.34	0.4334	0.48	0.48	0.095	0.016	0.32	-	-	-	-	-	-	-	-	-
Silica	0 / 11	0	0.16	0.16	0.23	0.265	0.44	0.32	0.365	0.45	0.45	1.76	0.45	0.13	1.02	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	5 / 78	6	0.9	0.9	1	1.4	1.8	2	2	2.03	2.8	5	0.6	0.068	0.34	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	1 / 9	11	0.002	0.002	0.0076	0.01	0.017	0.014	0.021	0.0284	0.024	0.046	0.013	0.0042	0.75	-	-	-	-	-	-	-	-	-
Ammonia, Total	33 / 36	92	0.005	-	-	-	0.0072	-	-	-	-	0.021	0.0033	0.00056	0.47	-	0	-	-	0	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	0 / 35	0	0.02	0.02	0.03	0.03	0.049	0.04	0.05	0.0618	0.063	0.32	0.049	0.0082	0.99	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	1 / 41	2	0.019	0.019	0.03	0.037	0.046	0.05	0.05	0.06	0.063	0.09	0.014	0.0022	0.31	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	2 / 34	6	0.01	0.01	0.03	0.032	0.071	0.042	0.0745	0.157	0.12	0.32	0.066	0.011	0.93	-	-	-	-	-	-	-	-	-
Nitrite	32 / 36	89	0.001	-	-	-	0.019	-	-	-	-	0.12	0.037	0.0061	1.94	-	4	0	-	0	0	-	4	0
Nitrogen, Particulate	11 / 32	34	0.006	0.006	0.01	0.01	0.026	0.02	0.03	0.0397	0.043	0.227	0.038	0.0068	1.48	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	1 / 33	3	0.008	0.12	0.1108	0.13	0.14	0.13	0.14	0.1732	0.15	0.452	0.065	0.011	0.46	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	4 / 6	67	0.05	-	-	-	0.32	-	-	-	-	0.5	0.2	0.082	0.62	-	-	-	-	-	-	-	-	-
Nitrogen, Total	0 / 20	0	0.11	0.11	0.139	0.14	0.16	0.145	0.16	0.172	0.17	0.31	0.04	0.0089	0.26	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	4 / 4	100	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	34 / 38	89	0.001	-	-	-	0.0016	-	-	-	-	0.002	0.0005	0.00008	0.31	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	1 / 1	100	0.003	-	-	-	0.003	-	-	-	-	0.003	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	14 / 21	67	0.001	-	-	-	0.0048	-	-	-	-	0.01	0.0021	0.00046	0.44	-	-	-	-	-	-	-	-	-
Phosphorous	37 / 67	55	0.002	-	-	-	0.0071	-	-	-	-	0.061	0.0079	0.00097	1.12	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	0 / 23	0	2.4	2.4	2.82	3.55	4	3.9	4.7	5.08	5.5	5.5	0.86	0.18	0.21	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	2 / 4	50	1	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-4-d: Water chemistry summary for Point Lake Outlet during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Carbon, Dissolved Organic	1 / 67	1	1	1.4	1.96	2.1	2.4	2.4	2.7	2.9	3.1	4.1	0.5	0.061	0.21	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Particulate Organic	0 / 32	0	0.059	0.059	0.0764	0.11225	0.22	0.145	0.17	0.219	0.22	2.58	0.44	0.077	1.95	-	-	-	-	-	-	-	-	-
Carbon, Total Inorganic	1 / 5	20	0.5	1	0.7	1	0.9	1	1	1	1	1	0.22	0.1	0.25	-	-	-	-	-	-	-	-	-
Carbon, Total Organic	0 / 59	0	1.1	2	2.158	2.3	2.7	2.6	2.8	3.14	3.3	5	0.65	0.084	0.24	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Free CO2 (calcd)	0 / 16	0	0.02	0.02	0.145	0.2925	0.94	0.81	1.14	1.68	1.7	4.2	1	0.26	1.09	-	-	-	-	-	-	-	-	-
Cyanide																								
Cyanide Thiocyanate	0 / 1	0	0.3	-	-	-	0.3	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	9 / 17	53	0.001	-	-	-	0.0011	-	-	-	-	0.002	0.00024	0.000059	0.23	-	0	0	-	0	0	-	0	0
Cyanide, wad	2 / 2	100	0.002	-	-	-	0.002	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																								
Aluminum	0 / 19	0	0.0058	0.0058	0.0071	0.0078	0.0097	0.0101	0.0109	0.0119	0.0119	0.0162	0.0024	0.00056	0.25	-	-	-	-	-	-	-	-	-
Antimony	16 / 19	84	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000032	0.0000072	0.29	-	-	-	-	-	-	-	-	-
Arsenic	33 / 52	63	0.0001	-	-	-	0.00033	-	-	-	-	0.005	0.00068	0.000094	2.06	-	-	-	-	-	-	-	-	-
Barium	0 / 19	0	0.0016	0.0016	0.00168	0.0017	0.0019	0.0018	0.0019	0.00214	0.0021	0.003	0.00032	0.000074	0.17	-	-	-	-	-	-	-	-	-
Beryllium	19 / 19	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	1 / 1	100	0.0002	-	-	-	0.0002	-	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	-	-	-
Boron	16 / 20	80	0.0015	-	-	-	0.022	-	-	-	-	0.07	0.012	0.0027	0.56	-	-	-	-	-	-	-	-	-
Cadmium	19 / 19	100	0.00005	-	-	-	0.00005	-	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	1 / 78	1	0.5	0.5	0.907	1	1.5	1.25	1.6	2.5	2.4	7.1	0.91	0.1	0.61	-	-	-	-	-	-	-	-	-
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	19 / 19	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	16 / 19	84	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000023	0.0000053	0.22	-	-	-	-	-	-	-	-	-
Cobalt	15 / 17	88	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Copper	0 / 22	0	0.0002	0.0002	0.00041	0.0005	0.0013	0.0008	0.000975	0.00254	0.0011	0.0096	0.002	0.00042	1.49	-	-	-	-	-	-	-	-	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	19 / 22	86	0.005	-	-	-	0.022	-	-	-	-	0.09	0.025	0.0054	1.14	-	-	-	-	-	-	-	-	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	19 / 22	86	0.0001	-	-	-	0.00026	-	-	-	-	0.001	0.00032	0.000068	1.21	-	-	-	-	-	-	-	-	-
Lithium	1 / 19	5	0.0002	0.0005	0.0005	0.0007	0.00092	0.0009	0.0009	0.00092	0.001	0.0035	0.00066	0.00015	0.71	-	-	-	-	-	-	-	-	-
Magnesium	0 / 68	0	0.2	0.2	0.43	0.5	0.65	0.6	0.8	1	1.1	1.9	0.26	0.032	0.40	-	-	-	-	-	-	-	-	-
Manganese	3 / 22	14	0.0001	0.0001	0.0001	0.000225	0.0013	0.00035	0.0005	0.00127	0.0006	0.01	0.0028	0.00061	2.24	-	-	-	-	-	-	-	-	-
Mercury	18 / 18	100	0.00001	-	-	-	0.000011	-	-	-	-	0.00002	0.0000024	0.00000056	0.22	-	-	-	-	-	-	-	-	-

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Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ
Vanadium	13 / 13	100	0.001	-	-	-	0.0072	-	-	-	-	0.05	0.013	0.0036	1.80	-	-	-	-	-	-	-	-	-
Zinc	6 / 18	33	0.001	0.001	0.0017	0.00325	0.013	0.005	0.0065	0.0164	0.011	0.13	0.03	0.007	2.30	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	3 / 44	7	0.0089	0.0089	0.00983	0.01115	0.017	0.01295	0.01455	0.03	0.0191	0.079	0.013	0.002	0.78	-	2	-	-	0	-	-	2	-
Antimony	28 / 36	78	0.0001	-	-	-	0.00019	-	-	-	-	0.000872	0.00019	0.000032	1.03	-	-	0	-	-	0	-	-	0
Arsenic	24 / 31	77	0.0002	-	-	-	0.0002	-	-	-	-	0.0003	0.000018	0.0000032	0.09	-	0	0	-	0	0	-	0	0
Barium	13 / 57	23	0.0015	0.0015	0.001788	0.0018	0.022	0.002	0.0028	0.08	0.0034	0.1	0.037	0.0048	1.70	-	-	0	-	-	0	-	-	0
Beryllium	44 / 44	100	0.00002	-	-	-	0.00022	-	-	-	-	0.002	0.00049	0.000074	2.23	-	-	-	-	-	-	-	-	-
Bismuth	2 / 2	100	0.0004	-	-	-	0.0004	-	-	-	-	0.0004	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	51 / 57	89	0.00002	-	-	-	0.00017	-	-	-	-	0.001	0.00027	0.000036	1.58	55	55	0	49	49	0	6	6	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	36 / 36	100	0.000008	-	-	-	0.00012	-	-	-	-	0.0004	0.000086	0.000014	0.70	-	-	-	-	-	-	-	-	-
Chromium	34 / 44	77	0.0001	-	-	-	0.00033	-	-	-	-	0.003	0.00073	0.00011	2.23	-	0	0	-	0	0	-	0	0
Cobalt	50 / 57	88	0.0001	-	-	-	0.00029	-	-	-	-	0.001	0.00033	0.000044	1.15	-	-	-	-	-	-	-	-	-
Copper	5 / 57	9	0.0003	0.0003	0.0005	0.0007	0.00098	0.0008	0.001	0.002	0.0013	0.0028	0.00053	0.00007	0.54	-	3	-	-	0	-	-	3	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	26 / 44	59	0.005	-	-	-	0.022	-	-	-	-	0.132	0.028	0.0042	1.26	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	45 / 57	79	0.0001	-	-	-	0.00037	-	-	-	-	0.0011	0.00036	0.000047	0.96	-	1	0	-	0	0	-	1	0
Lithium	4 / 44	9	0.0002	0.0005	0.0006	0.0007	0.001	0.00085	0.0009	0.00107	0.0011	0.0034	0.00069	0.0001	0.69	-	-	-	-	-	-	-	-	-
Magnesium	1 / 8	13	0.45	0.45	0.45	0.45	0.55	0.465	0.51	0.72	0.48	1	0.19	0.067	0.35	-	-	-	-	-	-	-	-	-
Manganese	3 / 44	7	0.0002	0.0002	0.0004	0.0005	0.00078	0.0006	0.000725	0.001	0.001	0.0038	0.00066	0.000099	0.84	-	-	-	-	-	-	-	-	-
Mercury	24 / 28	86	0.000001	-	-	-	0.000009	-	-	-	-	0.00002	0.0000037	0.00000071	0.42	-	0	0	-	0	0	-	0	0
Molybdenum	41 / 44	93	0.00003	-	-	-	0.00016	-	-	-	-	0.001	0.00023	0.000035	1.42	-	0	-	-	0	-	-	0	-
Nickel	11 / 57	19	0.0003	0.0006	0.0005	0.0007	0.0011	0.00076	0.0008	0.001	0.0009	0.0169	0.0021	0.00028	2.03	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 36	0	0.0009	0.00108	0.0011	0.0012	0.0012	0.0012	0.0013	0.0013	0.0013	0.0013	0.0001	0.000017	0.08	-	-	-	-	-	-	-	-	-
Selenium	35 / 36	97	0.0003	-	-	-	0.0012	-	-	-	-	0.01	0.0027	0.00045	2.34	-	4	0	-	3	0	-	1	0
Silver	39 / 39	100	0.000006	-	-	-	0.00011	-	-	-	-	0.0003	0.000057	0.0000091	0.50	-	3	-	-	3	-	-	0	-
Sodium	1 / 8	13	0.11	0.11	0.138	0.21	0.49	0.295	0.405	0.894	0.42	2	0.62	0.22	1.27	-	-	-	-	-	-	-	-	-
Strontium	0 / 44	0	0.0041	0.0041	0.0048	0.0051525	0.0055	0.0055	0.0059	0.00617	0.0066	0.0066	0.00057	0.000086	0.10	-	-	-	-	-	-	-	-	-
Thallium	36 / 36	100	0.0001	-	-	-	0.00013	-	-	-	-	0.0004	0.000084	0.000014	0.67	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	26 / 36	72	0.00006	-	-	-	0.00035	-	-	-	-	0.003	0.00081	0.00014	2.29	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-4-d: Water chemistry summary for Point Lake Outlet during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Uranium	35 / 36	97	0.000052	-	-	-	0.00012	-	-	-	-	0.0003	0.000057	0.0000095	0.49	-	0	0	-	0	0	-	0	0
Vanadium	49 / 56	88	0.00003	-	-	-	0.00025	-	-	-	-	0.001	0.00025	0.000033	1.01	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	11 / 57	19	0.0003	0.0003	0.0004	0.0005	0.0025	0.001	0.0025	0.00712	0.0047	0.0159	0.0033	0.00043	1.33	-	0	-	-	0	-	-	0	-

Appendix B-3-5-a: Water chemistry summary for Rocknest Lake

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 36	0	18	18	19.1	20.45	25	22.55	25.525	38.65	32.9	42.3	6.8	1.1	0.27	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	8 / 36	22	10	10	10	10	17	14	22	27	32	42	7.9	1.3	0.47	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	27 / 36	75	3	-	-	-	3.4	-	-	-	-	8	1	0.17	0.29	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 36	0	0.12	0.12	0.21	0.24	0.41	0.335	0.4	0.64	0.56	1.7	0.33	0.054	0.80	-	-	36	-	-	0	-	-	36
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 36	0	4.2	4.2	5.35	5.975	8.9	7.6	9.65	15.75	13.8	18.9	3.9	0.65	0.44	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	30 / 30	100	0.7	-	-	-	0.7	-	-	-	-	0.7	-	-	-	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	21 / 22	95	0.1	-	-	-	0.11	-	-	-	-	0.3	0.043	0.0091	0.39	-	1	0	-	0	0	-	1	0

Appendix B-3-5-a: Water chemistry summary for Rocknest Lake

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-3-5-a: Water chemistry summary for Rocknest Lake

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL			
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	
Carbon, Dissolved Organic	0 / 36	0	2.3	2.3	3	3	3.5	3.25	3.9	4.4	4.9	4.9	0.62	0.1	0.18	-	-	-	-	-	-	-	-	-	
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Organic	0 / 36	0	2.9	2.9	3	3.1	3.6	3.35	4	4.55	5.2	5.2	0.62	0.1	0.17	-	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide																									
Cyanide Thiocyanate	0 / 1	0	0.4	-	-	-	0.4	-	-	-	-	0.4	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide, Total	1 / 3	33	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	0	0	-	0	0	-	0	0	
Cyanide, wad	2 / 3	67	0.002	-	-	-	0.002	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	
Dissolved Metals																									
Aluminum	0 / 20	0	0.0035	0.0043	0.00457	0.007675	0.0094	0.00955	0.0104	0.012	0.0138	0.0214	0.0039	0.00087	0.42	-	-	-	-	-	-	-	-	-	
Antimony	17 / 20	85	0.0001	-	-	-	0.00012	-	-	-	-	0.0003	0.000052	0.000012	0.44	-	-	-	-	-	-	-	-	-	
Arsenic	12 / 20	60	0.0002	-	-	-	0.00022	-	-	-	-	0.0003	0.000041	0.0000092	0.19	-	-	-	-	-	-	-	-	-	
Barium	0 / 20	0	0.0021	0.0021	0.00219	0.0023	0.0027	0.0025	0.003025	0.00342	0.0036	0.0042	0.00056	0.00013	0.21	-	-	-	-	-	-	-	-	-	
Beryllium	20 / 20	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	
Bismuth	0 / 1	0	0.0005	-	-	-	0.0005	-	-	-	-	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	
Boron	0 / 1	0	0.0043	-	-	-	0.0043	-	-	-	-	0.0043	-	-	-	-	-	-	-	-	-	-	-	-	
Cadmium	20 / 20	100	0.00005	-	-	-	0.00005	-	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	-	
Calcium	0 / 36	0	1	1	1.8	2.15	3.3	2.9	4.2	4.5	6	12.9	2	0.33	0.60	-	-	-	-	-	-	-	-	-	
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cesium	20 / 20	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	
Chromium	18 / 20	90	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000031	0.0000069	0.28	-	-	-	-	-	-	-	-	-	
Cobalt	17 / 19	89	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000023	0.0000053	0.22	-	-	-	-	-	-	-	-	-	
Copper	1 / 20	5	0.0002	0.0002	0.00039	0.0005	0.0014	0.0007	0.0008	0.00121	0.0012	0.0145	0.0031	0.00069	2.28	-	-	-	-	-	-	-	-	-	
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Iron	13 / 20	65	0.005	-	-	-	0.017	-	-	-	-	0.05	0.02	0.0044	1.16	-	-	-	-	-	-	-	-	-	
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lead	18 / 20	90	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000022	0.000005	0.21	-	-	-	-	-	-	-	-	-	
Lithium	0 / 20	0	0.0004	0.0006	0.00059	0.000775	0.00093	0.00085	0.0009	0.0011	0.001	0.003	0.00052	0.00012	0.56	-	-	-	-	-	-	-	-	-	
Magnesium	0 / 36	0	0.6	0.6	0.9	1	1.3	1.2	1.5	1.9	2.1	3.4	0.52	0.087	0.39	-	-	-	-	-	-	-	-	-	
Manganese	0 / 20	0	0.0003	0.0003	0.00039	0.0005	0.00079	0.00065	0.000725	0.00112	0.001	0.0024	0.00055	0.00012	0.70	-	-	-	-	-	-	-	-	-	
Mercury	20 / 20	100	0.00001	-	-	-	0.000011	-	-	-	-	0.00002	0.0000022	0.0000005	0.21	-	-	-	-	-	-	-	-	-	

Appendix B-3-5-a: Water chemistry summary for Rocknest Lake

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	17 / 20	85	0.0001	-	-	-	0.00011	-	-	-	-	0.0003	0.000045	0.00001	0.41	-	-	-	-	-	-	-	-	-
Nickel	0 / 20	0	0.0005	0.0005	0.0005	0.000575	0.00066	0.0006	0.0007	0.00091	0.0008	0.0011	0.00017	0.000038	0.26	-	-	-	-	-	-	-	-	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	5 / 5	100	0.001	-	-	-	0.0082	-	-	-	-	0.01	0.004	0.0018	0.49	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 36	0	0.3	0.3	0.4	0.4	0.47	0.4	0.5	0.6	0.6	0.7	0.096	0.016	0.20	-	-	-	-	-	-	-	-	-
Rubidium	0 / 20	0	0.0009	0.0011	0.00099	0.001175	0.0012	0.0012	0.001225	0.00151	0.0012	0.0017	0.0002	0.000044	0.16	-	-	-	-	-	-	-	-	-
Selenium	19 / 20	95	0.0003	-	-	-	0.00038	-	-	-	-	0.0018	0.00034	0.000075	0.89	-	-	-	-	-	-	-	-	-
Silver	19 / 20	95	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	0 / 36	0	0.4	0.4	0.45	0.5	0.58	0.6	0.6	0.8	0.7	0.9	0.13	0.021	0.21	-	-	-	-	-	-	-	-	-
Strontium	0 / 20	0	0.0044	0.0058	0.0058	0.0061	0.0068	0.0063	0.006975	0.00831	0.0073	0.0132	0.0017	0.00039	0.26	-	-	-	-	-	-	-	-	-
Thallium	20 / 20	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tin	1 / 1	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	17 / 20	85	0.0001	-	-	-	0.00012	-	-	-	-	0.0003	0.000049	0.000011	0.43	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	20 / 20	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	18 / 20	90	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000022	0.000005	0.21	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	7 / 20	35	0.0004	0.0004	0.0004	0.0004	0.0013	0.0007	0.001325	0.00293	0.0017	0.0058	0.0014	0.00032	1.12	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	0 / 36	0	0.009	0.009	0.0103	0.011475	0.014	0.0126	0.014025	0.01535	0.017	0.0688	0.0096	0.0016	0.67	-	1	-	-	0	-	-	1	-
Antimony	32 / 36	89	0.0001	-	-	-	0.00012	-	-	-	-	0.0004	0.000062	0.00001	0.52	-	-	0	-	-	0	-	-	0
Arsenic	15 / 36	42	0.0002	0.0002	0.0002	0.0002	0.00024	0.0002	0.0003	0.0003	0.0004	0.0004	0.000054	0.000009	0.23	-	0	0	-	0	0	-	0	0
Barium	0 / 36	0	0.0022	0.0022	0.00245	0.002575	0.003	0.0028	0.00325	0.0039	0.0039	0.005	0.00067	0.00011	0.22	-	-	0	-	-	0	-	-	0
Beryllium	36 / 36	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	34 / 36	94	0.00005	-	-	-	0.000055	-	-	-	-	0.00016	0.00002	0.0000033	0.36	35	35	0	33	33	0	2	2	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	35 / 36	97	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	29 / 36	81	0.0001	-	-	-	0.00031	-	-	-	-	0.0068	0.0011	0.00019	3.65	-	0	0	-	0	0	-	0	0
Cobalt	36 / 36	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Copper	0 / 36	0	0.0003	0.0003	0.0005	0.0006	0.00074	0.0007	0.0008	0.0009	0.0009	0.0019	0.00026	0.000043	0.35	-	0	-	-	0	-	-	0	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	6 / 36	17	0.005	0.005	0.007	0.01	0.018	0.0145	0.0175	0.05	0.021	0.05	0.014	0.0023	0.75	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	28 / 36	78	0.0001	-	-	-	0.00038	-	-	-	-	0.0091	0.0015	0.00025	3.92	-	1	0	-	0	0	-	1	0
Lithium	0 / 36	0	0.0004	0.0005	0.00075	0.0008	0.00093	0.0009	0.001	0.0011	0.0011	0.003	0.0004	0.000066	0.43	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-5-a: Water chemistry summary for Rocknest Lake

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Manganese	0 / 36	0	0.0003	0.0003	0.0009	0.0012	0.0018	0.00165	0.002325	0.0029	0.0032	0.0032	0.00077	0.00013	0.44	-	-	-	-	-	-	-	-	-
Mercury	31 / 33	94	0.0000001	-	-	-	0.0000095	-	-	-	-	0.00002	0.0000032	0.00000056	0.34	-	0	0	-	0	0	-	0	0
Molybdenum	31 / 36	86	0.0001	-	-	-	0.00012	-	-	-	-	0.0005	0.000074	0.000012	0.63	-	0	-	-	0	-	-	0	-
Nickel	0 / 36	0	0.0005	0.0005	0.0005	0.0005	0.00063	0.0006	0.0007	0.00085	0.0009	0.0011	0.00015	0.000025	0.24	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 36	0	0.0008	0.0011	0.00115	0.0012	0.0013	0.00125	0.0013	0.0015	0.0014	0.0018	0.0002	0.000033	0.15	-	-	-	-	-	-	-	-	-
Selenium	35 / 36	97	0.0003	-	-	-	0.00034	-	-	-	-	0.0017	0.00023	0.000039	0.68	-	1	0	-	0	0	-	1	0
Silver	34 / 36	94	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000017	0.0000028	0.16	-	1	-	-	0	-	-	1	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 36	0	0.0045	0.0057	0.0062	0.0064	0.007	0.0067	0.0074	0.0085	0.0088	0.0088	0.00097	0.00016	0.14	-	-	-	-	-	-	-	-	-
Thallium	36 / 36	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	10 / 36	28	0.0001	0.0001	0.0001	0.0001	0.00014	0.0001	0.0002	0.0002	0.0003	0.0003	0.000054	0.000009	0.40	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	30 / 36	83	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000017	0.0000028	0.16	-	0	0	-	0	0	-	0	0
Vanadium	31 / 36	86	0.0001	-	-	-	0.00012	-	-	-	-	0.0004	0.000076	0.000013	0.62	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	13 / 36	36	0.0004	0.0004	0.0004	0.0004	0.0011	0.0006	0.001025	0.00215	0.0018	0.0067	0.0014	0.00023	1.24	-	0	-	-	0	-	-	0	-

Appendix B-3-5-b: Water chemistry summary for Rocknest Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 7	0	18	18	19.26	20.7	22	21.7	23.75	25.56	26.1	26.1	2.8	1.1	0.13	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	3 / 7	43	10	10	10	10	12	10	13	16.4	14	20	3.7	1.4	0.30	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	6 / 7	86	3	-	-	-	3.1	-	-	-	-	4	0.38	0.14	0.12	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 7	0	0.12	0.12	0.162	0.195	0.43	0.2	0.31	0.92	0.4	1.7	0.57	0.21	1.31	-	-	7	-	-	0	-	-	7
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 7	0	4.2	4.2	4.44	4.75	6	5.7	7.1	7.92	8.4	8.4	1.6	0.6	0.27	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	7 / 7	100	0.7	-	-	-	0.7	-	-	-	-	0.7	-	-	-	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	5 / 5	100	0.1	-	-	-	0.1	-	-	-	-	0.1	-	-	-	-	0	0	-	0	0	-	0	0

Appendix B-3-5-b: Water chemistry summary for Rocknest Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hardness, Total (as CaCO3)	0 / 7	0	8.2	8.2	8.5	8.75	11	10.5	12	13.04	14.6	14.6	2.3	0.88	0.22	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
pH (pH units)	0 / 7	0	6.37	6.66	6.544	6.7	6.7	6.74	6.755	6.796	6.76	6.85	0.15	0.058	0.02	-	0	-	-	0	-	-	0	-
Silica, Reactive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	0 / 7	0	2	2	2	2	2.3	2	2.5	3	3	3	0.49	0.18	0.21	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	7 / 7	100	0.005	-	-	-	0.014	-	-	-	-	0.05	0.016	0.0061	1.20	-	1	-	-	1	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	0 / 7	0	0.05	0.05	0.056	0.064	0.073	0.078	0.0815	0.0852	0.09	0.09	0.014	0.0053	0.19	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	0 / 6	0	0.05	0.05	0.05	0.0525	0.063	0.06	0.066	0.079	0.068	0.09	0.015	0.0061	0.24	-	-	-	-	-	-	-	-	-
Nitrite	7 / 7	100	0.001	-	-	-	0.0074	-	-	-	-	0.01	0.0044	0.0017	0.59	-	0	0	-	0	0	-	0	0
Nitrogen, Particulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	6 / 6	100	0.001	-	-	-	0.0012	-	-	-	-	0.002	0.00041	0.00017	0.35	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	1 / 7	14	0.002	0.002	0.0026	0.003	0.0049	0.003	0.0065	0.01	0.01	0.01	0.0035	0.0013	0.73	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-5-b: Water chemistry summary for Rocknest Lake during Winter Baseflow

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Carbon, Dissolved Organic	0 / 7	0	3	3	3.06	3.1	3.4	3.2	3.55	4.02	4.2	4.2	0.47	0.18	0.14	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Total Organic	0 / 7	0	2.9	2.9	2.9	2.9	3.2	3.1	3.55	3.74	3.8	3.8	0.39	0.15	0.12	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide																								
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	0 / 1	0	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	0	0	-	0	0	-	0	0
Cyanide, wad	0 / 1	0	0.002	-	-	-	0.002	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																								
Aluminum	0 / 3	0	0.0095	-	-	-	0.011	-	-	-	-	0.0138	0.0022	0.0013	0.20	-	-	-	-	-	-	-	-	-
Antimony	2 / 3	67	0.0001	-	-	-	0.00013	-	-	-	-	0.0002	0.000058	0.000033	0.43	-	-	-	-	-	-	-	-	-
Arsenic	1 / 3	33	0.0002	-	-	-	0.00023	-	-	-	-	0.0003	0.000058	0.000033	0.25	-	-	-	-	-	-	-	-	-
Barium	0 / 3	0	0.0025	-	-	-	0.0028	-	-	-	-	0.0031	0.00031	0.00018	0.11	-	-	-	-	-	-	-	-	-
Beryllium	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	3 / 3	100	0.00005	-	-	-	0.00005	-	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	0 / 7	0	1.9	1.9	1.96	2	2.5	2.4	2.8	3.24	3.9	3.9	0.71	0.27	0.28	-	-	-	-	-	-	-	-	-
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Copper	1 / 3	33	0.0002	-	-	-	0.00073	-	-	-	-	0.0013	0.00055	0.00032	0.75	-	-	-	-	-	-	-	-	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	3 / 3	100	0.005	-	-	-	0.02	-	-	-	-	0.05	0.026	0.015	1.30	-	-	-	-	-	-	-	-	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Lithium	0 / 3	0	0.001	-	-	-	0.0011	-	-	-	-	0.0011	0.000058	0.000033	0.05	-	-	-	-	-	-	-	-	-
Magnesium	0 / 7	0	0.9	0.9	0.9	0.9	1.1	1.1	1.2	1.2	1.2	1.2	0.15	0.057	0.14	-	-	-	-	-	-	-	-	-
Manganese	0 / 3	0	0.0006	-	-	-	0.0012	-	-	-	-	0.0022	0.00085	0.00049	0.69	-	-	-	-	-	-	-	-	-
Mercury	3 / 3	100	0.00001	-	-	-	0.00001	-	-	-	-	0.00001	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-5-b: Water chemistry summary for Rocknest Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Nickel	0 / 3	0	0.0009	-	-	-	0.001	-	-	-	-	0.0011	0.0001	0.000058	0.10	-	-	-	-	-	-	-	-	
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorous, Total	2 / 2	100	0.01	-	-	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Potassium	0 / 7	0	0.5	0.5	0.5	0.5	0.59	0.6	0.65	0.7	0.7	0.7	0.09	0.034	0.15	-	-	-	-	-	-	-	-	
Rubidium	0 / 3	0	0.0015	-	-	-	0.0016	-	-	-	-	0.0017	0.0001	0.000058	0.06	-	-	-	-	-	-	-	-	
Selenium	3 / 3	100	0.0003	-	-	-	0.0003	-	-	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	
Silver	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Sodium	0 / 7	0	0.6	0.6	0.6	0.6	0.71	0.7	0.8	0.84	0.9	0.9	0.12	0.046	0.17	-	-	-	-	-	-	-	-	
Strontium	0 / 3	0	0.0073	-	-	-	0.008	-	-	-	-	0.0084	0.00061	0.00035	0.08	-	-	-	-	-	-	-	-	
Thallium	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Titanium	2 / 3	67	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Uranium	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Vanadium	2 / 3	67	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Zinc	1 / 3	33	0.0004	-	-	-	0.0024	-	-	-	-	0.0058	0.0029	0.0017	1.21	-	-	-	-	-	-	-	-	
Total Metals																								
Aluminum	0 / 7	0	0.0108	0.0108	0.01104	0.01135	0.013	0.013	0.014	0.01526	0.017	0.017	0.0022	0.00082	0.17	-	1	-	-	0	-	-	1	-
Antimony	6 / 7	86	0.0001	-	-	-	0.00014	-	-	-	-	0.0004	0.00011	0.000043	0.79	-	-	0	-	-	0	-	-	0
Arsenic	3 / 7	43	0.0002	0.0002	0.0002	0.0002	0.00023	0.0002	0.00025	0.0003	0.0003	0.0003	0.000049	0.000018	0.21	-	0	0	-	0	0	-	0	0
Barium	0 / 7	0	0.0025	0.0025	0.0025	0.00255	0.0028	0.0026	0.003	0.00328	0.003	0.0037	0.00044	0.00016	0.15	-	-	0	-	-	0	-	-	0
Beryllium	7 / 7	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	
Cadmium	7 / 7	100	0.00005	-	-	-	0.000057	-	-	-	-	0.0001	0.000019	0.0000071	0.33	7	7	0	7	7	0	0	0	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cesium	7 / 7	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Chromium	7 / 7	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	0	-	0	0	-	0	0
Cobalt	7 / 7	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Copper	0 / 7	0	0.0006	0.0006	0.00072	0.0008	0.00099	0.0008	0.001	0.00142	0.0011	0.0019	0.00043	0.00016	0.44	-	0	-	-	0	-	-	0	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Iron	1 / 7	14	0.006	0.006	0.006	0.006	0.015	0.009	0.0125	0.0284	0.014	0.05	0.016	0.006	1.09	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lead	7 / 7	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	0	-	0	0	-	0	0
Lithium	0 / 7	0	0.0009	0.001	0.00096	0.00105	0.0011	0.0011	0.0011	0.00118	0.0011	0.0013	0.00012	0.000046	0.11	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Appendix B-3-5-b: Water chemistry summary for Rocknest Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Manganese	0 / 7	0	0.0007	0.0007	0.00076	0.00085	0.0012	0.0009	0.0011	0.00176	0.0012	0.0026	0.00066	0.00025	0.57	-	-	-	-	-	-	-	-	-
Mercury	7 / 7	100	0.0000001	-	-	-	0.0000086	-	-	-	-	0.00001	0.0000037	0.0000014	0.44	-	0	0	-	0	0	-	0	0
Molybdenum	6 / 7	86	0.0001	-	-	-	0.00016	-	-	-	-	0.0005	0.00015	0.000057	0.96	-	0	-	-	0	-	-	0	-
Nickel	0 / 7	0	0.0007	0.0007	0.00076	0.0008	0.00089	0.0009	0.00095	0.00104	0.0011	0.0011	0.00013	0.000051	0.15	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 7	0	0.0013	0.0013	0.00136	0.00145	0.0016	0.0015	0.00175	0.0018	0.0018	0.0018	0.0002	0.000075	0.13	-	-	-	-	-	-	-	-	-
Selenium	7 / 7	100	0.0003	-	-	-	0.00033	-	-	-	-	0.0005	0.000076	0.000029	0.23	-	0	0	-	0	0	-	0	0
Silver	7 / 7	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 7	0	0.0065	0.0065	0.00656	0.007	0.0076	0.0074	0.00845	0.0085	0.0085	0.0085	0.00087	0.00033	0.11	-	-	-	-	-	-	-	-	-
Thallium	7 / 7	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	4 / 7	57	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000038	0.000014	0.33	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	7 / 7	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	0	-	0	0	-	0	0
Vanadium	5 / 7	71	0.0001	-	-	-	0.00014	-	-	-	-	0.0004	0.00011	0.000043	0.79	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	3 / 7	43	0.0004	0.0004	0.0004	0.0005	0.0021	0.0008	0.003	0.00568	0.0067	0.0067	0.0026	0.00098	1.22	-	0	-	-	0	-	-	0	-

Appendix B-3-5-c: Water chemistry summary for Rocknest Lake during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

There were no data available for this site during this season.

Appendix B-3-5-d: Water chemistry summary for Rocknest Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 29	0	18.5	18.5	19.28	20.5	26	22.9	25.9	39.22	32.9	42.3	7.4	1.4	0.29	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	5 / 29	17	10	10	10	10	18	14	24	28.2	42	42	8.3	1.5	0.46	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	21 / 29	72	3	-	-	-	3.5	-	-	-	-	8	1.1	0.2	0.31	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 29	0	0.22	0.22	0.238	0.26	0.4	0.34	0.4	0.592	0.56	1.52	0.25	0.047	0.63	-	-	29	-	-	0	-	-	29
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 29	0	5.2	5.2	5.8	6.6	9.6	7.7	11.4	16.08	17	18.9	4	0.74	0.42	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	23 / 23	100	0.7	-	-	-	0.7	-	-	-	-	0.7	-	-	-	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	16 / 17	94	0.1	-	-	-	0.11	-	-	-	-	0.3	0.049	0.012	0.43	-	1	0	-	0	0	-	1	0

Appendix B-3-5-d: Water chemistry summary for Rocknest Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise

[illegible]

Appendix B-3-5-d: Water chemistry summary for Rocknest Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Carbon, Dissolved Organic	0 / 29	0	2.3	2.3	3	3	3.5	3.3	3.9	4.44	4.9	4.9	0.66	0.12	0.19	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Organic	0 / 29	0	3	3	3.1	3.2	3.7	3.4	4.1	4.62	5.2	5.2	0.64	0.12	0.17	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide																								
Cyanide Thiocyanate	0 / 1	0	0.4	-	-	-	0.4	-	-	-	-	0.4	-	-	-	-	-	-	-	-	-	-	-	
Cyanide, Total	1 / 2	50	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	0	0	-	0	0	-	0	0
Cyanide, wad	2 / 2	100	0.002	-	-	-	0.002	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																								
Aluminum	0 / 17	0	0.0035	0.0035	0.00448	0.0058	0.009	0.0094	0.01	0.01156	0.0118	0.0214	0.0041	0.00099	0.45	-	-	-	-	-	-	-	-	-
Antimony	15 / 17	88	0.0001	-	-	-	0.00012	-	-	-	-	0.0003	0.000053	0.000013	0.45	-	-	-	-	-	-	-	-	-
Arsenic	11 / 17	65	0.0002	-	-	-	0.00022	-	-	-	-	0.0003	0.000039	0.0000095	0.18	-	-	-	-	-	-	-	-	-
Barium	0 / 17	0	0.0021	0.0021	0.00216	0.0023	0.0027	0.0024	0.003	0.00348	0.0036	0.0042	0.0006	0.00014	0.22	-	-	-	-	-	-	-	-	-
Beryllium	17 / 17	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	0 / 1	0	0.0005	-	-	-	0.0005	-	-	-	-	0.0005	-	-	-	-	-	-	-	-	-	-	-	-
Boron	0 / 1	0	0.0043	-	-	-	0.0043	-	-	-	-	0.0043	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	17 / 17	100	0.00005	-	-	-	0.00005	-	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	0 / 29	0	1	1	1.8	2.2	3.5	3	4.2	4.52	6	12.9	2.1	0.4	0.61	-	-	-	-	-	-	-	-	-
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cesium	17 / 17	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	15 / 17	88	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000033	0.0000081	0.30	-	-	-	-	-	-	-	-	-
Cobalt	14 / 16	88	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000025	0.0000063	0.24	-	-	-	-	-	-	-	-	-
Copper	0 / 17	0	0.0003	0.0003	0.0004	0.0005	0.0015	0.0007	0.0008	0.00102	0.0012	0.0145	0.0034	0.00082	2.29	-	-	-	-	-	-	-	-	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	10 / 17	59	0.005	-	-	-	0.016	-	-	-	-	0.05	0.019	0.0047	1.17	-	-	-	-	-	-	-	-	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	15 / 17	88	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000024	0.0000059	0.23	-	-	-	-	-	-	-	-	-
Lithium	0 / 17	0	0.0004	0.0004	0.00056	0.0007	0.0009	0.0008	0.0009	0.0009	0.0009	0.003	0.00056	0.00014	0.62	-	-	-	-	-	-	-	-	-
Magnesium	0 / 29	0	0.6	0.6	0.9	1	1.4	1.3	1.5	2.02	2.1	3.4	0.56	0.1	0.40	-	-	-	-	-	-	-	-	-
Manganese	0 / 17	0	0.0003	0.0003	0.00036	0.0005	0.00071	0.0006	0.0007	0.00088	0.0008	0.0024	0.00047	0.00011	0.67	-	-	-	-	-	-	-	-	-
Mercury	17 / 17	100	0.00001	-	-	-	0.000011	-	-	-	-	0.00002	0.0000024	0.00000059	0.23	-	-	-	-	-	-	-	-	-

Appendix B-3-5-d: Water chemistry summary for Rocknest Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	14 / 17	82	0.0001	-	-	-	0.00011	-	-	-	-	0.0003	0.000049	0.000012	0.43	-	-	-	-	-	-	-	-	-
Nickel	0 / 17	0	0.0005	0.0005	0.0005	0.0005	0.00059	0.0006	0.0006	0.0007	0.0007	0.0008	0.000083	0.00002	0.14	-	-	-	-	-	-	-	-	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	3 / 3	100	0.001	-	-	-	0.007	-	-	-	-	0.01	0.0052	0.003	0.74	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 29	0	0.3	0.3	0.4	0.4	0.44	0.4	0.5	0.52	0.6	0.6	0.073	0.014	0.17	-	-	-	-	-	-	-	-	-
Rubidium	0 / 17	0	0.0009	0.001	0.00096	0.0011	0.0012	0.0012	0.0012	0.00124	0.0013	0.0013	0.00012	0.000029	0.10	-	-	-	-	-	-	-	-	-
Selenium	16 / 17	94	0.0003	-	-	-	0.00039	-	-	-	-	0.0018	0.00036	0.000088	0.94	-	-	-	-	-	-	-	-	-
Silver	16 / 17	94	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	0 / 29	0	0.4	0.4	0.4	0.5	0.55	0.5	0.6	0.7	0.7	0.8	0.11	0.02	0.19	-	-	-	-	-	-	-	-	-
Strontium	0 / 17	0	0.0044	0.0058	0.0058	0.0061	0.0066	0.0062	0.0065	0.00702	0.0069	0.0132	0.0018	0.00044	0.27	-	-	-	-	-	-	-	-	-
Thallium	17 / 17	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tin	1 / 1	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	15 / 17	88	0.0001	-	-	-	0.00012	-	-	-	-	0.0003	0.000053	0.000013	0.45	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	17 / 17	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	16 / 17	94	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000024	0.0000059	0.23	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	6 / 17	35	0.0004	0.0004	0.0004	0.0004	0.0011	0.0005	0.0013	0.00214	0.0017	0.0041	0.001	0.00025	0.95	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	0 / 29	0	0.009	0.009	0.00968	0.0115	0.014	0.0125	0.014	0.01532	0.0156	0.0688	0.011	0.002	0.74	-	0	-	-	0	-	-	0	-
Antimony	26 / 29	90	0.0001	-	-	-	0.00011	-	-	-	-	0.0003	0.000044	0.0000082	0.39	-	-	0	-	-	0	-	-	0
Arsenic	12 / 29	41	0.0002	0.0002	0.0002	0.0002	0.00024	0.0002	0.0003	0.0003	0.0004	0.0004	0.000056	0.00001	0.24	-	0	0	-	0	0	-	0	0
Barium	0 / 29	0	0.0022	0.0022	0.0024	0.0026	0.0031	0.0028	0.0034	0.00398	0.0043	0.005	0.00071	0.00013	0.23	-	-	0	-	-	0	-	-	0
Beryllium	29 / 29	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	27 / 29	93	0.00005	-	-	-	0.000054	-	-	-	-	0.00016	0.00002	0.0000038	0.38	28	28	0	26	26	0	2	2	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	28 / 29	97	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	22 / 29	76	0.0001	-	-	-	0.00036	-	-	-	-	0.0068	0.0012	0.00023	3.49	-	0	0	-	0	0	-	0	0
Cobalt	29 / 29	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Copper	0 / 29	0	0.0003	0.0003	0.0005	0.0006	0.00068	0.0007	0.0008	0.0009	0.0009	0.0009	0.00015	0.000028	0.23	-	0	-	-	0	-	-	0	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	5 / 29	17	0.005	0.005	0.0098	0.012	0.019	0.015	0.019	0.05	0.021	0.05	0.013	0.0024	0.69	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	21 / 29	72	0.0001	-	-	-	0.00045	-	-	-	-	0.0091	0.0017	0.00031	3.70	-	1	0	-	0	0	-	1	0
Lithium	0 / 29	0	0.0004	0.0007	0.00066	0.0008	0.0009	0.0009	0.0009	0.001	0.001	0.003	0.00043	0.00008	0.48	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-5-d: Water chemistry summary for Rocknest Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Manganese	0 / 29	0	0.0003	0.0003	0.0012	0.0014	0.0019	0.0018	0.0024	0.0031	0.0032	0.0032	0.00073	0.00014	0.38	-	-	-	-	-	-	-	-	-
Mercury	24 / 26	92	0.000001	-	-	-	0.0000097	-	-	-	-	0.00002	0.0000031	0.00000061	0.32	-	0	0	-	0	0	-	0	0
Molybdenum	25 / 29	86	0.0001	-	-	-	0.00011	-	-	-	-	0.0003	0.000037	0.00000069	0.35	-	0	-	-	0	-	-	0	-
Nickel	0 / 29	0	0.0005	0.0005	0.0005	0.0005	0.00057	0.0006	0.0006	0.00062	0.0007	0.0007	0.000066	0.000012	0.12	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 29	0	0.0008	0.0011	0.0011	0.0012	0.0012	0.0012	0.0013	0.0013	0.0014	0.0014	0.00012	0.000022	0.10	-	-	-	-	-	-	-	-	-
Selenium	28 / 29	97	0.0003	-	-	-	0.00035	-	-	-	-	0.0017	0.00026	0.000048	0.75	-	1	0	-	0	0	-	1	0
Silver	27 / 29	93	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000019	0.0000034	0.18	-	1	-	-	0	-	-	1	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 29	0	0.0045	0.0057	0.00618	0.0063	0.0068	0.0066	0.0073	0.00842	0.0086	0.0088	0.00095	0.00018	0.14	-	-	-	-	-	-	-	-	-
Thallium	29 / 29	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	6 / 29	21	0.0001	0.0001	0.0001	0.0001	0.00014	0.0001	0.0002	0.0002	0.0003	0.0003	0.000057	0.000011	0.40	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	23 / 29	79	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000019	0.0000034	0.18	-	0	0	-	0	0	-	0	0
Vanadium	26 / 29	90	0.0001	-	-	-	0.00012	-	-	-	-	0.0004	0.000066	0.000012	0.56	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	10 / 29	34	0.0004	0.0004	0.0004	0.0004	0.00089	0.0006	0.0009	0.00172	0.0012	0.0043	0.00083	0.00015	0.94	-	0	-	-	0	-	-	0	-

Appendix B-3-6-a: Water chemistry summary for Fairy Lake

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 14	0	30.2	46.1	46.31	47.025	48	48.85	50.275	51.56	51.8	55.6	5.7	1.5	0.12	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	1 / 14	7	10	10	15.2	19	25	25.5	30	32.7	42	42	8.3	2.2	0.33	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	12 / 14	86	3	-	-	-	3.3	-	-	-	-	6	0.83	0.22	0.25	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 14	0	0.23	0.23	0.23	0.245	0.31	0.3	0.355	0.41	0.48	0.48	0.079	0.021	0.25	-	-	14	-	-	0	-	-	14
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 14	0	13.1	22.5	22.71	23.225	38	24.35	25.15	25.96	26.2	232	56	15	1.46	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	13 / 13	100	0.7	-	-	-	0.7	-	-	-	-	0.7	-	-	-	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	11 / 11	100	0.1	-	-	-	0.18	-	-	-	-	1	0.27	0.082	1.49	-	1	0	-	1	0	-	0	0

Appendix B-3-6-a: Water chemistry summary for Fairy Lake

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL			
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	
Hardness non-carb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Hardness, Total (as CaCO3)	0 / 14	0	15.9	17.9	19.01	24.225	26	26.1	29.175	32.38	33.8	33.8	5.2	1.4	0.20	-	-	-	-	-	-	-	-	-	
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
pH (pH units)	0 / 14	0	7.43	7.43	7.475	7.52	7.6	7.6	7.685	7.721	7.77	7.77	0.11	0.029	0.01	-	0	-	-	0	-	-	0	-	
Silica, Reactive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Silica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sulphate, Dissolved	4 / 14	29	1	1	1	1	1.2	1	1	1.7	1	3	0.58	0.15	0.48	-	-	-	-	-	-	-	-	-	-
Nutrients																									
Ammonia, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ammonia, Total	12 / 14	86	0.005	-	-	-	0.0066	-	-	-	-	0.01	0.0023	0.00061	0.34	-	0	-	-	0	-	-	0	-	
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nitrate	13 / 14	93	0.01	-	-	-	0.011	-	-	-	-	0.03	0.0053	0.0014	0.47	0	0	0	0	0	0	0	0	0	
Nitrate-Nitrite, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nitrate-Nitrite	8 / 13	62	0.01	-	-	-	0.17	-	-	-	-	0.53	0.24	0.067	1.45	-	-	-	-	-	-	-	-	-	
Nitrite	10 / 14	71	0.01	-	-	-	0.15	-	-	-	-	0.53	0.24	0.063	1.54	-	4	0	-	0	0	-	4	0	
Nitrogen, Particulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nitrogen, Total Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nitrogen, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphate, Ortho	10 / 12	83	0.002	-	-	-	0.002	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorous, Particulate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorous, Total	9 / 14	64	0.01	-	-	-	0.012	-	-	-	-	0.02	0.0043	0.0011	0.35	-	-	-	-	-	-	-	-	-	
Organic/Inorganic Carbon																									
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Appendix B-3-6-a: Water chemistry summary for Fairy Lake

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Carbon, Dissolved Organic	0 / 14	0	0.9	1.1	1.25	1.7	1.9	1.95	2.1	2.2	2.2	2.8	0.47	0.13	0.25	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Total Organic	0 / 14	0	1.4	1.4	1.46	1.825	2	2.05	2.2	2.3	2.3	3.1	0.43	0.12	0.21	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide																								
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Cyanide, wad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																								
Aluminum	1 / 8	13	0.0006	0.0006	0.00144	0.002025	0.004	0.00215	0.0044	0.00923	0.0032	0.0121	0.0039	0.0014	0.98	-	-	-	-	-	-	-	-	-
Antimony	8 / 8	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	7 / 8	88	0.0002	-	-	-	0.00021	-	-	-	-	0.0003	0.000035	0.000013	0.17	-	-	-	-	-	-	-	-	-
Barium	0 / 8	0	0.0033	0.0092	0.00743	0.009425	0.0091	0.00955	0.010325	0.01076	0.0109	0.0109	0.0024	0.00086	0.27	-	-	-	-	-	-	-	-	-
Beryllium	8 / 8	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	8 / 8	100	0.00005	-	-	-	0.00005	-	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	0 / 14	0	4.5	4.5	4.72	6.1	6.9	6.85	7.675	9.05	9.7	9.7	1.6	0.43	0.23	-	-	-	-	-	-	-	-	-
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	8 / 8	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	7 / 8	88	0.0001	-	-	-	0.00015	-	-	-	-	0.0005	0.00014	0.00005	0.94	-	-	-	-	-	-	-	-	-
Cobalt	5 / 5	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Copper	0 / 8	0	0.0004	0.0004	0.00047	0.0005	0.0013	0.0005	0.00065	0.00242	0.0008	0.0062	0.002	0.00071	1.60	-	-	-	-	-	-	-	-	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	8 / 8	100	0.005	-	-	-	0.039	-	-	-	-	0.05	0.021	0.0074	0.54	-	-	-	-	-	-	-	-	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	4 / 8	50	0.0001	0.0001	0.0001	0.0001	0.00061	0.00015	0.0006	0.00165	0.0012	0.0027	0.00092	0.00033	1.51	-	-	-	-	-	-	-	-	-
Lithium	5 / 8	63	0.0002	-	-	-	0.00031	-	-	-	-	0.0009	0.00024	0.000085	0.77	-	-	-	-	-	-	-	-	-
Magnesium	0 / 14	0	1.1	1.7	1.82	2.1	2.1	2.2	2.375	2.4	2.5	2.5	0.36	0.096	0.17	-	-	-	-	-	-	-	-	-
Manganese	0 / 8	0	0.0002	0.0002	0.0002	0.000275	0.00071	0.00045	0.000975	0.00144	0.002	0.002	0.00063	0.00022	0.89	-	-	-	-	-	-	-	-	-
Mercury	8 / 8	100	0.00001	-	-	-	0.000011	-	-	-	-	0.00002	0.0000035	0.0000013	0.31	-	-	-	-	-	-	-	-	-

Appendix B-3-6-a: Water chemistry summary for Fairy Lake

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	8 / 8	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	2 / 8	25	0.0001	0.0001	0.0001	0.0001	0.00019	0.0001	0.000225	0.00036	0.0003	0.0005	0.00015	0.000052	0.78	-	-	-	-	-	-	-	-	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	2 / 2	100	0.01	-	-	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 14	0	0.1	0.1	0.2	0.2	0.25	0.2	0.3	0.3	0.3	0.5	0.094	0.025	0.38	-	-	-	-	-	-	-	-	-
Rubidium	0 / 8	0	0.0003	0.0004	0.0003	0.000375	0.00046	0.0004	0.0004	0.00061	0.0004	0.0011	0.00026	0.000092	0.57	-	-	-	-	-	-	-	-	-
Selenium	7 / 8	88	0.0003	-	-	-	0.00044	-	-	-	-	0.0014	0.00039	0.00014	0.89	-	-	-	-	-	-	-	-	-
Silver	8 / 8	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	0 / 14	0	0.1	0.2	0.23	0.3	0.33	0.3	0.4	0.4	0.5	0.5	0.099	0.027	0.30	-	-	-	-	-	-	-	-	-
Strontium	0 / 8	0	0.0053	0.007	0.00649	0.007	0.0077	0.0072	0.00795	0.00927	0.0081	0.012	0.0019	0.00068	0.25	-	-	-	-	-	-	-	-	-
Thallium	8 / 8	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	6 / 8	75	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	7 / 8	88	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	7 / 8	88	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	1 / 8	13	0.0004	0.0004	0.00047	0.0005	0.0016	0.00075	0.001475	0.00392	0.0029	0.0063	0.0021	0.00073	1.25	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	5 / 14	36	0.0006	0.0006	0.0006	0.000725	0.0039	0.002	0.00295	0.00387	0.0039	0.03	0.0076	0.002	1.94	-	0	-	-	0	-	-	0	-
Antimony	14 / 14	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	0	-	-	0	-	-	0
Arsenic	11 / 14	79	0.0002	-	-	-	0.00021	-	-	-	-	0.0003	0.000036	0.0000097	0.17	-	0	0	-	0	0	-	0	0
Barium	0 / 14	0	0.0035	0.0082	0.00792	0.009225	0.0092	0.00985	0.01	0.01027	0.0108	0.0108	0.0018	0.00049	0.20	-	-	0	-	-	0	-	-	0
Beryllium	14 / 14	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	14 / 14	100	0.00005	-	-	-	0.000054	-	-	-	-	0.0001	0.000013	0.0000036	0.25	5	5	0	5	5	0	0	0	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	14 / 14	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	11 / 14	79	0.0001	-	-	-	0.00014	-	-	-	-	0.0005	0.00012	0.000031	0.81	-	0	0	-	0	0	-	0	0
Cobalt	14 / 14	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Copper	0 / 14	0	0.0003	0.0003	0.0004	0.0004	0.00046	0.0004	0.0005	0.00057	0.0006	0.0008	0.00012	0.000033	0.27	-	0	-	-	0	-	-	0	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	8 / 14	57	0.005	-	-	-	0.025	-	-	-	-	0.05	0.022	0.006	0.89	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	8 / 14	57	0.0001	-	-	-	0.00017	-	-	-	-	0.0005	0.00015	0.00004	0.87	-	0	0	-	0	0	-	0	0
Lithium	5 / 14	36	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0003	0.0003	0.0003	0.0009	0.00018	0.000048	0.60	-	-	-	-	-	-	-	-	-
Magnesium	0 / 1	0	0.0019	-	-	-	0.0019	-	-	-	-	0.0019	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-6-a: Water chemistry summary for Fairy Lake

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Manganese	0 / 13	0	0.0002	0.0015	0.00126	0.0018	0.0017	0.0019	0.002	0.002	0.0021	0.0021	0.00052	0.00014	0.30	-	-	-	-	-	-	-	-	-
Mercury	13 / 13	100	0.00001	-	-	-	0.000011	-	-	-	-	0.00002	0.0000028	0.00000077	0.26	-	0	0	-	0	0	-	0	0
Molybdenum	14 / 14	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Nickel	11 / 14	79	0.0001	-	-	-	0.00014	-	-	-	-	0.0006	0.00013	0.000036	0.98	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 14	0	0.0003	0.0004	0.00033	0.0004	0.00044	0.0004	0.0004	0.0004	0.0004	0.0011	0.00019	0.000052	0.45	-	-	-	-	-	-	-	-	-
Selenium	13 / 14	93	0.0003	-	-	-	0.00042	-	-	-	-	0.0013	0.00031	0.000084	0.75	-	1	0	-	0	0	-	1	0
Silver	12 / 14	86	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 14	0	0.0054	0.0069	0.00693	0.00715	0.0075	0.00765	0.008	0.00807	0.0081	0.0081	0.00074	0.0002	0.10	-	-	-	-	-	-	-	-	-
Thallium	14 / 14	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	13 / 14	93	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000027	0.0000071	0.25	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	14 / 14	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	0	-	0	0	-	0	0
Vanadium	12 / 14	86	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000027	0.0000071	0.25	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	7 / 14	50	0.0004	0.0004	0.0004	0.0004	0.0017	0.0007	0.00105	0.00431	0.0011	0.01	0.0027	0.00072	1.55	-	0	-	-	0	-	-	0	-

Appendix B-3-7-a: Water chemistry summary for Fairy River

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	0 / 10	0	13.5	13.5	25.83	27.7	40	35.55	45.3	51.77	46.8	96.5	22	7.1	0.56	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 12	0	47.9	47.9	49.36	50.35	59	51.25	52.525	54.49	54.6	140	26	7.4	0.44	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	1 / 12	8	10	19	19.3	25.75	27	28	31	33.7	36	36	7.1	2	0.26	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	8 / 12	67	3	-	-	-	3.6	-	-	-	-	6	1.2	0.34	0.32	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	1 / 12	8	0.1	0.1	0.2	0.2	0.38	0.315	0.525	0.6	0.9	0.9	0.23	0.067	0.61	-	-	11	-	-	0	-	-	11
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 12	0	21.9	21.9	22.87	23.65	25	24.4	25.525	25.78	25.8	35.9	3.6	1	0.14	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	4 / 12	33	0.2	0.2	0.2	0.2	0.39	0.3	0.525	0.69	0.7	0.7	0.2	0.057	0.50	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	2 / 2	100	0.1	-	-	-	0.1	-	-	-	-	0.1	-	-	-	-	0	0	-	0	0	-	0	0

Appendix B-3-7-a: Water chemistry summary for Fairy River

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hardness, Total (as CaCO3)	0 / 12	0	22.4	22.4	22.81	23.35	26	24.75	26.1	32.64	26.7	34.8	4	1.2	0.15	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH (pH units)	0 / 12	0	6.78	7.22	7.231	7.3525	7.4	7.415	7.4725	7.615	7.63	7.7	0.23	0.066	0.03	-	0	-	-	0	-	-	0	-
Silica, Reactive	0 / 11	0	0.24	0.24	0.26	0.285	0.33	0.32	0.335	0.44	0.34	0.467	0.07	0.021	0.21	-	-	-	-	-	-	-	-	-
Silica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	10 / 12	83	0.8	-	-	-	2.3	-	-	-	-	3	1	0.29	0.44	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	9 / 12	75	0.005	-	-	-	0.0065	-	-	-	-	0.019	0.004	0.0012	0.62	-	0	-	-	0	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	8 / 10	80	0.008	-	-	-	0.011	-	-	-	-	0.025	0.0055	0.0017	0.49	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	6 / 9	67	0.008	-	-	-	0.014	-	-	-	-	0.029	0.0079	0.0026	0.58	-	-	-	-	-	-	-	-	-
Nitrite	10 / 11	91	0.008	-	-	-	0.0093	-	-	-	-	0.016	0.0024	0.00073	0.26	-	0	0	-	0	0	-	0	0
Nitrogen, Particulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	4 / 11	36	0.002	0.002	0.002	0.002	0.0028	0.002	0.002	0.003	0.002	0.01	0.0024	0.00072	0.85	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	4 / 12	33	0.003	0.003	0.004	0.00475	0.017	0.008	0.01	0.0568	0.01	0.075	0.024	0.007	1.43	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-7-a: Water chemistry summary for Fairy River

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL			
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	
Carbon, Dissolved Organic	0 / 12	0	1.5	1.5	1.51	1.675	1.9	1.8	2.025	2.19	2.3	2.3	0.26	0.075	0.14	-	-	-	-	-	-	-	-	-	
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Organic	0 / 12	0	1.4	1.4	1.41	1.5	1.7	1.75	1.925	2	2.2	2.2	0.26	0.076	0.15	-	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide																									
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0	
Cyanide, wad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Dissolved Metals																									
Aluminum	0 / 2	0	0.0014	-	-	-	0.0024	-	-	-	-	0.0034	0.0014	0.001	0.59	-	-	-	-	-	-	-	-	-	
Antimony	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	
Arsenic	2 / 2	100	0.0002	-	-	-	0.0002	-	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	
Barium	0 / 2	0	0.0091	-	-	-	0.0097	-	-	-	-	0.0102	0.00078	0.00055	0.08	-	-	-	-	-	-	-	-	-	
Beryllium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cadmium	2 / 2	100	0.00005	-	-	-	0.00005	-	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	-	
Calcium	0 / 12	0	5.56	5.56	5.687	5.9675	6.3	6.205	6.685	6.988	7.2	7.2	0.53	0.15	0.08	-	-	-	-	-	-	-	-	-	
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cesium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	
Chromium	1 / 2	50	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	
Cobalt	1 / 1	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	
Copper	0 / 2	0	0.0003	-	-	-	0.00045	-	-	-	-	0.0006	0.00021	0.00015	0.47	-	-	-	-	-	-	-	-	-	
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Iron	2 / 2	100	0.05	-	-	-	0.05	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lead	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	
Lithium	1 / 2	50	0.0002	-	-	-	0.00025	-	-	-	-	0.0003	0.000071	0.00005	0.28	-	-	-	-	-	-	-	-	-	
Magnesium	0 / 12	0	1.94	1.94	2.082	2.1	2.3	2.115	2.3	2.336	2.34	4.07	0.56	0.16	0.24	-	-	-	-	-	-	-	-	-	
Manganese	0 / 2	0	0.0003	-	-	-	0.0003	-	-	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	
Mercury	1 / 1	100	0.00002	-	-	-	0.00002	-	-	-	-	0.00002	-	-	-	-	-	-	-	-	-	-	-	-	

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All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	1 / 2	50	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	0 / 1	0	0.01	-	-	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 12	0	0.23	0.23	0.25	0.25	0.28	0.28	0.3	0.309	0.35	0.35	0.034	0.0097	0.12	-	-	-	-	-	-	-	-	-
Rubidium	0 / 2	0	0.0004	-	-	-	0.00045	-	-	-	-	0.0005	0.000071	0.00005	0.16	-	-	-	-	-	-	-	-	-
Selenium	2 / 2	100	0.0003	-	-	-	0.0003	-	-	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-
Silver	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	0 / 12	0	0.3	0.31	0.315	0.3675	0.39	0.4	0.4075	0.43	0.43	0.54	0.062	0.018	0.16	-	-	-	-	-	-	-	-	-
Strontium	0 / 2	0	0.0079	-	-	-	0.0082	-	-	-	-	0.0084	0.00035	0.00025	0.04	-	-	-	-	-	-	-	-	-
Thallium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	0 / 2	0	0.0021	-	-	-	0.0033	-	-	-	-	0.0044	0.0016	0.0012	0.50	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	8 / 12	67	0.00224	-	-	-	0.021	-	-	-	-	0.03	0.013	0.0038	0.62	-	0	-	-	0	-	-	0	-
Antimony	3 / 12	25	0.0001	0.0001	0.00023	0.0005	0.00066	0.000719	0.000825	0.00099	0.0011	0.0011	0.0003	0.000086	0.45	-	-	0	-	-	0	-	-	0
Arsenic	3 / 3	100	0.0002	-	-	-	0.00047	-	-	-	-	0.001	0.00046	0.00027	0.99	-	0	0	-	0	0	-	0	0
Barium	1 / 12	8	0.001	0.00957	0.009583	0.009925	0.0096	0.01015	0.01085	0.011	0.011	0.011	0.0027	0.00079	0.29	-	-	0	-	-	0	-	-	0
Beryllium	12 / 12	100	0.00002	-	-	-	0.0012	-	-	-	-	0.002	0.001	0.00029	0.83	-	-	-	-	-	-	-	-	-
Bismuth	4 / 5	80	0.0004	-	-	-	0.0024	-	-	-	-	0.005	0.0024	0.0011	1.01	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	12 / 12	100	0.00002	-	-	-	0.0002	-	-	-	-	0.0003	0.00013	0.000038	0.67	8	8	0	8	8	0	0	0	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	12 / 12	100	0.000008	-	-	-	0.00026	-	-	-	-	0.0004	0.00018	0.000051	0.68	-	-	-	-	-	-	-	-	-
Chromium	9 / 12	75	0.0001	-	-	-	0.002	-	-	-	-	0.003	0.0013	0.00039	0.67	-	0	0	-	0	0	-	0	0
Cobalt	10 / 12	83	0.0001	-	-	-	0.00063	-	-	-	-	0.001	0.00045	0.00013	0.72	-	-	-	-	-	-	-	-	-
Copper	7 / 12	58	0.00048	-	-	-	0.0015	-	-	-	-	0.002	0.00063	0.00018	0.42	-	0	-	-	0	-	-	0	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	12 / 12	100	0.03	-	-	-	0.035	-	-	-	-	0.05	0.009	0.0026	0.26	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	9 / 12	75	0.0001	-	-	-	0.00076	-	-	-	-	0.00114	0.00041	0.00012	0.55	-	1	0	-	0	0	-	1	0
Lithium	8 / 12	67	0.0002	-	-	-	0.0019	-	-	-	-	0.003	0.0014	0.00041	0.76	-	-	-	-	-	-	-	-	-
Magnesium	0 / 1	0	0.0006	-	-	-	0.0006	-	-	-	-	0.0006	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-7-a: Water chemistry summary for Fairy River

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Manganese	4 / 11	36	0.00054	0.00054	0.001	0.001	0.0014	0.0012	0.00165	0.002	0.002	0.003	0.00069	0.00021	0.50	-	-	-	-	-	-	-	-	-
Mercury	1 / 1	100	0.00002	-	-	-	0.00002	-	-	-	-	0.00002	-	-	-	-	0	0	-	0	0	-	0	0
Molybdenum	10 / 12	83	0.00003	-	-	-	0.00062	-	-	-	-	0.001	0.00047	0.00014	0.77	-	0	-	-	0	-	-	0	-
Nickel	9 / 12	75	0.00009	-	-	-	0.00063	-	-	-	-	0.001	0.00046	0.00013	0.74	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	4 / 12	33	0.0004	0.0005	0.000402	0.00048	0.00048	0.0005	0.0005	0.0005	0.00051	0.00051	0.000043	0.000012	0.09	-	-	-	-	-	-	-	-	-
Selenium	11 / 12	92	0.0003	-	-	-	0.006	-	-	-	-	0.01	0.0049	0.0014	0.82	-	7	0	-	7	0	-	0	0
Silver	12 / 12	100	0.000006	-	-	-	0.0002	-	-	-	-	0.0003	0.00013	0.000036	0.63	-	7	-	-	7	-	-	0	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	1 / 12	8	0.001	0.0069	0.00691	0.007	0.0073	0.00768	0.008075	0.00893	0.009	0.01	0.0022	0.00063	0.30	-	-	-	-	-	-	-	-	-
Thallium	12 / 12	100	0.0001	-	-	-	0.00028	-	-	-	-	0.0004	0.00015	0.000045	0.56	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	9 / 12	75	0.00004	-	-	-	0.0018	-	-	-	-	0.003	0.0015	0.00043	0.84	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	10 / 12	83	0.000033	-	-	-	0.00021	-	-	-	-	0.0003	0.00012	0.000034	0.57	-	0	0	-	0	0	-	0	0
Vanadium	11 / 12	92	0.00003	-	-	-	0.00061	-	-	-	-	0.001	0.00048	0.00014	0.78	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	8 / 12	67	0.0025	-	-	-	0.0077	-	-	-	-	0.01	0.0035	0.001	0.45	-	0	-	-	0	-	-	0	-

Appendix B-3-8-a: Water chemistry summary for Copper Creek downstream of Fairy River

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	2 / 4	50	5	-	-	-	5	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 11	0	26.1	26.1	34.5	40.95	66	44.4	56.3	69.2	69.2	266	68	20	1.03	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	1 / 11	9	10	10	16	21.5	26	28	31	33	40	40	8.4	2.5	0.33	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	7 / 11	64	3	-	-	-	6.9	-	-	-	-	40	11	3.3	1.60	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 11	0	0.1	0.1	0.24	0.315	2.2	0.5	1.5	3.46	2.2	14.8	4.3	1.3	2.00	-	-	10	-	-	0	-	-	10
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 11	0	9.7	9.7	14.5	17.55	23	20.9	27.65	32.8	32.8	48.3	11	3.3	0.46	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	3 / 11	27	0.2	0.2	0.2	0.3	0.38	0.3	0.4	0.7	0.4	0.7	0.17	0.052	0.45	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	2 / 2	100	0.1	-	-	-	0.1	-	-	-	-	0.1	-	-	-	-	0	0	-	0	0	-	0	0

Appendix B-3-8-a: Water chemistry summary for Copper Creek downstream of Fairy River

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hardness, Total (as CaCO3)	0 / 11	0	11.8	11.8	16.9	17.6	23	20	25.7	33.7	33.7	43.8	9.1	2.8	0.40	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
pH (pH units)	0 / 11	0	6.77	6.77	7.14	7.16	7.3	7.19	7.43	7.57	7.75	7.75	0.26	0.08	0.04	-	0	-	-	0	-	-	0	-
Silica, Reactive	0 / 10	0	0.31	0.31	0.3649	0.4025	0.51	0.49	0.635	0.6832	0.712	0.712	0.14	0.045	0.27	-	-	-	-	-	-	-	-	-
Silica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	7 / 11	64	1	-	-	-	2.4	-	-	-	-	3	0.85	0.26	0.35	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ammonia, Total	8 / 11	73	0.005	-	-	-	0.0065	-	-	-	-	0.018	0.004	0.0012	0.61	-	0	-	-	0	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nitrate	4 / 9	44	0.008	0.008	0.008	0.008	0.024	0.02	0.03	0.0448	0.04	0.064	0.019	0.0063	0.79	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nitrate-Nitrite	1 / 8	13	0.01	0.01	0.017	0.0245	0.034	0.0285	0.0435	0.0573	0.065	0.065	0.018	0.0064	0.53	-	-	-	-	-	-	-	-	-
Nitrite	9 / 10	90	0.008	-	-	-	0.012	-	-	-	-	0.04	0.01	0.0031	0.84	-	0	0	-	0	0	-	0	0
Nitrogen, Particulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nitrogen, Total Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nitrogen, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphate, Ortho	6 / 10	60	0.002	-	-	-	0.0031	-	-	-	-	0.01	0.0026	0.00082	0.84	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorous, Particulate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorous, Total	2 / 11	18	0.004	0.004	0.01	0.01	0.023	0.011	0.0345	0.057	0.059	0.059	0.022	0.0066	0.96	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Appendix B-3-8-a: Water chemistry summary for Copper Creek downstream of Fairy River

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Carbon, Dissolved Organic	0 / 11	0	1.9	1.9	2	2.3	2.6	2.6	2.95	3.1	3.6	3.6	0.51	0.15	0.19	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Total Organic	0 / 11	0	1.8	1.8	1.9	2	2.6	2.5	3	3.2	3.6	3.6	0.61	0.18	0.24	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide																								
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Cyanide, wad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																								
Aluminum	0 / 2	0	0.004	-	-	-	0.0062	-	-	-	-	0.0083	0.003	0.0022	0.49	-	-	-	-	-	-	-	-	-
Antimony	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	2 / 2	100	0.0002	-	-	-	0.0002	-	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	-	-	-
Barium	0 / 2	0	0.0042	-	-	-	0.0062	-	-	-	-	0.0082	0.0028	0.002	0.46	-	-	-	-	-	-	-	-	-
Beryllium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	2 / 2	100	0.00005	-	-	-	0.00005	-	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	0 / 11	0	2.44	2.44	3.83	4.28	5.3	4.73	5.69	8.72	5.7	8.8	1.9	0.59	0.37	-	-	-	-	-	-	-	-	-
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	1 / 1	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Copper	0 / 2	0	0.0004	-	-	-	0.0006	-	-	-	-	0.0008	0.00028	0.0002	0.47	-	-	-	-	-	-	-	-	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	2 / 2	100	0.05	-	-	-	0.05	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Lithium	0 / 2	0	0.0005	-	-	-	0.0005	-	-	-	-	0.0005	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	0 / 11	0	1.38	1.38	1.69	1.745	2.2	1.99	2.48	3.1	3.1	3.6	0.69	0.21	0.32	-	-	-	-	-	-	-	-	-
Manganese	0 / 2	0	0.0011	-	-	-	0.0014	-	-	-	-	0.0016	0.00035	0.00025	0.26	-	-	-	-	-	-	-	-	-
Mercury	1 / 1	100	0.00002	-	-	-	0.00002	-	-	-	-	0.00002	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-8-a: Water chemistry summary for Copper Creek downstream of Fairy River

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Nickel	0 / 2	0	0.0003	-	-	-	0.0004	-	-	-	-	0.0005	0.00014	0.0001	0.35	-	-	-	-	-	-	-	-	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	0 / 1	0	0.01	-	-	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 11	0	0.28	0.28	0.3	0.315	0.37	0.36	0.42	0.45	0.46	0.46	0.064	0.019	0.17	-	-	-	-	-	-	-	-	-
Rubidium	0 / 2	0	0.0008	-	-	-	0.00095	-	-	-	-	0.0011	0.00021	0.00015	0.22	-	-	-	-	-	-	-	-	-
Selenium	2 / 2	100	0.0003	-	-	-	0.0003	-	-	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-
Silver	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	0 / 11	0	0.38	0.38	0.39	0.42	0.46	0.46	0.5	0.53	0.54	0.54	0.055	0.017	0.12	-	-	-	-	-	-	-	-	-
Strontium	0 / 2	0	0.0072	-	-	-	0.0077	-	-	-	-	0.0082	0.00071	0.0005	0.09	-	-	-	-	-	-	-	-	-
Thallium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	1 / 2	50	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	1 / 2	50	0.0004	-	-	-	0.0017	-	-	-	-	0.003	0.0018	0.0013	1.08	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	6 / 11	55	0.00616	-	-	-	0.038	-	-	-	-	0.185	0.049	0.015	1.29	-	1	-	-	0	-	-	1	-
Antimony	2 / 11	18	0.0001	0.0002	0.0002	0.0005	0.00063	0.000669	0.00072	0.0011	0.00074	0.0011	0.00031	0.000094	0.49	-	-	0	-	-	0	-	-	0
Arsenic	2 / 2	100	0.0002	-	-	-	0.0002	-	-	-	-	0.0002	-	-	-	-	0	0	-	0	0	-	0	0
Barium	0 / 11	0	0.003	0.003	0.0043	0.00539	0.0081	0.008	0.01069	0.013	0.013	0.013	0.0035	0.0011	0.43	-	-	0	-	-	0	-	-	0
Beryllium	11 / 11	100	0.00002	-	-	-	0.0011	-	-	-	-	0.002	0.001	0.0003	0.90	-	-	-	-	-	-	-	-	-
Bismuth	3 / 4	75	0.0004	-	-	-	0.0018	-	-	-	-	0.005	0.0021	0.0011	1.19	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	11 / 11	100	0.00002	-	-	-	0.00019	-	-	-	-	0.0003	0.00013	0.00004	0.72	8	8	0	8	8	0	0	0	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	10 / 11	91	0.000008	-	-	-	0.00025	-	-	-	-	0.0004	0.00018	0.000054	0.72	-	-	-	-	-	-	-	-	-
Chromium	9 / 11	82	0.0001	-	-	-	0.0019	-	-	-	-	0.003	0.0014	0.00042	0.75	-	0	0	-	0	0	-	0	0
Cobalt	9 / 11	82	0.000088	-	-	-	0.00059	-	-	-	-	0.001	0.00047	0.00014	0.79	-	-	-	-	-	-	-	-	-
Copper	6 / 11	55	0.0001	-	-	-	0.0015	-	-	-	-	0.002	0.00072	0.00022	0.48	-	0	-	-	0	-	-	0	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	8 / 11	73	0.03	-	-	-	0.062	-	-	-	-	0.293	0.077	0.023	1.24	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	8 / 11	73	0.00008	-	-	-	0.00062	-	-	-	-	0.001	0.00045	0.00013	0.72	-	0	0	-	0	0	-	0	0
Lithium	7 / 11	64	0.0002	-	-	-	0.0018	-	-	-	-	0.003	0.0014	0.00041	0.75	-	-	-	-	-	-	-	-	-
Magnesium	0 / 1	0	0.0012	-	-	-	0.0012	-	-	-	-	0.0012	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-8-a: Water chemistry summary for Copper Creek downstream of Fairy River

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Manganese	1 / 10	10	0.001	0.001	0.001711	0.001925	0.0037	0.00285	0.003	0.004389	0.00321	0.015	0.004	0.0013	1.11	-	-	-	-	-	-	-	-	-
Mercury	1 / 1	100	0.00002	-	-	-	0.00002	-	-	-	-	0.00002	-	-	-	-	0	0	-	0	0	-	0	0
Molybdenum	9 / 11	82	0.00002	-	-	-	0.00058	-	-	-	-	0.001	0.00048	0.00015	0.84	-	0	-	-	0	-	-	0	-
Nickel	7 / 11	64	0.0001	-	-	-	0.00069	-	-	-	-	0.001	0.00037	0.00011	0.53	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	1 / 11	9	0.0005	0.0005	0.0005	0.00069	0.0009	0.00092	0.00115	0.0012	0.0012	0.0012	0.00028	0.000084	0.31	-	-	-	-	-	-	-	-	-
Selenium	11 / 11	100	0.0003	-	-	-	0.0057	-	-	-	-	0.01	0.005	0.0015	0.88	-	6	0	-	6	0	-	0	0
Silver	11 / 11	100	0.000006	-	-	-	0.00019	-	-	-	-	0.0003	0.00013	0.000039	0.67	-	6	-	-	6	-	-	0	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 11	0	0.006	0.006	0.007	0.00715	0.0075	0.0075	0.00795	0.008	0.009	0.009	0.00076	0.00023	0.10	-	-	-	-	-	-	-	-	-
Thallium	11 / 11	100	0.0001	-	-	-	0.00026	-	-	-	-	0.0004	0.00016	0.000047	0.59	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	5 / 11	45	0.0002	0.0002	0.0002	0.000455	0.0027	0.003	0.003	0.003	0.003	0.011	0.003	0.00092	1.14	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	9 / 11	82	0.000038	-	-	-	0.0002	-	-	-	-	0.0003	0.00011	0.000034	0.55	-	0	0	-	0	0	-	0	0
Vanadium	11 / 11	100	0.00003	-	-	-	0.00058	-	-	-	-	0.001	0.00049	0.00015	0.84	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	6 / 11	55	0.0022	-	-	-	0.0092	-	-	-	-	0.029	0.0074	0.0022	0.80	-	0	-	-	0	-	-	0	-

Appendix B-3-9-a: Water chemistry summary for Coppermine River upstream of Copper Creek

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	3 / 7	43	5	5	5	5	11	5	12.5	26	20	35	12	4.5	1.03	-	-	-	-	-	-	-	-	-
True Colour (relative units)	8 / 30	27	5	5	5	5	17	10	30	33	65	65	15	2.8	0.91	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	0 / 7	0	0.03	0.03	0.036	0.04	0.059	0.04	0.075	0.092	0.11	0.11	0.029	0.011	0.50	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	0 / 39	0	1.672	1.672	2.3276	2.575	4.5	3.478	6.187	7.94	9.8	9.8	2.4	0.38	0.54	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 40	0	30.1	30.1	44.19	47.3	70	69.8	80.75	96.42	113	156	25	3.9	0.36	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	0 / 26	0	9.872	9.872	10.622	10.88125	11	11.2825	11.62225	13.171	11.79	13.551	0.98	0.19	0.09	-	-	-	-	-	-	-	-	-
TDS calc	0 / 38	0	20.302	20.302	22.5832	24.3975	38	36.14	43.25975	52.8031	60.134	106.845	18	2.9	0.47	-	-	-	-	-	-	-	-	-
TDS	0 / 40	0	10	10	18.9	29.5	47	43.5	61.25	78	88	88	21	3.4	0.46	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	0 / 23	0	0.1	0.1	0.6	1.45	5.4	5	8.85	9.5	15	15	4.1	0.85	0.75	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	10 / 39	26	3	3	3	3.5	18	6	21	38.4	44	225	37	6	2.04	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 40	0	0.56	0.56	1.071	1.5025	6.5	3.115	7.7975	17.12	17.1	36	7.8	1.2	1.20	-	-	40	-	-	0	-	-	40
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 40	0	16.9	16.9	17.89	20.1	33	34.65	40.55	47.41	59	79.6	14	2.2	0.42	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	0 / 39	0	0.24	0.24	0.298	0.33	0.51	0.39	0.56	0.892	0.88	1.33	0.28	0.044	0.54	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	0 / 39	0	0.01	0.01	0.02	0.02	0.033	0.03	0.03	0.052	0.04	0.09	0.017	0.0027	0.51	-	0	0	-	0	0	-	0	0

Appendix B-3-9-a: Water chemistry summary for Coppermine River upstream of Copper Creek

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	0 / 32	0	0.125	0.125	0.1753	0.806	4.5	1.7165	3.37075	6.4817	6.763	64.632	11	2	2.54	-	-	-	-	-	-	-	-	-
Hardness, Total (as CaCO3)	0 / 39	0	17.785	17.785	19.814	21.4055	37	35.056	42.486	50.51	62.381	114.832	20	3.2	0.54	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH (pH units)	0 / 22	0	6.09	6.5	7.11	7.2075	7.6	7.7	7.9175	8.407	8.7	8.7	0.62	0.13	0.08	-	0	-	-	0	-	-	0	-
Silica, Reactive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silica	0 / 39	0	0.56	0.56	0.588	0.66	1.3	1.02	1.67	1.964	2.65	4.34	0.84	0.13	0.65	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	0 / 39	0	1	1	1.228	1.425	2.5	1.8	2.1	2.42	2.7	26.8	4	0.65	1.64	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	18 / 40	45	0.005	0.005	0.005	0.005	0.012	0.01	0.01075	0.019	0.019	0.09	0.014	0.0022	1.18	-	-	-	-	-	-	-	-	-
Ammonia, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	3 / 20	15	0.01	0.01	0.01	0.0175	0.047	0.06	0.0625	0.071	0.08	0.08	0.026	0.0057	0.54	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	2 / 13	15	0.01	0.01	0.0122	0.017	0.2	0.024	0.075	0.1756	0.078	2	0.54	0.15	2.76	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	5 / 25	20	0.01	0.01	0.01	0.01	0.045	0.05	0.06	0.08	0.13	0.13	0.034	0.0068	0.76	-	-	-	-	-	-	-	-	-
Nitrite	17 / 20	85	0.01	-	-	-	0.014	-	-	-	-	0.06	0.012	0.0027	0.85	-	0	0	-	0	0	-	0	0
Nitrogen, Particulate	2 / 39	5	0.002	0.002	0.0202	0.0295	0.072	0.048	0.0805	0.1624	0.126	0.306	0.076	0.012	1.05	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	0 / 40	0	0.046	0.046	0.079	0.16	0.27	0.2145	0.3425	0.461	0.576	0.97	0.19	0.03	0.71	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total	0 / 40	0	0.06	0.06	0.1418	0.17	0.31	0.243	0.38775	0.5003	0.633	0.94	0.19	0.03	0.62	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	7 / 21	33	0.004	0.004	0.004	0.004	0.017	0.006	0.02	0.04	0.04	0.066	0.019	0.0041	1.14	-	-	-	-	-	-	-	-	-
Phosphorous	7 / 39	18	0.004	0.004	0.01	0.01	0.025	0.02	0.03	0.0488	0.045	0.078	0.019	0.003	0.77	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-9-a: Water chemistry summary for Coppermine River upstream of Copper Creek

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Carbon, Dissolved Organic	0 / 40	0	1.7	1.7	2.87	3.3	4.8	4.4	6.075	7.51	9.3	9.3	1.9	0.31	0.40	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Particulate Organic	0 / 39	0	0.1	0.1	0.2498	0.271	0.76	0.38	0.7195	1.306	1.28	8.14	1.3	0.21	1.68	-	-	-	-	-	-	-	-	-
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Total Organic	0 / 23	0	2.001	2.001	3.0898	3.577	5.2	4.458	6.7425	7.8528	9.63	9.63	2.1	0.43	0.40	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Free CO2 (calcd)	0 / 40	0	0.897	0.897	1.083	1.30775	2	1.607	1.94525	2.4748	2.536	13.52	2	0.31	0.99	-	-	-	-	-	-	-	-	-
Cyanide																								
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	8 / 9	89	0.002	-	-	-	0.0059	-	-	-	-	0.023	0.0068	0.0023	1.16	-	2	0	-	1	0	-	1	0
Cyanide, wad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																								
Aluminum	0 / 23	0	0.0078	0.0078	0.00992	0.01695	0.028	0.0214	0.03345	0.0516	0.0529	0.104	0.022	0.0046	0.78	-	-	-	-	-	-	-	-	-
Antimony	0 / 23	0	0.000012	0.000012	4.08E-05	0.000052	0.000086	0.000073	0.000091	0.0001748	0.000097	0.00023	0.000056	0.000012	0.65	-	-	-	-	-	-	-	-	-
Arsenic	1 / 30	3	0.0001	0.0001	0.0001	0.000155	0.00018	0.00019	0.00021	0.000221	0.00027	0.0003	0.000053	0.0000096	0.29	-	-	-	-	-	-	-	-	-
Barium	0 / 23	0	0.00874	0.00874	0.00964	0.0108	0.021	0.0221	0.0264	0.03298	0.0485	0.0485	0.01	0.0022	0.50	-	-	-	-	-	-	-	-	-
Beryllium	0 / 23	0	0.000001	0.000001	0.000002	0.000002	0.000003	0.000003	0.0000035	0.000005	0.000005	0.000007	0.0000015	0.00000031	0.49	-	-	-	-	-	-	-	-	-
Bismuth	4 / 23	17	0.000001	0.000001	0.000001	0.000001	0.0000022	0.000001	0.000003	0.000004	0.000004	0.000007	0.0000017	0.00000036	0.80	-	-	-	-	-	-	-	-	-
Boron	0 / 23	0	0.0014	0.0014	0.00152	0.00165	0.0023	0.0021	0.0027	0.00348	0.0035	0.0043	0.00079	0.00016	0.34	-	-	-	-	-	-	-	-	-
Cadmium	0 / 23	0	0.000002	0.000002	0.000003	0.000004	0.000053	0.000012	0.0001175	0.0001586	0.000221	0.000221	0.00007	0.000015	1.32	-	-	-	-	-	-	-	-	-
Calcium	0 / 39	0	4.27	4.27	4.592	5.11	8.3	7.84	9.125	10.86	12.6	32.6	5	0.8	0.60	-	-	-	-	-	-	-	-	-
Cerium	0 / 23	0	0.000023	0.000023	2.54E-05	0.0000455	0.00011	0.000122	0.000168	0.0002016	0.000243	0.000243	0.000072	0.000015	0.65	-	-	-	-	-	-	-	-	-
Cesium	6 / 22	27	0.000002	0.000004	0.000003	0.000005	0.0000061	0.000005	5.75E-06	0.000009	0.000006	0.000024	0.0000044	0.00000094	0.73	-	-	-	-	-	-	-	-	-
Chromium	0 / 23	0	0.00008	0.00008	8.36E-05	0.00011	0.00025	0.00015	0.0004145	0.0005438	0.00074	0.00074	0.0002	0.000042	0.80	-	-	-	-	-	-	-	-	-
Cobalt	0 / 23	0	0.000012	0.000012	1.96E-05	0.0000265	0.000036	0.000034	0.0000405	0.0000508	0.000051	0.000099	0.000018	0.0000037	0.49	-	-	-	-	-	-	-	-	-
Copper	0 / 23	0	0.00088	0.00088	0.000924	0.00115	0.0018	0.00177	0.002195	0.002848	0.00326	0.00326	0.00074	0.00016	0.42	-	-	-	-	-	-	-	-	-
Gallium	0 / 23	0	0.000001	0.000001	3.2E-06	0.0000055	0.0000099	0.000007	0.000012	0.000017	0.000017	0.000041	0.0000086	0.0000018	0.87	-	-	-	-	-	-	-	-	-
Iron	0 / 23	0	0.0089	0.0089	0.0205	0.03215	0.052	0.051	0.067	0.07268	0.0968	0.16	0.032	0.0067	0.61	-	-	-	-	-	-	-	-	-
Lanthanum	0 / 23	0	0.000022	0.000022	2.34E-05	0.000035	0.000078	0.000072	0.00012	0.000133	0.000158	0.000158	0.000046	0.0000095	0.59	-	-	-	-	-	-	-	-	-
Lead	0 / 23	0	0.000011	0.000011	1.74E-05	0.000036	0.00068	0.000059	0.000178	0.0003908	0.000246	0.0131	0.0027	0.00057	4.01	-	-	-	-	-	-	-	-	-
Lithium	0 / 23	0	0.00056	0.00056	0.0006	0.00062	0.00073	0.0007	0.0008	0.000908	0.001	0.001	0.00013	0.000028	0.18	-	-	-	-	-	-	-	-	-
Magnesium	0 / 39	0	1.73	1.73	1.95	2.1	3.8	3.76	4.685	5.738	8.12	10.6	2	0.32	0.52	-	-	-	-	-	-	-	-	-
Manganese	0 / 23	0	0.00057	0.00057	0.000948	0.00131	0.0026	0.00189	0.003195	0.00434	0.00499	0.00977	0.002	0.00042	0.78	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-9-a: Water chemistry summary for Coppermine River upstream of Copper Creek

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	0 / 23	0	0.000045	0.000045	5.12E-05	0.0000545	0.000067	0.000065	0.000072	0.0000756	0.000076	0.000149	0.00002	0.0000042	0.30	-	-	-	-	-	-	-	-	-
Nickel	0 / 23	0	0.00035	0.00035	0.000438	0.0005	0.00074	0.00062	0.000755	0.001152	0.00108	0.00231	0.00041	0.000086	0.55	-	-	-	-	-	-	-	-	-
Niobium	3 / 23	13	0.000001	0.000001	0.000001	0.000001	0.0000028	0.000002	0.0000035	0.0000048	0.000005	0.000013	0.0000026	0.00000054	0.92	-	-	-	-	-	-	-	-	-
Phosphorous, Total	19 / 39	49	0.002	0.003	0.0038	0.0085	0.013	0.01	0.0125	0.0202	0.016	0.062	0.012	0.002	0.94	-	-	-	-	-	-	-	-	-
Platinum	22 / 23	96	0.000001	-	-	-	0.000001	-	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 39	0	0.37	0.37	0.43	0.45	0.63	0.54	0.695	1.032	1.06	1.47	0.25	0.04	0.39	-	-	-	-	-	-	-	-	-
Rubidium	0 / 23	0	0.000648	0.000648	0.000671	0.000736	0.00092	0.00089	0.001095	0.001234	0.00139	0.00139	0.00022	0.000047	0.24	-	-	-	-	-	-	-	-	-
Selenium	15 / 30	50	0.00001	0.00001	0.00001	0.00002	0.00005	0.00005	0.00005	0.0001	0.00005	0.0001	0.000032	0.0000058	0.64	-	-	-	-	-	-	-	-	-
Silver	6 / 23	26	0.000001	0.000001	0.000001	0.000001	0.00001	0.000001	0.000002	0.0000082	0.000003	0.00018	0.000037	0.0000077	3.70	-	-	-	-	-	-	-	-	-
Sodium	0 / 39	0	0.45	0.45	0.48	0.515	0.68	0.58	0.735	0.896	1.01	2.56	0.35	0.056	0.52	-	-	-	-	-	-	-	-	-
Strontium	0 / 23	0	0.00688	0.00688	0.00779	0.00797	0.0088	0.00865	0.00915	0.0104	0.0105	0.0123	0.0012	0.00024	0.13	-	-	-	-	-	-	-	-	-
Thallium	0 / 23	0	0.000001	0.000001	0.000001	0.000001	0.0000017	0.000001	0.000002	0.000003	0.000003	0.000004	0.00000092	0.00000019	0.53	-	-	-	-	-	-	-	-	-
Tin	11 / 23	48	0.000005	0.000005	0.000005	0.000005	0.000019	0.000007	0.0000235	0.0000434	0.000046	0.000106	0.000024	0.000005	1.29	-	-	-	-	-	-	-	-	-
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	2 / 23	9	0.000001	0.000001	0.000001	0.000002	0.0000054	0.000003	0.000007	0.000012	0.000012	0.000018	0.000005	0.0000011	0.94	-	-	-	-	-	-	-	-	-
Uranium	0 / 23	0	0.0000578	5.78E-05	6.04E-05	0.0000777	0.00015	0.00013	0.000192	0.0001988	0.000255	0.000493	0.000095	0.00002	0.65	-	-	-	-	-	-	-	-	-
Vanadium	0 / 23	0	0.000057	0.000057	7.72E-05	0.000113	0.00014	0.000132	0.0001565	0.0001874	0.000192	0.000352	0.000062	0.000013	0.44	-	-	-	-	-	-	-	-	-
Yttrium	0 / 23	0	0.000018	0.000018	0.000022	0.000029	0.000065	0.000042	0.000104	0.0001178	0.00014	0.00014	0.000041	0.0000086	0.63	-	-	-	-	-	-	-	-	-
Zinc	0 / 23	0	0.0002	0.0002	0.00041	0.000785	0.0037	0.0014	0.00524	0.00937	0.0116	0.0208	0.005	0.001	1.36	-	-	-	-	-	-	-	-	-
Extractable Metals																								
Aluminum	0 / 2	0	0.09	-	-	-	0.17	-	-	-	-	0.24	0.11	0.075	0.64	-	-	-	-	-	-	-	-	-
Barium	0 / 2	0	0.025	-	-	-	0.025	-	-	-	-	0.025	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	2 / 2	100	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Boron	1 / 2	50	0.01	-	-	-	0.02	-	-	-	-	0.03	0.014	0.01	0.71	-	-	-	-	-	-	-	-	-
Cadmium	2 / 2	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Calcium (unfiltered)	0 / 3	0	3.9	-	-	-	7	-	-	-	-	9.9	3	1.7	0.43	-	-	-	-	-	-	-	-	-
Chromium	2 / 2	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	2 / 2	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Copper	1 / 2	50	0.005	-	-	-	0.0055	-	-	-	-	0.006	0.00071	0.0005	0.13	-	-	-	-	-	-	-	-	-
Iron	0 / 3	0	0.043	-	-	-	0.2	-	-	-	-	0.43	0.21	0.12	1.06	-	-	-	-	-	-	-	-	-
Lead	2 / 2	100	0.02	-	-	-	0.02	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-	-	-	-
Lithium	0 / 2	0	0.006	-	-	-	0.006	-	-	-	-	0.006	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	0 / 2	0	3.7	-	-	-	4.5	-	-	-	-	5.3	1.1	0.8	0.25	-	-	-	-	-	-	-	-	-
Manganese	0 / 3	0	0.002	-	-	-	0.011	-	-	-	-	0.025	0.012	0.007	1.07	-	-	-	-	-	-	-	-	-
Molybdenum	2 / 2	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	1 / 2	50	0.01	-	-	-	0.013	-	-	-	-	0.016	0.0042	0.003	0.33	-	-	-	-	-	-	-	-	-
Potassium	2 / 2	100	2	-	-	-	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	2 / 2	100	2	-	-	-	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 2	0	0.008	-	-	-	0.0085	-	-	-	-	0.009	0.00071	0.0005	0.08	-	-	-	-	-	-	-	-	-

Appendix B-3-9-a: Water chemistry summary for Coppermine River upstream of Copper Creek

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ
Vanadium	1 / 2	50	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	
Zinc	2 / 2	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	
Total Metals																								
Aluminum	0 / 36	0	0.0093	0.0093	0.0201	0.0363	0.18	0.0865	0.2235	0.514	0.49	0.763	0.2	0.034	1.14	-	28	-	-	0	-	-	28	-
Antimony	1 / 35	3	0.000001	0.000001	1.12E-05	0.0000155	0.000061	0.00002	0.000062	0.000163	0.000126	0.000385	0.000086	0.000015	1.41	-	-	0	-	-	0	-	-	0
Arsenic	0 / 32	0	0.00006	0.00015	0.00018	0.00022	0.00025	0.00024	0.0002925	0.00031	0.00036	0.00036	0.000061	0.000011	0.25	-	0	0	-	0	0	-	0	0
Barium	0 / 39	0	0.00846	0.00846	0.00981	0.01135	0.022	0.0234	0.0294	0.03644	0.0517	0.0517	0.011	0.0018	0.52	-	-	0	-	-	0	-	-	0
Beryllium	5 / 39	13	0.000001	0.000001	0.000002	0.0000025	0.000012	0.000004	0.000015	3.16E-05	0.000027	0.00005	0.000015	0.0000024	1.24	-	-	-	-	-	-	-	-	-
Bismuth	2 / 21	10	0.000001	0.000001	0.000001	0.000001	0.000005	0.000003	0.000009	0.000011	0.000012	0.000012	0.0000043	0.00000094	0.86	-	-	-	-	-	-	-	-	-
Boron	3 / 35	9	0.0001	0.0001	0.00042	0.0014	0.0019	0.0017	0.0023	0.00338	0.0035	0.0049	0.0011	0.00019	0.59	0	0	0	0	0	0	0	0	0
Cadmium	1 / 39	3	0.000001	0.000001	0.000002	0.0000055	0.0001	0.000045	0.000124	0.0002256	0.0003	0.00059	0.00014	0.000023	1.43	18	18	0	1	1	0	17	17	0
Cerium	0 / 33	0	0.000025	0.000025	0.000055	0.000093	0.00047	0.000205	0.000739	0.001204	0.00167	0.00202	0.00052	0.000091	1.11	-	-	-	-	-	-	-	-	-
Cesium	1 / 35	3	0.000003	0.000003	5.4E-06	0.0000085	0.000027	0.000012	0.00004	0.0000658	0.000087	0.000095	0.000025	0.0000043	0.95	-	-	-	-	-	-	-	-	-
Chromium	0 / 39	0	0.00008	0.00008	0.000127	0.000174	0.00074	0.00047	0.001	0.001954	0.00212	0.00304	0.00072	0.00012	0.97	-	0	0	-	0	0	-	0	0
Cobalt	0 / 39	0	0.000018	0.000018	2.22E-05	0.0000405	0.00015	0.000097	0.00022	0.0003592	0.000468	0.0005	0.00014	0.000023	0.96	-	-	-	-	-	-	-	-	-
Copper	0 / 39	0	0.00091	0.00091	0.001076	0.00132	0.0021	0.00172	0.002265	0.003802	0.00327	0.0069	0.0013	0.0002	0.59	-	15	-	-	0	-	-	15	-
Gallium	0 / 35	0	0.000004	0.000004	0.000006	0.0000115	0.000056	0.000023	0.000085	0.0001668	0.000195	0.000217	0.000062	0.000011	1.10	-	-	-	-	-	-	-	-	-
Iron	0 / 39	0	0.0116	0.0116	0.02592	0.06815	0.25	0.128	0.362	0.6458	0.726	0.949	0.25	0.04	1.02	-	11	-	-	0	-	-	11	-
Lanthanum	0 / 35	0	0.000025	0.000025	4.54E-05	0.0000585	0.00024	0.000106	0.0003795	0.0006318	0.000804	0.000983	0.00025	0.000043	1.05	-	-	-	-	-	-	-	-	-
Lead	1 / 39	3	0.000005	0.000005	3.46E-05	0.000085	0.0063	0.000226	0.0004585	0.003608	0.001	0.168	0.027	0.0044	4.32	-	5	4	-	0	0	-	5	4
Lithium	0 / 39	0	0.00068	0.00068	0.0007	0.000795	0.00094	0.0009	0.00101	0.0012	0.0012	0.00165	0.00023	0.000038	0.25	-	-	-	-	-	-	-	-	-
Magnesium	0 / 4	0	1.67	-	-	-	3	-	-	-	-	4.71	1.3	0.67	0.45	-	-	-	-	-	-	-	-	-
Manganese	0 / 39	0	0.00074	0.00074	0.001874	0.003335	0.0099	0.00528	0.01595	0.02264	0.0282	0.0349	0.0091	0.0015	0.92	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Molybdenum	0 / 39	0	0.000025	0.000025	4.58E-05	0.0000525	0.00013	0.000063	0.000072	0.0001	0.0001	0.00184	0.00031	0.000049	2.37	-	0	-	-	0	-	-	0	-
Nickel	1 / 39	3	0.0002	0.0002	0.000438	0.000485	0.0012	0.00071	0.001165	0.001358	0.00174	0.0148	0.0023	0.00036	1.92	-	0	-	-	0	-	-	0	-
Niobium	1 / 35	3	0.000001	0.000001	2.4E-06	0.0000035	0.000015	0.000007	0.000022	0.0000446	0.000048	0.000058	0.000016	0.0000028	1.07	-	-	-	-	-	-	-	-	-
Platinum	30 / 35	86	0.000001	-	-	-	0.000002	-	-	-	-	0.000027	0.0000044	0.00000075	2.22	-	-	-	-	-	-	-	-	-
Rubidium	0 / 35	0	0.00071	0.00071	0.000912	0.0009845	0.0012	0.00113	0.001265	0.001422	0.00158	0.00185	0.00024	0.000041	0.21	-	-	-	-	-	-	-	-	-
Selenium	18 / 32	56	0.00001	-	-	-	0.000045	-	-	-	-	0.00012	0.000023	0.000004	0.51	-	0	0	-	0	0	-	0	0
Silver	8 / 36	22	0.000001	0.000001	0.000001	0.000001	0.000044	0.000003	9.25E-06	0.0001	0.000017	0.0009	0.00015	0.000026	3.49	-	3	-	-	0	-	-	3	-
Sodium	0 / 4	0	0.37	-	-	-	0.46	-	-	-	-	0.57	0.085	0.043	0.19	-	-	-	-	-	-	-	-	-
Strontium	0 / 39	0	0.007	0.007	0.007362	0.00814	0.009	0.00882	0.00968	0.01034	0.0113	0.0129	0.0014	0.00022	0.15	-	-	-	-	-	-	-	-	-
Thallium	3 / 35	9	0.000001	0.000001	0.000001	0.000001	0.0000034	0.000002	0.0000045	0.000006	0.000008	0.000019	0.0000034	0.00000058	1.00	-	0	-	-	0	-	-	0	-
Tin	10 / 35	29	0.000005	0.000005	0.000005	0.000005	0.000038	0.000008	0.0000445	9.84E-05	0.000066	0.000271	0.000065	0.000011	1.73	-	-	-	-	-	-	-	-	-
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	2 / 35	6	0.000001	0.000001	0.000001	0.000002	0.0000095	0.000005	0.000009	0.0000182	0.000014	0.000089	0.000016	0.0000027	1.67	-	-	-	-	-	-	-	-	-

Appendix B-3-9-a: Water chemistry summary for Coppermine River upstream of Copper Creek

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ
Uranium	0 / 32	0	0.0000535	5.35E-05	6.97E-05	7.558E-05	0.00015	0.0001435	0.0001933	0.0002216	0.000291	0.000291	0.000066	0.000012	0.45	-	0	0	-	0	0	-	0	0
Vanadium	0 / 39	0	0.00006	0.00006	8.78E-05	0.0001385	0.0004	0.000227	0.000566	0.0009268	0.00111	0.0014	0.00036	0.000058	0.89	-	-	-	-	-	-	-	-	-
Yttrium	0 / 35	0	0.000025	0.000025	3.08E-05	0.0000425	0.00014	0.000071	0.000227	0.0003144	0.000371	0.000509	0.00013	0.000022	0.94	-	-	-	-	-	-	-	-	-
Zinc	0 / 39	0	0.0002	0.0002	0.000258	0.000585	0.005	0.00214	0.005095	0.01308	0.0099	0.038	0.0077	0.0012	1.55	-	1	-	-	0	-	-	1	-
PAHs																								
1,2,3,4-Tetrahydronaphthalene	2 / 2	100	0.000017	-	-	-	0.000017	-	-	-	-	0.000017	-	-	-	-	-	-	-	-	-	-	-	-
1-Methylnaphthalene	1 / 2	50	0.0000216	-	-	-	0.00017	-	-	-	-	0.000322	0.00021	0.00015	1.24	-	-	-	-	-	-	-	-	-
2-Chloronaphthalene	2 / 2	100	0.0000223	-	-	-	0.000022	-	-	-	-	2.23E-05	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	1 / 2	50	0.0000264	-	-	-	0.00031	-	-	-	-	0.000593	0.0004	0.00028	1.29	-	-	-	-	-	-	-	-	-
Acenaphthene	2 / 2	100	0.0000239	-	-	-	0.000024	-	-	-	-	2.39E-05	-	-	-	-	0	-	-	0	-	-	0	-
Acenaphthylene	1 / 2	50	0.0000162	-	-	-	0.000027	-	-	-	-	3.87E-05	0.000016	0.000011	0.58	-	-	-	-	-	-	-	-	-
Alpha-Chlordane	2 / 2	100	3.7E-07	-	-	-	0.00000049	-	-	-	-	6E-07	0.00000016	0.00000012	0.34	-	-	-	-	-	-	-	-	-
Anthracene	2 / 2	100	0.00002	-	-	-	0.00002	-	-	-	-	0.00002	-	-	-	-	2	-	-	2	-	-	0	-
Benzo(a)anthracene	2 / 2	100	0.00002	-	-	-	0.00002	-	-	-	-	0.00002	-	-	-	-	2	-	-	2	-	-	0	-
Benzo(a)pyrene	2 / 2	100	0.000006	-	-	-	0.000037	-	-	-	-	6.86E-05	0.000044	0.000031	1.19	-	1	1	-	1	1	-	0	0
Benzo(b)fluoranthene	2 / 2	100	0.0000064	-	-	-	0.000045	-	-	-	-	8.39E-05	0.000055	0.000039	1.21	-	-	-	-	-	-	-	-	-
Benzo(e)pyrene	2 / 2	100	0.0000056	-	-	-	0.000038	-	-	-	-	0.00007	0.000046	0.000032	1.20	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	2 / 2	100	0.000011	-	-	-	0.000063	-	-	-	-	0.000114	0.000073	0.000052	1.17	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	2 / 2	100	0.0000055	-	-	-	0.000043	-	-	-	-	8.14E-05	0.000054	0.000038	1.24	-	-	-	-	-	-	-	-	-
Chrysene	2 / 2	100	0.00002	-	-	-	0.00002	-	-	-	-	0.00002	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	2 / 2	100	0.000016	-	-	-	0.000058	-	-	-	-	0.0001	0.000059	0.000042	1.02	-	-	-	-	-	-	-	-	-
Fluoranthene	2 / 2	100	0.0000087	-	-	-	0.0000087	-	-	-	-	8.7E-06	-	-	-	-	0	-	-	0	-	-	0	-
Fluorene	2 / 2	100	0.0000251	-	-	-	0.000025	-	-	-	-	2.51E-05	-	-	-	-	0	-	-	0	-	-	0	-
Fluorene-9,10 (surrogate) (%)	0 / 2	0	67	-	-	-	74	-	-	-	-	80	9.2	6.5	0.13	-	-	-	-	-	-	-	-	-
Indene	2 / 2	100	0.0000145	-	-	-	0.000015	-	-	-	-	1.45E-05	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-c,d)pyrene	2 / 2	100	0.000012	-	-	-	0.000073	-	-	-	-	0.000133	0.000086	0.000061	1.18	-	-	-	-	-	-	-	-	-
Naphthalene	1 / 2	50	0.00002	-	-	-	0.00014	-	-	-	-	0.000268	0.00018	0.00012	1.22	-	0	-	-	0	-	-	0	-
Naphthalene-1,8 (surrogate) (%)	0 / 2	0	73	-	-	-	75	-	-	-	-	77	2.8	2	0.04	-	2	-	-	0	-	-	2	-
Perylene	2 / 2	100	0.000009	-	-	-	0.000055	-	-	-	-	0.0001	0.000064	0.000046	1.18	-	-	-	-	-	-	-	-	-
Phenanthrene	2 / 2	100	0.0000338	-	-	-	0.000034	-	-	-	-	3.38E-05	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	2 / 2	100	7.82E-06	-	-	-	0.0000078	-	-	-	-	7.82E-06	-	-	-	-	0	-	-	0	-	-	0	-
Pyrene-9,10 (surrogate) (%)	0 / 2	0	71	-	-	-	80	-	-	-	-	89	13	9	0.16	-	-	-	-	-	-	-	-	-
PCBs																								
PCB, Total	2 / 2	100	2.1E-07	-	-	-	0.00000028	-	-	-	-	3.4E-07	9.2E-08	0.000000065	0.33	-	-	-	-	-	-	-	-	-
Organics																								
Extractable Hydrocarbons (c10-c14)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Extractable Hydrocarbons (c14-c24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Extractable Hydrocarbons (c24-c50)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-9-a: Water chemistry summary for Coppermine River upstream of Copper Creek

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Purgeable Hydrocarbons	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hydrocarbons (TEH)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
HCCAL	2 / 2	100	0.25	-	-	-	0.33	-	-	-	-	0.41	0.11	0.08	0.34	-	-	-	-	-	-	-	-	-
1,2,4,5- Tetrabromobenzene	0 / 2	0	5	-	-	-	44	-	-	-	-	82	54	39	1.25	-	-	-	-	-	-	-	-	-
Aldrin	2 / 2	100	1.7E-07	-	-	-	0.00000022	-	-	-	-	2.7E-07	7.1E-08	0.00000005	0.32	-	-	-	-	-	-	-	-	-
Alpha- Benzenehexachloride	2 / 2	100	2.2E-07	-	-	-	0.00000029	-	-	-	-	3.5E-07	9.2E-08	0.000000065	0.32	-	-	-	-	-	-	-	-	-
Alpha-Endosulfan	2 / 2	100	3.8E-07	-	-	-	0.0000005	-	-	-	-	6.2E-07	0.00000017	0.00000012	0.34	0	0	-	0	0	-	0	0	-
Beta-Endosulfan	2 / 2	100	3.6E-07	-	-	-	0.00000048	-	-	-	-	5.9E-07	0.00000016	0.00000012	0.34	0	0	-	0	0	-	0	0	-
Beta-HCH	2 / 2	100	1.01E-06	-	-	-	0.0000013	-	-	-	-	1.63E-06	0.00000044	0.00000031	0.33	-	-	-	-	-	-	-	-	-
Cis-Nonachlor	2 / 2	100	6.8E-07	-	-	-	0.00000089	-	-	-	-	1.09E-06	0.00000029	0.00000021	0.33	-	-	-	-	-	-	-	-	-
Delta- Benzenehexachloride	0 / 2	0	80	-	-	-	87	-	-	-	-	94	9.9	7	0.11	-	-	-	-	-	-	-	-	-
Dieldrin	2 / 2	100	0.66	-	-	-	0.87	-	-	-	-	1.07	0.29	0.21	0.34	-	-	-	-	-	-	-	-	-
Endrin Ketone (surrogate) (87)	0 / 2	0	95	-	-	-	98	-	-	-	-	101	4.2	3	0.04	-	-	-	-	-	-	-	-	-
Endrin	2 / 2	100	7.7E-07	-	-	-	0.000001	-	-	-	-	1.25E-06	0.00000034	0.00000024	0.34	-	-	-	-	-	-	-	-	-
Gamma- Benzenehexachloride	2 / 2	100	2.7E-07	-	-	-	0.00000036	-	-	-	-	4.4E-07	0.00000012	0.000000085	0.34	-	-	-	-	-	-	-	-	-
Gamma-Chlordane	2 / 2	100	1.9E-07	-	-	-	0.00000025	-	-	-	-	3.1E-07	8.5E-08	0.00000006	0.34	-	-	-	-	-	-	-	-	-
Heptachlor Epoxide	2 / 2	100	0.0000002	-	-	-	0.00000027	-	-	-	-	3.3E-07	9.2E-08	0.000000065	0.35	-	-	-	-	-	-	-	-	-
Heptachlor	2 / 2	100	3.5E-07	-	-	-	0.00000046	-	-	-	-	5.6E-07	0.00000015	0.00000011	0.33	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	2 / 2	100	2.9E-07	-	-	-	0.00000038	-	-	-	-	4.6E-07	0.00000012	0.000000085	0.32	-	-	-	-	-	-	-	-	-
methoxychlor (p,p'- methoxychlor)	2 / 2	100	3.17E-06	-	-	-	0.0000041	-	-	-	-	5.12E-06	0.0000014	0.00000098	0.33	-	-	-	-	-	-	-	-	-
Mirex	2 / 2	100	5.1E-07	-	-	-	0.00000067	-	-	-	-	8.2E-07	0.00000022	0.00000016	0.33	-	-	-	-	-	-	-	-	-
o,p'-DDD	2 / 2	100	4.8E-07	-	-	-	0.00000063	-	-	-	-	7.8E-07	0.00000021	0.00000015	0.34	-	-	-	-	-	-	-	-	-
o,p'-DDE	2 / 2	100	7.4E-07	-	-	-	0.00000097	-	-	-	-	1.19E-06	0.00000032	0.00000023	0.33	-	-	-	-	-	-	-	-	-
o,p'-DDT	2 / 2	100	3.5E-07	-	-	-	0.00000046	-	-	-	-	5.6E-07	0.00000015	0.00000011	0.33	-	-	-	-	-	-	-	-	-
Oxychlordane	2 / 2	100	6.4E-07	-	-	-	0.00000084	-	-	-	-	1.04E-06	0.00000028	0.0000002	0.34	-	-	-	-	-	-	-	-	-
p,p'-DDD (tdp)	2 / 2	100	5.5E-07	-	-	-	0.00000072	-	-	-	-	8.8E-07	0.00000023	0.00000017	0.33	-	-	-	-	-	-	-	-	-
p,p'-DDE	2 / 2	100	0.0000004	-	-	-	0.00000053	-	-	-	-	6.5E-07	0.00000018	0.00000013	0.34	-	-	-	-	-	-	-	-	-
p,p'-DDT	2 / 2	100	7.2E-07	-	-	-	0.00000094	-	-	-	-	1.16E-06	0.00000031	0.00000022	0.33	-	-	-	-	-	-	-	-	-
Pentachloroanisole	1 / 2	50	2.8E-07	-	-	-	0.0000003	-	-	-	-	3.2E-07	2.8E-08	0.00000002	0.09	-	-	-	-	-	-	-	-	-
Trans-Nonachlor	2 / 2	100	4.6E-07	-	-	-	0.0000006	-	-	-	-	7.4E-07	0.0000002	0.00000014	0.33	-	-	-	-	-	-	-	-	-
Azinphos Methyl (Cuthion)	1 / 1	100	0.0000087	-	-	-	0.0000087	-	-	-	-	8.7E-06	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzothiophene	1 / 1	100	0.0000052	-	-	-	0.0000052	-	-	-	-	5.2E-06	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-9-b: Water chemistry summary for Coppermine River upstream of Copper Creek during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	2 / 3	67	5	-	-	-	10	-	-	-	-	20	8.7	5	0.87	-	-	-	-	-	-	-	-	-
True Colour (relative units)	7 / 7	100	5	-	-	-	5	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	0 / 3	0	0.07	-	-	-	0.087	-	-	-	-	0.11	0.021	0.012	0.24	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	0 / 11	0	5.949	5.949	6.141	6.471	7.5	7.014	8.4245	9.623	9.8	9.8	1.4	0.42	0.19	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 11	0	30.1	40.6	40.6	42.95	44	45.7	46.75	47.4	47.4	54.2	5.9	1.8	0.13	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	0 / 5	0	11.275	12.929	11.9366	12.929	13	13.167	13.175	13.226	13.26	13.26	0.84	0.38	0.07	-	-	-	-	-	-	-	-	-
TDS calc	0 / 11	0	20.302	22.47	22.47	22.953	24	23.61	24.495	25.93	25.93	32.6	3.1	0.94	0.13	-	-	-	-	-	-	-	-	-
TDS	0 / 11	0	10	10	14	18.5	27	26	31	38	38	60	14	4.1	0.50	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	0 / 3	0	0.5	-	-	-	0.67	-	-	-	-	1	0.29	0.17	0.43	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	5 / 11	45	3	3	3	3	4.5	4	6	6	8	8	1.8	0.53	0.39	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 11	0	0.56	0.56	0.76	1.025	2.6	1.51	3.705	5.39	5.39	7.73	2.3	0.7	0.90	-	-	11	-	-	0	-	-	11
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 11	0	16.9	16.9	17.2	17.85	19	19.3	20.05	20.1	20.2	20.2	1.3	0.38	0.07	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	0 / 11	0	0.36	0.36	0.39	0.485	0.69	0.61	0.775	1.13	1.13	1.33	0.31	0.093	0.45	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	0 / 11	0	0.02	0.02	0.02	0.02	0.031	0.03	0.03	0.05	0.03	0.06	0.013	0.0039	0.42	-	0	0	-	0	0	-	0	0

Appendix B-3-9-b: Water chemistry summary for Coppermine River upstream of Copper Creek during Winter Baseflow

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	0 / 9	0	0.178	0.178	0.4084	0.475	2.6	2.13	3.186	6.3746	6.497	6.497	2.4	0.8	0.94	-	-	-	-	-	-	-	-	-
Hardness, Total (as CaCO3)	0 / 11	0	18.366	18.366	18.846	19.664	21	20.386	22.215	23.397	24.144	24.144	1.9	0.56	0.09	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH (pH units)	0 / 3	0	7.1	-	-	-	7.3	-	-	-	-	7.7	0.32	0.19	0.04	-	0	-	-	0	-	-	0	-
Silica, Reactive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silica	0 / 11	0	0.56	0.56	0.58	0.59	0.64	0.63	0.67	0.7	0.7	0.8	0.068	0.021	0.11	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	0 / 11	0	1	1.92	1.92	1.99	2	2.06	2.25	2.41	2.46	2.46	0.39	0.12	0.19	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	4 / 11	36	0.005	0.005	0.005	0.008	0.019	0.01	0.016	0.027	0.027	0.09	0.024	0.0074	1.29	-	-	-	-	-	-	-	-	-
Ammonia, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	0 / 7	0	0.05	0.05	0.056	0.06	0.067	0.07	0.075	0.08	0.08	0.08	0.011	0.0042	0.17	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	1 / 3	33	0.06	-	-	-	0.71	-	-	-	-	2	1.1	0.64	1.57	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	0 / 7	0	0.05	0.05	0.056	0.06	0.08	0.07	0.095	0.118	0.13	0.13	0.029	0.011	0.37	-	-	-	-	-	-	-	-	-
Nitrite	5 / 7	71	0.01	-	-	-	0.02	-	-	-	-	0.06	0.019	0.0072	0.96	-	0	0	-	0	0	-	0	0
Nitrogen, Particulate	1 / 11	9	0.002	0.002	0.029	0.0425	0.084	0.057	0.0845	0.159	0.092	0.302	0.083	0.025	0.98	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	0 / 11	0	0.16	0.16	0.26	0.325	0.46	0.4	0.518	0.79	0.79	0.97	0.24	0.072	0.52	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total	0 / 11	0	0.17	0.17	0.3	0.3535	0.48	0.429	0.5315	0.81	0.633	0.94	0.23	0.069	0.48	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	2 / 4	50	0.004	-	-	-	0.0095	-	-	-	-	0.016	0.0064	0.0032	0.67	-	-	-	-	-	-	-	-	-
Phosphorous	2 / 11	18	0.004	0.004	0.01	0.01	0.023	0.01	0.03	0.034	0.034	0.078	0.021	0.0064	0.93	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-9-b: Water chemistry summary for Coppermine River upstream of Copper Creek during Winter Baseflow

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-3-9-b: Water chemistry summary for Coppermine River upstream of Copper Creek during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	0 / 7	0	0.000045	0.000045	4.86E-05	0.0000515	0.000061	0.000061	0.00007	0.0000748	0.000076	0.000076	0.000012	0.00000045	0.20	-	-	-	-	-	-	-	-	-
Nickel	0 / 7	0	0.00035	0.00035	0.000422	0.00054	0.00082	0.00061	0.000685	0.001362	0.00073	0.00231	0.00067	0.00025	0.82	-	-	-	-	-	-	-	-	-
Niobium	1 / 7	14	0.000001	0.000001	0.000001	0.000001	0.0000029	0.000001	0.0000015	0.0000064	0.000002	0.000013	0.0000045	0.0000017	1.57	-	-	-	-	-	-	-	-	-
Phosphorous, Total	4 / 11	36	0.002	0.002	0.003	0.01	0.016	0.01	0.018	0.021	0.021	0.062	0.016	0.005	1.04	-	-	-	-	-	-	-	-	-
Platinum	6 / 7	86	0.000001	-	-	-	0.000001	-	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 11	0	0.43	0.43	0.44	0.565	0.8	0.7	0.99	1.04	1.47	1.47	0.32	0.096	0.40	-	-	-	-	-	-	-	-	-
Rubidium	0 / 7	0	0.000955	0.000955	0.001042	0.001105	0.0012	0.00117	0.00125	0.001306	0.00139	0.00139	0.00014	0.000052	0.12	-	-	-	-	-	-	-	-	-
Selenium	3 / 8	38	0.00001	0.00001	0.000017	0.00002	0.000043	0.000045	0.00005	0.000065	0.00005	0.0001	0.000028	0.00001	0.66	-	-	-	-	-	-	-	-	-
Silver	2 / 7	29	0.000001	0.000001	0.000001	0.000001	0.00003	0.000005	0.00001	7.86E-05	0.000011	0.00018	0.000066	0.000025	2.23	-	-	-	-	-	-	-	-	-
Sodium	0 / 11	0	0.55	0.55	0.6	0.715	0.82	0.8	0.93	1.01	1.16	1.16	0.18	0.055	0.22	-	-	-	-	-	-	-	-	-
Strontium	0 / 7	0	0.00779	0.00779	0.00779	0.007845	0.0081	0.00792	0.00827	0.00864	0.00882	0.00882	0.0004	0.00015	0.05	-	-	-	-	-	-	-	-	-
Thallium	0 / 7	0	0.000001	0.000001	0.000001	0.000001	0.0000017	0.000001	0.000002	0.0000034	0.000003	0.000004	0.0000013	0.00000047	0.73	-	-	-	-	-	-	-	-	-
Tin	0 / 7	0	0.000016	0.000016	1.66E-05	0.0000285	0.000044	0.000041	0.000045	0.00007	0.000046	0.000106	0.00003	0.000011	0.68	-	-	-	-	-	-	-	-	-
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	0 / 7	0	0.000002	0.000002	3.8E-06	0.0000055	0.0000071	0.000007	0.000009	0.0000114	0.000012	0.000012	0.0000034	0.0000013	0.48	-	-	-	-	-	-	-	-	-
Uranium	0 / 7	0	0.0000578	5.78E-05	5.83E-05	0.0000595	0.000066	0.000061	0.0000672	7.838E-05	6.99E-05	9.11E-05	0.000012	0.0000044	0.18	-	-	-	-	-	-	-	-	-
Vanadium	0 / 7	0	0.000057	0.000057	0.000063	0.0000705	0.00013	0.00009	0.0001225	0.0002182	0.000129	0.000352	0.0001	0.000039	0.81	-	-	-	-	-	-	-	-	-
Yttrium	0 / 7	0	0.000018	0.000021	1.98E-05	0.0000215	0.000028	0.000022	0.0000235	0.0000418	0.000025	0.000067	0.000017	0.0000065	0.61	-	-	-	-	-	-	-	-	-
Zinc	0 / 7	0	0.0018	0.0018	0.00354	0.00561	0.0091	0.00845	0.0106	0.01528	0.0116	0.0208	0.0061	0.0023	0.67	-	-	-	-	-	-	-	-	-
Extractable Metals																								
Aluminum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium (unfiltered)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-9-b: Water chemistry summary for Coppermine River upstream of Copper Creek during Winter Baseflow

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Vanadium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Zinc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Metals																								
Aluminum	0 / 10	0	0.0093	0.0093	0.01236	0.01845	0.057	0.0333	0.05355	0.146	0.0573	0.2	0.063	0.02	1.11	-	7	-	-	0	-	-	7	-
Antimony	0 / 11	0	0.000029	0.000029	0.00004	0.0000665	0.00015	0.000126	0.0002045	0.000258	0.000385	0.000385	0.00011	0.000033	0.75	-	-	0	-	-	0	-	-	0
Arsenic	0 / 10	0	0.00015	0.00015	0.000159	0.00018	0.00022	0.000215	0.0002775	0.00029	0.00029	0.00029	0.000055	0.000017	0.25	-	0	0	-	0	0	-	0	0
Barium	0 / 11	0	0.00846	0.00846	0.00907	0.00972	0.011	0.0105	0.0114	0.0124	0.0127	0.0127	0.0013	0.00041	0.13	-	-	0	-	-	0	-	-	0
Beryllium	1 / 11	9	0.000001	0.000001	0.000001	0.0000015	0.0000024	0.000002	0.0000025	0.000003	0.000003	0.000007	0.0000017	0.00000051	0.71	-	-	-	-	-	-	-	-	-
Bismuth	0 / 6	0	0.000001	0.000001	0.000002	0.0000045	0.0000077	0.0000095	1.075E-05	0.0000115	0.000012	0.000012	0.0000045	0.0000019	0.59	-	-	-	-	-	-	-	-	-
Boron	1 / 11	9	0.0001	0.0006	0.0006	0.00125	0.0016	0.0014	0.0017	0.0032	0.0019	0.0035	0.00099	0.0003	0.62	0	0	0	0	0	0	0	0	0
Cadmium	0 / 11	0	0.000045	0.000045	0.000101	0.0001055	0.00023	0.000165	0.0003405	0.000481	0.00059	0.00059	0.00019	0.000056	0.80	11	11	0	0	0	0	11	11	0
Cerium	0 / 11	0	0.000025	0.000025	0.000037	0.0000455	0.00012	0.000087	0.0001065	0.000288	0.00012	0.000426	0.00012	0.000037	1.02	-	-	-	-	-	-	-	-	-
Cesium	1 / 11	9	0.000003	0.000003	0.000003	0.0000045	0.000011	0.000006	0.0000105	0.000022	0.000012	0.000042	0.000012	0.0000035	1.07	-	-	-	-	-	-	-	-	-
Chromium	0 / 11	0	0.00014	0.00014	0.00017	0.0003115	0.00095	0.00072	0.001195	0.00205	0.00205	0.00304	0.0009	0.00027	0.94	-	0	0	-	0	0	-	0	0
Cobalt	0 / 11	0	0.000018	0.000018	0.000018	0.000021	0.000058	0.000046	0.000063	0.00012	0.00012	0.00017	0.000048	0.000014	0.82	-	-	-	-	-	-	-	-	-
Copper	0 / 11	0	0.00121	0.00121	0.00148	0.00181	0.0031	0.00227	0.004145	0.00491	0.0069	0.0069	0.0018	0.00053	0.57	-	8	-	-	0	-	-	8	-
Gallium	0 / 11	0	0.000004	0.000004	0.000005	0.000006	0.00002	0.000012	0.000017	0.000044	0.000017	0.000077	0.000022	0.0000067	1.13	-	-	-	-	-	-	-	-	-
Iron	0 / 11	0	0.0142	0.0142	0.0187	0.0252	0.085	0.0585	0.08865	0.213	0.0936	0.296	0.09	0.027	1.05	-	0	-	-	0	-	-	0	-
Lanthanum	0 / 11	0	0.000025	0.000025	0.000032	0.0000425	0.000075	0.000056	0.0000645	0.000157	0.000069	0.000229	0.000062	0.000019	0.83	-	-	-	-	-	-	-	-	-
Lead	0 / 11	0	0.000063	0.000063	0.000151	0.000281	0.019	0.00048	0.006305	0.0258	0.0108	0.168	0.05	0.015	2.63	-	4	3	-	0	0	-	4	3
Lithium	0 / 11	0	0.00068	0.00068	0.0007	0.000725	0.00084	0.0008	0.0009	0.00093	0.00093	0.0012	0.00015	0.000045	0.18	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	0 / 11	0	0.00074	0.00074	0.00084	0.001075	0.0027	0.00261	0.00364	0.00528	0.00602	0.00602	0.0018	0.00055	0.67	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Molybdenum	0 / 11	0	0.00004	0.00004	0.000044	0.0000465	0.000066	0.000063	0.0000775	0.000097	0.000113	0.000113	0.000024	0.0000071	0.36	-	0	-	-	0	-	-	0	-
Nickel	0 / 11	0	0.00041	0.00041	0.00045	0.00056	0.00072	0.00068	0.00084	0.00103	0.00121	0.00121	0.00025	0.000074	0.34	-	0	-	-	0	-	-	0	-
Niobium	0 / 11	0	0.000001	0.000001	0.000001	0.0000025	0.0000061	0.000005	0.0000075	0.000008	0.000008	0.000024	0.0000065	0.000002	1.06	-	-	-	-	-	-	-	-	-
Platinum	8 / 11	73	0.000001	-	-	-	0.0000015	-	-	-	-	0.000005	0.0000012	0.00000037	0.83	-	-	-	-	-	-	-	-	-
Rubidium	0 / 11	0	0.000952	0.000952	0.000987	0.001125	0.0012	0.00119	0.001285	0.00145	0.00145	0.00158	0.00019	0.000057	0.16	-	-	-	-	-	-	-	-	-
Selenium	5 / 10	50	0.00001	0.00001	0.000019	0.000025	0.00004	0.00005	0.00005	0.000051	0.00006	0.00006	0.000017	0.0000054	0.42	-	0	0	-	0	0	-	0	0
Silver	2 / 10	20	0.000001	0.000001	0.000001	0.000001	0.000022	0.0000085	0.000013	3.13E-05	0.000017	0.00016	0.000049	0.000015	2.20	-	1	-	-	0	-	-	1	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 11	0	0.00721	0.00721	0.0074	0.00762	0.0082	0.00831	0.00868	0.00874	0.009	0.009	0.00061	0.00018	0.07	-	-	-	-	-	-	-	-	-
Thallium	1 / 11	9	0.000001	0.000001	0.000001	0.000001	0.0000024	0.000001	0.0000035	0.000006	0.000006	0.000006	0.0000021	0.00000062	0.87	-	0	-	-	0	-	-	0	-
Tin	0 / 11	0	0.000008	0.000008	0.000016	0.0000445	0.000086	0.000049	0.000093	0.00022	0.00012	0.000271	0.000085	0.000026	0.99	-	-	-	-	-	-	-	-	-
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	0 / 11	0	0.000002	0.000002	0.000004	0.0000065	0.000019	0.000009	0.0000175	0.000041	0.000022	0.000089	0.000026	0.0000077	1.33	-	-	-	-	-	-	-	-	-

Appendix B-3-9-b: Water chemistry summary for Coppermine River upstream of Copper Creek during Winter Baseflow

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-3-9-b: Water chemistry summary for Coppermine River upstream of Copper Creek during Winter Baseflow

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Surgeable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hydrocarbonable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hydrocarbons (TEU)	1 / 1	100	0.25	-	-	-	0.25	-	-	-	-	0.25	-	-	-	-	-	-	-	-	-	-	-	
1,2,4,5-Tetrabromobenzene	0 / 1	0	5	-	-	-	5	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	
Aldrin	1 / 1	100	1.7E-07	-	-	-	0.00000017	-	-	-	-	1.7E-07	-	-	-	-	-	-	-	-	-	-	-	
Alpha-Benzohexachloride	1 / 1	100	2.2E-07	-	-	-	0.00000022	-	-	-	-	2.2E-07	-	-	-	-	-	-	-	-	-	-	-	
Alpha-Endosulfan	1 / 1	100	3.8E-07	-	-	-	0.00000038	-	-	-	-	3.8E-07	-	-	-	0	0	-	0	0	-	0	0	
Beta-Endosulfan	1 / 1	100	3.6E-07	-	-	-	0.00000036	-	-	-	-	3.6E-07	-	-	-	0	0	-	0	0	-	0	0	
Beta-HCH	1 / 1	100	1.01E-06	-	-	-	0.000001	-	-	-	-	1.01E-06	-	-	-	-	-	-	-	-	-	-	-	
Cis-Nonachlor	1 / 1	100	6.8E-07	-	-	-	0.00000068	-	-	-	-	6.8E-07	-	-	-	-	-	-	-	-	-	-	-	
Delta-Benzohexachloride	0 / 1	0	94	-	-	-	94	-	-	-	-	94	-	-	-	-	-	-	-	-	-	-	-	
Dieldrin	1 / 1	100	0.66	-	-	-	0.66	-	-	-	-	0.66	-	-	-	-	-	-	-	-	-	-	-	
Endrin Ketone (surrogate) (%)	0 / 1	0	95	-	-	-	95	-	-	-	-	95	-	-	-	-	-	-	-	-	-	-	-	
Endrin	1 / 1	100	7.7E-07	-	-	-	0.00000077	-	-	-	-	7.7E-07	-	-	-	-	-	-	-	-	-	-	-	
Gamma-Benzohexachloride	1 / 1	100	2.7E-07	-	-	-	0.00000027	-	-	-	-	2.7E-07	-	-	-	-	-	-	-	-	-	-	-	
Gamma-Chlordane	1 / 1	100	1.9E-07	-	-	-	0.00000019	-	-	-	-	1.9E-07	-	-	-	-	-	-	-	-	-	-	-	
Heptachlor Epoxide	1 / 1	100	0.00000002	-	-	-	0.00000002	-	-	-	-	2E-07	-	-	-	-	-	-	-	-	-	-	-	
Heptachlor	1 / 1	100	3.5E-07	-	-	-	0.00000035	-	-	-	-	3.5E-07	-	-	-	-	-	-	-	-	-	-	-	
Hexachlorobenzene	1 / 1	100	2.9E-07	-	-	-	0.00000029	-	-	-	-	2.9E-07	-	-	-	-	-	-	-	-	-	-	-	
Methoxychlor (p,p'-methoxychlor)	1 / 1	100	3.17E-06	-	-	-	0.0000032	-	-	-	-	3.17E-06	-	-	-	-	-	-	-	-	-	-	-	
Mirex	1 / 1	100	5.1E-07	-	-	-	0.00000051	-	-	-	-	5.1E-07	-	-	-	-	-	-	-	-	-	-	-	
o,p'-DDD	1 / 1	100	4.8E-07	-	-	-	0.00000048	-	-	-	-	4.8E-07	-	-	-	-	-	-	-	-	-	-	-	
o,p'-DDE	1 / 1	100	7.4E-07	-	-	-	0.00000074	-	-	-	-	7.4E-07	-	-	-	-	-	-	-	-	-	-	-	
o,p'-DDT	1 / 1	100	3.5E-07	-	-	-	0.00000035	-	-	-	-	3.5E-07	-	-	-	-	-	-	-	-	-	-	-	
Oxychlordane	1 / 1	100	6.4E-07	-	-	-	0.00000064	-	-	-	-	6.4E-07	-	-	-	-	-	-	-	-	-	-	-	
p,p'-DDD (tdp)	1 / 1	100	5.5E-07	-	-	-	0.00000055	-	-	-	-	5.5E-07	-	-	-	-	-	-	-	-	-	-	-	
p,p'-DDE	1 / 1	100	0.00000004	-	-	-	0.00000004	-	-	-	-	4E-07	-	-	-	-	-	-	-	-	-	-	-	
p,p'-DDT	1 / 1	100	7.2E-07	-	-	-	0.00000072	-	-	-	-	7.2E-07	-	-	-	-	-	-	-	-	-	-	-	
Pentachloroanisole	0 / 1	0	3.2E-07	-	-	-	0.00000032	-	-	-	-	3.2E-07	-	-	-	-	-	-	-	-	-	-	-	
Trans-Nonachlor	1 / 1	100	4.6E-07	-	-	-	0.00000046	-	-	-	-	4.6E-07	-	-	-	-	-	-	-	-	-	-	-	
Azinphos methyl (Cuthion)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Dibenzothiophene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Appendix B-3-9-c: Water chemistry summary for Coppermine River upstream of Copper Creek during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	1 / 3	33	5	-	-	-	15	-	-	-	-	35	17	10	1.15	-	-	-	-	-	-	-	-	-
True Colour (relative units)	1 / 13	8	5	5	18.4	20	31	30	32	44.4	45	65	15	4.1	0.48	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	0 / 3	0	0.03	-	-	-	0.037	-	-	-	-	0.04	0.0058	0.0033	0.16	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	0 / 16	0	1.672	2.223	1.9825	2.407	2.9	2.5465	2.613	3.668	2.749	8.96	1.7	0.43	0.58	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 17	0	51.1	70.6	70.84	78	88	79.9	93.2	112.4	113	156	23	5.6	0.26	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	0 / 13	0	10.071	10.689	10.7228	10.868	11	11.209	11.305	11.4708	11.503	13.551	0.79	0.22	0.07	-	-	-	-	-	-	-	-	-
TDS calc	0 / 16	0	21.986	37.33	38.515	40.962	50	44.0065	52.28475	72.257	60.134	106.845	20	5	0.40	-	-	-	-	-	-	-	-	-
TDS	0 / 17	0	28	37	41.2	56	62	65	73	78	84	84	16	3.8	0.25	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	0 / 13	0	0.1	0.1	1.06	1.6	4	4	5.6	8.08	8.7	8.7	2.8	0.77	0.69	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	1 / 16	6	3	3	6	12.5	38	27	38.75	56	64	225	53	13	1.37	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 17	0	2.6	2.6	4	5.1	12	8.37	17.1	22.2	24.9	36	9.1	2.2	0.74	-	-	17	-	-	0	-	-	17
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 17	0	16.9	35.4	35.58	38.1	44	41	47.1	57.32	59	79.6	13	3.2	0.30	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	0 / 16	0	0.24	0.24	0.335	0.3575	0.52	0.4	0.55	0.9	0.55	1.3	0.28	0.07	0.54	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	0 / 16	0	0.02	0.02	0.02	0.03	0.039	0.03	0.04	0.075	0.04	0.09	0.022	0.0054	0.56	-	0	0	-	0	0	-	0	0

Appendix B-3-9-c: Water chemistry summary for Coppermine River upstream of Copper Creek during Spring Freshet

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-3-9-c: Water chemistry summary for Coppermine River upstream of Copper Creek during Spring Freshet

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Carbon, Dissolved Organic	0 / 17	0	4.5	4.5	4.98	5.4	6.5	6.3	7.4	8.08	9.3	9.3	1.3	0.32	0.21	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Particulate Organic	0 / 16	0	0.258	0.258	0.2835	0.3315	1.1	0.5275	0.85675	1.345	1.41	8.14	1.9	0.48	1.77	-	-	-	-	-	-	-	-	-
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Total Organic	0 / 10	0	4.803	4.803	5.1864	5.9055	6.9	6.7425	7.8255	8.5752	9.63	9.63	1.5	0.48	0.22	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Free CO2 (calcd)	0 / 17	0	1.092	1.092	1.2986	1.362	1.7	1.6	1.693	1.9876	1.84	3.43	0.52	0.13	0.31	-	-	-	-	-	-	-	-	-
Cyanide																								
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	4 / 4	100	0.002	-	-	-	0.0028	-	-	-	-	0.003	0.0005	0.00025	0.18	-	0	0	-	0	0	-	0	0
Cyanide, wad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																								
Aluminum	0 / 10	0	0.0163	0.0163	0.01747	0.0207	0.029	0.02425	0.0308	0.04126	0.0386	0.0652	0.014	0.0046	0.50	-	-	-	-	-	-	-	-	-
Antimony	0 / 10	0	0.000032	0.000032	3.92E-05	0.000051	0.00006	0.000059	7.025E-05	0.0000823	0.000085	0.000085	0.000017	0.0000054	0.29	-	-	-	-	-	-	-	-	-
Arsenic	0 / 13	0	0.0001	0.00018	0.0001	0.00018	0.00018	0.0002	0.00021	0.00021	0.00022	0.00022	0.000045	0.000013	0.26	-	-	-	-	-	-	-	-	-
Barium	0 / 10	0	0.018	0.0221	0.02169	0.0246	0.028	0.02605	0.027625	0.03572	0.0277	0.0485	0.0083	0.0026	0.30	-	-	-	-	-	-	-	-	-
Beryllium	0 / 10	0	0.000001	0.000001	1.9E-06	0.000003	0.0000038	0.0000035	4.75E-06	0.0000061	0.000007	0.000007	0.0000018	0.00000057	0.48	-	-	-	-	-	-	-	-	-
Bismuth	1 / 10	10	0.000001	0.000001	0.000001	0.000001	0.0000017	0.000001	0.000002	0.0000031	0.000003	0.000004	0.0000011	0.00000033	0.62	-	-	-	-	-	-	-	-	-
Boron	0 / 10	0	0.0015	0.0015	0.00177	0.002175	0.0027	0.00265	0.003325	0.00358	0.0043	0.0043	0.00085	0.00027	0.31	-	-	-	-	-	-	-	-	-
Cadmium	0 / 10	0	0.000003	0.000003	3.9E-06	4.25E-06	0.000023	0.0000115	0.0000205	0.0000451	0.000037	0.000118	0.000035	0.000011	1.52	-	-	-	-	-	-	-	-	-
Calcium	0 / 16	0	4.27	8.04	8.335	8.905	11	9.27	10.95	16.15	12.6	32.6	6.5	1.6	0.57	-	-	-	-	-	-	-	-	-
Cerium	0 / 10	0	0.000103	0.000103	0.000122	0.000136	0.00017	0.000168	0.0001835	0.000209	0.000236	0.000236	0.00004	0.000013	0.24	-	-	-	-	-	-	-	-	-
Cesium	4 / 9	44	0.000003	0.000005	4.6E-06	0.000005	0.0000056	0.000005	0.000006	0.0000074	0.000007	0.000009	0.0000017	0.00000056	0.30	-	-	-	-	-	-	-	-	-
Chromium	0 / 10	0	0.00008	0.00008	9.62E-05	0.000105	0.00021	0.000135	0.0002158	0.0004643	0.000218	0.000602	0.00017	0.000055	0.81	-	-	-	-	-	-	-	-	-
Cobalt	0 / 10	0	0.000027	0.000027	2.97E-05	0.000031	0.000039	0.000036	4.225E-05	0.0000521	0.000051	0.000062	0.000011	0.0000034	0.28	-	-	-	-	-	-	-	-	-
Copper	0 / 10	0	0.00124	0.00124	0.001393	0.001515	0.0018	0.001835	0.002075	0.002136	0.00237	0.00237	0.00036	0.00011	0.20	-	-	-	-	-	-	-	-	-
Gallium	0 / 10	0	0.000004	0.000004	5.8E-06	6.25E-06	0.0000098	0.000008	0.0000115	0.0000149	0.000014	0.000023	0.0000055	0.0000017	0.56	-	-	-	-	-	-	-	-	-
Iron	0 / 10	0	0.04	0.04	0.04819	0.053	0.062	0.06215	0.0673	0.07106	0.0682	0.0968	0.015	0.0048	0.25	-	-	-	-	-	-	-	-	-
Lanthanum	0 / 10	0	0.000089	0.000089	9.08E-05	0.0001045	0.00012	0.00012	0.0001248	0.000149	0.000148	0.000158	0.000022	0.000007	0.19	-	-	-	-	-	-	-	-	-
Lead	0 / 10	0	0.000036	0.000036	0.000036	4.225E-05	0.000084	0.0000615	8.975E-05	0.0001569	0.000147	0.000246	0.000066	0.000021	0.78	-	-	-	-	-	-	-	-	-
Lithium	0 / 10	0	0.00056	0.00056	0.000569	0.0006	0.00067	0.000605	0.000645	0.00091	0.00065	0.001	0.00015	0.000048	0.22	-	-	-	-	-	-	-	-	-
Magnesium	0 / 16	0	1.73	3.93	4.07	4.47	5.4	4.79	5.835	7.815	7.51	10.6	2.1	0.51	0.38	-	-	-	-	-	-	-	-	-
Manganese	0 / 10	0	0.00177	0.00177	0.002013	0.0023825	0.0038	0.003145	0.00424	0.005468	0.00499	0.00977	0.0023	0.00074	0.62	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-9-c: Water chemistry summary for Coppermine River upstream of Copper Creek during Spring Freshet

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	0 / 10	0	0.000062	0.000062	6.29E-05	6.575E-05	0.000069	0.000069	0.000072	0.0000733	0.000076	0.000076	0.0000046	0.0000014	0.07	-	-	-	-	-	-	-	-	-
Nickel	0 / 10	0	0.00058	0.00058	0.000598	0.000635	0.00083	0.00074	0.001025	0.001173	0.0012	0.0012	0.00024	0.000076	0.29	-	-	-	-	-	-	-	-	-
Niobium	1 / 10	10	0.000001	0.000001	0.000001	0.000002	0.0000029	0.000003	3.75E-06	0.000005	0.000005	0.000005	0.0000014	0.00000046	0.50	-	-	-	-	-	-	-	-	-
Phosphorous, Total	7 / 17	41	0.002	0.002	0.0036	0.007	0.011	0.01	0.013	0.02	0.021	0.021	0.006	0.0015	0.54	-	-	-	-	-	-	-	-	-
Platinum	10 / 10	100	0.000001	-	-	-	0.000001	-	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 16	0	0.47	0.47	0.495	0.5275	0.65	0.565	0.68	0.955	0.85	1.14	0.2	0.05	0.31	-	-	-	-	-	-	-	-	-
Rubidium	0 / 10	0	0.000648	0.000648	0.000668	0.0006708	0.00071	0.0007025	0.0007493	0.000766	0.00082	0.00082	0.000055	0.000017	0.08	-	-	-	-	-	-	-	-	-
Selenium	5 / 13	38	0.00001	0.00001	0.000012	0.00002	0.000048	0.00005	0.00005	0.0001	0.00005	0.0001	0.000033	0.0000093	0.69	-	-	-	-	-	-	-	-	-
Silver	1 / 10	10	0.000001	0.000001	0.000001	0.000001	0.0000015	0.000001	0.000002	0.0000021	0.000003	0.000003	0.00000071	0.00000022	0.47	-	-	-	-	-	-	-	-	-
Sodium	0 / 16	0	0.48	0.48	0.48	0.49	0.69	0.515	0.615	0.8	0.73	2.56	0.51	0.13	0.74	-	-	-	-	-	-	-	-	-
Strontium	0 / 10	0	0.00688	0.00837	0.008221	0.0086425	0.0091	0.008795	0.0091325	0.01068	0.00918	0.0123	0.0014	0.00045	0.16	-	-	-	-	-	-	-	-	-
Thallium	0 / 10	0	0.000001	0.000001	0.000001	0.000001	0.0000018	0.000002	0.000002	0.000003	0.000003	0.000003	0.00000079	0.00000025	0.44	-	-	-	-	-	-	-	-	-
Tin	6 / 10	60	0.000005	-	-	-	0.0000082	-	-	-	-	0.00003	0.0000077	0.0000024	0.94	-	-	-	-	-	-	-	-	-
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	1 / 10	10	0.000001	0.000001	0.000001	0.000002	0.0000062	0.0000025	1.025E-05	0.0000162	0.000018	0.000018	0.0000066	0.0000021	1.06	-	-	-	-	-	-	-	-	-
Uranium	0 / 10	0	0.00011	0.00015	0.000146	0.0001658	0.00018	0.000192	0.0001973	0.0002046	0.000199	0.000255	0.000038	0.000012	0.21	-	-	-	-	-	-	-	-	-
Vanadium	0 / 10	0	0.000121	0.000121	0.00013	0.000133	0.00016	0.0001435	0.000163	0.0001773	0.000169	0.000252	0.000037	0.000012	0.24	-	-	-	-	-	-	-	-	-
Yttrium	0 / 10	0	0.000079	0.000079	9.25E-05	9.475E-05	0.00011	0.000111	0.0001175	0.0001274	0.00014	0.00014	0.000018	0.0000056	0.16	-	-	-	-	-	-	-	-	-
Zinc	0 / 10	0	0.0004	0.0004	0.00058	0.000825	0.0017	0.001155	0.0017525	0.003206	0.00292	0.00578	0.0016	0.00051	0.94	-	-	-	-	-	-	-	-	-
Extractable Metals																								
Aluminum	0 / 1	0	0.24	-	-	-	0.24	-	-	-	-	0.24	-	-	-	-	-	-	-	-	-	-	-	-
Barium	0 / 1	0	0.025	-	-	-	0.025	-	-	-	-	0.025	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	1 / 1	100	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Boron	0 / 1	0	0.03	-	-	-	0.03	-	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Calcium (unfiltered)	0 / 2	0	3.9	-	-	-	6.9	-	-	-	-	9.9	4.2	3	0.61	-	-	-	-	-	-	-	-	-
Chromium	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Copper	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Iron	0 / 2	0	0.043	-	-	-	0.24	-	-	-	-	0.43	0.27	0.19	1.16	-	-	-	-	-	-	-	-	-
Lead	1 / 1	100	0.02	-	-	-	0.02	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-	-	-	-
Lithium	0 / 1	0	0.006	-	-	-	0.006	-	-	-	-	0.006	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	0 / 1	0	5.3	-	-	-	5.3	-	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	0 / 2	0	0.002	-	-	-	0.014	-	-	-	-	0.025	0.016	0.012	1.20	-	-	-	-	-	-	-	-	-
Molybdenum	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	1 / 1	100	0.01	-	-	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	1 / 1	100	2	-	-	-	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	1 / 1	100	2	-	-	-	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 1	0	0.008	-	-	-	0.008	-	-	-	-	0.008	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-9-c: Water chemistry summary for Coppermine River upstream of Copper Creek during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Vanadium	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	
Zinc	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	
Total Metals																								
Aluminum	0 / 15	0	0.0158	0.0158	0.0738	0.171	0.33	0.303	0.514	0.6442	0.763	0.763	0.23	0.059	0.69	-	15	-	-	0	-	-	15	
Antimony	1 / 14	7	0.000001	0.000001	6.2E-06	1.675E-05	0.000026	0.000019	2.925E-05	0.0000518	0.00003	0.000071	0.000019	0.0000052	0.76	-	-	0	-	-	0	-	-	0
Arsenic	0 / 13	0	0.00023	0.00023	0.000232	0.00024	0.00028	0.0003	0.00031	0.00033	0.00036	0.00036	0.000043	0.000012	0.15	-	0	0	-	0	0	-	0	0
Barium	0 / 16	0	0.0087	0.0188	0.0228	0.0276	0.031	0.0294	0.034575	0.0437	0.0449	0.0517	0.01	0.0025	0.33	-	-	0	-	-	0	-	-	0
Beryllium	2 / 16	13	0.000002	0.000002	0.000007	0.000008	0.000019	0.000015	0.0000225	0.0000385	0.000027	0.00005	0.000014	0.0000035	0.74	-	-	-	-	-	-	-	-	-
Bismuth	1 / 8	13	0.000001	0.000001	1.7E-06	2.75E-06	0.0000064	0.000007	9.25E-06	0.0000106	0.000012	0.000012	0.000004	0.0000014	0.63	-	-	-	-	-	-	-	-	-
Boron	1 / 14	7	0.0001	0.0015	0.00066	0.0019	0.0024	0.00225	0.00295	0.00421	0.0043	0.0049	0.0014	0.00036	0.57	0	0	0	0	0	0	0	0	0
Cadmium	0 / 16	0	0.000004	0.000004	0.000005	6.75E-06	0.000057	0.0000135	5.925E-05	0.0001545	0.000109	0.0003	0.000084	0.000021	1.48	4	4	0	0	0	0	4	4	0
Cerium	0 / 13	0	0.000331	0.000331	0.000488	0.000649	0.00098	0.000882	0.00121	0.001604	0.00202	0.00202	0.00049	0.00014	0.50	-	-	-	-	-	-	-	-	-
Cesium	0 / 14	0	0.00001	0.00001	2.45E-05	3.025E-05	0.000049	0.0000475	6.625E-05	0.0000813	0.000095	0.000095	0.000025	0.0000066	0.50	-	-	-	-	-	-	-	-	-
Chromium	0 / 16	0	0.00008	0.00008	0.000415	0.000465	0.00098	0.00083	0.001095	0.002025	0.00193	0.0024	0.00066	0.00017	0.68	-	0	0	-	0	0	-	0	0
Cobalt	0 / 16	0	0.000029	0.000029	0.000119	0.0001743	0.00026	0.0002485	0.000334	0.0004835	0.0005	0.0005	0.00014	0.000035	0.53	-	-	-	-	-	-	-	-	-
Copper	0 / 16	0	0.00143	0.00143	0.00163	0.00171	0.0022	0.00192	0.002385	0.003135	0.00317	0.0038	0.00069	0.00017	0.31	-	7	-	-	0	-	-	7	-
Gallium	0 / 14	0	0.000006	0.000006	4.22E-05	6.425E-05	0.00011	0.0001065	0.0001688	0.0001911	0.000217	0.000217	0.000064	0.000017	0.58	-	-	-	-	-	-	-	-	-
Iron	0 / 16	0	0.0116	0.0116	0.1286	0.2915	0.46	0.4545	0.64625	0.786	0.949	0.949	0.27	0.067	0.58	-	11	-	-	0	-	-	11	-
Lanthanum	0 / 14	0	0.000043	0.000043	0.000217	0.0002925	0.00047	0.0004515	0.0006375	0.0007671	0.000983	0.000983	0.00025	0.000067	0.53	-	-	-	-	-	-	-	-	-
Lead	0 / 16	0	0.000005	0.000005	0.000121	0.000185	0.0023	0.0002715	0.0004003	0.000736	0.000472	0.0324	0.008	0.002	3.47	-	1	1	-	0	0	-	1	1
Lithium	0 / 16	0	0.0007	0.0007	0.000795	0.0008925	0.0011	0.001045	0.0012	0.0015	0.00165	0.00165	0.00028	0.000069	0.25	-	-	-	-	-	-	-	-	-
Magnesium	0 / 2	0	1.67	-	-	-	3.2	-	-	-	-	4.71	2.1	1.5	0.67	-	-	-	-	-	-	-	-	-
Manganese	0 / 16	0	0.0022	0.0022	0.008365	0.01306	0.018	0.0192	0.02275	0.028	0.0349	0.0349	0.0086	0.0021	0.47	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Molybdenum	0 / 16	0	0.000025	0.000048	0.000053	6.175E-05	0.00018	0.000067	0.0000715	0.0001	0.000073	0.00184	0.00044	0.00011	2.50	-	0	-	-	0	-	-	0	-
Nickel	0 / 16	0	0.0007	0.0007	0.00089	0.0010125	0.002	0.0012	0.001365	0.00161	0.00174	0.0148	0.0034	0.00085	1.68	-	0	-	-	0	-	-	0	-
Niobium	1 / 14	7	0.000001	0.000001	1.35E-05	0.000018	0.00003	0.000029	4.475E-05	0.0000508	0.000058	0.000058	0.000017	0.0000045	0.56	-	-	-	-	-	-	-	-	-
Platinum	13 / 14	93	0.000001	-	-	-	0.0000029	-	-	-	-	0.000027	0.0000069	0.0000019	2.43	-	-	-	-	-	-	-	-	-
Rubidium	0 / 14	0	0.00071	0.00071	0.000918	0.00106	0.0012	0.001225	0.0013675	0.001618	0.00172	0.00185	0.0003	0.000081	0.25	-	-	-	-	-	-	-	-	-
Selenium	7 / 13	54	0.00002	-	-	-	0.000044	-	-	-	-	0.0001	0.000021	0.0000059	0.49	-	0	0	-	0	0	-	0	0
Silver	2 / 15	13	0.000001	0.000001	1.4E-06	0.000003	0.000023	0.000004	0.0000065	0.000064	0.00001	0.0002	0.000055	0.000014	2.33	-	1	-	-	0	-	-	1	-
Sodium	0 / 2	0	0.42	-	-	-	0.5	-	-	-	-	0.57	0.11	0.075	0.21	-	-	-	-	-	-	-	-	-
Strontium	0 / 16	0	0.007	0.007	0.007925	0.008815	0.0096	0.00923	0.01015	0.01205	0.0113	0.0129	0.0017	0.00041	0.17	-	-	-	-	-	-	-	-	-
Thallium	1 / 14	7	0.000001	0.000001	1.3E-06	2.25E-06	0.0000053	0.0000045	0.000006	0.000008	0.000008	0.000019	0.0000046	0.0000012	0.86	-	0	-	-	0	-	-	0	-
Tin	2 / 14	14	0.000005	0.000005	5.3E-06	6.25E-06	0.000023	0.0000085	0.000011	0.0000195	0.000016	0.000203	0.000052	0.000014	2.23	-	-	-	-	-	-	-	-	-
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	1 / 14	7	0.000001	0.000001	0.000003	0.000004	0.0000074	0.0000065	8.75E-06	0.0000134	0.000014	0.000021	0.0000053	0.0000014	0.71	-	-	-	-	-	-	-	-	-

Appendix B-3-9-c: Water chemistry summary for Coppermine River upstream of Copper Creek during Spring Freshet

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-3-9-c: Water chemistry summary for Coppermine River upstream of Copper Creek during Spring Freshet

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-3-9-d: Water chemistry summary for Coppermine River upstream of Copper Creek during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	0 / 1	0	5	-	-	-	5	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (relative units)	0 / 10	0	5	5	5	5	7.6	7.5	10	10.1	11	11	2.6	0.82	0.34	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	0 / 1	0	0.04	-	-	-	0.04	-	-	-	-	0.04	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	0 / 12	0	2.322	2.322	2.8058	3.20075	3.7	3.5615	4.4555	4.7114	5.297	5.297	0.88	0.25	0.24	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 12	0	44.2	44.2	51.74	59.3	67	63.45	75.95	84.83	95.8	95.8	15	4.2	0.22	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	0 / 8	0	9.872	9.872	10.3501	10.7125	11	11.1665	11.542	11.7004	11.79	11.79	0.65	0.23	0.06	-	-	-	-	-	-	-	-	-
TDS calc	0 / 11	0	22.53	22.53	25.49	26.753	33	33.984	37.935	41.998	46.96	46.96	7.7	2.3	0.23	-	-	-	-	-	-	-	-	-
TDS	0 / 12	0	16	16	25	35.5	43	39	49.5	56.7	57	88	18	5.3	0.43	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	0 / 7	0	7.8	9	8.52	9.1	10	9.5	9.75	12	10	15	2.3	0.87	0.23	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	4 / 12	33	3	3	3	3	4	4	4	5.8	4	6	1	0.3	0.26	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 12	0	0.7	0.7	1.122	1.335	1.9	1.75	2.34	2.58	3.2	3.2	0.72	0.21	0.39	-	-	12	-	-	0	-	-	12
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 12	0	20.3	20.3	21.51	25.5	31	32.45	35.35	40.03	45.7	45.7	7.9	2.3	0.25	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	0 / 12	0	0.24	0.24	0.281	0.2975	0.33	0.32	0.3375	0.378	0.38	0.49	0.063	0.018	0.19	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	0 / 12	0	0.01	0.01	0.02	0.02	0.026	0.03	0.03	0.03	0.04	0.04	0.0079	0.0023	0.31	-	0	0	-	0	0	-	0	0

Appendix B-3-9-d: Water chemistry summary for Coppermine River upstream of Copper Creek during Summer Recession

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

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[illegible]

Appendix B-3-9-d: Water chemistry summary for Coppermine River upstream of Copper Creek during Summer Recession

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Carbon, Dissolved Organic	0 / 12	0	1.8	2.9	2.93	3.2	3.7	3.3	3.8	4.19	4.2	7.5	1.4	0.39	0.37	-	-	-	-	-	-	-	-	
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Carbon, Particulate Organic	0 / 12	0	0.1	0.201	0.203	0.242	0.25	0.263	0.27675	0.3066	0.308	0.337	0.06	0.017	0.24	-	-	-	-	-	-	-	-	
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Carbon, Total Organic	0 / 8	0	2.001	2.001	2.7003	3.33675	4	3.559	4.41	5.463	4.458	7.808	1.7	0.61	0.43	-	-	-	-	-	-	-	-	
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Free CO2 (calcd)	0 / 12	0	0.897	0.897	0.9327	0.98625	1.3	1.1535	1.4365	1.9819	2.036	2.286	0.44	0.13	0.34	-	-	-	-	-	-	-	-	
Cyanide																								
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Cyanide, Total	2 / 3	67	0.003	-	-	-	0.0097	-	-	-	-	0.023	0.012	0.0067	1.19	-	1	0	-	0	0	-	1	0
Cyanide, wad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Dissolved Metals																								
Aluminum	0 / 6	0	0.018	0.018	0.01805	0.018925	0.032	0.0285	0.0437	0.04965	0.0529	0.0529	0.015	0.0062	0.47	-	-	-	-	-	-	-	-	
Antimony	0 / 6	0	0.000012	0.000012	0.000028	0.000044	0.000057	0.0000585	0.0000775	0.000085	0.000091	0.000091	0.000029	0.000012	0.51	-	-	-	-	-	-	-	-	
Arsenic	1 / 9	11	0.0001	0.0001	0.0001	0.0001	0.00018	0.00021	0.00022	0.000238	0.00027	0.00027	0.000065	0.000022	0.36	-	-	-	-	-	-	-	-	
Barium	0 / 6	0	0.0113	0.0113	0.01175	0.013475	0.021	0.02025	0.025075	0.0303	0.0349	0.0349	0.009	0.0037	0.43	-	-	-	-	-	-	-	-	
Beryllium	0 / 6	0	0.000002	0.000002	0.000002	0.000002	0.0000023	0.000002	2.75E-06	0.000003	0.000003	0.000003	0.00000052	0.00000021	0.22	-	-	-	-	-	-	-	-	
Bismuth	3 / 6	50	0.000001	0.000001	0.000001	0.000001	0.0000012	0.000001	0.000001	0.0000015	0.000001	0.000002	0.00000041	0.00000017	0.35	-	-	-	-	-	-	-	-	
Boron	0 / 6	0	0.0016	0.0016	0.00165	0.001725	0.002	0.0019	0.002075	0.0024	0.0021	0.0027	0.0004	0.00016	0.20	-	-	-	-	-	-	-	-	
Cadmium	0 / 6	0	0.000002	0.000002	0.000002	2.25E-06	0.0000047	0.0000035	0.000007	0.0000085	0.000009	0.000009	0.0000031	0.0000013	0.66	-	-	-	-	-	-	-	-	
Calcium	0 / 12	0	4.6	4.6	4.956	5.745	7.2	7.59	8.36	8.822	9.62	9.62	1.6	0.48	0.23	-	-	-	-	-	-	-	-	
Cerium	0 / 6	0	0.00005	0.00005	0.000051	5.325E-05	0.000083	0.0000695	0.000112	0.0001275	0.000133	0.000133	0.000037	0.000015	0.44	-	-	-	-	-	-	-	-	
Cesium	0 / 6	0	0.000005	0.000005	0.000005	0.000005	0.0000063	0.000005	0.000008	0.000009	0.000009	0.000009	0.0000021	0.00000084	0.33	-	-	-	-	-	-	-	-	
Chromium	0 / 6	0	0.00008	0.00008	0.00008	0.000085	0.00012	0.0001195	0.0001398	0.0001455	0.000151	0.000151	0.000032	0.000013	0.28	-	-	-	-	-	-	-	-	
Cobalt	0 / 6	0	0.000019	0.000019	2.05E-05	0.000024	0.000032	0.000033	3.675E-05	0.000041	0.000045	0.000045	0.0000098	0.000004	0.31	-	-	-	-	-	-	-	-	
Copper	0 / 6	0	0.00088	0.00088	0.0009	0.000925	0.001	0.000965	0.0011025	0.00115	0.00116	0.00116	0.00012	0.000048	0.12	-	-	-	-	-	-	-	-	
Gallium	0 / 6	0	0.000006	0.000006	6.5E-06	0.000007	0.000011	0.0000095	1.575E-05	0.000017	0.000017	0.000017	0.0000051	0.0000021	0.46	-	-	-	-	-	-	-	-	
Iron	0 / 6	0	0.0288	0.0288	0.03135	0.0339	0.048	0.04245	0.063825	0.07095	0.0738	0.0738	0.019	0.0078	0.40	-	-	-	-	-	-	-	-	
Lanthanum	0 / 6	0	0.000035	0.000035	3.65E-05	3.825E-05	0.000052	0.0000485	0.0000685	0.000072	0.000072	0.000072	0.000017	0.000007	0.33	-	-	-	-	-	-	-	-	
Lead	0 / 6	0	0.000011	0.000011	1.35E-05	1.625E-05	0.000029	0.000018	3.175E-05	0.0000545	0.000036	0.000073	0.000023	0.0000095	0.81	-	-	-	-	-	-	-	-	
Lithium	0 / 6	0	0.0007	0.0007	0.000705	0.000715	0.00077	0.000765	0.0008	0.00085	0.0009	0.0009	0.000076	0.000031	0.10	-	-	-	-	-	-	-	-	
Magnesium	0 / 12	0	2.1	2.1	2.124	2.6625	3.4	3.61	3.91	4.444	5.3	5.3	0.98	0.28	0.28	-	-	-	-	-	-	-	-	
Manganese	0 / 6	0	0.00094	0.00094	0.00096	0.001035	0.0018	0.001375	0.0017675	0.00293	0.00184	0.00402	0.0012	0.00047	0.66	-	-	-	-	-	-	-	-	
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

Appendix B-3-9-d: Water chemistry summary for Coppermine River upstream of Copper Creek during Summer Recession

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

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All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Vanadium	0 / 1	0	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	
Zinc	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	
Total Metals																								
Aluminum	0 / 11	0	0.0331	0.0331	0.0357	0.04235	0.071	0.071	0.0865	0.0983	0.0983	0.154	0.036	0.011	0.50	-	6	-	-	0	-	-	6	-
Antimony	0 / 10	0	0.000009	0.000009	9.9E-06	0.000013	0.000014	0.000014	1.575E-05	0.0000173	0.000017	0.00002	0.0000032	0.000001	0.23	-	-	0	-	-	0	-	-	0
Arsenic	0 / 9	0	0.00006	0.00021	0.00018	0.00022	0.00022	0.00022	0.00024	0.000262	0.00025	0.00031	0.000066	0.000022	0.30	-	0	0	-	0	0	-	0	0
Barium	0 / 12	0	0.0106	0.0106	0.0115	0.0148	0.021	0.023	0.02445	0.03138	0.0355	0.0355	0.0079	0.0023	0.37	-	-	0	-	-	0	-	-	0
Beryllium	2 / 12	17	0.000002	0.000002	0.000003	0.000003	0.000012	0.000004	4.75E-06	0.0000457	0.000007	0.00005	0.000018	0.0000052	1.57	-	-	-	-	-	-	-	-	-
Bismuth	1 / 7	14	0.000001	0.000001	0.000001	0.000001	0.0000013	0.000001	0.0000015	0.000002	0.000002	0.000002	0.00000049	0.00000018	0.38	-	-	-	-	-	-	-	-	-
Boron	1 / 10	10	0.0001	0.0016	0.001	0.0016	0.0016	0.0017	0.001775	0.00208	0.002	0.0028	0.00068	0.00022	0.42	0	0	0	0	0	0	0	0	0
Cadmium	1 / 12	8	0.000001	0.000001	1.1E-06	0.000002	0.000034	0.000003	3.175E-05	0.0001	0.000009	0.000181	0.000059	0.000017	1.74	3	3	0	1	1	0	2	2	0
Cerium	0 / 9	0	0.000081	0.000081	9.78E-05	0.000116	0.00016	0.000136	0.000174	0.0002322	0.000205	0.000341	0.000078	0.000026	0.49	-	-	-	-	-	-	-	-	-
Cesium	0 / 10	0	0.000007	0.000007	0.000007	9.25E-06	0.000012	0.00001	0.000012	0.0000179	0.000012	0.000026	0.0000057	0.0000018	0.47	-	-	-	-	-	-	-	-	-
Chromium	0 / 12	0	0.000097	0.000097	0.00012	0.0001268	0.00023	0.0001565	0.0002028	0.0003001	0.00031	0.001	0.00025	0.000072	1.06	-	0	0	-	0	0	-	0	0
Cobalt	0 / 12	0	0.000018	0.000018	3.14E-05	0.000038	0.000081	0.000048	0.000067	0.0000997	0.0001	0.0004	0.0001	0.00003	1.28	-	-	-	-	-	-	-	-	-
Copper	0 / 12	0	0.00091	0.00091	0.000934	0.0009775	0.0012	0.00111	0.001275	0.001545	0.00157	0.00157	0.00024	0.000069	0.20	-	0	-	-	0	-	-	0	-
Gallium	0 / 10	0	0.000006	0.000006	9.6E-06	1.175E-05	0.00002	0.0000165	0.0000225	0.0000381	0.000038	0.000039	0.000011	0.0000035	0.57	-	-	-	-	-	-	-	-	-
Iron	0 / 12	0	0.0538	0.0538	0.05941	0.074425	0.11	0.1035	0.12975	0.1899	0.196	0.224	0.053	0.015	0.47	-	0	-	-	0	-	-	0	-
Lanthanum	0 / 10	0	0.000054	0.000054	6.03E-05	0.0000705	0.000093	0.0000865	0.000104	0.0001258	0.00012	0.000178	0.000036	0.000012	0.39	-	-	-	-	-	-	-	-	-
Lead	1 / 12	8	0.000022	0.000022	2.76E-05	0.0000345	0.000085	0.0000425	0.0001178	0.000192	0.0002	0.0003	0.000086	0.000025	1.01	-	0	0	-	0	0	-	0	0
Lithium	0 / 12	0	0.0007	0.0007	0.000742	0.00079	0.00083	0.0008	0.0009	0.0009	0.001	0.001	0.000084	0.000024	0.10	-	-	-	-	-	-	-	-	-
Magnesium	0 / 2	0	2.2	-	-	-	2.7	-	-	-	-	3.25	0.74	0.53	0.27	-	-	-	-	-	-	-	-	-
Manganese	0 / 12	0	0.00306	0.00306	0.003602	0.003875	0.0053	0.00457	0.0054	0.008817	0.006	0.01	0.0022	0.00063	0.41	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Molybdenum	0 / 12	0	0.000046	0.000046	4.63E-05	5.125E-05	0.00012	0.0000555	0.0000685	0.0000988	0.000088	0.0008	0.00021	0.000062	1.75	-	0	-	-	0	-	-	0	-
Nickel	1 / 12	8	0.0002	0.00031	0.000322	0.0004375	0.00046	0.00046	0.000545	0.000599	0.00062	0.00062	0.00012	0.000035	0.26	-	0	-	-	0	-	-	0	-
Niobium	0 / 10	0	0.000003	0.000003	0.000003	3.25E-06	0.0000052	0.000005	0.000006	0.0000065	0.000006	0.000011	0.0000024	0.00000076	0.46	-	-	-	-	-	-	-	-	-
Platinum	9 / 10	90	0.000001	-	-	-	0.0000014	-	-	-	-	0.000004	0.00000097	0.00000031	0.69	-	-	-	-	-	-	-	-	-
Rubidium	0 / 10	0	0.00084	0.00084	0.000894	0.000933	0.001	0.00098	0.0010975	0.001142	0.00116	0.00116	0.00011	0.000034	0.11	-	-	-	-	-	-	-	-	-
Selenium	6 / 9	67	0.00001	-	-	-	0.000051	-	-	-	-	0.00012	0.000031	0.00001	0.60	-	0	0	-	0	0	-	0	0
Silver	4 / 11	36	0.000001	0.000001	0.000001	0.000001	0.000092	0.000001	0.0000025	0.0001	0.000004	0.0009	0.00027	0.000081	2.93	-	1	-	-	0	-	-	1	-
Sodium	0 / 2	0	0.37	-	-	-	0.42	-	-	-	-	0.47	0.071	0.05	0.17	-	-	-	-	-	-	-	-	-
Strontium	0 / 12	0	0.00702	0.00702	0.007515	0.00798	0.0089	0.00922	0.009795	0.010257	0.0105	0.0105	0.0012	0.00034	0.13	-	-	-	-	-	-	-	-	-
Thallium	1 / 10	10	0.000001	0.000002	1.9E-06	0.000002	0.000002	0.000002	0.000002	0.0000021	0.000002	0.000003	0.00000047	0.00000015	0.24	-	0	-	-	0	-	-	0	-
Tin	8 / 10	80	0.000005	-	-	-	0.0000053	-	-	-	-	0.000007	0.00000067	0.00000021	0.13	-	-	-	-	-	-	-	-	-
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	1 / 10	10	0.000001	0.000001	0.000001	0.000001	0.0000017	0.000002	0.000002	0.0000021	0.000003	0.000003	0.00000067	0.00000021	0.40	-	-	-	-	-	-	-	-	-

Appendix B-3-9-d: Water chemistry summary for Coppermine River upstream of Copper Creek during Summer Recession

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Uranium	0 / 9	0	0.000086	0.000086	9.88E-05	0.000109	0.00014	0.000135	0.000157	0.000182	0.000164	0.000254	0.000049	0.000016	0.34	-	0	0	-	0	0	-	0	0
Vanadium	0 / 12	0	0.000087	0.000087	0.000132	0.0001408	0.00019	0.0001785	0.0002338	0.000299	0.0003	0.0003	0.000072	0.000021	0.37	-	-	-	-	-	-	-	-	-
Yttrium	0 / 10	0	0.00004	0.00004	4.27E-05	4.425E-05	0.000057	0.0000505	0.0000675	0.0000746	0.000098	0.000098	0.000018	0.0000058	0.32	-	-	-	-	-	-	-	-	-
Zinc	0 / 12	0	0.0002	0.0002	0.00025	0.0002575	0.00053	0.0004	0.0004975	0.000886	0.00076	0.00173	0.00043	0.00012	0.82	-	0	-	-	0	-	-	0	-
PAHs																								
1,2,3,4-Tetrahydronaphthalene	1 / 1	100	0.000017	-	-	-	0.000017	-	-	-	-	0.000017	-	-	-	-	-	-	-	-	-	-	-	-
1-Methylnaphthalene	1 / 1	100	0.0000216	-	-	-	0.000022	-	-	-	-	2.16E-05	-	-	-	-	-	-	-	-	-	-	-	-
2-Chloronaphthalene	1 / 1	100	0.0000223	-	-	-	0.000022	-	-	-	-	2.23E-05	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	1 / 1	100	0.0000264	-	-	-	0.000026	-	-	-	-	2.64E-05	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	1 / 1	100	0.0000239	-	-	-	0.000024	-	-	-	-	2.39E-05	-	-	-	-	0	-	-	0	-	-	0	-
Acenaphthylene	1 / 1	100	0.0000162	-	-	-	0.000016	-	-	-	-	1.62E-05	-	-	-	-	-	-	-	-	-	-	-	-
Alpha-Chlordane	1 / 1	100	0.0000006	-	-	-	0.0000006	-	-	-	-	6E-07	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	1 / 1	100	0.00002	-	-	-	0.00002	-	-	-	-	0.00002	-	-	-	-	1	-	-	1	-	-	0	-
Benzo(a)anthracene	1 / 1	100	0.00002	-	-	-	0.00002	-	-	-	-	0.00002	-	-	-	-	1	-	-	1	-	-	0	-
Benzo(a)pyrene	1 / 1	100	0.000006	-	-	-	0.000006	-	-	-	-	0.000006	-	-	-	-	0	0	-	0	0	-	0	0
Benzo(b)fluoranthene	1 / 1	100	0.0000064	-	-	-	0.0000064	-	-	-	-	6.4E-06	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(e)pyrene	1 / 1	100	0.0000056	-	-	-	0.0000056	-	-	-	-	5.6E-06	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	1 / 1	100	0.000011	-	-	-	0.000011	-	-	-	-	0.000011	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	1 / 1	100	0.0000055	-	-	-	0.0000055	-	-	-	-	5.5E-06	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	1 / 1	100	0.00002	-	-	-	0.00002	-	-	-	-	0.00002	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	1 / 1	100	0.000016	-	-	-	0.000016	-	-	-	-	0.000016	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	1 / 1	100	0.0000087	-	-	-	0.0000087	-	-	-	-	8.7E-06	-	-	-	-	0	-	-	0	-	-	0	-
Fluorene	1 / 1	100	0.0000251	-	-	-	0.000025	-	-	-	-	2.51E-05	-	-	-	-	0	-	-	0	-	-	0	-
Fluorene-d10 (surrogate) (%)	0 / 1	0	67	-	-	-	67	-	-	-	-	67	-	-	-	-	-	-	-	-	-	-	-	-
Indene	1 / 1	100	0.0000145	-	-	-	0.000015	-	-	-	-	1.45E-05	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-c,d)pyrene	1 / 1	100	0.000012	-	-	-	0.000012	-	-	-	-	0.000012	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	1 / 1	100	0.00002	-	-	-	0.00002	-	-	-	-	0.00002	-	-	-	-	0	-	-	0	-	-	0	-
Naphthalene-d8 (surrogate) (%)	0 / 1	0	77	-	-	-	77	-	-	-	-	77	-	-	-	-	1	-	-	0	-	-	1	-
Perylene	1 / 1	100	0.000009	-	-	-	0.000009	-	-	-	-	0.000009	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	1 / 1	100	0.0000338	-	-	-	0.000034	-	-	-	-	3.38E-05	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	1 / 1	100	7.82E-06	-	-	-	0.0000078	-	-	-	-	7.82E-06	-	-	-	-	0	-	-	0	-	-	0	-
Pyrene-d10 (surrogate) (%)	0 / 1	0	71	-	-	-	71	-	-	-	-	71	-	-	-	-	-	-	-	-	-	-	-	-
PCBs																								
PCB, Total	1 / 1	100	3.4E-07	-	-	-	0.00000034	-	-	-	-	3.4E-07	-	-	-	-	-	-	-	-	-	-	-	-
Organics																								
Extractable Hydrocarbons (c10-c14)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Extractable Hydrocarbons (c14-c24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Extractable Hydrocarbons (c24-c50)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-9-d: Water chemistry summary for Coppermine River upstream of Copper Creek during Summer Recession

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Surgeable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hydrocarbons	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hydrocarbons (TEU)	1 / 1	100	0.41	-	-	-	0.41	-	-	-	-	0.41	-	-	-	-	-	-	-	-	-	-	-	
1,2,4,5- Tetrabromobenzene	0 / 1	0	82	-	-	-	82	-	-	-	-	82	-	-	-	-	-	-	-	-	-	-	-	
Aldrin	1 / 1	100	2.7E-07	-	-	-	0.00000027	-	-	-	-	2.7E-07	-	-	-	-	-	-	-	-	-	-	-	
Alpha- Benzenohexachloride	1 / 1	100	3.5E-07	-	-	-	0.00000035	-	-	-	-	3.5E-07	-	-	-	-	-	-	-	-	-	-	-	
Alpha-Endosulfan	1 / 1	100	6.2E-07	-	-	-	0.00000062	-	-	-	-	6.2E-07	-	-	-	0	0	-	0	0	-	0	0	
Beta-Endosulfan	1 / 1	100	5.9E-07	-	-	-	0.00000059	-	-	-	-	5.9E-07	-	-	-	0	0	-	0	0	-	0	0	
Beta-HCH	1 / 1	100	1.63E-06	-	-	-	0.0000016	-	-	-	-	1.63E-06	-	-	-	-	-	-	-	-	-	-	-	
Cis-Nonachlor	1 / 1	100	1.09E-06	-	-	-	0.0000011	-	-	-	-	1.09E-06	-	-	-	-	-	-	-	-	-	-	-	
Delta- Benzenohexachloride	0 / 1	0	80	-	-	-	80	-	-	-	-	80	-	-	-	-	-	-	-	-	-	-	-	
Dieldrin	1 / 1	100	1.07	-	-	-	1.1	-	-	-	-	1.07	-	-	-	-	-	-	-	-	-	-	-	
Endrin ketone (surrogate) (%)	0 / 1	0	101	-	-	-	100	-	-	-	-	101	-	-	-	-	-	-	-	-	-	-	-	
Endrin	1 / 1	100	1.25E-06	-	-	-	0.0000013	-	-	-	-	1.25E-06	-	-	-	-	-	-	-	-	-	-	-	
Gamma- Benzenohexachloride	1 / 1	100	4.4E-07	-	-	-	0.00000044	-	-	-	-	4.4E-07	-	-	-	-	-	-	-	-	-	-	-	
Gamma-Chlordane	1 / 1	100	3.1E-07	-	-	-	0.00000031	-	-	-	-	3.1E-07	-	-	-	-	-	-	-	-	-	-	-	
Heptachlor Epoxide	1 / 1	100	3.3E-07	-	-	-	0.00000033	-	-	-	-	3.3E-07	-	-	-	-	-	-	-	-	-	-	-	
Heptachlor	1 / 1	100	5.6E-07	-	-	-	0.00000056	-	-	-	-	5.6E-07	-	-	-	-	-	-	-	-	-	-	-	
Hexachlorobenzene	1 / 1	100	4.6E-07	-	-	-	0.00000046	-	-	-	-	4.6E-07	-	-	-	-	-	-	-	-	-	-	-	
methoxychlor (p,p'- methoxychlor)	1 / 1	100	5.12E-06	-	-	-	0.0000051	-	-	-	-	5.12E-06	-	-	-	-	-	-	-	-	-	-	-	
Mirex	1 / 1	100	8.2E-07	-	-	-	0.00000082	-	-	-	-	8.2E-07	-	-	-	-	-	-	-	-	-	-	-	
o,p'-DDD	1 / 1	100	7.8E-07	-	-	-	0.00000078	-	-	-	-	7.8E-07	-	-	-	-	-	-	-	-	-	-	-	
o,p'-DDE	1 / 1	100	1.19E-06	-	-	-	0.0000012	-	-	-	-	1.19E-06	-	-	-	-	-	-	-	-	-	-	-	
o,p'-DDT	1 / 1	100	5.6E-07	-	-	-	0.00000056	-	-	-	-	5.6E-07	-	-	-	-	-	-	-	-	-	-	-	
Oxychlordane	1 / 1	100	1.04E-06	-	-	-	0.000001	-	-	-	-	1.04E-06	-	-	-	-	-	-	-	-	-	-	-	
p,p'-DDD (tdp)	1 / 1	100	8.8E-07	-	-	-	0.00000088	-	-	-	-	8.8E-07	-	-	-	-	-	-	-	-	-	-	-	
p,p'-DDE	1 / 1	100	6.5E-07	-	-	-	0.00000065	-	-	-	-	6.5E-07	-	-	-	-	-	-	-	-	-	-	-	
p,p'-DDT	1 / 1	100	1.16E-06	-	-	-	0.0000012	-	-	-	-	1.16E-06	-	-	-	-	-	-	-	-	-	-	-	
Pentachloroanisole	1 / 1	100	2.8E-07	-	-	-	0.00000028	-	-	-	-	2.8E-07	-	-	-	-	-	-	-	-	-	-	-	
Trans-Nonachlor	1 / 1	100	7.4E-07	-	-	-	0.00000074	-	-	-	-	7.4E-07	-	-	-	-	-	-	-	-	-	-	-	
Azinphos methyl (Cythion)	1 / 1	100	0.0000087	-	-	-	0.0000087	-	-	-	-	8.7E-06	-	-	-	-	-	-	-	-	-	-	-	
Dibenzothiophene	1 / 1	100	0.0000052	-	-	-	0.0000052	-	-	-	-	5.2E-06	-	-	-	-	-	-	-	-	-	-	-	

Appendix B-3-10-a: Water chemistry summary for Coppermine River downstream of Copper Creek

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 9	0	35.8	35.8	37	38.6	50	42.8	62	70.2	85.4	85.4	17	5.8	0.35	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	1 / 9	11	10	10	18	24	32	29	46	46.8	50	50	13	4.5	0.42	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	2 / 9	22	3	3	3	4	34	8	9	63.4	9	245	79	26	2.34	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 9	0	0.3	0.3	0.7	0.9	15	2.3	3.3	27.88	6.6	113	37	12	2.52	-	-	9	-	-	0	-	-	9
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 9	0	16.2	16.2	16.28	16.4	23	17.9	27.8	33.66	41.5	41.5	9	3	0.40	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	1 / 9	11	0.2	0.2	0.2	0.3	0.33	0.4	0.4	0.4	0.4	0.4	0.087	0.029	0.26	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0

Appendix B-3-10-a: Water chemistry summary for Coppermine River downstream of Copper Creek

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hardness, Total (as CaCO3)	0 / 9	0	16.1	16.1	17.3	17.9	24	19.3	28.7	35.04	42.8	42.8	9	3	0.37	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
pH (pH units)	0 / 9	0	6.7	7.12	7.036	7.14	7.3	7.22	7.39	7.656	7.62	7.8	0.31	0.1	0.04	-	0	-	-	0	-	-	0	-
Silica, Reactive	0 / 9	0	0.59	0.59	0.606	0.66	0.83	0.77	0.92	1.134	1.19	1.19	0.22	0.072	0.26	-	-	-	-	-	-	-	-	-
Silica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	5 / 9	56	1.4	-	-	-	3.4	-	-	-	-	6	1.3	0.45	0.40	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	7 / 9	78	0.005	-	-	-	0.0077	-	-	-	-	0.018	0.0053	0.0018	0.69	-	0	-	-	0	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	2 / 7	29	0.008	0.008	0.008	0.01	0.043	0.035	0.077	0.082	0.085	0.085	0.036	0.013	0.82	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	0 / 6	0	0.016	0.016	0.026	0.04575	0.08	0.078	0.114	0.137	0.149	0.149	0.051	0.021	0.63	-	-	-	-	-	-	-	-	-
Nitrite	7 / 8	88	0.008	-	-	-	0.026	-	-	-	-	0.149	0.05	0.018	1.95	-	1	0	-	0	0	-	1	0
Nitrogen, Particulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	3 / 9	33	0.002	0.002	0.002	0.002	0.0027	0.002	0.002	0.0032	0.002	0.008	0.002	0.00067	0.75	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	0 / 9	0	0.003	0.003	0.0038	0.012	0.041	0.016	0.057	0.0882	0.065	0.181	0.057	0.019	1.40	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-10-a: Water chemistry summary for Coppermine River downstream of Copper Creek

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-3-10-a: Water chemistry summary for Coppermine River downstream of Copper Creek

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nickel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorous, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Potassium	0 / 9	0	0.4	0.41	0.408	0.42	0.44	0.43	0.43	0.474	0.43	0.57	0.05	0.017	0.11	-	-	-	-	-	-	-	-	
Rubidium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Selenium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sodium	0 / 9	0	0.39	0.48	0.462	0.49	0.52	0.52	0.55	0.58	0.62	0.62	0.064	0.021	0.12	-	-	-	-	-	-	-	-	
Strontium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Thallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Uranium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Vanadium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Zinc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Metals																								
Aluminum	2 / 9	22	0.017	0.017	0.0274	0.03	0.54	0.074	0.19	1.0584	0.303	4.08	1.3	0.44	2.44	-	4	-	-	0	-	-	4	-
Antimony	2 / 9	22	0.0005	0.0005	0.0005	0.0006	0.00071	0.000773	0.0008	0.00082	0.0009	0.0009	0.00014	0.000048	0.20	-	-	0	-	-	0	-	-	0
Arsenic	0 / 1	0	0.0022	-	-	-	0.0022	-	-	-	-	0.0022	-	-	-	-	0	0	-	0	0	-	0	0
Barium	0 / 9	0	0.00704	0.00704	0.007808	0.008	0.016	0.009	0.022	0.0278	0.024	0.043	0.012	0.004	0.75	-	-	0	-	-	0	-	-	0
Beryllium	9 / 9	100	0.00002	-	-	-	0.0016	-	-	-	-	0.002	0.00087	0.00029	0.56	-	-	-	-	-	-	-	-	-
Bismuth	5 / 5	100	0.0004	-	-	-	0.0024	-	-	-	-	0.005	0.0024	0.0011	1.03	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	9 / 9	100	0.00002	-	-	-	0.00024	-	-	-	-	0.0003	0.00012	0.000041	0.52	7	7	0	7	7	0	0	0	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	6 / 9	67	0.000012	-	-	-	0.00051	-	-	-	-	0.0021	0.00062	0.00021	1.23	-	-	-	-	-	-	-	-	-
Chromium	9 / 9	100	0.0001	-	-	-	0.0024	-	-	-	-	0.003	0.0013	0.00043	0.54	-	0	0	-	0	0	-	0	0
Cobalt	5 / 9	56	0.000101	-	-	-	0.00081	-	-	-	-	0.001	0.00037	0.00012	0.46	-	-	-	-	-	-	-	-	-
Copper	5 / 9	56	0.00051	-	-	-	0.0021	-	-	-	-	0.004	0.0009	0.0003	0.42	-	2	-	-	0	-	-	2	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	1 / 9	11	0.03	0.03	0.0356	0.04	0.43	0.13	0.234	0.8028	0.266	2.95	0.95	0.32	2.18	-	1	-	-	0	-	-	1	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	5 / 9	56	0.00063	-	-	-	0.0011	-	-	-	-	0.003	0.00071	0.00024	0.62	-	1	0	-	0	0	-	1	0
Lithium	6 / 9	67	0.0008	-	-	-	0.0025	-	-	-	-	0.003	0.00092	0.00031	0.36	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-10-a: Water chemistry summary for Coppermine River downstream of Copper Creek

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Manganese	2 / 9	22	0.001	0.001	0.001	0.00108	0.015	0.006	0.009	0.0274	0.0105	0.095	0.03	0.01	2.00	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Molybdenum	6 / 9	67	0.00005	-	-	-	0.001	-	-	-	-	0.003	0.00085	0.00028	0.84	-	0	-	-	0	-	-	0	-
Nickel	6 / 9	67	0.00043	-	-	-	0.0012	-	-	-	-	0.004	0.0011	0.00035	0.84	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 9	0	0.0008	0.0008	0.00088	0.00095	0.002	0.001	0.0012	0.0039	0.0012	0.0083	0.0024	0.00081	1.22	-	-	-	-	-	-	-	-	-
Selenium	9 / 9	100	0.0003	-	-	-	0.0078	-	-	-	-	0.01	0.0043	0.0014	0.55	-	7	0	-	7	0	-	0	0
Silver	9 / 9	100	0.000006	-	-	-	0.00023	-	-	-	-	0.0003	0.00013	0.000043	0.55	-	7	-	-	7	-	-	0	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 9	0	0.00696	0.00696	0.006992	0.007	0.0092	0.008	0.01	0.0126	0.012	0.015	0.0027	0.00091	0.30	-	-	-	-	-	-	-	-	-
Thallium	9 / 9	100	0.0001	-	-	-	0.00033	-	-	-	-	0.0004	0.00013	0.000044	0.40	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	4 / 9	44	0.00068	0.00068	0.002536	0.003	0.017	0.003	0.00643	0.0306	0.007	0.125	0.04	0.013	2.35	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	5 / 9	56	0.00005	-	-	-	0.00072	-	-	-	-	0.0045	0.0014	0.00047	1.96	-	0	0	-	0	0	-	0	0
Vanadium	7 / 9	78	0.00003	-	-	-	0.0013	-	-	-	-	0.005	0.0014	0.00048	1.15	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	5 / 9	56	0.00194	-	-	-	0.022	-	-	-	-	0.07	0.027	0.009	1.25	-	2	-	-	0	-	-	2	-

Appendix B-3-11-a: Water chemistry summary for Coppermine River mouth

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	12 / 64	19	0.5	0.5	5	5	8.8	5	10	19.1	17	50	7.6	0.95	0.86	-	-	-	-	-	-	-	-	-
True Colour (relative units)	3 / 8	38	5	5	5	5	5.6	5	5	6.5	5	10	1.8	0.63	0.31	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	0 / 5	0	2	2.3	2.12	2.3	3.2	2.3	2.4	5.04	2.4	6.8	2	0.91	0.65	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 13	0	20.7	20.7	22.6	29	53	48.5	52.5	102.72	73.6	112	30	8.3	0.56	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	0 / 39	0	23	23	29.8	30.5	42	39	50	63	78	83	14	2.3	0.34	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	0 / 31	0	0.6	0.6	0.6	1.1	5.9	4.4	10.55	13	15.6	15.6	5.3	0.95	0.90	-	-	1	-	-	0	-	-	1
TSS fixed	1 / 2	50	1	-	-	-	18	-	-	-	-	35	24	17	1.34	-	-	-	-	-	-	-	-	-
TSS	14 / 42	33	3	3	3	3	14	4	10.75	40.2	13	127	24	3.7	1.74	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 83	0	0.2	0.2	0.72	1.45	7	2.6	6	18.9	9.4	71	11	1.2	1.59	-	-	83	-	-	0	-	-	83
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 81	0	2.3	14.3	17.4	19.7	26	23.6	30	38.4	43	94	12	1.4	0.48	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	0 / 82	0	0.2	0.2	0.4	0.6	140	0.88	1.255	7.34	2.2	4800	660	73	4.71	7	7	-	0	0	-	7	7	-
Fluoride, Dissolved	11 / 17	65	0.05	-	-	-	0.13	-	-	-	-	0.4	0.11	0.026	0.79	-	4	0	-	0	0	-	4	0

Appendix B-3-11-a: Water chemistry summary for Coppermine River mouth

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

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All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Carbon, Dissolved Organic	0 / 9	0	2	2	2.4	2.6	3.7	3	4.5	5.3	4.5	8.5	2	0.66	0.54	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Total Inorganic	1 / 4	25	0.5	-	-	-	3.6	-	-	-	-	6	2.3	1.1	0.63	-	-	-	-	-	-	-	-	-
Carbon, Total Organic	0 / 13	0	1	1	1.84	2.1	3.4	2.8	4.2	4.88	5	9.5	2.2	0.6	0.64	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide																								
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	16 / 30	53	0.001	-	-	-	0.14	-	-	-	-	4	0.73	0.13	5.39	-	1	1	-	1	1	-	0	0
Cyanide, wad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																								
Aluminum	0 / 2	0	0.02	-	-	-	0.025	-	-	-	-	0.03	0.0071	0.005	0.28	-	-	-	-	-	-	-	-	-
Antimony	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	2 / 2	100	0.01	-	-	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Barium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	0 / 82	0	0.8	0.8	4.91	5.2625	9.8	6.45	8.525	12.98	13.3	108	15	1.6	1.49	-	-	-	-	-	-	-	-	-
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	6 / 8	75	0.001	-	-	-	0.0059	-	-	-	-	0.01	0.0045	0.0016	0.76	-	-	-	-	-	-	-	-	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	8 / 14	57	0.001	-	-	-	0.011	-	-	-	-	0.05	0.014	0.0038	1.26	-	-	-	-	-	-	-	-	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	6 / 8	75	0.001	-	-	-	0.034	-	-	-	-	0.06	0.026	0.0091	0.76	-	-	-	-	-	-	-	-	-
Lithium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	0 / 40	0	1.77	1.77	2.063	2.1725	2.8	2.395	3.2725	4.082	4.47	5.4	0.88	0.14	0.32	-	-	-	-	-	-	-	-	-
Manganese	12 / 12	100	0.01	-	-	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-11-a: Water chemistry summary for Coppermine River mouth

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nickel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorous, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Potassium	0 / 83	0	0.25	0.25	0.4	0.41	3.4	0.5	0.635	0.946	0.97	103	14	1.5	4.09	-	-	-	-	-	-	-	-	
Rubidium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Selenium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sodium	1 / 83	1	0.1	0.1	0.4	0.5	77	0.7	1.065	4.36	1.6	2660	360	40	4.72	-	-	-	-	-	-	-	-	
Strontium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Thallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Uranium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Vanadium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Zinc	4 / 8	50	0.001	0.001	0.0024	0.00375	0.0078	0.007	0.01	0.013	0.01	0.02	0.0061	0.0022	0.79	-	-	-	-	-	-	-	-	
Extractable Metals																								
Aluminum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Barium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Beryllium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cadmium	2 / 2	100	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	
Calcium (unfiltered)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chromium	1 / 1	100	0.01	-	-	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	
Cobalt	2 / 2	100	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	
Copper	3 / 6	50	0.003	0.003	0.003	0.00475	0.011	0.01	0.01	0.02	0.01	0.03	0.0099	0.004	0.90	-	-	-	-	-	-	-	-	
Iron	2 / 3	67	0.05	-	-	-	0.06	-	-	-	-	0.08	0.017	0.01	0.29	-	-	-	-	-	-	-	-	
Lead	5 / 5	100	0.005	-	-	-	0.008	-	-	-	-	0.01	0.0027	0.0012	0.34	-	-	-	-	-	-	-	-	
Lithium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Manganese	5 / 5	100	0.01	-	-	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	
Molybdenum	1 / 1	100	0.05	-	-	-	0.05	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	
Nickel	1 / 2	50	0.004	-	-	-	0.0045	-	-	-	-	0.005	0.00071	0.0005	0.16	-	-	-	-	-	-	-	-	
Potassium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Strontium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Appendix B-3-11-a: Water chemistry summary for Coppermine River mouth

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ
Vanadium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Zinc	4 / 6	67	0.004	-	-	-	0.0095	-	-	-	-	0.013	0.0029	0.0012	0.31	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	1 / 10	10	0.03	0.03	0.0408	0.049	0.37	0.0698	0.2125	1.274	0.215	1.76	0.61	0.19	1.63	-	5	-	-	0	-	-	5	-
Antimony	2 / 8	25	0.0005	0.0005	0.0005	0.000575	0.0009	0.0007225	0.000825	0.001362	0.0009	0.00244	0.00064	0.00023	0.71	-	-	0	-	-	0	-	-	0
Arsenic	27 / 32	84	0.0005	-	-	-	0.65	-	-	-	-	11.6	2	0.35	3.08	-	30	30	-	26	26	-	4	4
Barium	0 / 10	0	0.0116	0.0116	0.01196	0.013	0.023	0.01335	0.02925	0.03881	0.036	0.0641	0.017	0.0054	0.74	-	-	0	-	-	0	-	-	0
Beryllium	7 / 8	88	0.00002	-	-	-	0.0015	-	-	-	-	0.002	0.00091	0.00032	0.61	-	-	-	-	-	-	-	-	-
Bismuth	3 / 3	100	0.001	-	-	-	0.0037	-	-	-	-	0.005	0.0023	0.0013	0.63	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	26 / 39	67	0.00002	-	-	-	0.0053	-	-	-	-	0.2	0.032	0.0051	6.05	37	37	1	25	25	1	12	12	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	5 / 8	63	0.000021	-	-	-	0.00053	-	-	-	-	0.0021	0.00065	0.00023	1.24	-	-	-	-	-	-	-	-	-
Chromium	13 / 39	33	0.0002	0.0002	0.00056	0.0008	0.13	0.001	0.003	0.00328	0.0051	5	0.8	0.13	6.16	-	1	1	-	0	0	-	1	1
Cobalt	11 / 31	35	0.0001	0.0001	0.0001	0.0001	0.033	0.0001	0.0009725	0.001	0.0015	1	0.18	0.032	5.50	-	-	-	-	-	-	-	-	-
Copper	5 / 31	16	0.0004	0.0004	0.0013	0.00155	0.16	0.002	0.0029	0.004	0.0041	5	0.9	0.16	5.49	-	11	-	-	0	-	-	11	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	0 / 39	0	0.039	0.039	0.0798	40.5	500	93	361.5	848.8	766	7040	1300	200	2.55	-	32	-	-	0	-	-	32	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	6 / 9	67	0.001	-	-	-	0.11	-	-	-	-	1	0.33	0.11	2.97	-	3	1	-	1	1	-	2	0
Lithium	6 / 10	60	0.0007	-	-	-	0.0024	-	-	-	-	0.003	0.00092	0.00029	0.38	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	2 / 30	7	0.001	0.001	0.002	0.063175	4.4	1.9	4.7	11.75	11.5	24.5	6.4	1.2	1.46	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Molybdenum	5 / 10	50	0.00008	0.00008	0.000098	0.0001	0.00084	0.001	0.001	0.0012	0.001	0.003	0.00088	0.00028	1.05	-	0	-	-	0	-	-	0	-
Nickel	6 / 31	19	0.0001	0.0001	0.0004	0.0006	0.098	0.0009	0.001	0.0013	0.0013	3	0.54	0.097	5.52	-	1	-	-	0	-	-	1	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 8	0	0.0008	0.0008	0.0008	0.0008525	0.0013	0.0009	0.0012625	0.002485	0.0009	0.0028	0.0008	0.00028	0.62	-	-	-	-	-	-	-	-	-
Selenium	10 / 11	91	0.0003	-	-	-	2.1	-	-	-	-	10	4	1.2	1.91	-	9	3	-	8	2	-	1	1
Silver	10 / 10	100	0.000006	-	-	-	0.0002	-	-	-	-	0.0003	0.00013	0.000042	0.65	-	6	-	-	6	-	-	0	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 8	0	0.008	0.008	0.0087	0.009	0.011	0.01013	0.01275	0.01536	0.0162	0.0162	0.003	0.0011	0.27	-	-	-	-	-	-	-	-	-
Thallium	8 / 8	100	0.0001	-	-	-	0.00033	-	-	-	-	0.0004	0.00014	0.000049	0.43	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	5 / 8	63	0.00268	-	-	-	0.0079	-	-	-	-	0.0398	0.013	0.0046	1.63	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-11-a: Water chemistry summary for Coppermine River mouth

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Uranium	5 / 8	63	0.000062	-	-	-	0.0008	-	-	-	-	0.0045	0.0015	0.00053	1.88	-	0	0	-	0	0	-	0	0
Vanadium	6 / 10	60	0.00019	-	-	-	0.1	-	-	-	-	0.7	0.23	0.073	2.29	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	4 / 39	10	0.0009	0.0009	0.00192	0.00445	0.35	0.01	0.01295	0.03968	0.02	13	2.1	0.33	6.02	-	5	-	-	0	-	-	5	-

Appendix B-3-11-b: Water chemistry summary for Coppermine River mouth during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	3 / 26	12	5	5	5	5	11	7.5	10	20	17	50	9.8	1.9	0.92	-	-	-	-	-	-	-	-	-
True Colour (relative units)	1 / 3	33	5	-	-	-	6.7	-	-	-	-	10	2.9	1.7	0.43	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	0 / 2	0	2	-	-	-	2.2	-	-	-	-	2.4	0.28	0.2	0.13	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 6	0	29	48.5	38.75	48.5	46	48.6	50.725	51.95	52.5	52.5	8.7	3.6	0.19	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	0 / 22	0	23	23	29.1	30	36	31.5	39	49.7	50	64	9.7	2.1	0.27	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	0 / 6	0	0.6	0.6	0.6	0.725	1	1.1	1.1	1.4	1.1	1.7	0.41	0.17	0.40	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	11 / 23	48	3	3	3	3	11	3	6	10.8	10	127	26	5.4	2.45	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 35	0	0.3	0.3	0.84	1.3	5	2.1	3.85	6.66	7.5	71	12	2	2.37	-	-	35	-	-	0	-	-	35
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 35	0	16.3	16.3	17.62	19.15	24	21.6	23.35	27.14	28.5	94	13	2.1	0.54	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	0 / 35	0	0.45	0.45	0.57	0.7	26	1	1.6	7.16	2.34	400	86	14	3.25	3	3	-	0	0	-	3	3	-
Fluoride, Dissolved	3 / 5	60	0.05	-	-	-	0.092	-	-	-	-	0.11	0.024	0.011	0.26	-	0	0	-	0	0	-	0	0

Appendix B-3-11-b: Water chemistry summary for Coppermine River mouth during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hardness, Total (as CaCO3)	0 / 27	0	20.1	20.1	20.54	21.55	32	22.7	25.15	31.46	30	160	31	5.9	0.97	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
pH (pH units)	0 / 10	0	4.8	6.63	6.447	6.91	7	7.305	7.405	7.435	7.48	7.48	0.82	0.26	0.12	-	0	-	-	0	-	-	0	-
Silica, Reactive	0 / 18	0	0.4	0.4	0.5	0.6	1.2	0.65	0.845	1.706	0.98	8.4	1.9	0.45	1.53	-	-	-	-	-	-	-	-	-
Silica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	15 / 35	43	1	1	1.54	2.1	6.6	3	3	10	4	69.7	13	2.2	2.00	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	2 / 3	67	0.1	-	-	-	0.1	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	3 / 22	14	0.005	0.005	0.005	0.01	0.044	0.0195	0.05375	0.1174	0.119	0.182	0.051	0.011	1.16	-	7	-	-	0	-	-	7	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	1 / 4	25	0.008	-	-	-	0.068	-	-	-	-	0.097	0.041	0.02	0.60	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	0 / 30	0	0.05	0.05	0.0539	0.08	0.096	0.09	0.10775	0.1153	0.136	0.23	0.04	0.0073	0.42	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	0 / 4	0	0.078	-	-	-	0.12	-	-	-	-	0.197	0.054	0.027	0.45	-	-	-	-	-	-	-	-	-
Nitrite	3 / 4	75	0.008	-	-	-	0.055	-	-	-	-	0.197	0.095	0.047	1.71	-	1	0	-	0	0	-	1	0
Nitrogen, Particulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	0 / 2	0	0.003	-	-	-	0.005	-	-	-	-	0.007	0.0028	0.002	0.57	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	12 / 22	55	0.001	-	-	-	0.0037	-	-	-	-	0.024	0.0049	0.001	1.30	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous	1 / 23	4	0.004	0.004	0.0052	0.0065	0.011	0.009	0.011	0.014	0.014	0.037	0.0073	0.0015	0.70	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-11-b: Water chemistry summary for Coppermine River mouth during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Carbon, Dissolved Organic	0 / 5	0	2	2	2.2	2.5	2.6	2.6	3	3.06	3.1	3.1	0.44	0.2	0.17	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Total Inorganic	0 / 1	0	4	-	-	-	4	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Total Organic	0 / 6	0	1.8	1.8	1.95	2.225	2.5	2.6	2.75	2.9	3	3	0.45	0.18	0.18	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide																								
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	7 / 16	44	0.001	0.001	0.001	0.001	0.0023	0.002	0.003	0.004	0.004	0.004	0.0012	0.0003	0.53	-	0	0	-	0	0	-	0	0
Cyanide, wad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																								
Aluminum	0 / 1	0	0.02	-	-	-	0.02	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	0 / 35	0	4.5	4.5	5.012	5.115	6.4	5.5	6.45	8.08	7.3	17	2.5	0.41	0.38	-	-	-	-	-	-	-	-	-
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	2 / 2	100	0.001	-	-	-	0.0055	-	-	-	-	0.01	0.0064	0.0045	1.16	-	-	-	-	-	-	-	-	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	1 / 3	33	0.001	-	-	-	0.014	-	-	-	-	0.03	0.015	0.0086	1.09	-	-	-	-	-	-	-	-	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	2 / 2	100	0.001	-	-	-	0.026	-	-	-	-	0.05	0.035	0.025	1.36	-	-	-	-	-	-	-	-	-
Lithium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	0 / 22	0	1.77	1.84	1.937	2.1	2.3	2.2	2.3	2.463	2.47	4.02	0.48	0.1	0.21	-	-	-	-	-	-	-	-	-
Manganese	3 / 3	100	0.01	-	-	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-11-b: Water chemistry summary for Coppermine River mouth during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nickel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorous, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Potassium	0 / 35	0	0.4	0.4	0.408	0.465	1	0.58	0.665	0.938	0.8	7.9	1.6	0.27	1.55	-	-	-	-	-	-	-	-	
Rubidium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Selenium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sodium	0 / 35	0	0.14	0.14	0.512	0.635	15	0.82	1.15	4.22	1.2	228	48	8.1	3.22	-	-	-	-	-	-	-	-	
Strontium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Thallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Uranium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Vanadium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Zinc	1 / 2	50	0.001	-	-	-	0.011	-	-	-	-	0.02	0.013	0.0095	1.28	-	-	-	-	-	-	-	-	
Extractable Metals																								
Aluminum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Barium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Beryllium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cadmium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Calcium (unfiltered)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chromium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cobalt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Copper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lead	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lithium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Manganese	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Molybdenum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nickel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Potassium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Strontium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Appendix B-3-11-b: Water chemistry summary for Coppermine River mouth during Winter Baseflow

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ
Vanadium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Zinc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Metals																								
Aluminum	1 / 6	17	0.03	0.03	0.036	0.043	0.077	0.0564	0.0713	0.1389	0.0728	0.205	0.065	0.026	0.84	-	2	-	-	0	-	-	2	-
Antimony	1 / 5	20	0.0005	0.0005	0.00054	0.0006	0.001	0.0007	0.0008	0.001784	0.0008	0.00244	0.00081	0.00036	0.80	-	-	0	-	-	0	-	-	0
Arsenic	15 / 18	83	0.0005	-	-	-	0.89	-	-	-	-	11.6	2.7	0.63	2.99	-	16	16	-	14	14	-	2	2
Barium	0 / 6	0	0.0116	0.0116	0.0118	0.01225	0.013	0.013	0.013	0.01335	0.0137	0.0137	0.00077	0.00031	0.06	-	-	0	-	-	0	-	-	0
Beryllium	5 / 5	100	0.00002	-	-	-	0.0016	-	-	-	-	0.002	0.00089	0.0004	0.55	-	-	-	-	-	-	-	-	-
Bismuth	3 / 3	100	0.001	-	-	-	0.0037	-	-	-	-	0.005	0.0023	0.0013	0.63	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	13 / 22	59	0.00002	-	-	-	0.0093	-	-	-	-	0.2	0.043	0.0091	4.61	21	21	1	12	12	1	9	9	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	4 / 5	80	0.000021	-	-	-	0.00032	-	-	-	-	0.0004	0.00017	0.000076	0.52	-	-	-	-	-	-	-	-	-
Chromium	7 / 22	32	0.0002	0.0002	0.00042	0.000725	0.23	0.001	0.00275	0.003	0.0051	5	1.1	0.23	4.66	-	1	1	-	0	0	-	1	1
Cobalt	8 / 19	42	0.0001	0.0001	0.0001	0.0001	0.053	0.0001	0.001	0.0011	0.0015	1	0.23	0.053	4.32	-	-	-	-	-	-	-	-	-
Copper	4 / 19	21	0.0007	0.0007	0.00122	0.00155	0.27	0.002	0.00265	0.00402	0.0041	5	1.1	0.26	4.32	-	7	-	-	0	-	-	7	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	0 / 22	0	0.039	0.039	0.071	29	250	70.5	112.25	454.7	113	2740	590	130	2.32	-	17	-	-	0	-	-	17	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	5 / 6	83	0.001	-	-	-	0.17	-	-	-	-	1	0.41	0.17	2.43	-	2	1	-	1	1	-	1	0
Lithium	4 / 6	67	0.0007	-	-	-	0.0023	-	-	-	-	0.003	0.0011	0.00046	0.50	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	2 / 18	11	0.001	0.001	0.0017	0.0267475	2.2	1.35	2.4	4.2	4.9	14	3.3	0.78	1.52	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Molybdenum	4 / 6	67	0.0001	-	-	-	0.0007	-	-	-	-	0.001	0.00046	0.00019	0.66	-	0	-	-	0	-	-	0	-
Nickel	4 / 19	21	0.0001	0.0001	0.000392	0.00055	0.16	0.0008	0.001	0.00104	0.0012	3	0.69	0.16	4.34	-	1	-	-	0	-	-	1	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 5	0	0.0008	0.0008	0.0008	0.0008	0.00085	0.00087	0.0009	0.0009	0.0009	0.0009	0.000051	0.000023	0.06	-	-	-	-	-	-	-	-	-
Selenium	5 / 6	83	0.0003	-	-	-	0.51	-	-	-	-	3	1.2	0.5	2.41	-	5	1	-	4	0	-	1	1
Silver	6 / 6	100	0.000006	-	-	-	0.00022	-	-	-	-	0.0003	0.00013	0.000053	0.60	-	4	-	-	4	-	-	0	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 5	0	0.008	0.009	0.0084	0.009	0.0093	0.009	0.00926	0.010304	0.00926	0.011	0.0011	0.00049	0.12	-	-	-	-	-	-	-	-	-
Thallium	5 / 5	100	0.0001	-	-	-	0.00034	-	-	-	-	0.0004	0.00013	0.00006	0.39	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	4 / 5	80	0.00268	-	-	-	0.0029	-	-	-	-	0.003	0.00014	0.000064	0.05	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-11-b: Water chemistry summary for Coppermine River mouth during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Uranium	4 / 5	80	0.000062	-	-	-	0.00025	-	-	-	-	0.0003	0.00011	0.000048	0.42	-	0	0	-	0	0	-	0	0
Vanadium	4 / 6	67	0.00019	-	-	-	0.051	-	-	-	-	0.3	0.12	0.05	2.41	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	2 / 22	9	0.0009	0.0009	0.00302	0.006	0.6	0.01	0.014625	0.0371	0.02	13	2.8	0.59	4.60	-	3	-	-	0	-	-	3	-

Appendix B-3-11-c: Water chemistry summary for Coppermine River mouth during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	4 / 13	31	5	5	5	5	8	5	8	13.8	9	25	5.9	1.6	0.73	-	-	-	-	-	-	-	-	-
True Colour (relative units)	2 / 2	100	5	-	-	-	5	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	0 / 1	0	2.3	-	-	-	2.3	-	-	-	-	2.3	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 1	0	22	-	-	-	22	-	-	-	-	22	-	-	-	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	0 / 6	0	42	42	42.5	43.75	55	49.5	58.25	71.5	60	83	16	6.3	0.28	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	0 / 9	0	0.6	0.6	1	1.1	4.5	4.4	7.2	8.28	9.4	9.4	3.2	1.1	0.73	-	-	0	-	-	0	-	-	0
TSS fixed	0 / 1	0	35	-	-	-	35	-	-	-	-	35	-	-	-	-	-	-	-	-	-	-	-	-
TSS	0 / 7	0	5	5	5.6	8.5	26	13	42.5	50.8	61	61	22	8.5	0.87	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 15	0	0.2	0.2	0.72	2.95	14	5.6	25.3	30.8	45	45	14	3.7	1.00	-	-	15	-	-	0	-	-	15
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 14	0	2.3	2.3	7.72	19.9	27	28.85	36.325	39.8	43	43	13	3.5	0.49	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	0 / 14	0	0.4	0.4	0.4	0.46	1.6	0.865	1.275	2.851	1.57	9	2.3	0.61	1.44	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	6 / 7	86	0.05	-	-	-	0.11	-	-	-	-	0.4	0.13	0.048	1.12	-	1	0	-	0	0	-	1	0

Appendix B-3-11-c: Water chemistry summary for Coppermine River mouth during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-3-11-c: Water chemistry summary for Coppermine River mouth during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Carbon, Dissolved Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Inorganic	1 / 2	50	0.5	-	-	-	2.3	-	-	-	-	4	2.5	1.8	1.10	-	-	-	-	-	-	-	-	-
Carbon, Total Organic	0 / 2	0	1	-	-	-	3	-	-	-	-	5	2.8	2	0.94	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide																								
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide, Total	4 / 6	67	0.001	-	-	-	0.67	-	-	-	-	4	1.6	0.67	2.44	-	1	1	-	1	1	-	0	0
Cyanide, wad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Dissolved Metals																								
Aluminum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Antimony	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Arsenic	1 / 1	100	0.01	-	-	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	
Barium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Beryllium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cadmium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Calcium	0 / 15	0	1.4	1.4	1.88	5.18	6.5	6.06	8.78	10.04	13	13	3.3	0.85	0.51	-	-	-	-	-	-	-	-	
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chromium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cobalt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Copper	2 / 3	67	0.001	-	-	-	0.0047	-	-	-	-	0.01	0.0047	0.0027	1.01	-	-	-	-	-	-	-	-	
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Iron	2 / 5	40	0.001	0.001	0.001	0.001	0.0084	0.01	0.01	0.016	0.02	0.02	0.0079	0.0035	0.94	-	-	-	-	-	-	-	-	
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lead	2 / 3	67	0.001	-	-	-	0.019	-	-	-	-	0.05	0.027	0.015	1.38	-	-	-	-	-	-	-	-	
Lithium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Magnesium	0 / 6	0	2.1	2.1	2.245	2.3975	3.2	3.12	4.03	4.145	4.19	4.19	0.96	0.39	0.30	-	-	-	-	-	-	-	-	
Manganese	4 / 4	100	0.01	-	-	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Appendix B-3-11-c: Water chemistry summary for Coppermine River mouth during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ
Molybdenum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nickel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorous, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Potassium	0 / 15	0	0.25	0.25	0.34	0.4	0.54	0.5	0.62	0.824	0.84	0.97	0.2	0.052	0.37	-	-	-	-	-	-	-	-	-
Rubidium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Selenium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sodium	0 / 15	0	0.2	0.2	0.31	0.44	1	0.51	0.93	1.92	1.2	5.1	1.3	0.32	1.24	-	-	-	-	-	-	-	-	-
Strontium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Thallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Uranium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Vanadium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Zinc	1 / 3	33	0.004	-	-	-	0.006	-	-	-	-	0.01	0.0035	0.002	0.58	-	-	-	-	-	-	-	-	-
Extractable Metals																								
Aluminum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Barium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Beryllium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cadmium	1 / 1	100	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	
Calcium (unfiltered)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chromium	1 / 1	100	0.01	-	-	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	
Cobalt	1 / 1	100	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	
Copper	2 / 3	67	0.003	-	-	-	0.0077	-	-	-	-	0.01	0.004	0.0023	0.53	-	-	-	-	-	-	-	-	
Iron	1 / 1	100	0.05	-	-	-	0.05	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	
Lead	3 / 3	100	0.005	-	-	-	0.0083	-	-	-	-	0.01	0.0029	0.0017	0.35	-	-	-	-	-	-	-	-	
Lithium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Manganese	2 / 2	100	0.01	-	-	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	
Molybdenum	1 / 1	100	0.05	-	-	-	0.05	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	
Nickel	1 / 1	100	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	
Potassium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Strontium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Appendix B-3-11-c: Water chemistry summary for Coppermine River mouth during Spring Freshet

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Vanadium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Zinc	2 / 3	67	0.01	-	-	-	0.011	-	-	-	-	0.013	0.0017	0.001	0.16	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	0 / 1	0	1.76	-	-	-	1.8	-	-	-	-	1.76	-	-	-	-	1	-	-	0	-	-	1	-
Antimony	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
Arsenic	4 / 6	67	0.3	-	-	-	0.38	-	-	-	-	0.7	0.16	0.065	0.42	-	6	6	-	4	4	-	2	2
Barium	0 / 1	0	0.0641	-	-	-	0.064	-	-	-	-	0.0641	-	-	-	-	-	0	-	-	0	-	-	0
Beryllium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	4 / 6	67	0.0001	-	-	-	0.00015	-	-	-	-	0.0003	0.000084	0.000034	0.56	6	6	0	4	4	0	2	2	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	2 / 6	33	0.0002	0.0002	0.00055	0.000925	0.0023	0.0015	0.0038	0.0047	0.005	0.005	0.002	0.00081	0.89	-	0	0	-	0	0	-	0	0
Cobalt	1 / 5	20	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	0.0002	0.00038	0.0002	0.0005	0.00017	0.000077	0.87	-	-	-	-	-	-	-	-	-
Copper	0 / 5	0	0.0017	0.0017	0.00174	0.0018	0.0025	0.002	0.0032	0.00356	0.0038	0.0038	0.00094	0.00042	0.38	-	2	-	-	0	-	-	2	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	0 / 6	0	210	210	231	310	2100	832	2672.5	5105	3170	7040	2700	1100	1.30	-	6	-	-	0	-	-	6	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Lithium	0 / 1	0	0.002	-	-	-	0.002	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	0 / 5	0	4.1	4.1	4.7	5.6	13	9.6	22.9	23.86	24.5	24.5	9.7	4.3	0.73	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Molybdenum	0 / 1	0	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Nickel	0 / 5	0	0.0006	0.0006	0.00076	0.001	0.0012	0.0011	0.0013	0.0016	0.0013	0.0018	0.00044	0.0002	0.38	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	2 / 2	100	10	-	-	-	10	-	-	-	-	10	-	-	-	-	2	2	-	2	2	-	0	0
Silver	1 / 1	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-11-c: Water chemistry summary for Coppermine River mouth during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Uranium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Vanadium	0 / 1	0	0.7	-	-	-	0.7	-	-	-	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	0 / 6	0	0.0037	0.0037	0.00485	0.0074	0.015	0.0123	0.01375	0.0282	0.014	0.0424	0.014	0.0057	0.92	-	1	-	-	0	-	-	1	-

Appendix B-3-11-d: Water chemistry summary for Coppermine River mouth during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	5 / 25	20	0.5	0.5	5	5	7.2	5	8	10	10	25	5.1	1	0.71	-	-	-	-	-	-	-	-	-
True Colour (relative units)	0 / 3	0	5	-	-	-	5	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	0 / 2	0	2.3	-	-	-	4.6	-	-	-	-	6.8	3.2	2.3	0.70	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 6	0	20.7	20.7	22.85	30	64	59.3	100.9	111	112	112	41	17	0.63	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	0 / 11	0	26	26	33	39.5	49	48	60	63	78	78	15	4.6	0.31	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	0 / 16	0	0.6	0.6	0.85	1.7	8.5	10.55	13	14.15	15.6	15.6	5.7	1.4	0.67	-	-	1	-	-	0	-	-	1
TSS fixed	1 / 1	100	1	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
TSS	3 / 12	25	3	3	3	3	14	4.5	9.5	30.8	11	76	21	6.2	1.59	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 33	0	0.2	0.2	0.64	1.8	5.9	2.6	6.6	15.6	13	30.4	7.3	1.3	1.24	-	-	33	-	-	0	-	-	33
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 32	0	2.6	14.3	14.66	23.575	28	28.4	34.2	38.97	47.3	55.4	12	2.1	0.43	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	0 / 33	0	0.2	0.2	0.332	0.5	320	0.7	1.1	492.66	1.24	4800	1000	180	3.19	4	4	-	0	0	-	4	4	-
Fluoride, Dissolved	2 / 5	40	0.1	0.1	0.1	0.1	0.2	0.21	0.27	0.306	0.33	0.33	0.1	0.046	0.51	-	3	0	-	0	0	-	3	0

Appendix B-3-11-d: Water chemistry summary for Coppermine River mouth during Summer Recession

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hardness, Total (as CaCO3)	0 / 20	0	4.8	20.9	19.37	27.625	120	30.7	40.45	72.37	55.3	1559	340	77	2.93	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
pH (pH units)	0 / 6	0	7.36	7.36	7.46	7.5775	7.7	7.725	7.925	8	8.04	8.04	0.26	0.11	0.03	-	0	-	-	0	-	-	0	-
Silica, Reactive	2 / 25	8	0.1	0.1	0.1	0.3	0.68	0.6	1	1.4	1.9	1.9	0.5	0.1	0.74	-	-	-	-	-	-	-	-	-
Silica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sulphate, Dissolved	12 / 33	36	1	1	1	1.1	33	2.7	3	87.2	4	413	94	16	2.89	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	0 / 3	0	0.1	-	-	-	0.23	-	-	-	-	0.4	0.15	0.088	0.65	-	-	-	-	-	-	-	-	-
Ammonia, Total	3 / 11	27	0.002	0.002	0.005	0.0055	0.012	0.007	0.0105	0.017	0.017	0.051	0.014	0.0041	1.16	-	1	-	-	0	-	-	1	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nitrate	2 / 3	67	0.008	-	-	-	0.029	-	-	-	-	0.072	0.037	0.021	1.26	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	3 / 28	11	0.005	0.005	0.01	0.02	0.031	0.0295	0.041	0.053	0.068	0.068	0.017	0.0032	0.55	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	0 / 1	0	0.072	-	-	-	0.072	-	-	-	-	0.072	-	-	-	-	-	-	-	-	-	-	-	-
Nitrite	3 / 3	100	0.008	-	-	-	0.008	-	-	-	-	0.008	-	-	-	-	0	0	-	0	0	-	0	0
Nitrogen, Particulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	0 / 2	0	0.008	-	-	-	0.0085	-	-	-	-	0.009	0.00071	0.0005	0.08	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	1 / 13	8	0.002	0.002	0.002	0.002	0.1	0.003	0.006	0.0212	0.01	1.3	0.36	0.1	3.42	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous	3 / 15	20	0.002	0.002	0.0034	0.0045	0.017	0.005	0.0195	0.044	0.023	0.082	0.023	0.0059	1.32	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-11-d: Water chemistry summary for Coppermine River mouth during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Carbon, Dissolved Organic	0 / 4	0	2.7	-	-	-	5.1	-	-	-	-	8.5	2.5	1.2	0.49	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Total Inorganic	0 / 1	0	6	-	-	-	6	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Total Organic	0 / 5	0	2	2	2.32	2.8	4.6	4.2	4.4	7.46	4.4	9.5	2.9	1.3	0.64	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide																								
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	5 / 8	63	0.001	-	-	-	0.0018	-	-	-	-	0.004	0.0012	0.00041	0.67	-	0	0	-	0	0	-	0	0
Cyanide, wad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																								
Aluminum	0 / 1	0	0.03	-	-	-	0.03	-	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	1 / 1	100	0.01	-	-	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Barium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	0 / 32	0	0.8	2.2	4.94	6.575	15	7.54	9.825	43.18	13.2	108	22	3.9	1.48	-	-	-	-	-	-	-	-	-
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	2 / 3	67	0.002	-	-	-	0.0073	-	-	-	-	0.01	0.0046	0.0027	0.63	-	-	-	-	-	-	-	-	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	5 / 6	83	0.001	-	-	-	0.012	-	-	-	-	0.05	0.019	0.0078	1.57	-	-	-	-	-	-	-	-	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	2 / 3	67	0.05	-	-	-	0.053	-	-	-	-	0.06	0.0058	0.0033	0.11	-	-	-	-	-	-	-	-	-
Lithium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	0 / 12	0	2.4	2.4	2.53	2.95	3.5	3.28	4.02	4.431	5.4	5.4	0.88	0.25	0.25	-	-	-	-	-	-	-	-	-
Manganese	5 / 5	100	0.01	-	-	-	0.01	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-11-d: Water chemistry summary for Coppermine River mouth during Summer Recession

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-3-11-d: Water chemistry summary for Coppermine River mouth during Summer Recession

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ
Vanadium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Zinc	2 / 3	67	0.004	-	-	-	0.008	-	-	-	-	0.01	0.0035	0.002	0.43	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	0 / 3	0	0.058	-	-	-	0.5	-	-	-	-	1.22	0.63	0.36	1.27	-	2	-	-	0	-	-	2	-
Antimony	1 / 3	33	0.0005	-	-	-	0.00072	-	-	-	-	0.0009	0.0002	0.00012	0.28	-	-	0	-	-	0	-	-	0
Arsenic	8 / 8	100	0.3	-	-	-	0.3	-	-	-	-	0.3	-	-	-	-	8	8	-	8	8	-	0	0
Barium	0 / 3	0	0.021	-	-	-	0.03	-	-	-	-	0.036	0.0078	0.0045	0.26	-	-	0	-	-	0	-	-	0
Beryllium	2 / 3	67	0.00003	-	-	-	0.0013	-	-	-	-	0.002	0.0011	0.00066	0.85	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	9 / 11	82	0.00002	-	-	-	0.00017	-	-	-	-	0.0003	0.000089	0.000027	0.54	10	10	0	9	9	0	1	1	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	1 / 3	33	0.000109	-	-	-	0.00087	-	-	-	-	0.0021	0.0011	0.00062	1.24	-	-	-	-	-	-	-	-	-
Chromium	4 / 11	36	0.0007	0.0007	0.0007	0.0009	0.0017	0.0011	0.00257	0.003	0.003	0.003	0.00097	0.00029	0.58	-	0	0	-	0	0	-	0	0
Cobalt	2 / 7	29	0.0001	0.0001	0.0001	0.0001	0.00048	0.0001	0.0009725	0.001	0.001	0.001	0.00047	0.00018	0.99	-	-	-	-	-	-	-	-	-
Copper	1 / 7	14	0.0004	0.0004	0.00094	0.0014	0.0024	0.002	0.003	0.004556	0.00539	0.00539	0.0017	0.00065	0.73	-	2	-	-	0	-	-	2	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	0 / 11	0	0.079	0.079	0.289	25.295	130	69	180.5	380	380	425	150	45	1.13	-	9	-	-	0	-	-	9	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	1 / 3	33	0.001	-	-	-	0.0011	-	-	-	-	0.00131	0.00018	0.0001	0.16	-	1	0	-	0	0	-	1	0
Lithium	2 / 3	67	0.0027	-	-	-	0.0029	-	-	-	-	0.003	0.00017	0.0001	0.06	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	0 / 7	0	0.003	0.003	0.003	0.02695	3.6	1.9	5.85	9.7	11.5	11.5	4.6	1.7	1.28	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Molybdenum	1 / 3	33	0.00008	-	-	-	0.0014	-	-	-	-	0.003	0.0015	0.00086	1.10	-	0	-	-	0	-	-	0	-
Nickel	2 / 7	29	0.0004	0.0004	0.00052	0.0007	0.0011	0.0008	0.001	0.001736	0.001	0.00284	0.00081	0.00031	0.76	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 3	0	0.0009	-	-	-	0.002	-	-	-	-	0.0028	0.00099	0.00057	0.49	-	-	-	-	-	-	-	-	-
Selenium	3 / 3	100	0.0003	-	-	-	0.0068	-	-	-	-	0.01	0.0056	0.0032	0.83	-	2	0	-	2	0	-	0	0
Silver	3 / 3	100	0.000006	-	-	-	0.0002	-	-	-	-	0.0003	0.00017	0.000098	0.84	-	2	-	-	2	-	-	0	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 3	0	0.012	-	-	-	0.014	-	-	-	-	0.0162	0.0022	0.0012	0.15	-	-	-	-	-	-	-	-	-
Thallium	3 / 3	100	0.0001	-	-	-	0.0003	-	-	-	-	0.0004	0.00017	0.0001	0.58	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	1 / 3	33	0.003	-	-	-	0.016	-	-	-	-	0.0398	0.02	0.012	1.26	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-3-11-d: Water chemistry summary for Coppermine River mouth during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Uranium	1 / 3	33	0.0003	-	-	-	0.0017	-	-	-	-	0.0045	0.0024	0.0014	1.42	-	0	0	-	0	0	-	0	0
Vanadium	2 / 3	67	0.001	-	-	-	0.0014	-	-	-	-	0.00228	0.00074	0.00043	0.52	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	2 / 11	18	0.001	0.001	0.001	0.0018	0.012	0.005	0.01085	0.012	0.012	0.072	0.02	0.0062	1.77	-	1	-	-	0	-	-	1	-

Appendix B-3-12: CCME FAL and Health Canada GCDWQ guidelines

CCME lt/st = long term and short term WQGs for the protection of aquatic life;

HC GCDWQ = Health Canada guidelines for Canadian drinking water quality

* = guidelines calculated based on hardness

Parameter	CCME lt	CCME st	HC DWQG
Physical Tests			
Flow	-	-	-
Chlorophyll a	-	-	-
Apparent Colour (relative units)	-	-	-
True Colour (relative units)	-	-	-
Fecal streptococci (no/100 ml)	-	-	-
Oxygen Consumed (ppm)	-	-	-
Oxygen Total COD (ppm)	-	-	-
Saturation Index (pH units)	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-
Sodium Percentage (%)	-	-	-
Specific Conductance (usie/cm)	-	-	-
Stability Index (pH units)	-	-	-
TDS calc	-	-	-
TDS	-	-	-
Water Temperature (°C)	-	-	15
TSS fixed	-	-	-
TSS	-	-	-
Turbidity (NTU)	-	-	0.1
Major Ions			
Alkalinity Phenolphthalein (CaCO ₃)	-	-	-
Alkalinity, Total (as CaCO ₃)	-	-	-
Chloride, Dissolved	120	640	-
Fluoride, Dissolved	0.12	-	1.5
Hardness non-carb	-	-	-
Hardness, Total (as CaCO ₃)	-	-	-
Hydroxide (calcd)	-	-	-
pH (pH units)	6.5 - 9.0	-	-
Silica, Reactive	-	-	-
Silica	-	-	-
Sulphate, Dissolved	-	-	-
Nutrients			
Ammonia, Dissolved	-	-	-
Ammonia, Total	0.044	-	-
Ammonia, Un-ionized (calcd)	-	-	-
Nitrate	2.9	124	45
Nitrate-Nitrite, Dissolved	-	-	-
Nitrate-Nitrite	-	-	-
Nitrite	0.06	-	3
Nitrogen, Particulate	-	-	-
Nitrogen, Total Dissolved	-	-	-
Nitrogen, Total Kjeldahl	-	-	-
Nitrogen, Total	-	-	-
Phosphate, Dissolved Inorganic	-	-	-
Phosphate, Ortho	-	-	-
Phosphate, Total Inorganic	-	-	-
Phosphorous, Particulate (calcd)	-	-	-

Appendix B-3-12: CCME FAL and Health Canada GCDWQ guidelines

CCME lt/st = long term and short term WQGs for the protection of aquatic life;

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* = guidelines calculated based on hardness

Parameter	CCME lt	CCME st	HC DWQG
Organic/Inorganic Carbon			
Bicarbonate (calcd)	-	-	-
Carbon, Dissolved Inorganic	-	-	-
Carbon, Dissolved Organic	-	-	-
Carbon, Dissolved Total	-	-	-
Carbon, Particulate Organic	-	-	-
Carbon, Total Inorganic	-	-	-
Carbon, Total Organic	-	-	-
Carbonate (calcd)	-	-	-
Free CO2 (calcd)	-	-	-
Cyanide			
Cyanide Thiocyanate	-	-	-
Cyanide, Total	-	0.005	0.2
Cyanide, wad	-	-	-
Dissolved Metals			
Aluminum	-	-	-
Antimony	-	-	-
Arsenic	-	-	-
Barium	-	-	-
Beryllium	-	-	-
Bismuth	-	-	-
Boron	-	-	-
Cadmium	-	-	-
Calcium	-	-	-
Cerium	-	-	-
Cesium	-	-	-
Chromium	-	-	-
Cobalt	-	-	-
Copper	-	-	-
Gallium	-	-	-
Iron	-	-	-
Lanthanum	-	-	-
Lead	-	-	-
Lithium	-	-	-
Magnesium	-	-	-
Manganese	-	-	-
Mercury	-	-	-
Molybdenum	-	-	-
Nickel	-	-	-
Niobium	-	-	-
Phosphorous, Total	-	-	-
Platinum	-	-	-
Potassium	-	-	-
Rubidium	-	-	-
Selenium	-	-	-
Silver	-	-	-

Appendix B-3-12: CCME FAL and Health Canada GCDWQ guidelines

CCME lt/st = long term and short term WQGs for the protection of aquatic life;

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* = guidelines calculated based on hardness

Parameter	CCME lt	CCME st	HC DWQG
Sodium	-	-	-
Strontium	-	-	-
Thallium	-	-	-
Tin	-	-	-
Titanium	-	-	-
Tungsten	-	-	-
Uranium	-	-	-
Vanadium	-	-	-
Yttrium	-	-	-
Zinc	-	-	-
Extractable Metals			
Aluminum	-	-	-
Barium	-	-	-
Beryllium	-	-	-
Boron	-	-	-
Cadmium	-	-	-
Calcium (unfiltered)	-	-	-
Chromium	-	-	-
Cobalt	-	-	-
Copper	-	-	-
Iron	-	-	-
Lead	-	-	-
Lithium	-	-	-
Magnesium	-	-	-
Manganese	-	-	-
Molybdenum	-	-	-
Nickel	-	-	-
Potassium	-	-	-
Sodium	-	-	-
Strontium	-	-	-
Vanadium	-	-	-
Zinc	-	-	-
Total Metals			
Aluminum	0.005 at pH < 6.5, 0.1 at pH ≥ 6.5	-	-
Antimony	-	-	0.006
Arsenic	0.005	-	0.01
Barium	-	-	1
Beryllium	-	-	-
Bismuth	-	-	-
Boron	1.5	29	5
Cadmium	0.0000373 - 0.00056*	0.0001061 - 0.00770*	0.005
Cerium	-	-	-
Cesium	-	-	-
Chromium	0.0089	-	0.05
Cobalt	-	-	-
Copper	0.002 - 0.004*	-	-

Appendix B-3-12: CCME FAL and Health Canada GCDWQ guidelines

CCME lt/st = long term and short term WQGs for the protection of aquatic life;

HC GCDWQ = Health Canada guidelines for Canadian drinking water quality

* = guidelines calculated based on hardness

Parameter	CCME lt	CCME st	HC DWQG
Gallium	-	-	-
Iron	0.3	-	-
Lanthanum	-	-	-
Lead	0.001 - 0.007*	-	0.01
Lithium	-	-	-
Magnesium	-	-	-
Manganese	-	-	-
Mercury	0.000026	-	0.001
Molybdenum	0.073	-	-
Nickel	0.025 - 0.15*	-	-
Niobium	-	-	-
Phosphorous	-	-	-
Platinum	-	-	-
Rubidium	-	-	-
Selenium	0.001	-	0.05
Silver	0.0001	-	-
Sodium	-	-	-
Strontium	-	-	-
Thallium	0.0008	-	-
Tin	-	-	-
Titanium	-	-	-
Tungsten	-	-	-
Uranium	0.15	-	0.02
Vanadium	-	-	-
Yttrium	-	-	-
Zinc	0.03	-	-
BTEX			
Benzene	-	-	0.005
Ethylbenzene	-	-	0.14
m/p-Xylene	-	-	-
o-Xylene	-	-	-
Toluene	-	-	0.06
Total Xylene	-	-	0.09
PAHs			
1,2,3,4-Tetrahydronaphthalene	-	-	-
1-Methylnaphthalene	-	-	-
2-Chloronaphthalene	-	-	-
2-Methylnaphthalene	-	-	-
Acenaphthene	0.0058	-	-
Acenaphthylene	-	-	-
Alpha-Chlordane	-	-	-
Anthracene	0.000012	-	-
Benzo(a)anthracene	0.000018	-	-
Benzo(a)pyrene	0.000015	-	0.00001
Benzo(b)fluoranthene	-	-	-
Benzo(e)pyrene	-	-	-
Benzo(g,h,i)perylene	-	-	-

Appendix B-3-12: CCME FAL and Health Canada GCDWQ guidelines

CCME lt/st = long term and short term WQGs for the protection of aquatic life;

HC GCDWQ = Health Canada guidelines for Canadian drinking water quality

* = guidelines calculated based on hardness

Parameter	CCME lt	CCME st	HC DWQG
Benzo(k)fluoranthene	-	-	-
Chrysene	-	-	-
Dibenz(a,h)anthracene	-	-	-
Fluoranthene	0.00004	-	-
Fluorene	0.003	-	-
Fluorene-d10 (surrogate) (%)	-	-	-
Indene	-	-	-
Indeno(1,2,3-c,d)pyrene	-	-	-
Naphthalene	0.0011	-	-
Naphthalene-d8 (surrogate) (%)	0.0004	-	-
Perylene	-	-	-
Phenanthrene	-	-	-
Pyrene	0.000025	-	-
Pyrene-d10 (surrogate) (%)	-	-	-
PCBs			
PCB, Total	-	-	-

**STATUS AND TRENDS OF WATER CHEMISTRY AND FLOW IN THE COPPERMINE AND LOCKHART RIVER
BASINS
FINAL REPORT**

Appendix B Water Chemistry Summary Statistics
March 31, 2015

B.4 SUMMARY STATISTICS FOR THE LOCKHART WATERSHED

Appendix B-4-1-a: Water chemistry summary for King Lake

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	13 / 21	62	5	-	-	-	6.4	-	-	-	-	20	3.6	0.78	0.56	-	-	-	-	-	-	-	-	-
True Colour (relative units)	4 / 7	57	5	-	-	-	5	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 33	0	18.6	18.6	18.94	19.3	22	20.5	22.3	29.58	22.7	34.1	4.3	0.75	0.20	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	11 / 33	33	10	10	10	10	16	14	22	25.6	28	28	6.6	1.2	0.42	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	30 / 33	91	3	-	-	-	3.4	-	-	-	-	8	1.1	0.19	0.33	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 33	0	0.16	0.16	0.202	0.27	0.32	0.3	0.38	0.43	0.5	0.5	0.091	0.016	0.29	-	-	33	-	-	0	-	-	33
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	0 / 5	0	5.6	5.6	5.6	5.6	5.8	5.7	5.9	5.96	6	6	0.18	0.081	0.03	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	5 / 33	15	0.7	5.8	0.7	6	6.1	6.2	7.6	8.76	9.2	10.7	2.6	0.46	0.43	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	12 / 27	44	0.1	0.7	0.1	0.7	0.71	0.7	0.95	1	1.3	1.3	0.33	0.064	0.47	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	13 / 14	93	0.1	-	-	-	0.16	-	-	-	-	1	0.24	0.064	1.46	-	22	0	-	1	0	-	0	0

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nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	0 / 5	0	11.2	11.2	11.24	11.3	15	11.4	12.4	22.42	12.4	29.1	7.9	3.5	0.52	-	-	-	-	-	-	-	-	-
Hardness, Total (as CaCO3)	0 / 28	0	3	3	7.76	8.35	10	9.55	12.725	13.43	16.7	16.7	2.9	0.55	0.28	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	0 / 5	0	6.99	6.99	7.006	7.03	7.1	7.11	7.13	7.136	7.14	7.14	0.066	0.03	0.01	-	-	-	-	-	-	-	-	-
pH (pH units)	0 / 28	0	6.86	6.86	6.914	6.9875	7	7.025	7.1	7.129	7.19	7.19	0.085	0.016	0.01	-	0	-	-	0	-	-	0	-
Silica, Reactive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silica	0 / 5	0	1	1	1	1	1.6	1	1	2.8	1	4	1.3	0.6	0.84	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	1 / 29	3	0.1	0.1	1	1	1.5	2	2	2	2	2	0.57	0.11	0.38	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	28 / 33	85	0.005	-	-	-	0.0074	-	-	-	-	0.017	0.003	0.00052	0.41	-	0	-	-	0	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	26 / 33	79	0.005	-	-	-	0.011	-	-	-	-	0.04	0.0094	0.0016	0.83	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	19 / 32	59	0.005	-	-	-	0.044	-	-	-	-	0.2	0.062	0.011	1.42	-	-	-	-	-	-	-	-	-
Nitrite	30 / 33	91	0.001	-	-	-	0.023	-	-	-	-	0.2	0.054	0.0094	2.30	-	3	0	-	0	0	-	3	0
Nitrogen, Particulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	31 / 31	100	0.001	-	-	-	0.0015	-	-	-	-	0.002	0.00051	0.000091	0.35	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	15 / 33	45	0.002	0.002	0.002	0.003	0.006	0.003	0.01	0.01	0.01	0.01	0.0037	0.00065	0.62	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	
Carbon, Dissolved Organic	0 / 33	0	2.1	2.6	2.64	3	3.1	3.1	3.3	3.82	3.5	4.2	0.45	0.078	0.14	-	-	-	-	-	-	-	-	-	
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Organic	0 / 33	0	2.7	2.7	2.9	3	3.3	3.3	3.5	3.98	4.1	4.5	0.42	0.073	0.13	-	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide																									
Cyanide Thiocyanate	0 / 1	0	0.3	-	-	-	0.3	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	1 / 2	50	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	0	0	-	0	0	-	0	0	0
Cyanide, wad	2 / 2	100	0.002	-	-	-	0.002	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																									
Aluminum	0 / 20	0	0.0018	0.0018	0.00199	0.0037	0.0049	0.005	0.0065	0.00738	0.0081	0.0081	0.002	0.00045	0.41	-	-	-	-	-	-	-	-	-	-
Antimony	15 / 20	75	0.0001	-	-	-	0.00013	-	-	-	-	0.0003	0.000055	0.000012	0.44	-	-	-	-	-	-	-	-	-	-
Arsenic	20 / 20	100	0.0002	-	-	-	0.0002	-	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	0 / 20	0	0.0024	0.0024	0.0024	0.0025	0.0028	0.0026	0.002825	0.00361	0.0031	0.0037	0.00043	0.000096	0.15	-	-	-	-	-	-	-	-	-	-
Beryllium	20 / 20	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	1 / 1	100	0.0002	-	-	-	0.0002	-	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	0 / 1	0	0.0012	-	-	-	0.0012	-	-	-	-	0.0012	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	20 / 20	100	0.00005	-	-	-	0.00005	-	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	0 / 33	0	0.9	0.9	1.92	2.2	2.9	2.8	3.2	3.68	4.2	8.7	1.3	0.23	0.46	-	-	-	-	-	-	-	-	-	-
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	20 / 20	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	18 / 20	90	0.0001	-	-	-	0.00013	-	-	-	-	0.0007	0.00013	0.00003	1.03	-	-	-	-	-	-	-	-	-	-
Cobalt	18 / 18	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	4 / 20	20	0.0002	0.0002	0.0002	0.0003	0.00052	0.00055	0.0007	0.0008	0.001	0.001	0.00024	0.000054	0.47	-	-	-	-	-	-	-	-	-	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	20 / 20	100	0.005	-	-	-	0.016	-	-	-	-	0.05	0.02	0.0045	1.23	-	-	-	-	-	-	-	-	-	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	19 / 20	95	0.0001	-	-	-	0.00026	-	-	-	-	0.0032	0.00069	0.00016	2.72	-	-	-	-	-	-	-	-	-	-
Lithium	1 / 20	5	0.0002	0.0011	0.0006	0.0011	0.0013	0.0012	0.001225	0.00181	0.0013	0.0043	0.00081	0.00018	0.63	-	-	-	-	-	-	-	-	-	-
Magnesium	0 / 33	0	0.2	0.7	0.7	0.8	0.95	0.9	1.1	1.2	1.5	1.8	0.27	0.048	0.29	-	-	-	-	-	-	-	-	-	-
Manganese	2 / 20	10	0.0001	0.0001	0.0001	0.000175	0.00039	0.0003	0.00045	0.00073	0.0007	0.0013	0.00032	0.000073	0.84	-	-	-	-	-	-	-	-	-	-
Mercury	20 / 20	100	0.00001	-	-	-	0.000011	-	-	-	-	0.00002	0.0000022	0.0000005	0.21	-	-	-	-	-	-	-	-	-	-

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																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	18 / 20	90	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Nickel	0 / 20	0	0.0003	0.0003	0.00039	0.0004	0.00044	0.0004	0.0005	0.0005	0.0006	0.0006	0.000075	0.000017	0.17	-	-	-	-	-	-	-	-	
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorous, Total	2 / 2	100	0.001	-	-	-	0.0055	-	-	-	-	0.01	0.0064	0.0045	1.16	-	-	-	-	-	-	-	-	
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Potassium	0 / 33	0	0.4	0.4	0.5	0.5	0.57	0.5	0.6	0.68	0.7	0.9	0.12	0.021	0.22	-	-	-	-	-	-	-	-	
Rubidium	0 / 20	0	0.0009	0.0009	0.00108	0.0011	0.0013	0.00125	0.0013	0.00136	0.0013	0.0023	0.00031	0.00007	0.25	-	-	-	-	-	-	-	-	
Selenium	19 / 20	95	0.0003	-	-	-	0.0004	-	-	-	-	0.0023	0.00045	0.0001	1.12	-	-	-	-	-	-	-	-	
Silver	20 / 20	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Sodium	0 / 33	0	0.4	0.4	0.6	0.6	0.74	0.7	0.8	0.88	1	1.3	0.17	0.03	0.23	-	-	-	-	-	-	-	-	
Strontium	0 / 20	0	0.0071	0.0071	0.0092	0.00945	0.011	0.0106	0.011525	0.01249	0.0121	0.0189	0.0026	0.00057	0.23	-	-	-	-	-	-	-	-	
Thallium	19 / 19	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Tin	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Titanium	18 / 19	95	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000023	0.0000053	0.22	-	-	-	-	-	-	-	-	
Tungsten	1 / 1	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Uranium	20 / 20	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Vanadium	19 / 19	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Yttrium	0 / 1	0	0.0005	-	-	-	0.0005	-	-	-	-	0.0005	-	-	-	-	-	-	-	-	-	-	-	
Zinc	10 / 19	53	0.0004	-	-	-	0.00052	-	-	-	-	0.001	0.00017	0.000039	0.33	-	-	-	-	-	-	-	-	
Total Metals																								
Aluminum	0 / 33	0	0.0037	0.0037	0.00576	0.0074	0.009	0.0091	0.0103	0.0118	0.0144	0.0144	0.0024	0.00041	0.26	-	5	-	-	0	-	-	5	-
Antimony	30 / 33	91	0.0001	-	-	-	0.00012	-	-	-	-	0.0004	0.000064	0.000011	0.54	-	-	0	-	-	0	-	-	0
Arsenic	32 / 33	97	0.0002	-	-	-	0.0002	-	-	-	-	0.0003	0.000017	0.000003	0.09	-	0	0	-	0	0	-	0	0
Barium	0 / 33	0	0.0025	0.0025	0.0026	0.0027	0.0031	0.0029	0.0033	0.00388	0.004	0.0047	0.00051	0.00009	0.17	-	-	0	-	-	0	-	-	0
Beryllium	33 / 33	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	32 / 33	97	0.00005	-	-	-	0.000051	-	-	-	-	0.00009	0.000007	0.0000012	0.14	0	33	0	0	32	0	0	1	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	33 / 33	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	25 / 33	76	0.0001	-	-	-	0.00025	-	-	-	-	0.0031	0.00054	0.000094	2.17	-	0	0	-	0	0	-	0	0
Cobalt	32 / 33	97	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000017	0.000003	0.17	-	-	-	-	-	-	-	-	-
Copper	2 / 33	6	0.0002	0.0002	0.00032	0.0005	0.00067	0.0006	0.0007	0.0008	0.0008	0.0045	0.00071	0.00012	1.05	-	1	-	-	0	-	-	1	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	13 / 33	39	0.005	0.005	0.0056	0.009	0.019	0.012	0.016	0.05	0.017	0.09	0.019	0.0034	1.01	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	28 / 33	85	0.0001	-	-	-	0.00036	-	-	-	-	0.0047	0.00089	0.00016	2.47	-	2	0	-	0	0	-	2	0
Lithium	1 / 33	3	0.0002	0.001	0.00076	0.0011	0.0013	0.0011	0.0013	0.00176	0.0014	0.0042	0.00062	0.00011	0.49	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-4-1-a: Water chemistry summary for King Lake

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Manganese	0 / 33	0	0.0003	0.001	0.0014	0.0022	0.0027	0.0026	0.0034	0.004	0.0043	0.0043	0.00098	0.00017	0.36	-	-	-	-	-	-	-	-	-
Mercury	29 / 31	94	0.0000001	-	-	-	0.0000094	-	-	-	-	0.00002	0.0000034	0.00000061	0.36	-	0	0	-	0	0	-	0	0
Molybdenum	30 / 33	91	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000017	0.000003	0.17	-	0	-	-	0	-	-	0	-
Nickel	0 / 33	0	0.0001	0.0003	0.0004	0.0004	0.00042	0.0004	0.0005	0.0005	0.0006	0.0006	0.000087	0.000015	0.20	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 33	0	0.0009	0.0011	0.0011	0.0012	0.0013	0.0012	0.0013	0.00182	0.0014	0.0023	0.0003	0.000053	0.23	-	-	-	-	-	-	-	-	-
Selenium	32 / 33	97	0.0003	-	-	-	0.00036	-	-	-	-	0.0024	0.00037	0.000064	1.01	-	1	0	-	0	0	-	1	0
Silver	32 / 33	97	0.0001	-	-	-	0.00011	-	-	-	-	0.0003	0.000035	0.0000061	0.33	-	1	-	-	0	-	-	1	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 33	0	0.0071	0.0071	0.00934	0.0098	0.011	0.0101	0.0119	0.01458	0.015	0.0183	0.0023	0.0004	0.21	-	-	-	-	-	-	-	-	-
Thallium	33 / 33	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	17 / 33	52	0.0001	-	-	-	0.00012	-	-	-	-	0.0003	0.000046	0.0000081	0.39	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	32 / 33	97	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000017	0.000003	0.17	-	0	0	-	0	0	-	0	0
Vanadium	31 / 33	94	0.0001	-	-	-	0.00011	-	-	-	-	0.0003	0.000035	0.0000061	0.33	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	26 / 33	79	0.0004	-	-	-	0.00059	-	-	-	-	0.0045	0.00072	0.00013	1.22	-	0	-	-	0	-	-	0	-

Appendix B-4-1-b: Water chemistry summary for King Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	1 / 3	33	5	-	-	-	6.7	-	-	-	-	10	2.9	1.7	0.43	-	-	-	-	-	-	-	-	-
True Colour (relative units)	1 / 1	100	5	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 4	0	31.3	-	-	-	33	-	-	-	-	34.1	1.4	0.69	0.04	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	1 / 4	25	10	-	-	-	16	-	-	-	-	18	3.8	1.9	0.24	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	3 / 4	75	3	-	-	-	3.8	-	-	-	-	6	1.5	0.75	0.40	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 4	0	0.16	-	-	-	0.23	-	-	-	-	0.41	0.12	0.06	0.52	-	-	4	-	-	0	-	-	4
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 4	0	9	-	-	-	9.9	-	-	-	-	10.7	0.87	0.44	0.09	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	0 / 4	0	0.9	-	-	-	1.1	-	-	-	-	1.3	0.17	0.087	0.16	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	2 / 2	100	0.1	-	-	-	0.1	-	-	-	-	-	-	-	-	-	4	0	-	0	0	-	0	0

Appendix B-4-1-b: Water chemistry summary for King Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-4-1-b: Water chemistry summary for King Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Carbon, Dissolved Organic	0 / 4	0	3.9	-	-	-	4.1	-	-	-	-	4.2	0.15	0.075	0.04	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Total Organic	0 / 4	0	4	-	-	-	4.2	-	-	-	-	4.5	0.24	0.12	0.06	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide																								
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Cyanide, wad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																								
Aluminum	0 / 2	0	0.0031	-	-	-	0.0035	-	-	-	-	0.0039	0.00057	0.0004	0.16	-	-	-	-	-	-	-	-	-
Antimony	1 / 2	50	0.0001	-	-	-	0.00015	-	-	-	-	0.0002	0.000071	0.00005	0.47	-	-	-	-	-	-	-	-	-
Arsenic	2 / 2	100	0.0002	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	0 / 2	0	0.0036	-	-	-	0.0037	-	-	-	-	0.0037	0.000071	0.00005	0.02	-	-	-	-	-	-	-	-	-
Beryllium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	2 / 2	100	0.00005	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	0 / 4	0	2.9	-	-	-	3.4	-	-	-	-	4.2	0.62	0.31	0.18	-	-	-	-	-	-	-	-	-
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	1 / 2	50	0.0002	-	-	-	0.00045	-	-	-	-	0.0007	0.00035	0.00025	0.79	-	-	-	-	-	-	-	-	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	2 / 2	100	0.005	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithium	0 / 2	0	0.0018	-	-	-	0.0019	-	-	-	-	0.0019	0.000071	0.00005	0.04	-	-	-	-	-	-	-	-	-
Magnesium	0 / 4	0	1.1	-	-	-	1.2	-	-	-	-	1.5	0.2	0.1	0.17	-	-	-	-	-	-	-	-	-
Manganese	0 / 2	0	0.0003	-	-	-	0.00035	-	-	-	-	0.0004	0.000071	0.00005	0.20	-	-	-	-	-	-	-	-	-
Mercury	2 / 2	100	0.00001	-	-	-	0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-4-1-b: Water chemistry summary for King Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	0 / 2	0	0.0005	-	-	-	0.00055	-	-	-	-	0.0006	0.000071	0.00005	0.13	-	-	-	-	-	-	-	-	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 4	0	0.7	-	-	-	0.85	-	-	-	-	0.9	0.1	0.05	0.12	-	-	-	-	-	-	-	-	-
Rubidium	0 / 2	0	0.0019	-	-	-	0.0021	-	-	-	-	0.0023	0.00028	0.0002	0.13	-	-	-	-	-	-	-	-	-
Selenium	2 / 2	100	0.0003	-	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	0 / 4	0	0.9	-	-	-	1.1	-	-	-	-	1.3	0.17	0.085	0.16	-	-	-	-	-	-	-	-	-
Strontium	0 / 2	0	0.016	-	-	-	0.017	-	-	-	-	0.0189	0.0021	0.0015	0.12	-	-	-	-	-	-	-	-	-
Thallium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	2 / 2	100	0.0004	-	-	-	0.0004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	0 / 4	0	0.0037	-	-	-	0.0053	-	-	-	-	0.0064	0.0011	0.00057	0.22	-	0	-	-	0	-	-	0	-
Antimony	3 / 4	75	0.0001	-	-	-	0.00018	-	-	-	-	0.0004	0.00015	0.000075	0.86	-	-	0	-	-	0	-	-	0
Arsenic	4 / 4	100	0.0002	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Barium	0 / 4	0	0.0035	-	-	-	0.0037	-	-	-	-	0.004	0.00022	0.00011	0.06	-	-	0	-	-	0	-	-	0
Beryllium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	4 / 4	100	0.00005	-	-	-	0.00005	-	-	-	-	-	-	-	-	0	4	0	0	4	0	0	0	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	3 / 4	75	0.0001	-	-	-	0.00013	-	-	-	-	0.0002	0.00005	0.000025	0.40	-	0	0	-	0	0	-	0	0
Cobalt	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	0 / 4	0	0.0005	-	-	-	0.00065	-	-	-	-	0.0008	0.00013	0.000065	0.20	-	0	-	-	0	-	-	0	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	2 / 4	50	0.005	-	-	-	0.026	-	-	-	-	0.09	0.043	0.021	1.62	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Lithium	0 / 4	0	0.0016	-	-	-	0.0018	-	-	-	-	0.0019	0.00013	0.000063	0.07	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-4-1-b: Water chemistry summary for King Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Manganese	0 / 4	0	0.001	-	-	-	0.0013	-	-	-	-	0.0018	0.00036	0.00018	0.27	-	-	-	-	-	-	-	-	-
Mercury	4 / 4	100	0.0000001	-	-	-	0.0000075	-	-	-	-	0.00001	0.000005	0.0000025	0.66	-	0	0	-	0	0	-	0	0
Molybdenum	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0	-
Nickel	0 / 4	0	0.0004	-	-	-	0.0005	-	-	-	-	0.0006	0.000082	0.000041	0.16	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 4	0	0.0019	-	-	-	0.0021	-	-	-	-	0.0023	0.00017	0.000087	0.08	-	-	-	-	-	-	-	-	-
Selenium	4 / 4	100	0.0003	-	-	-	0.0003	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Silver	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 4	0	0.015	-	-	-	0.016	-	-	-	-	0.0183	0.0015	0.00073	0.09	-	-	-	-	-	-	-	-	-
Thallium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	3 / 4	75	0.0001	-	-	-	0.00013	-	-	-	-	0.0002	0.00005	0.000025	0.40	-	0	0	-	0	0	-	0	0
Vanadium	4 / 4	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	3 / 4	75	0.0004	-	-	-	0.00045	-	-	-	-	0.0006	0.0001	0.00005	0.22	-	0	-	-	0	-	-	0	-

Appendix B-4-1-c: Water chemistry summary for King Lake during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

There were no data available for this site during this season.

Appendix B-4-1-d: Water chemistry summary for King Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	12 / 18	67	5	-	-	-	6.4	-	-	-	-	20	3.8	0.89	0.59	-	-	-	-	-	-	-	-	-
True Colour (relative units)	3 / 6	50	5	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 29	0	18.6	18.6	18.86	19.3	20	20.4	21.7	22.4	22.7	22.7	1.4	0.26	0.07	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	10 / 29	34	10	10	10	10	16	10	22	26.2	28	28	7	1.3	0.44	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	27 / 29	93	3	-	-	-	3.4	-	-	-	-	8	1.1	0.2	0.32	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 29	0	0.2	0.2	0.262	0.28	0.33	0.3	0.38	0.44	0.5	0.5	0.081	0.015	0.25	-	-	29	-	-	0	-	-	29
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	0 / 5	0	5.6	5.6	5.6	5.6	5.8	5.7	5.9	5.96	6	6	0.18	0.081	0.03	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	5 / 29	17	0.7	5.8	0.7	5.9	5.5	6.2	6.6	7.7	7.6	7.8	2.3	0.43	0.42	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	12 / 23	52	0.1	-	-	-	0.65	-	-	-	-	1	0.32	0.066	0.49	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	11 / 12	92	0.1	-	-	-	0.18	-	-	-	-	1	0.26	0.075	1.48	-	18	0	-	1	0	-	0	0

Appendix B-4-1-d: Water chemistry summary for King Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	0 / 5	0	11.2	11.2	11.24	11.3	15	11.4	12.4	22.42	12.4	29.1	7.9	3.5	0.52	-	-	-	-	-	-	-	-	-
Hardness, Total (as CaCO3)	0 / 24	0	3	3	7.44	8.2	9.8	9.1	12.625	13.24	13.8	13.8	2.7	0.55	0.28	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	0 / 5	0	6.99	6.99	7.006	7.03	7.1	7.11	7.13	7.136	7.14	7.14	0.066	0.03	0.01	-	-	-	-	-	-	-	-	-
pH (pH units)	0 / 24	0	6.86	6.86	6.915	7	7	7.03	7.1	7.141	7.19	7.19	0.087	0.018	0.01	-	0	-	-	0	-	-	0	-
Silica, Reactive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silica	0 / 5	0	1	1	1	1	1.6	1	1	2.8	1	4	1.3	0.6	0.84	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	1 / 25	4	0.1	0.1	1	1	1.4	1	2	2	2	2	0.57	0.11	0.40	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	27 / 29	93	0.005	-	-	-	0.0069	-	-	-	-	0.01	0.0024	0.00045	0.35	-	0	-	-	0	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	22 / 29	76	0.005	-	-	-	0.012	-	-	-	-	0.04	0.0097	0.0018	0.80	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	15 / 28	54	0.005	-	-	-	0.049	-	-	-	-	0.2	0.065	0.012	1.33	-	-	-	-	-	-	-	-	-
Nitrite	26 / 29	90	0.001	-	-	-	0.026	-	-	-	-	0.2	0.057	0.011	2.21	-	3	0	-	0	0	-	3	0
Nitrogen, Particulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	27 / 27	100	0.001	-	-	-	0.0015	-	-	-	-	0.002	0.00051	0.000098	0.34	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	15 / 29	52	0.002	-	-	-	0.0064	-	-	-	-	0.01	0.0038	0.0007	0.59	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-4-1-d: Water chemistry summary for King Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-4-1-d: Water chemistry summary for King Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ
Molybdenum	16 / 18	89	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	0 / 18	0	0.0003	0.0003	0.00037	0.0004	0.00043	0.0004	0.0005	0.0005	0.0005	0.0005	0.000067	0.000016	0.16	-	-	-	-	-	-	-	-	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	2 / 2	100	0.001	-	-	-	0.0055	-	-	-	-	0.01	0.0064	0.0045	1.16	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 29	0	0.4	0.4	0.5	0.5	0.53	0.5	0.6	0.6	0.6	0.6	0.061	0.011	0.11	-	-	-	-	-	-	-	-	-
Rubidium	0 / 18	0	0.0009	0.0009	0.00104	0.0011	0.0012	0.0012	0.0013	0.0013	0.0013	0.0013	0.00013	0.000031	0.11	-	-	-	-	-	-	-	-	-
Selenium	17 / 18	94	0.0003	-	-	-	0.00041	-	-	-	-	0.0023	0.00047	0.00011	1.15	-	-	-	-	-	-	-	-	-
Silver	18 / 18	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	0 / 29	0	0.4	0.4	0.58	0.6	0.69	0.7	0.8	0.8	0.8	0.8	0.11	0.021	0.16	-	-	-	-	-	-	-	-	-
Strontium	0 / 18	0	0.0071	0.0071	0.0092	0.00935	0.01	0.0102	0.0114	0.01163	0.0121	0.0121	0.0013	0.0003	0.12	-	-	-	-	-	-	-	-	-
Thallium	17 / 17	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	16 / 17	94	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000024	0.0000059	0.23	-	-	-	-	-	-	-	-	-
Tungsten	1 / 1	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	18 / 18	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	17 / 17	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	0 / 1	0	0.0005	-	-	-	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	8 / 17	47	0.0004	0.0004	0.0004	0.0004	0.00054	0.0004	0.0007	0.0007	0.001	0.001	0.00018	0.000043	0.33	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	0 / 29	0	0.0053	0.0053	0.00728	0.0084	0.0095	0.0098	0.0107	0.01198	0.0128	0.0144	0.002	0.00037	0.21	-	5	-	-	0	-	-	5	-
Antimony	27 / 29	93	0.0001	-	-	-	0.00011	-	-	-	-	0.0003	0.000041	0.0000076	0.37	-	-	0	-	-	0	-	-	0
Arsenic	28 / 29	97	0.0002	-	-	-	0.0002	-	-	-	-	0.0003	0.000019	0.0000034	0.09	-	0	0	-	0	0	-	0	0
Barium	0 / 29	0	0.0025	0.0025	0.0026	0.0027	0.003	0.0029	0.0031	0.0035	0.0034	0.0047	0.00048	0.000089	0.16	-	-	0	-	-	0	-	-	0
Beryllium	29 / 29	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	28 / 29	97	0.00005	-	-	-	0.000051	-	-	-	-	0.00009	0.0000074	0.0000014	0.14	0	29	0	0	28	0	0	1	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	29 / 29	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	22 / 29	76	0.0001	-	-	-	0.00027	-	-	-	-	0.0031	0.00057	0.00011	2.16	-	0	0	-	0	0	-	0	0
Cobalt	28 / 29	97	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000019	0.0000034	0.18	-	-	-	-	-	-	-	-	-
Copper	2 / 29	7	0.0002	0.0002	0.0003	0.0004	0.00067	0.0006	0.0006	0.0008	0.0008	0.0045	0.00075	0.00014	1.12	-	1	-	-	0	-	-	1	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	11 / 29	38	0.005	0.005	0.009	0.009	0.018	0.012	0.016	0.05	0.017	0.05	0.015	0.0028	0.83	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	24 / 29	83	0.0001	-	-	-	0.0004	-	-	-	-	0.0047	0.00095	0.00018	2.39	-	2	0	-	0	0	-	2	0
Lithium	1 / 29	3	0.0002	0.001	0.0007	0.0011	0.0012	0.0011	0.0012	0.0013	0.0013	0.0042	0.00063	0.00012	0.53	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-4-1-d: Water chemistry summary for King Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Manganese	0 / 29	0	0.0003	0.0019	0.002	0.0023	0.0029	0.0027	0.0035	0.004	0.0043	0.0043	0.00088	0.00016	0.31	-	-	-	-	-	-	-	-	-
Mercury	25 / 27	93	0.000001	-	-	-	0.0000097	-	-	-	-	0.00002	0.0000032	0.00000061	0.33	-	0	0	-	0	0	-	0	0
Molybdenum	26 / 29	90	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000019	0.0000034	0.18	-	0	-	-	0	-	-	0	-
Nickel	0 / 29	0	0.0001	0.0003	0.00038	0.0004	0.00041	0.0004	0.0005	0.0005	0.0005	0.0005	0.000083	0.000015	0.20	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 29	0	0.0009	0.0011	0.0011	0.0012	0.0012	0.0012	0.0013	0.0013	0.0014	0.0015	0.00012	0.000023	0.10	-	-	-	-	-	-	-	-	-
Selenium	28 / 29	97	0.0003	-	-	-	0.00037	-	-	-	-	0.0024	0.00039	0.000072	1.05	-	1	0	-	0	0	-	1	0
Silver	28 / 29	97	0.0001	-	-	-	0.00011	-	-	-	-	0.0003	0.000037	0.0000069	0.35	-	1	-	-	0	-	-	1	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 29	0	0.0071	0.0092	0.0093	0.0097	0.01	0.01	0.0113	0.0121	0.0129	0.0129	0.0012	0.00023	0.12	-	-	-	-	-	-	-	-	-
Thallium	29 / 29	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	13 / 29	45	0.0001	0.0001	0.0001	0.0001	0.00012	0.0001	0.0001	0.0002	0.0001	0.0003	0.000049	0.0000091	0.41	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	29 / 29	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Vanadium	27 / 29	93	0.0001	-	-	-	0.00011	-	-	-	-	0.0003	0.000037	0.0000069	0.35	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	23 / 29	79	0.0004	-	-	-	0.00061	-	-	-	-	0.0045	0.00077	0.00014	1.26	-	0	-	-	0	-	-	0	-

Appendix B-4-2-a: Water chemistry summary for Lake of the Enemy

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (relative units)	7 / 25	28	5	5	5	5	6.8	5	10	10	15	15	2.8	0.57	0.42	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 34	0	15.4	15.4	16.4	16.8	19	17.25	18.25	26.54	19.8	31	4.1	0.7	0.22	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	20 / 34	59	10	-	-	-	13	-	-	-	-	24	4.7	0.81	0.35	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	31 / 34	91	3	-	-	-	3.5	-	-	-	-	8	1.3	0.22	0.37	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 34	0	0.13	0.13	0.14	0.16	0.25	0.205	0.29	0.392	0.45	0.87	0.14	0.024	0.57	-	-	34	-	-	0	-	-	34
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	0 / 5	0	3.4	3.4	3.44	3.5	3.6	3.7	3.8	3.8	3.8	3.8	0.18	0.081	0.05	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	5 / 34	15	0.7	2.6	0.7	3.8	3.9	3.9	5.05	5.57	6.4	6.4	1.6	0.27	0.41	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	27 / 28	96	0.1	-	-	-	0.59	-	-	-	-	0.7	0.23	0.044	0.39	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	15 / 15	100	0.1	-	-	-	0.16	-	-	-	-	1	0.23	0.06	1.45	-	23	0	-	1	0	-	0	0

Appendix B-4-2-a: Water chemistry summary for Lake of the Enemy

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	0 / 5	0	6.2	6.2	6.24	6.3	12	10.1	10.7	20.36	10.7	26.8	8.5	3.8	0.71	-	-	-	-	-	-	-	-	-
Hardness, Total (as CaCO3)	0 / 29	0	2.5	2.5	6.54	6.7	8.9	8.2	10.7	11.62	15.4	15.4	2.9	0.53	0.32	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	0 / 5	0	6.78	6.78	6.808	6.85	6.9	6.9	6.93	6.93	6.93	6.93	0.064	0.029	0.01	-	-	-	-	-	-	-	-	-
pH (pH units)	0 / 29	0	6.65	6.65	6.708	6.78	6.8	6.82	6.89	6.938	7.03	7.03	0.095	0.018	0.01	-	0	-	-	0	-	-	0	-
Silica, Reactive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silica	0 / 5	0	3	3	3	3	3.8	3	3	5.4	3	7	1.8	0.8	0.47	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	1 / 30	3	0.1	3	3	3	3.1	3	3	4	3	5	0.81	0.15	0.26	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	31 / 34	91	0.005	-	-	-	0.0076	-	-	-	-	0.018	0.0032	0.00056	0.43	-	0	-	-	0	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	31 / 34	91	0.005	-	-	-	0.01	-	-	-	-	0.056	0.0095	0.0016	0.95	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	20 / 33	61	0.005	-	-	-	0.04	-	-	-	-	0.15	0.051	0.0089	1.26	-	-	-	-	-	-	-	-	-
Nitrite	30 / 34	88	0.001	-	-	-	0.021	-	-	-	-	0.14	0.042	0.0073	2.00	-	4	0	-	0	0	-	4	0
Nitrogen, Particulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	31 / 32	97	0.001	-	-	-	0.0015	-	-	-	-	0.003	0.00057	0.0001	0.39	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	26 / 34	76	0.002	-	-	-	0.0056	-	-	-	-	0.01	0.0039	0.00068	0.70	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-4-2-a: Water chemistry summary for Lake of the Enemy

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL			
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	
Carbon, Dissolved Organic	0 / 34	0	0.9	0.9	1.3	1.5	1.8	1.75	1.9	2.37	2.4	3	0.47	0.081	0.26	-	-	-	-	-	-	-	-	-	
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Organic	0 / 34	0	1.4	1.4	1.5	1.7	1.9	1.8	1.975	2.3	2.3	2.7	0.33	0.056	0.17	-	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide																									
Cyanide Thiocyanate	0 / 1	0	0.2	-	-	-	0.2	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	2 / 2	100	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	0	0	-	0	0	-	0	0	0
Cyanide, wad	2 / 2	100	0.002	-	-	-	0.002	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																									
Aluminum	2 / 21	10	0.0006	0.0006	0.0007	0.001	0.0017	0.0016	0.0018	0.0028	0.0028	0.0044	0.00096	0.00021	0.57	-	-	-	-	-	-	-	-	-	-
Antimony	16 / 21	76	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000036	0.0000078	0.31	-	-	-	-	-	-	-	-	-	-
Arsenic	21 / 21	100	0.0002	-	-	-	0.0002	-	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	0 / 21	0	0.0013	0.0013	0.0014	0.0015	0.0018	0.0016	0.0017	0.0027	0.0019	0.0031	0.0005	0.00011	0.28	-	-	-	-	-	-	-	-	-	-
Beryllium	21 / 21	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	1 / 1	100	0.0002	-	-	-	0.0002	-	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	0 / 1	0	0.0017	-	-	-	0.0017	-	-	-	-	0.0017	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	21 / 21	100	0.00005	-	-	-	0.00005	-	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	0 / 34	0	0.5	0.5	1.3	1.4	2	1.8	2.4	2.84	3.5	7.1	1.1	0.19	0.54	-	-	-	-	-	-	-	-	-	-
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	21 / 21	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	19 / 21	90	0.0001	-	-	-	0.00012	-	-	-	-	0.0005	0.000087	0.000019	0.73	-	-	-	-	-	-	-	-	-	-
Cobalt	19 / 19	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	7 / 21	33	0.0002	0.0002	0.0002	0.0002	0.0004	0.0004	0.0006	0.0006	0.0007	0.0007	0.00019	0.000042	0.48	-	-	-	-	-	-	-	-	-	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	21 / 21	100	0.005	-	-	-	0.016	-	-	-	-	0.05	0.02	0.0043	1.25	-	-	-	-	-	-	-	-	-	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	18 / 21	86	0.0001	-	-	-	0.00024	-	-	-	-	0.0028	0.00059	0.00013	2.47	-	-	-	-	-	-	-	-	-	-
Lithium	1 / 21	5	0.0002	0.0011	0.0008	0.0012	0.0015	0.0013	0.0014	0.0023	0.0014	0.0047	0.00088	0.00019	0.61	-	-	-	-	-	-	-	-	-	-
Magnesium	0 / 34	0	0.3	0.7	0.7	0.8	1	1	1.1	1.3	1.3	2.2	0.34	0.059	0.33	-	-	-	-	-	-	-	-	-	-
Manganese	2 / 21	10	0.0001	0.0001	0.0002	0.0002	0.00053	0.0003	0.0006	0.0009	0.001	0.0024	0.00051	0.00011	0.96	-	-	-	-	-	-	-	-	-	-
Mercury	21 / 21	100	0.00001	-	-	-	0.00001	-	-	-	-	0.00002	0.0000022	0.00000048	0.21	-	-	-	-	-	-	-	-	-	-

Appendix B-4-2-a: Water chemistry summary for Lake of the Enemy

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ
Molybdenum	19 / 21	90	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Nickel	0 / 21	0	0.0004	0.0004	0.0004	0.0004	0.00052	0.0005	0.0006	0.0007	0.0008	0.0008	0.00012	0.000025	0.22	-	-	-	-	-	-	-	-	
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorous, Total	2 / 2	100	0.001	-	-	-	0.0055	-	-	-	-	0.01	0.0064	0.0045	1.16	-	-	-	-	-	-	-	-	
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Potassium	0 / 34	0	0.3	0.4	0.5	0.5	0.56	0.5	0.6	0.77	0.7	1	0.15	0.025	0.26	-	-	-	-	-	-	-	-	
Rubidium	0 / 21	0	0.0007	0.0008	0.0008	0.0009	0.001	0.0009	0.001	0.0015	0.001	0.0018	0.00029	0.000064	0.29	-	-	-	-	-	-	-	-	
Selenium	20 / 21	95	0.0003	-	-	-	0.00037	-	-	-	-	0.0018	0.00033	0.000071	0.88	-	-	-	-	-	-	-	-	
Silver	20 / 21	95	0.0001	-	-	-	0.00012	-	-	-	-	0.0005	0.000087	0.000019	0.73	-	-	-	-	-	-	-	-	
Sodium	0 / 34	0	0.3	0.4	0.5	0.5	0.57	0.5	0.6	0.7	0.7	1	0.15	0.026	0.27	-	-	-	-	-	-	-	-	
Strontium	0 / 21	0	0.0046	0.005	0.0061	0.0062	0.0071	0.0067	0.007	0.0105	0.007	0.0123	0.0019	0.00042	0.27	-	-	-	-	-	-	-	-	
Thallium	20 / 20	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Tin	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Titanium	18 / 20	90	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000022	0.000005	0.21	-	-	-	-	-	-	-	-	
Tungsten	1 / 1	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Uranium	21 / 21	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Vanadium	20 / 20	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Yttrium	0 / 1	0	0.0005	-	-	-	0.0005	-	-	-	-	0.0005	-	-	-	-	-	-	-	-	-	-	-	
Zinc	10 / 20	50	0.0004	0.0004	0.0004	0.0004	0.00055	0.00045	0.0006	0.00091	0.0007	0.001	0.0002	0.000046	0.37	-	-	-	-	-	-	-	-	
Total Metals																								
Aluminum	1 / 34	3	0.0006	0.0008	0.00066	0.0021	0.0026	0.0026	0.0031	0.00422	0.0044	0.0065	0.0013	0.00022	0.49	-	0	-	-	0	-	-	0	-
Antimony	28 / 34	82	0.0001	-	-	-	0.00013	-	-	-	-	0.0005	0.000091	0.000016	0.69	-	-	0	-	-	0	-	-	0
Arsenic	34 / 34	100	0.0002	-	-	-	0.0002	-	-	-	-	0.0002	-	-	-	-	0	0	-	0	0	-	0	0
Barium	0 / 34	0	0.0014	0.0014	0.0015	0.0016	0.002	0.0017	0.002275	0.00267	0.0028	0.0039	0.00062	0.00011	0.31	-	-	0	-	-	0	-	-	0
Beryllium	34 / 34	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	
Cadmium	33 / 34	97	0.00005	-	-	-	0.000052	-	-	-	-	0.00012	0.000012	0.0000021	0.23	0	34	0	0	33	0	0	1	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cesium	34 / 34	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Chromium	28 / 34	82	0.0001	-	-	-	0.00015	-	-	-	-	0.0013	0.00021	0.000037	1.46	-	0	0	-	0	0	-	0	0
Cobalt	33 / 34	97	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Copper	3 / 34	9	0.0002	0.0002	0.0002	0.0004	0.00052	0.0006	0.0006	0.0007	0.0008	0.0008	0.00018	0.000031	0.34	-	0	-	-	0	-	-	0	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Iron	32 / 34	94	0.005	-	-	-	0.012	-	-	-	-	0.05	0.016	0.0028	1.35	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lead	28 / 34	82	0.0001	-	-	-	0.00092	-	-	-	-	0.0178	0.0032	0.00056	3.53	-	3	1	-	1	0	-	2	1
Lithium	1 / 34	3	0.0002	0.0008	0.00089	0.0012	0.0014	0.0013	0.001475	0.00194	0.0018	0.0047	0.0007	0.00012	0.49	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Appendix B-4-2-a: Water chemistry summary for Lake of the Enemy

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Manganese	0 / 34	0	0.0004	0.0004	0.0006	0.0008	0.0011	0.0011	0.0012	0.00157	0.0017	0.0031	0.00048	0.000083	0.43	-	-	-	-	-	-	-	-	-
Mercury	31 / 31	100	0.000001	-	-	-	0.0000098	-	-	-	-	0.00002	0.0000028	0.00000051	0.29	-	0	0	-	0	0	-	0	0
Molybdenum	32 / 34	94	0.0001	-	-	-	0.00012	-	-	-	-	0.0005	0.000076	0.000013	0.64	-	0	-	-	0	-	-	0	-
Nickel	0 / 34	0	0.0002	0.0004	0.00043	0.0005	0.00053	0.0005	0.0006	0.0007	0.0007	0.0008	0.00011	0.000019	0.21	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 34	0	0.0007	0.0009	0.0009	0.0009	0.001	0.001	0.001	0.0015	0.0011	0.0018	0.00026	0.000045	0.25	-	-	-	-	-	-	-	-	-
Selenium	33 / 34	97	0.0003	-	-	-	0.00034	-	-	-	-	0.0018	0.00026	0.000044	0.75	-	1	0	-	0	0	-	1	0
Silver	34 / 34	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 34	0	0.005	0.0063	0.00633	0.0065	0.0073	0.0067	0.007	0.01032	0.0072	0.0124	0.0017	0.0003	0.24	-	-	-	-	-	-	-	-	-
Thallium	33 / 34	97	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000017	0.0000029	0.17	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	32 / 34	94	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000017	0.0000029	0.17	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	32 / 34	94	0.0001	-	-	-	0.00012	-	-	-	-	0.0007	0.0001	0.000018	0.87	-	0	0	-	0	0	-	0	0
Vanadium	33 / 34	97	0.0001	-	-	-	0.00011	-	-	-	-	0.0003	0.000034	0.0000059	0.32	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	26 / 34	76	0.0004	-	-	-	0.00051	-	-	-	-	0.0017	0.00026	0.000044	0.51	-	0	-	-	0	-	-	0	-

Appendix B-4-2-b: Water chemistry summary for Lake of the Enemy during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (relative units)	0 / 4	0	5	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 5	0	23.6	27.8	25.28	27.8	28	28	29.8	30.52	31	31	2.8	1.3	0.10	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	3 / 5	60	10	-	-	-	12	-	-	-	-	20	4.3	1.9	0.35	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	3 / 5	60	3	-	-	-	3.8	-	-	-	-	6	1.3	0.58	0.34	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 5	0	0.13	0.13	0.13	0.13	0.29	0.16	0.17	0.59	0.17	0.87	0.32	0.14	1.11	-	-	5	-	-	0	-	-	5
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	0 / 5	0	5.3	5.3	5.38	5.5	5.9	6	6.1	6.28	6.4	6.4	0.45	0.2	0.08	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	5 / 5	100	0.7	-	-	-	0.7	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	3 / 3	100	0.1	-	-	-	0.1	-	-	-	-	-	-	-	-	-	5	0	-	0	0	-	0	0

Appendix B-4-2-b: Water chemistry summary for Lake of the Enemy during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-4-2-b: Water chemistry summary for Lake of the Enemy during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Carbon, Dissolved Organic	0 / 5	0	2.3	2.3	2.34	2.4	2.7	2.8	2.8	2.92	3	3	0.3	0.13	0.11	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Organic Carbonate (calcd)	0 / 5	0	2.3	2.3	2.3	2.3	2.5	2.4	2.6	2.66	2.7	2.7	0.18	0.081	0.07	-	-	-	-	-	-	-	-	-
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide																								
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Cyanide, wad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Dissolved Metals																								
Aluminum	0 / 3	0	0.0008	-	-	-	0.0012	-	-	-	-	0.0017	0.00045	0.00026	0.37	-	-	-	-	-	-	-	-	-
Antimony	2 / 3	67	0.0001	-	-	-	0.00013	-	-	-	-	0.0002	0.000058	0.000033	0.43	-	-	-	-	-	-	-	-	-
Arsenic	3 / 3	100	0.0002	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	0 / 3	0	0.0019	-	-	-	0.0024	-	-	-	-	0.0027	0.00046	0.00027	0.19	-	-	-	-	-	-	-	-	-
Beryllium	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	3 / 3	100	0.00005	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	0 / 5	0	1.7	1.7	1.9	2.2	2.5	2.2	3.1	3.34	3.5	3.5	0.74	0.33	0.29	-	-	-	-	-	-	-	-	-
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	2 / 3	67	0.0002	-	-	-	0.0003	-	-	-	-	0.0005	0.00017	0.0001	0.58	-	-	-	-	-	-	-	-	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	3 / 3	100	0.005	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithium	0 / 3	0	0.0018	-	-	-	0.0022	-	-	-	-	0.0024	0.00032	0.00019	0.15	-	-	-	-	-	-	-	-	-
Magnesium	0 / 5	0	1	1	1.04	1.1	1.3	1.2	1.6	1.72	1.8	1.8	0.34	0.15	0.26	-	-	-	-	-	-	-	-	-
Manganese	0 / 3	0	0.0002	-	-	-	0.00023	-	-	-	-	0.0003	0.000058	0.000033	0.25	-	-	-	-	-	-	-	-	-
Mercury	3 / 3	100	0.00001	-	-	-	0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-4-2-b: Water chemistry summary for Lake of the Enemy during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nickel	0 / 3	0	0.0006	-	-	-	0.0007	-	-	-	-	0.0008	0.0001	0.000058	0.14	-	-	-	-	-	-	-	-	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 5	0	0.7	0.7	0.74	0.8	0.86	0.8	1	1	1	1	0.13	0.06	0.16	-	-	-	-	-	-	-	-	-
Rubidium	0 / 3	0	0.0015	-	-	-	0.0017	-	-	-	-	0.0018	0.00015	0.000088	0.09	-	-	-	-	-	-	-	-	-
Selenium	3 / 3	100	0.0003	-	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	0 / 5	0	0.7	0.7	0.7	0.7	0.86	0.9	1	1	1	1	0.15	0.068	0.18	-	-	-	-	-	-	-	-	-
Strontium	0 / 3	0	0.0105	-	-	-	0.011	-	-	-	-	0.0123	0.00091	0.00052	0.08	-	-	-	-	-	-	-	-	-
Thallium	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	3 / 3	100	0.0004	-	-	-	0.0004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	0 / 5	0	0.0021	0.0021	0.0021	0.0021	0.0025	0.0022	0.0026	0.00302	0.0033	0.0033	0.00051	0.00023	0.21	-	0	-	-	0	-	-	0	-
Antimony	3 / 5	60	0.0001	-	-	-	0.0002	-	-	-	-	0.0005	0.00017	0.000077	0.87	-	-	0	-	-	0	-	-	0
Arsenic	5 / 5	100	0.0002	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Barium	0 / 5	0	0.002	0.002	0.00212	0.0023	0.0027	0.0026	0.0027	0.00342	0.0027	0.0039	0.00072	0.00032	0.27	-	-	0	-	-	0	-	-	0
Beryllium	5 / 5	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	5 / 5	100	0.00005	-	-	-	0.00005	-	-	-	-	-	-	-	-	0	5	0	0	5	0	0	0	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	5 / 5	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	4 / 5	80	0.0001	-	-	-	0.00018	-	-	-	-	0.0005	0.00018	0.00008	0.99	-	0	0	-	0	0	-	0	0
Cobalt	5 / 5	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	0 / 5	0	0.0006	0.0006	0.0006	0.0006	0.00066	0.0006	0.0007	0.00076	0.0008	0.0008	0.000089	0.00004	0.14	-	0	-	-	0	-	-	0	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	5 / 5	100	0.005	-	-	-	0.005	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	3 / 5	60	0.0001	-	-	-	0.0037	-	-	-	-	0.0178	0.0079	0.0035	2.13	-	1	1	-	0	0	-	1	1
Lithium	0 / 5	0	0.0018	0.0018	0.0018	0.0018	0.002	0.002	0.0022	0.00226	0.0023	0.0023	0.00023	0.0001	0.11	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-4-2-b: Water chemistry summary for Lake of the Enemy during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Manganese	0 / 5	0	0.0005	0.0005	0.0005	0.0005	0.00058	0.0006	0.0006	0.00066	0.0007	0.0007	0.000084	0.000037	0.14	-	-	-	-	-	-	-	-	-
Mercury	4 / 5	80	0.000001	-	-	-	0.0000082	-	-	-	-	0.00001	0.000004	0.0000018	0.49	-	0	0	-	0	0	-	0	0
Molybdenum	4 / 5	80	0.0001	-	-	-	0.00018	-	-	-	-	0.0005	0.00018	0.00008	0.99	-	0	-	-	0	-	-	0	-
Nickel	0 / 5	0	0.0007	0.0007	0.0007	0.0007	0.00072	0.0007	0.0007	0.00076	0.0007	0.0008	0.000045	0.00002	0.06	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 5	0	0.0015	0.0015	0.0015	0.0015	0.0016	0.0016	0.0017	0.00176	0.0018	0.0018	0.00013	0.000058	0.08	-	-	-	-	-	-	-	-	-
Selenium	5 / 5	100	0.0003	-	-	-	0.0003	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Silver	5 / 5	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 5	0	0.0099	0.0099	0.01014	0.0105	0.011	0.0111	0.0123	0.01236	0.0124	0.0124	0.0011	0.00049	0.10	-	-	-	-	-	-	-	-	-
Thallium	4 / 5	80	0.0001	-	-	-	0.00012	-	-	-	-	0.0002	0.000045	0.00002	0.37	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	4 / 5	80	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	4 / 5	80	0.0001	-	-	-	0.00022	-	-	-	-	0.0007	0.00027	0.00012	1.22	-	0	0	-	0	0	-	0	0
Vanadium	5 / 5	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	4 / 5	80	0.0004	-	-	-	0.00052	-	-	-	-	0.001	0.00027	0.00012	0.52	-	0	-	-	0	-	-	0	-

Appendix B-4-2-c: Water chemistry summary for Lake of the Enemy during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

There were no data available for this site during this season.

Appendix B-4-2-d: Water chemistry summary for Lake of the Enemy during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (relative units)	7 / 21	33	5	5	5	5	7.1	5	10	10	15	15	3	0.65	0.42	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 29	0	15.4	15.4	16.4	16.7	17	17.1	17.9	18.34	18.7	19.8	0.91	0.17	0.05	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	17 / 29	59	10	-	-	-	14	-	-	-	-	24	4.8	0.89	0.35	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	28 / 29	97	3	-	-	-	3.4	-	-	-	-	8	1.3	0.24	0.38	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 29	0	0.14	0.14	0.156	0.17	0.24	0.21	0.3	0.362	0.45	0.45	0.089	0.017	0.37	-	-	29	-	-	0	-	-	29
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	0 / 5	0	3.4	3.4	3.44	3.5	3.6	3.7	3.8	3.8	3.8	3.8	0.18	0.081	0.05	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	5 / 29	17	0.7	3.5	0.7	3.6	3.5	3.8	4.1	5.16	4.2	5.6	1.5	0.27	0.41	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	22 / 23	96	0.1	-	-	-	0.57	-	-	-	-	0.7	0.25	0.053	0.44	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	12 / 12	100	0.1	-	-	-	0.18	-	-	-	-	1	0.26	0.075	1.48	-	18	0	-	1	0	-	0	0

Appendix B-4-2-d: Water chemistry summary for Lake of the Enemy during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	0 / 5	0	6.2	6.2	6.24	6.3	12	10.1	10.7	20.36	10.7	26.8	8.5	3.8	0.71	-	-	-	-	-	-	-	-	-
Hardness, Total (as CaCO3)	0 / 24	0	2.5	2.5	6.39	6.7	8.3	7.75	10.55	11.44	11.7	11.7	2.4	0.49	0.29	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	0 / 5	0	6.78	6.78	6.808	6.85	6.9	6.9	6.93	6.93	6.93	6.93	0.064	0.029	0.01	-	-	-	-	-	-	-	-	-
pH (pH units)	0 / 24	0	6.65	6.65	6.703	6.7775	6.8	6.82	6.8925	6.955	7.03	7.03	0.099	0.02	0.01	-	0	-	-	0	-	-	0	-
Silica, Reactive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silica	0 / 5	0	3	3	3	3	3.8	3	3	5.4	3	7	1.8	0.8	0.47	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	1 / 25	4	0.1	3	3	3	2.9	3	3	3	3	3	0.58	0.12	0.20	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	28 / 29	97	0.005	-	-	-	0.007	-	-	-	-	0.01	0.0024	0.00045	0.35	-	0	-	-	0	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	27 / 29	93	0.005	-	-	-	0.0091	-	-	-	-	0.03	0.0052	0.00096	0.57	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	16 / 28	57	0.005	-	-	-	0.045	-	-	-	-	0.15	0.054	0.01	1.21	-	-	-	-	-	-	-	-	-
Nitrite	25 / 29	86	0.001	-	-	-	0.024	-	-	-	-	0.14	0.046	0.0085	1.91	-	4	0	-	0	0	-	4	0
Nitrogen, Particulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	26 / 27	96	0.001	-	-	-	0.0016	-	-	-	-	0.003	0.00058	0.00011	0.37	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	26 / 29	90	0.002	-	-	-	0.0062	-	-	-	-	0.01	0.004	0.00075	0.65	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-4-2-d: Water chemistry summary for Lake of the Enemy during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL			
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	
Carbon, Dissolved Organic	0 / 29	0	0.9	1.1	1.28	1.5	1.6	1.7	1.8	1.94	2.2	2.2	0.31	0.058	0.19	-	-	-	-	-	-	-	-	-	
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Organic	0 / 29	0	1.4	1.4	1.5	1.6	1.8	1.8	1.9	2.02	2.3	2.3	0.22	0.041	0.12	-	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide																									
Cyanide Thiocyanate	0 / 1	0	0.2	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide, Total	2 / 2	100	0.001	-	-	-	0.001	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0	
Cyanide, wad	2 / 2	100	0.002	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Dissolved Metals																									
Aluminum	2 / 18	11	0.0006	0.0006	0.00067	0.001	0.0017	0.0016	0.002175	0.00292	0.0032	0.0044	0.001	0.00024	0.58	-	-	-	-	-	-	-	-	-	
Antimony	14 / 18	78	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000032	0.0000076	0.29	-	-	-	-	-	-	-	-	-	
Arsenic	18 / 18	100	0.0002	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Barium	0 / 18	0	0.0013	0.0013	0.00137	0.001425	0.0017	0.0016	0.0017	0.00188	0.0017	0.0031	0.00042	0.0001	0.25	-	-	-	-	-	-	-	-	-	
Beryllium	18 / 18	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bismuth	1 / 1	100	0.0002	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Boron	0 / 1	0	0.0017	-	-	-	0.0017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cadmium	18 / 18	100	0.00005	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Calcium	0 / 29	0	0.5	0.5	1.24	1.4	2	1.6	2.4	2.7	2.9	7.1	1.2	0.21	0.59	-	-	-	-	-	-	-	-	-	
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cesium	18 / 18	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chromium	16 / 18	89	0.0001	-	-	-	0.00012	-	-	-	-	0.0005	0.000094	0.000022	0.77	-	-	-	-	-	-	-	-	-	
Cobalt	16 / 16	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Copper	5 / 18	28	0.0002	0.0002	0.0002	0.0002	0.00041	0.0004	0.0006	0.00063	0.0007	0.0007	0.00019	0.000046	0.47	-	-	-	-	-	-	-	-	-	
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Iron	18 / 18	100	0.005	-	-	-	0.018	-	-	-	-	0.05	0.021	0.0049	1.19	-	-	-	-	-	-	-	-	-	
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lead	15 / 18	83	0.0001	-	-	-	0.00026	-	-	-	-	0.0028	0.00063	0.00015	2.43	-	-	-	-	-	-	-	-	-	
Lithium	1 / 18	6	0.0002	0.0008	0.00077	0.001125	0.0013	0.0013	0.0014	0.0014	0.0014	0.0047	0.0009	0.00021	0.67	-	-	-	-	-	-	-	-	-	
Magnesium	0 / 29	0	0.3	0.7	0.7	0.8	0.98	1	1.1	1.22	1.3	2.2	0.32	0.059	0.33	-	-	-	-	-	-	-	-	-	
Manganese	2 / 18	11	0.0001	0.0001	0.00017	0.000225	0.00058	0.0005	0.00075	0.00093	0.001	0.0024	0.00054	0.00013	0.92	-	-	-	-	-	-	-	-	-	
Mercury	18 / 18	100	0.00001	-	-	-	0.000011	-	-	-	-	0.00002	0.0000024	0.00000056	0.22	-	-	-	-	-	-	-	-	-	

Appendix B-4-2-d: Water chemistry summary for Lake of the Enemy during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	16 / 18	89	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nickel	0 / 18	0	0.0004	0.0004	0.0004	0.0004	0.00049	0.0005	0.0005	0.0006	0.0006	0.0007	0.00009	0.000021	0.18	-	-	-	-	-	-	-	-	
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorous, Total	2 / 2	100	0.001	-	-	-	0.0055	-	-	-	-	0.01	0.0064	0.0045	1.16	-	-	-	-	-	-	-	-	
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Potassium	0 / 29	0	0.3	0.5	0.48	0.5	0.51	0.5	0.5	0.6	0.5	0.6	0.067	0.013	0.13	-	-	-	-	-	-	-	-	
Rubidium	0 / 18	0	0.0007	0.0007	0.00077	0.000825	0.0009	0.0009	0.001	0.001	0.001	0.001	0.0001	0.000024	0.11	-	-	-	-	-	-	-	-	
Selenium	17 / 18	94	0.0003	-	-	-	0.00038	-	-	-	-	0.0018	0.00035	0.000083	0.92	-	-	-	-	-	-	-	-	
Silver	17 / 18	94	0.0001	-	-	-	0.00012	-	-	-	-	0.0005	0.000094	0.000022	0.77	-	-	-	-	-	-	-	-	
Sodium	0 / 29	0	0.3	0.5	0.48	0.5	0.52	0.5	0.5	0.6	0.5	0.7	0.08	0.015	0.16	-	-	-	-	-	-	-	-	
Strontium	0 / 18	0	0.0046	0.005	0.00577	0.006125	0.0064	0.0065	0.006875	0.007	0.007	0.007	0.00066	0.00016	0.10	-	-	-	-	-	-	-	-	
Thallium	17 / 17	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tin	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Titanium	15 / 17	88	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000024	0.0000059	0.23	-	-	-	-	-	-	-	-	
Tungsten	1 / 1	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Uranium	18 / 18	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Vanadium	17 / 17	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Yttrium	0 / 1	0	0.0005	-	-	-	0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Zinc	7 / 17	41	0.0004	0.0004	0.0004	0.0004	0.00057	0.0005	0.0006	0.00094	0.0007	0.001	0.00021	0.000051	0.37	-	-	-	-	-	-	-	-	
Total Metals																								
Aluminum	1 / 29	3	0.0006	0.0008	0.0006	0.0021	0.0027	0.0027	0.0031	0.00446	0.0044	0.0065	0.0014	0.00026	0.52	-	0	-	-	0	-	-	0	-
Antimony	25 / 29	86	0.0001	-	-	-	0.00012	-	-	-	-	0.0004	0.000068	0.000013	0.56	-	-	0	-	-	0	-	-	0
Arsenic	29 / 29	100	0.0002	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Barium	0 / 29	0	0.0014	0.0014	0.0015	0.0016	0.0018	0.0017	0.0018	0.00236	0.0019	0.0038	0.00051	0.000095	0.28	-	-	0	-	-	0	-	-	0
Beryllium	29 / 29	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	28 / 29	97	0.00005	-	-	-	0.000052	-	-	-	-	0.00012	0.000013	0.0000024	0.25	0	29	0	0	28	0	0	1	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	29 / 29	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	24 / 29	83	0.0001	-	-	-	0.00014	-	-	-	-	0.0013	0.00022	0.000041	1.58	-	0	0	-	0	0	-	0	0
Cobalt	28 / 29	97	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	3 / 29	10	0.0002	0.0002	0.0002	0.0004	0.0005	0.0006	0.0006	0.0007	0.0008	0.0008	0.00018	0.000033	0.36	-	0	-	-	0	-	-	0	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	27 / 29	93	0.005	-	-	-	0.013	-	-	-	-	0.05	0.017	0.0032	1.30	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	25 / 29	86	0.0001	-	-	-	0.00044	-	-	-	-	0.0074	0.0014	0.00025	3.13	-	2	0	-	1	0	-	1	0
Lithium	1 / 29	3	0.0002	0.0011	0.0008	0.0012	0.0013	0.0013	0.0013	0.0015	0.0014	0.0047	0.0007	0.00013	0.53	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-4-2-d: Water chemistry summary for Lake of the Enemy during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Manganese	0 / 29	0	0.0004	0.0007	0.0008	0.001	0.0012	0.0012	0.0012	0.0016	0.0013	0.0031	0.00046	0.000086	0.38	-	-	-	-	-	-	-	-	-
Mercury	27 / 26	104	0.000002	-	-	-	0.00001	-	-	-	-	0.00002	0.0000026	0.0000005	0.25	-	0	0	-	0	0	-	0	0
Molybdenum	28 / 29	97	0.0001	-	-	-	0.00011	-	-	-	-	0.0003	0.000037	0.0000069	0.35	-	0	-	-	0	-	-	0	-
Nickel	0 / 29	0	0.0002	0.0005	0.0004	0.0005	0.0005	0.0005	0.0005	0.0006	0.0005	0.0006	0.000078	0.000014	0.16	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 29	0	0.0007	0.0009	0.0009	0.0009	0.00093	0.0009	0.001	0.001	0.0011	0.0011	0.000086	0.000016	0.09	-	-	-	-	-	-	-	-	-
Selenium	28 / 29	97	0.0003	-	-	-	0.00035	-	-	-	-	0.0018	0.00028	0.000052	0.79	-	1	0	-	0	0	-	1	0
Silver	29 / 29	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 29	0	0.005	0.0063	0.0063	0.0065	0.0066	0.0066	0.0069	0.007	0.0072	0.0072	0.0004	0.000075	0.06	-	-	-	-	-	-	-	-	-
Thallium	29 / 29	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	28 / 29	97	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000019	0.0000034	0.18	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	28 / 29	97	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Vanadium	28 / 29	97	0.0001	-	-	-	0.00011	-	-	-	-	0.0003	0.000037	0.0000069	0.35	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	22 / 29	76	0.0004	-	-	-	0.00051	-	-	-	-	0.0017	0.00026	0.000049	0.51	-	0	-	-	0	-	-	0	-

Appendix B-4-3-a: Water chemistry summary for MacKay Lake

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (relative units)	15 / 22	68	2	-	-	-	5.2	-	-	-	-	10	1.7	0.37	0.33	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 34	0	14	14	14.55	15.05	17	15.8	16.475	23.01	17.4	27.9	3.6	0.62	0.21	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	13 / 34	38	10	10	10	10	13	10	16	20	22	22	4	0.69	0.31	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	31 / 34	91	3	-	-	-	3.4	-	-	-	-	8	1	0.17	0.30	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 34	0	0.15	0.15	0.173	0.23	0.3	0.26	0.3175	0.48	0.41	0.79	0.14	0.024	0.47	-	-	34	-	-	0	-	-	34
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	0 / 6	0	3.9	3.9	3.9	3.925	4.6	4.05	4.175	5.95	4.2	7.7	1.5	0.62	0.33	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	6 / 34	18	0.7	3.9	0.7	4	4.1	4.2	5.35	6.14	7.2	7.2	1.9	0.33	0.47	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	27 / 28	96	0.1	-	-	-	0.57	-	-	-	-	0.7	0.25	0.047	0.44	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	14 / 14	100	0.1	-	-	-	0.16	-	-	-	-	1	0.24	0.064	1.46	-	22	0	-	1	0	-	0	0

Appendix B-4-3-a: Water chemistry summary for MacKay Lake

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	0 / 6	0	5.6	5.6	6.15	7.475	11	10.05	10.3	17.65	10.3	25	7	2.9	0.62	-	-	-	-	-	-	-	-	-
Hardness, Total (as CaCO3)	0 / 28	0	2.8	2.8	6.07	6.4	8.5	8.95	10.9	11.2	14.2	14.2	2.5	0.48	0.30	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	0 / 6	0	6.77	6.77	6.78	6.8125	6.9	6.9	6.95	6.965	6.97	6.97	0.085	0.035	0.01	-	-	-	-	-	-	-	-	-
pH (pH units)	0 / 28	0	6.59	6.59	6.711	6.765	6.8	6.845	6.9025	6.953	7.07	7.07	0.11	0.02	0.02	-	0	-	-	0	-	-	0	-
Silica, Reactive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silica	0 / 6	0	1	2	1.5	2	2	2	2	2.5	2	3	0.63	0.26	0.32	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	2 / 30	7	0.1	0.1	1	1	1.6	2	2	2.1	3	3	0.75	0.14	0.46	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	29 / 34	85	0.005	-	-	-	0.0091	-	-	-	-	0.05	0.0081	0.0014	0.90	-	1	-	-	1	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	28 / 34	82	0.005	-	-	-	0.0096	-	-	-	-	0.03	0.006	0.001	0.62	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	19 / 32	59	0.005	-	-	-	0.039	-	-	-	-	0.15	0.051	0.0091	1.31	-	-	-	-	-	-	-	-	-
Nitrite	30 / 34	88	0.001	-	-	-	0.02	-	-	-	-	0.15	0.041	0.007	2.02	-	4	0	-	0	0	-	4	0
Nitrogen, Particulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	31 / 31	100	0.001	-	-	-	0.0015	-	-	-	-	0.002	0.00051	0.000091	0.35	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	19 / 34	56	0.002	-	-	-	0.0065	-	-	-	-	0.02	0.0044	0.00075	0.68	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-4-3-a: Water chemistry summary for MacKay Lake

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL			
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	
Carbon, Dissolved Organic	0 / 34	0	2	2	2.53	2.725	3.1	2.95	3.3	3.91	4	4.5	0.59	0.1	0.19	-	-	-	-	-	-	-	-	-	
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Organic	0 / 34	0	2.5	2.5	2.7	2.825	3.2	3	3.375	4.17	4.1	4.6	0.56	0.097	0.18	-	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide																									
Cyanide Thiocyanate	0 / 1	0	0.8	-	-	-	0.8	-	-	-	-	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	2 / 2	100	0.001	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-	0	0	-	0	0	-	0	0	0
Cyanide, wad	2 / 2	100	0.002	-	-	-	0.002	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																									
Aluminum	0 / 20	0	0.002	0.002	0.00209	0.004	0.0052	0.005	0.00705	0.00762	0.009	0.009	0.002	0.00045	0.39	-	-	-	-	-	-	-	-	-	-
Antimony	16 / 20	80	0.0001	-	-	-	0.00012	-	-	-	-	0.0002	0.000037	0.0000082	0.32	-	-	-	-	-	-	-	-	-	-
Arsenic	12 / 20	60	0.0002	-	-	-	0.00022	-	-	-	-	0.0004	0.000052	0.000012	0.24	-	-	-	-	-	-	-	-	-	-
Barium	0 / 20	0	0.0016	0.0016	0.0016	0.0017	0.002	0.00185	0.0021	0.00242	0.0026	0.0027	0.00034	0.000075	0.17	-	-	-	-	-	-	-	-	-	-
Beryllium	20 / 20	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	0 / 1	0	0.0003	-	-	-	0.0003	-	-	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	1 / 1	100	0.0009	-	-	-	0.0009	-	-	-	-	0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	20 / 20	100	0.00005	-	-	-	0.00005	-	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	0 / 34	0	0.7	0.7	1.33	1.5	2.2	2.2	2.6	2.9	3.3	7.2	1.1	0.19	0.51	-	-	-	-	-	-	-	-	-	-
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	20 / 20	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	18 / 20	90	0.0001	-	-	-	0.00012	-	-	-	-	0.0004	0.00007	0.000016	0.58	-	-	-	-	-	-	-	-	-	-
Cobalt	17 / 18	94	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	5 / 20	25	0.0002	0.0002	0.0002	0.000275	0.00055	0.0006	0.000725	0.0009	0.0012	0.0012	0.00029	0.000065	0.53	-	-	-	-	-	-	-	-	-	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	18 / 20	90	0.005	-	-	-	0.019	-	-	-	-	0.05	0.021	0.0047	1.12	-	-	-	-	-	-	-	-	-	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	18 / 20	90	0.0001	-	-	-	0.0002	-	-	-	-	0.0018	0.00038	0.000085	1.95	-	-	-	-	-	-	-	-	-	-
Lithium	1 / 20	5	0.0002	0.0007	0.00069	0.000975	0.0012	0.0012	0.0012	0.00173	0.0013	0.0041	0.00077	0.00017	0.62	-	-	-	-	-	-	-	-	-	-
Magnesium	0 / 34	0	0.3	0.6	0.6	0.7	0.85	0.8	0.9	1.1	1.1	1.7	0.25	0.044	0.30	-	-	-	-	-	-	-	-	-	-
Manganese	2 / 20	10	0.0001	0.0001	0.0001	0.0003	0.0013	0.00055	0.001475	0.00228	0.002	0.0069	0.0017	0.00038	1.37	-	-	-	-	-	-	-	-	-	-
Mercury	20 / 20	100	0.00001	-	-	-	0.000011	-	-	-	-	0.00002	0.0000022	0.0000005	0.21	-	-	-	-	-	-	-	-	-	-

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Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	19 / 20	95	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	0 / 20	0	0.0004	0.0007	0.00068	0.0009	0.00099	0.001	0.0011	0.00141	0.0013	0.0015	0.00029	0.000064	0.29	-	-	-	-	-	-	-	-	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	3 / 3	100	0.001	-	-	-	0.007	-	-	-	-	0.01	0.0052	0.003	0.74	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 34	0	0.3	0.3	0.4	0.4	0.49	0.5	0.5	0.7	0.6	0.7	0.11	0.019	0.22	-	-	-	-	-	-	-	-	-
Rubidium	0 / 20	0	0.0008	0.001	0.00099	0.0011	0.0012	0.0012	0.0012	0.00154	0.0012	0.0021	0.0003	0.000068	0.25	-	-	-	-	-	-	-	-	-
Selenium	19 / 20	95	0.0003	-	-	-	0.00038	-	-	-	-	0.0018	0.00034	0.000075	0.89	-	-	-	-	-	-	-	-	-
Silver	19 / 20	95	0.0001	-	-	-	0.00015	-	-	-	-	0.001	0.0002	0.000045	1.39	-	-	-	-	-	-	-	-	-
Sodium	0 / 34	0	0.4	0.4	0.5	0.5	0.62	0.6	0.7	0.87	0.9	1.1	0.17	0.029	0.27	-	-	-	-	-	-	-	-	-
Strontium	0 / 20	0	0.0047	0.0061	0.00599	0.0065	0.0072	0.0068	0.00725	0.00789	0.0075	0.0126	0.0018	0.00041	0.25	-	-	-	-	-	-	-	-	-
Thallium	18 / 18	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Tin	2 / 3	67	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	17 / 18	94	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000024	0.0000056	0.22	-	-	-	-	-	-	-	-	-
Tungsten	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	20 / 20	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	18 / 18	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	0 / 2	0	0.0007	-	-	-	0.0021	-	-	-	-	0.0035	0.002	0.0014	0.94	-	-	-	-	-	-	-	-	-
Zinc	6 / 18	33	0.0004	0.0004	0.0004	0.0004	0.00066	0.0006	0.0008	0.00096	0.0012	0.0012	0.00026	0.000061	0.40	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	0 / 34	0	0.0028	0.0028	0.00411	0.0055	0.0068	0.00705	0.008075	0.00941	0.0109	0.0109	0.002	0.00035	0.30	-	1	-	-	0	-	-	1	-
Antimony	30 / 34	88	0.0001	-	-	-	0.00013	-	-	-	-	0.0004	0.000079	0.000014	0.62	-	-	0	-	-	0	-	-	0
Arsenic	20 / 34	59	0.0002	-	-	-	0.00022	-	-	-	-	0.0004	0.000055	0.0000095	0.25	-	0	0	-	0	0	-	0	0
Barium	0 / 34	0	0.0016	0.0016	0.00173	0.0019	0.0021	0.002	0.0022	0.00257	0.0026	0.003	0.00033	0.000056	0.16	-	-	0	-	-	0	-	-	0
Beryllium	34 / 34	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	34 / 34	100	0.00005	-	-	-	0.00005	-	-	-	-	0.00005	-	-	-	0	34	0	0	34	0	0	0	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	34 / 34	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	27 / 34	79	0.0001	-	-	-	0.00018	-	-	-	-	0.0021	0.00034	0.000059	1.95	-	0	0	-	0	0	-	0	0
Cobalt	30 / 34	88	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000017	0.0000029	0.17	-	-	-	-	-	-	-	-	-
Copper	1 / 34	3	0.0002	0.0002	0.0003	0.0005	0.00058	0.0006	0.0007	0.0008	0.0009	0.0009	0.00018	0.000032	0.32	-	0	-	-	0	-	-	0	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	15 / 34	44	0.005	0.005	0.0053	0.00725	0.017	0.01	0.0185	0.05	0.023	0.05	0.016	0.0027	0.92	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	29 / 34	85	0.0001	-	-	-	0.00027	-	-	-	-	0.0032	0.00056	0.000097	2.10	-	2	0	-	0	0	-	2	0
Lithium	1 / 34	3	0.0002	0.0008	0.00063	0.001025	0.0012	0.0011	0.0012	0.00164	0.0013	0.0041	0.00062	0.00011	0.51	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-4-3-a: Water chemistry summary for MacKay Lake

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Manganese	0 / 34	0	0.0003	0.0003	0.00123	0.001725	0.0031	0.00265	0.003475	0.00552	0.006	0.0109	0.0024	0.00041	0.76	-	-	-	-	-	-	-	-	-
Mercury	29 / 33	88	0.0000001	-	-	-	0.00001	-	-	-	-	0.00005	0.000008	0.0000014	0.79	-	1	0	-	0	0	-	1	0
Molybdenum	33 / 34	97	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Nickel	0 / 34	0	0.0003	0.0003	0.00053	0.000825	0.00098	0.001	0.001175	0.0014	0.0016	0.0017	0.00033	0.000056	0.34	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 34	0	0.0008	0.0011	0.0011	0.0011	0.0012	0.00115	0.0012	0.00164	0.0013	0.0022	0.0003	0.000052	0.24	-	-	-	-	-	-	-	-	-
Selenium	33 / 34	97	0.0003	-	-	-	0.00034	-	-	-	-	0.0017	0.00024	0.000041	0.70	-	1	0	-	0	0	-	1	0
Silver	33 / 34	97	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000017	0.0000029	0.17	-	1	-	-	0	-	-	1	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 34	0	0.0047	0.0064	0.0065	0.0066	0.0074	0.00705	0.007425	0.00916	0.0086	0.0128	0.0017	0.00029	0.23	-	-	-	-	-	-	-	-	-
Thallium	34 / 34	100	0.0001	-	-	-	0.0001	-	-	-	-	0.0001	-	-	-	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	30 / 34	88	0.0001	-	-	-	0.00011	-	-	-	-	0.0005	0.00007	0.000012	0.61	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	33 / 34	97	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000017	0.0000029	0.17	-	0	0	-	0	0	-	0	0
Vanadium	33 / 34	97	0.0001	-	-	-	0.00011	-	-	-	-	0.0003	0.000034	0.0000059	0.32	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	18 / 34	53	0.0004	-	-	-	0.0008	-	-	-	-	0.0039	0.00084	0.00014	1.06	-	0	-	-	0	-	-	0	-

Appendix B-4-3-b: Water chemistry summary for MacKay Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (relative units)	4 / 4	100	5	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 6	0	18.9	18.9	20.15	21.975	24	24.7	26.15	27.1	27.9	27.9	3.4	1.4	0.14	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	0 / 6	0	10	10	11	12.5	14	14	15.5	18	16	20	3.4	1.4	0.24	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	4 / 6	67	3	-	-	-	3.7	-	-	-	-	6	1.2	0.49	0.33	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 6	0	0.15	0.15	0.155	0.1625	0.19	0.17	0.1775	0.245	0.18	0.31	0.06	0.024	0.31	-	-	6	-	-	0	-	-	6
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	0 / 1	0	7.7	-	-	-	7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	1 / 6	17	0.7	5.7	3.2	5.825	5.5	6.2	6.95	7.2	7.2	7.2	2.4	1	0.44	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	6 / 6	100	0.1	-	-	-	0.6	-	-	-	-	0.7	0.24	0.1	0.41	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	3 / 3	100	0.1	-	-	-	0.1	-	-	-	-	-	-	-	-	-	5	0	-	0	0	-	0	0

Appendix B-4-3-b: Water chemistry summary for MacKay Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	0 / 1	0	10.3	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hardness, Total (as CaCO3)	0 / 5	0	8.9	8.9	9.18	9.6	11	10.9	10.9	12.88	10.9	14.2	2	0.91	0.19	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	0 / 1	0	6.79	-	-	-	6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH (pH units)	0 / 5	0	6.59	6.77	6.662	6.77	6.8	6.8	6.84	6.876	6.9	6.9	0.12	0.052	0.02	-	0	-	-	0	-	-	0	-
Silica, Reactive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silica	0 / 1	0	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	1 / 6	17	0.1	0.1	0.55	1.25	2	2.5	3	3	3	3	1.2	0.5	0.61	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	2 / 6	33	0.005	0.005	0.0075	0.01	0.019	0.014	0.0195	0.035	0.02	0.05	0.016	0.0066	0.86	-	1	-	-	1	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	5 / 6	83	0.005	-	-	-	0.011	-	-	-	-	0.03	0.0097	0.004	0.90	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	5 / 5	100	0.005	-	-	-	0.008	-	-	-	-	0.01	0.0027	0.0012	0.34	-	-	-	-	-	-	-	-	-
Nitrite	6 / 6	100	0.001	-	-	-	0.004	-	-	-	-	0.01	0.0046	0.0019	1.16	-	0	0	-	0	0	-	0	0
Nitrogen, Particulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	5 / 5	100	0.001	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	1 / 6	17	0.002	0.002	0.002	0.00225	0.0038	0.003	0.003	0.0065	0.003	0.01	0.0031	0.0012	0.80	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-4-3-b: Water chemistry summary for MacKay Lake during Winter Baseflow

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-4-3-b: Water chemistry summary for MacKay Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ
Molybdenum	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nickel	0 / 3	0	0.0008	-	-	-	0.0013	-	-	-	-	0.0015	0.0004	0.00023	0.32	-	-	-	-	-	-	-	-	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorous, Total	1 / 1	100	0.01	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Potassium	0 / 6	0	0.6	0.7	0.65	0.7	0.68	0.7	0.7	0.7	0.7	0.7	0.041	0.017	0.06	-	-	-	-	-	-	-	-	-
Rubidium	0 / 3	0	0.0015	-	-	-	0.0018	-	-	-	-	0.0021	0.00031	0.00018	0.17	-	-	-	-	-	-	-	-	-
Selenium	3 / 3	100	0.0003	-	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	0 / 6	0	0.7	0.7	0.75	0.825	0.9	0.9	0.975	1.05	1.1	1.1	0.14	0.058	0.16	-	-	-	-	-	-	-	-	-
Strontium	0 / 3	0	0.0075	-	-	-	0.011	-	-	-	-	0.0126	0.0027	0.0015	0.25	-	-	-	-	-	-	-	-	-
Thallium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	0 / 1	0	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	1 / 1	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	3 / 3	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	0 / 1	0	0.0035	-	-	-	0.0035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	0 / 2	0	0.0004	-	-	-	0.0006	-	-	-	-	0.0008	0.00028	0.0002	0.47	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	0 / 6	0	0.005	0.005	0.0054	0.005875	0.0064	0.00635	0.006975	0.00735	0.0076	0.0076	0.00094	0.00038	0.15	-	1	-	-	0	-	-	1	-
Antimony	5 / 6	83	0.0001	-	-	-	0.00015	-	-	-	-	0.0004	0.00012	0.00005	0.82	-	-	0	-	-	0	-	-	0
Arsenic	1 / 6	17	0.0002	0.0003	0.00025	0.0003	0.0003	0.0003	0.0003	0.00035	0.0003	0.0004	0.000063	0.000026	0.21	-	0	0	-	0	0	-	0	0
Barium	0 / 6	0	0.0023	0.0023	0.00235	0.00245	0.0026	0.0026	0.00275	0.0029	0.003	0.003	0.00026	0.0001	0.10	-	-	0	-	-	0	-	-	0
Beryllium	6 / 6	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0
Cadmium	6 / 6	100	0.00005	-	-	-	0.00005	-	-	-	-	-	-	-	-	0	6	0	0	6	0	0	0	0
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	6 / 6	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	6 / 6	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Cobalt	6 / 6	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	0 / 6	0	0.0005	0.0005	0.0006	0.000725	0.00078	0.00085	0.0009	0.0009	0.0009	0.0009	0.00016	0.000065	0.20	-	0	-	-	0	-	-	0	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	4 / 6	67	0.005	-	-	-	0.015	-	-	-	-	0.05	0.018	0.0073	1.18	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	6 / 6	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Lithium	0 / 6	0	0.0008	0.0008	0.00105	0.00135	0.0015	0.0016	0.001775	0.0019	0.002	0.002	0.00043	0.00017	0.28	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-4-3-b: Water chemistry summary for MacKay Lake during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Manganese	0 / 6	0	0.0003	0.0009	0.0006	0.001	0.0011	0.0013	0.0013	0.00135	0.0014	0.0014	0.00042	0.00017	0.39	-	-	-	-	-	-	-	-	-
Mercury	6 / 6	100	0.0000001	-	-	-	0.0000084	-	-	-	-	0.00001	0.000004	0.0000017	0.48	-	0	0	-	0	0	-	0	0
Molybdenum	5 / 6	83	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0	-
Nickel	0 / 6	0	0.0003	0.0003	0.00045	0.0008	0.0012	0.00145	0.001575	0.00165	0.0017	0.0017	0.00058	0.00024	0.49	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 6	0	0.0014	0.0014	0.00145	0.00155	0.0018	0.0018	0.00205	0.00215	0.0022	0.0022	0.00032	0.00013	0.18	-	-	-	-	-	-	-	-	-
Selenium	6 / 6	100	0.0003	-	-	-	0.0003	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Silver	6 / 6	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 6	0	0.0075	0.0075	0.00805	0.0088	0.01	0.01025	0.012	0.01255	0.0128	0.0128	0.0021	0.00086	0.21	-	-	-	-	-	-	-	-	-
Thallium	6 / 6	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	5 / 6	83	0.0001	-	-	-	0.00017	-	-	-	-	0.0005	0.00016	0.000067	0.98	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	5 / 6	83	0.0001	-	-	-	0.00012	-	-	-	-	0.0002	0.000041	0.000017	0.35	-	0	0	-	0	0	-	0	0
Vanadium	6 / 6	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	3 / 6	50	0.0004	0.0004	0.0004	0.000425	0.0011	0.0006	0.00085	0.0024	0.0009	0.0039	0.0014	0.00056	1.21	-	0	-	-	0	-	-	0	-

Appendix B-4-3-c: Water chemistry summary for MacKay Lake during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

There were no data available for this site during this season.

Appendix B-4-3-d: Water chemistry summary for MacKay Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
True Colour (relative units)	11 / 18	61	2	-	-	-	5.3	-	-	-	-	10	1.9	0.45	0.36	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 28	0	14	14	14.4	14.975	16	15.5	15.95	16.43	17.4	17.4	0.82	0.16	0.05	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS calc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TDS	13 / 28	46	10	10	10	10	13	10	16	20	22	22	4.1	0.78	0.32	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	27 / 28	96	3	-	-	-	3.3	-	-	-	-	8	0.98	0.18	0.30	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 28	0	0.2	0.2	0.227	0.2475	0.33	0.265	0.3475	0.513	0.48	0.79	0.14	0.027	0.43	-	-	28	-	-	0	-	-	28
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	0 / 5	0	3.9	3.9	3.9	3.9	4	4	4.1	4.16	4.2	4.2	0.13	0.058	0.03	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	5 / 28	18	0.7	3.9	0.7	3.975	3.8	4.2	4.525	5.49	5.2	6	1.7	0.32	0.44	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	21 / 22	95	0.1	-	-	-	0.56	-	-	-	-	0.7	0.26	0.055	0.46	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	11 / 11	100	0.1	-	-	-	0.18	-	-	-	-	1	0.27	0.082	1.49	-	17	0	-	1	0	-	0	0

Appendix B-4-3-d: Water chemistry summary for MacKay Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	0 / 5	0	5.6	5.6	6.04	6.7	11	9.8	10.3	19.12	10.3	25	7.8	3.5	0.68	-	-	-	-	-	-	-	-	-
Hardness, Total (as CaCO3)	0 / 23	0	2.8	2.8	6.02	6.3	8	7.5	9.6	11.18	11.4	11.4	2.4	0.49	0.30	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	0 / 5	0	6.77	6.77	6.814	6.88	6.9	6.92	6.96	6.966	6.97	6.97	0.081	0.036	0.01	-	-	-	-	-	-	-	-	-
pH (pH units)	0 / 23	0	6.68	6.68	6.722	6.76	6.8	6.85	6.915	6.958	7.07	7.07	0.1	0.022	0.02	-	0	-	-	0	-	-	0	-
Silica, Reactive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silica	0 / 5	0	1	2	1.4	2	2	2	2	2.6	2	3	0.71	0.32	0.35	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	1 / 24	4	0.1	0.1	1	1	1.5	2	2	2	2	2	0.58	0.12	0.37	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	27 / 28	96	0.005	-	-	-	0.007	-	-	-	-	0.01	0.0025	0.00047	0.36	-	0	-	-	0	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	23 / 28	82	0.005	-	-	-	0.0094	-	-	-	-	0.03	0.0051	0.00097	0.55	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	14 / 27	52	0.005	-	-	-	0.045	-	-	-	-	0.15	0.054	0.01	1.20	-	-	-	-	-	-	-	-	-
Nitrite	24 / 28	86	0.001	-	-	-	0.024	-	-	-	-	0.15	0.045	0.0084	1.87	-	4	0	-	0	0	-	4	0
Nitrogen, Particulate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	26 / 26	100	0.001	-	-	-	0.0015	-	-	-	-	0.002	0.00051	0.0001	0.33	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	18 / 28	64	0.002	-	-	-	0.007	-	-	-	-	0.02	0.0044	0.00084	0.63	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-4-3-d: Water chemistry summary for MacKay Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL			
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	
Carbon, Dissolved Organic	0 / 28	0	2	2	2.47	2.6	2.9	2.85	3.025	3.33	3.5	3.7	0.37	0.07	0.13	-	-	-	-	-	-	-	-	-	
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Particulate Organic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Inorganic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon, Total Organic	0 / 28	0	2.5	2.5	2.67	2.8	3	2.9	3.2	3.33	3.4	4.1	0.33	0.062	0.11	-	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide																									
Cyanide Thiocyanate	0 / 1	0	0.8	-	-	-	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide, Total	2 / 2	100	0.001	-	-	-	0.001	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0	
Cyanide, wad	2 / 2	100	0.002	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Dissolved Metals																									
Aluminum	0 / 17	0	0.002	0.002	0.00206	0.0041	0.0052	0.005	0.0072	0.00768	0.009	0.009	0.0021	0.00052	0.41	-	-	-	-	-	-	-	-	-	
Antimony	14 / 17	82	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000033	0.0000081	0.30	-	-	-	-	-	-	-	-	-	
Arsenic	12 / 17	71	0.0002	-	-	-	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Barium	0 / 17	0	0.0016	0.0016	0.0016	0.0017	0.0018	0.0018	0.0019	0.0021	0.0021	0.0024	0.00022	0.000053	0.12	-	-	-	-	-	-	-	-	-	
Beryllium	17 / 17	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bismuth	0 / 1	0	0.0003	-	-	-	0.0003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Boron	1 / 1	100	0.0009	-	-	-	0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cadmium	17 / 17	100	0.00005	-	-	-	0.00005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Calcium	0 / 28	0	0.7	0.7	1.21	1.475	2.1	1.75	2.525	2.9	3	7.2	1.2	0.22	0.57	-	-	-	-	-	-	-	-	-	
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cesium	17 / 17	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chromium	15 / 17	88	0.0001	-	-	-	0.00012	-	-	-	-	0.0004	0.000075	0.000018	0.61	-	-	-	-	-	-	-	-	-	
Cobalt	14 / 15	93	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Copper	4 / 17	24	0.0002	0.0002	0.0002	0.0003	0.00051	0.0006	0.0007	0.0008	0.0009	0.0009	0.00024	0.000057	0.46	-	-	-	-	-	-	-	-	-	
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Iron	15 / 17	88	0.005	-	-	-	0.019	-	-	-	-	0.05	0.021	0.0051	1.13	-	-	-	-	-	-	-	-	-	
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lead	15 / 17	88	0.0001	-	-	-	0.00021	-	-	-	-	0.0018	0.00041	0.0001	1.95	-	-	-	-	-	-	-	-	-	
Lithium	1 / 17	6	0.0002	0.0007	0.00066	0.001	0.0012	0.0012	0.0012	0.00124	0.0013	0.0041	0.00081	0.0002	0.68	-	-	-	-	-	-	-	-	-	
Magnesium	0 / 28	0	0.3	0.6	0.6	0.7	0.81	0.8	0.9	1.03	1.1	1.7	0.25	0.047	0.31	-	-	-	-	-	-	-	-	-	
Manganese	2 / 17	12	0.0001	0.0001	0.0001	0.0003	0.0014	0.0005	0.0017	0.00312	0.002	0.0069	0.0018	0.00045	1.36	-	-	-	-	-	-	-	-	-	
Mercury	17 / 17	100	0.00001	-	-	-	0.000011	-	-	-	-	0.00002	0.0000024	0.00000059	0.23	-	-	-	-	-	-	-	-	-	

Appendix B-4-3-d: Water chemistry summary for MacKay Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ
Molybdenum	16 / 17	94	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nickel	0 / 17	0	0.0004	0.0009	0.00062	0.0009	0.00094	0.001	0.001	0.00118	0.0011	0.0014	0.00025	0.000059	0.26	-	-	-	-	-	-	-	-	
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorous, Total	2 / 2	100	0.001	-	-	-	0.0055	-	-	-	-	0.01	0.0064	0.0045	1.16	-	-	-	-	-	-	-	-	
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Potassium	0 / 28	0	0.3	0.3	0.4	0.4	0.45	0.5	0.5	0.5	0.5	0.5	0.064	0.012	0.14	-	-	-	-	-	-	-	-	
Rubidium	0 / 17	0	0.0008	0.001	0.00096	0.0011	0.0011	0.0011	0.0012	0.0012	0.0012	0.0012	0.00012	0.000028	0.10	-	-	-	-	-	-	-	-	
Selenium	16 / 17	94	0.0003	-	-	-	0.00039	-	-	-	-	0.0018	0.00036	0.000088	0.94	-	-	-	-	-	-	-	-	
Silver	16 / 17	94	0.0001	-	-	-	0.00015	-	-	-	-	0.001	0.00022	0.000053	1.43	-	-	-	-	-	-	-	-	
Sodium	0 / 28	0	0.4	0.4	0.47	0.5	0.56	0.55	0.6	0.7	0.7	0.7	0.096	0.018	0.17	-	-	-	-	-	-	-	-	
Strontium	0 / 17	0	0.0047	0.0061	0.00566	0.0065	0.0066	0.0067	0.0069	0.00728	0.0074	0.0075	0.00074	0.00018	0.11	-	-	-	-	-	-	-	-	
Thallium	16 / 16	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tin	2 / 2	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Titanium	15 / 16	94	0.0001	-	-	-	0.00011	-	-	-	-	0.0002	0.000025	0.0000063	0.24	-	-	-	-	-	-	-	-	
Tungsten	1 / 1	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Uranium	17 / 17	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Vanadium	16 / 16	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Yttrium	0 / 1	0	0.0007	-	-	-	0.0007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Zinc	6 / 16	38	0.0004	0.0004	0.0004	0.0004	0.00066	0.0006	0.000825	0.001	0.0012	0.0012	0.00027	0.000066	0.40	-	-	-	-	-	-	-	-	
Total Metals																								
Aluminum	0 / 28	0	0.0028	0.0028	0.00375	0.005275	0.0069	0.0071	0.008175	0.01001	0.0109	0.0109	0.0022	0.00042	0.32	-	0	-	-	0	-	-	0	-
Antimony	25 / 28	89	0.0001	-	-	-	0.00012	-	-	-	-	0.0004	0.000069	0.000013	0.57	-	-	0	-	-	0	-	-	0
Arsenic	19 / 28	68	0.0002	-	-	-	0.00021	-	-	-	-	0.0004	0.000038	0.0000071	0.18	-	0	0	-	0	0	-	0	0
Barium	0 / 28	0	0.0016	0.0016	0.0017	0.0018	0.002	0.0019	0.0021	0.0022	0.0025	0.0025	0.0002	0.000038	0.10	-	-	0	-	-	0	-	-	0
Beryllium	28 / 28	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Boron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	
Cadmium	28 / 28	100	0.00005	-	-	-	0.00005	-	-	-	-	-	-	-	-	0	28	0	0	28	0	0	0	
Cerium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cesium	28 / 28	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chromium	21 / 28	75	0.0001	-	-	-	0.00019	-	-	-	-	0.0021	0.00038	0.000072	1.97	-	0	0	-	0	0	-	0	0
Cobalt	24 / 28	86	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000019	0.0000036	0.18	-	-	-	-	-	-	-	-	-
Copper	1 / 28	4	0.0002	0.0002	0.0003	0.0004	0.00053	0.0006	0.0006	0.0007	0.0008	0.0008	0.00016	0.00003	0.30	-	0	-	-	0	-	-	0	-
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Iron	11 / 28	39	0.005	0.005	0.007	0.008	0.018	0.01	0.01825	0.05	0.023	0.05	0.016	0.003	0.89	-	0	-	-	0	-	-	0	-
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lead	23 / 28	82	0.0001	-	-	-	0.0003	-	-	-	-	0.0032	0.00062	0.00012	2.03	-	2	0	-	0	0	-	2	0
Lithium	1 / 28	4	0.0002	0.0007	0.0006	0.001	0.0011	0.0011	0.0012	0.00123	0.0013	0.0041	0.00063	0.00012	0.56	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Appendix B-4-3-d: Water chemistry summary for MacKay Lake during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Manganese	0 / 28	0	0.0005	0.0012	0.00195	0.002475	0.0035	0.00275	0.0036	0.00624	0.0044	0.0109	0.0024	0.00045	0.67	-	-	-	-	-	-	-	-	-
Mercury	23 / 27	85	0.000001	-	-	-	0.000011	-	-	-	-	0.00005	0.0000087	0.0000017	0.82	-	1	0	-	0	0	-	1	0
Molybdenum	28 / 28	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0	-
Nickel	0 / 28	0	0.0004	0.0006	0.00057	0.000875	0.00094	0.00095	0.0011	0.0012	0.0014	0.0014	0.00024	0.000045	0.26	-	0	-	-	0	-	-	0	-
Niobium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 28	0	0.0008	0.0011	0.0011	0.0011	0.0011	0.0011	0.0012	0.0012	0.0013	0.0013	0.000097	0.000018	0.09	-	-	-	-	-	-	-	-	-
Selenium	27 / 28	96	0.0003	-	-	-	0.00035	-	-	-	-	0.0017	0.00026	0.00005	0.76	-	1	0	-	0	0	-	1	0
Silver	27 / 28	96	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000019	0.0000036	0.18	-	1	-	-	0	-	-	1	-
Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 28	0	0.0047	0.0064	0.00647	0.006575	0.0068	0.0068	0.0071	0.00729	0.0078	0.0078	0.00065	0.00012	0.10	-	-	-	-	-	-	-	-	-
Thallium	28 / 28	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	25 / 28	89	0.0001	-	-	-	0.0001	-	-	-	-	0.0002	0.000019	0.0000036	0.18	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	28 / 28	100	0.0001	-	-	-	0.0001	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Vanadium	27 / 28	96	0.0001	-	-	-	0.00011	-	-	-	-	0.0003	0.000038	0.0000071	0.35	-	-	-	-	-	-	-	-	-
Yttrium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	15 / 28	54	0.0004	-	-	-	0.00073	-	-	-	-	0.0039	0.0007	0.00013	0.96	-	0	-	-	0	-	-	0	-

Appendix B-4-4-a: Water chemistry summary for Lockhart River

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	0 / 130	0	51.4	51.4	75.3	95.8	120	116.5	144.75	177.1	218	278	42	3.7	0.34	-	-	-	-	-	-	-	-	-
Chlorophyll a	0 / 1	0	0.005	-	-	-	0.005	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	35 / 60	58	5	-	-	-	6.4	-	-	-	-	20	3.4	0.44	0.53	-	-	-	-	-	-	-	-	-
True Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	4 / 8	50	9.8	9.8	9.94	10	27	10	32.625	68.7	66	75	28	9.7	1.04	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	0 / 10	0	0.07	0.08	0.079	0.09	0.092	0.09	0.1	0.101	0.11	0.11	0.011	0.0036	0.12	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	0 / 87	0	5.2	10.7	12.5606	13.4875	14	14.482	15.822	16.644	18.2	19.564	2	0.21	0.14	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 131	0	10	10	11.9	14.9	18	16.6	18.85	21.2	23	69.9	6.4	0.56	0.37	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	0 / 71	0	13.16	13.16	13.64	14.11	15	14.771	15.5905	15.893	17	22.073	1.4	0.17	0.10	-	-	-	-	-	-	-	-	-
TDS calc	0 / 86	0	5	6	7	7.7825	8.6	8.11	9	9.766	10.48	24.2	2.1	0.23	0.25	-	-	-	-	-	-	-	-	-
TDS	17 / 58	29	10	10	10	10	16	14	19.75	26	30	44	7.5	0.99	0.47	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	0 / 93	0	0.3	0.3	0.5	1	5.5	4.7	9	12	16	16	4.5	0.46	0.81	-	-	1	-	-	0	-	-	1
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	85 / 108	79	1	-	-	-	2.4	-	-	-	-	9	1.6	0.15	0.65	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	2 / 129	2	0.05	0.05	0.14	0.2	0.65	0.37	0.7	1.52	1.3	5.5	0.89	0.078	1.36	-	-	122	-	-	0	-	-	122
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	5 / 125	4	0.1	2	3.84	4.4	5.2	5	6	6.76	8.3	13.2	1.7	0.15	0.32	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	4 / 130	3	0.1	0.25	0.3	0.4	1.1	0.41	0.5	0.7	0.62	76.1	6.6	0.58	6.26	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	25 / 125	20	0.01	0.01	0.02	0.02	0.035	0.03	0.05	0.05	0.08	0.12	0.018	0.0016	0.52	-	126	3	-	0	0	-	0	0

Appendix B-4-4-a: Water chemistry summary for Lockhart River

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	0 / 62	0	0.018	0.018	0.2048	0.706	1.3	1.1555	1.35375	1.7714	2.3	12.2	1.6	0.21	1.26	-	-	-	-	-	-	-	-	-
Hardness, Total (as CaCO3)	0 / 112	0	2.2	4.39	5.135	5.5	6.5	6.0085	6.705	7.8656	8.27	28.3	2.7	0.25	0.41	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH (pH units)	0 / 69	0	4.2	6.05	6.6	6.8	7.1	7.2	7.5	7.902	8.25	9	0.67	0.081	0.09	-	0	-	-	0	-	-	0	-
Silica, Reactive	8 / 59	14	0.06	0.06	0.08	0.1	0.37	0.1	0.16	0.3	0.23	13.6	1.8	0.23	4.72	-	-	-	-	-	-	-	-	-
Silica	1 / 71	1	0.02	0.02	0.06	0.09	0.16	0.12	0.15	0.2	0.2	2.62	0.31	0.036	1.85	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	8 / 129	6	0.6	0.88	1	1.3	1.7	1.5	1.65	2	2.1	14.8	1.5	0.13	0.88	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	24 / 63	38	0.001	0.001	0.005	0.006	0.021	0.01	0.02	0.0728	0.034	0.1	0.028	0.0035	1.33	-	-	-	-	-	-	-	-	-
Ammonia, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	3 / 21	14	0.01	0.01	0.01	0.02	0.028	0.02	0.04	0.05	0.06	0.06	0.017	0.0036	0.60	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	20 / 97	21	0.001	0.001	0.0096	0.01	0.05	0.016	0.022	0.037	0.037	2	0.22	0.023	4.45	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	4 / 25	16	0.01	0.01	0.01	0.01	0.028	0.02	0.04	0.06	0.07	0.07	0.021	0.0041	0.72	-	-	-	-	-	-	-	-	-
Nitrite	19 / 21	90	0.01	-	-	-	0.011	-	-	-	-	0.02	0.003	0.00066	0.27	-	0	0	-	0	0	-	0	0
Nitrogen, Particulate	11 / 112	10	0.002	0.002	0.01	0.011	0.032	0.02	0.03225	0.055	0.064	0.444	0.051	0.0048	1.60	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	2 / 109	2	0.008	0.008	0.08	0.1	2	0.12	0.167	0.23	0.25	204	20	1.9	9.67	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	4 / 9	44	0.1	0.1	0.1	0.1	0.53	0.45	0.9	1.136	1.28	1.28	0.46	0.15	0.88	-	-	-	-	-	-	-	-	-
Nitrogen, Total	0 / 103	0	0.026	0.026	0.1	0.12	2.1	0.14	0.1895	0.25	0.257	204.058	20	2	9.36	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	4 / 5	80	0.001	-	-	-	0.0022	-	-	-	-	0.007	0.0027	0.0012	1.22	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	9 / 10	90	0.002	-	-	-	0.0021	-	-	-	-	0.003	0.00032	0.0001	0.15	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	4 / 4	100	0.002	-	-	-	0.002	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	63 / 79	80	0.002	-	-	-	0.0059	-	-	-	-	0.067	0.0073	0.00082	1.23	-	-	-	-	-	-	-	-	-
Phosphorous	42 / 99	42	0.002	0.002	0.002	0.003	0.0079	0.005	0.01	0.0128	0.02	0.069	0.0085	0.00085	1.07	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	0 / 52	0	0.1	3.7	4.81	5.2	5.8	5.8145	6.37925	6.9358	8	8.655	1.3	0.18	0.23	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	1 / 10	10	0.5	0.5	0.95	1	1.2	1	1.6	1.7	1.7	1.7	0.41	0.13	0.34	-	-	-	-	-	-	-	-	-

Appendix B-4-4-a: Water chemistry summary for Lockhart River

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Carbon, Dissolved Organic	0 / 109	0	0.8	1.3	1.7	2	2.3	2.2	2.6	2.8	3.4	5.1	0.57	0.054	0.25	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Particulate Organic	1 / 112	1	0.005	0.005	0.08	0.108	0.23	0.164	0.237	0.3246	0.4	1.73	0.28	0.026	1.23	-	-	-	-	-	-	-	-	-
Carbon, Total Inorganic	1 / 8	13	0.5	0.5	0.85	1	1.6	2	2	2	2	2	0.62	0.22	0.40	-	-	-	-	-	-	-	-	-
Carbon, Total Organic	0 / 85	0	1	1	1.9204	2.091	2.5	2.49	2.823	3.3964	3.621	5.442	0.74	0.08	0.29	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Free CO2 (calcd)	0 / 81	0	0.01	0.01	0.36	0.812	1.9	1.449	2.029	2.95	2.98	27.899	3.2	0.35	1.64	-	-	-	-	-	-	-	-	-
Cyanide																								
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	26 / 49	53	0.001	-	-	-	0.78	-	-	-	-	30	4.4	0.63	5.67	-	3	2	-	0	0	-	3	2
Cyanide, wad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																								
Aluminum	0 / 24	0	0.0018	0.0018	0.00293	0.003175	0.0038	0.0036	0.004525	0.00512	0.0057	0.0057	0.00094	0.00019	0.25	-	-	-	-	-	-	-	-	-
Antimony	0 / 24	0	0.000004	0.000004	2.16E-05	3.375E-05	0.000062	0.0000565	0.000086	0.0001072	0.000152	0.000152	0.000037	0.0000075	0.59	-	-	-	-	-	-	-	-	-
Arsenic	52 / 100	52	0.00008	-	-	-	0.00017	-	-	-	-	0.0015	0.00019	0.000019	1.12	-	-	-	-	-	-	-	-	-
Barium	0 / 24	0	0.00238	0.00238	0.002416	0.0025075	0.0026	0.00259	0.00274	0.002884	0.00303	0.00303	0.00018	0.000036	0.07	-	-	-	-	-	-	-	-	-
Beryllium	2 / 24	8	0.000001	0.000001	0.000001	0.000001	0.0000012	0.000001	0.000001	0.000002	0.000001	0.000002	0.00000038	0.000000078	0.33	-	-	-	-	-	-	-	-	-
Bismuth	20 / 24	83	0.000001	-	-	-	0.000001	-	-	-	-	0.000002	0.0000002	0.000000042	0.20	-	-	-	-	-	-	-	-	-
Boron	27 / 56	48	0.0006	0.0006	0.0013	0.0015	0.013	0.02	0.02	0.02	0.03	0.05	0.011	0.0014	0.85	-	-	-	-	-	-	-	-	-
Cadmium	1 / 24	4	0.000001	0.000001	0.000002	0.000003	0.000021	0.000007	0.0000335	0.0000499	0.000071	0.000081	0.000024	0.0000048	1.16	-	-	-	-	-	-	-	-	-
Calcium	1 / 128	1	0.6	0.8	1.1	1.2175	2	1.35	1.5	1.827	1.9	59	5.2	0.46	2.59	-	-	-	-	-	-	-	-	-
Cerium	0 / 24	0	0.000014	0.000014	0.000015	0.000016	0.000019	0.000017	0.0000225	0.0000257	0.00003	0.00003	0.0000046	0.00000093	0.23	-	-	-	-	-	-	-	-	-
Cesium	0 / 23	0	0.000004	0.000004	0.000005	0.000005	0.0000058	0.000006	0.000006	0.0000068	0.000007	0.000007	0.00000074	0.00000015	0.13	-	-	-	-	-	-	-	-	-
Chromium	0 / 24	0	0.00002	0.00002	0.00003	0.00004	0.00006	0.0000515	0.00007	0.0000873	0.00011	0.00019	0.000035	0.0000072	0.58	-	-	-	-	-	-	-	-	-
Cobalt	0 / 24	0	0.000004	0.000004	0.000005	0.000006	0.0000083	0.0000075	1.025E-05	0.0000127	0.000015	0.000015	0.0000031	0.00000064	0.38	-	-	-	-	-	-	-	-	-
Copper	0 / 29	0	0.00049	0.00049	0.000558	0.00071	0.0012	0.00094	0.00144	0.002008	0.00204	0.003	0.00069	0.00013	0.59	-	-	-	-	-	-	-	-	-
Gallium	10 / 24	42	0.000001	-	-	-	0.000001	-	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-
Iron	8 / 34	24	0.0005	0.0005	0.001	0.001525	0.0097	0.00305	0.005475	0.034	0.01	0.08	0.018	0.0031	1.85	-	-	-	-	-	-	-	-	-
Lanthanum	0 / 24	0	0.000015	0.000015	0.000017	0.000018	0.00002	0.000019	2.325E-05	0.0000247	0.000026	0.000026	0.0000032	0.00000066	0.16	-	-	-	-	-	-	-	-	-
Lead	11 / 29	38	0.000005	0.000005	0.000005	0.000008	0.0002	0.00003	0.000067	0.001	0.000147	0.001	0.00037	0.000069	1.88	-	-	-	-	-	-	-	-	-
Lithium	0 / 24	0	0.0008	0.0009	0.0009	0.0009625	0.001	0.001	0.0010425	0.0011	0.0011	0.0011	0.000078	0.000016	0.08	-	-	-	-	-	-	-	-	-
Magnesium	0 / 109	0	0.4	0.5	0.568	0.6	0.87	0.65	0.715	0.8	0.87	23	2.1	0.21	2.46	-	-	-	-	-	-	-	-	-
Manganese	6 / 30	20	0.00018	0.00018	0.00022	0.0002725	0.0023	0.000485	0.000785	0.01	0.0008	0.01	0.0039	0.00071	1.66	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-4-4-a: Water chemistry summary for Lockhart River

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All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	0 / 24	0	0.000005	0.000013	1.23E-05	1.575E-05	0.000017	0.000017	0.000018	0.0000217	0.000021	0.000027	0.0000044	0.00000089	0.26	-	-	-	-	-	-	-	-	-
Nickel	0 / 24	0	0.00044	0.00044	0.000446	0.0004775	0.0006	0.00051	0.0006025	0.000741	0.00078	0.00151	0.00026	0.000053	0.43	-	-	-	-	-	-	-	-	-
Niobium	22 / 24	92	0.000001	-	-	-	0.000001	-	-	-	-	0.000002	0.0000002	0.000000042	0.20	-	-	-	-	-	-	-	-	-
Phosphorous, Total	65 / 107	61	0.002	-	-	-	0.0051	-	-	-	-	0.019	0.0035	0.00034	0.68	-	-	-	-	-	-	-	-	-
Platinum	23 / 24	96	0.000001	-	-	-	0.000001	-	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	1 / 129	1	0.1	0.3	0.38	0.4	0.51	0.43	0.48	0.524	0.58	9.2	0.78	0.068	1.51	-	-	-	-	-	-	-	-	-
Rubidium	0 / 24	0	0.000978	0.000978	0.001016	0.001045	0.0011	0.00107	0.0011225	0.001154	0.00117	0.00117	0.000053	0.000011	0.05	-	-	-	-	-	-	-	-	-
Selenium	68 / 98	69	0.00001	-	-	-	0.00016	-	-	-	-	0.0014	0.00021	0.000022	1.32	-	-	-	-	-	-	-	-	-
Silver	19 / 24	79	0.000001	-	-	-	0.000001	-	-	-	-	0.000002	0.0000002	0.000000042	0.20	-	-	-	-	-	-	-	-	-
Sodium	1 / 129	1	0.1	0.4	0.424	0.48	0.9	0.5	0.56	0.6	0.64	47.4	4.1	0.36	4.60	-	-	-	-	-	-	-	-	-
Strontium	0 / 24	0	0.00603	0.00603	0.006186	0.006215	0.0064	0.006375	0.006575	0.006918	0.00699	0.00699	0.00029	0.000059	0.05	-	-	-	-	-	-	-	-	-
Thallium	5 / 24	21	0.000001	0.000001	0.000001	0.000001	0.0000011	0.000001	0.000001	0.000001	0.000001	0.000003	0.00000045	0.000000092	0.40	-	-	-	-	-	-	-	-	-
Tin	13 / 24	54	0.000005	-	-	-	0.000009	-	-	-	-	0.000026	0.0000059	0.0000012	0.66	-	-	-	-	-	-	-	-	-
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	16 / 24	67	0.000001	-	-	-	0.000002	-	-	-	-	0.000015	0.0000036	0.00000073	1.74	-	-	-	-	-	-	-	-	-
Uranium	0 / 24	0	0.0000118	1.18E-05	1.33E-05	1.425E-05	0.000017	0.0000158	1.803E-05	2.059E-05	0.000022	3.92E-05	0.0000054	0.0000011	0.32	-	-	-	-	-	-	-	-	-
Vanadium	1 / 24	4	0.000005	0.000005	0.000009	0.0000205	0.000029	0.000027	3.725E-05	0.0000485	0.00005	0.000073	0.000016	0.0000032	0.54	-	-	-	-	-	-	-	-	-
Yttrium	0 / 24	0	0.000006	0.000006	0.000007	0.000007	0.0000083	0.000008	0.000009	0.0000107	0.000011	0.000011	0.0000015	0.0000003	0.18	-	-	-	-	-	-	-	-	-
Zinc	0 / 28	0	0.0002	0.0002	0.00047	0.0007525	0.0023	0.00121	0.002105	0.00409	0.004	0.022	0.0041	0.00077	1.76	-	-	-	-	-	-	-	-	-
Extractable Metals																								
Aluminum	26 / 30	87	0.021	-	-	-	0.058	-	-	-	-	0.1	0.02	0.0037	0.34	-	-	-	-	-	-	-	-	-
Barium	16 / 36	44	0.002	0.002	0.002	0.003	0.023	0.003	0.05	0.05	0.1	0.1	0.031	0.0052	1.38	-	-	-	-	-	-	-	-	-
Beryllium	20 / 24	83	0.001	-	-	-	0.0011	-	-	-	-	0.002	0.00028	0.000058	0.26	-	-	-	-	-	-	-	-	-
Boron	16 / 21	76	0.01	-	-	-	0.021	-	-	-	-	0.16	0.034	0.0074	1.62	-	-	-	-	-	-	-	-	-
Cadmium	33 / 37	89	0.001	-	-	-	0.0037	-	-	-	-	0.005	0.0019	0.00031	0.51	-	-	-	-	-	-	-	-	-
Calcium (unfiltered)	0 / 21	0	1.1	1.1	1.2	1.2	1.3	1.3	1.3	1.4	1.4	1.6	0.11	0.025	0.09	-	-	-	-	-	-	-	-	-
Chromium	29 / 29	100	0.005	-	-	-	0.0066	-	-	-	-	0.015	0.0036	0.00066	0.54	-	-	-	-	-	-	-	-	-
Cobalt	30 / 36	83	0.001	-	-	-	0.0042	-	-	-	-	0.011	0.0022	0.00036	0.51	-	-	-	-	-	-	-	-	-
Copper	33 / 41	80	0.001	-	-	-	0.0047	-	-	-	-	0.015	0.003	0.00047	0.64	-	-	-	-	-	-	-	-	-
Iron	40 / 76	53	0.003	-	-	-	0.022	-	-	-	-	0.07	0.017	0.0019	0.75	-	-	-	-	-	-	-	-	-
Lead	36 / 41	88	0.004	-	-	-	0.015	-	-	-	-	0.045	0.0089	0.0014	0.60	-	-	-	-	-	-	-	-	-
Lithium	20 / 24	83	0.005	-	-	-	0.0053	-	-	-	-	0.013	0.0016	0.00033	0.31	-	-	-	-	-	-	-	-	-
Magnesium	21 / 21	100	1	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	68 / 80	85	0.002	-	-	-	0.01	-	-	-	-	0.3	0.033	0.0037	3.20	-	-	-	-	-	-	-	-	-
Molybdenum	26 / 29	90	0.005	-	-	-	0.02	-	-	-	-	0.1	0.034	0.0063	1.71	-	-	-	-	-	-	-	-	-
Nickel	27 / 32	84	0.002	-	-	-	0.0088	-	-	-	-	0.018	0.0033	0.00059	0.38	-	-	-	-	-	-	-	-	-
Potassium	21 / 21	100	2	-	-	-	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	21 / 21	100	2	-	-	-	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	1 / 25	4	0.005	0.006	0.005	0.006	0.006	0.006	0.006	0.0066	0.006	0.01	0.0011	0.00021	0.18	-	-	-	-	-	-	-	-	-

Appendix B-4-4-a: Water chemistry summary for Lockhart River

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All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Vanadium	27 / 29	93	0.001	-	-	-	0.0043	-	-	-	-	0.006	0.0016	0.00029	0.36	-	-	-	-	-	-	-	-	-
Zinc	29 / 41	71	0.001	-	-	-	0.0065	-	-	-	-	0.035	0.0063	0.00099	0.97	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	2 / 59	3	0.002	0.002	0.00334	0.004	0.0061	0.0047	0.006	0.009	0.008	0.03	0.0048	0.00062	0.79	-	13	-	-	1	-	-	12	-
Antimony	5 / 36	14	0.0000006	6E-07	0.000001	0.000004	0.0000087	0.0000055	0.00001	0.000018	0.000017	0.00006	0.000011	0.0000018	1.20	-	-	0	-	-	0	-	-	0
Arsenic	1 / 34	3	0.00007	0.00007	0.00009	0.00009	0.0001	0.0001	0.00011	0.000117	0.00013	0.0002	0.000022	0.0000037	0.21	-	0	0	-	0	0	-	0	0
Barium	35 / 97	36	0.0021	0.0021	0.0023	0.0025	0.034	0.00279	0.08	0.1	0.12	0.12	0.042	0.0043	1.22	-	-	0	-	-	0	-	-	0
Beryllium	33 / 61	54	0.000001	-	-	-	0.000054	-	-	-	-	0.002	0.00025	0.000033	4.71	-	-	-	-	-	-	-	-	-
Bismuth	17 / 20	85	0.000001	-	-	-	0.000001	-	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-
Boron	5 / 35	14	0.0001	0.0005	0.0001	0.0012	0.0014	0.0015	0.0017	0.0019	0.0021	0.0033	0.0007	0.00012	0.52	0	0	0	0	0	0	0	0	0
Cadmium	48 / 98	49	0.000001	0.000001	0.000002	0.0000115	0.00022	0.0001	0.0001	0.001	0.0002	0.001	0.00034	0.000034	1.52	23	67	0	0	47	0	8	20	0
Cerium	0 / 32	0	0.000014	0.000014	1.81E-05	0.00002	0.000032	0.000023	0.000025	0.0000299	0.000031	0.000307	0.00005	0.0000089	1.59	-	-	-	-	-	-	-	-	-
Cesium	1 / 36	3	0.000005	0.000006	0.000005	0.000006	0.000017	0.000006	0.000006	0.000007	0.000006	0.0004	0.000066	0.000011	3.87	-	-	-	-	-	-	-	-	-
Chromium	21 / 61	34	0.00002	0.00002	0.000027	0.000031	0.00022	0.000075	0.0002	0.0002	0.0003	0.003	0.00054	0.000069	2.45	-	0	0	-	0	0	-	0	0
Cobalt	57 / 98	58	0.000004	-	-	-	0.00031	-	-	-	-	0.0013	0.00037	0.000037	1.19	-	-	-	-	-	-	-	-	-
Copper	15 / 98	15	0.0003	0.0003	0.0005	0.00054	0.00094	0.00069	0.001	0.001451	0.0015	0.008	0.00095	0.000096	1.01	-	4	-	-	0	-	-	4	-
Gallium	14 / 35	40	0.000001	0.000001	0.000001	0.000001	0.0000011	0.000001	0.000001	0.0000016	0.000001	0.000003	0.00000043	0.000000073	0.38	-	-	-	-	-	-	-	-	-
Iron	0 / 61	0	0.0006	0.0006	0.002	0.003	0.008	0.0046	0.0079	0.0143	0.0143	0.096	0.013	0.0016	1.60	-	0	-	-	0	-	-	0	-
Lanthanum	0 / 35	0	0.000011	0.000017	0.00002	0.000021	0.000028	0.000023	0.0000265	0.000027	0.000029	0.000188	0.000028	0.0000048	1.01	-	-	-	-	-	-	-	-	-
Lead	59 / 98	60	0.000005	-	-	-	0.00042	-	-	-	-	0.0016	0.00042	0.000042	1.00	-	4	0	-	0	0	-	4	0
Lithium	1 / 61	2	0.0006	0.0006	0.0007	0.0008	0.00096	0.001	0.001	0.00109	0.00115	0.003	0.0003	0.000038	0.31	-	-	-	-	-	-	-	-	-
Magnesium	3 / 26	12	0.52	0.52	0.55	0.5725	0.64	0.595	0.6375	0.845	0.69	1	0.14	0.027	0.22	-	-	-	-	-	-	-	-	-
Manganese	0 / 61	0	0.0001	0.0001	0.00034	0.0004	0.00096	0.00069	0.001	0.00129	0.0018	0.00806	0.0013	0.00017	1.35	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Molybdenum	23 / 61	38	0.000005	0.000005	0.000014	0.000016	0.016	0.00002	0.0001	0.0001	0.0001	1	0.13	0.016	7.78	-	1	-	-	1	-	-	0	-
Nickel	28 / 98	29	0.0002	0.0004	0.0004	0.0005	0.011	0.00051	0.0006	0.001	0.0007	1	0.1	0.01	9.04	-	0	-	-	0	-	-	2	-
Niobium	32 / 35	91	0.000001	-	-	-	0.0000011	-	-	-	-	0.000004	0.00000055	0.000000093	0.48	-	-	-	-	-	-	-	-	-
Platinum	32 / 35	91	0.000001	-	-	-	0.0000011	-	-	-	-	0.000002	0.00000024	0.00000004	0.22	-	-	-	-	-	-	-	-	-
Rubidium	0 / 35	0	0.00096	0.00101	0.001044	0.00107	0.0011	0.00109	0.001135	0.001168	0.00122	0.00122	0.000055	0.0000094	0.05	-	-	-	-	-	-	-	-	-
Selenium	20 / 34	59	0.00001	-	-	-	0.00033	-	-	-	-	0.01	0.0017	0.00029	5.14	-	1	0	-	1	0	-	0	0
Silver	30 / 44	68	0.000001	-	-	-	0.000042	-	-	-	-	0.0007	0.00011	0.000017	2.67	-	2	-	-	0	-	-	2	-
Sodium	3 / 26	12	0.12	0.12	0.135	0.2025	0.5	0.34	0.425	1.28	0.56	2	0.56	0.11	1.13	-	-	-	-	-	-	-	-	-
Strontium	0 / 61	0	0.000008	0.0052	0.00554	0.0057	0.006	0.00608	0.00644	0.00664	0.00717	0.00717	0.00091	0.00012	0.15	-	-	-	-	-	-	-	-	-
Thallium	12 / 36	33	0.000001	0.000001	0.000001	0.000001	0.000026	0.000001	0.000001	0.000002	0.000001	0.0009	0.00015	0.000025	5.74	-	1	-	-	0	-	-	1	-
Tin	25 / 35	71	0.000005	-	-	-	0.0000093	-	-	-	-	0.000077	0.000014	0.0000024	1.51	-	-	-	-	-	-	-	-	-
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	26 / 35	74	0.000001	-	-	-	0.0000014	-	-	-	-	0.000011	0.0000017	0.00000029	1.22	-	-	-	-	-	-	-	-	-

Appendix B-4-4-a: Water chemistry summary for Lockhart River

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Uranium	0 / 33	0	0.000008	1.25E-05	1.35E-05	0.0000146	0.000018	0.0000162	0.0000174	2.182E-05	1.99E-05	4.18E-05	0.0000067	0.0000012	0.38	-	0	0	-	0	0	-	0	0
Vanadium	58 / 94	62	0.000005	-	-	-	0.00023	-	-	-	-	0.0012	0.00025	0.000026	1.07	-	-	-	-	-	-	-	-	-
Yttrium	0 / 35	0	0.000004	0.000007	0.000007	0.000008	0.00001	0.000009	0.00001	0.0000112	0.000012	0.00005	0.0000071	0.0000012	0.70	-	-	-	-	-	-	-	-	-
Zinc	9 / 97	9	0.0002	0.0002	0.00028	0.0004	0.1	0.00075	0.0015	0.00264	0.0031	10	1	0.1	9.73	-	1	-	-	1	-	-	0	-

Appendix B-4-4-b: Water chemistry summary for Lockhart River during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	0 / 36	0	65.4	65.4	82.6	93.05	110	111	128	137.5	166	166	24	4	0.22	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	11 / 16	69	5	-	-	-	6.1	-	-	-	-	15	2.7	0.68	0.45	-	-	-	-	-	-	-	-	-
True Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	1 / 2	50	10	-	-	-	16	-	-	-	-	21.5	8.1	5.8	0.52	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	0 / 3	0	0.09	-	-	-	0.1	-	-	-	-	0.11	0.01	0.0058	0.10	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	0 / 26	0	13.2	13.2	13.7435	14.215	15	15.6685	16.194	16.8885	17.8	19.564	1.5	0.29	0.10	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 36	0	10	10	10.8	14.7	18	16.7	19.4	23.9	26	69.9	9.8	1.6	0.53	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	0 / 20	0	13.34	13.34	13.821	14.44	15	15.5835	15.79575	16.0501	16.133	16.133	0.92	0.21	0.06	-	-	-	-	-	-	-	-	-
TDS calc	0 / 23	0	6	6	6.952	7	8.2	8	8.7485	9.31	10.48	15	1.8	0.38	0.22	-	-	-	-	-	-	-	-	-
TDS	4 / 15	27	10	10	10	10	14	14	17.5	19.6	26	26	4.9	1.3	0.34	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	0 / 22	0	0.3	0.3	0.5	0.5	0.7	0.5	0.95	1	1.2	2	0.38	0.08	0.53	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	27 / 30	90	1	-	-	-	2.2	-	-	-	-	8	1.5	0.27	0.66	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 34	0	0.1	0.1	0.139	0.2	0.7	0.375	0.6875	1.5	1.1	5.5	1	0.17	1.46	-	-	33	-	-	0	-	-	33
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	1 / 35	3	2.5	2.5	3.84	4.2	5.2	4.6	5.75	6.44	6.9	13.2	1.9	0.32	0.36	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	0 / 37	0	0.1	0.3	0.376	0.4	2.5	0.43	0.5	0.64	0.6	76.1	12	2	4.99	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	6 / 35	17	0.01	0.01	0.02	0.025	0.036	0.03	0.045	0.05	0.07	0.12	0.02	0.0033	0.54	-	36	1	-	0	0	-	0	0

Appendix B-4-4-b: Water chemistry summary for Lockhart River during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-4-4-b: Water chemistry summary for Lockhart River during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Carbon, Dissolved Organic	0 / 31	0	0.8	1.4	1.7	1.975	2.2	2.1	2.5	2.8	3.1	3.1	0.47	0.085	0.22	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Particulate Organic	1 / 33	3	0.005	0.005	0.0714	0.089	0.18	0.126	0.171	0.25	0.28	1.73	0.29	0.05	1.58	-	-	-	-	-	-	-	-	-
Carbon, Total Inorganic	0 / 1	0	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Total Organic Carbonate (calcd)	0 / 22	0	1.89	1.89	1.9701	2.07275	2.4	2.2245	2.6185	2.8681	3.241	4	0.5	0.11	0.21	-	-	-	-	-	-	-	-	-
Free CO2 (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	0 / 23	0	0.18	0.18	0.5268	0.88	1.7	1.479	2.204	2.9358	2.969	6.69	1.4	0.28	0.78	-	-	-	-	-	-	-	-	-
Cyanide																								
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	7 / 14	50	0.001	0.001	0.001	0.001	0.0014	0.001	0.00175	0.002	0.002	0.003	0.00063	0.00017	0.47	-	0	0	-	0	0	-	0	0
Cyanide, wad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																								
Aluminum	0 / 7	0	0.0018	0.0027	0.00234	0.003	0.0032	0.0034	0.0036	0.00374	0.0038	0.0038	0.0007	0.00027	0.22	-	-	-	-	-	-	-	-	-
Antimony	0 / 7	0	0.000004	0.000004	1.24E-05	0.0000235	0.000048	0.000052	0.0000645	0.0000874	0.000103	0.000103	0.000034	0.000013	0.72	-	-	-	-	-	-	-	-	-
Arsenic	16 / 32	50	0.00008	0.0001	0.0001	0.0001	0.00014	0.0001	0.0001	0.00029	0.0001	0.0005	0.00011	0.00002	0.79	-	-	-	-	-	-	-	-	-
Barium	0 / 7	0	0.00243	0.00243	0.00249	0.00256	0.0026	0.00259	0.002655	0.002728	0.00268	0.0028	0.00012	0.000044	0.04	-	-	-	-	-	-	-	-	-
Beryllium	2 / 7	29	0.000001	0.000001	0.000001	0.000001	0.0000014	0.000001	0.000002	0.000002	0.000002	0.000002	0.00000053	0.0000002	0.37	-	-	-	-	-	-	-	-	-
Bismuth	6 / 7	86	0.000001	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	7 / 16	44	0.0012	0.0012	0.0015	0.001825	0.011	0.015	0.02	0.02	0.02	0.02	0.0092	0.0023	0.81	-	-	-	-	-	-	-	-	-
Cadmium	1 / 7	14	0.000001	0.000001	1.6E-06	0.0000055	0.000026	0.000014	0.000044	0.0000554	0.000071	0.000071	0.000027	0.00001	1.01	-	-	-	-	-	-	-	-	-
Calcium	1 / 37	3	0.7	1	1.092	1.2	3	1.26	1.44	1.698	1.57	59	9.5	1.6	3.16	-	-	-	-	-	-	-	-	-
Cerium	0 / 7	0	0.000015	0.000017	1.62E-05	0.000017	0.000017	0.000017	0.000017	0.0000174	0.000017	0.000018	0.0000009	0.00000034	0.05	-	-	-	-	-	-	-	-	-
Cesium	0 / 7	0	0.000005	0.000006	5.6E-06	0.000006	0.0000061	0.000006	0.0000065	0.000007	0.000007	0.000007	0.00000069	0.00000026	0.11	-	-	-	-	-	-	-	-	-
Chromium	0 / 7	0	0.00002	0.00002	0.000026	0.0000315	0.000058	0.000065	0.0000745	0.000092	0.00011	0.00011	0.000032	0.000012	0.55	-	-	-	-	-	-	-	-	-
Cobalt	0 / 7	0	0.000004	0.000004	0.000004	0.0000045	0.0000059	0.000005	0.000007	0.0000078	0.000009	0.000009	0.0000019	0.0000007	0.32	-	-	-	-	-	-	-	-	-
Copper	0 / 8	0	0.00049	0.00049	0.000532	0.00067	0.0013	0.000915	0.0019425	0.002328	0.003	0.003	0.0009	0.00032	0.69	-	-	-	-	-	-	-	-	-
Gallium	3 / 7	43	0.000001	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	2 / 8	25	0.0005	0.0005	0.00085	0.00115	0.0015	0.00135	0.001625	0.00236	0.002	0.0032	0.0008	0.00028	0.53	-	-	-	-	-	-	-	-	-
Lanthanum	0 / 7	0	0.000017	0.000018	1.76E-05	0.0000185	0.000019	0.000019	0.000019	0.0000194	0.000019	0.00002	0.00000095	0.00000036	0.05	-	-	-	-	-	-	-	-	-
Lead	4 / 8	50	0.000005	0.000005	0.000005	0.000005	0.000015	0.0000205	7.125E-05	0.0003588	0.000084	0.001	0.00034	0.00012	2.28	-	-	-	-	-	-	-	-	-
Lithium	0 / 7	0	0.0008	0.0008	0.00086	0.00097	0.001	0.00105	0.00109	0.0011	0.0011	0.0011	0.00012	0.000044	0.11	-	-	-	-	-	-	-	-	-
Magnesium	0 / 33	0	0.5	0.5	0.562	0.59	1.3	0.61	0.69	0.742	0.79	23	3.9	0.68	2.98	-	-	-	-	-	-	-	-	-
Manganese	0 / 7	0	0.00018	0.00021	0.000198	0.000215	0.00023	0.00022	0.000225	0.000274	0.00023	0.00034	0.00005	0.000019	0.22	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-4-4-b: Water chemistry summary for Lockhart River during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	0 / 7	0	0.000005	0.000005	8.6E-06	0.0000115	0.000013	0.000015	0.0000165	0.0000174	0.000018	0.000018	0.0000045	0.0000017	0.34	-	-	-	-	-	-	-	-	-
Nickel	0 / 7	0	0.00044	0.00044	0.00047	0.0005	0.00054	0.00051	0.000585	0.000614	0.00065	0.00065	0.000071	0.000027	0.13	-	-	-	-	-	-	-	-	-
Niobium	7 / 7	100	0.000001	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	18 / 29	62	0.002	-	-	-	0.0043	-	-	-	-	0.01	0.0029	0.00053	0.67	-	-	-	-	-	-	-	-	-
Platinum	7 / 7	100	0.000001	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 37	0	0.3	0.3	0.4	0.41	0.7	0.47	0.5	0.574	0.6	9.2	1.4	0.24	2.04	-	-	-	-	-	-	-	-	-
Rubidium	0 / 7	0	0.00103	0.00103	0.00106	0.001105	0.0011	0.00113	0.001165	0.00117	0.00117	0.00117	0.000052	0.00002	0.05	-	-	-	-	-	-	-	-	-
Selenium	19 / 31	61	0.00001	-	-	-	0.00014	-	-	-	-	0.001	0.00019	0.000035	1.35	-	-	-	-	-	-	-	-	-
Silver	6 / 7	86	0.000001	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	0 / 37	0	0.25	0.4	0.442	0.5	1.8	0.54	0.6	0.664	0.72	47.4	7.7	1.3	4.27	-	-	-	-	-	-	-	-	-
Strontium	0 / 7	0	0.00608	0.00608	0.006152	0.00631	0.0066	0.00671	0.006885	0.006972	0.00699	0.00699	0.00037	0.00014	0.06	-	-	-	-	-	-	-	-	-
Thallium	3 / 7	43	0.000001	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	4 / 7	57	0.000005	-	-	-	0.0000081	-	-	-	-	0.000017	0.0000051	0.0000019	0.63	-	-	-	-	-	-	-	-	-
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	7 / 7	100	0.000001	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	0 / 7	0	0.0000118	1.31E-05	1.26E-05	0.0000132	0.000013	0.0000133	0.0000141	1.452E-05	1.47E-05	1.47E-05	0.00000095	0.00000036	0.07	-	-	-	-	-	-	-	-	-
Vanadium	1 / 7	14	0.000005	0.000005	5.6E-06	0.000006	0.000021	0.000016	0.0000315	0.0000422	0.00005	0.00005	0.000018	0.0000066	0.84	-	-	-	-	-	-	-	-	-
Yttrium	0 / 7	0	0.000007	0.000007	0.000007	0.000007	0.0000073	0.000007	0.0000075	0.000008	0.000008	0.000008	0.00000049	0.00000018	0.07	-	-	-	-	-	-	-	-	-
Zinc	0 / 8	0	0.0002	0.0002	0.00048	0.00063	0.0019	0.001325	0.0028225	0.00409	0.0043	0.0043	0.0016	0.00056	0.85	-	-	-	-	-	-	-	-	-
Extractable Metals																								
Aluminum	9 / 11	82	0.05	-	-	-	0.061	-	-	-	-	0.1	0.02	0.0059	0.32	-	-	-	-	-	-	-	-	-
Barium	5 / 13	38	0.002	0.002	0.002	0.002	0.021	0.003	0.05	0.05	0.1	0.1	0.031	0.0087	1.49	-	-	-	-	-	-	-	-	-
Beryllium	8 / 9	89	0.001	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	5 / 8	63	0.01	-	-	-	0.02	-	-	-	-	0.06	0.018	0.0063	0.89	-	-	-	-	-	-	-	-	-
Cadmium	12 / 13	92	0.001	-	-	-	0.0038	-	-	-	-	0.005	0.0019	0.00053	0.51	-	-	-	-	-	-	-	-	-
Calcium (unfiltered)	0 / 8	0	1.1	1.2	1.1	1.175	1.2	1.2	1.2	1.23	1.2	1.3	0.064	0.023	0.05	-	-	-	-	-	-	-	-	-
Chromium	10 / 10	100	0.005	-	-	-	0.006	-	-	-	-	0.015	0.0032	0.001	0.53	-	-	-	-	-	-	-	-	-
Cobalt	12 / 13	92	0.001	-	-	-	0.0039	-	-	-	-	0.005	0.0017	0.00047	0.43	-	-	-	-	-	-	-	-	-
Copper	12 / 13	92	0.001	-	-	-	0.0039	-	-	-	-	0.005	0.0018	0.00049	0.45	-	-	-	-	-	-	-	-	-
Iron	14 / 26	54	0.005	-	-	-	0.02	-	-	-	-	0.05	0.017	0.0033	0.83	-	-	-	-	-	-	-	-	-
Lead	11 / 13	85	0.004	-	-	-	0.018	-	-	-	-	0.045	0.012	0.0032	0.65	-	-	-	-	-	-	-	-	-
Lithium	7 / 9	78	0.005	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	8 / 8	100	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	23 / 27	85	0.002	-	-	-	0.0077	-	-	-	-	0.02	0.0074	0.0014	0.96	-	-	-	-	-	-	-	-	-
Molybdenum	9 / 10	90	0.005	-	-	-	0.015	-	-	-	-	0.1	0.03	0.0095	2.04	-	-	-	-	-	-	-	-	-
Nickel	10 / 11	91	0.002	-	-	-	0.0095	-	-	-	-	0.018	0.0039	0.0012	0.41	-	-	-	-	-	-	-	-	-
Potassium	8 / 8	100	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	8 / 8	100	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 9	0	0.005	0.005	0.005	0.005	0.0058	0.006	0.006	0.0062	0.007	0.007	0.00067	0.00022	0.12	-	-	-	-	-	-	-	-	-

Appendix B-4-4-b: Water chemistry summary for Lockhart River during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Vanadium	10 / 11	91	0.001	-	-	-	0.0044	-	-	-	-	0.006	0.0017	0.00051	0.39	-	-	-	-	-	-	-	-	-
Zinc	10 / 13	77	0.001	-	-	-	0.005	-	-	-	-	0.019	0.0047	0.0013	0.94	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	0 / 17	0	0.0023	0.0023	0.00346	0.0039	0.0057	0.004	0.005	0.0072	0.006	0.023	0.0047	0.0011	0.83	-	2	-	-	0	-	-	2	-
Antimony	1 / 8	13	0.000001	0.000001	4.5E-06	0.000009	0.000018	0.0000115	2.075E-05	0.0000362	0.000026	0.00006	0.000019	0.0000066	1.02	-	-	0	-	-	0	-	-	0
Arsenic	0 / 7	0	0.00007	0.00009	0.000082	0.000095	0.000096	0.0001	0.0001	0.000104	0.0001	0.00011	0.000013	0.0000048	0.13	-	0	0	-	0	0	-	0	0
Barium	13 / 31	42	0.0022	0.0022	0.0024	0.0025	0.039	0.00278	0.08	0.1	0.1	0.1	0.044	0.0079	1.13	-	-	0	-	-	0	-	-	0
Beryllium	12 / 18	67	0.000001	-	-	-	0.000028	-	-	-	-	0.00005	0.000025	0.0000059	0.88	-	-	-	-	-	-	-	-	-
Bismuth	3 / 3	100	0.000001	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	0 / 8	0	0.0016	0.0016	0.00167	0.0017	0.002	0.00175	0.002025	0.00246	0.0021	0.0033	0.00056	0.0002	0.28	0	0	0	0	0	0	0	0	0
Cadmium	20 / 31	65	0.000001	-	-	-	0.00025	-	-	-	-	0.001	0.00037	0.000067	1.48	6	24	0	0	19	0	0	5	0
Cerium	0 / 8	0	0.000014	0.000014	1.68E-05	1.875E-05	0.00002	0.0000205	2.225E-05	0.0000236	0.000025	0.000025	0.0000034	0.0000012	0.17	-	-	-	-	-	-	-	-	-
Cesium	0 / 8	0	0.000005	0.000005	0.000005	5.75E-06	0.0000061	0.000006	0.000007	0.000007	0.000007	0.000007	0.00000083	0.0000003	0.14	-	-	-	-	-	-	-	-	-
Chromium	7 / 18	39	0.00002	0.00002	2.91E-05	0.0000455	0.0003	0.0002	0.0002	0.0003	0.0003	0.003	0.00068	0.00016	2.28	-	0	0	-	0	0	-	0	0
Cobalt	21 / 31	68	0.000004	-	-	-	0.00034	-	-	-	-	0.001	0.00038	0.000068	1.11	-	-	-	-	-	-	-	-	-
Copper	3 / 31	10	0.0004	0.0004	0.0005	0.000595	0.0012	0.0007	0.001	0.002	0.0015	0.008	0.0015	0.00027	1.22	-	3	-	-	0	-	-	3	-
Gallium	3 / 8	38	0.000001	0.000001	0.000001	0.000001	0.0000011	0.000001	0.000001	0.0000013	0.000001	0.000002	0.00000035	0.00000013	0.31	-	-	-	-	-	-	-	-	-
Iron	0 / 18	0	0.0006	0.0006	0.00187	0.002525	0.0043	0.003	0.005175	0.00826	0.0084	0.0143	0.0032	0.00077	0.75	-	0	-	-	0	-	-	0	-
Lanthanum	0 / 8	0	0.000017	0.000017	1.91E-05	0.00002	0.000022	0.000022	2.325E-05	0.0000246	0.000026	0.000026	0.0000028	0.00000098	0.13	-	-	-	-	-	-	-	-	-
Lead	20 / 31	65	0.000005	-	-	-	0.00047	-	-	-	-	0.0016	0.00044	0.00008	0.94	-	2	0	-	0	0	-	2	0
Lithium	0 / 18	0	0.0007	0.0008	0.0007	0.0009	0.00095	0.001	0.0010075	0.001113	0.00115	0.00115	0.00014	0.000034	0.15	-	-	-	-	-	-	-	-	-
Magnesium	1 / 10	10	0.52	0.52	0.565	0.5725	0.62	0.58	0.6075	0.667	0.63	1	0.14	0.043	0.22	-	-	-	-	-	-	-	-	-
Manganese	0 / 18	0	0.0001	0.0003	0.000264	0.0003525	0.00042	0.0004	0.0004225	0.00063	0.00048	0.001	0.0002	0.000046	0.46	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Molybdenum	8 / 18	44	0.000007	0.000007	0.000014	0.000015	0.000062	0.0001	0.0001	0.0001	0.0001	0.0001	0.000044	0.00001	0.71	-	0	-	-	0	-	-	0	-
Nickel	10 / 31	32	0.0004	0.0004	0.0005	0.0005	0.00065	0.00051	0.0006	0.001	0.0007	0.002	0.00031	0.000056	0.49	-	0	-	-	0	-	-	0	-
Niobium	8 / 8	100	0.000001	-	-	-	0.0000011	-	-	-	-	0.000002	0.00000035	0.00000013	0.31	-	-	-	-	-	-	-	-	-
Platinum	8 / 8	100	0.000001	-	-	-	0.0000011	-	-	-	-	0.000002	0.00000035	0.00000013	0.31	-	-	-	-	-	-	-	-	-
Rubidium	0 / 8	0	0.00108	0.00108	0.001101	0.001125	0.0011	0.00114	0.0011625	0.001206	0.0012	0.00122	0.000046	0.000016	0.04	-	-	-	-	-	-	-	-	-
Selenium	3 / 7	43	0.00001	0.00001	0.00001	0.000015	0.000037	0.00005	0.00005	0.000058	0.00007	0.00007	0.000024	0.0000089	0.64	-	0	0	-	0	0	-	0	0
Silver	11 / 12	92	0.000001	-	-	-	0.000042	-	-	-	-	0.0001	0.000051	0.000015	1.21	-	0	-	-	0	-	-	0	-
Sodium	1 / 10	10	0.13	0.19	0.184	0.3275	0.5	0.36	0.425	0.659	0.51	2	0.54	0.17	1.07	-	-	-	-	-	-	-	-	-
Strontium	0 / 18	0	0.0056	0.0056	0.00567	0.0058	0.0063	0.00619	0.006625	0.006963	0.00717	0.00717	0.00053	0.00013	0.08	-	-	-	-	-	-	-	-	-
Thallium	4 / 8	50	0.000001	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0	-
Tin	7 / 8	88	0.000005	-	-	-	0.0000051	-	-	-	-	0.000006	0.00000035	0.00000013	0.07	-	-	-	-	-	-	-	-	-
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	7 / 8	88	0.000001	-	-	-	0.0000011	-	-	-	-	0.000002	0.00000035	0.00000013	0.31	-	-	-	-	-	-	-	-	-

Appendix B-4-4-b: Water chemistry summary for Lockhart River during Winter Baseflow

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Uranium	0 / 7	0	0.0000125	1.25E-05	1.26E-05	0.000013	0.000014	0.000014	0.0000148	1.532E-05	1.58E-05	1.58E-05	0.0000012	0.00000047	0.09	-	0	0	-	0	0	-	0	0
Vanadium	22 / 29	76	0.000005	-	-	-	0.00025	-	-	-	-	0.0012	0.00028	0.000052	1.09	-	-	-	-	-	-	-	-	-
Yttrium	0 / 8	0	0.000007	0.000007	0.000007	7.75E-06	0.0000083	0.000008	0.000009	0.0000093	0.00001	0.00001	0.000001	0.00000037	0.13	-	-	-	-	-	-	-	-	-
Zinc	2 / 30	7	0.0002	0.0002	0.000318	0.00042	0.0014	0.0011	0.00169	0.00301	0.0031	0.006	0.0014	0.00025	0.97	-	0	-	-	0	-	-	0	-

Appendix B-4-4-c: Water chemistry summary for Lockhart River during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Physical Tests																								
Flow	0 / 37	0	51.4	51.4	60.34	75.3	96	94.9	109	137.8	159	170	29	4.8	0.30	-	-	-	-	-	-	-	-	-
Chlorophyll a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	8 / 17	47	5	5	5	5	6.2	5	5	10	5	10	2.2	0.53	0.35	-	-	-	-	-	-	-	-	-
True Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	1 / 1	100	10	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	0 / 4	0	0.07	-	-	-	0.085	-	-	-	-	0.1	0.013	0.0065	0.15	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	0 / 28	0	10.821	10.821	12.0743	12.57975	14	14.6955	15.925	16.7705	18.2	18.2	2	0.38	0.14	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 38	0	10	11.9	12.11	15.85	17	17.2	19	20.49	20.9	32.5	4.2	0.68	0.24	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	0 / 24	0	13.54	13.54	13.683	14.344	15	15.087	15.6145	15.7973	16.026	21.275	1.5	0.31	0.10	-	-	-	-	-	-	-	-	-
TDS calc	0 / 30	0	7	7	7.955	8.0075	9.3	8.8855	9.4985	10.125	10.99	24.2	3	0.54	0.32	-	-	-	-	-	-	-	-	-
TDS	3 / 19	16	10	10	10	12	19	18	26	28.4	35	35	7.6	1.7	0.39	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	0 / 29	0	1	1	1	2	4.4	3.5	6	8.6	9	13	3.3	0.61	0.74	-	-	0	-	-	0	-	-	0
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	25 / 34	74	1	-	-	-	2.5	-	-	-	-	8	1.5	0.25	0.59	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	0 / 38	0	0.1	0.1	0.2	0.2	0.59	0.395	0.675	0.986	1	3.7	0.68	0.11	1.16	-	-	36	-	-	0	-	-	36
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	1 / 37	3	3.9	3.9	4.46	4.7	5.9	5.8	6.4	7.5	8.3	11.1	1.5	0.25	0.26	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	3 / 38	8	0.1	0.3	0.377	0.4	0.49	0.44	0.5	0.632	0.62	1.84	0.26	0.042	0.53	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	9 / 38	24	0.01	0.01	0.02	0.02	0.037	0.03	0.05	0.053	0.08	0.1	0.021	0.0034	0.58	-	36	1	-	0	0	-	0	0

Appendix B-4-4-c: Water chemistry summary for Lockhart River during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Hardness non-carb	0 / 19	0	0.018	0.018	0.2184	0.45	0.88	0.95	1.2895	1.4084	1.777	1.777	0.52	0.12	0.59	-	-	-	-	-	-	-	-	-
Hardness, Total (as CaCO3)	0 / 35	0	4.39	4.39	5.114	5.575	7	6.171	7.0775	8.0064	8.27	28.3	3.9	0.66	0.56	-	-	-	-	-	-	-	-	-
Hydroxide (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH (pH units)	0 / 23	0	5.52	5.73	6.16	6.795	7.1	7.04	7.55	7.948	8.25	8.25	0.71	0.15	0.10	-	0	-	-	0	-	-	0	-
Silica, Reactive	1 / 15	7	0.08	0.08	0.088	0.1	0.14	0.1	0.2	0.2	0.23	0.23	0.054	0.014	0.38	-	-	-	-	-	-	-	-	-
Silica	0 / 23	0	0.06	0.06	0.082	0.11	0.17	0.15	0.185	0.232	0.26	0.56	0.1	0.021	0.61	-	-	-	-	-	-	-	-	-
Sulphate, Dissolved	1 / 37	3	0.88	1	1.26	1.4	1.6	1.53	1.7	1.94	2	2.2	0.3	0.049	0.19	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia, Dissolved	8 / 22	36	0.001	0.001	0.005	0.0055	0.015	0.01	0.01575	0.022	0.022	0.1	0.02	0.0043	1.32	-	-	-	-	-	-	-	-	-
Ammonia, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0	-
Ammonia, Un-ionized (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	0 / 7	0	0.02	0.02	0.02	0.02	0.027	0.02	0.03	0.044	0.04	0.05	0.013	0.0047	0.46	0	0	0	0	0	0	0	0	0
Nitrate-Nitrite, Dissolved	3 / 27	11	0.001	0.001	0.01	0.0155	0.14	0.021	0.03	0.104	0.04	2	0.42	0.08	3.05	-	-	-	-	-	-	-	-	-
Nitrate-Nitrite	0 / 9	0	0.02	0.02	0.02	0.02	0.032	0.02	0.04	0.062	0.06	0.07	0.02	0.0066	0.62	-	-	-	-	-	-	-	-	-
Nitrite	6 / 7	86	0.01	-	-	-	0.011	-	-	-	-	0.02	0.0038	0.0014	0.33	-	0	0	-	0	0	-	0	0
Nitrogen, Particulate	4 / 34	12	0.002	0.002	0.01	0.01125	0.039	0.0205	0.0355	0.0675	0.069	0.444	0.074	0.013	1.93	-	-	-	-	-	-	-	-	-
Nitrogen, Total Dissolved	1 / 34	3	0.008	0.008	0.093	0.11075	0.17	0.14	0.185	0.2671	0.283	0.671	0.12	0.021	0.72	-	-	-	-	-	-	-	-	-
Nitrogen, Total Kjeldahl	0 / 1	0	1.1	-	-	-	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen, Total	0 / 33	0	0.034	0.034	0.1022	0.123	0.19	0.15	0.205	0.2884	0.298	0.74	0.13	0.023	0.70	-	-	-	-	-	-	-	-	-
Phosphate, Dissolved Inorganic	1 / 2	50	0.001	-	-	-	0.004	-	-	-	-	0.007	0.0042	0.003	1.06	-	-	-	-	-	-	-	-	-
Phosphate, Ortho	3 / 4	75	0.002	-	-	-	0.0023	-	-	-	-	0.003	0.0005	0.00025	0.22	-	-	-	-	-	-	-	-	-
Phosphate, Total Inorganic	1 / 1	100	0.002	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Particulate (calcd)	18 / 24	75	0.002	-	-	-	0.0048	-	-	-	-	0.01	0.0017	0.00035	0.36	-	-	-	-	-	-	-	-	-
Phosphorous	14 / 30	47	0.002	0.002	0.0029	0.003	0.007	0.0055	0.01	0.01	0.02	0.021	0.0048	0.00088	0.69	-	-	-	-	-	-	-	-	-
Organic/Inorganic Carbon																								
Bicarbonate (calcd)	0 / 14	0	4.9	4.9	5.19	5.6985	6.2	6.15	6.70425	7.37	7.4	7.4	0.81	0.22	0.13	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Inorganic	0 / 2	0	1	-	-	-	1.3	-	-	-	-	1.6	0.42	0.3	0.33	-	-	-	-	-	-	-	-	-

Appendix B-4-4-c: Water chemistry summary for Lockhart River during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Carbon, Dissolved Organic	0 / 34	0	1.4	1.4	1.86	2.025	2.4	2.4	2.6	2.87	2.9	5.1	0.66	0.11	0.27	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Particulate Organic	0 / 34	0	0.03	0.03	0.0583	0.1	0.23	0.177	0.26625	0.3351	0.381	1.65	0.27	0.047	1.19	-	-	-	-	-	-	-	-	-
Carbon, Total Inorganic	1 / 2	50	0.5	-	-	-	1.3	-	-	-	-	2	1.1	0.75	0.85	-	-	-	-	-	-	-	-	-
Carbon, Total Organic	0 / 28	0	1	1.5	1.815	2.1875	2.6	2.5135	2.8265	3.3125	3.026	5.442	0.84	0.16	0.33	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Free CO2 (calcd)	0 / 27	0	0.27	0.27	0.602	1.328	2.1	1.753	2.2195	3.616	2.98	7.606	1.5	0.3	0.74	-	-	-	-	-	-	-	-	-
Cyanide																								
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	6 / 13	46	0.001	0.001	0.001	0.001	2.3	0.001	0.002	0.003	0.003	30	8.3	2.3	3.60	-	1	1	-	0	0	-	1	1
Cyanide, wad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																								
Aluminum	0 / 8	0	0.0037	0.0037	0.00398	0.0044	0.0048	0.00465	0.00535	0.00556	0.0057	0.0057	0.00069	0.00025	0.15	-	-	-	-	-	-	-	-	-
Antimony	0 / 8	0	0.000021	0.000021	2.24E-05	2.825E-05	0.000051	0.0000445	0.0000655	0.0000796	0.000109	0.000109	0.000029	0.00001	0.58	-	-	-	-	-	-	-	-	-
Arsenic	13 / 28	46	0.00008	0.0001	0.00009	0.0001	0.00017	0.0001	0.0001	0.0005	0.0001	0.0005	0.00016	0.00003	0.92	-	-	-	-	-	-	-	-	-
Barium	0 / 8	0	0.00257	0.00257	0.002668	0.002725	0.0028	0.00282	0.0028975	0.002953	0.00303	0.00303	0.00014	0.000051	0.05	-	-	-	-	-	-	-	-	-
Beryllium	0 / 8	0	0.000001	0.000001	0.000001	0.000001	0.0000011	0.000001	0.000001	0.0000013	0.000001	0.000002	0.00000035	0.00000013	0.31	-	-	-	-	-	-	-	-	-
Bismuth	7 / 8	88	0.000001	-	-	-	0.0000011	-	-	-	-	0.000002	0.00000035	0.00000013	0.31	-	-	-	-	-	-	-	-	-
Boron	7 / 17	41	0.0008	0.0008	0.00122	0.0014	0.012	0.02	0.02	0.02	0.03	0.03	0.01	0.0025	0.88	-	-	-	-	-	-	-	-	-
Cadmium	0 / 8	0	0.000002	0.000002	2.7E-06	0.000003	0.000018	0.0000155	0.0000295	0.000034	0.000041	0.000041	0.000016	0.0000057	0.92	-	-	-	-	-	-	-	-	-
Calcium	0 / 38	0	1	1	1.135	1.2625	1.6	1.405	1.5775	1.786	1.8	8.2	1.1	0.18	0.70	-	-	-	-	-	-	-	-	-
Cerium	0 / 8	0	0.000021	0.000021	2.17E-05	0.0000235	0.000025	0.0000245	0.0000265	0.0000286	0.00003	0.00003	0.000003	0.0000011	0.12	-	-	-	-	-	-	-	-	-
Cesium	0 / 7	0	0.000004	0.000005	4.6E-06	0.0000055	0.0000056	0.000006	0.000006	0.000006	0.000006	0.000006	0.00000079	0.0000003	0.14	-	-	-	-	-	-	-	-	-
Chromium	0 / 8	0	0.00004	0.00004	4.56E-05	0.0000495	0.00008	0.00007	8.325E-05	0.00012	0.00009	0.00019	0.000048	0.000017	0.60	-	-	-	-	-	-	-	-	-
Cobalt	0 / 8	0	0.000006	0.000006	7.4E-06	0.000008	0.00001	0.0000095	0.0000125	0.0000143	0.000015	0.000015	0.0000032	0.0000011	0.31	-	-	-	-	-	-	-	-	-
Copper	0 / 10	0	0.00059	0.00059	0.000662	0.0007775	0.0012	0.001075	0.0014475	0.002	0.002	0.002	0.00052	0.00017	0.44	-	-	-	-	-	-	-	-	-
Gallium	2 / 8	25	0.000001	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	3 / 12	25	0.001	0.001	0.00373	0.004075	0.012	0.00545	0.0088	0.037	0.01	0.05	0.016	0.0045	1.31	-	-	-	-	-	-	-	-	-
Lanthanum	0 / 8	0	0.000022	0.000022	0.000022	0.0000235	0.000024	0.000024	0.000025	0.0000253	0.000026	0.000026	0.0000014	0.0000005	0.06	-	-	-	-	-	-	-	-	-
Lead	2 / 10	20	0.000007	0.000007	7.9E-06	0.000016	0.00023	0.0000425	0.0001258	0.001	0.000147	0.001	0.00041	0.00013	1.73	-	-	-	-	-	-	-	-	-
Lithium	0 / 8	0	0.0009	0.0009	0.000928	0.0009625	0.00099	0.00099	0.0010125	0.001044	0.00102	0.0011	0.000059	0.000021	0.06	-	-	-	-	-	-	-	-	-
Magnesium	0 / 34	0	0.4	0.4	0.573	0.6	0.71	0.68	0.7775	0.87	0.93	1.24	0.16	0.028	0.23	-	-	-	-	-	-	-	-	-
Manganese	3 / 11	27	0.00047	0.00047	0.0005	0.00062	0.0032	0.00074	0.0054	0.01	0.01	0.01	0.0044	0.0013	1.36	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-4-4-c: Water chemistry summary for Lockhart River during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Molybdenum	0 / 8	0	0.000016	0.000016	0.000016	1.675E-05	0.000018	0.000017	1.875E-05	0.0000219	0.000021	0.000024	0.0000028	0.000001	0.15	-	-	-	-	-	-	-	-	-
Nickel	0 / 8	0	0.00044	0.00044	0.000454	0.000475	0.00067	0.00055	0.0006525	0.000999	0.00078	0.00151	0.00036	0.00013	0.53	-	-	-	-	-	-	-	-	-
Niobium	8 / 8	100	0.000001	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorous, Total	21 / 33	64	0.002	-	-	-	0.0056	-	-	-	-	0.014	0.0035	0.00061	0.62	-	-	-	-	-	-	-	-	-
Platinum	7 / 8	88	0.000001	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	0 / 38	0	0.25	0.4	0.4	0.41	0.47	0.45	0.48	0.531	0.58	0.9	0.11	0.018	0.24	-	-	-	-	-	-	-	-	-
Rubidium	0 / 8	0	0.000978	0.000978	0.001	0.00104	0.0011	0.00105	0.0010825	0.001126	0.00114	0.00114	0.000053	0.000019	0.05	-	-	-	-	-	-	-	-	-
Selenium	17 / 28	61	0.00001	-	-	-	0.00015	-	-	-	-	0.0006	0.00018	0.000034	1.16	-	-	-	-	-	-	-	-	-
Silver	6 / 8	75	0.000001	-	-	-	0.0000011	-	-	-	-	0.000002	0.00000035	0.00000013	0.31	-	-	-	-	-	-	-	-	-
Sodium	1 / 38	3	0.1	0.45	0.45	0.5	0.53	0.515	0.585	0.6	0.7	1.06	0.13	0.021	0.25	-	-	-	-	-	-	-	-	-
Strontium	0 / 8	0	0.00603	0.00603	0.006135	0.006255	0.0065	0.006395	0.00662	0.006902	0.00693	0.00693	0.00032	0.00011	0.05	-	-	-	-	-	-	-	-	-
Thallium	1 / 8	13	0.000001	0.000001	0.000001	0.000001	0.0000013	0.000001	0.000001	0.0000016	0.000001	0.000003	0.00000071	0.00000025	0.57	-	-	-	-	-	-	-	-	-
Tin	3 / 8	38	0.000005	0.000005	0.000005	0.000005	0.000013	0.0000145	1.675E-05	0.0000211	0.000026	0.000026	0.0000077	0.0000027	0.58	-	-	-	-	-	-	-	-	-
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	4 / 8	50	0.000001	0.000001	0.000001	0.000001	0.0000041	0.000001	3.75E-06	0.0000129	0.000001	0.000015	0.0000058	0.0000021	1.42	-	-	-	-	-	-	-	-	-
Uranium	0 / 8	0	0.0000151	1.51E-05	1.58E-05	1.618E-05	0.000018	1.775E-05	1.938E-05	2.116E-05	0.000022	0.000022	0.0000024	0.00000086	0.14	-	-	-	-	-	-	-	-	-
Vanadium	0 / 8	0	0.000019	0.000019	2.04E-05	0.0000225	0.000028	0.0000285	0.00003	0.0000345	0.00003	0.000045	0.0000081	0.0000029	0.29	-	-	-	-	-	-	-	-	-
Yttrium	0 / 8	0	0.000008	0.000008	0.000008	8.75E-06	0.0000098	0.00001	0.000011	0.000011	0.000011	0.000011	0.0000013	0.00000045	0.13	-	-	-	-	-	-	-	-	-
Zinc	0 / 9	0	0.0004	0.0004	0.00056	0.0009	0.0034	0.00102	0.0016	0.005776	0.00172	0.022	0.007	0.0023	2.06	-	-	-	-	-	-	-	-	-
Extractable Metals																								
Aluminum	7 / 7	100	0.05	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	1 / 8	13	0.003	0.003	0.003	0.003	0.0089	0.003	0.003	0.0171	0.003	0.05	0.017	0.0059	1.87	-	-	-	-	-	-	-	-	-
Beryllium	7 / 7	100	0.001	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	5 / 7	71	0.01	-	-	-	0.031	-	-	-	-	0.16	0.057	0.021	1.80	-	-	-	-	-	-	-	-	-
Cadmium	8 / 8	100	0.001	-	-	-	0.0045	-	-	-	-	0.005	0.0014	0.0005	0.31	-	-	-	-	-	-	-	-	-
Calcium (unfiltered)	0 / 7	0	1.2	1.2	1.2	1.25	1.3	1.3	1.35	1.48	1.4	1.6	0.14	0.052	0.10	-	-	-	-	-	-	-	-	-
Chromium	7 / 7	100	0.005	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	5 / 7	71	0.005	-	-	-	0.0064	-	-	-	-	0.011	0.0025	0.00095	0.39	-	-	-	-	-	-	-	-	-
Copper	8 / 9	89	0.001	-	-	-	0.0051	-	-	-	-	0.01	0.0023	0.00075	0.44	-	-	-	-	-	-	-	-	-
Iron	8 / 18	44	0.003	0.003	0.005	0.007	0.022	0.0165	0.03675	0.043	0.07	0.07	0.019	0.0045	0.87	-	-	-	-	-	-	-	-	-
Lead	9 / 9	100	0.004	-	-	-	0.017	-	-	-	-	0.02	0.0059	0.002	0.35	-	-	-	-	-	-	-	-	-
Lithium	6 / 7	86	0.005	-	-	-	0.0061	-	-	-	-	0.013	0.003	0.0011	0.49	-	-	-	-	-	-	-	-	-
Magnesium	7 / 7	100	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	17 / 19	89	0.002	-	-	-	0.0062	-	-	-	-	0.02	0.006	0.0014	0.97	-	-	-	-	-	-	-	-	-
Molybdenum	6 / 7	86	0.005	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	7 / 7	100	0.01	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	7 / 7	100	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	7 / 7	100	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	0 / 7	0	0.005	0.006	0.0056	0.006	0.0061	0.006	0.006	0.0068	0.006	0.008	0.0009	0.00034	0.15	-	-	-	-	-	-	-	-	-

Appendix B-4-4-c: Water chemistry summary for Lockhart River during Spring Freshet

ND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Vanadium	8 / 8	100	0.001	-	-	-	0.0045	-	-	-	-	0.005	0.0014	0.0005	0.31	-	-	-	-	-	-	-	-	-
Zinc	7 / 9	78	0.001	-	-	-	0.0061	-	-	-	-	0.01	0.003	0.00099	0.49	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	1 / 21	5	0.0031	0.0031	0.0036	0.0043	0.0072	0.0051	0.0069	0.008	0.008	0.03	0.0064	0.0014	0.89	-	6	-	-	1	-	-	5	-
Antimony	3 / 15	20	0.0000006	6E-07	0.000001	0.0000025	0.0000053	0.000005	0.000006	0.0000096	0.00001	0.000017	0.0000043	0.0000011	0.80	-	-	0	-	-	0	-	-	0
Arsenic	1 / 15	7	0.00009	0.00009	0.00009	0.000095	0.00011	0.00011	0.000115	0.000136	0.00014	0.0002	0.000028	0.0000073	0.25	-	0	0	-	0	0	-	0	0
Barium	7 / 29	24	0.0021	0.0021	0.002504	0.0027	0.028	0.00295	0.08	0.1	0.12	0.12	0.041	0.0077	1.49	-	-	0	-	-	0	-	-	0
Beryllium	10 / 21	48	0.000001	0.000001	0.000001	0.000001	0.00011	0.000001	0.00005	0.00005	0.00005	0.002	0.00043	0.000095	3.93	-	-	-	-	-	-	-	-	-
Bismuth	7 / 9	78	0.000001	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	3 / 14	21	0.0001	0.0001	0.0001	0.0007	0.0012	0.0015	0.0015	0.00174	0.0019	0.0019	0.00066	0.00018	0.56	0	0	0	0	0	0	0	0	0
Cadmium	13 / 29	45	0.000001	0.000001	0.000002	0.000005	0.0002	0.0001	0.0001	0.00076	0.0001	0.001	0.00032	0.000059	1.60	7	16	0	0	13	0	3	3	0
Cerium	0 / 12	0	0.000018	0.000018	1.96E-05	0.000025	0.000049	0.0000265	0.00003	0.0000309	0.000031	0.000307	0.000081	0.000023	1.65	-	-	-	-	-	-	-	-	-
Cesium	1 / 15	7	0.000005	0.000006	5.4E-06	0.000006	0.000032	0.000006	0.0000065	0.000007	0.000007	0.0004	0.0001	0.000026	3.15	-	-	-	-	-	-	-	-	-
Chromium	7 / 21	33	0.00002	0.00002	0.00003	0.000034	0.00023	0.00006	0.0002	0.0002	0.0002	0.003	0.00064	0.00014	2.77	-	0	0	-	0	0	-	0	0
Cobalt	15 / 29	52	0.000004	-	-	-	0.00025	-	-	-	-	0.001	0.00035	0.000066	1.42	-	-	-	-	-	-	-	-	-
Copper	5 / 29	17	0.0004	0.0004	0.0005	0.00055	0.00078	0.0006	0.00094	0.0012	0.0012	0.002	0.00038	0.00007	0.48	-	0	-	-	0	-	-	0	-
Gallium	4 / 14	29	0.000001	0.000001	0.000001	0.000001	0.0000012	0.000001	0.000001	0.0000017	0.000001	0.000003	0.00000058	0.00000015	0.48	-	-	-	-	-	-	-	-	-
Iron	0 / 21	0	0.0007	0.0007	0.0014	0.0039	0.011	0.0057	0.0092	0.0119	0.0119	0.096	0.02	0.0044	1.91	-	0	-	-	0	-	-	0	-
Lanthanum	0 / 14	0	0.000011	0.000021	0.000021	2.425E-05	0.000036	0.0000265	0.000027	0.0000287	0.000029	0.000188	0.000044	0.000012	1.22	-	-	-	-	-	-	-	-	-
Lead	15 / 29	52	0.000005	-	-	-	0.00031	-	-	-	-	0.001	0.00035	0.000065	1.14	-	0	0	-	0	0	-	0	0
Lithium	1 / 21	5	0.0006	0.0008	0.0007	0.0009	0.001	0.001	0.001	0.0011	0.0011	0.003	0.00047	0.0001	0.46	-	-	-	-	-	-	-	-	-
Magnesium	0 / 7	0	0.52	0.52	0.532	0.55	0.6	0.59	0.64	0.66	0.69	0.69	0.062	0.023	0.10	-	-	-	-	-	-	-	-	-
Manganese	0 / 21	0	0.00029	0.00029	0.00033	0.00064	0.0015	0.0009	0.00113	0.00135	0.00135	0.00806	0.002	0.00045	1.39	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Molybdenum	7 / 21	33	0.000005	0.000005	0.000013	0.000016	0.048	0.00002	0.0001	0.0001	0.0001	1	0.22	0.048	4.58	-	1	-	-	1	-	-	0	-
Nickel	8 / 29	28	0.0002	0.0004	0.0004	0.0005	0.035	0.00052	0.0006	0.001054	0.0006	1	0.19	0.034	5.29	-	0	-	-	0	-	-	1	-
Niobium	13 / 14	93	0.000001	-	-	-	0.0000012	-	-	-	-	0.000004	0.0000008	0.00000021	0.66	-	-	-	-	-	-	-	-	-
Platinum	12 / 14	86	0.000001	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	0 / 14	0	0.00101	0.00101	0.001042	0.00108	0.0011	0.001115	0.0011475	0.001171	0.0012	0.0012	0.000054	0.000015	0.05	-	-	-	-	-	-	-	-	-
Selenium	10 / 15	67	0.00001	-	-	-	0.0007	-	-	-	-	0.01	0.0026	0.00066	3.66	-	1	0	-	1	0	-	0	0
Silver	9 / 17	53	0.000001	-	-	-	0.000019	-	-	-	-	0.0001	0.000039	0.0000093	1.99	-	0	-	-	0	-	-	0	-
Sodium	0 / 7	0	0.19	0.19	0.202	0.24	0.34	0.3	0.41	0.494	0.56	0.56	0.13	0.051	0.40	-	-	-	-	-	-	-	-	-
Strontium	0 / 21	0	0.000008	0.0052	0.00554	0.0058	0.0059	0.00627	0.00647	0.00662	0.00703	0.00703	0.0014	0.00031	0.24	-	-	-	-	-	-	-	-	-
Thallium	5 / 15	33	0.000001	0.000001	0.000001	0.000001	0.000061	0.000001	0.0000015	0.0000026	0.000002	0.0009	0.00023	0.00006	3.79	-	1	-	-	0	-	-	1	-
Tin	9 / 14	64	0.000005	-	-	-	0.000015	-	-	-	-	0.000077	0.000021	0.0000057	1.40	-	-	-	-	-	-	-	-	-
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	10 / 14	71	0.000001	-	-	-	0.0000019	-	-	-	-	0.000011	0.0000027	0.00000071	1.43	-	-	-	-	-	-	-	-	-

Appendix B-4-4-c: Water chemistry summary for Lockhart River during Spring Freshet

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Uranium	0 / 14	0	0.000008	1.37E-05	1.38E-05	1.533E-05	0.000019	1.765E-05	0.0000196	2.293E-05	2.32E-05	4.18E-05	0.0000076	0.000002	0.41	-	0	0	-	0	0	-	0	0
Vanadium	13 / 29	45	0.000014	0.000014	2.04E-05	0.000033	0.00021	0.0001	0.0005	0.0005	0.001	0.001	0.00025	0.000047	1.20	-	-	-	-	-	-	-	-	-
Yttrium	0 / 14	0	0.000004	0.000008	8.3E-06	0.000009	0.000012	0.00001	0.00001	0.0000127	0.00001	0.00005	0.000011	0.0000029	0.89	-	-	-	-	-	-	-	-	-
Zinc	4 / 29	14	0.0002	0.0002	0.000296	0.0004	0.35	0.0007	0.001	0.00464	0.00115	10	1.9	0.34	5.36	-	1	-	-	1	-	-	0	-

Appendix B-4-4-d: Water chemistry summary for Lockhart River during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Physical Tests																								
Flow	0 / 57	0	73.8	73.8	98.4	119	150	142	169	210	233	278	44	5.9	0.30	-	-	-	-	-	-	-	-	-
Chlorophyll a	0 / 1	0	0.005	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent Colour (relative units)	16 / 27	59	5	-	-	-	6.7	-	-	-	-	20	4.4	0.84	0.65	-	-	-	-	-	-	-	-	-
True Colour (relative units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal streptococci (no/100 ml)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Consumed (ppm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxygen Total COD (ppm)	2 / 5	40	9.8	9.8	9.88	10	34	10	66	71.4	75	75	33	15	0.98	-	-	-	-	-	-	-	-	-
Saturation Index (pH units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (relative units)	0 / 3	0	0.09	-	-	-	0.093	-	-	-	-	0.1	0.0058	0.0033	0.06	-	-	-	-	-	-	-	-	-
Sodium Percentage (%)	0 / 33	0	5.2	11.9	12.5958	13.422	14	13.744	14.777	15.612	15.9	15.9	1.9	0.33	0.14	-	-	-	-	-	-	-	-	-
Specific Conductance (usie/cm)	0 / 57	0	10	10	14	14.7	17	16.3	18.2	21.08	21.2	34.7	4.9	0.64	0.28	-	-	-	-	-	-	-	-	-
Stability Index (pH units)	0 / 27	0	13.16	13.16	13.51	14	15	14.21	14.943	15.3454	15.454	22.073	1.7	0.32	0.11	-	-	-	-	-	-	-	-	-
TDS calc	0 / 33	0	5	7	7	7.605	8.2	8	8.664	9.228	9.52	12	1.1	0.2	0.14	-	-	-	-	-	-	-	-	-
TDS	10 / 24	42	10	10	10	10	15	10	16	24	24	44	8.2	1.7	0.56	-	-	-	-	-	-	-	-	-
Water Temperature (°C)	0 / 42	0	1.5	1.5	4	6.7	8.9	9	12	13.18	16	16	3.6	0.56	0.41	-	-	1	-	-	0	-	-	1
TSS fixed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TSS	33 / 44	75	1	-	-	-	2.4	-	-	-	-	9	1.7	0.25	0.69	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	2 / 57	4	0.05	0.05	0.14	0.2	0.66	0.32	0.6	1.64	1	5.5	0.93	0.12	1.40	-	-	53	-	-	0	-	-	53
Major Ions																								
Alkalinity Phenolphthalein (CaCO3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO3)	3 / 53	6	0.1	2	3.46	4.1	4.8	5	5.5	6.68	7.1	10	1.6	0.21	0.32	-	-	-	-	-	-	-	-	-
Chloride, Dissolved	1 / 55	2	0.1	0.2	0.3	0.38	0.49	0.4	0.5	0.7	0.6	3.6	0.45	0.061	0.92	0	0	-	0	0	-	0	0	-
Fluoride, Dissolved	10 / 52	19	0.01	0.01	0.02	0.02	0.032	0.03	0.0425	0.05	0.07	0.07	0.013	0.0019	0.42	-	54	1	-	0	0	-	0	0

Appendix B-4-4-d: Water chemistry summary for Lockhart River during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-4-4-d: Water chemistry summary for Lockhart River during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ	CCME st	CCME lf	HC DWQ
Carbon, Dissolved Organic	0 / 44	0	1	1.3	1.63	1.9775	2.2	2.2	2.6	2.8	3.5	3.5	0.54	0.082	0.24	-	-	-	-	-	-	-	-	-
Carbon, Dissolved Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon, Particulate Organic	0 / 45	0	0.06	0.06	0.104	0.145	0.26	0.199	0.27	0.3554	0.4	1.53	0.28	0.042	1.08	-	-	-	-	-	-	-	-	-
Carbon, Total Inorganic	0 / 5	0	1	1	1	1	1.6	2	2	2	2	2	0.55	0.24	0.34	-	-	-	-	-	-	-	-	-
Carbon, Total Organic	0 / 35	0	1	1	1.8412	2.135	2.6	2.485	3	3.551	4.23	5	0.79	0.13	0.31	-	-	-	-	-	-	-	-	-
Carbonate (calcd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Free CO2 (calcd)	0 / 31	0	0.01	0.01	0.28	0.67	2	1.055	1.5375	2.09	2.231	27.899	4.9	0.88	2.46	-	-	-	-	-	-	-	-	-
Cyanide																								
Cyanide Thiocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	13 / 22	59	0.001	-	-	-	0.37	-	-	-	-	8.1	1.7	0.37	4.66	-	2	1	-	0	0	-	2	1
Cyanide, wad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																								
Aluminum	0 / 9	0	0.0029	0.0029	0.00298	0.0031	0.0034	0.0032	0.0035	0.00428	0.0035	0.0046	0.00058	0.00019	0.17	-	-	-	-	-	-	-	-	-
Antimony	0 / 9	0	0.000035	0.000035	4.62E-05	0.000061	0.000084	0.000086	0.000088	0.0001344	0.000088	0.000152	0.000037	0.000012	0.44	-	-	-	-	-	-	-	-	-
Arsenic	23 / 40	58	0.00009	-	-	-	0.0002	-	-	-	-	0.0015	0.00026	0.00004	1.30	-	-	-	-	-	-	-	-	-
Barium	0 / 9	0	0.00238	0.00238	0.002404	0.00241	0.0025	0.0025	0.00256	0.002584	0.00264	0.00264	0.000086	0.000029	0.03	-	-	-	-	-	-	-	-	-
Beryllium	0 / 9	0	0.000001	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	7 / 9	78	0.000001	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	13 / 23	57	0.0006	-	-	-	0.014	-	-	-	-	0.05	0.012	0.0025	0.85	-	-	-	-	-	-	-	-	-
Cadmium	0 / 9	0	0.000002	0.000002	0.000002	0.000003	0.000019	0.000004	0.000015	0.0000578	0.000015	0.000081	0.000028	0.0000095	1.53	-	-	-	-	-	-	-	-	-
Calcium	0 / 53	0	0.6	0.9	1.112	1.26	1.5	1.34	1.5	1.88	1.8	5.4	0.75	0.1	0.48	-	-	-	-	-	-	-	-	-
Cerium	0 / 9	0	0.000014	0.000014	1.48E-05	0.000015	0.000017	0.000016	0.000017	0.0000188	0.000018	0.000022	0.0000024	0.00000078	0.14	-	-	-	-	-	-	-	-	-
Cesium	0 / 9	0	0.000005	0.000005	0.000005	0.000005	0.0000057	0.000006	0.000006	0.0000062	0.000007	0.000007	0.00000071	0.00000024	0.12	-	-	-	-	-	-	-	-	-
Chromium	0 / 9	0	0.00003	0.00003	0.00003	0.00004	0.000044	0.00004	0.000052	0.0000556	0.000062	0.000062	0.000011	0.0000037	0.25	-	-	-	-	-	-	-	-	-
Cobalt	0 / 9	0	0.000005	0.000005	5.8E-06	0.000006	0.0000083	0.000007	0.000011	0.0000114	0.000013	0.000013	0.0000028	0.00000093	0.33	-	-	-	-	-	-	-	-	-
Copper	0 / 11	0	0.00054	0.00054	0.00056	0.000665	0.0011	0.00091	0.001145	0.00133	0.00133	0.003	0.00069	0.00021	0.65	-	-	-	-	-	-	-	-	-
Gallium	5 / 9	56	0.000001	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	3 / 14	21	0.001	0.001	0.00118	0.0017	0.012	0.00235	0.003325	0.041	0.0034	0.08	0.024	0.0063	1.90	-	-	-	-	-	-	-	-	-
Lanthanum	0 / 9	0	0.000015	0.000016	1.58E-05	0.000017	0.000018	0.000018	0.000018	0.0000206	0.000018	0.000023	0.0000023	0.00000078	0.13	-	-	-	-	-	-	-	-	-
Lead	5 / 11	45	0.000005	0.000005	0.000005	0.0000085	0.0002	0.000021	0.0000555	0.001	0.000067	0.001	0.0004	0.00012	1.97	-	-	-	-	-	-	-	-	-
Lithium	0 / 9	0	0.0009	0.00097	0.0009	0.00097	0.00099	0.001	0.00101	0.001052	0.00104	0.0011	0.000063	0.000021	0.06	-	-	-	-	-	-	-	-	-
Magnesium	0 / 42	0	0.4	0.5	0.582	0.6025	0.66	0.65	0.7075	0.798	0.84	0.84	0.09	0.014	0.14	-	-	-	-	-	-	-	-	-
Manganese	3 / 12	25	0.00024	0.00024	0.000271	0.0002875	0.0028	0.000375	0.003025	0.01	0.0007	0.01	0.0044	0.0013	1.57	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B-4-4-d: Water chemistry summary for Lockhart River during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

[illegible]

Appendix B-4-4-d: Water chemistry summary for Lockhart River during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th / 75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variation; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / lt = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ	CCME st	CCME lt	HC DWQ
Vanadium	9 / 10	90	0.001	-	-	-	0.0042	-	-	-	-	0.005	0.0017	0.00053	0.40	-	-	-	-	-	-	-	-	-
Zinc	12 / 19	63	0.001	-	-	-	0.0077	-	-	-	-	0.035	0.0082	0.0019	1.06	-	-	-	-	-	-	-	-	-
Total Metals																								
Aluminum	1 / 21	5	0.002	0.002	0.003	0.004	0.0052	0.0045	0.006	0.009	0.006	0.01	0.0022	0.00048	0.42	-	5	-	-	0	-	-	5	-
Antimony	1 / 13	8	0.000001	0.000001	3.2E-06	0.000004	0.0000069	0.000005	0.000009	0.0000108	0.000011	0.00002	0.0000048	0.0000013	0.70	-	-	0	-	-	0	-	-	0
Arsenic	0 / 12	0	0.00009	0.00009	0.00009	0.00009	0.000095	0.00009	0.0001	0.0001	0.00011	0.00011	0.0000067	0.0000019	0.07	-	0	0	-	0	0	-	0	0
Barium	15 / 37	41	0.0022	0.0022	0.0023	0.0024	0.036	0.00264	0.08	0.088	0.1	0.1	0.042	0.0068	1.16	-	-	0	-	-	0	-	-	0
Beryllium	11 / 22	50	0.000001	0.000001	0.000001	0.000001	0.000021	0.000001	0.00005	0.00005	0.00005	0.00005	0.000025	0.0000052	1.17	-	-	-	-	-	-	-	-	-
Bismuth	7 / 8	88	0.000001	-	-	-	0.000001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	2 / 13	15	0.0001	0.0012	0.00012	0.0012	0.0012	0.0013	0.0016	0.00168	0.0019	0.0019	0.00063	0.00017	0.54	0	0	0	0	0	0	0	0	0
Cadmium	15 / 38	39	0.000001	0.000001	1.7E-06	1.325E-05	0.00021	0.0001	0.000175	0.001	0.0004	0.001	0.00032	0.000052	1.51	10	27	0	0	15	0	5	12	0
Cerium	0 / 12	0	0.000017	0.000017	1.91E-05	0.00002	0.000022	0.000022	0.0000235	0.000025	0.000025	0.000025	0.0000025	0.00000073	0.12	-	-	-	-	-	-	-	-	-
Cesium	0 / 13	0	0.000005	0.000006	5.2E-06	0.000006	0.0000059	0.000006	0.000006	0.000006	0.000006	0.000007	0.00000049	0.00000014	0.08	-	-	-	-	-	-	-	-	-
Chromium	7 / 22	32	0.000024	0.000024	2.72E-05	0.00003	0.00015	0.000042	0.0002	0.0002	0.0002	0.0012	0.00025	0.000053	1.68	-	0	0	-	0	0	-	0	0
Cobalt	21 / 38	55	0.000006	-	-	-	0.00034	-	-	-	-	0.0013	0.00038	0.000062	1.14	-	-	-	-	-	-	-	-	-
Copper	7 / 38	18	0.0003	0.0003	0.0005	0.0005125	0.00082	0.000685	0.000975	0.0011	0.0015	0.004	0.0006	0.000097	0.72	-	1	-	-	0	-	-	1	-
Gallium	7 / 13	54	0.000001	-	-	-	0.0000011	-	-	-	-	0.000002	0.00000028	0.000000077	0.26	-	-	-	-	-	-	-	-	-
Iron	0 / 22	0	0.0029	0.0029	0.00343	0.0042	0.0085	0.00525	0.008925	0.02108	0.0155	0.0267	0.0073	0.0015	0.86	-	0	-	-	0	-	-	0	-
Lanthanum	0 / 13	0	0.000019	0.000019	0.00002	0.00002	0.000022	0.000023	0.000023	0.0000264	0.000027	0.000027	0.0000025	0.0000007	0.11	-	-	-	-	-	-	-	-	-
Lead	24 / 38	63	0.000005	-	-	-	0.00045	-	-	-	-	0.0015	0.00044	0.000071	0.96	-	2	0	-	0	0	-	2	0
Lithium	0 / 22	0	0.0006	0.0006	0.0007	0.0008	0.0009	0.000925	0.001	0.001018	0.00109	0.00109	0.00013	0.000029	0.15	-	-	-	-	-	-	-	-	-
Magnesium	2 / 9	22	0.56	0.56	0.576	0.59	0.69	0.62	0.64	1	0.64	1	0.18	0.059	0.25	-	-	-	-	-	-	-	-	-
Manganese	0 / 22	0	0.0005	0.0005	0.000564	0.0006525	0.0009	0.000725	0.00093	0.001722	0.00102	0.0022	0.00047	0.0001	0.52	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
Molybdenum	8 / 22	36	0.000007	0.000007	0.000015	1.625E-05	0.000074	0.0000195	0.0001	0.0001	0.0001	0.0006	0.00012	0.000027	1.69	-	0	-	-	0	-	-	0	-
Nickel	10 / 38	26	0.0002	0.0002	0.0004	0.00047	0.0015	0.0005	0.000675	0.00119	0.0007	0.0319	0.0051	0.00083	3.38	-	0	-	-	0	-	-	1	-
Niobium	11 / 13	85	0.000001	-	-	-	0.0000011	-	-	-	-	0.000002	0.00000028	0.000000077	0.26	-	-	-	-	-	-	-	-	-
Platinum	12 / 13	92	0.000001	-	-	-	0.0000011	-	-	-	-	0.000002	0.00000028	0.000000077	0.26	-	-	-	-	-	-	-	-	-
Rubidium	0 / 13	0	0.00096	0.00104	0.001042	0.00106	0.0011	0.00107	0.00109	0.001098	0.0011	0.0011	0.000036	0.00001	0.03	-	-	-	-	-	-	-	-	-
Selenium	7 / 12	58	0.00001	-	-	-	0.000043	-	-	-	-	0.0001	0.000025	0.0000072	0.59	-	0	0	-	0	0	-	0	0
Silver	10 / 15	67	0.000001	-	-	-	0.000067	-	-	-	-	0.0007	0.00018	0.000047	2.72	-	2	-	-	0	-	-	2	-
Sodium	2 / 9	22	0.12	0.12	0.128	0.14	0.62	0.31	0.36	2	0.36	2	0.79	0.26	1.27	-	-	-	-	-	-	-	-	-
Strontium	0 / 22	0	0.0053	0.0053	0.005401	0.0056175	0.0059	0.00589	0.0062475	0.00628	0.00642	0.00642	0.00036	0.000076	0.06	-	-	-	-	-	-	-	-	-
Thallium	3 / 13	23	0.000001	0.000001	0.000001	0.000001	0.0000011	0.000001	0.000001	0.000001	0.000001	0.000002	0.00000028	0.000000077	0.26	-	0	-	-	0	-	-	0	-
Tin	9 / 13	69	0.000005	-	-	-	0.0000056	-	-	-	-	0.00001	0.0000014	0.00000038	0.25	-	-	-	-	-	-	-	-	-
Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	9 / 13	69	0.000001	-	-	-	0.0000011	-	-	-	-	0.000002	0.00000028	0.000000077	0.26	-	-	-	-	-	-	-	-	-

Appendix B-4-4-d: Water chemistry summary for Lockhart River during Summer Recession

nND/n = total number of non-detected results/total number of results; %ND = percentage of results below detection limit; Min = minimum, Low = lower limit of natural variability; High = upper limit of natural variability; 25th / 75th = 25th /75th percentile; Max = maximum; SD = standard deviation; SE = standard error; CV = coefficient of variaton; > WQG, All, <DL, >DL = results greater than water quality guidelines for all data, non-detectable data only, and detectable data only; CCME st / It = CCME short term or long term water quality guideline; HCDWQ = Health Canada drinking water quality guideline

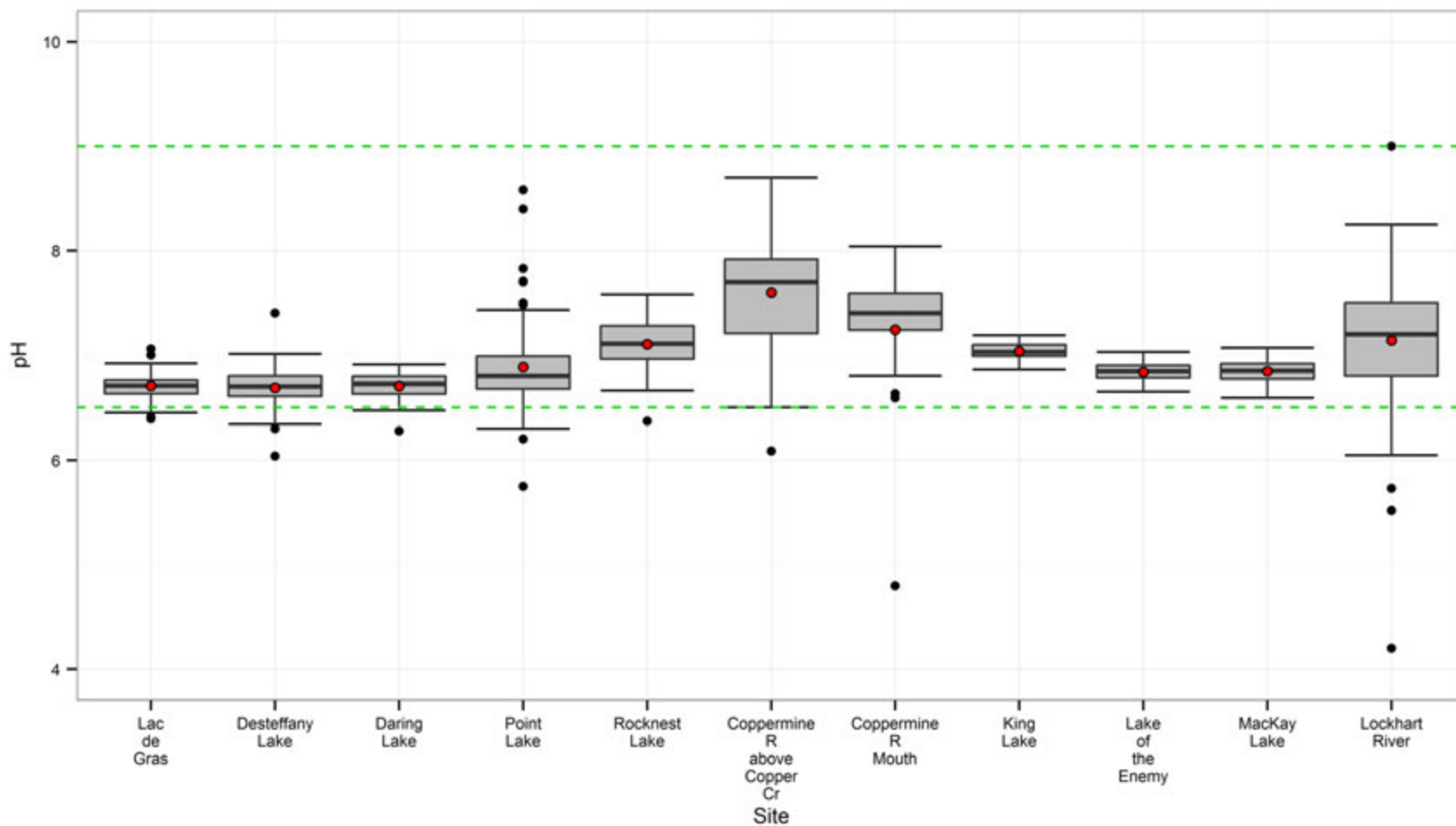
All units mg/L unless noted otherwise.

Parameter	nND / n	%ND	Min	Low	10th	25th	Mean	Median	75th	90th	High	Max	SD	SE	CV	> WQG, All			> WQG, < DL			> WQG, > DL		
																CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ	CCME st	CCME It	HC DWQ
Uranium	0 / 12	0	0.0000145	1.45E-05	1.46E-05	0.0000156	0.000018	0.0000164	1.713E-05	1.729E-05	1.73E-05	4.02E-05	0.000007	0.000002	0.39	-	0	0	-	0	0	-	0	0
Vanadium	23 / 36	64	0.000018	-	-	-	0.00023	-	-	-	-	0.0006	0.00023	0.000038	0.97	-	-	-	-	-	-	-	-	-
Yttrium	0 / 13	0	0.000007	0.000007	7.2E-06	0.000008	0.0000089	0.000009	0.000009	0.00001	0.00001	0.000012	0.0000013	0.00000037	0.15	-	-	-	-	-	-	-	-	-
Zinc	3 / 38	8	0.0002	0.0002	0.000221	0.0003025	0.00098	0.000675	0.0015	0.002127	0.0024	0.0034	0.0008	0.00013	0.82	-	0	-	-	0	-	-	0	-

**STATUS AND TRENDS OF WATER CHEMISTRY AND FLOW IN THE COPPERMINE AND LOCKHART RIVER
BASINS
FINAL REPORT**

Appendix B Water Chemistry Summary Statistics
March 31, 2015

**B.5 SPATIAL BOXPLOTS FOR THE COPPERMINE & LOCKHART
WATERSHEDS**



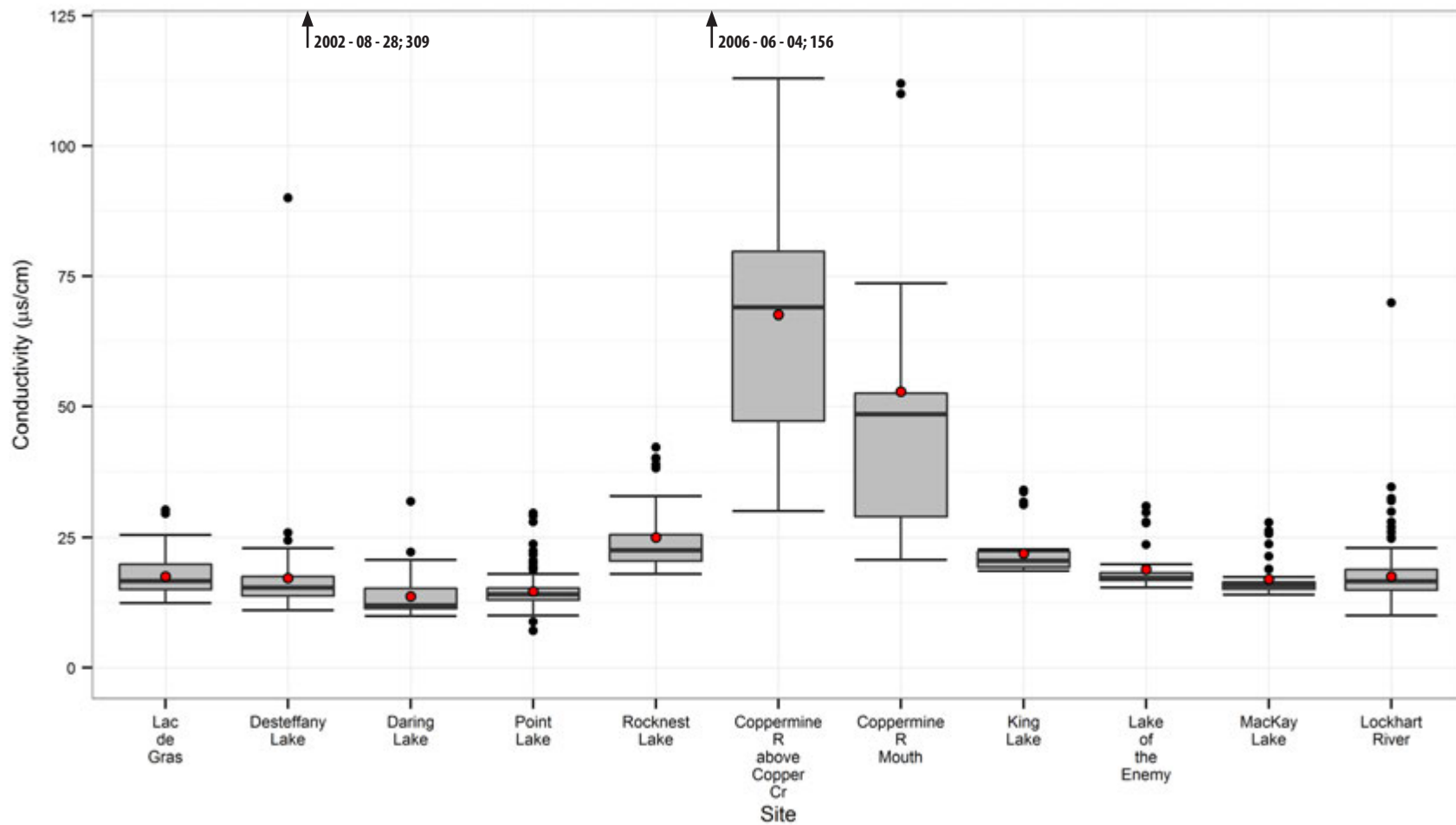
Parameter	CCME (Long term)
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Guideline value	6.5 - 9.0

Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.



Client/Project
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 Appendix No.
B-5-1
 Appendix Title
 Water Quality Data
 Report Title
 Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report





Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.



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Appendix No.

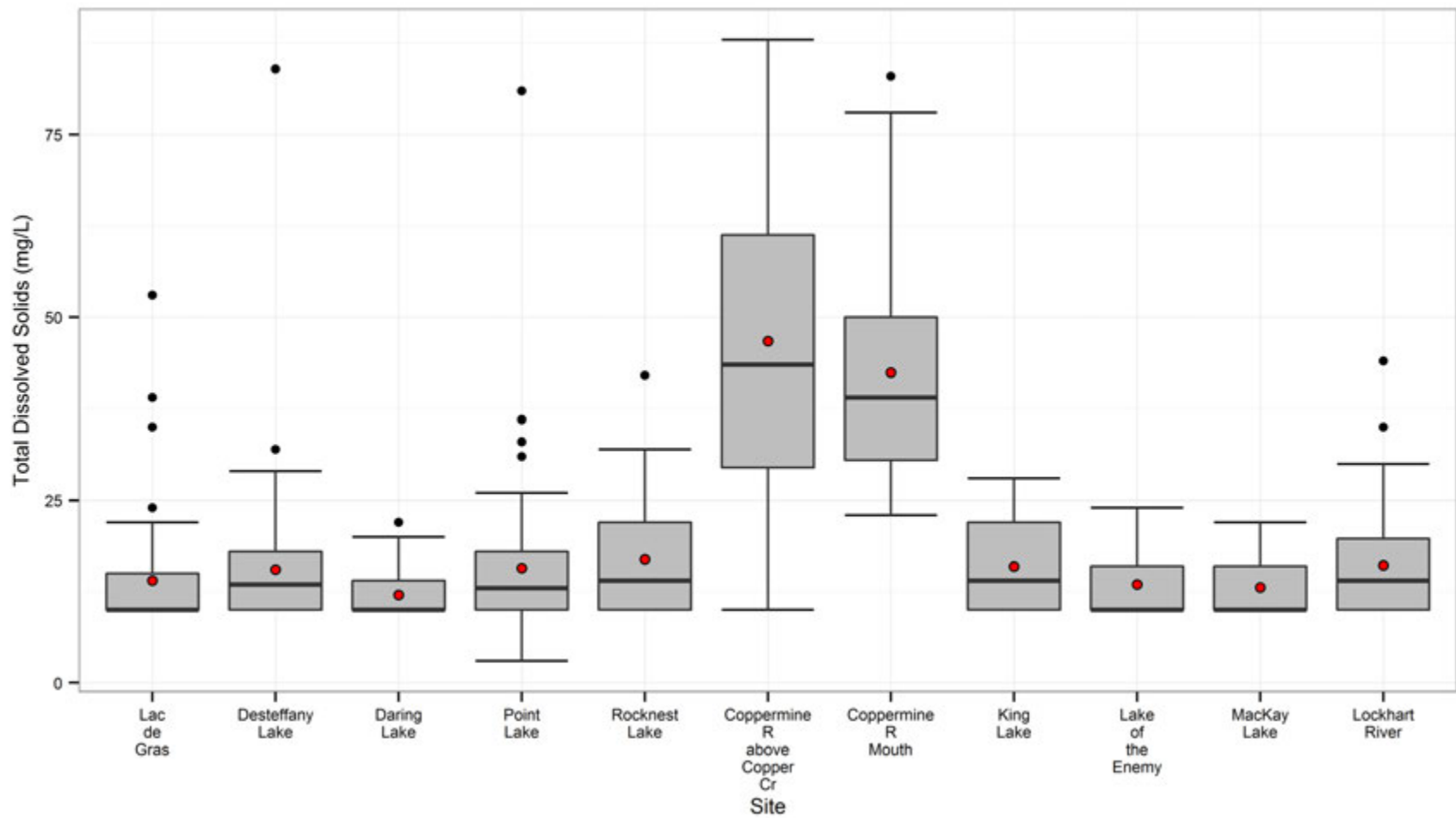
B-5-2

Appendix Title

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Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

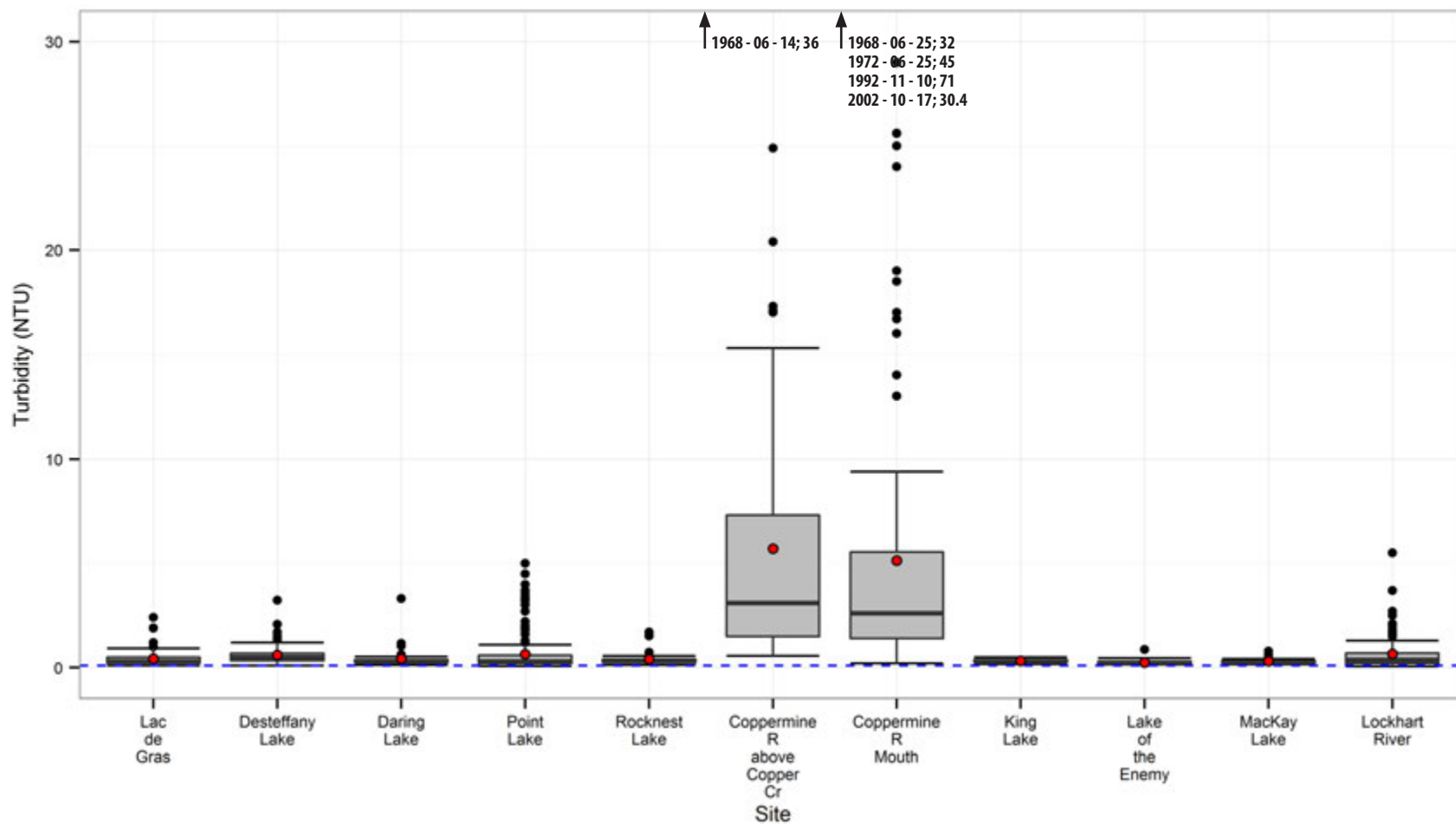


Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.



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 Appendix No.
B-5-3
 Appendix Title
 Water Quality Data
 Report Title
 Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report





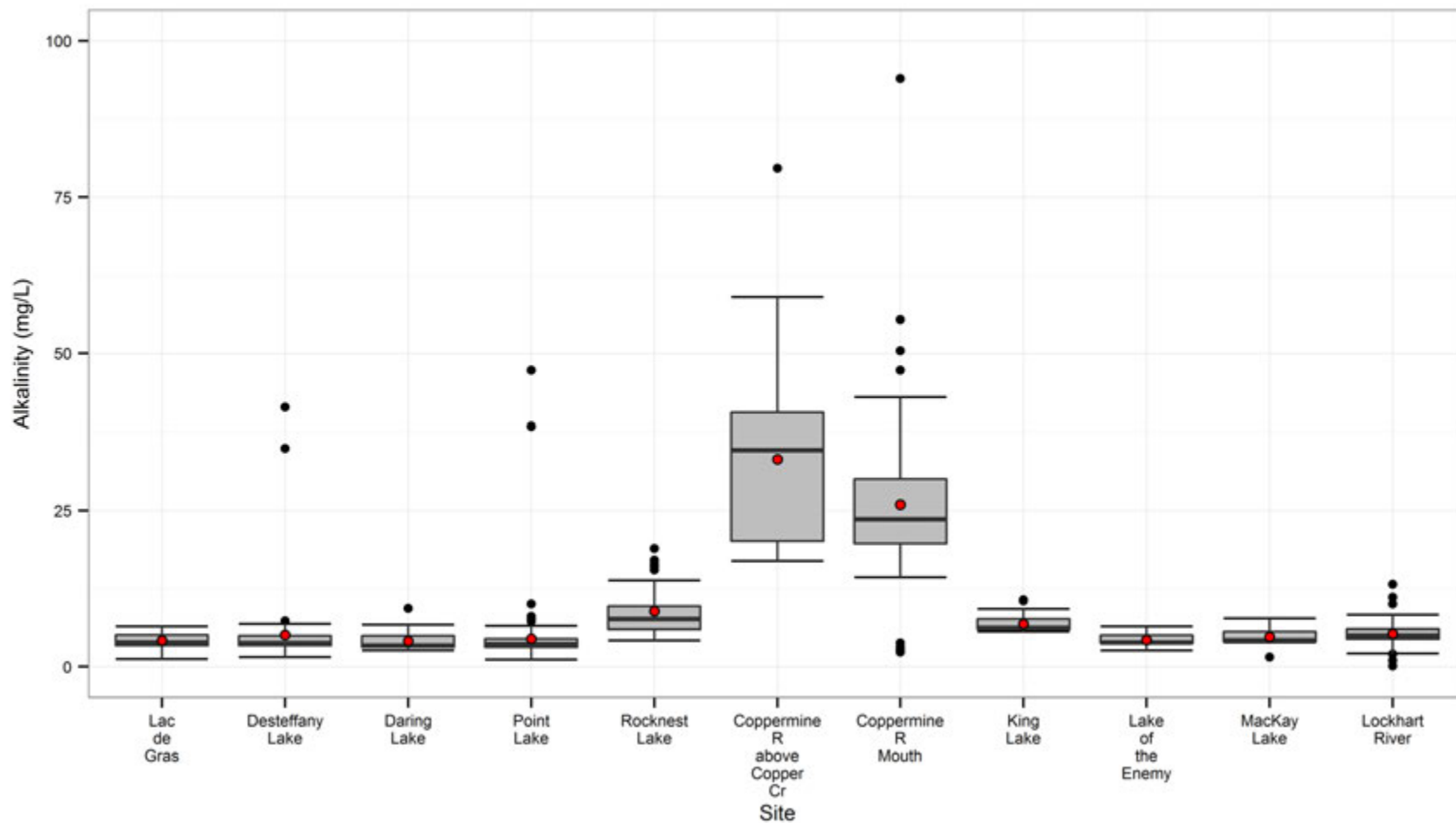
HC DWQG (Health Canada Drinking Water Quality Guidelines)	
Parameter	
Line type	-----
Guideline value (ntu)	0.1

Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.



Client/Project
 Government of Northwest Territories
 Appendix No.
B-5-4
 Appendix Title
 Water Quality Data
 Report Title
 Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report





Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within
 1.5* interquartile range of the 75th or 25th percentile.



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Appendix No.

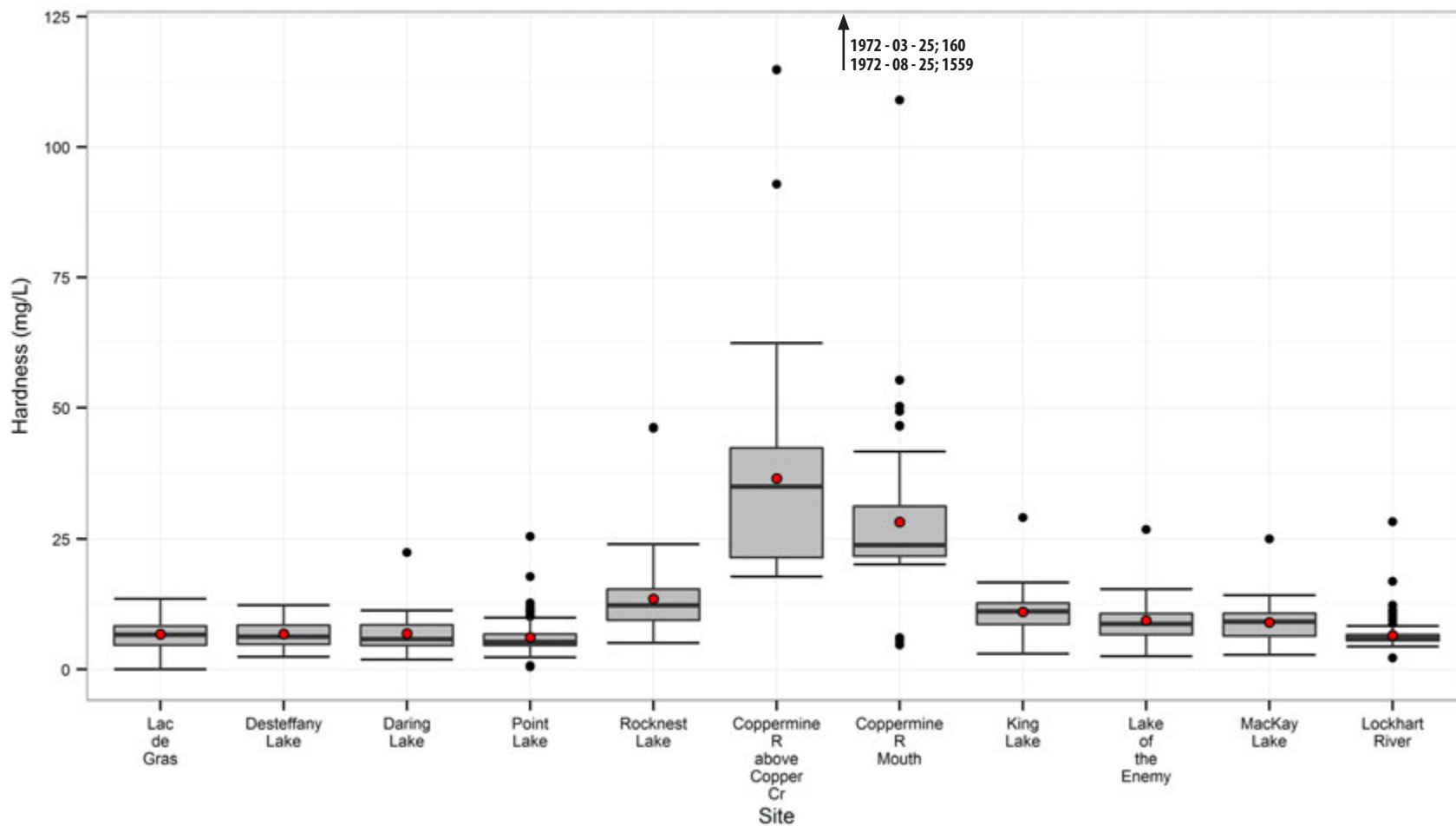
B-5-5

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry
 and Flow in the Coppermine and
 Lockhart River Basins Draft Report



Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.



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Appendix No.

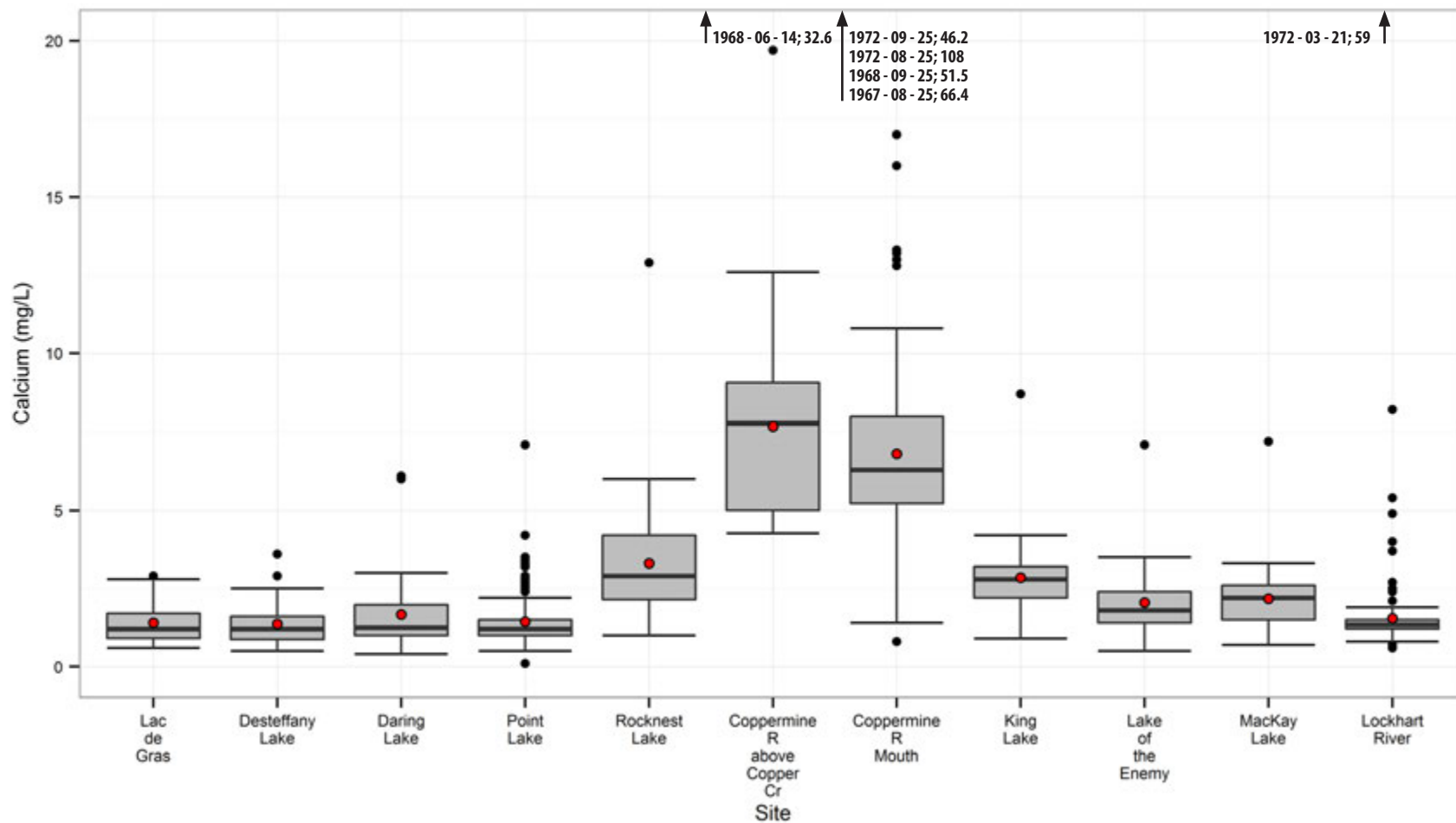
B-5-6

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within
 1.5* interquartile range of the 75th or 25th percentile.



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Appendix No.

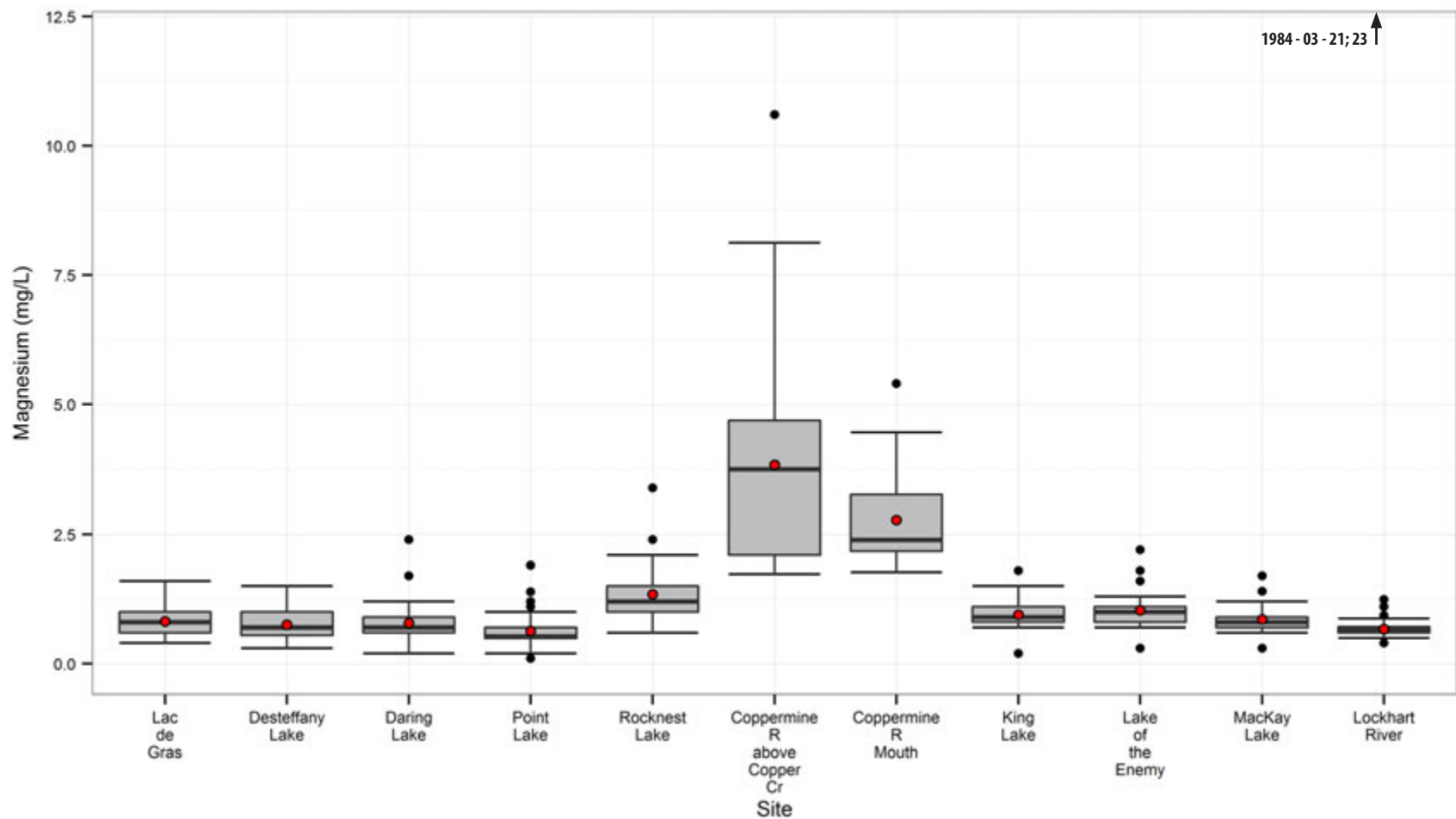
B-5-7

Appendix Title

Water Quality Data

Report Title

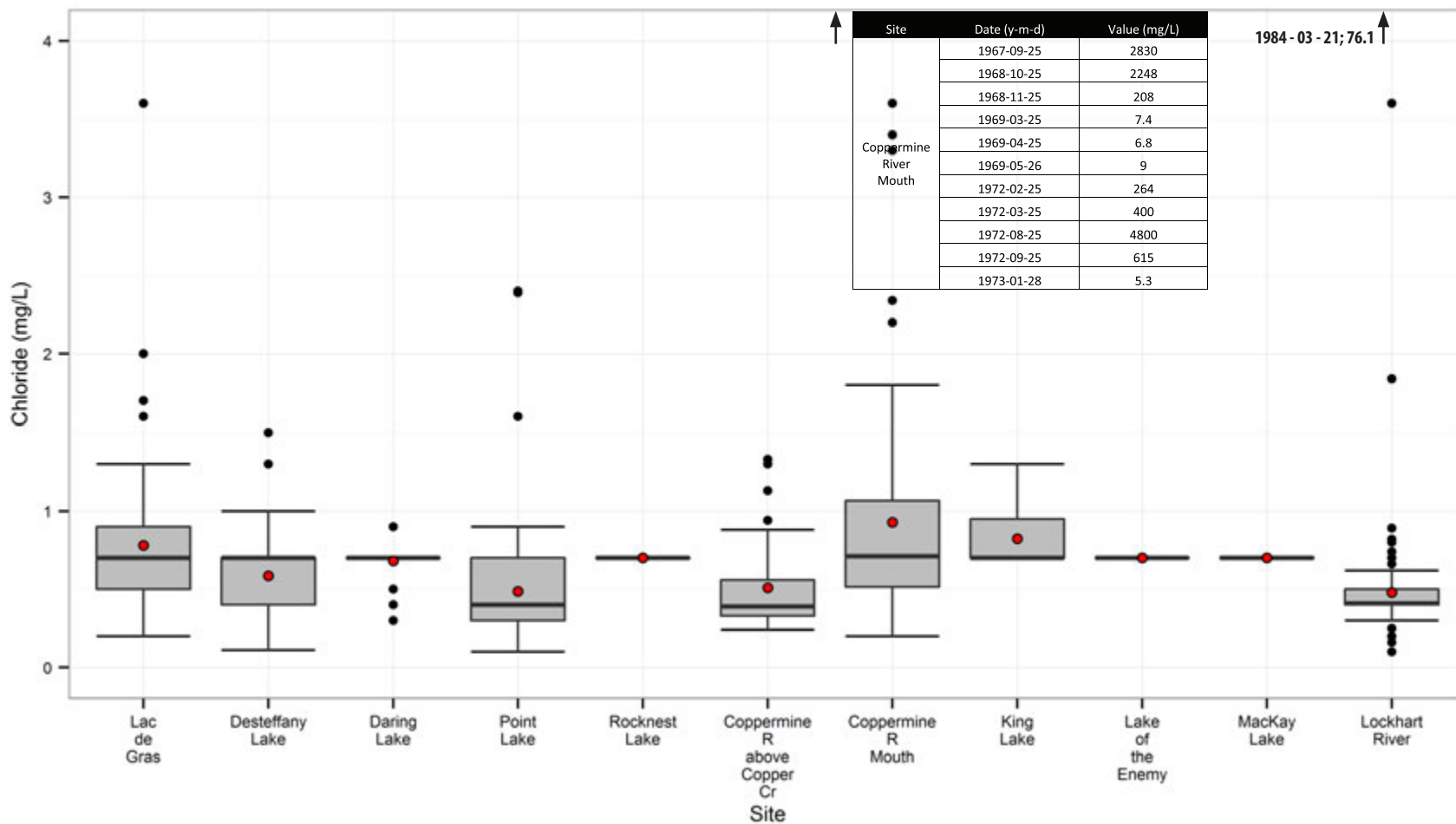
Status and Trends of Water Chemistry
 and Flow in the Coppermine and
 Lockhart River Basins Draft Report



Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within
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 Appendix No.
B-5-8
 Appendix Title
 Water Quality Data
 Report Title
 Status and Trends of Water Chemistry
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Parameter	CCME (Long term)	CCME (Short term)
Guideline value (mg/l)	120*	640*

*Guideline not shown on graph

Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.



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Appendix No.

B-5-9

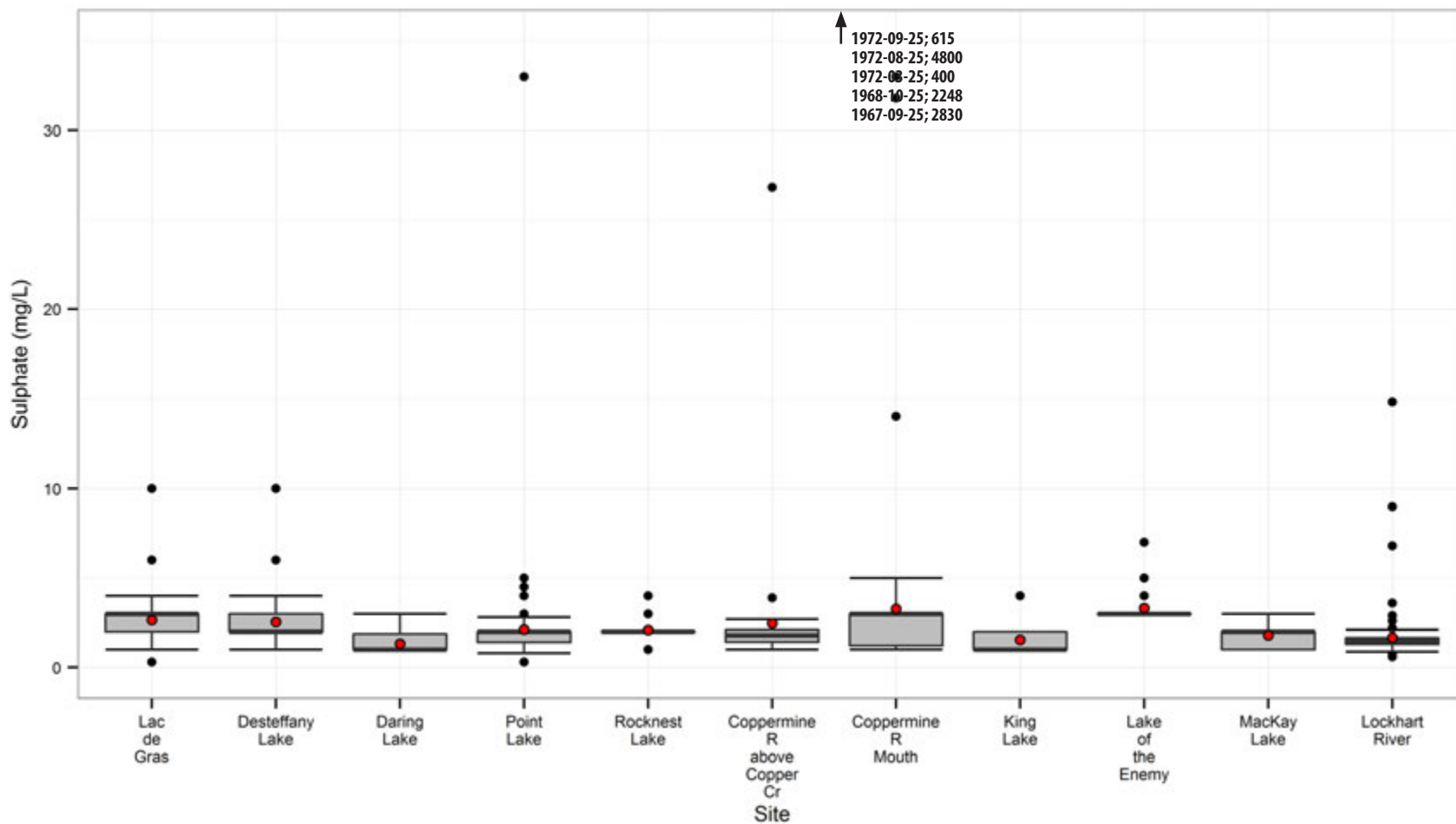
Appendix Title

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Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

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Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within
1.5* interquartile range of the 75th or 25th percentile.



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Appendix No.

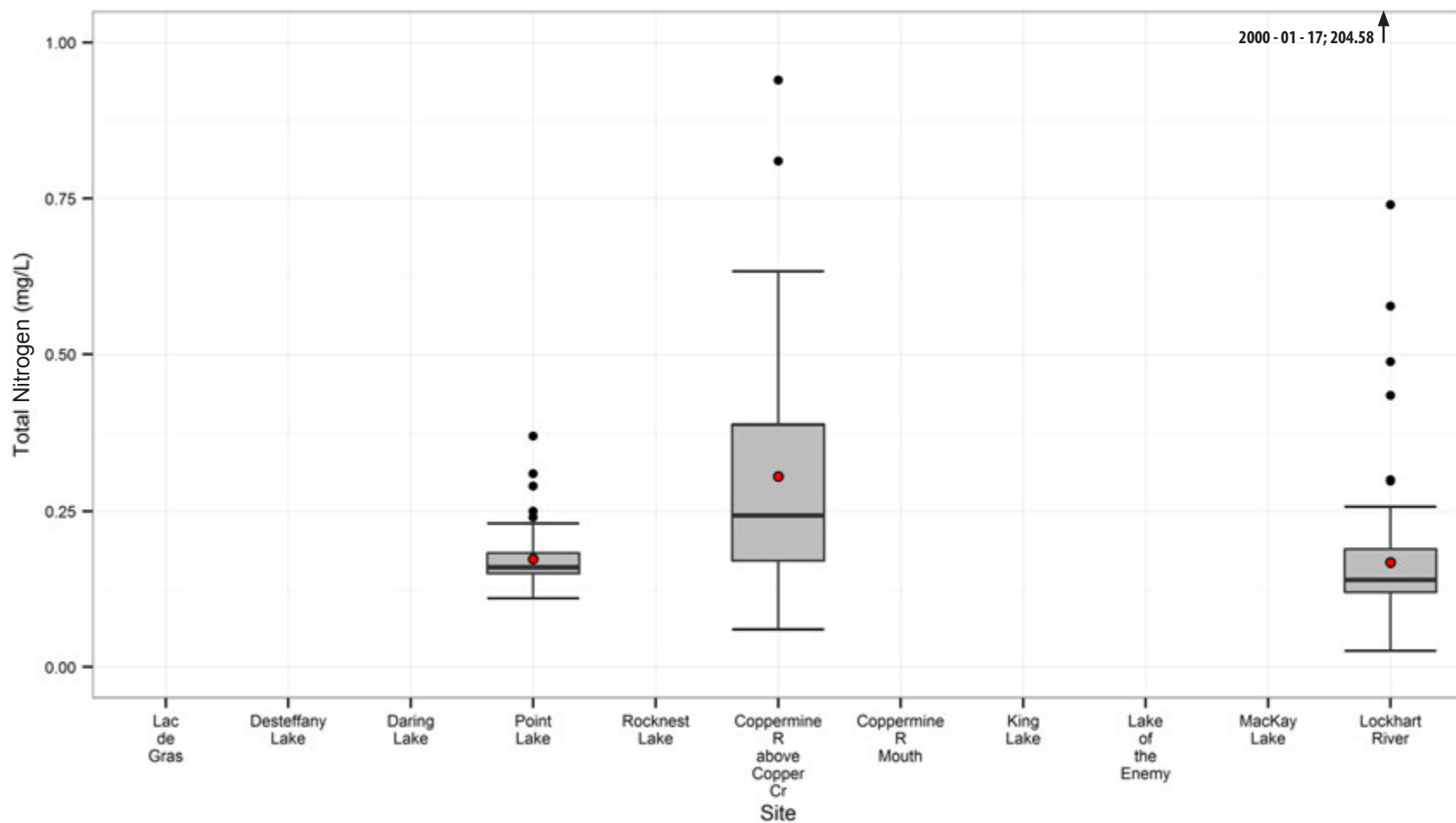
B-5-10

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report



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Appendix No.

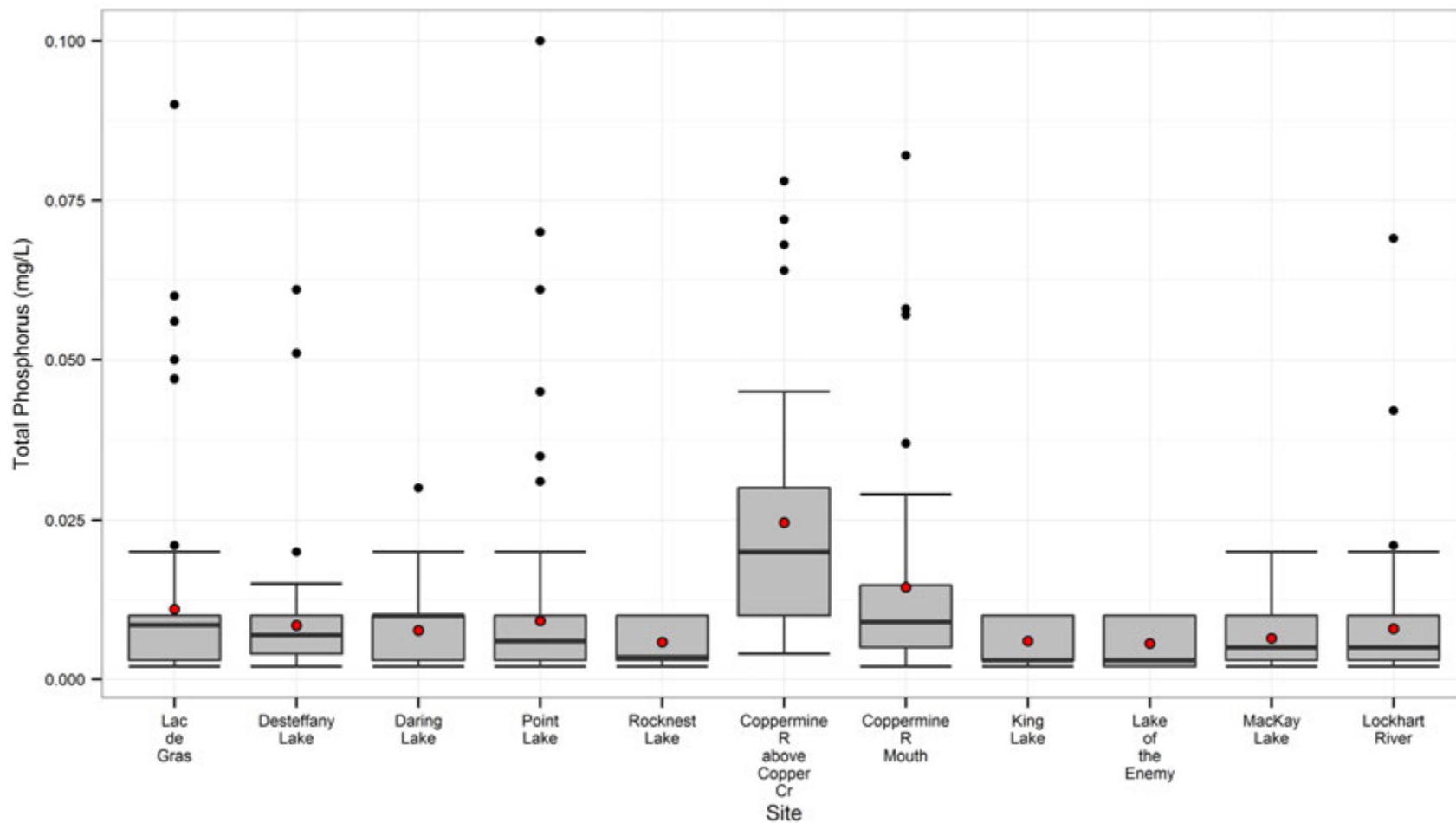
B-5-11

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



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 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.



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Government of Northwest Territories



Appendix No.

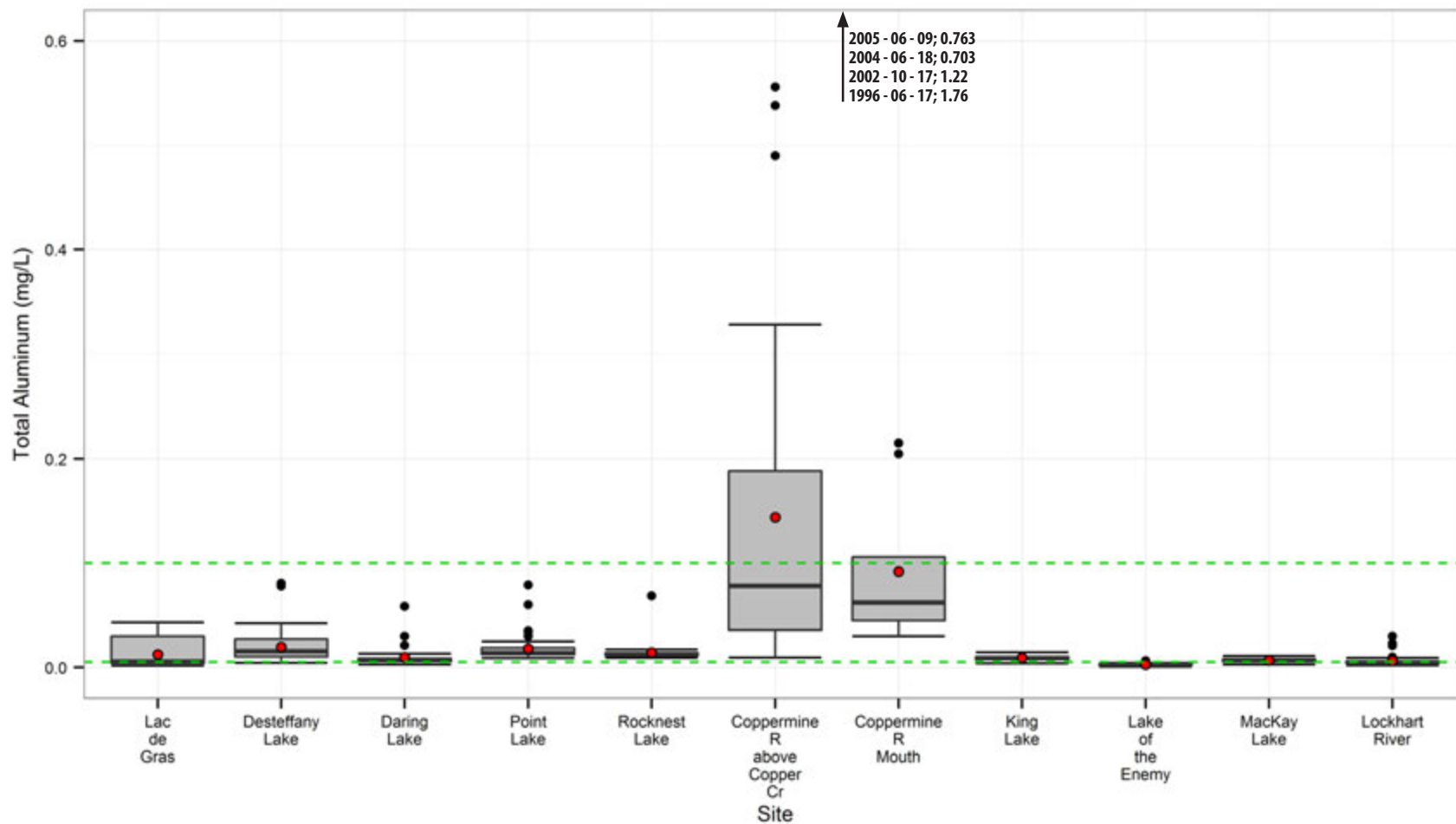
B-5-12

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Parameter	CCME (Long term)
Line type	-----
Guideline value (mg/L)	0.005 at pH < 6.5, 0.1 at pH ≥ 6.5

Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.



Client/Project

Government of Northwest Territories



Appendix No.

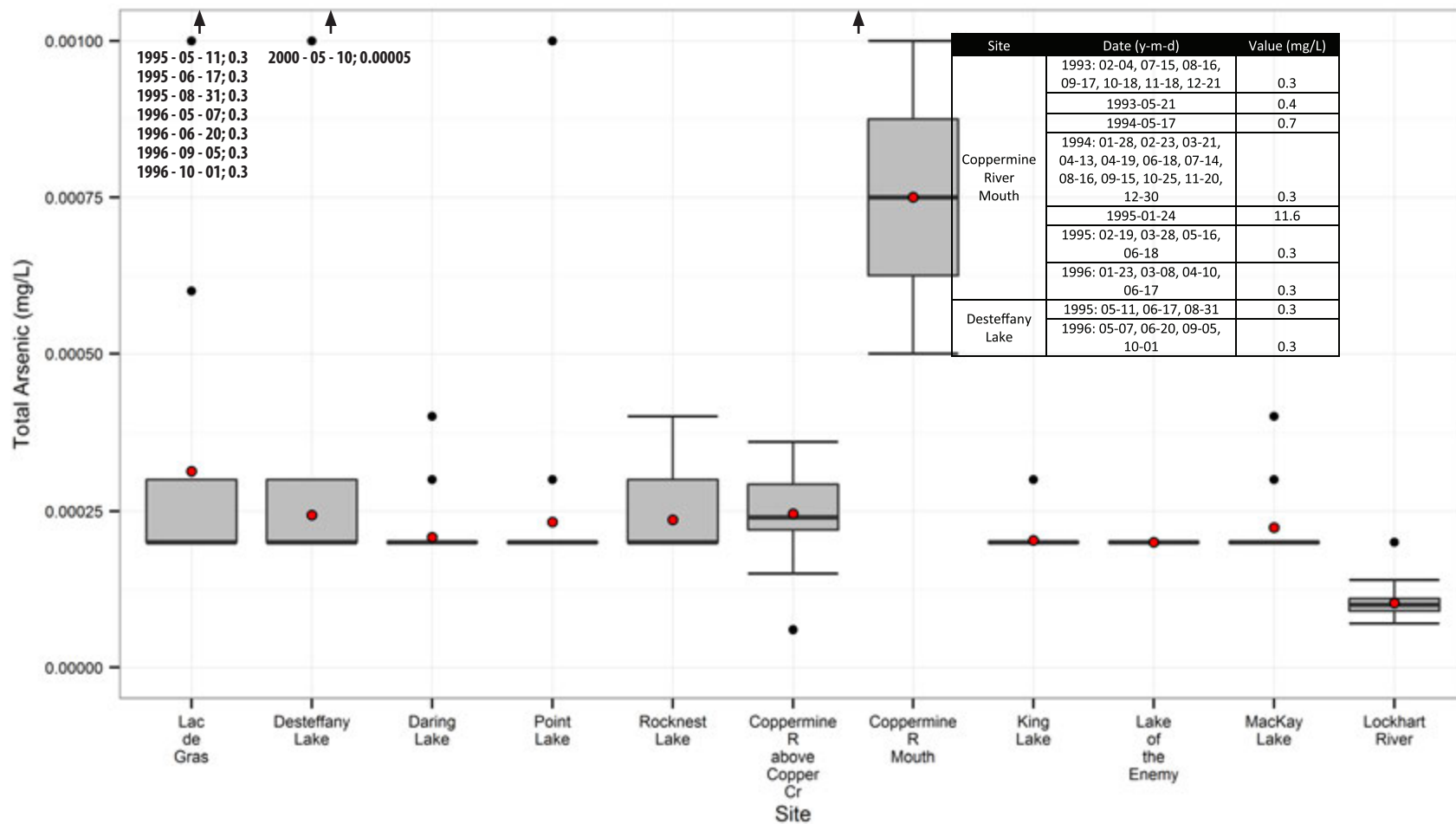
B-5-13

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Parameter	CCME (Long term)	HC DWQG (Health Canada Drinking Water Quality Guidelines)
Guideline value (mg/L)	0.005 *	0.01*

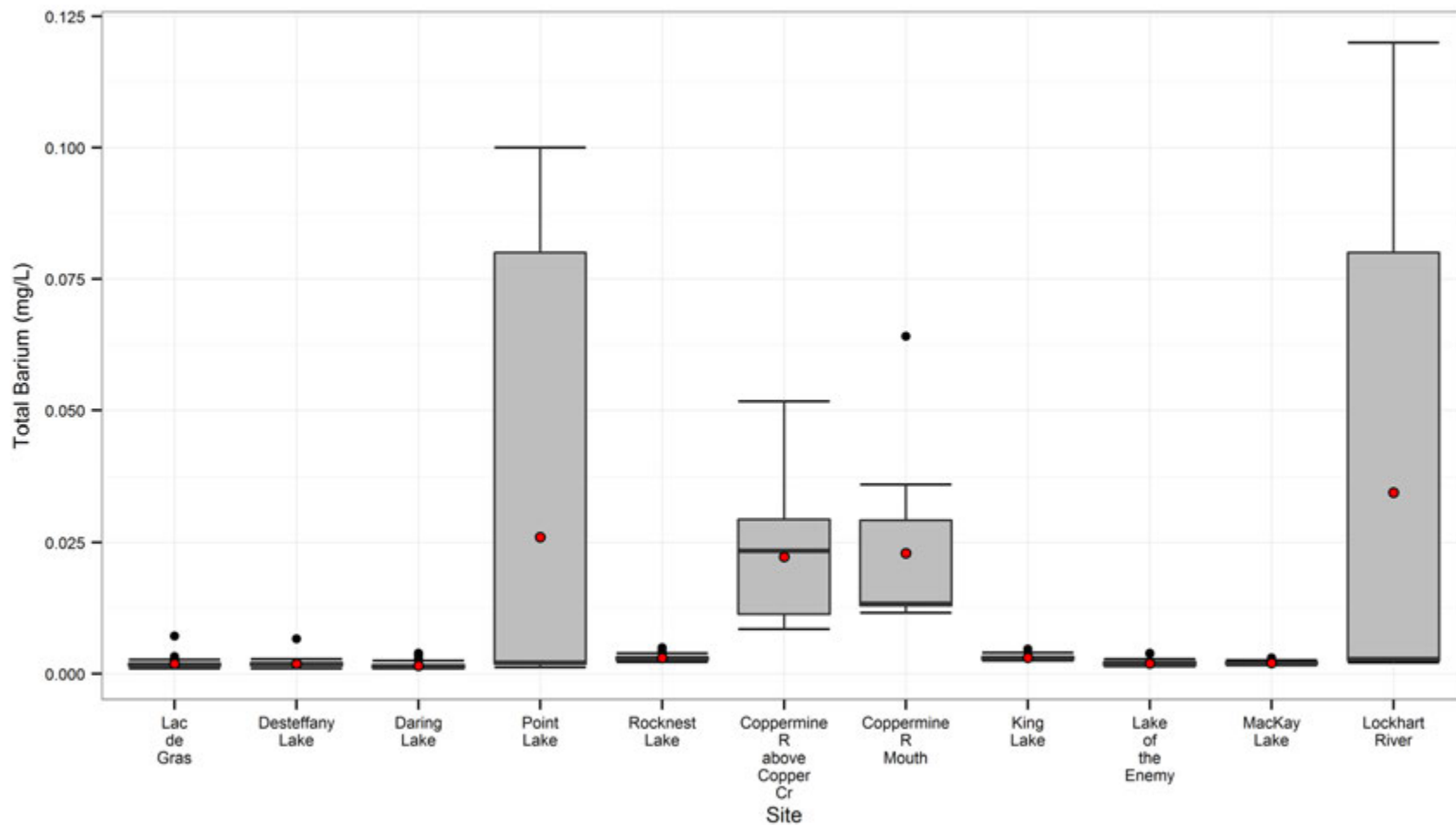
*Guideline not shown on graph.

Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.



Client/Project	Government of Northwest Territories
Appendix No.	B-5-14
Appendix Title	Water Quality Data
Report Title	Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report





Parameter	HC DWQG (Health Canada Drinking Water Quality Guidelines)
Guideline value (mg/L)	1.0*

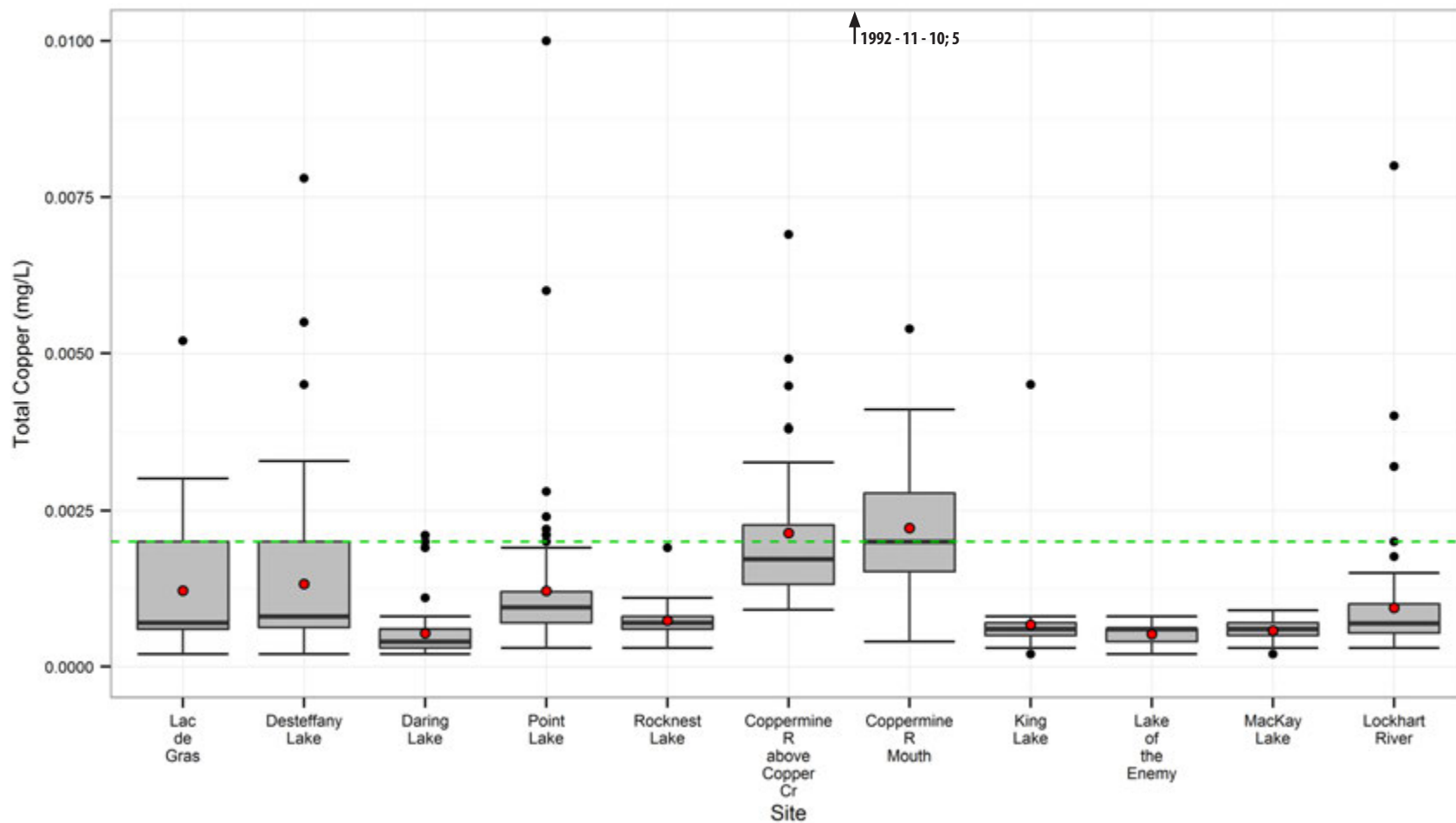
*Guideline not shown on graph.

Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.



Client/Project	Government of Northwest Territories
Appendix No.	B-5-15
Appendix Title	Water Quality Data
Report Title	Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report





Parameter CCME (Long term)

Line type	-----
Guideline value (mg/L)	0.002

Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.



Client/Project

Government of Northwest Territories



Appendix No.

B-5-16

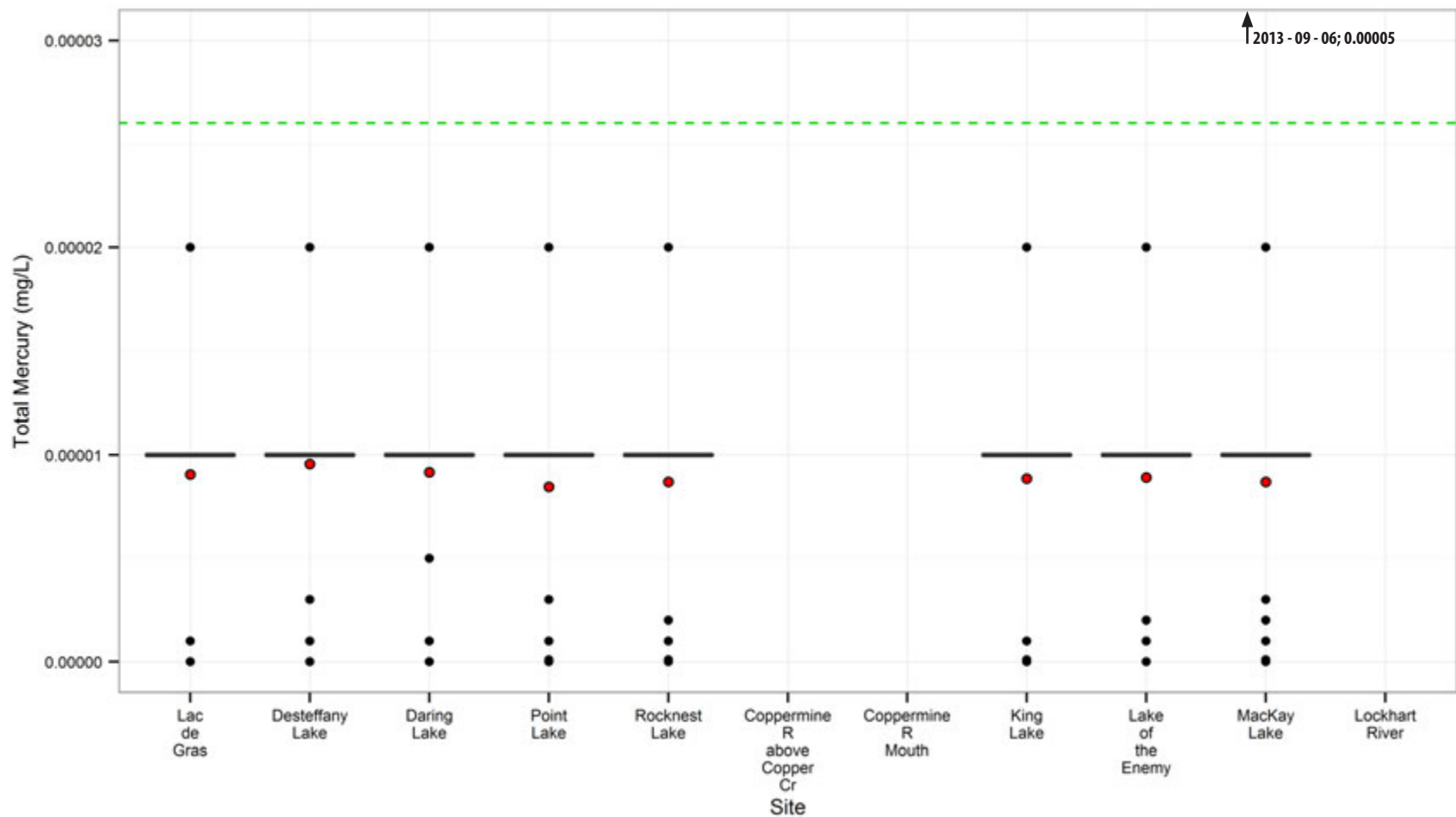
Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.



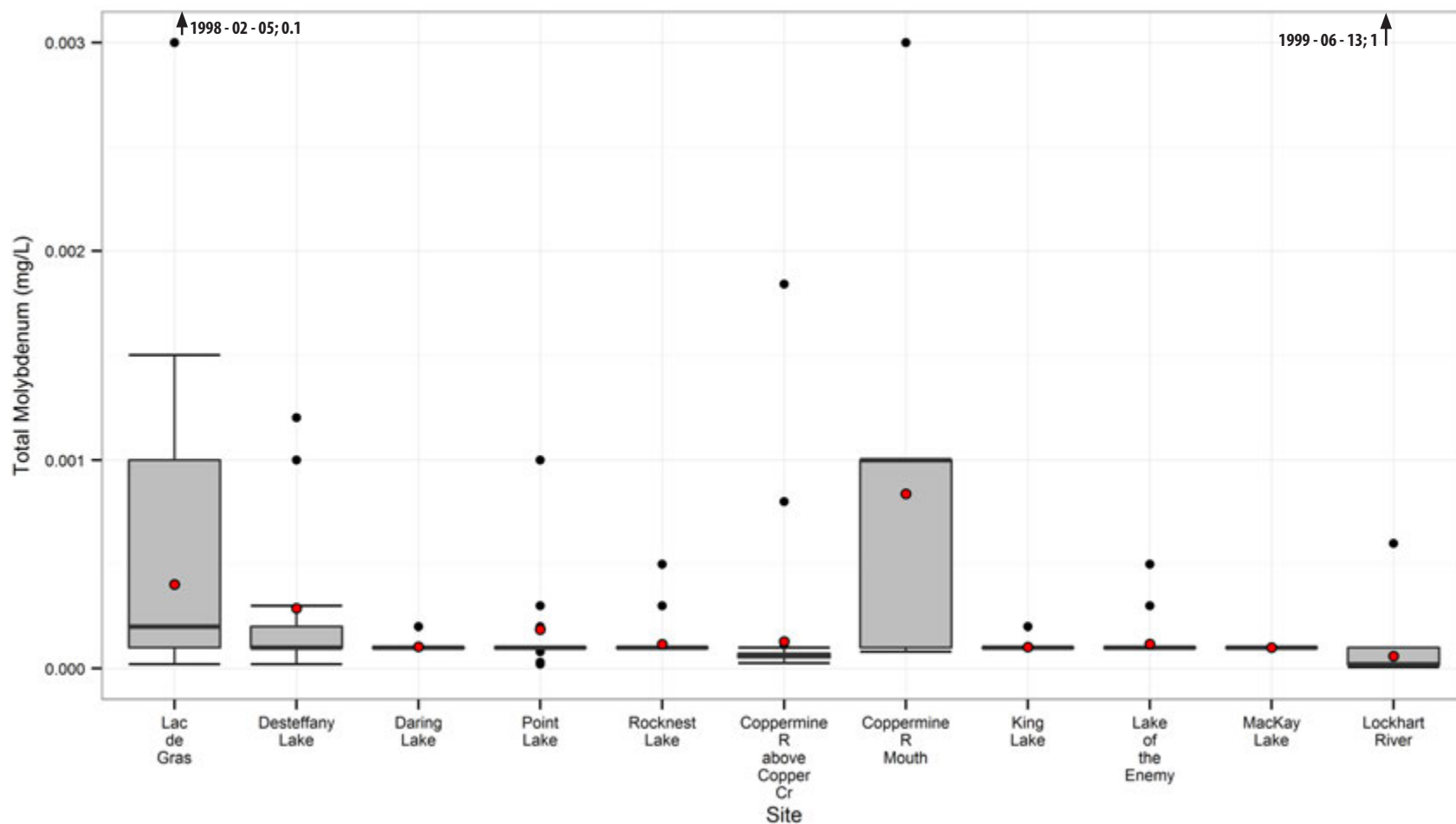
Parameter	CCME (Long term)	HC DWQG (Health Canada Drinking Water Quality Guidelines)
Line type	-----	-----
Guideline value (mg/L)	0.000026	0.001

Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.



Client/Project	Government of Northwest Territories
Appendix No.	B-5-17
Appendix Title	Water Quality Data
Report Title	Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.



Parameter	CCME (Long term)
Guideline value (mg/L)	0.073*

*Guideline not shown on graph.

Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.



Client/Project

Government of Northwest Territories



Appendix No.

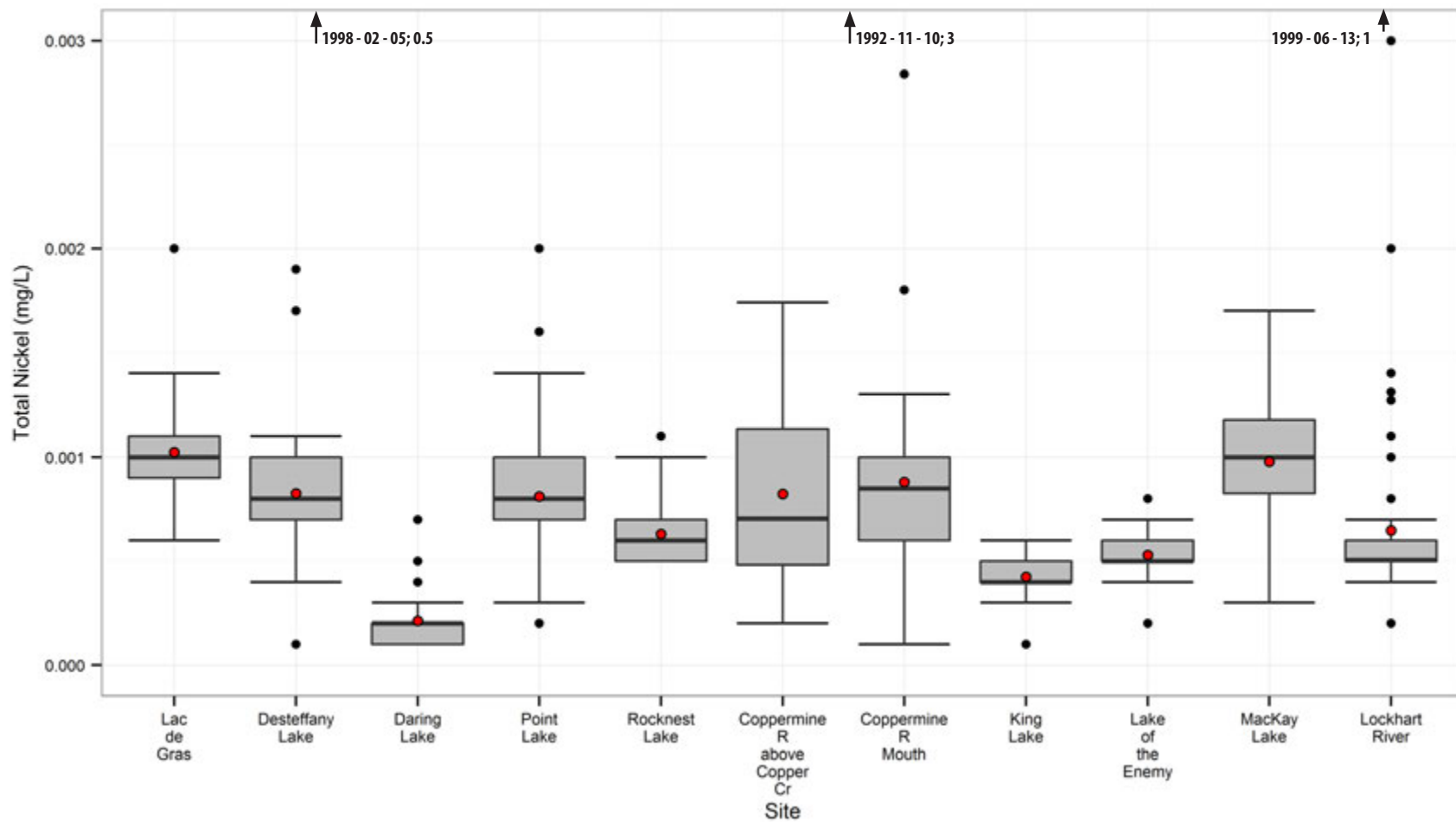
B-5-18

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report



Parameter	CCME (Long term)
Guideline value (mg/L)	0.056*

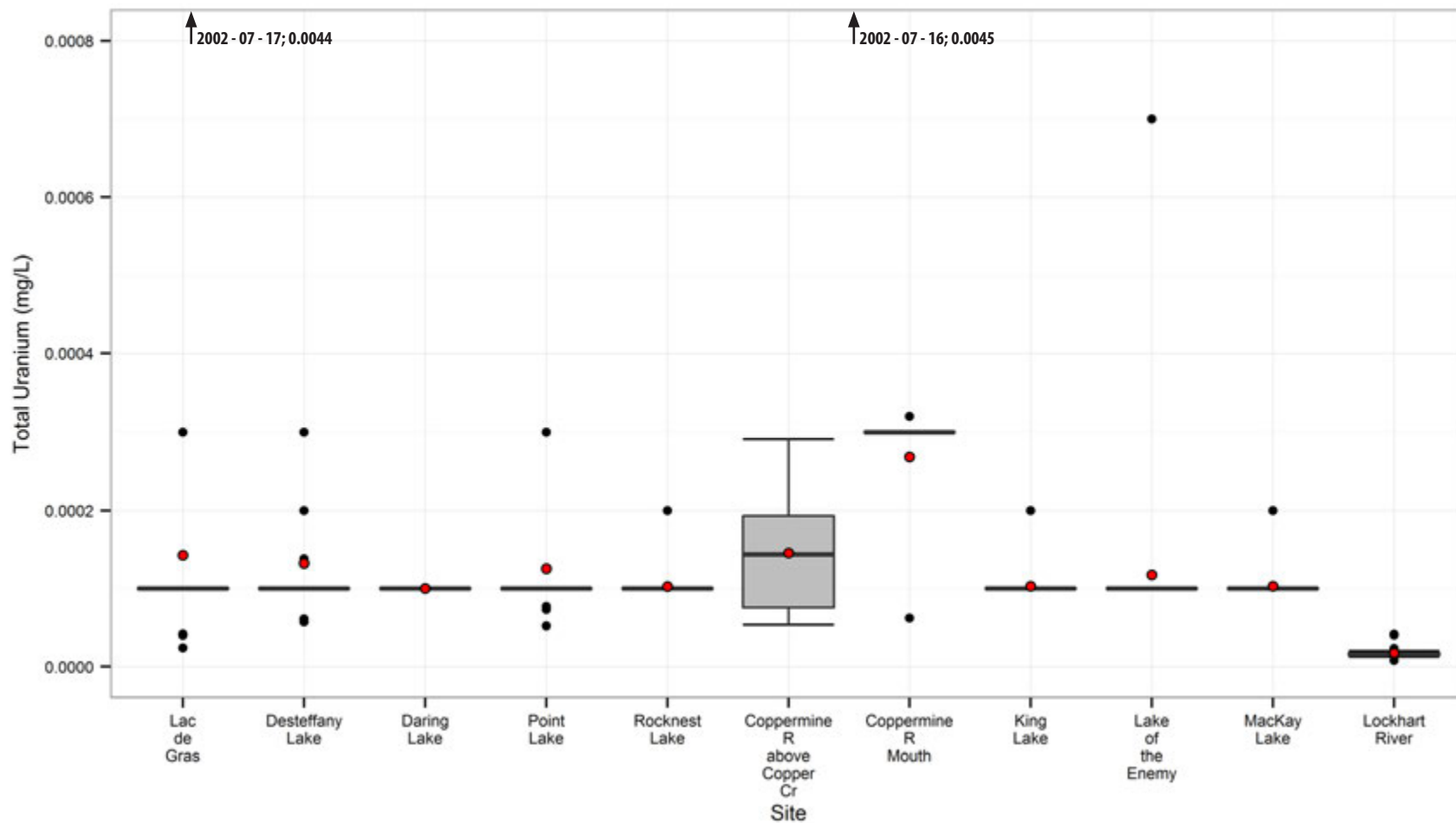
*Guideline not shown on graph.

Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.



Client/Project
 Government of Northwest Territories
 Appendix No.
B-5-19
 Appendix Title
 Water Quality Data
 Report Title
 Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report





Parameter	CCME (Long term)	HC DWQG (Health Canada Drinking Water Quality Guidelines)
Guideline value (mg/L)	0.15*	0.02*

*Guideline not shown on graph.

Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.



Client/Project
 Government of Northwest Territories

Appendix No.
B-5-21

Appendix Title
 Water Quality Data

Report Title
 Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

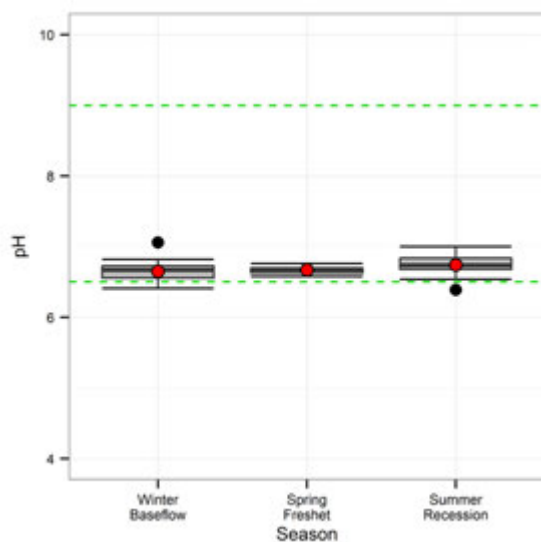


**STATUS AND TRENDS OF WATER CHEMISTRY AND FLOW IN THE COPPERMINE AND LOCKHART RIVER
BASINS
FINAL REPORT**

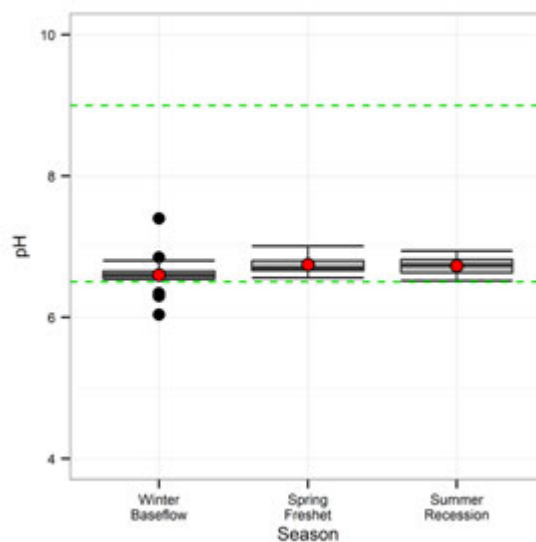
Appendix B Water Chemistry Summary Statistics
March 31, 2015

**B.6 SEASONAL BOXPLOTS FOR THE COPPERMINE & LOCKHART
WATERSHEDS**

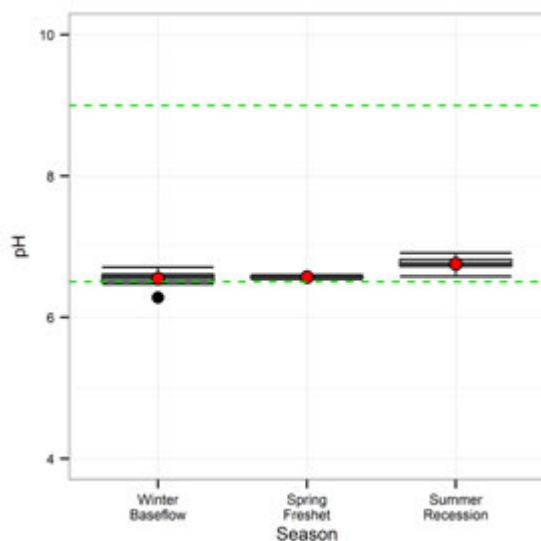
Lac De Gras



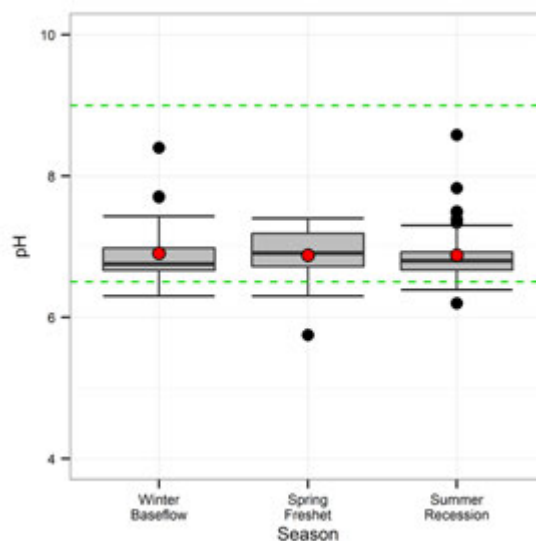
Desteffany Lake



Daring Lake



Point Lake



Parameter	CCME (Long term)
Line type	-----
Guideline value	6.5 - 9.0

Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within
 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
 Spring Freshet = May to June
 Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-1-a

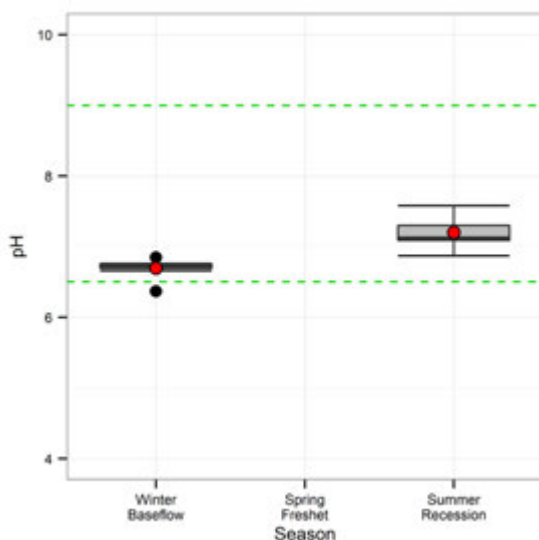
Appendix Title

Water Quality Data

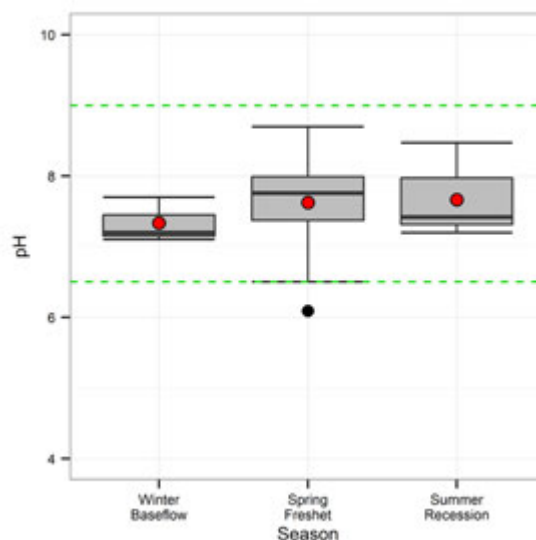
Report Title

Status and Trends of Water Chemistry
 and Flow in the Coppermine and
 Lockhart River Basins Draft Report

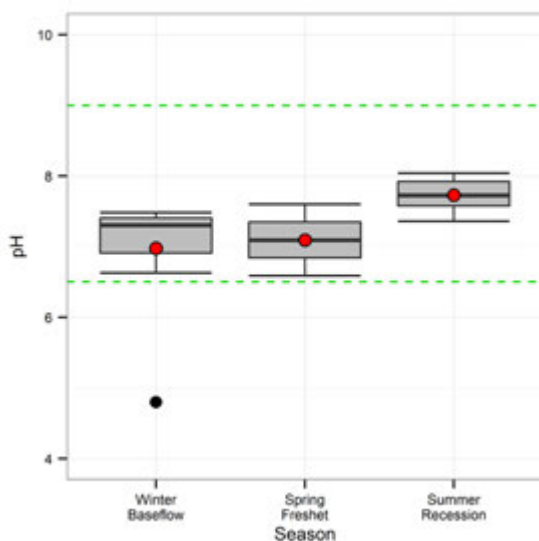
Rocknest Lake



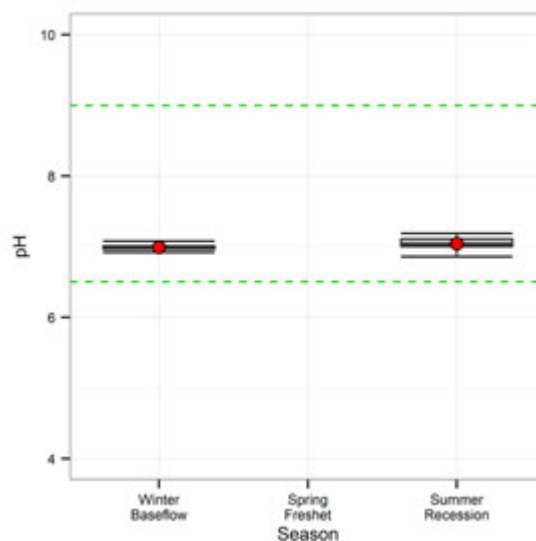
Coppermine River above Copper Creek



Coppermine River Mouth



King Lake



Parameter	CCME (Long term)
Line type	-----
Guideline value	6.5 - 9.0

Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
 Spring Freshet = May to June
 Summer Recession =



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Government of Northwest Territories



Appendix No.

B-6-1-b

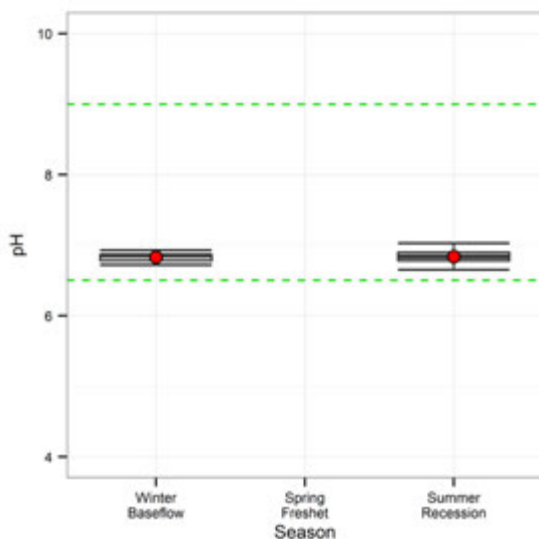
Appendix Title

Water Quality Data

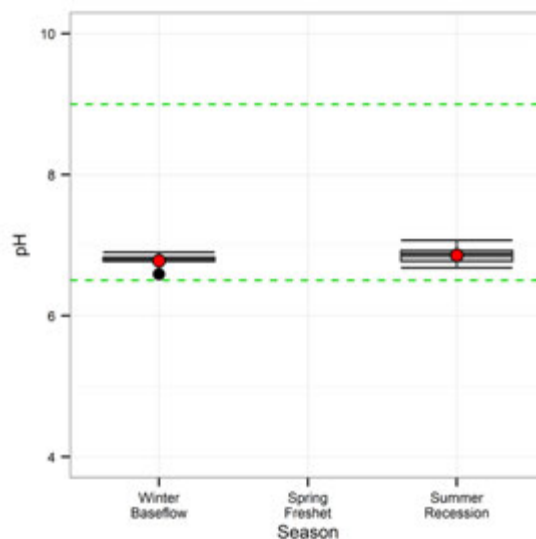
Report Title

Status and Trends of Water Chemistry
 and Flow in the Coppermine and
 Lockhart River Basins Draft Report

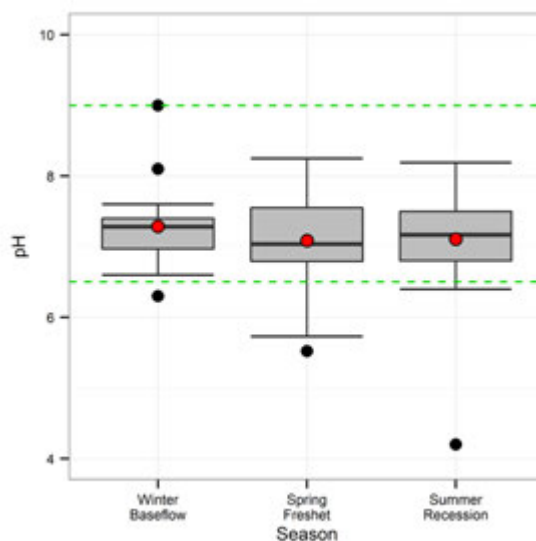
Lake of the Enemy



Mackay Lake



Lockhart River



Parameter	CCME (Long term)
Line type	
Guideline value	6.5 - 9.0

Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
 Spring Freshet = May to June
 Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-1-c

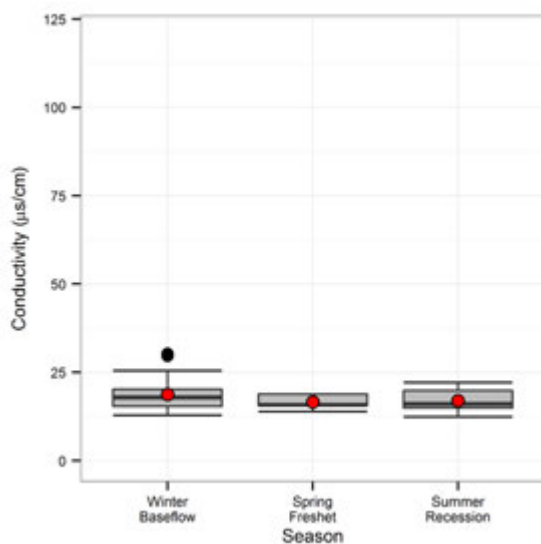
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Water Quality Data

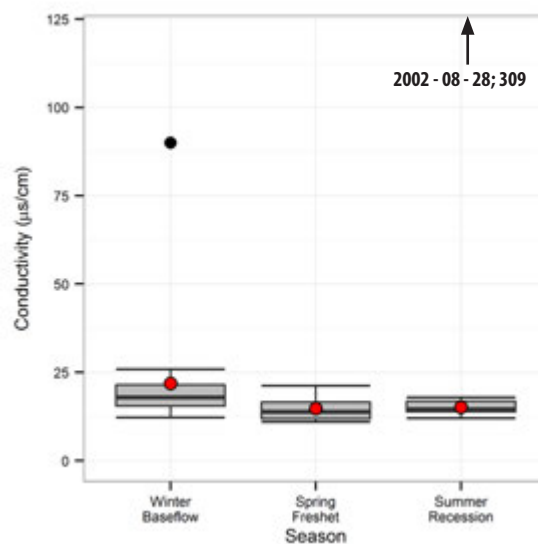
Report Title

Status and Trends of Water Chemistry
 and Flow in the Coppermine and
 Lockhart River Basins Draft Report

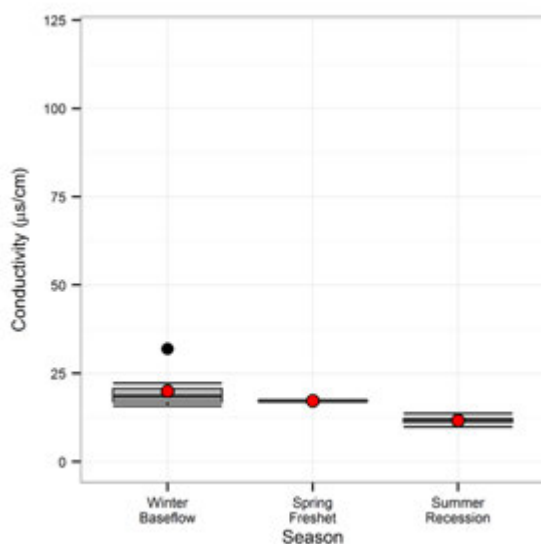
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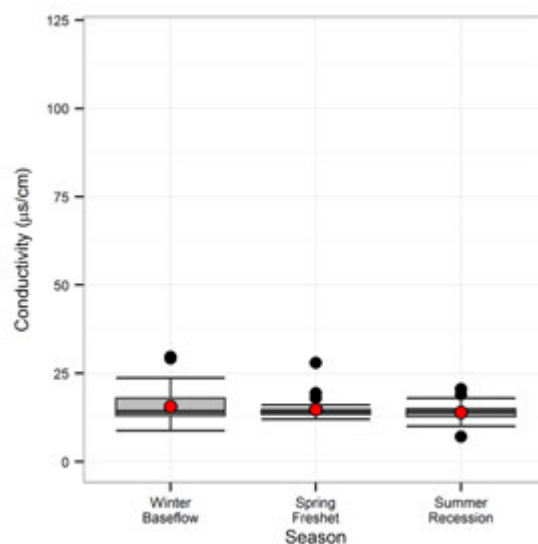
Desteffany Lake



Daring Lake



Point Lake



Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



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Government of Northwest Territories



Appendix No.

B-6-2-a

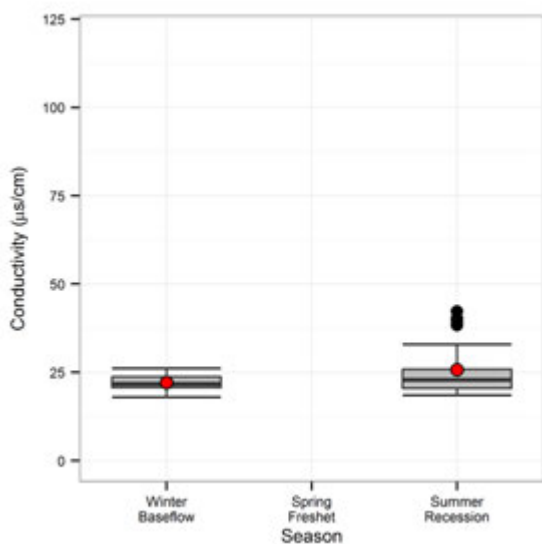
Appendix Title

Water Quality Data

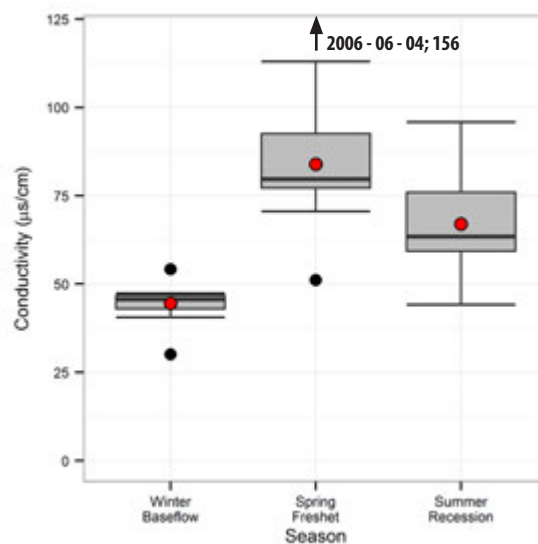
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

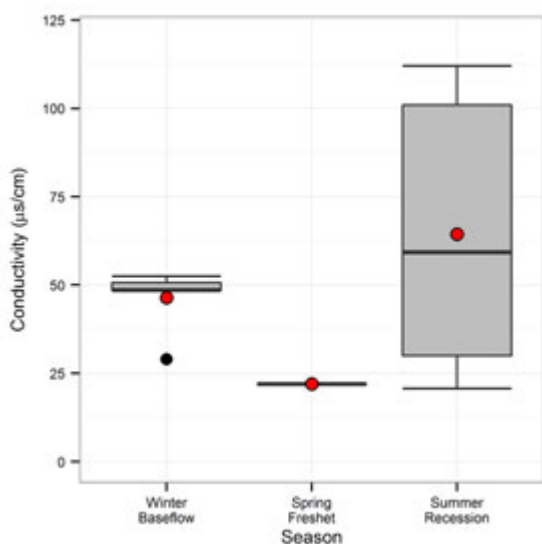
Rocknest Lake



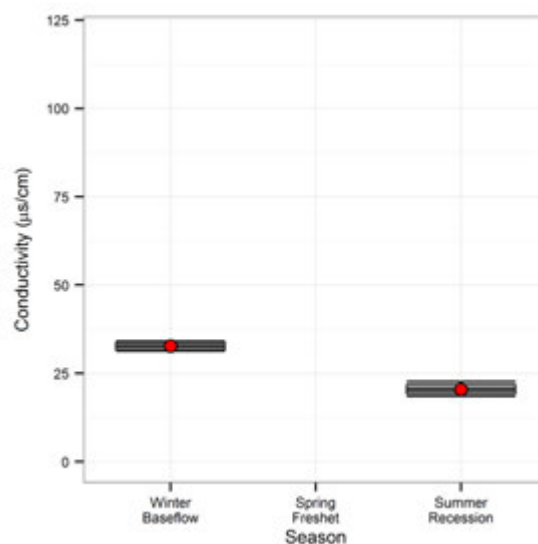
Coppermine River above Copper Creek



Coppermine River Mouth



King Lake



Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-2- b

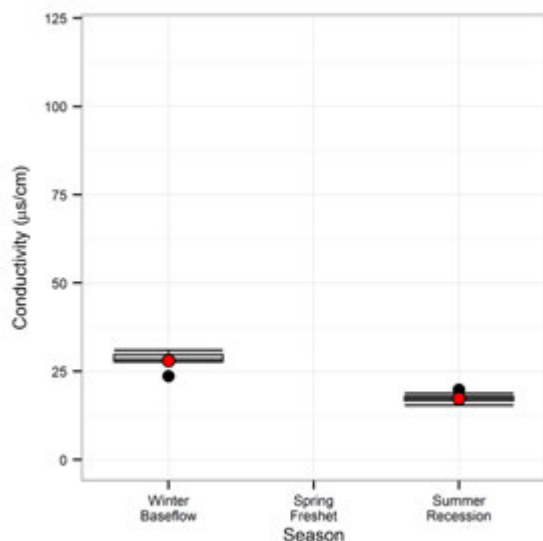
Appendix Title

Water Quality Data

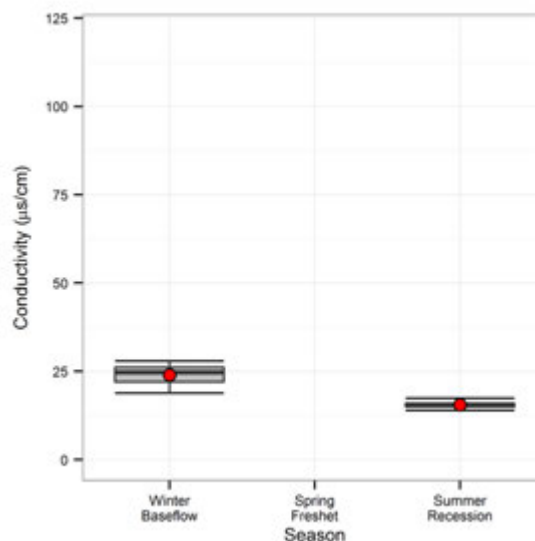
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

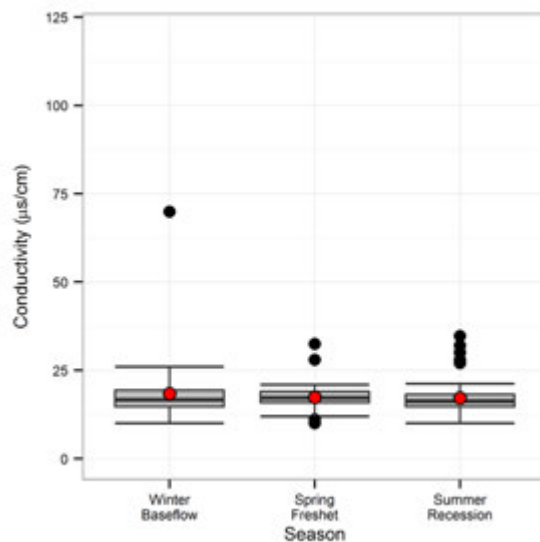
Lake of the Enemy



Mackay Lake



Lockhart River



Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
 Spring Freshet = May to June
 Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-2-c

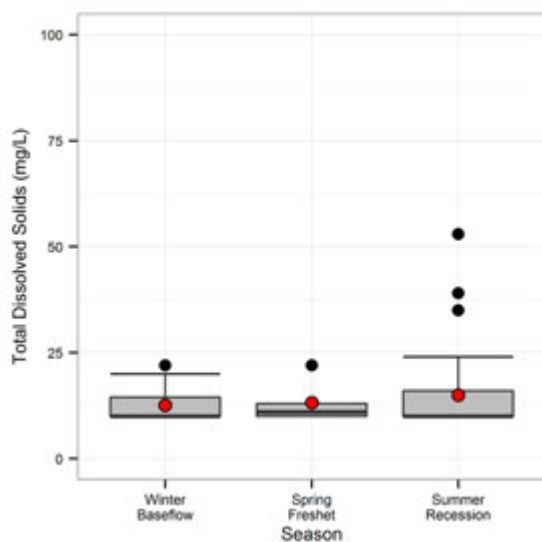
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Water Quality Data

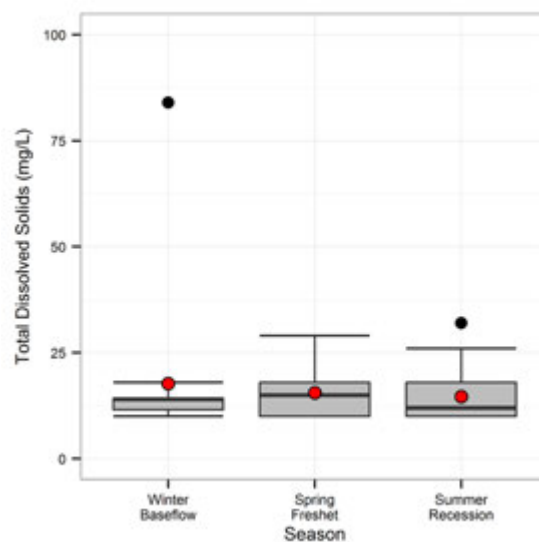
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Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

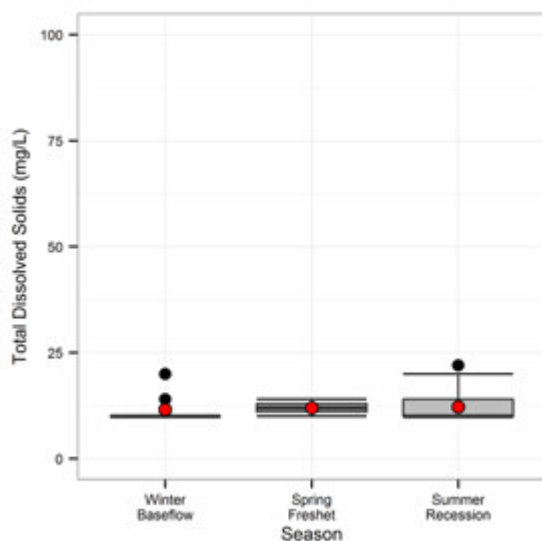
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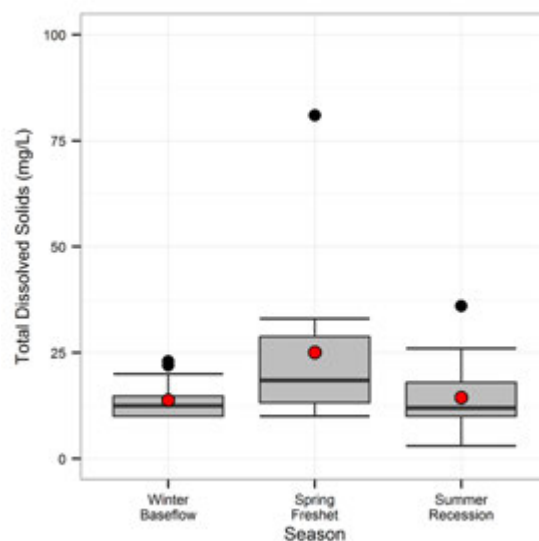
Desteffany Lake



Daring Lake



Point Lake



Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-3-a

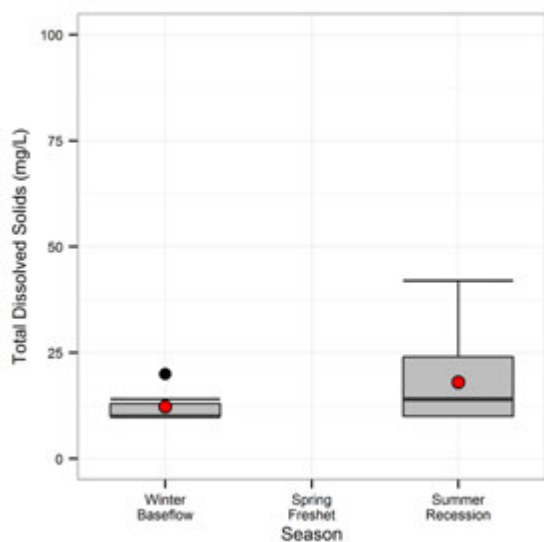
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Water Quality Data

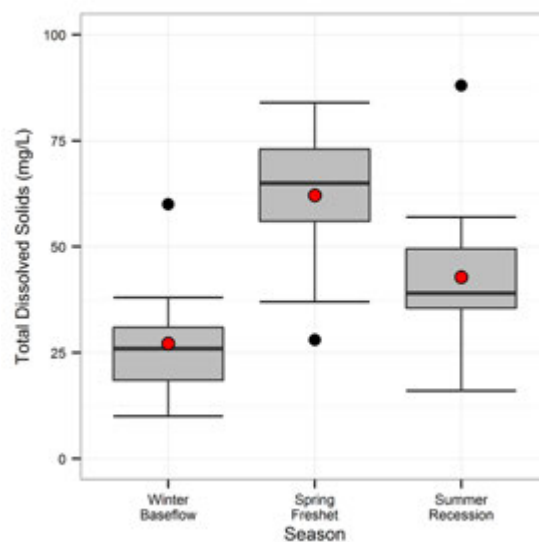
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

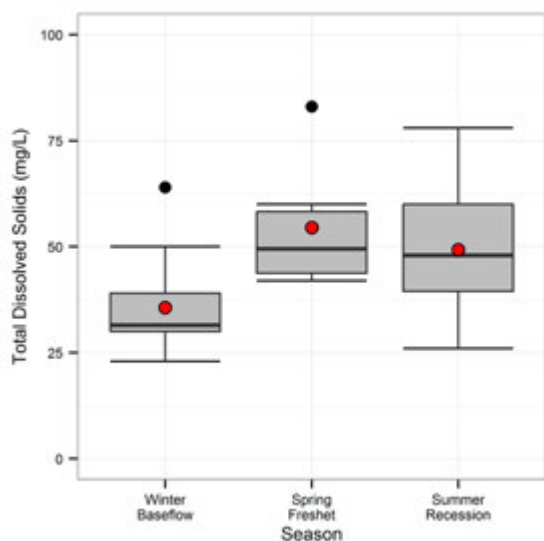
Rocknest Lake



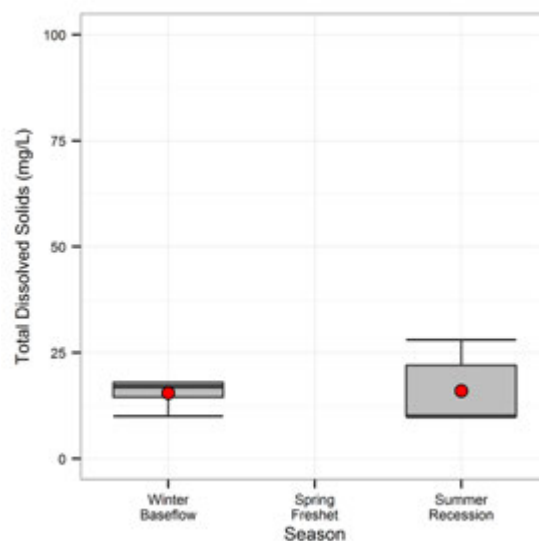
Coppermine River above Copper Creek



Coppermine River Mouth



King Lake



Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
 Spring Freshet = May to June
 Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-3- b

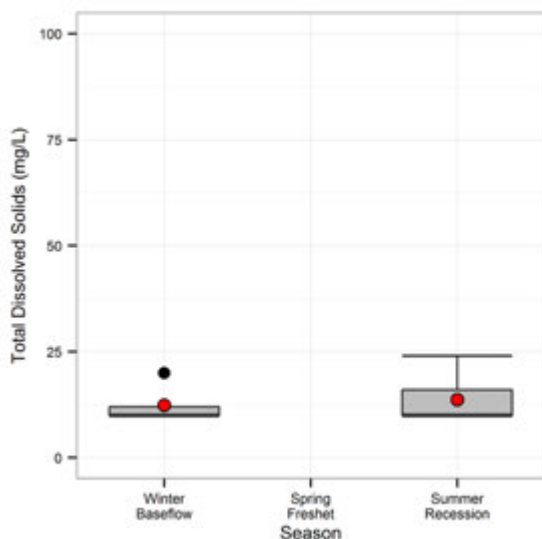
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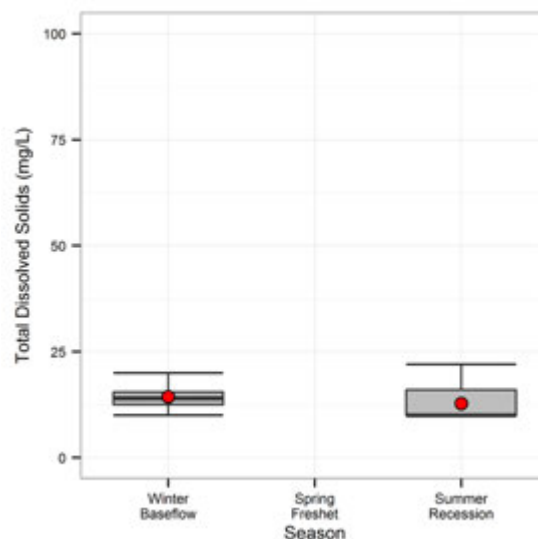
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Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

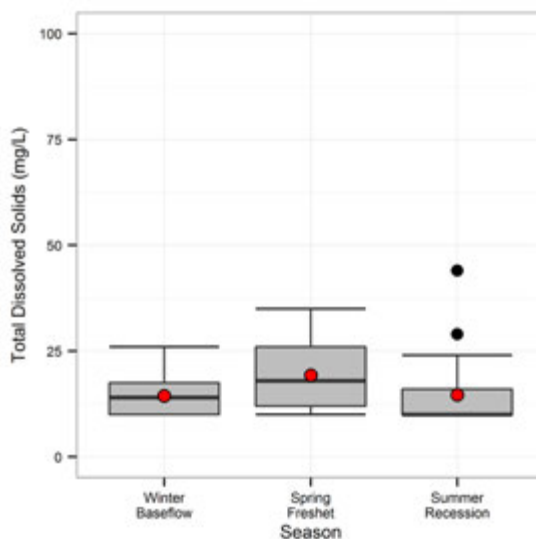
Lake of the Enemy



Mackay Lake



Lockhart River



Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
 Spring Freshet = May to June
 Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-3-c

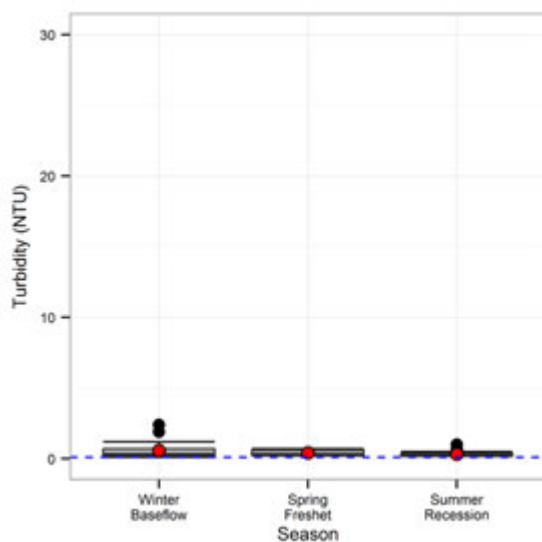
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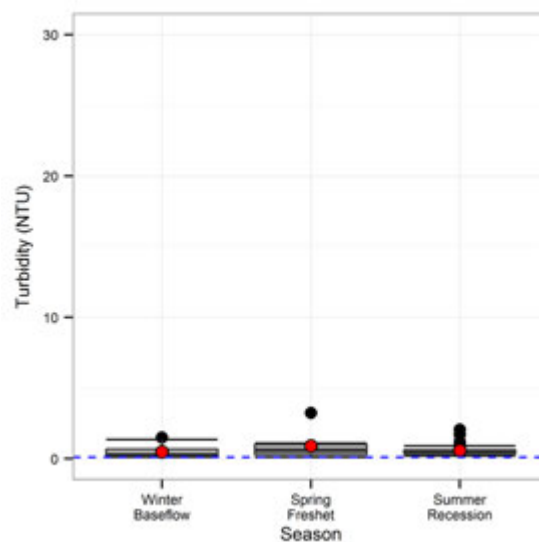
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Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

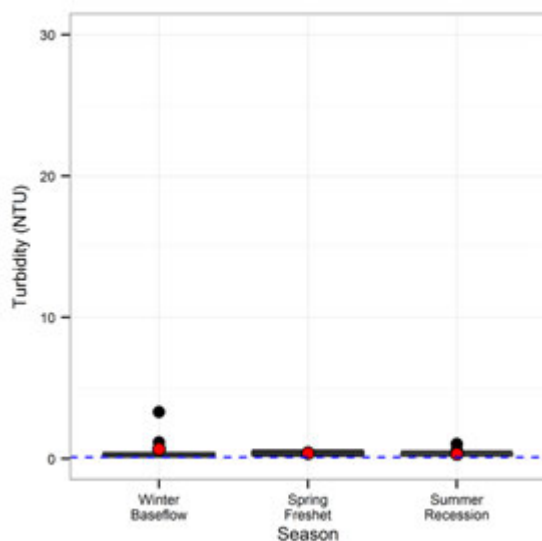
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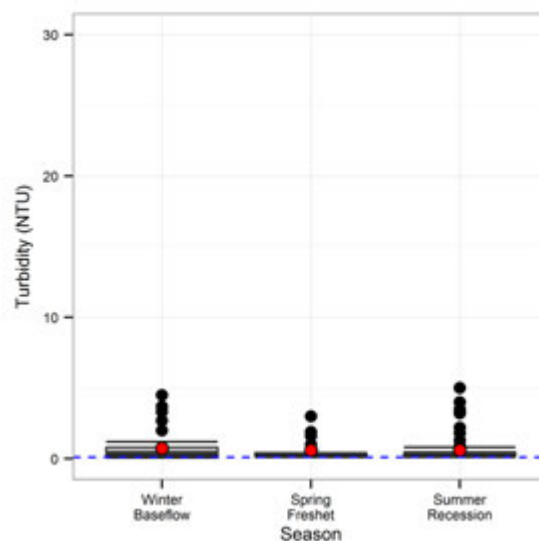
Desteffany Lake



Daring Lake



Point Lake



Parameter

HC DWQG (Health Canada Drinking Water Guidelines)

Guideline value (ntu)

0.1*

*Guideline not shown on graphs.

Centre line of boxplot indicates median value

Red points indicate mean value

Black points indicate outliers beyond whiskers

Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =

Spring Freshet = May to June

Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-4-a

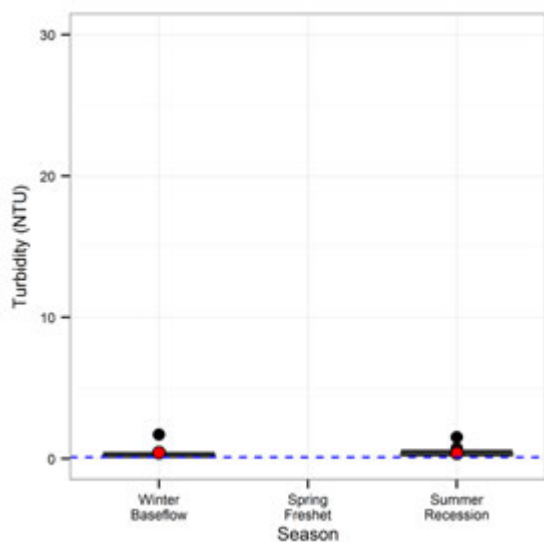
Appendix Title

Water Quality Data

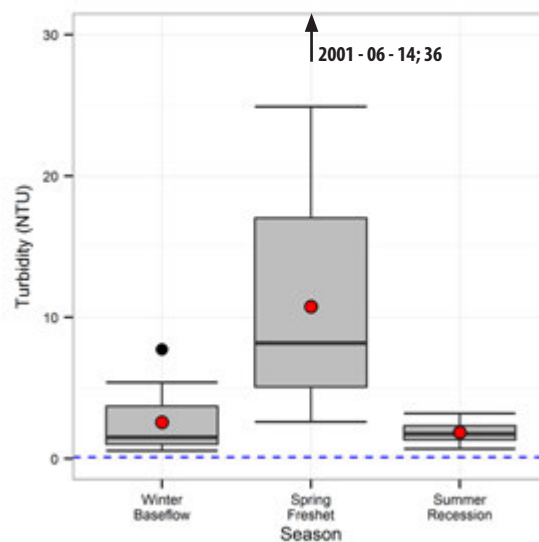
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

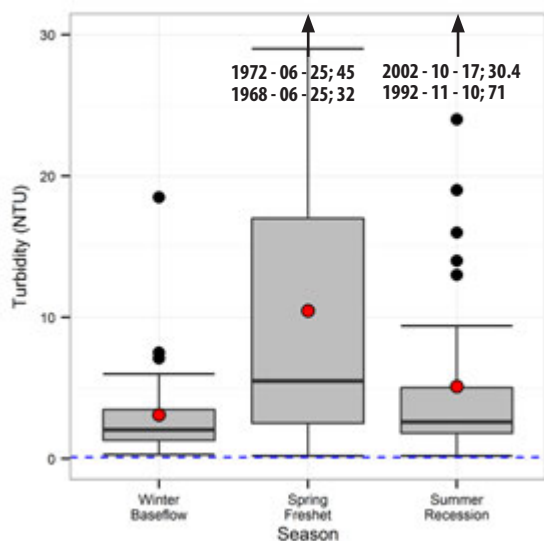
Rocknest Lake



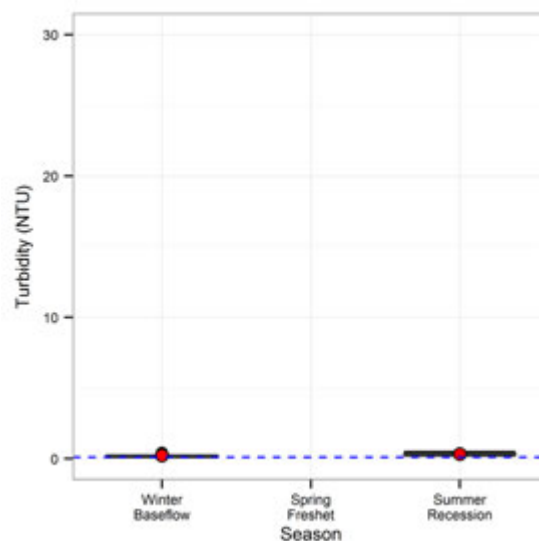
Coppermine River above Copper Creek



Coppermine River Mouth



King Lake



Parameter

HC DWQG (Health Canada
Drinking Water Quality
Guidelines)

Guideline value (ntu)

0.1*

*Guideline not shown on graphs.

Centre line of boxplot indicates median value

Red points indicate mean value

Black points indicate outliers beyond whiskers

Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =

Spring Freshet = May to June

Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-4-b

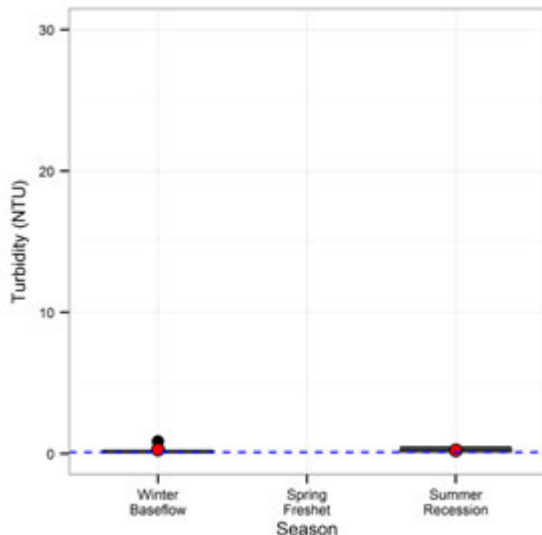
Appendix Title

Water Quality Data

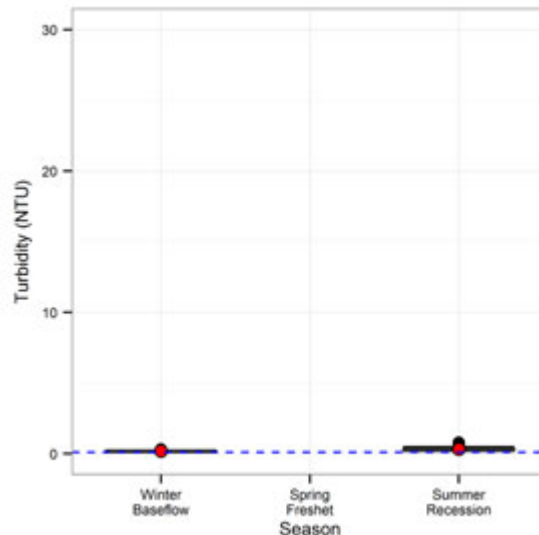
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

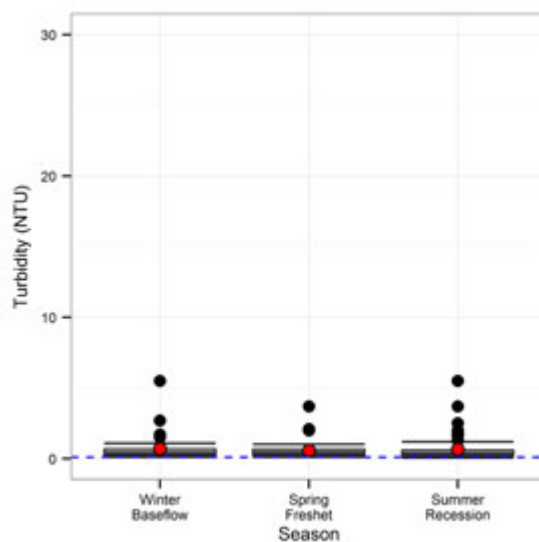
Lake of the Enemy



Mackay Lake



Lockhart River



Parameter

HC DWQG (Health Canada Drinking Water Quality Guidelines)

Guideline value (ntu)

0.1*

*Guideline not shown on graphs.

Centre line of boxplot indicates median value

Red points indicate mean value

Black points indicate outliers beyond whiskers

Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =

Spring Freshet = May to June

Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-4-c

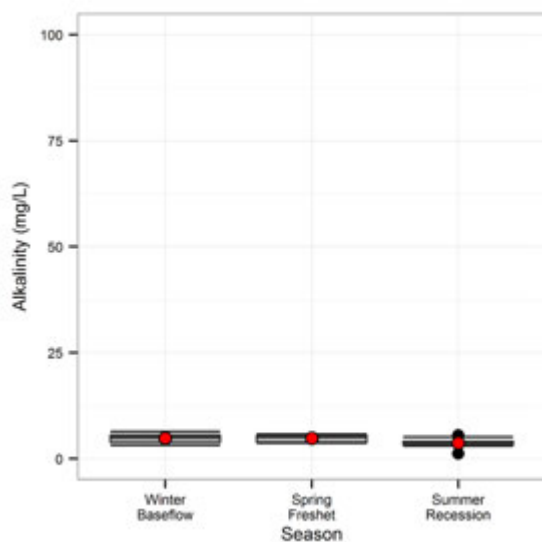
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Water Quality Data

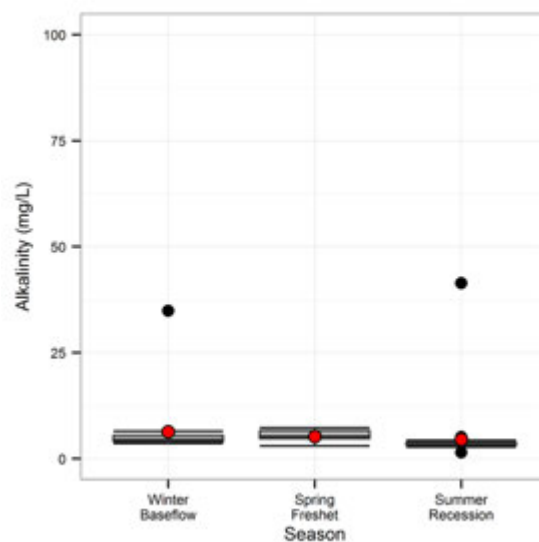
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

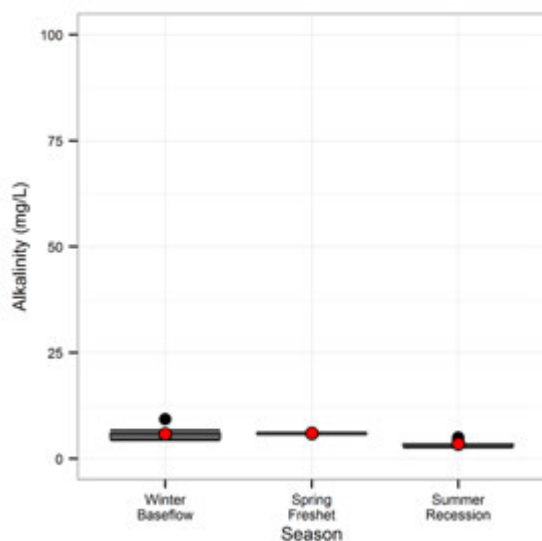
Lac De Gras



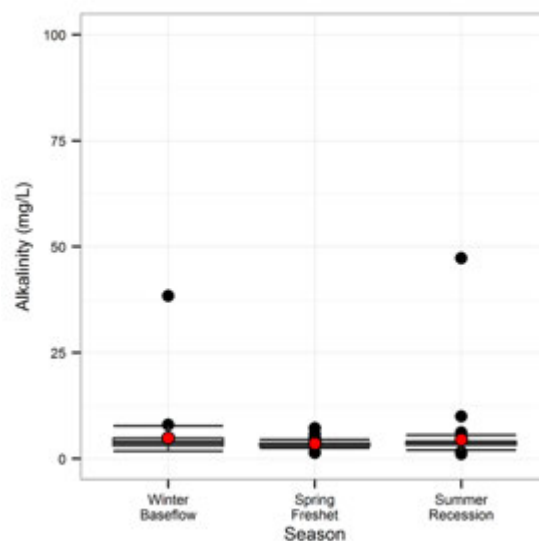
Desteffany Lake



Daring Lake



Point Lake



Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
 Spring Freshet = May to June
 Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-5-a

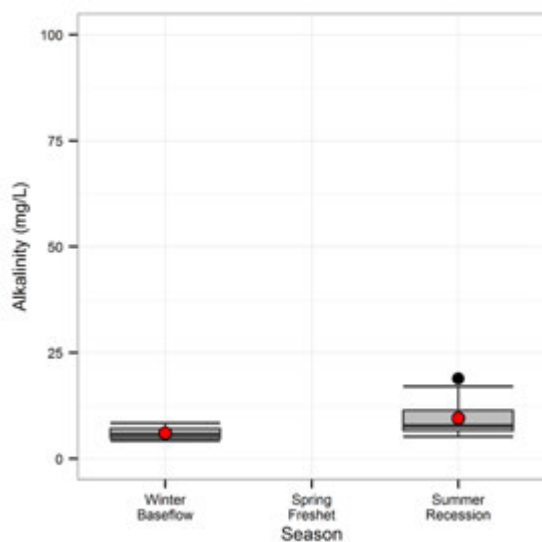
Appendix Title

Water Quality Data

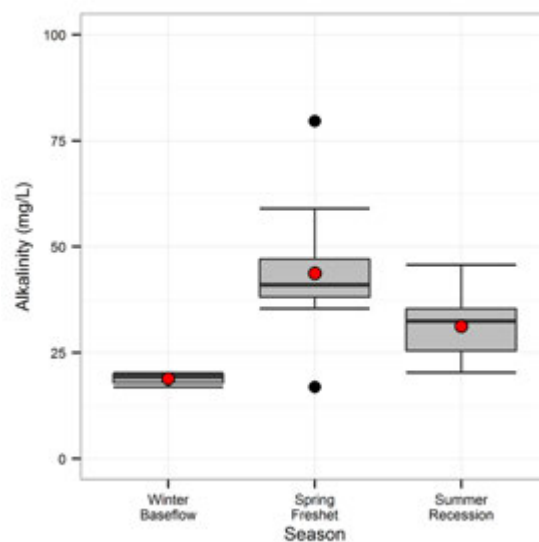
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

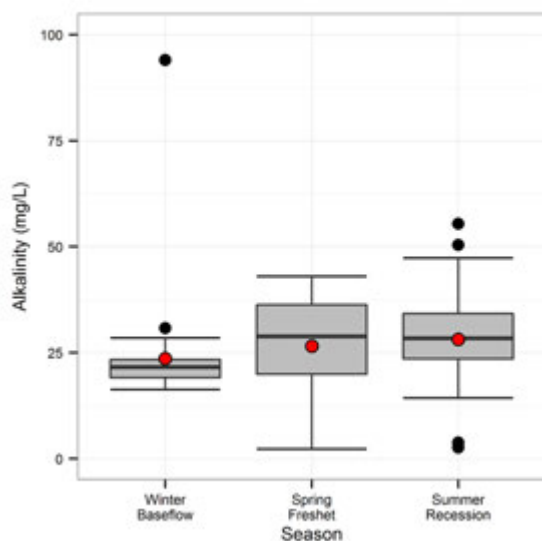
Rocknest Lake



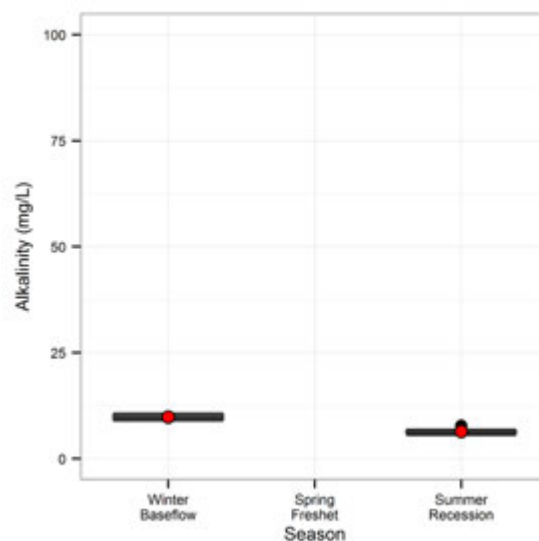
Coppermine River above Copper Creek



Coppermine River Mouth



King Lake



Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-5- b

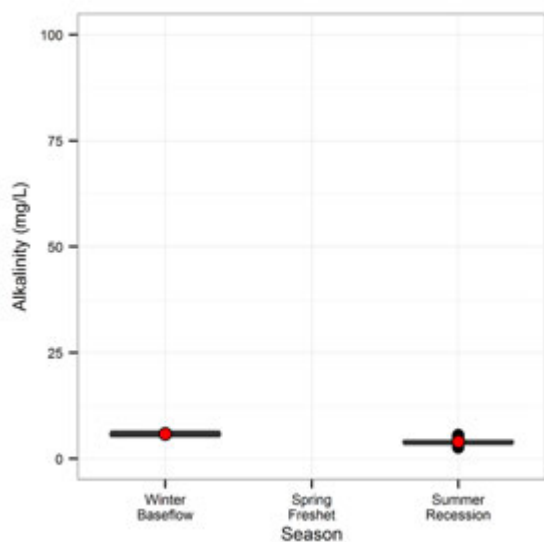
Appendix Title

Water Quality Data

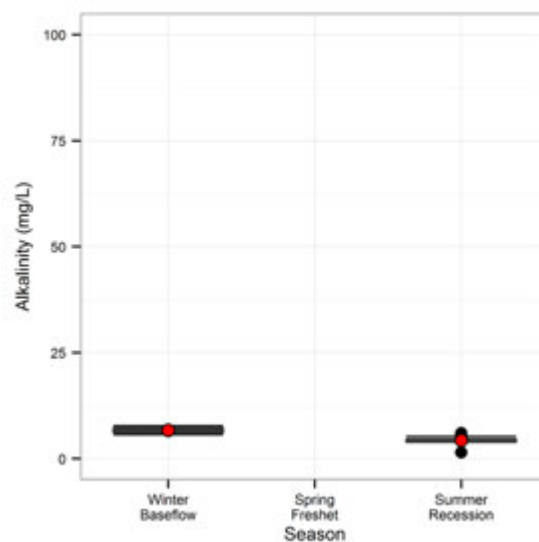
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

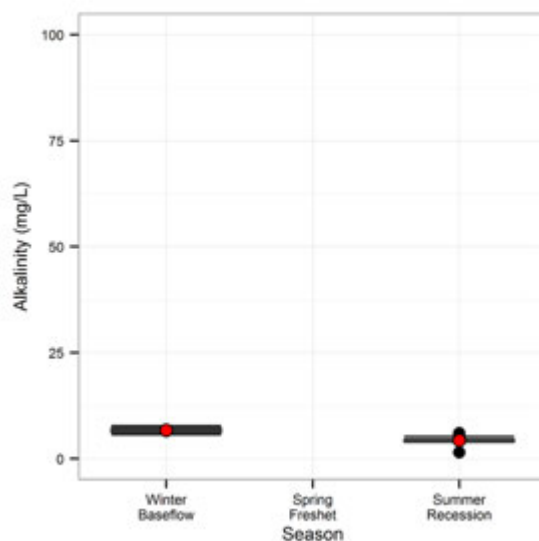
Lake of the Enemy



Mackay Lake



Lockhart River



Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
 Spring Freshet = May to June
 Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-5-c

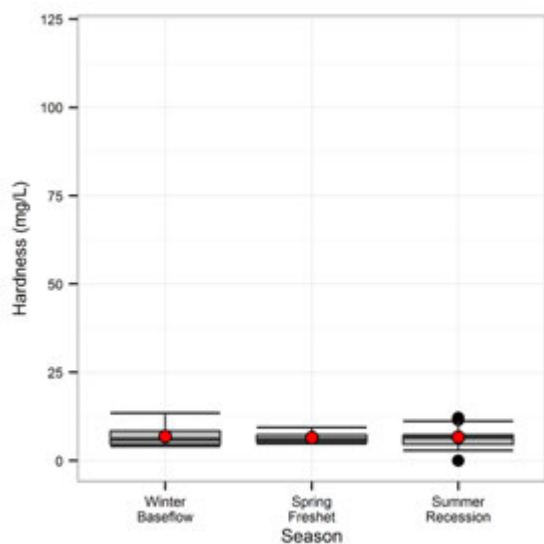
Appendix Title

Water Quality Data

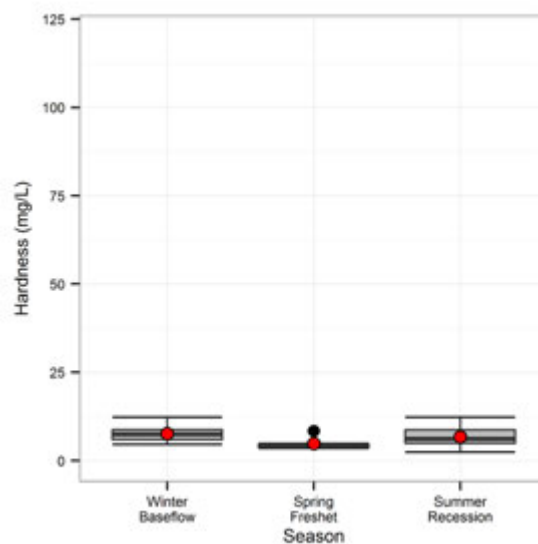
Report Title

Status and Trends of Water Chemistry
 and Flow in the Coppermine and
 Lockhart River Basins Draft Report

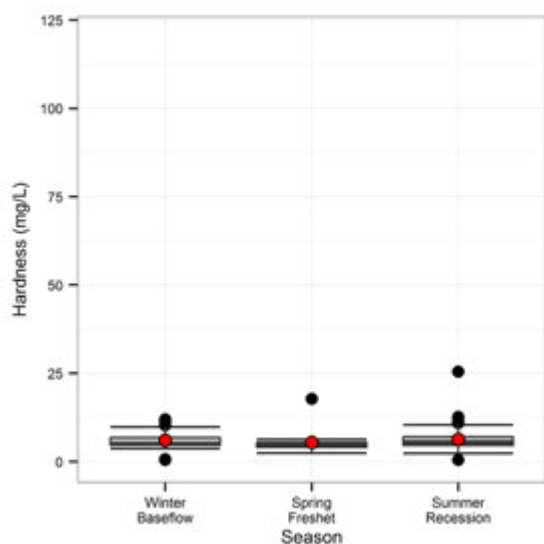
Lac De Gras



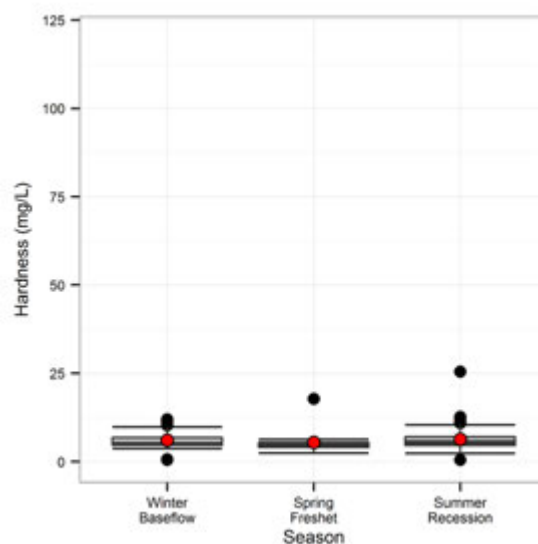
Desteffany Lake



Daring Lake



Point Lake



Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
 Spring Freshet = May to June
 Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-6-a

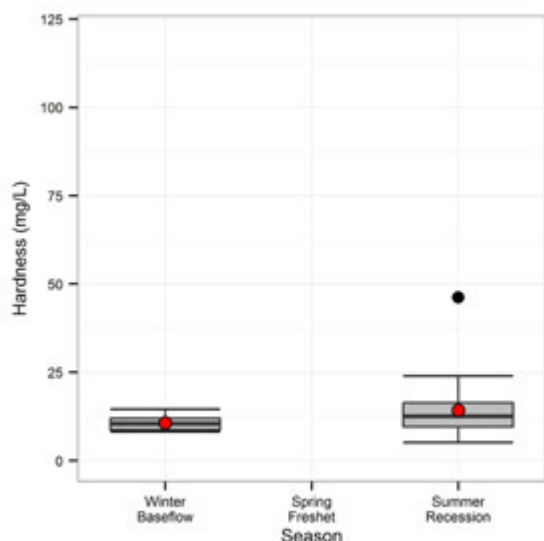
Appendix Title

Water Quality Data

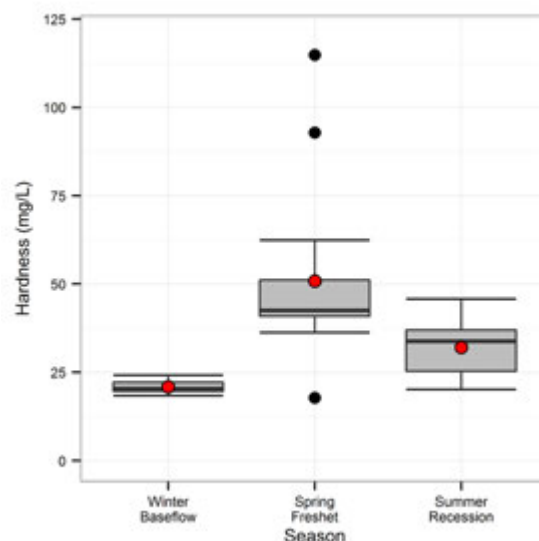
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

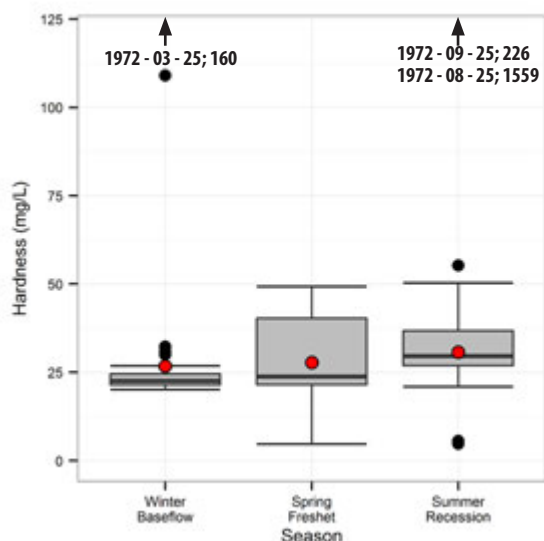
Rocknest Lake



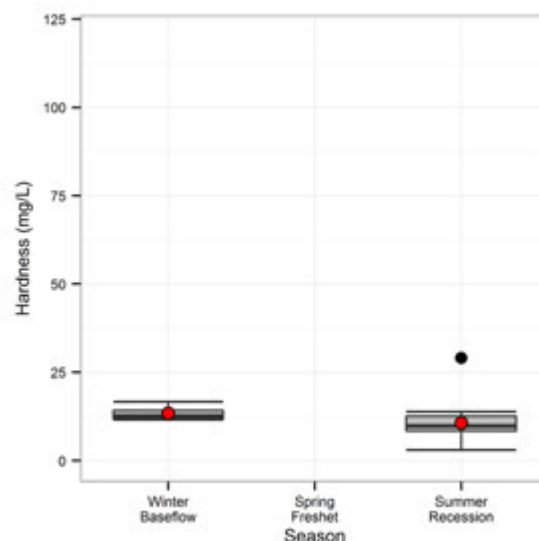
Coppermine River above Copper Creek



Coppermine River Mouth



King Lake



Centre line of boxplot indicates median value
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Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-6- b

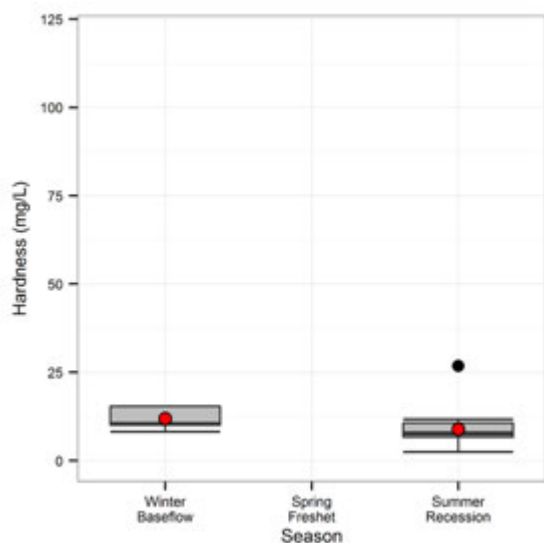
Appendix Title

Water Quality Data

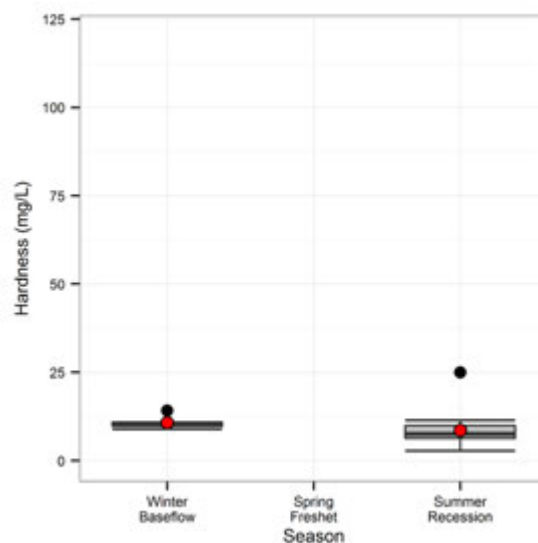
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

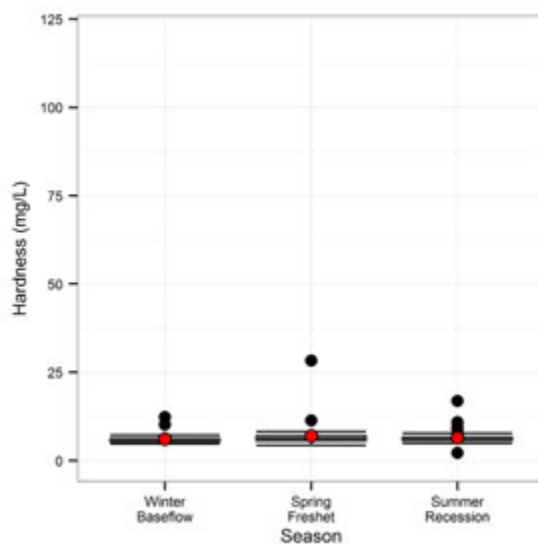
Lake of the Enemy



Mackay Lake



Lockhart River



Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



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Government of Northwest Territories



Appendix No.

B-6-6-c

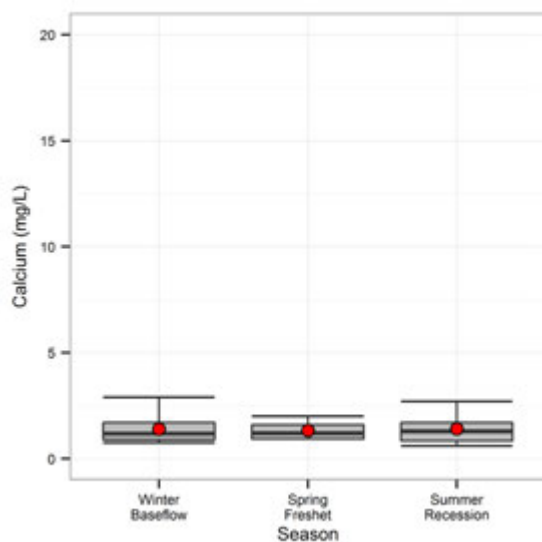
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Water Quality Data

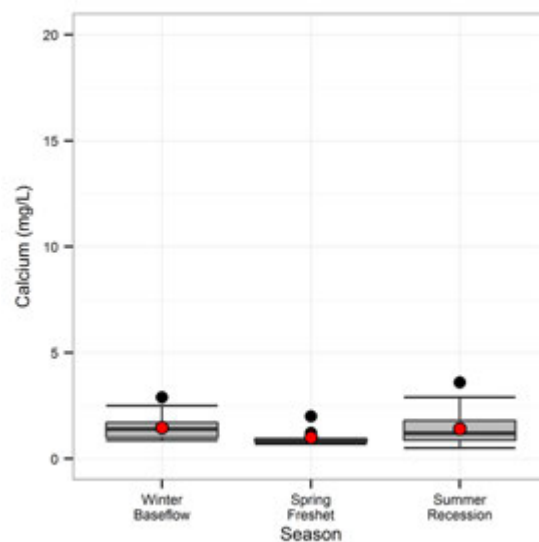
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

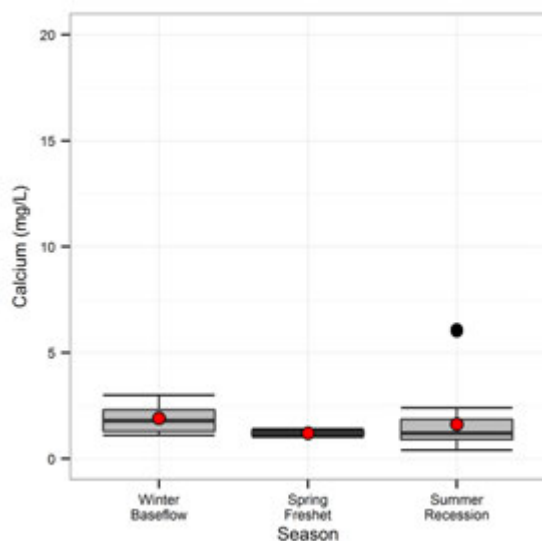
Lac De Gras



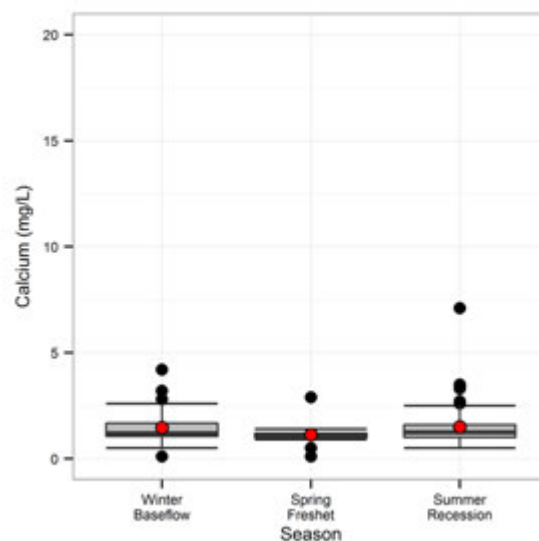
Desteffany Lake



Point Lake



Point Lake



Centre line of boxplot indicates median value
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Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-7-a

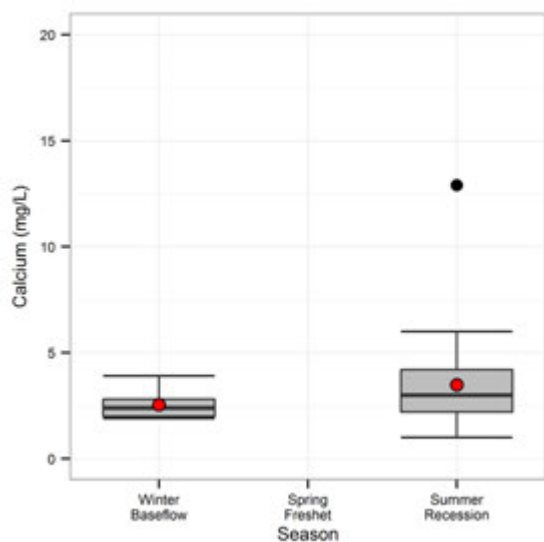
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Water Quality Data

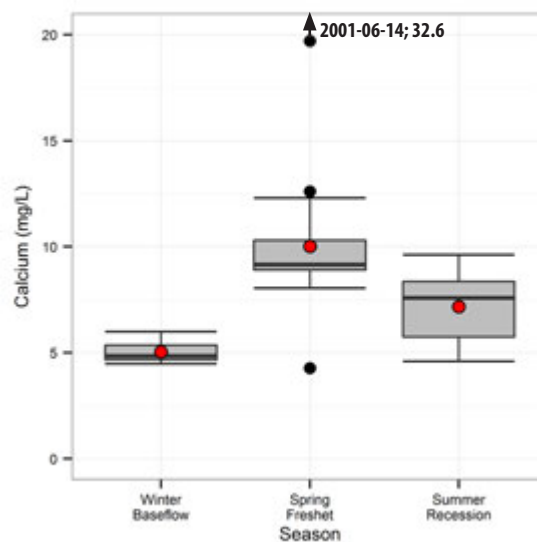
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

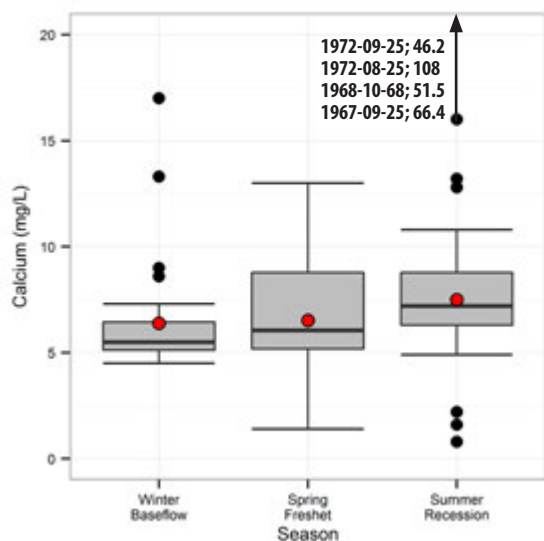
Rocknest Lake



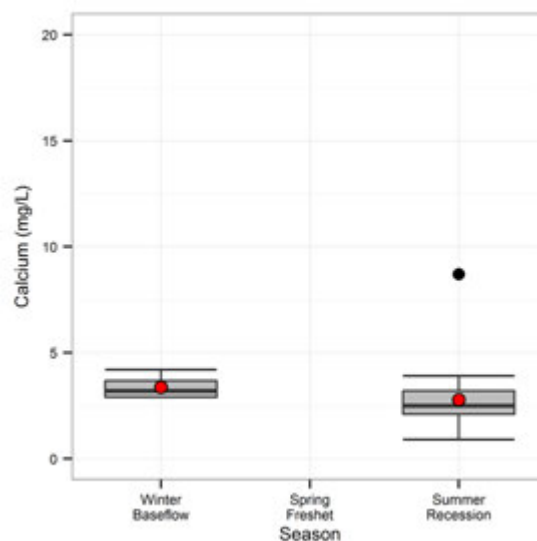
Coppermine River above Copper Creek



Coppermine River Mouth



King Lake



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 Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
 Spring Freshet = May to June
 Summer Recession =



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Government of Northwest Territories



Appendix No.

B-6-7- b

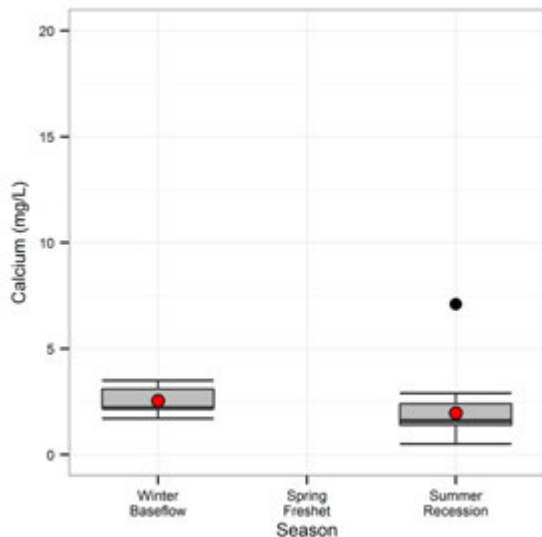
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Water Quality Data

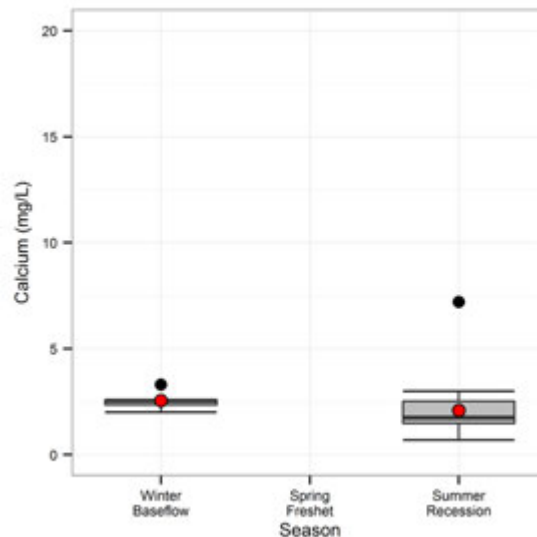
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

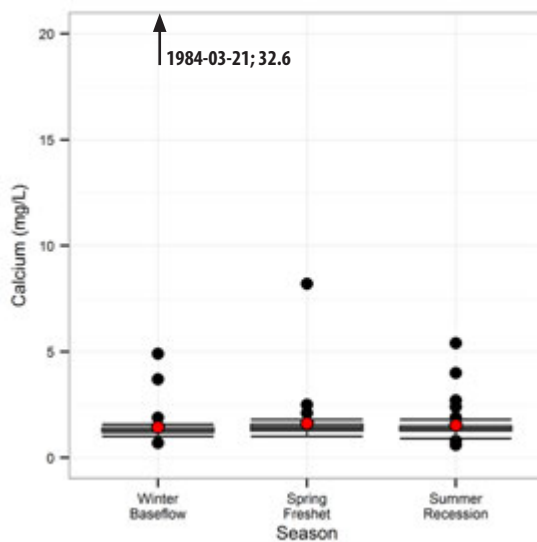
Lake of the Enemy



Mackay Lake



Lockhart River



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 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
 Spring Freshet = May to June
 Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-7- c

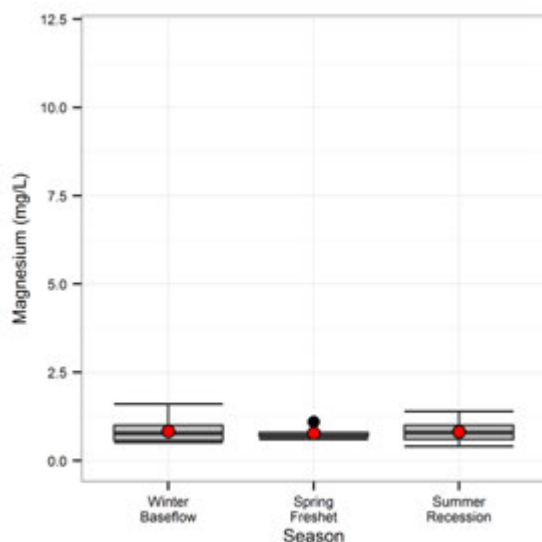
Appendix Title

Water Quality Data

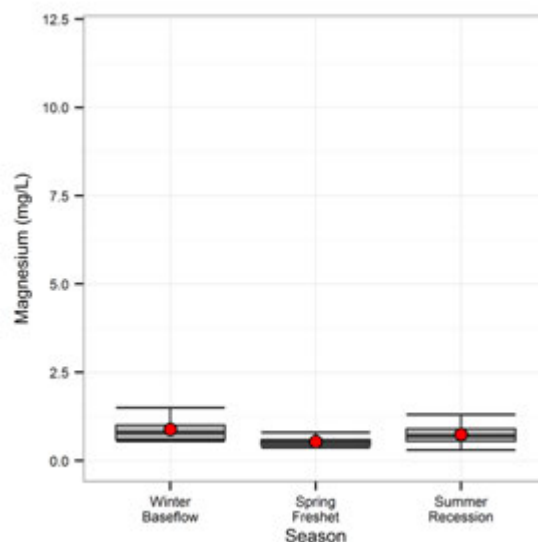
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

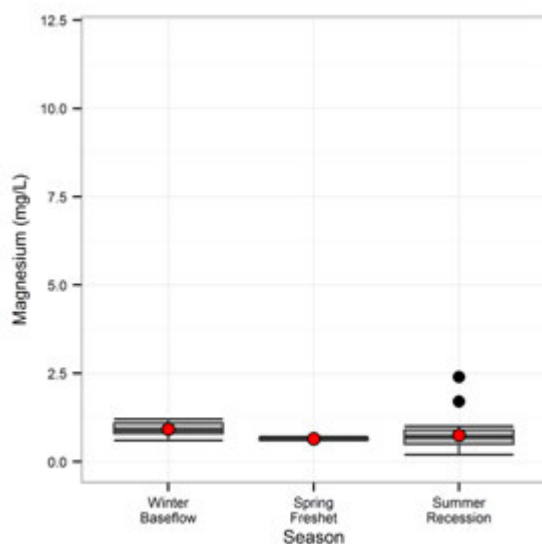
Lac De Gras



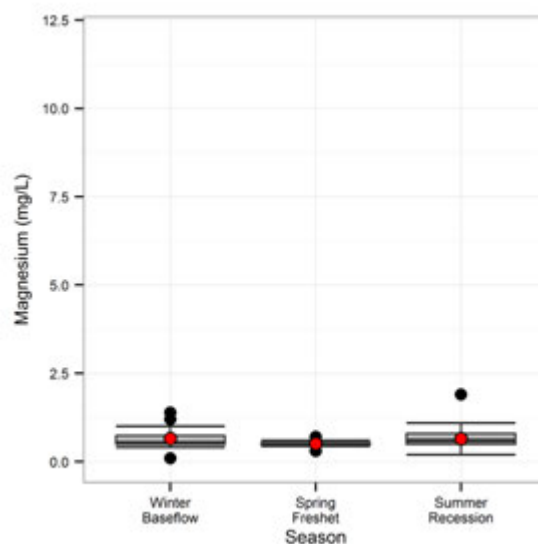
Desteffany Lake



Daring Lake



Point Lake



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Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-8-a

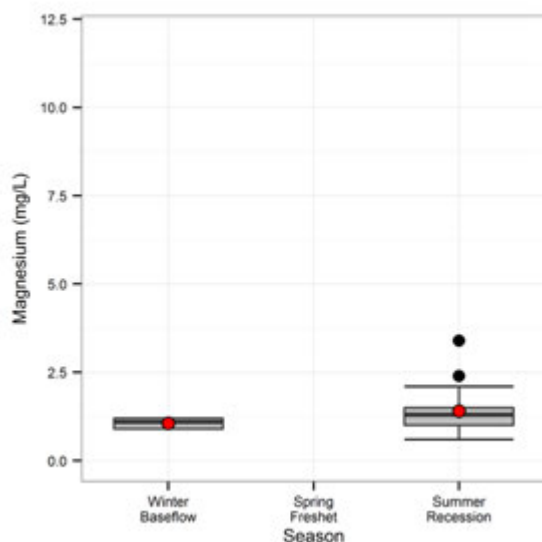
Appendix Title

Water Quality Data

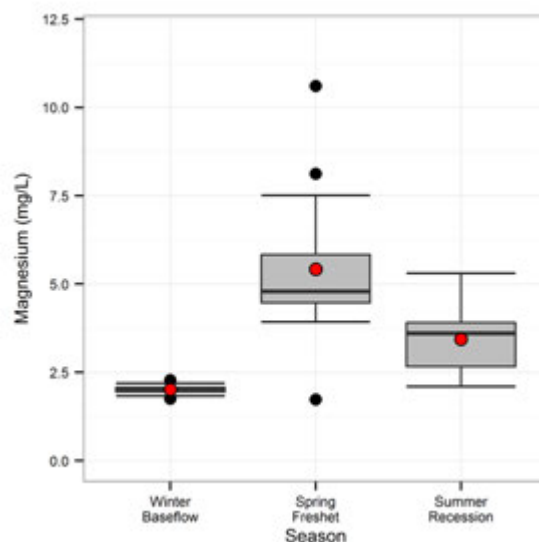
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

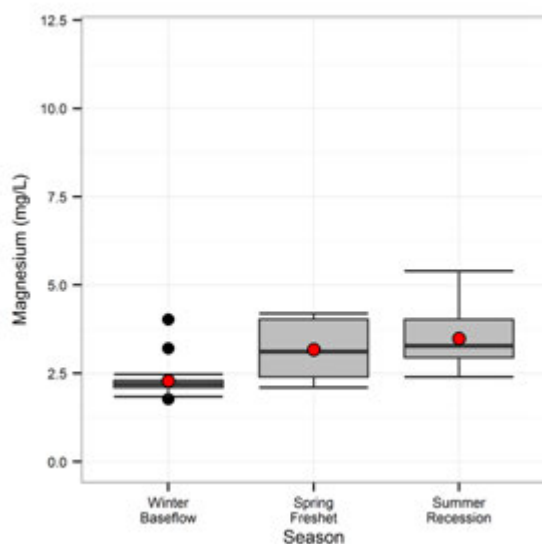
Rocknest Lake



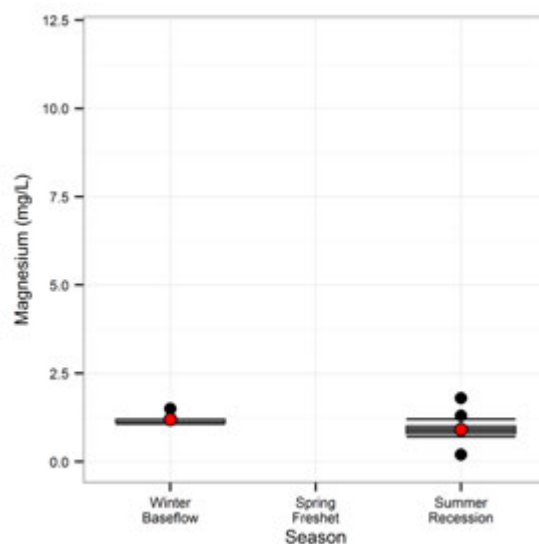
Coppermine River above Copper Creek



Coppermine River Mouth



King Lake



Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
 Spring Freshet = May to June
 Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-8- b

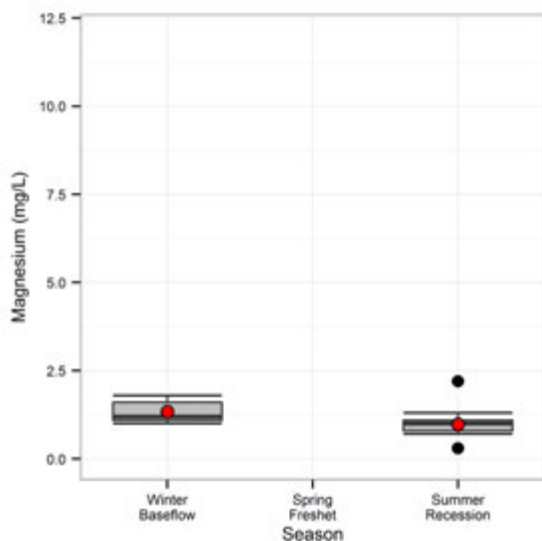
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Water Quality Data

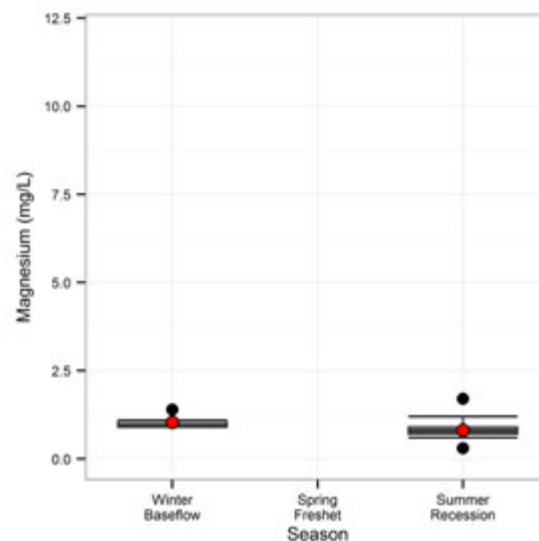
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

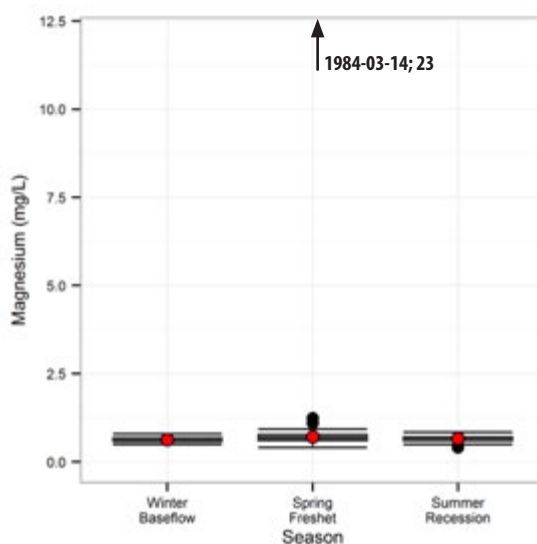
Lake of the Enemy



Mackay Lake



Lockhart River



Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
 Spring Freshet = May to June
 Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-8-c

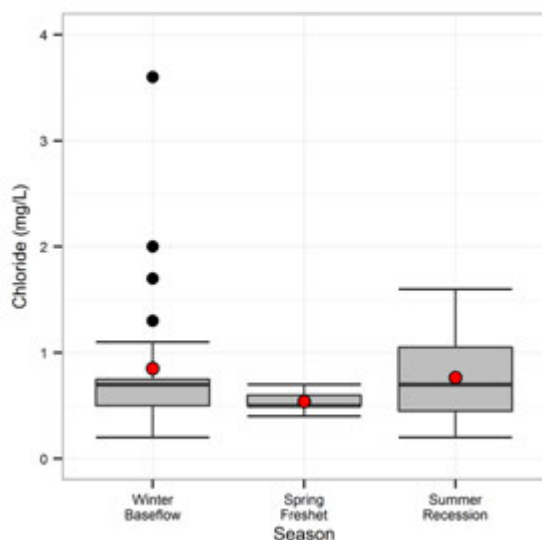
Appendix Title

Water Quality Data

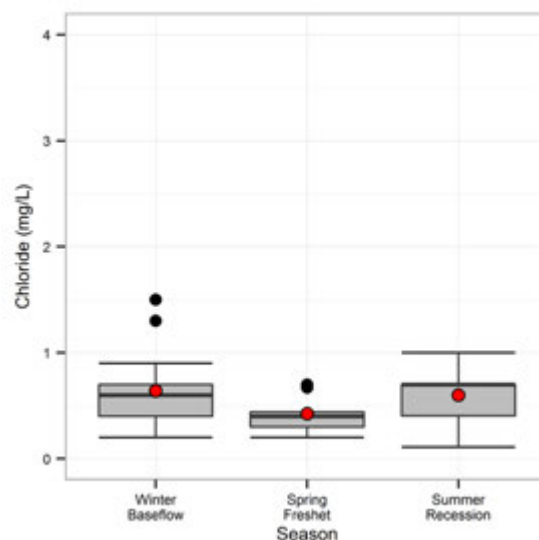
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

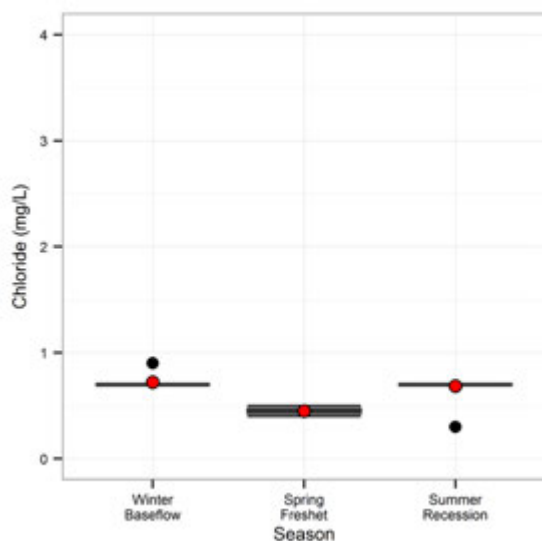
Lac De Gras



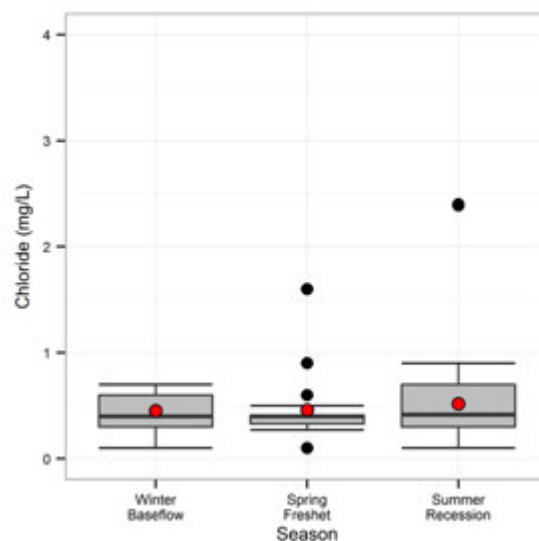
Desteffany Lake



Daring Lake



Point Lake



Parameter	CCME (Long term)	CCME (Short term)
Guideline value (mg/l)	120*	640*

*Guideline not shown on graphs.

Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-9-a

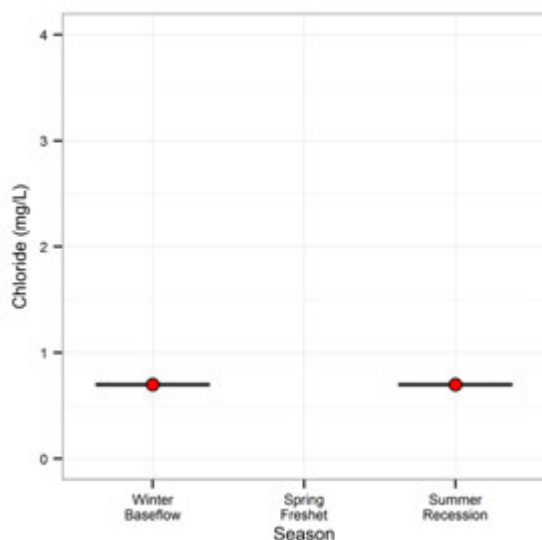
Appendix Title

Water Quality Data

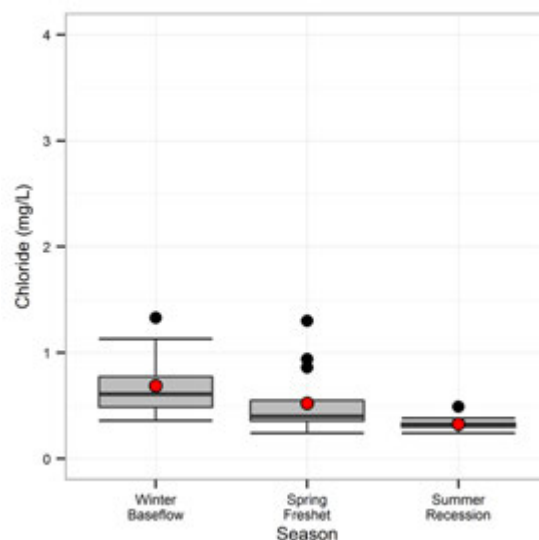
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

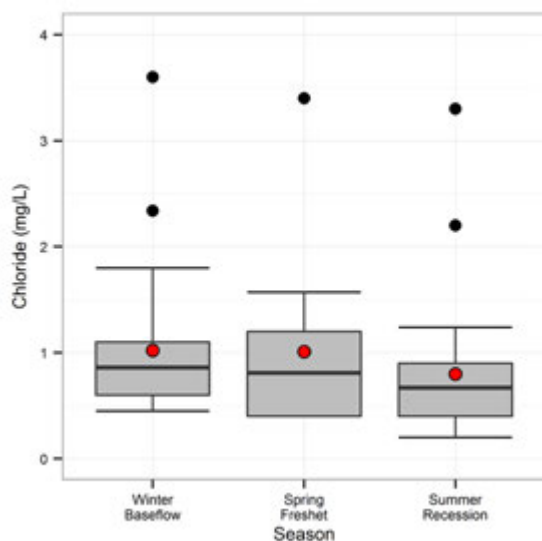
Rocknest Lake



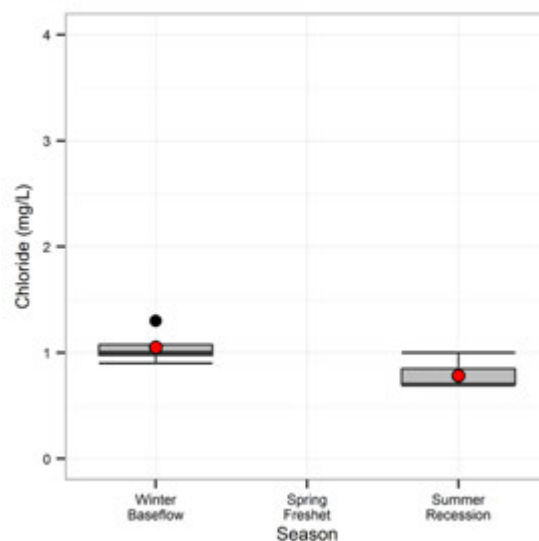
Coppermine River above Copper Creek



Coppermine River Mouth



King Lake



Parameter	CCME (Long term)	CCME (Short ter
Guideline value (mg/l)	120*	640*

*Guideline not shown on graphs.

Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
 Spring Freshet = May to June
 Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-9-b

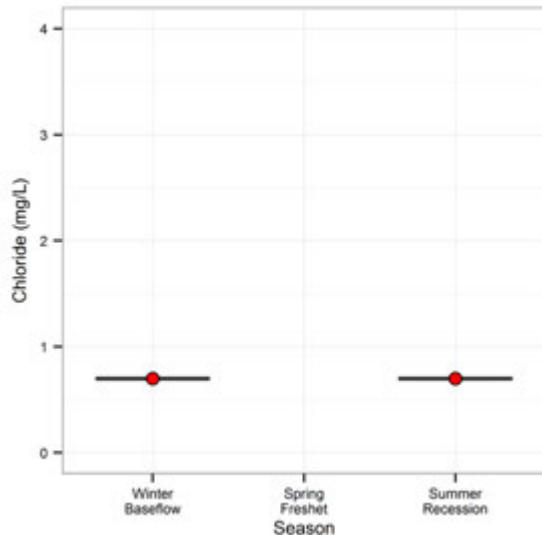
Appendix Title

Water Quality Data

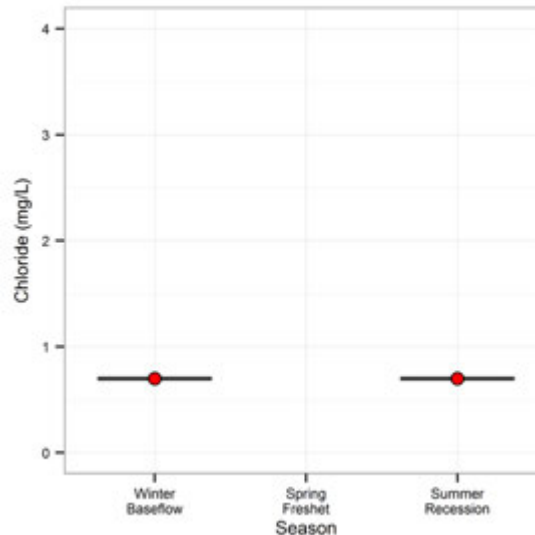
Report Title

Status and Trends of Water Chemistry
 and Flow in the Coppermine and
 Lockhart River Basins Draft Report

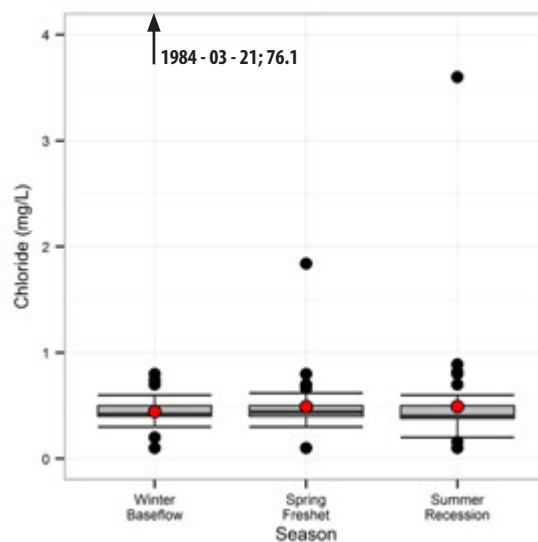
Lake of the Enemy



Mackay Lake



Lockhart River



Parameter	CCME (Long term)	CCME (Short term)
Line type	Dashed	
Guideline value (mg/l)	120	640

Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
 Spring Freshet = May to June
 Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-9-c

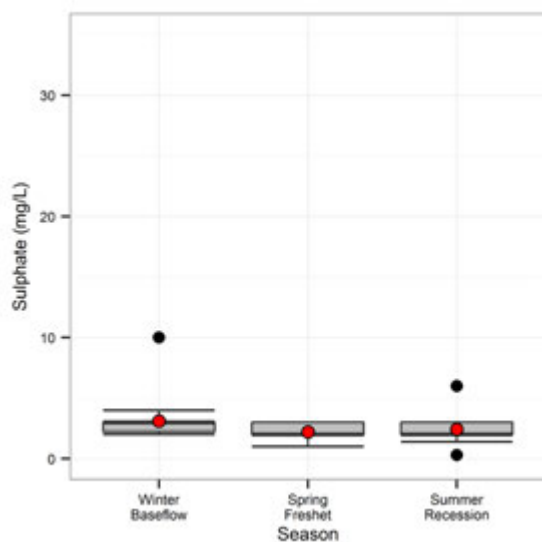
Appendix Title

Water Quality Data

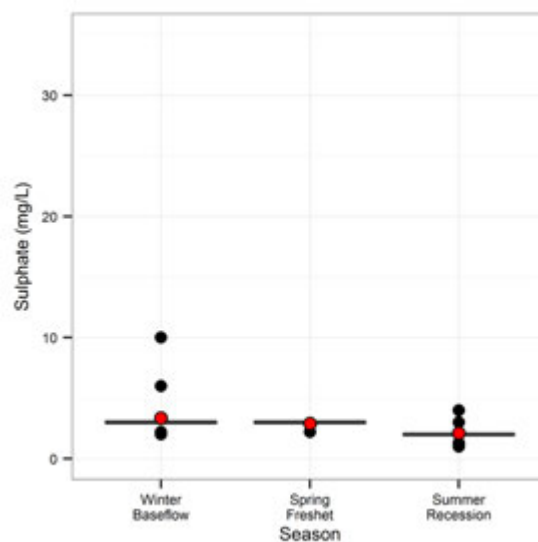
Report Title

Status and Trends of Water Chemistry
 and Flow in the Coppermine and
 Lockhart River Basins Draft Report

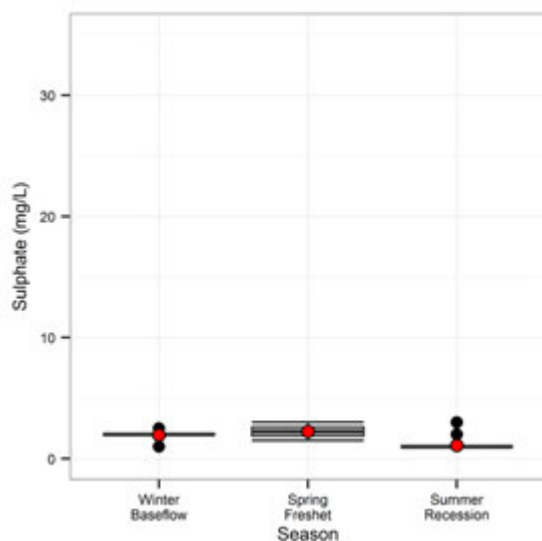
Lac De Gras



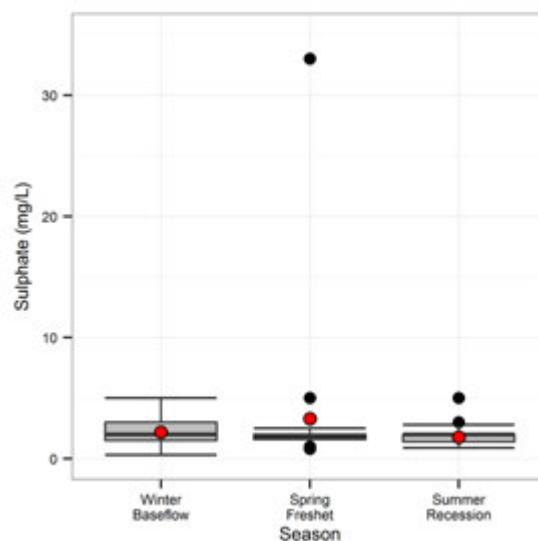
Desteffany Lake



Daring Lake



Point Lake



Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-10- a

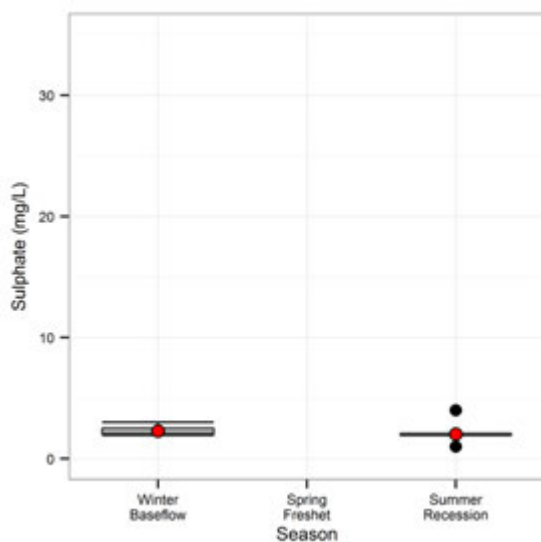
Appendix Title

Water Quality Data

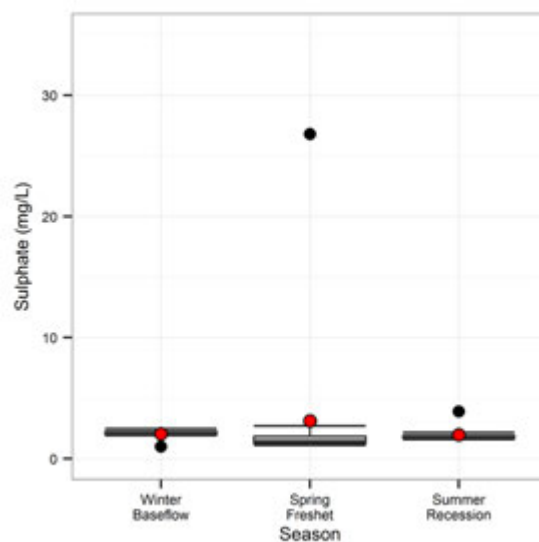
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

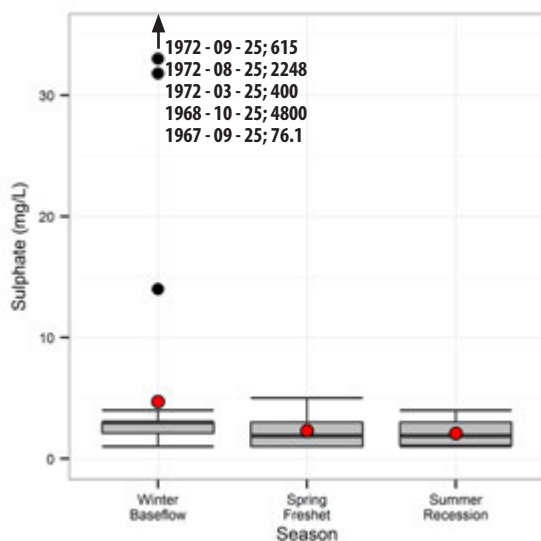
Rocknest Lake



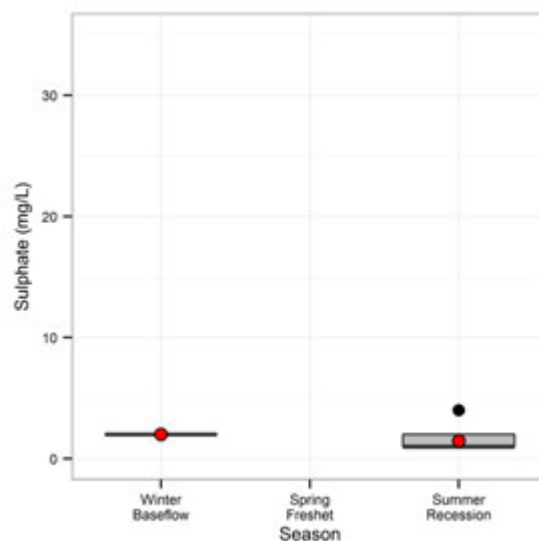
Coppermine River above Copper Creek



Coppermine River Mouth



King Lake



Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-10- b

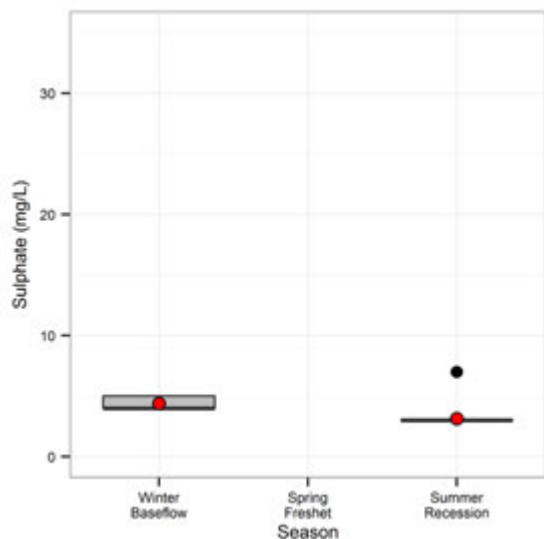
Appendix Title

Water Quality Data

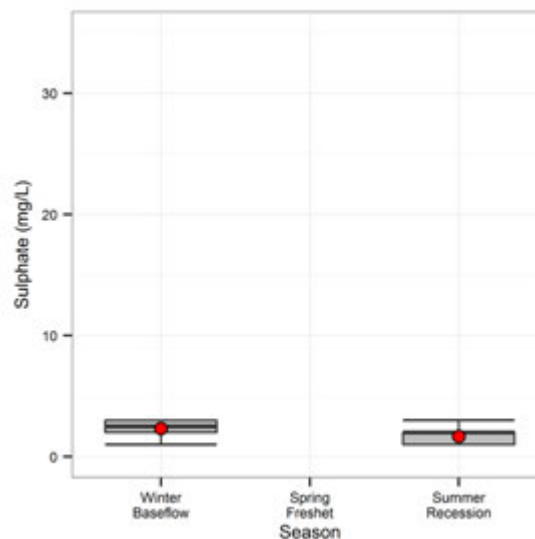
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

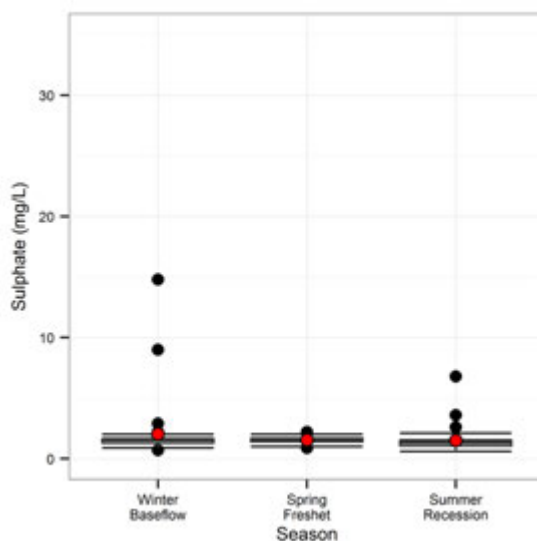
Lake of the Enemy



Mackay Lake



Lockhart River



Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-10- c

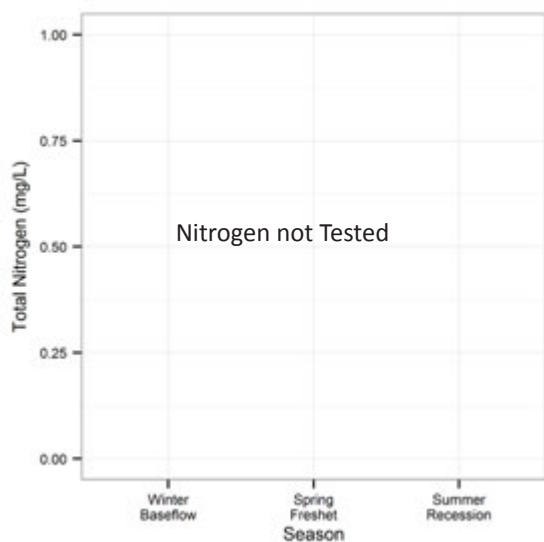
Appendix Title

Water Quality Data

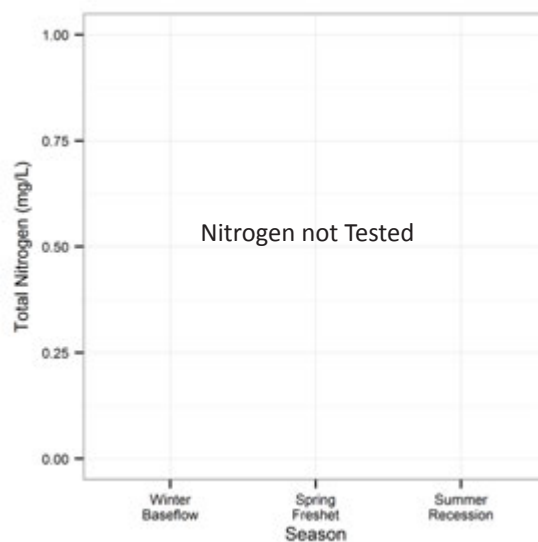
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

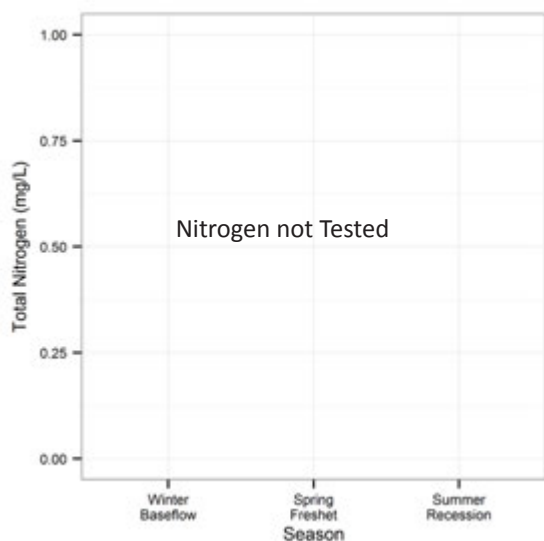
Lac De Gras



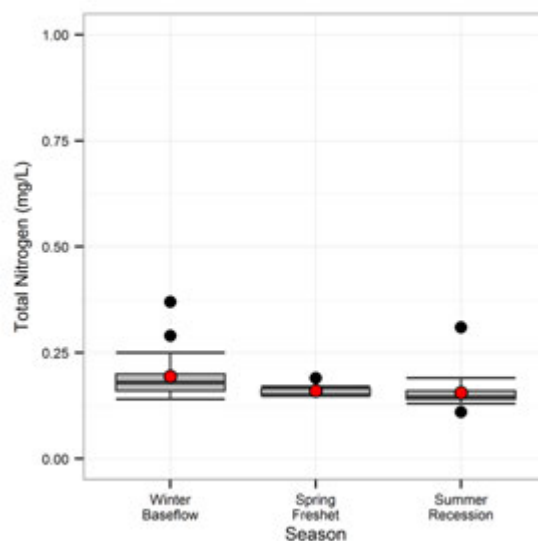
Desteffany Lake



Daring Lake



Point Lake



Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-11-a

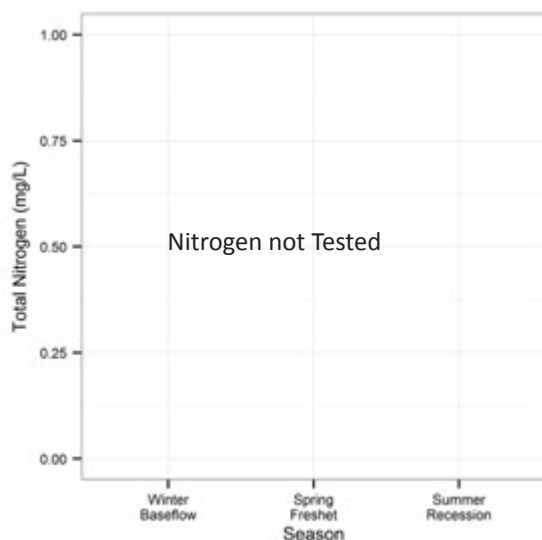
Appendix Title

Water Quality Data

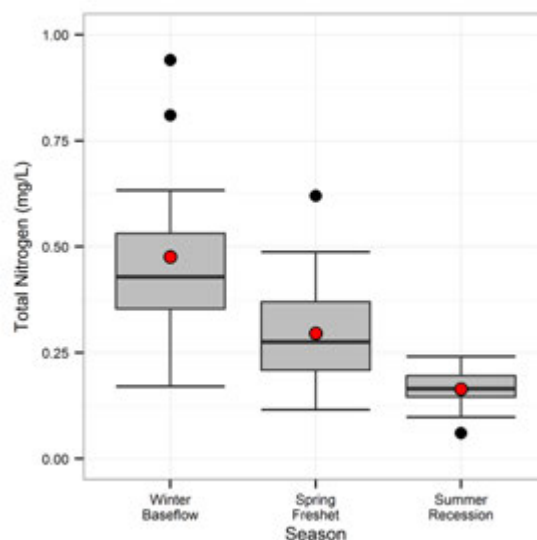
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

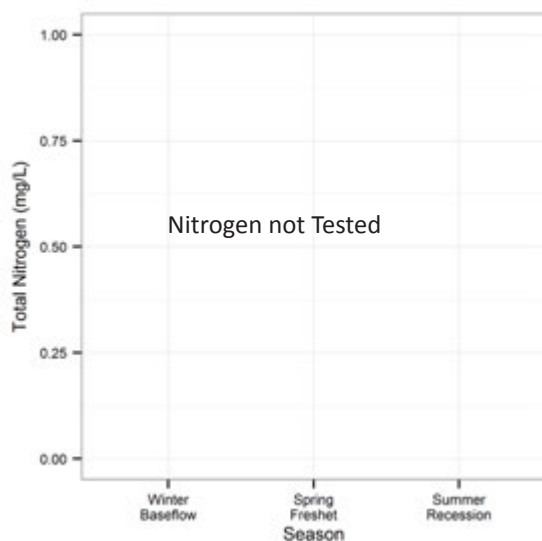
Rocknest Lake



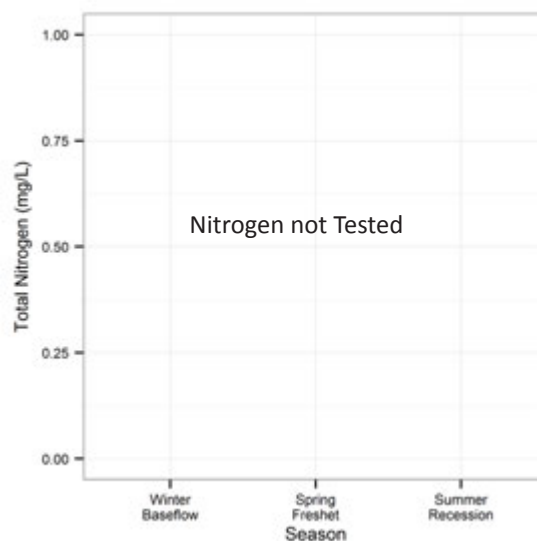
Coppermine River above Copper Creek



Coppermine River Mouth



King Lake



Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-11- b

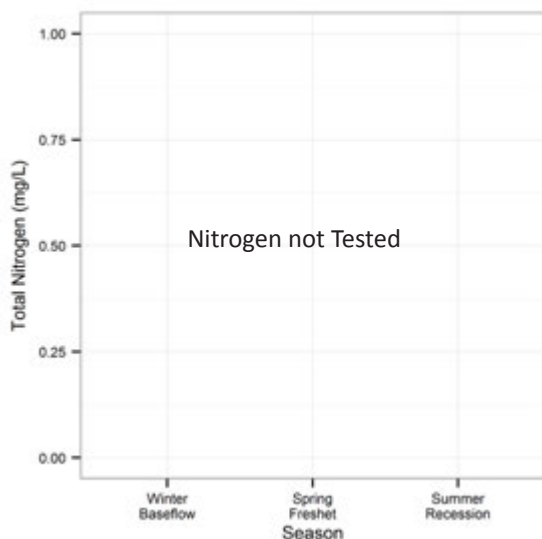
Appendix Title

Water Quality Data

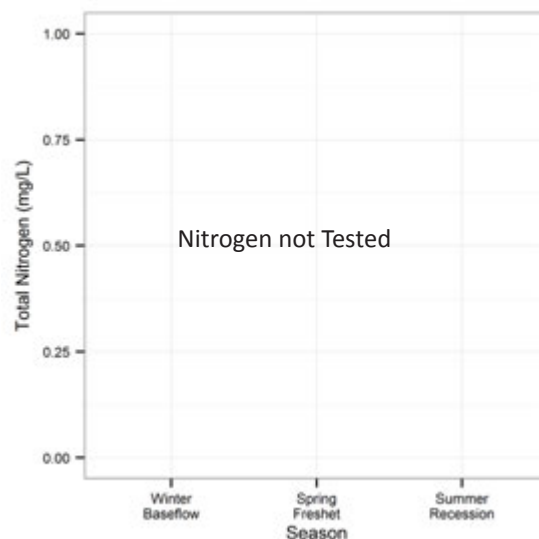
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

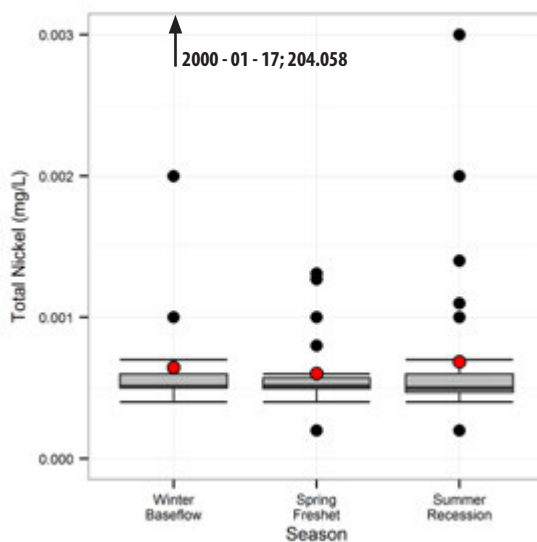
Lake of the Enemy



Mackay Lake



Lockhart River



Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-11- c

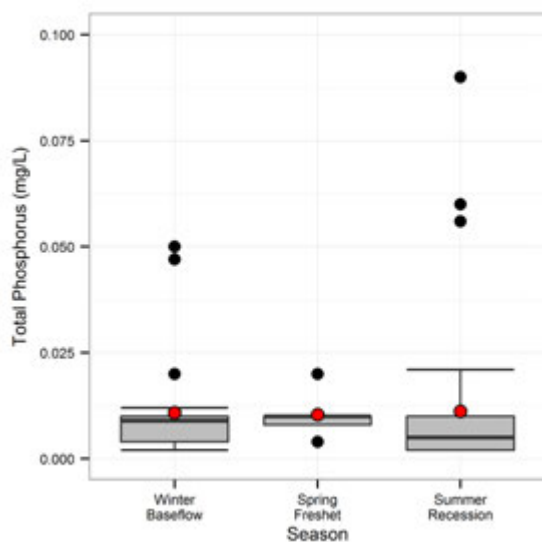
Appendix Title

Water Quality Data

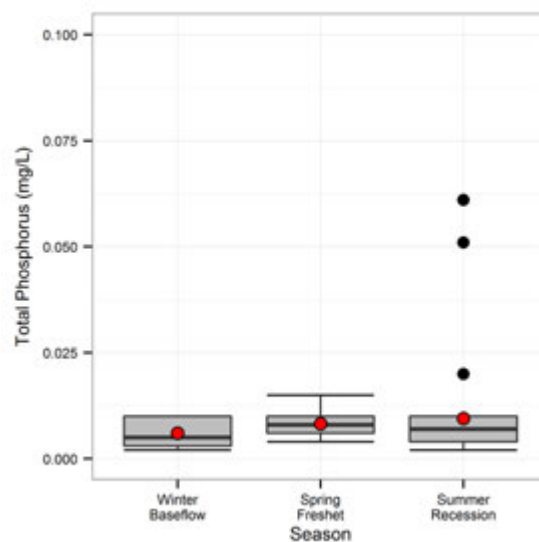
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

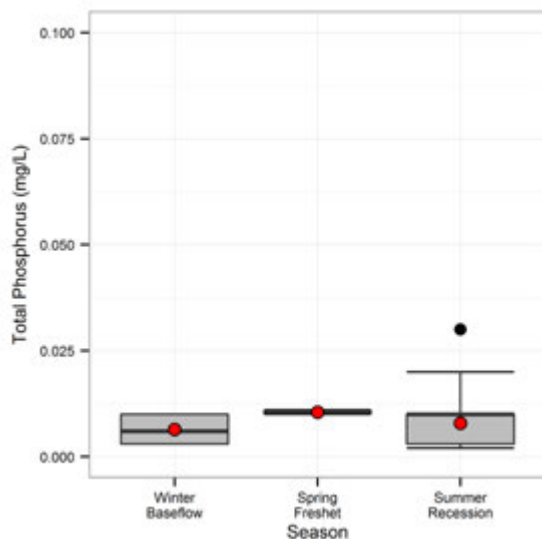
Lac De Gras



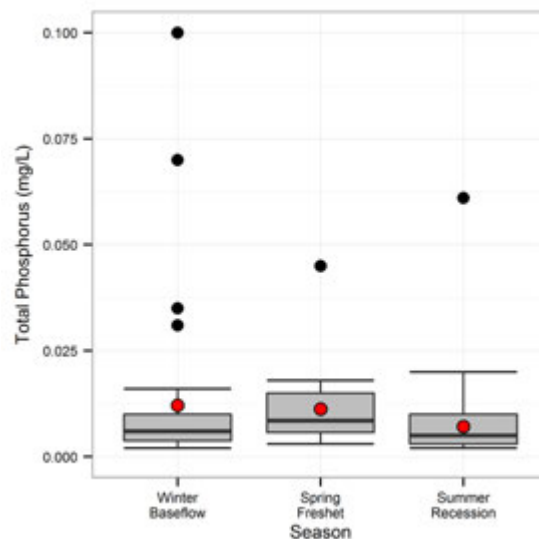
Desteffany Lake



Daring Lake



Point Lake



Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-12- a

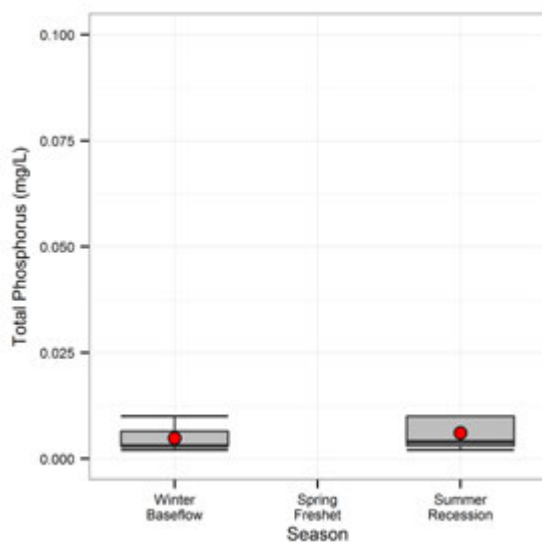
Appendix Title

Water Quality Data

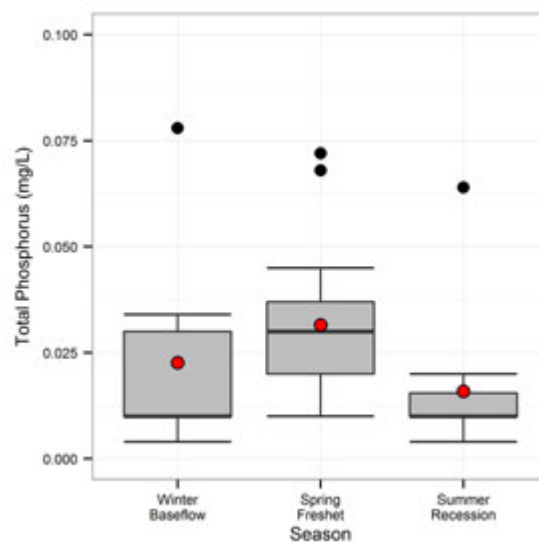
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

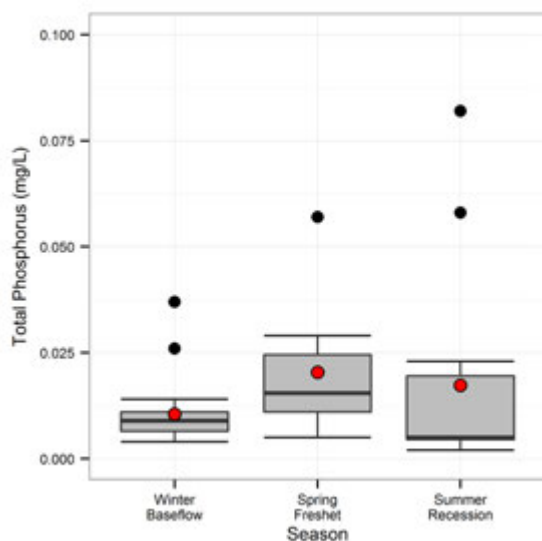
Rocknest Lake



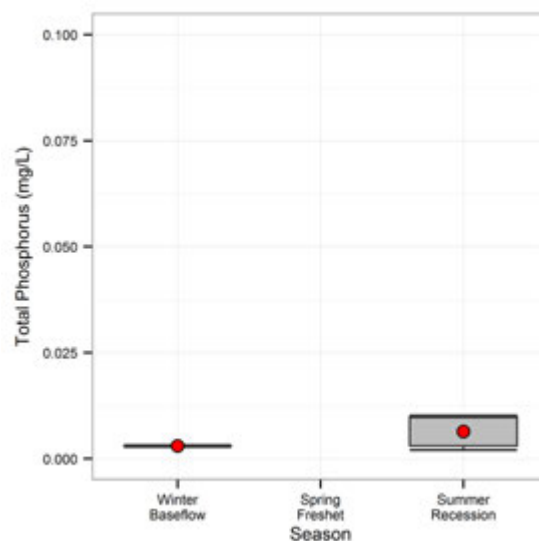
Coppermine River above Copper Creek



Coppermine River Mouth



King Lake



Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-12- b

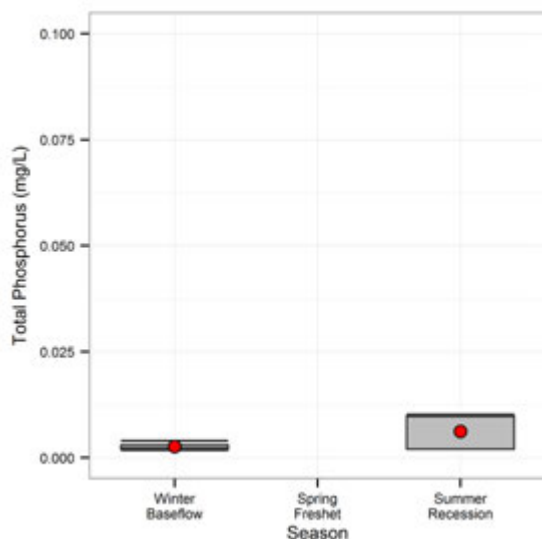
Appendix Title

Water Quality Data

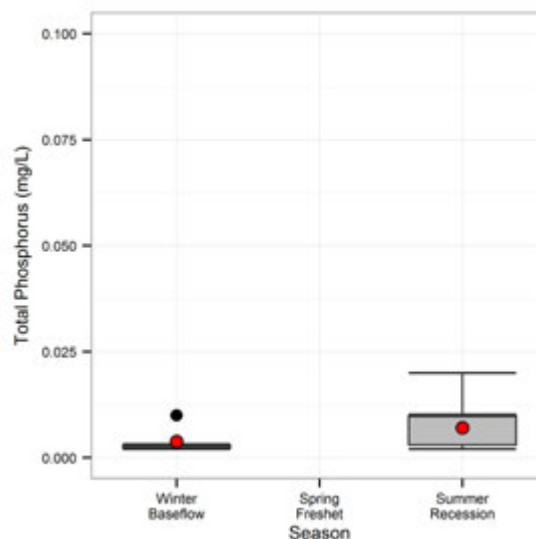
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

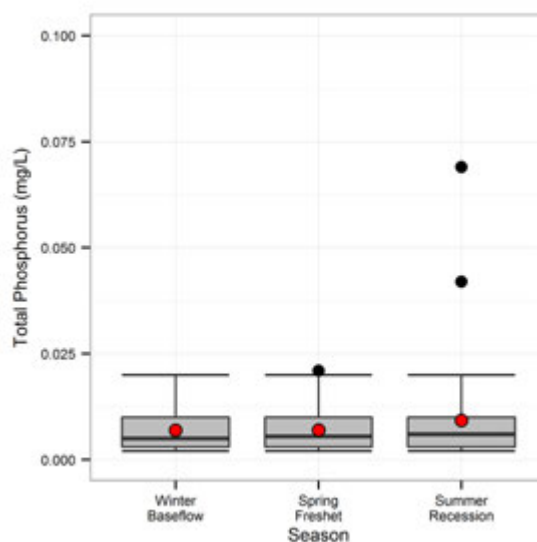
Lake of the Enemy



Mackay Lake



Lockhart River



Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-12- c

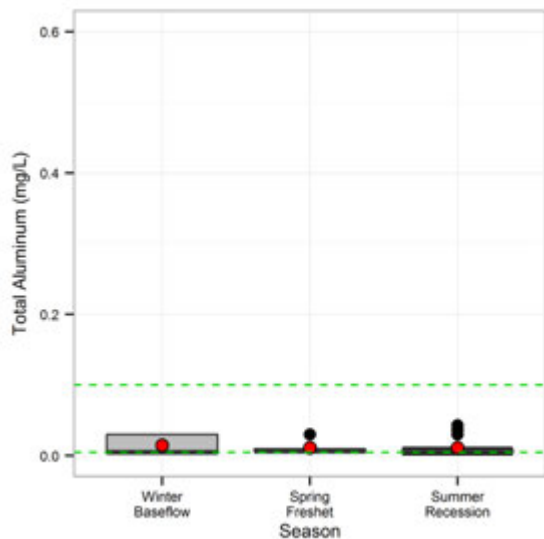
Appendix Title

Water Quality Data

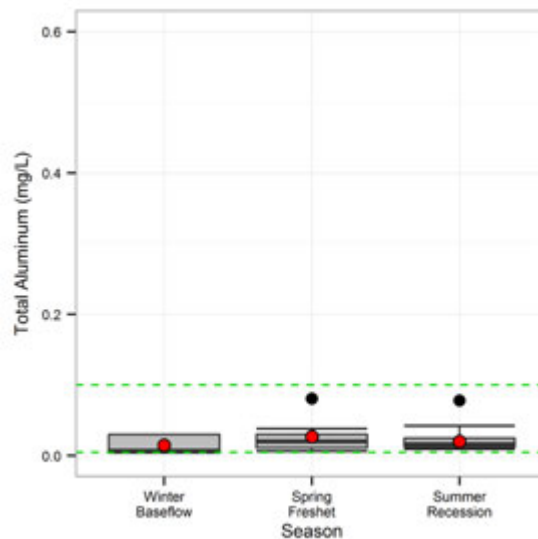
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

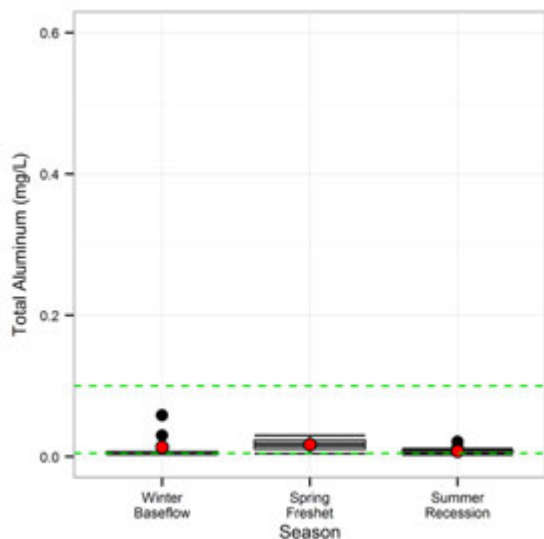
Lac De Gras



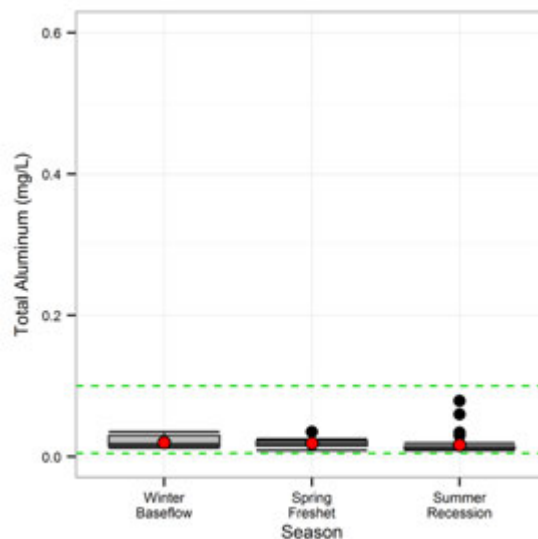
Desteffany Lake



Daring Lake



Point Lake



Parameter CCME (Long term)

Line type

Guideline value (mg/L)

0.005 at pH < 6.5, 0.1
at pH ≥ 6.5

Centre line of boxplot indicates median value

Red points indicate mean value

Black points indicate outliers beyond whiskers

Whiskers extend to the highest/lowest value within

1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =

Spring Freshet = May to June

Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-13- a

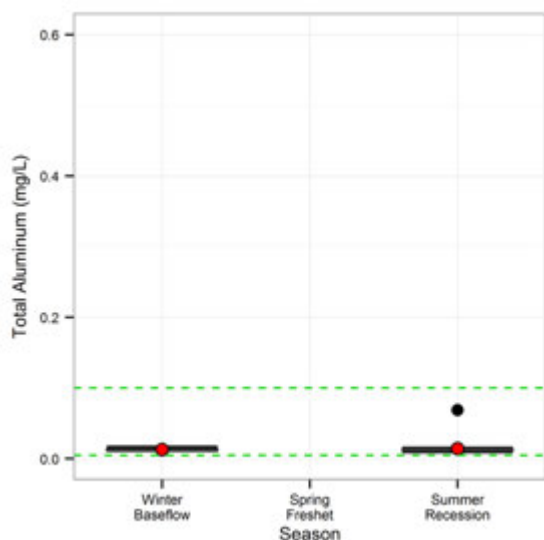
Appendix Title

Water Quality Data

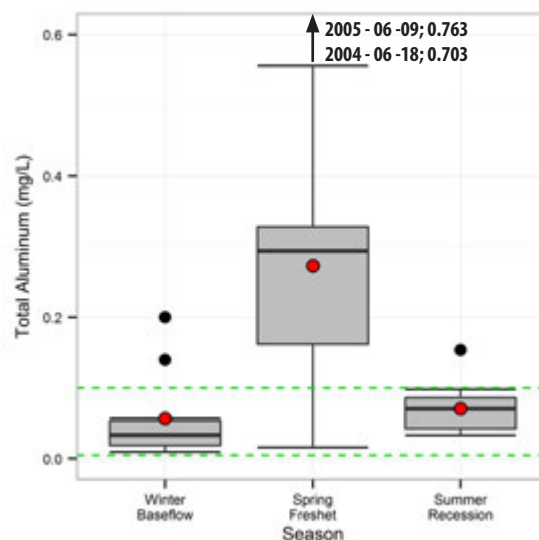
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

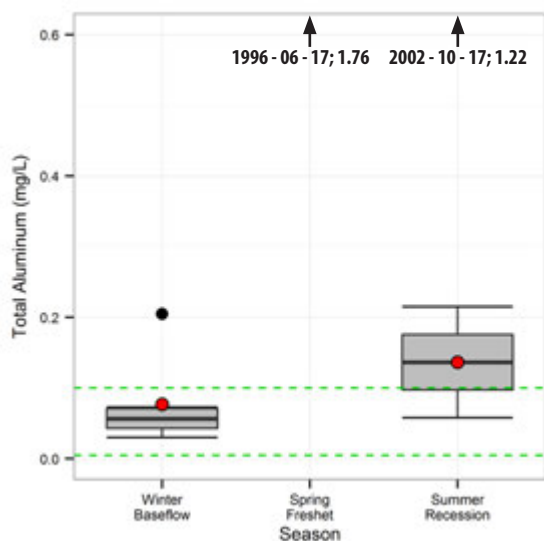
Rocknest Lake



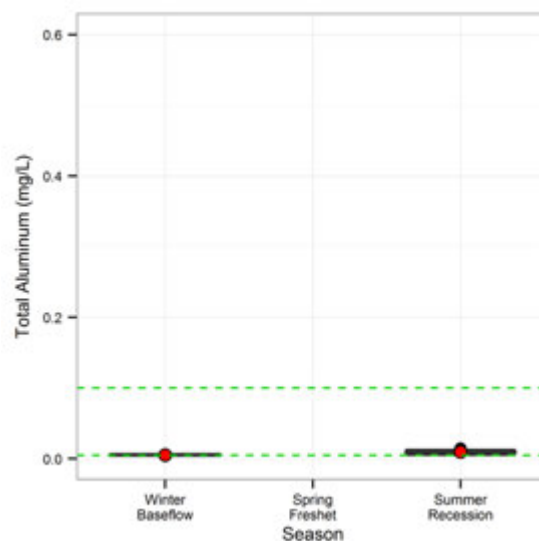
Coppermine River above Copper Creek



Coppermine River Mouth



King Lake



Parameter	CCME (Long term)
Line type	-----
Guideline value (mg/L)	0.005 at pH < 6.5, 0.1 at pH ≥ 6.5

Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
 Spring Freshet = May to June
 Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-13- b

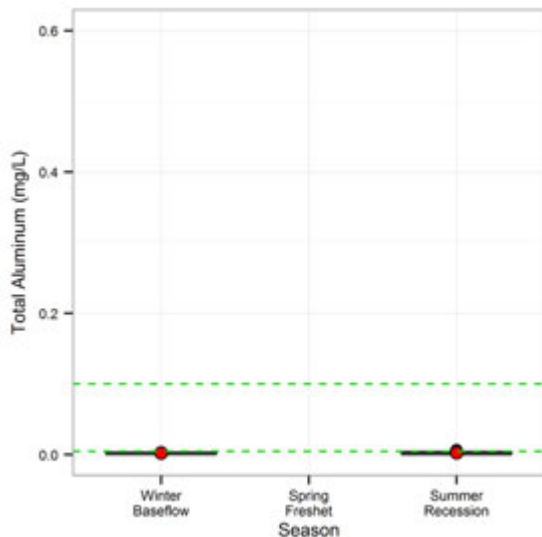
Appendix Title

Water Quality Data

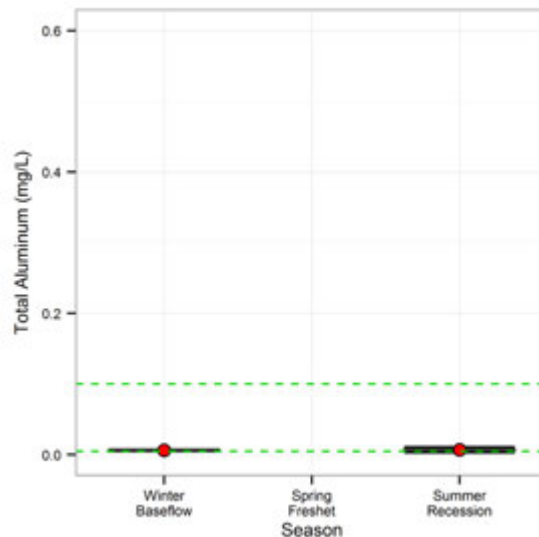
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

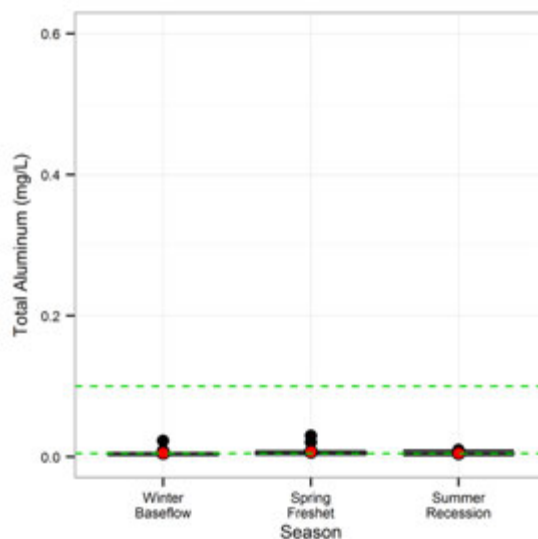
Lake of the Enemy



Mackay Lake



Lockhart River



Parameter

CCME (Long term)

Line type	
Guideline value (mg/L)	0.005 at pH < 6.5, 0.1 at pH ≥ 6.5

Centre line of boxplot indicates median value

Red points indicate mean value

Black points indicate outliers beyond whiskers

Whiskers extend to the highest/lowest value within

1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =

Spring Freshet = May to June

Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-13- c

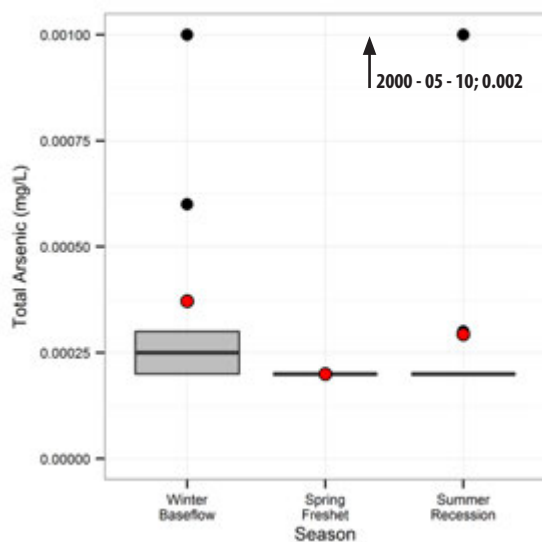
Appendix Title

Water Quality Data

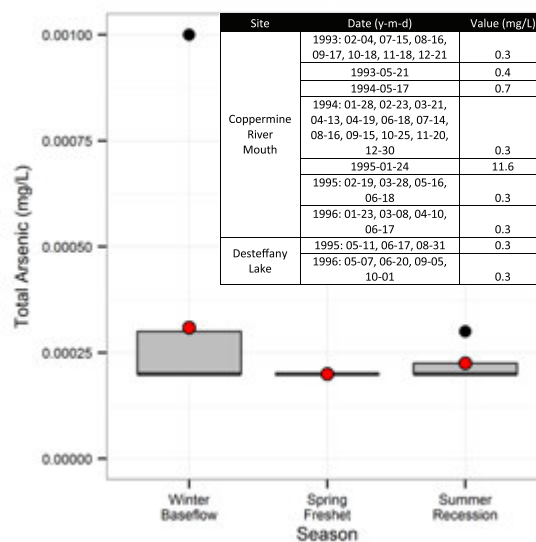
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

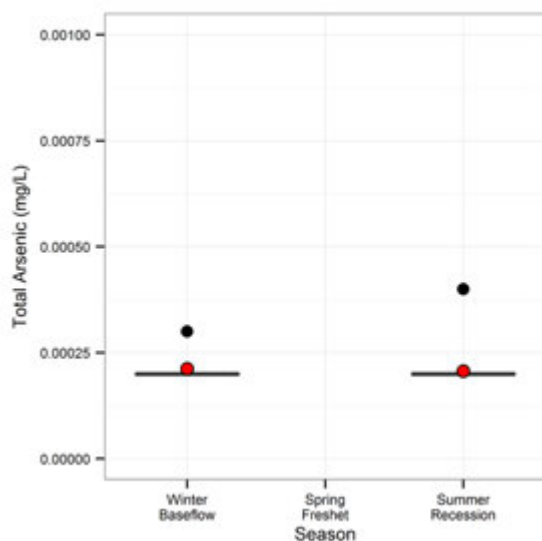
Lac De Gras



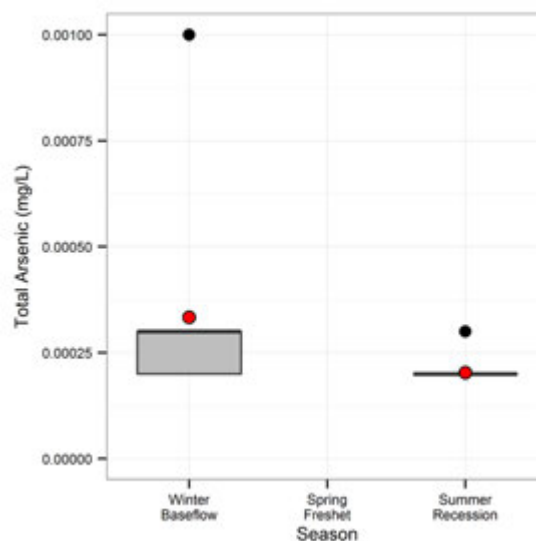
Desteffany Lake



Daring Lake



Point Lake



Parameter

CCME (Long term)

HC DWQG (Health Canada Drinking Water Quality Guidelines)

Guideline value (mg/L)

0.005*

0.01*

*Guideline not shown on graph.

Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-14-a

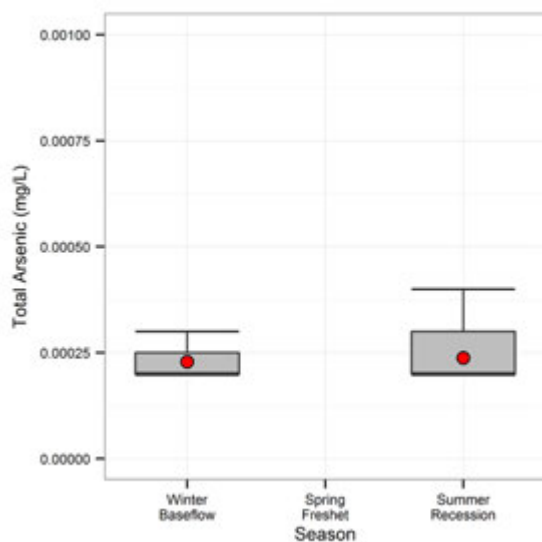
Appendix Title

Water Quality Data

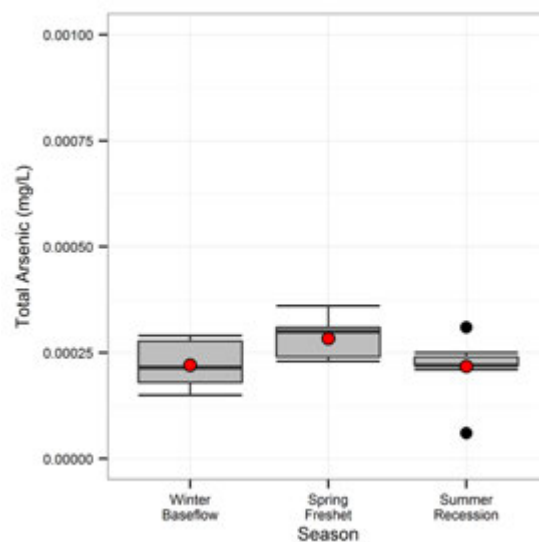
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

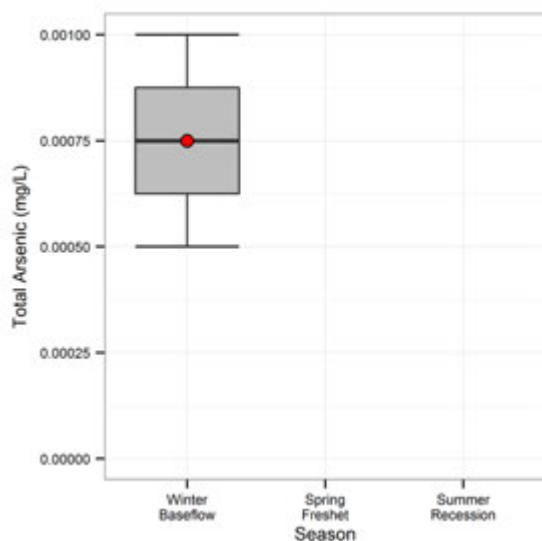
Rocknest Lake



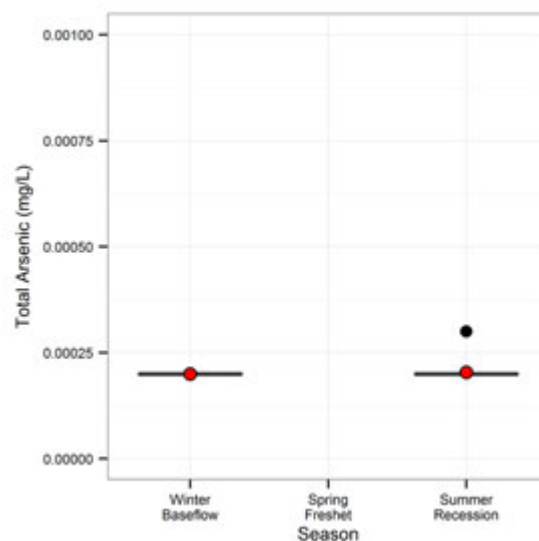
Coppermine River above Copper Creek



Coppermine River Mouth



King Lake



Parameter

CCME (Long term)

HC DWQG (Health Canada Drinking Water Quality Guidelines)

Guideline value (mg/L)

0.005*

0.01*

*Guideline not shown on graph.

Centre line of boxplot indicates median value

Red points indicate mean value

Black points indicate outliers beyond whiskers

Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =

Spring Freshet = May to June

Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-14- b

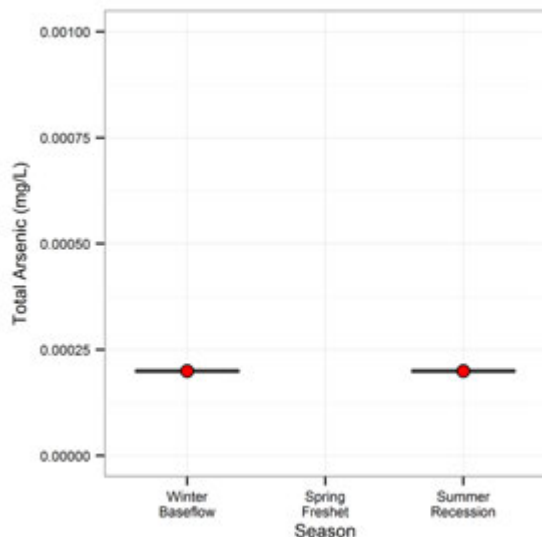
Appendix Title

Water Quality Data

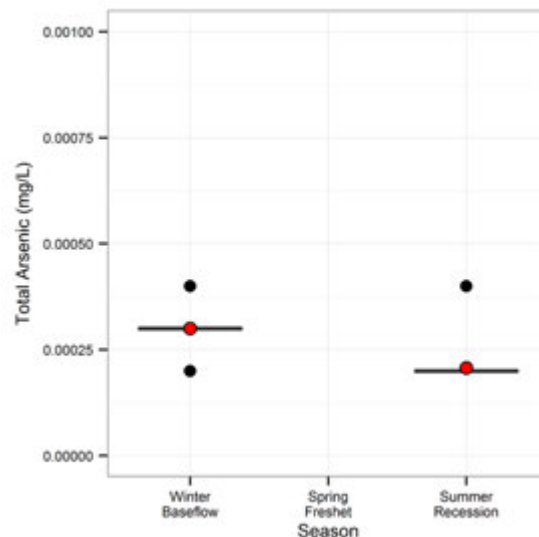
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

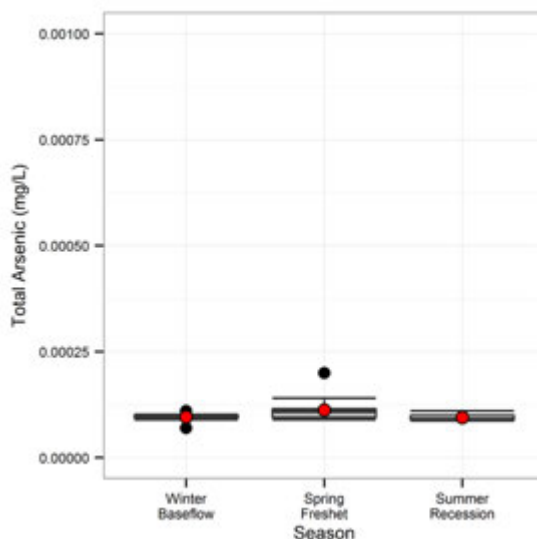
Lake of the Enemy



Mackay Lake



Lockhart River



Parameter

CCME (Long term)

HC DWQG (Health Canada Drinking Water Quality Guidelines)

Guideline value (mg/L)

0.005*

0.01*

*Guideline not shown on graph.

Centre line of boxplot indicates median value

Red points indicate mean value

Black points indicate outliers beyond whiskers

Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =

Spring Freshet = May to June

Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-14- c

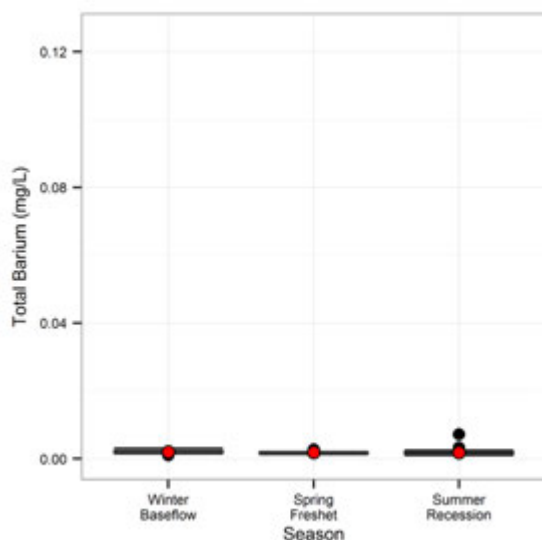
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Water Quality Data

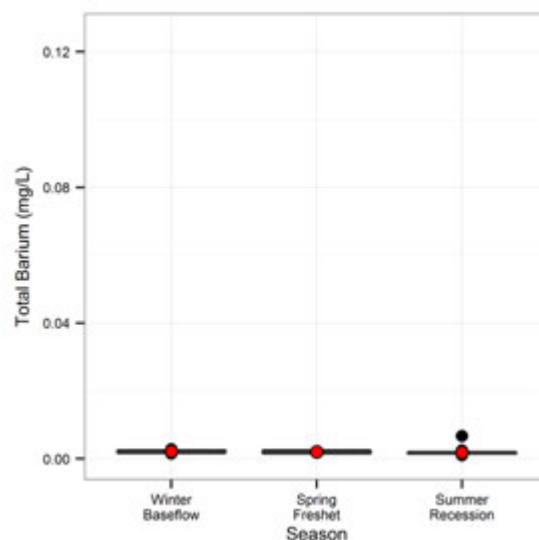
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

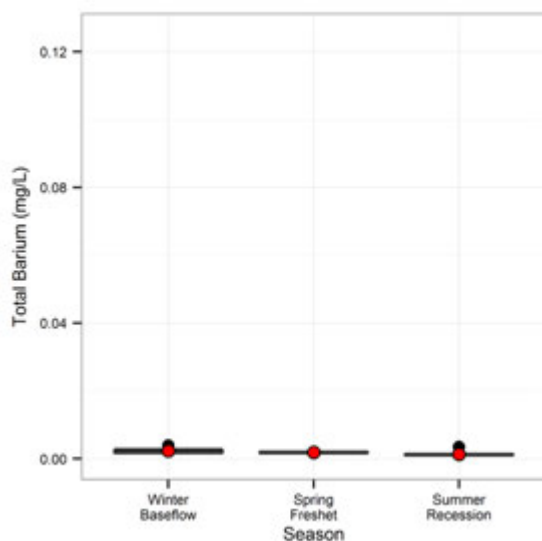
Lac De Gras



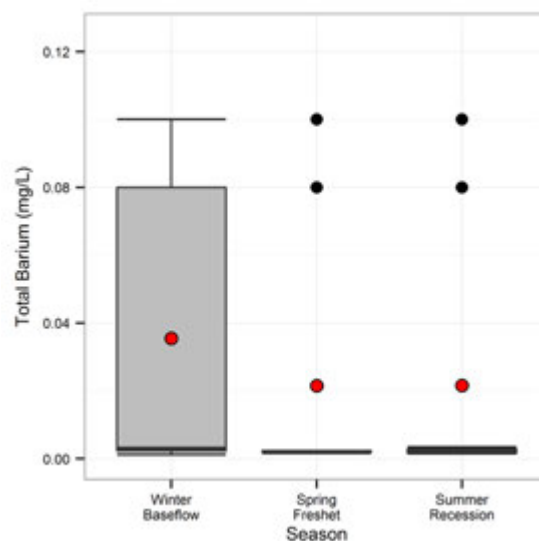
Desteffany Lake



Daring Lake



Point Lake



Parameter

HC DWQG (Health
Canada Drinking Water
Quality Guidelines)

Guideline value (mg/L)

1.0

*Guideline not shown on graph.

Centre line of boxplot indicates median value

Red points indicate mean value

Black points indicate outliers beyond whiskers

Whiskers extend to the highest/lowest value within

1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =

Spring Freshet = May to June

Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-15- a

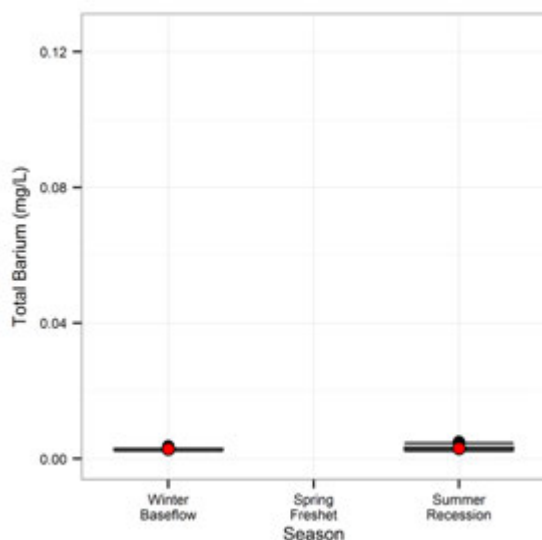
Appendix Title

Water Quality Data

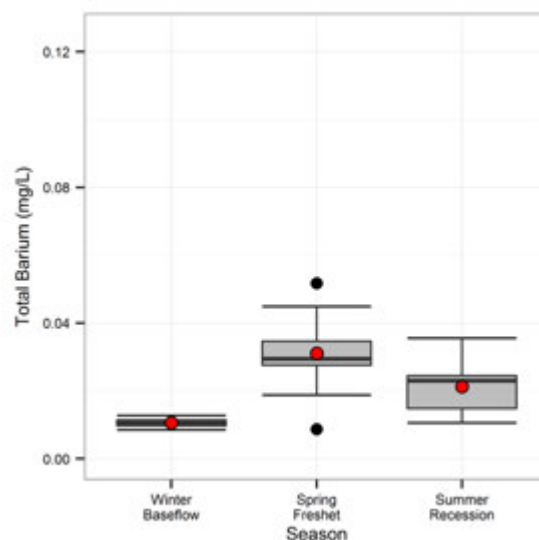
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

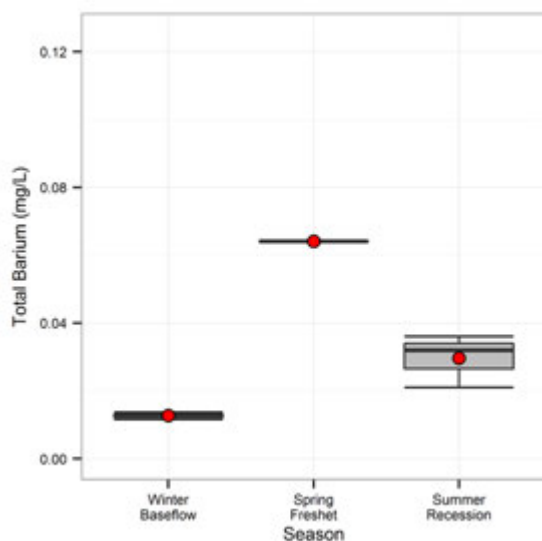
Rocknest Lake



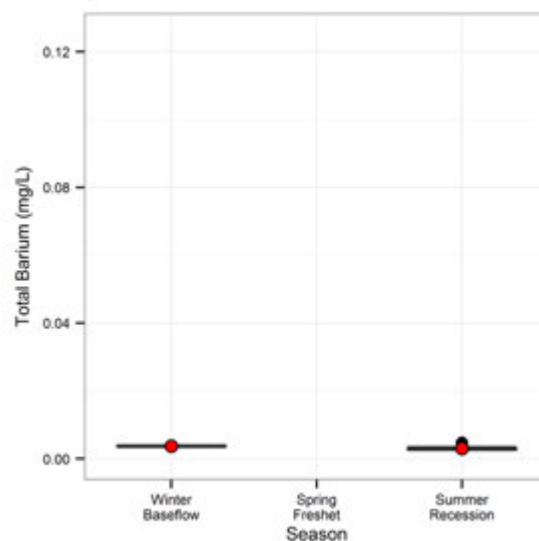
Coppermine River above Copper Creek



Coppermine River Mouth



King Lake



Parameter

HC DWQG (Health
Canada Drinking Water
Quality Guidelines)

Guideline value (mg/L)

1.0

*Guideline not shown on graph.

Centre line of boxplot indicates median value

Red points indicate mean value

Black points indicate outliers beyond whiskers

Whiskers extend to the highest/lowest value within

1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =

Spring Freshet = May to June

Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-15- b

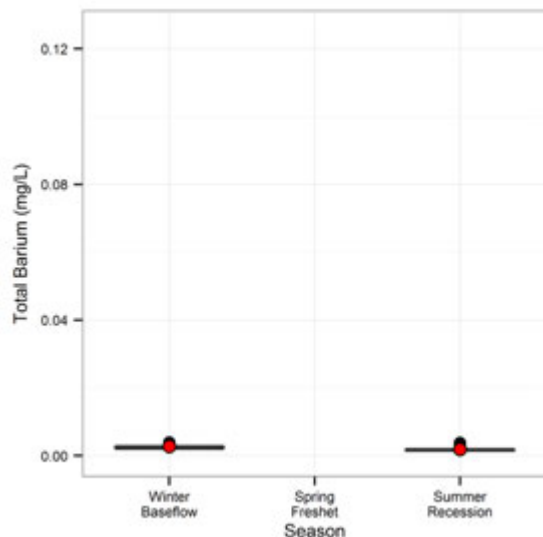
Appendix Title

Water Quality Data

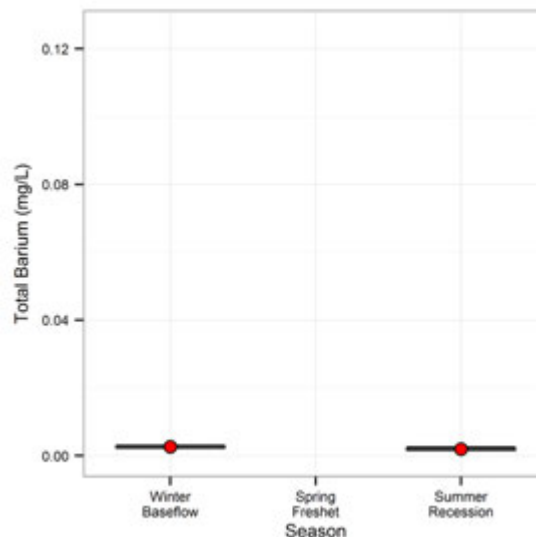
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

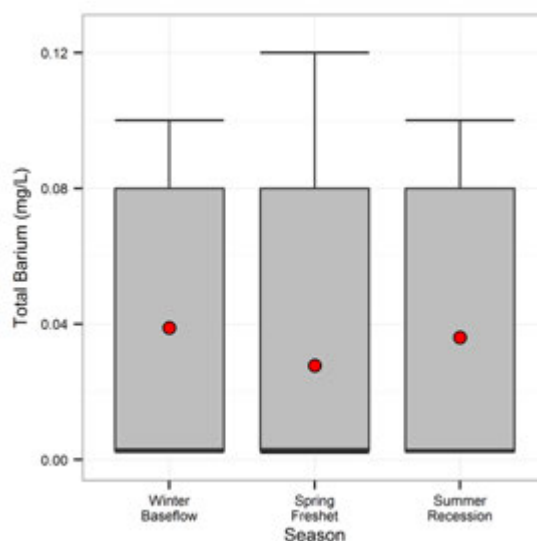
Lake of the Enemy



Mackay Lake



Lockhart River



Parameter

HC DWQG (Health
Canada Drinking Water
Quality Guidelines)

Guideline value (mg/L)

1.0

*Guideline not shown on graph.

Centre line of boxplot indicates median value

Red points indicate mean value

Black points indicate outliers beyond whiskers

Whiskers extend to the highest/lowest value within

1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =

Spring Freshet = May to June

Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-15- c

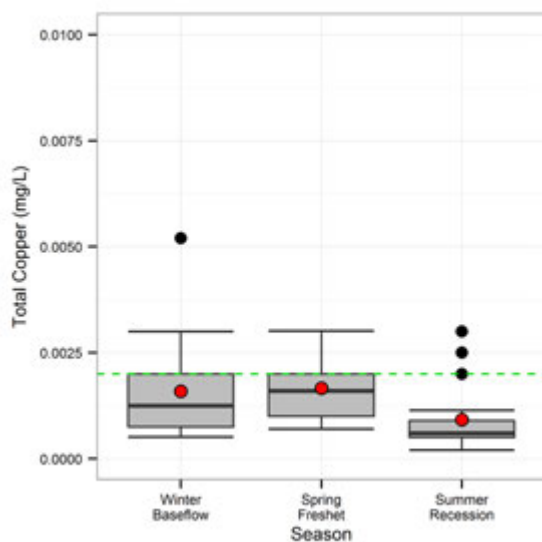
Appendix Title

Water Quality Data

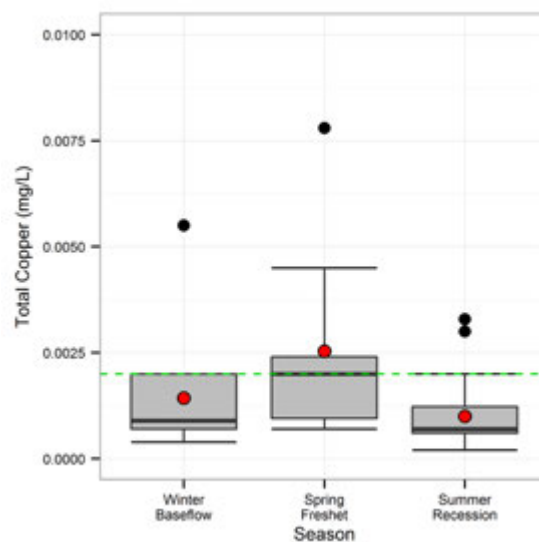
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

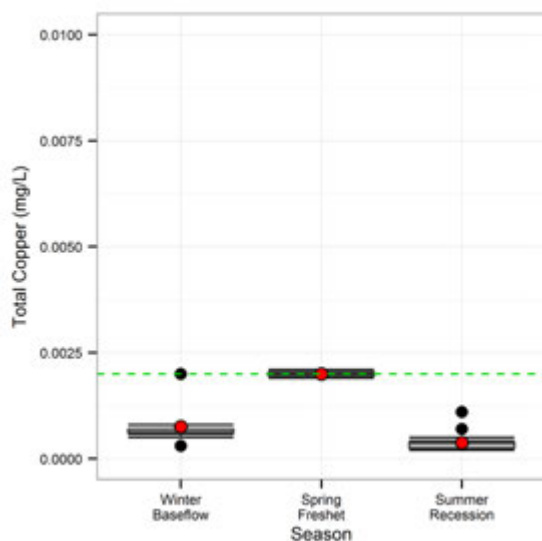
Lac De Gras



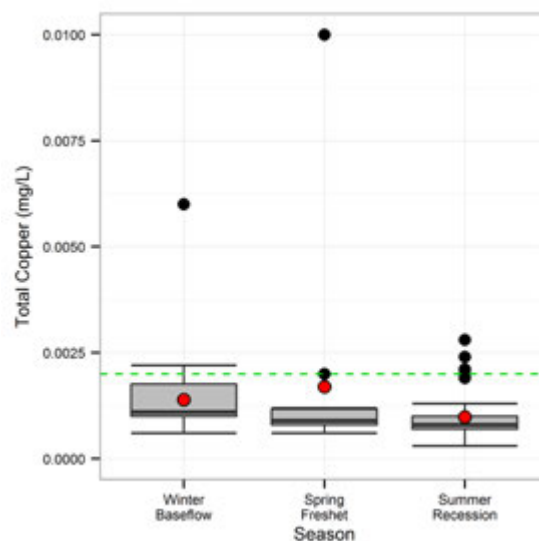
Desteffany Lake



Daring Lake



Point Lake



Parameter

CCME (Long term)

Line type

Guideline value (mg/L)

0.002

Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-16-a

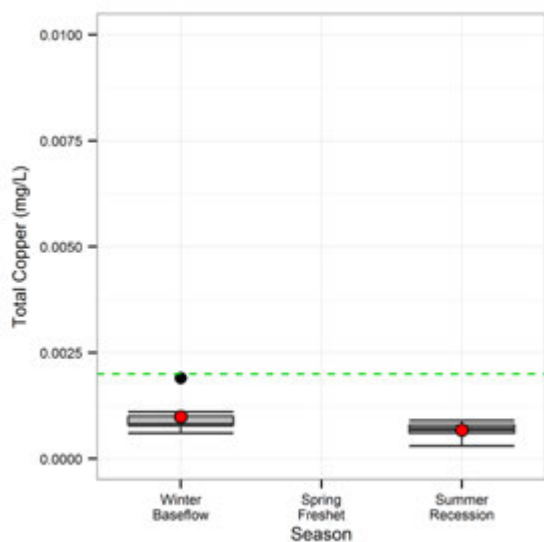
Appendix Title

Water Quality Data

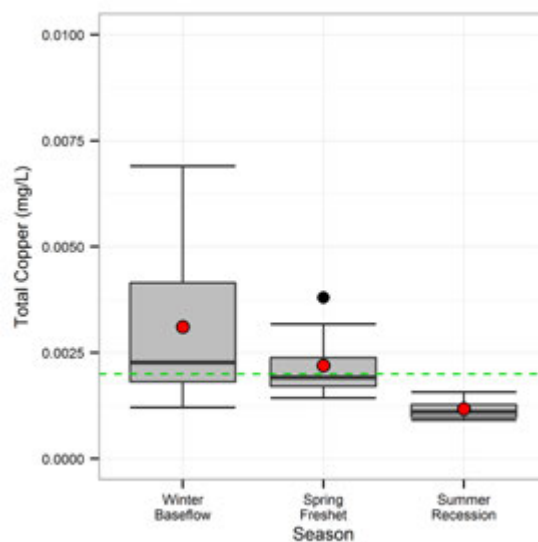
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

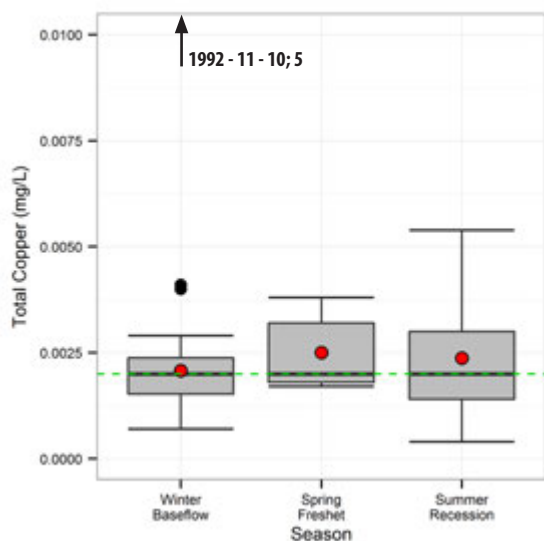
Rocknest Lake



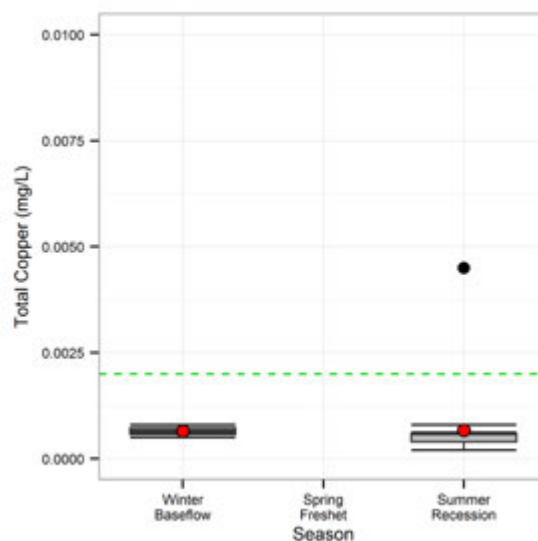
Coppermine River above Copper Creek



Coppermine River Mouth



King Lake



Parameter	CCME (Long term)
Line type	-----
Guideline value (mg/L)	0.002

Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
 Spring Freshet = May to June
 Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-16-b

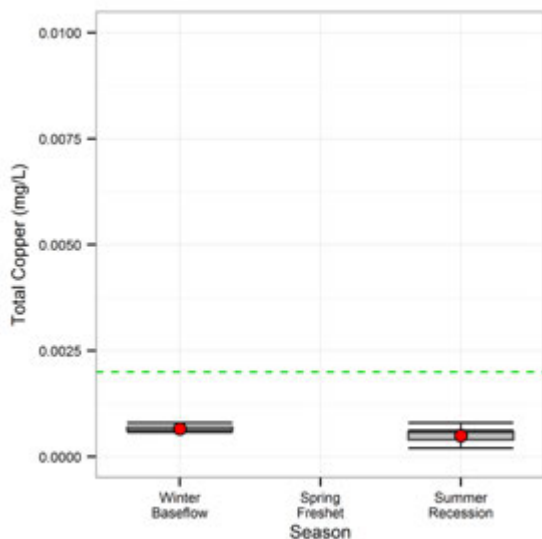
Appendix Title

Water Quality Data

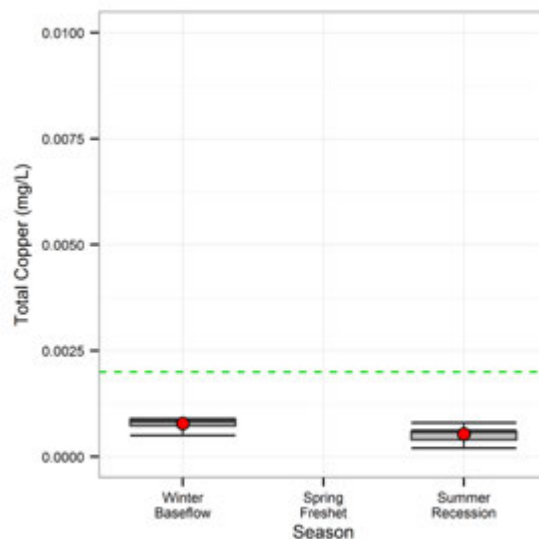
Report Title

Status and Trends of Water Chemistry
 and Flow in the Coppermine and
 Lockhart River Basins Draft Report

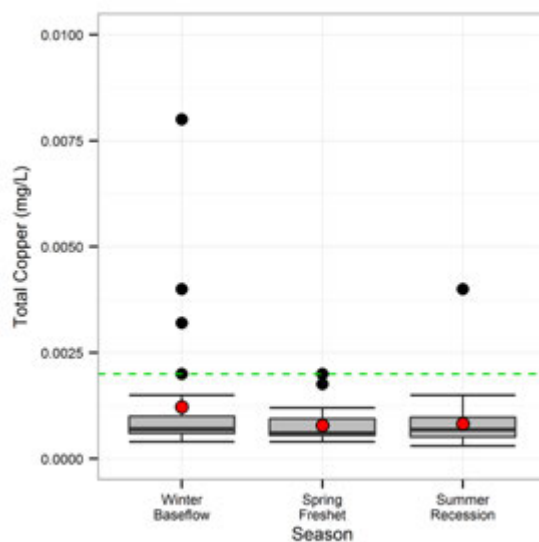
Lake of the Enemy



Mackay Lake



Lockhart River



Parameter	CCME (Long term)
Line type	-----
Guideline value (mg/L)	0.002

Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
 Spring Freshet = May to June
 Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-16-c

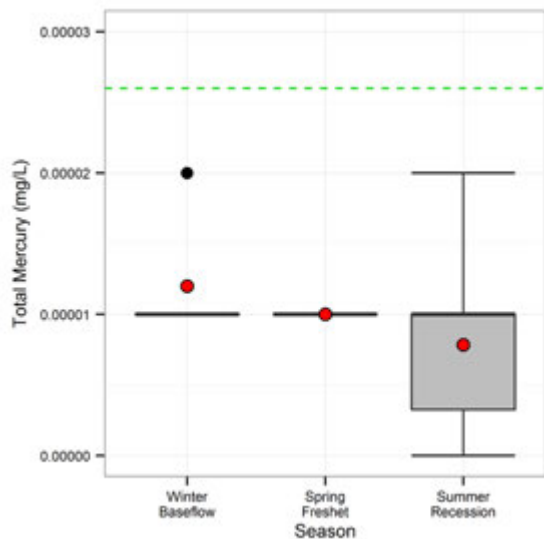
Appendix Title

Water Quality Data

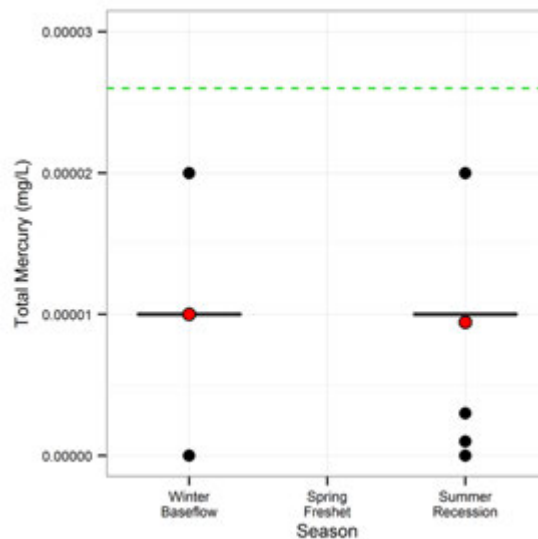
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

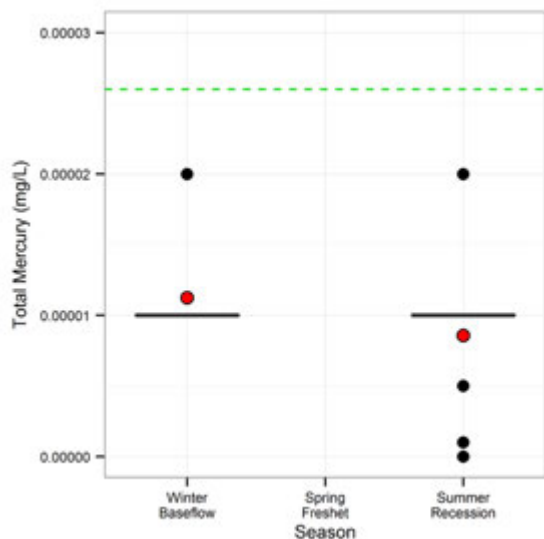
Lac De Gras



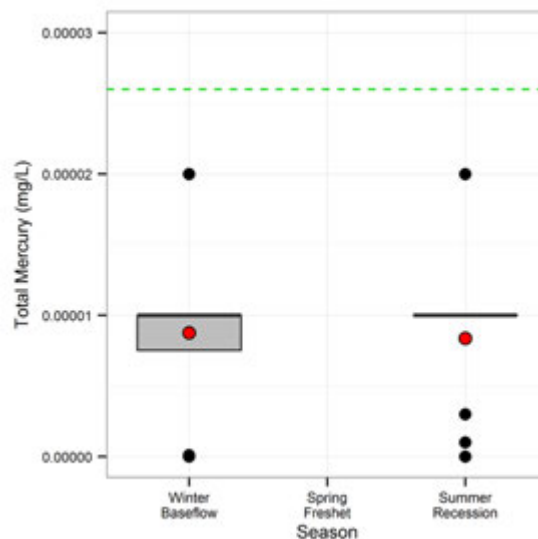
Desteffany Lake



Daring Lake



Point Lake



Parameter

CCME (Long term)

HC DWQG (Health Canada Drinking Water Quality Guidelines)

Line type	-----	*
Guideline value (mg/L)	0.000026	0.001

*Guideline not shown on graph.

Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



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Government of Northwest Territories



Appendix No.

B-6-17- a

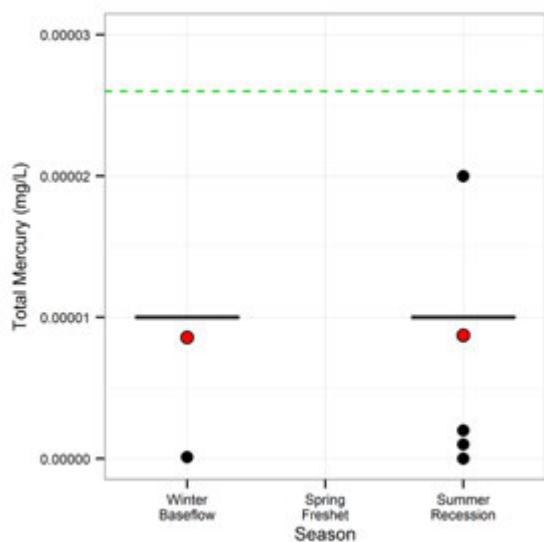
Appendix Title

Water Quality Data

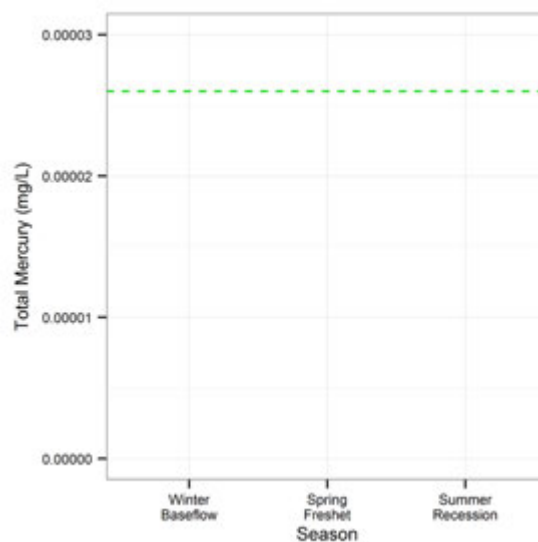
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

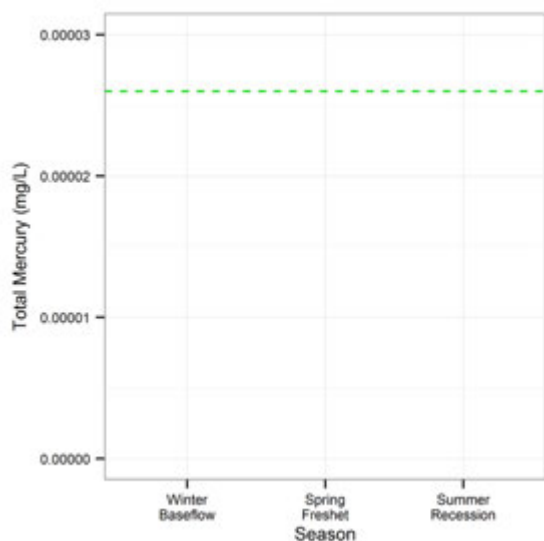
Rocknest Lake



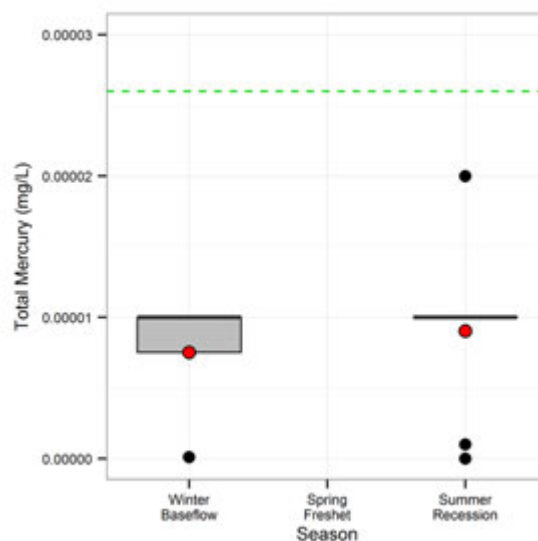
Coppermine River above Copper Creek



Coppermine River Mouth



King Lake



Parameter

CCME (Long term)

HC DWQG
Drinking
Gu

Line type

Guideline value (mg/L)

0.000026

*Guideline not shown on graph.

Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-17- b

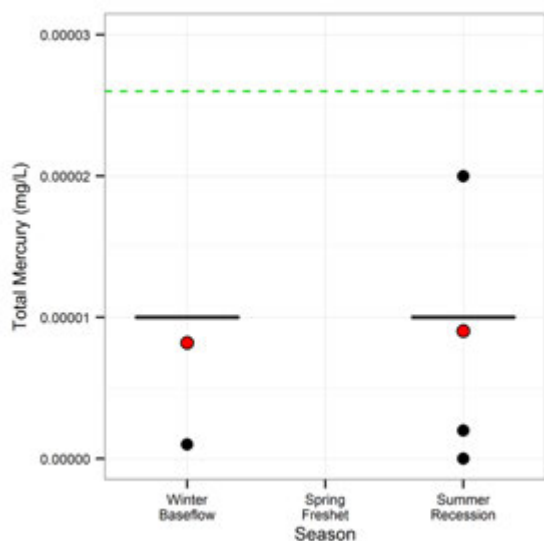
Appendix Title

Water Quality Data

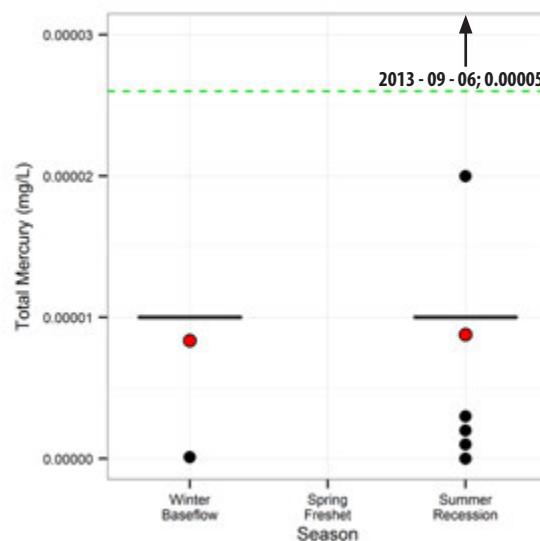
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

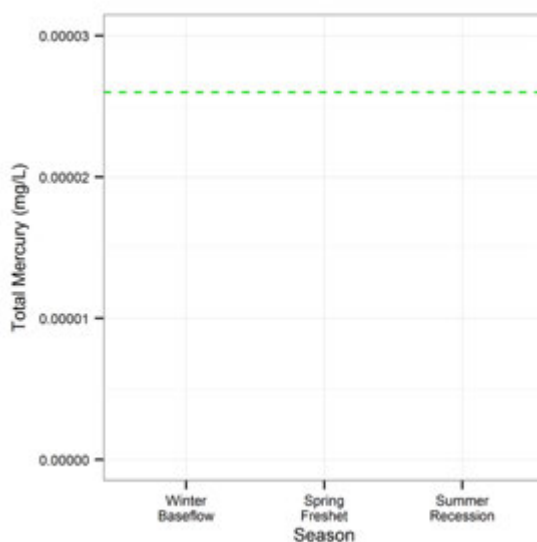
Lake of the Enemy



Mackay Lake



Lockhart River



Parameter

CCME (Long term)

HC DWQG
Drinking
Gu

Line type

Guideline value (mg/L)

0.000026

*Guideline not shown on graph.

Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-17- c

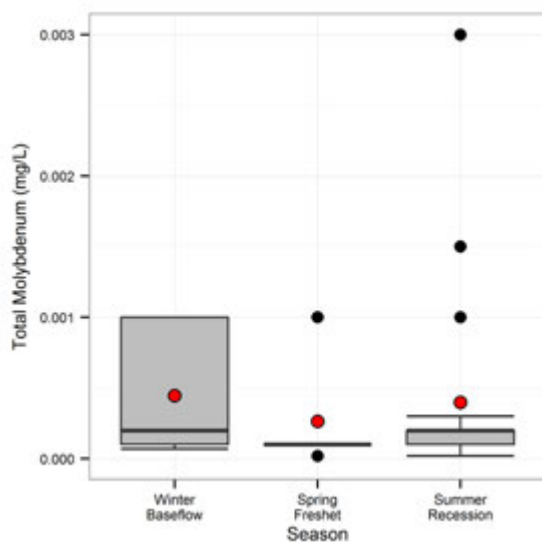
Appendix Title

Water Quality Data

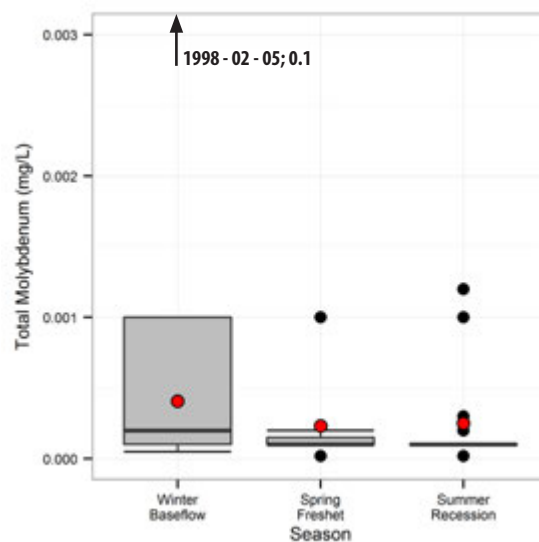
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

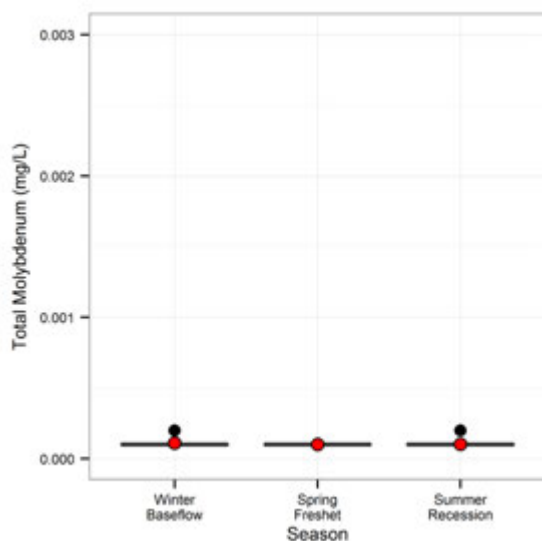
Lac De Gras



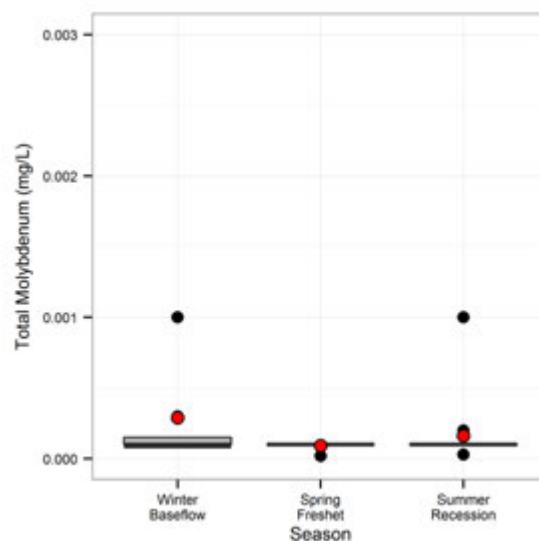
Desteffany Lake



Daring Lake



Point Lake



Parameter CCME (Long term)

Guideline value (mg/L)

0.073*

*Guideline not shown on graphs.

Centre line of boxplot indicates median value

Red points indicate mean value

Black points indicate outliers beyond whiskers

Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =

Spring Freshet = May to June

Summer Recession =



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Appendix No.

B-6-18- a

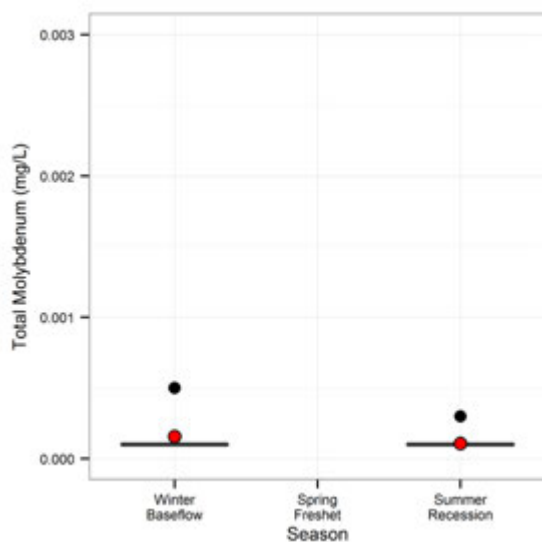
Appendix Title

Water Quality Data

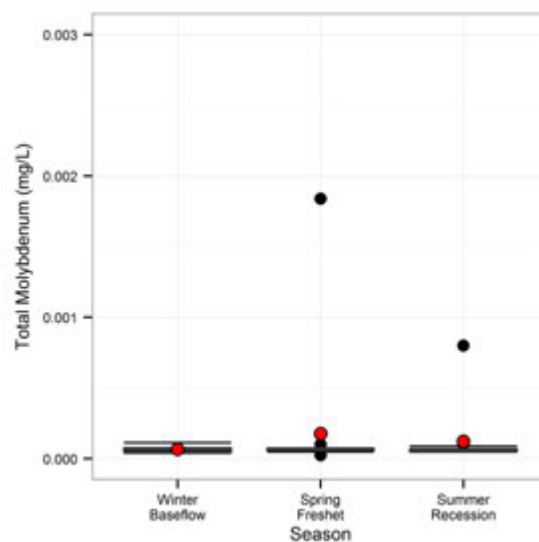
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

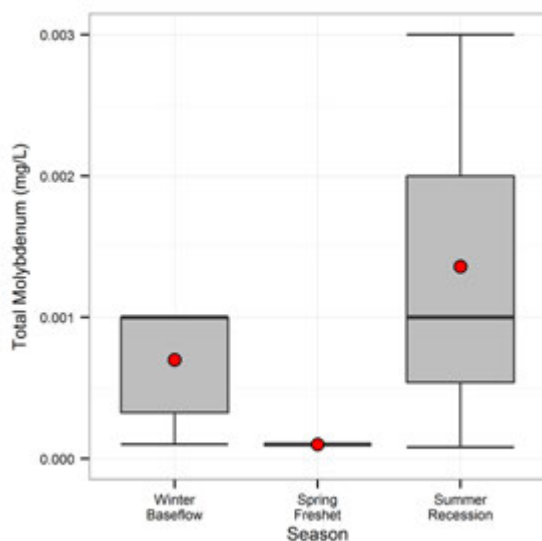
Rocknest Lake



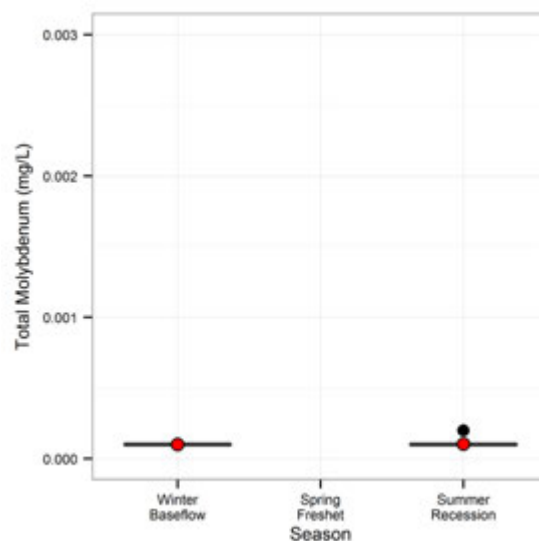
Coppermine River above Copper Creek



Coppermine River Mouth



King Lake



Parameter CCME (Long term)

Guideline value (mg/L) 0.073*

*Guideline not shown on graphs.

Centre line of boxplot indicates median value

Red points indicate mean value

Black points indicate outliers beyond whiskers

Whiskers extend to the highest/lowest value within

1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =

Spring Freshet = May to June

Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-18- b

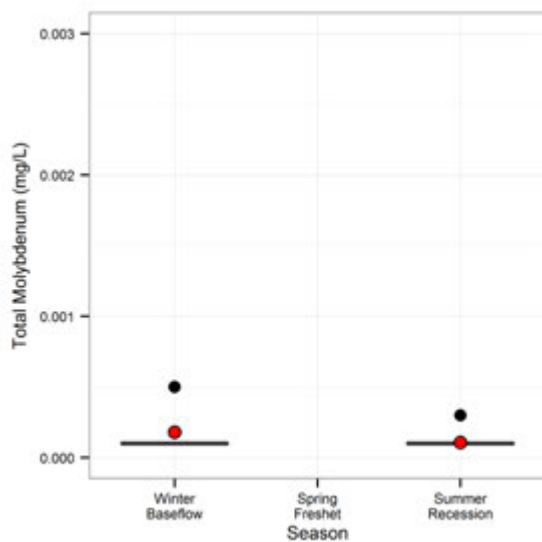
Appendix Title

Water Quality Data

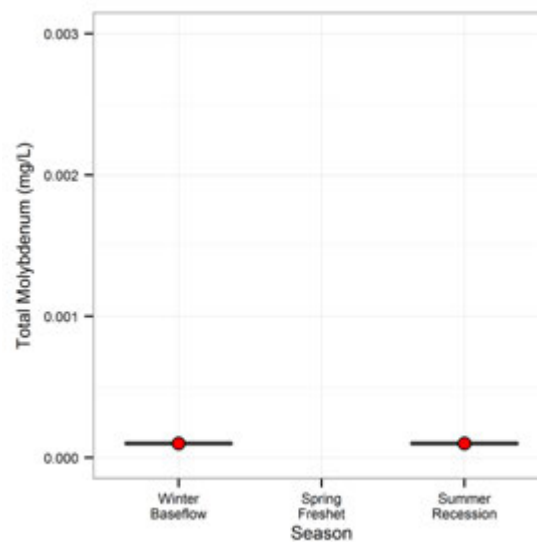
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

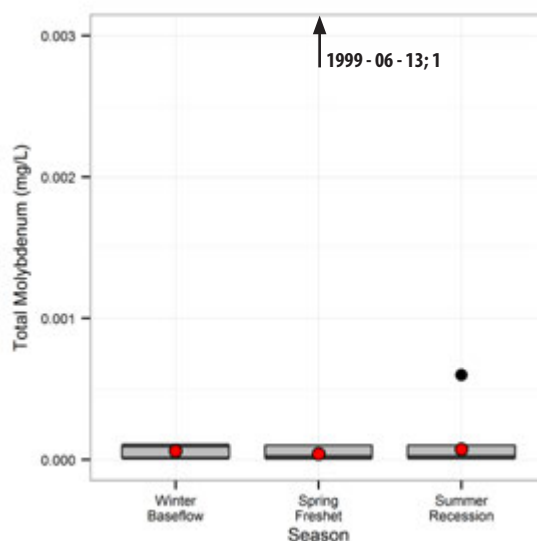
Lake of the Enemy



Mackay Lake



Lockhart River



Parameter CCME (Long term)

Guideline value (mg/L) 0.073*

*Guideline not shown on graphs.

Centre line of boxplot indicates median value

Red points indicate mean value

Black points indicate outliers beyond whiskers

Whiskers extend to the highest/lowest value within

1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =

Spring Freshet = May to June

Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

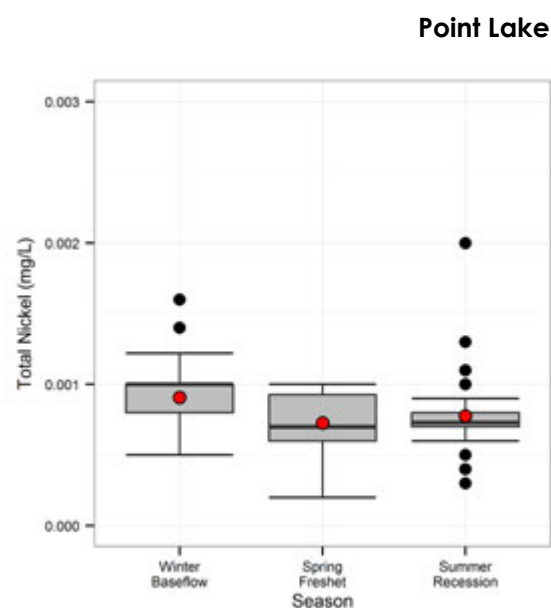
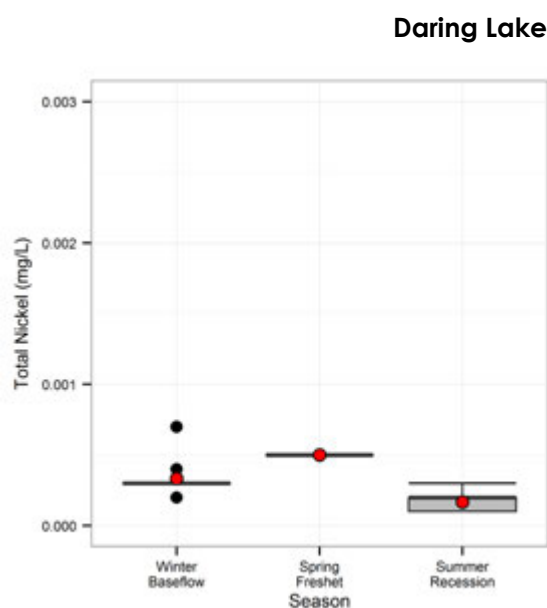
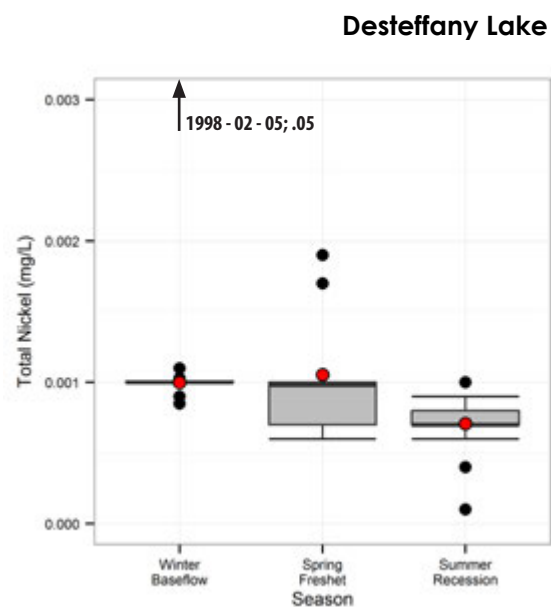
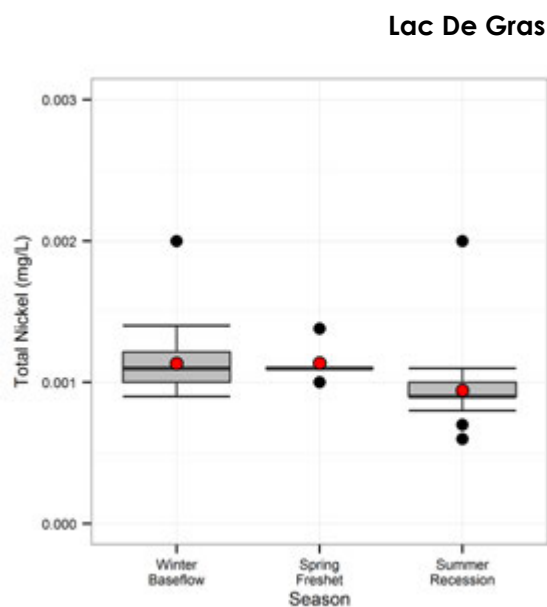
B-6-18- c

Appendix Title

Water Quality Data

Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report



Parameter	CCME (Long term)
Guideline value (mg/L)	0.056*

*Guideline not shown on graphs.

Centre line of boxplot indicates median value

Red points indicate mean value

Black points indicate outliers beyond whiskers

Whiskers extend to the highest/lowest value within

1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =

Spring Freshet = May to June

Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

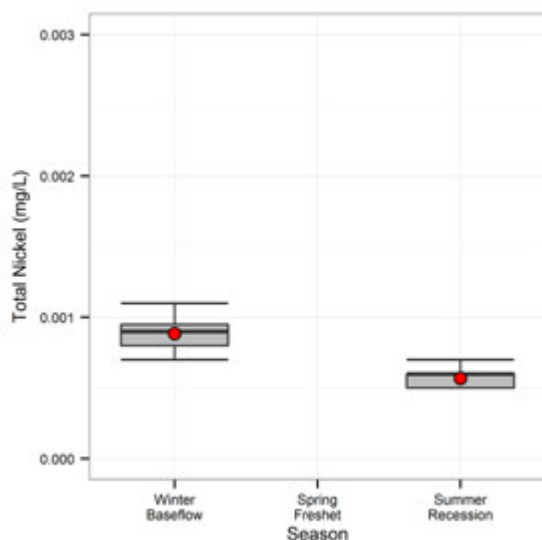
B-6-19- a

Appendix Title
Water Quality Data

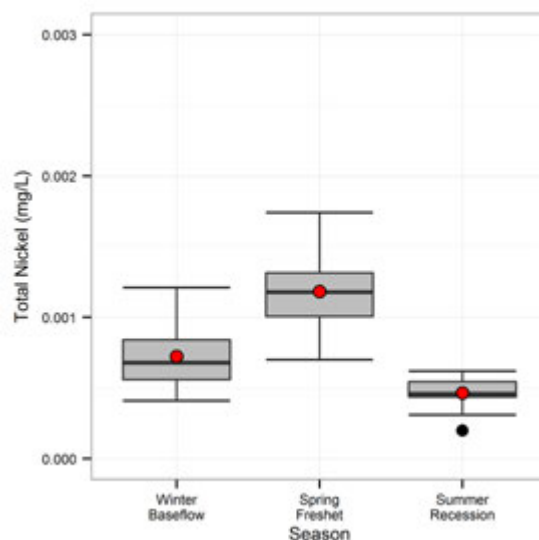
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

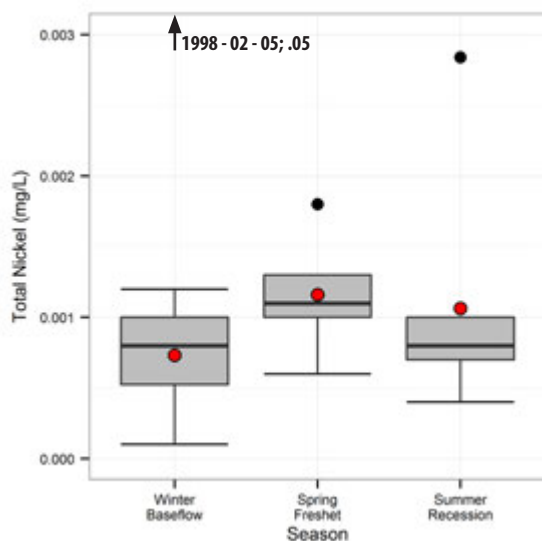
Rocknest Lake



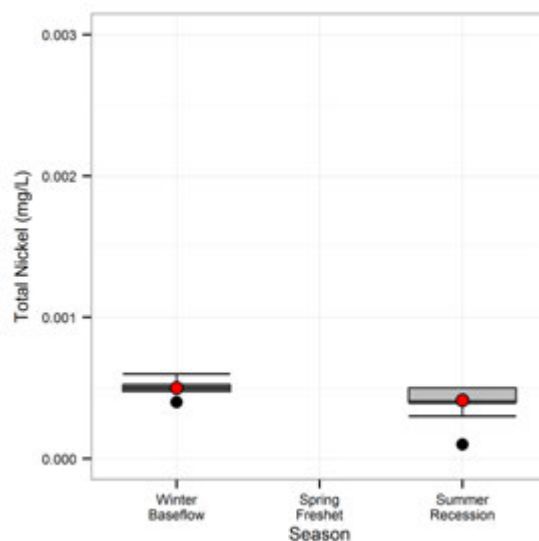
Coppermine River above Copper Creek



Coppermine River Mouth



King Lake



Parameter	CCME (Long term)
Guideline value (mg/L)	0.056*

*Guideline not shown on graphs.

Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
 Spring Freshet = May to June
 Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-19- b

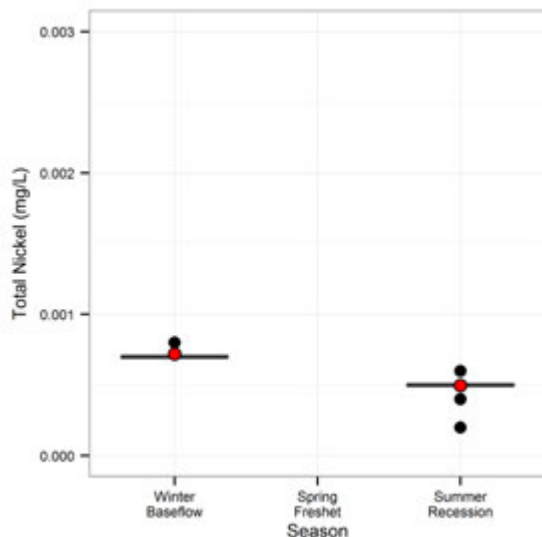
Appendix Title

Water Quality Data

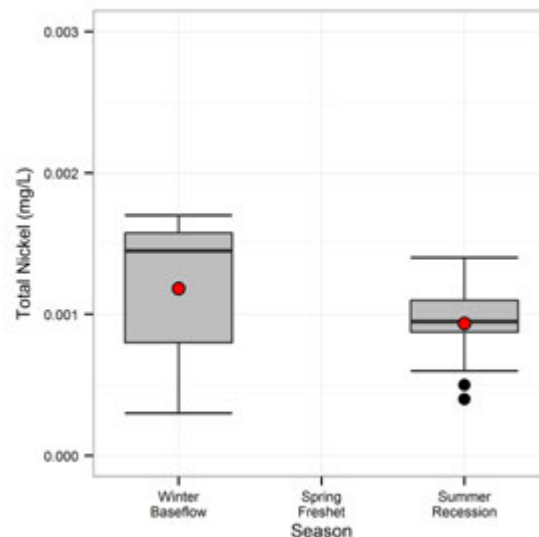
Report Title

Status and Trends of Water Chemistry
 and Flow in the Coppermine and
 Lockhart River Basins Draft Report

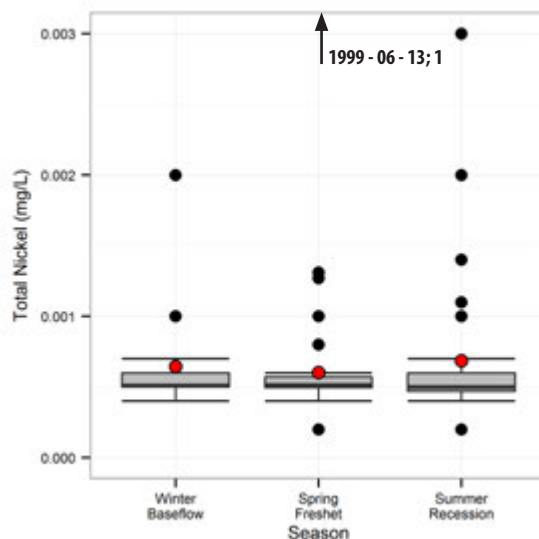
Lake of the Enemy



Mackay Lake



Lockhart River



Parameter	CCME (Long term)
Guideline value (mg/L)	0.056*

*Guideline not shown on graphs.

Centre line of boxplot indicates median value
 Red points indicate mean value
 Black points indicate outliers beyond whiskers
 Whiskers extend to the highest/lowest value within 1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =
 Spring Freshet = May to June
 Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-19- c

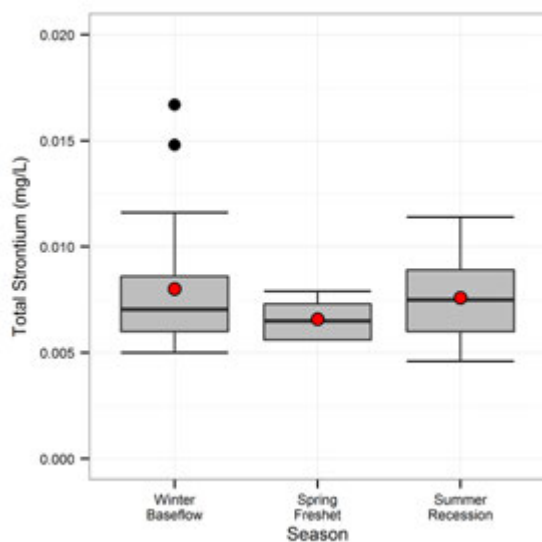
Appendix Title

Water Quality Data

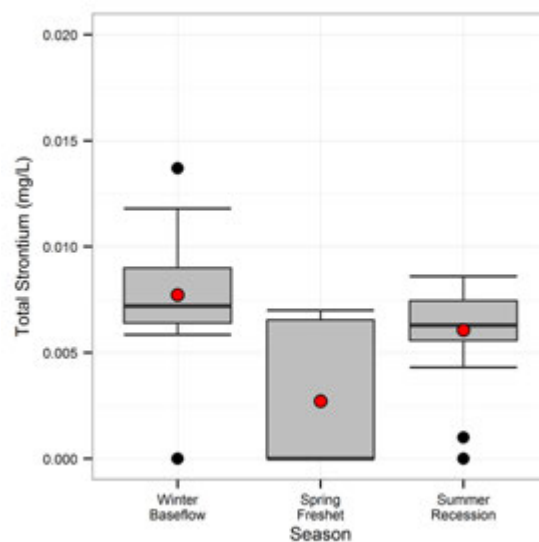
Report Title

Status and Trends of Water Chemistry
 and Flow in the Coppermine and
 Lockhart River Basins Draft Report

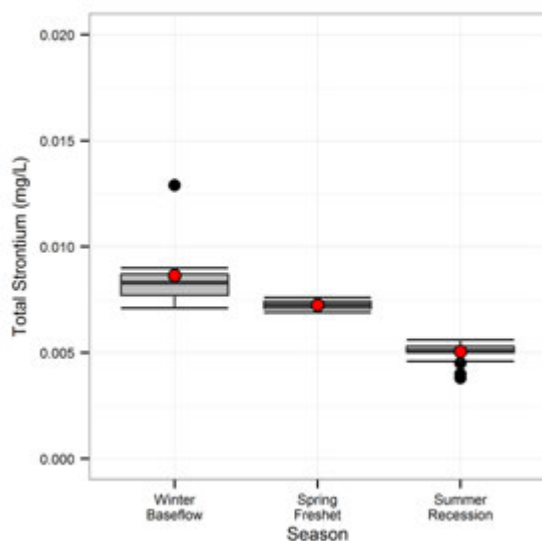
Lac De Gras



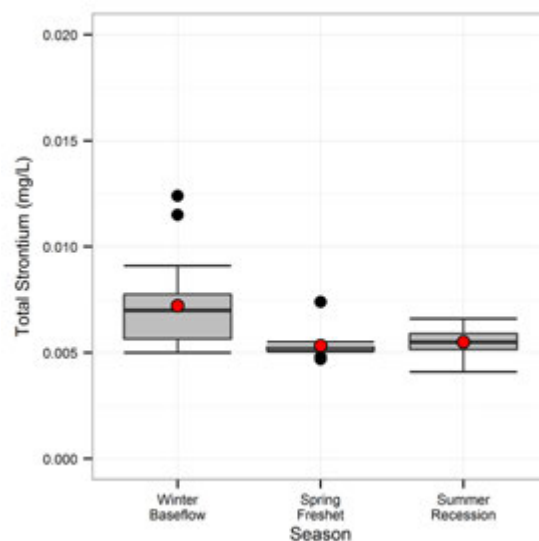
Desteffany Lake



Daring Lake



Point Lake



Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-20- a

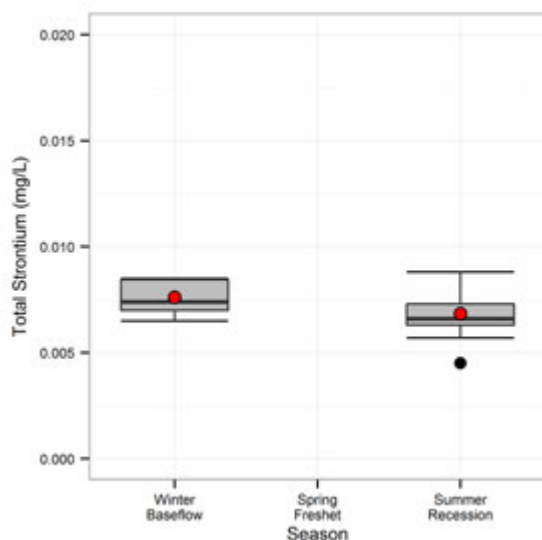
Appendix Title

Water Quality Data

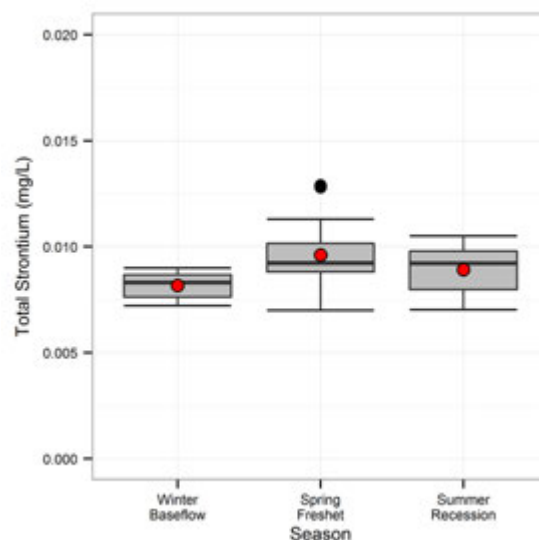
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

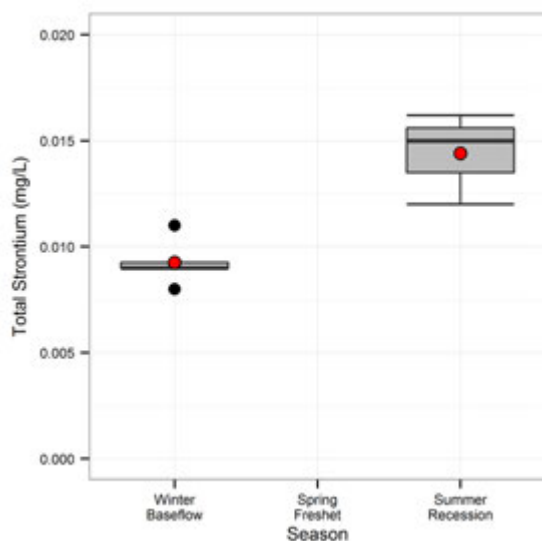
Rocknest Lake



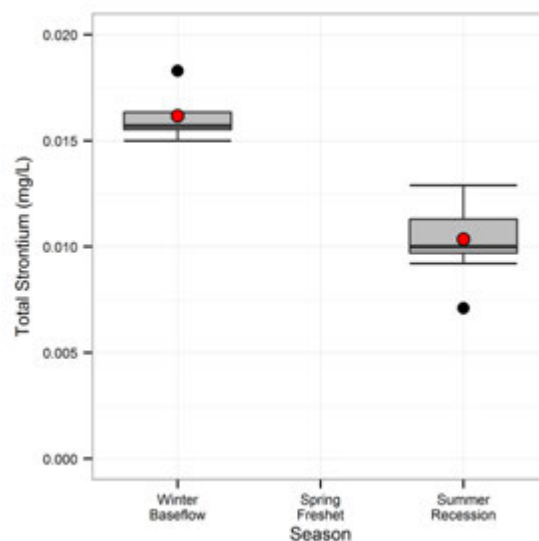
Coppermine River above Copper Creek



Coppermine River Mouth



King Lake



Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-20- b

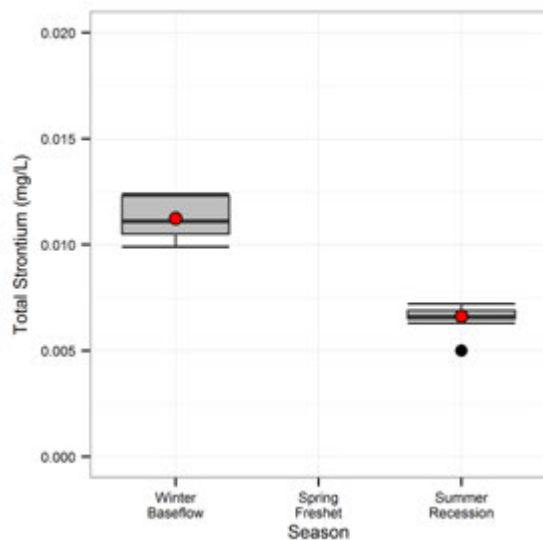
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Water Quality Data

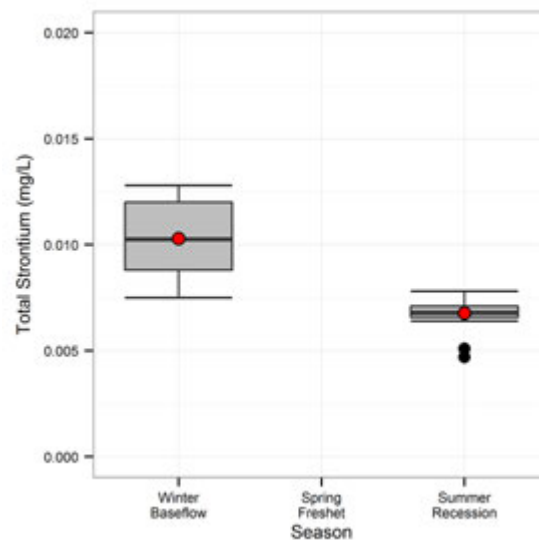
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

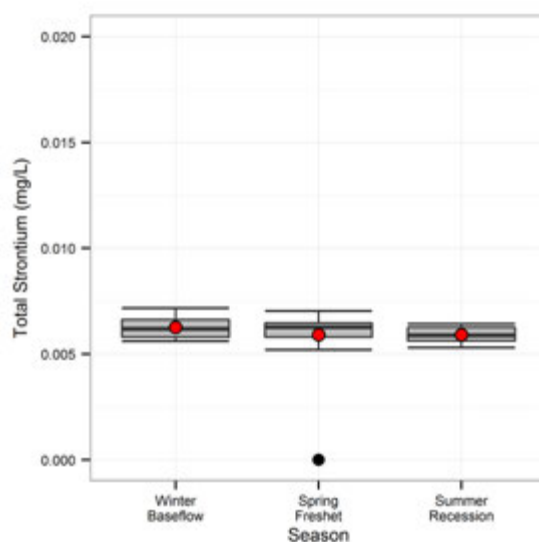
Lake of the Enemy



Mackay Lake



Lockhart River



Centre line of boxplot indicates median value
Red points indicate mean value
Black points indicate outliers beyond whiskers
Whiskers extend to the highest/lowest value within 1.5 * interquartile range of the 75th or 25th percentile.

Winter Baseflow =
Spring Freshet = May to June
Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-20- c

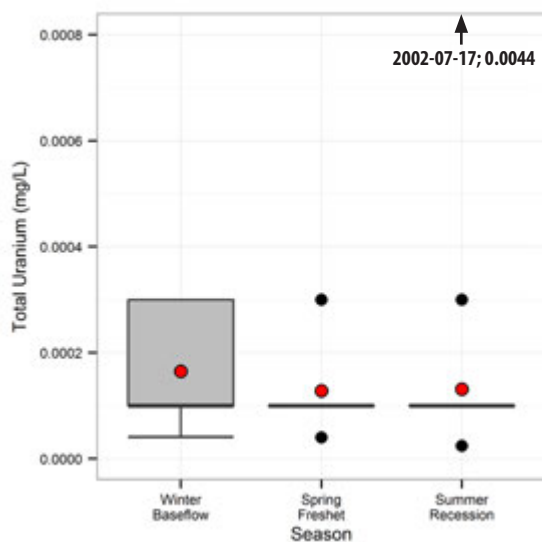
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Water Quality Data

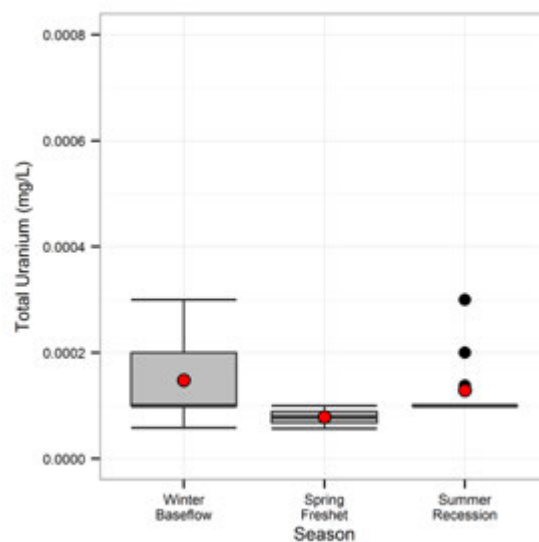
Report Title

Status and Trends of Water Chemistry and Flow in the Coppermine and Lockhart River Basins Draft Report

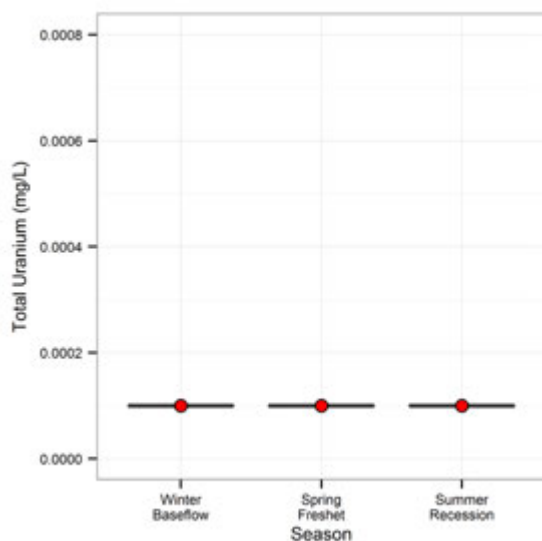
Lac De Gras



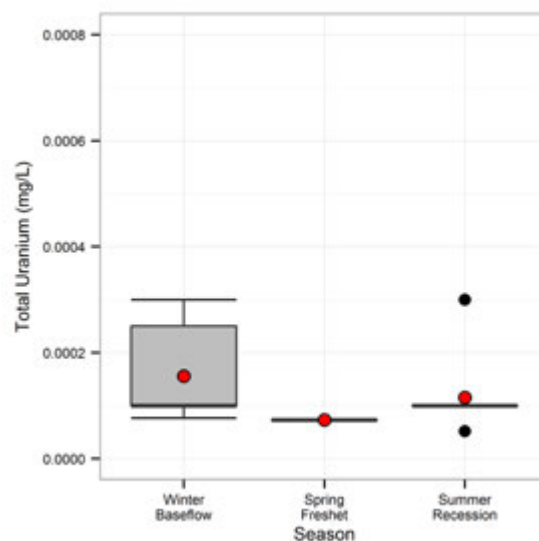
Desteffany Lake



Daring Lake



Point Lake



Parameter

CCME (Long term)

HC DWQG (Health
Canada Drinking Water
Quality Guidelines)

Guideline value (mg/L)

0.15*

0.02*

*Guidelines not shown on graphs.

Centre line of boxplot indicates median value

Red points indicate mean value

Black points indicate outliers beyond whiskers

Whiskers extend to the highest/lowest value within

1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =

Spring Freshet = May to June

Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-21- a

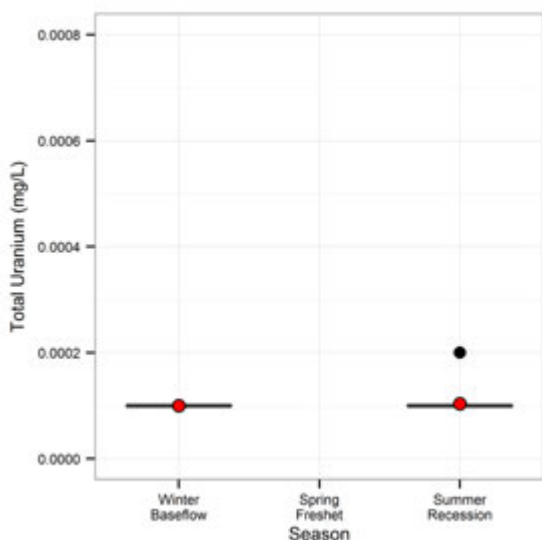
Appendix Title

Water Quality Data

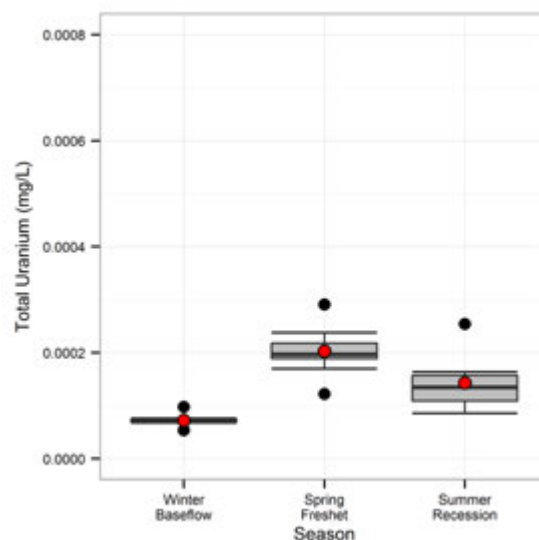
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

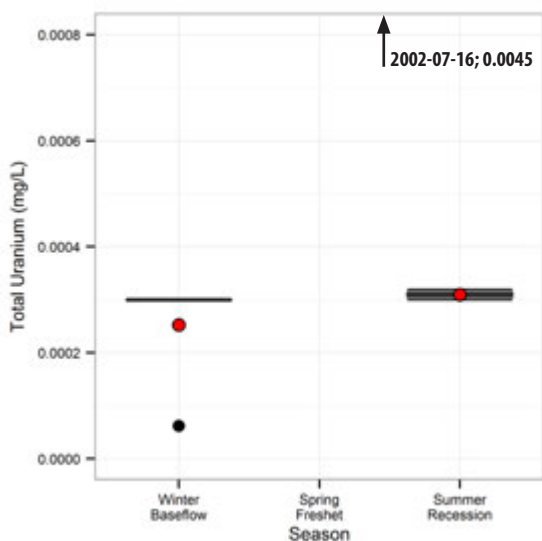
Rocknest Lake



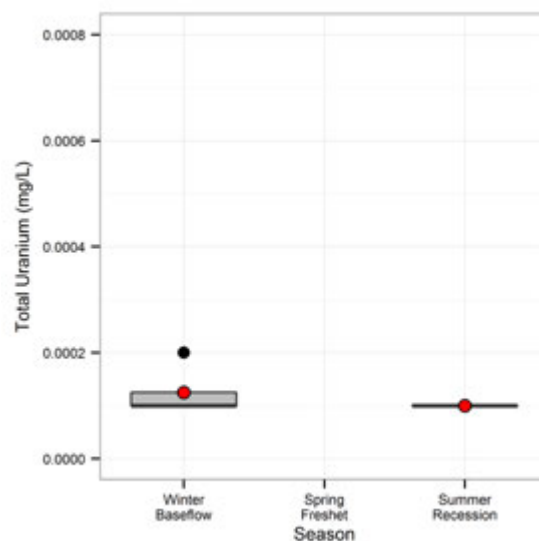
Coppermine River above Copper Creek



Coppermine River Mouth



King Lake



Parameter

CCME (Long term)

HC DWQG (Health
Canada Drinking Water
Quality Guidelines)

Guideline value (mg/L)

0.15*

0.02*

*Guidelines not shown on graphs.

Centre line of boxplot indicates median value

Red points indicate mean value

Black points indicate outliers beyond whiskers

Whiskers extend to the highest/lowest value within

1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =

Spring Freshet = May to June

Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-21- b

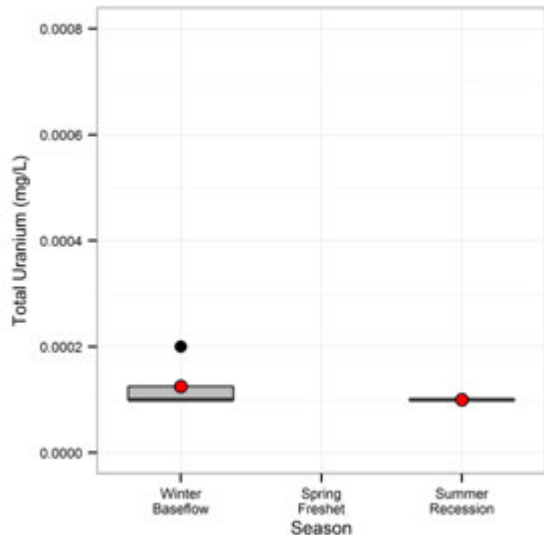
Appendix Title

Water Quality Data

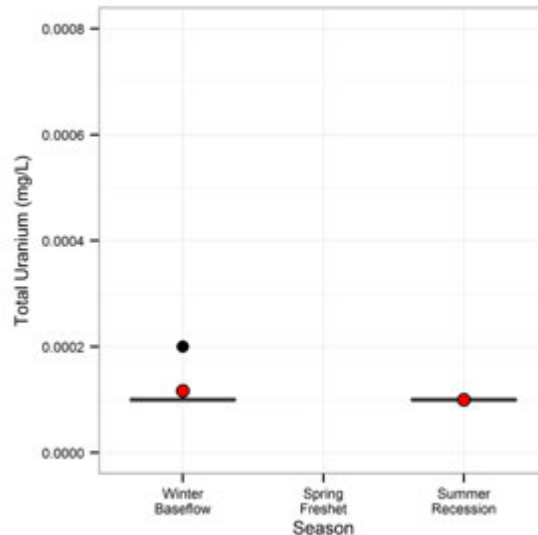
Report Title

Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

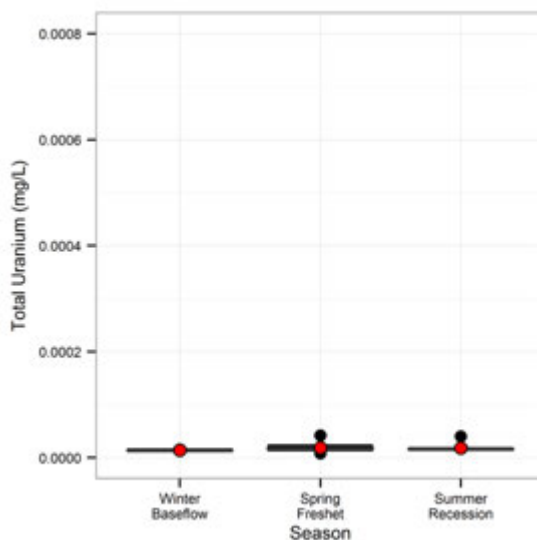
Lake of the Enemy



Mackay Lake



Lockhart River



Parameter

CCME (Long term)

HC DWQG (Health
Canada Drinking Water
Quality Guidelines)

Guideline value (mg/L)

0.15*

0.02*

*Guidelines not shown on graphs.

Centre line of boxplot indicates median value

Red points indicate mean value

Black points indicate outliers beyond whiskers

Whiskers extend to the highest/lowest value within

1.5* interquartile range of the 75th or 25th percentile.

Winter Baseflow =

Spring Freshet = May to June

Summer Recession =



Client/Project

Government of Northwest Territories



Appendix No.

B-6-21- c

Appendix Title

Water Quality Data

Report Title

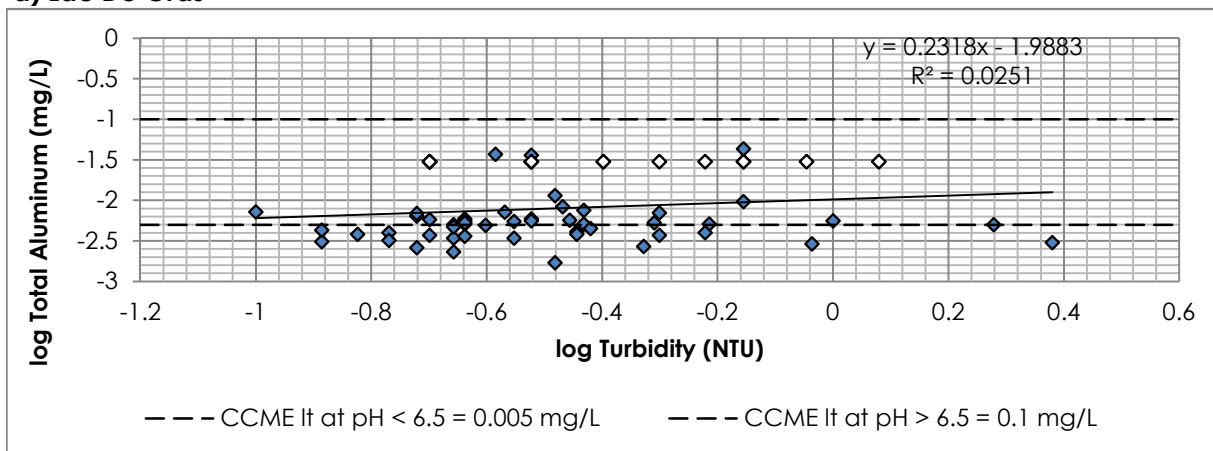
Status and Trends of Water Chemistry
and Flow in the Coppermine and
Lockhart River Basins Draft Report

**STATUS AND TRENDS OF WATER CHEMISTRY AND FLOW IN THE COPPERMINE AND LOCKHART RIVER
BASINS
FINAL REPORT**

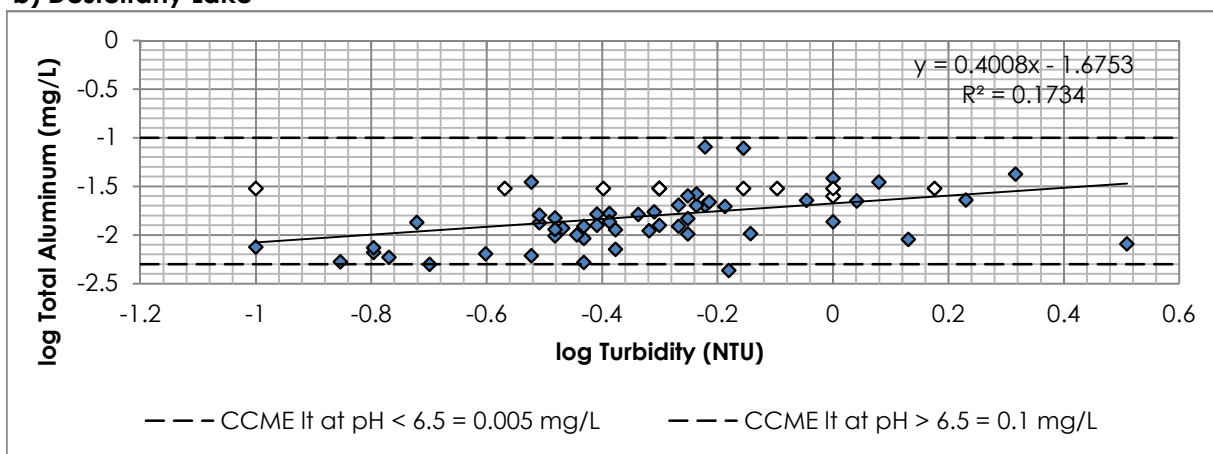
Appendix B Water Chemistry Summary Statistics
March 31, 2015

**B.7 TOTAL ALUMINUM VERSUS TURBIDITY PLOTS FOR THE
COPPERMINE AND LOCKHART WATERSHEDS**

a) Lac De Gras



b) Desteffany Lake



c) Daring Lake

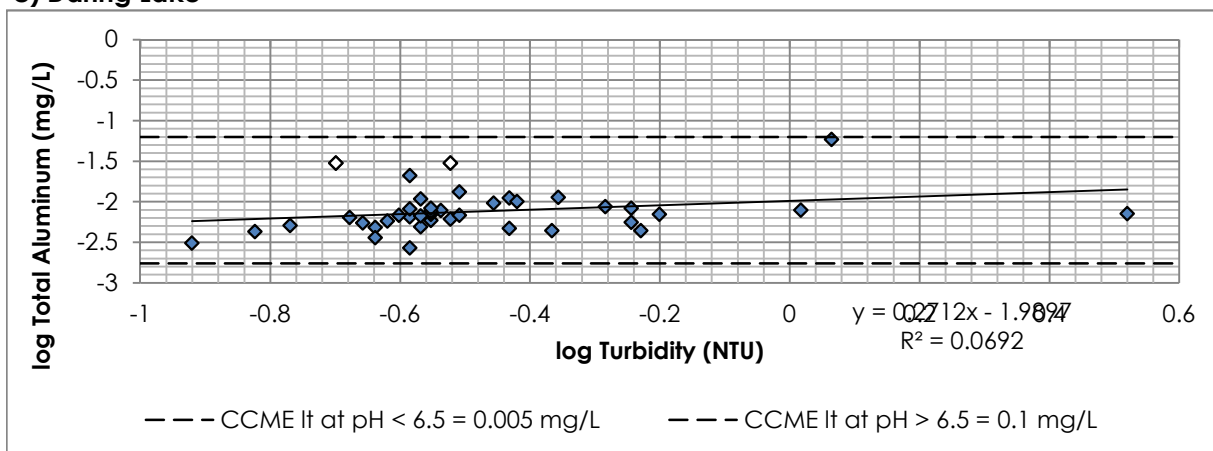
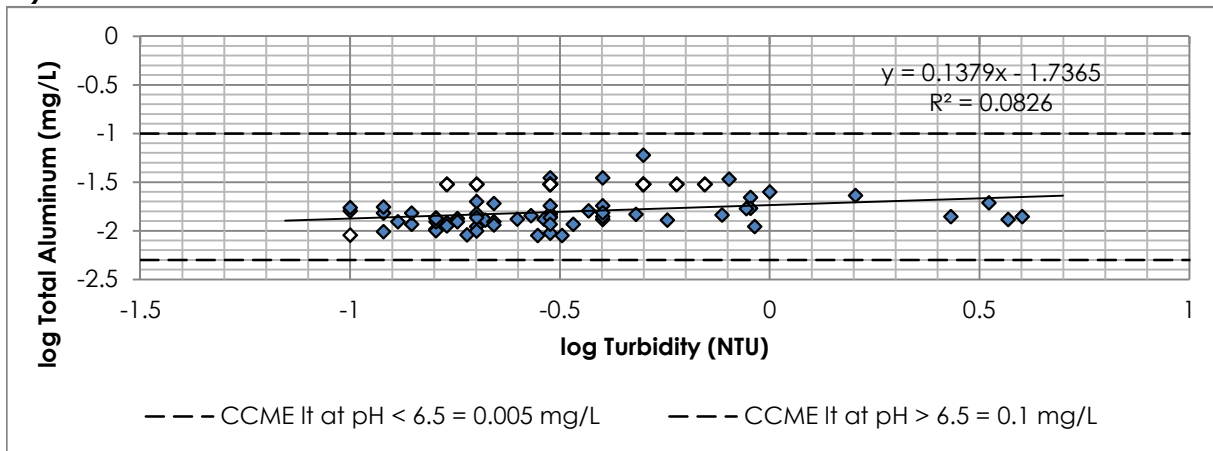
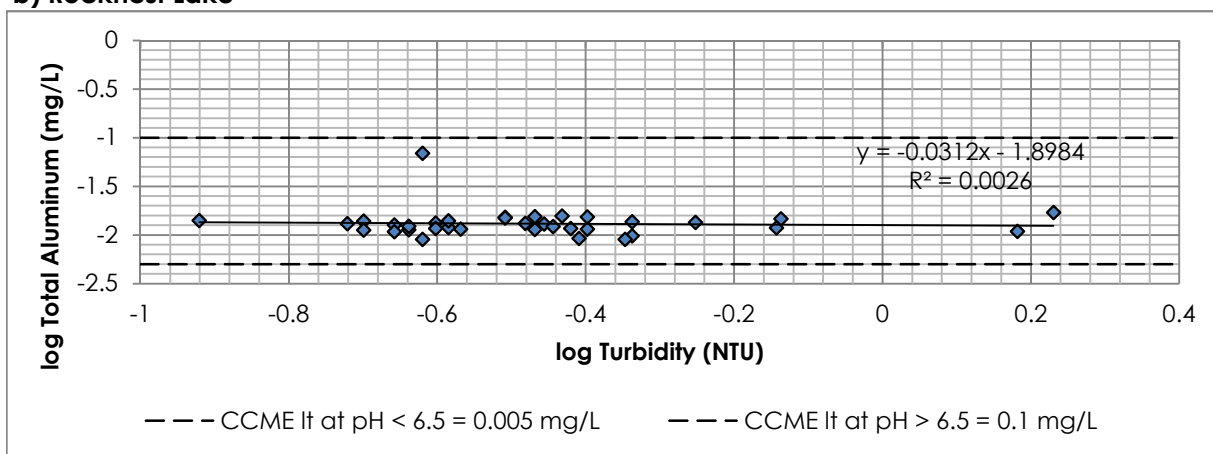


Figure B-7-1: log total aluminum plotted against log turbidity, Coppermine watershed.

a) Point Lake



b) Rocknest Lake



c) Coppermine River above Copper Creek

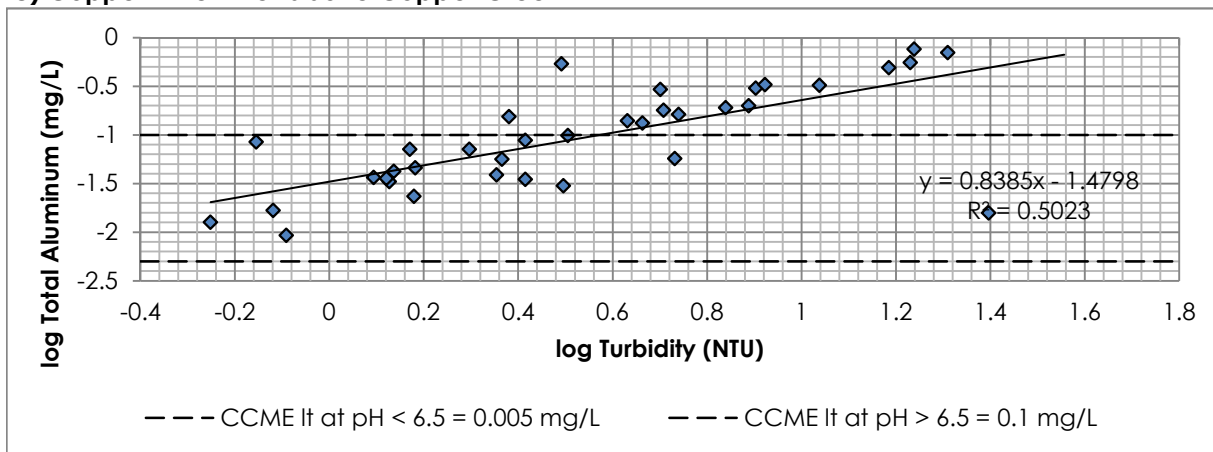


Figure B-7-2: log total aluminum plotted against log turbidity, Coppermine watershed.

a) Coppermine River Mouth

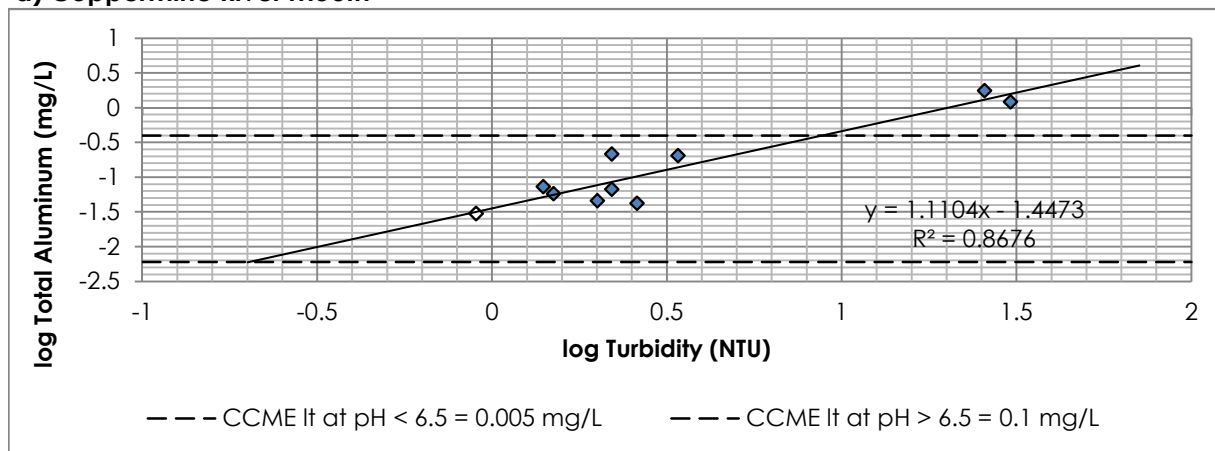
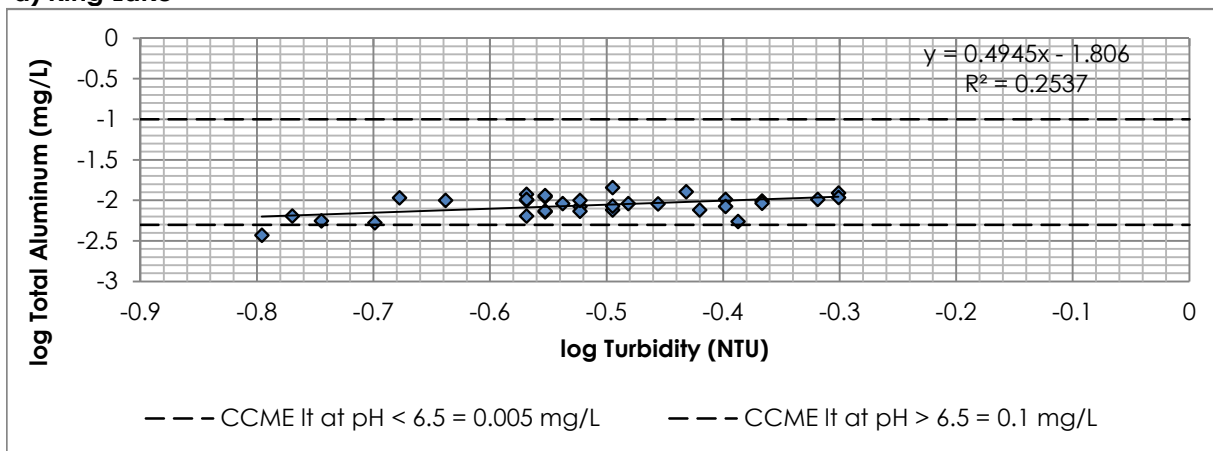
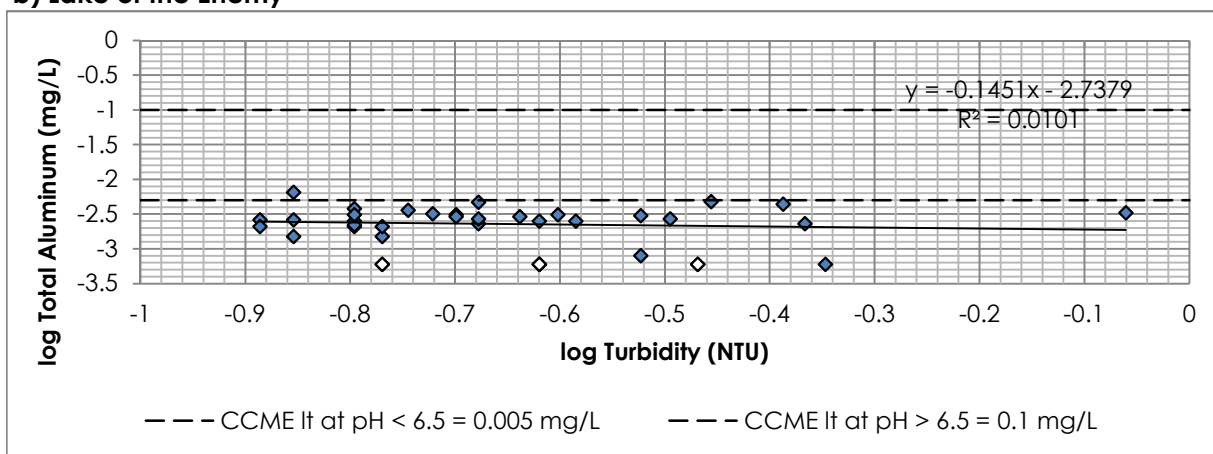


Figure B-7-3: log total aluminum plotted against log turbidity, Coppermine watershed.

a) King Lake



b) Lake of the Enemy



c) MacKay Lake

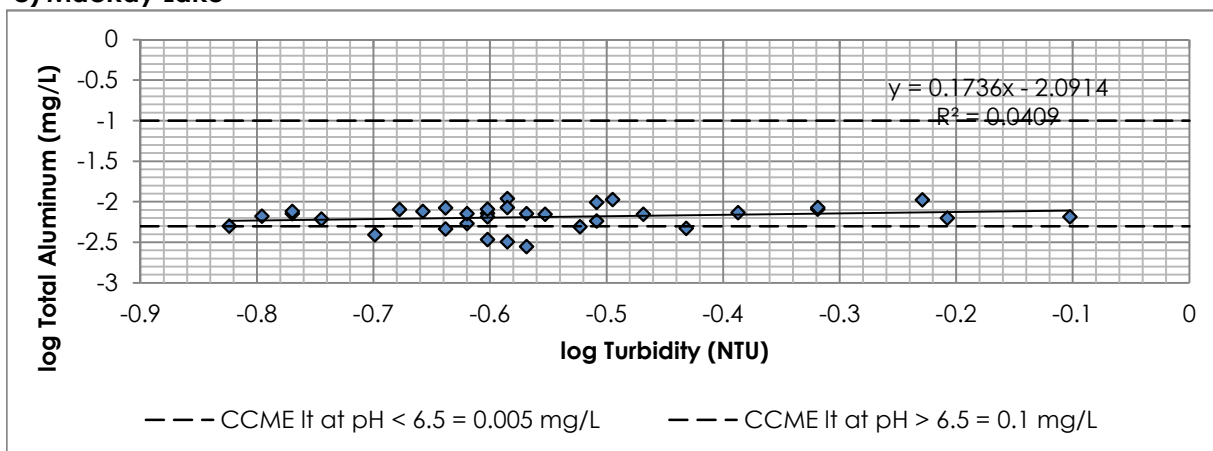


Figure B-7-4: log total aluminum plotted against log turbidity, Lockhart watershed

a) Lockhart River

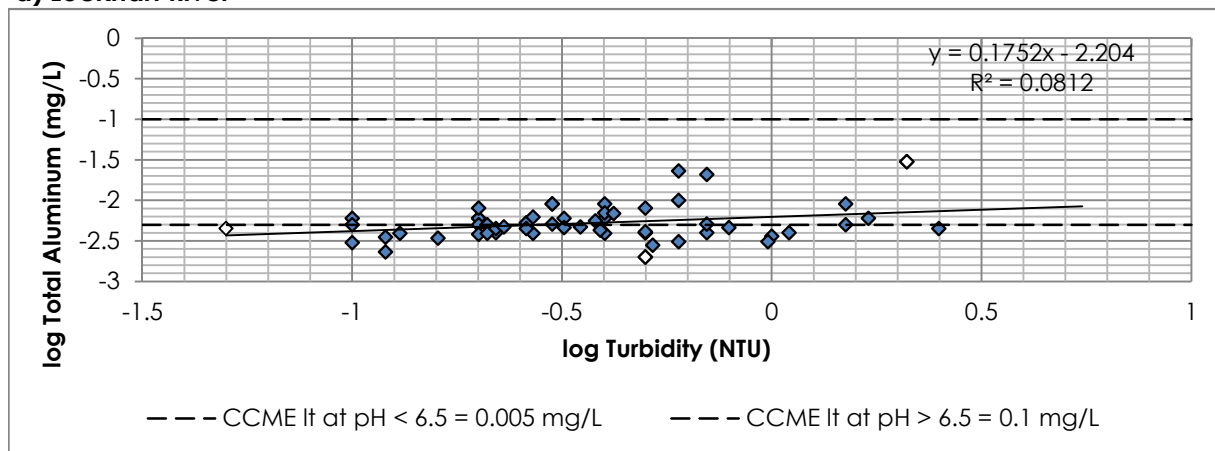


Figure B-7-5: log total aluminum plotted against log turbidity, Lockhart watershed

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Appendix C Mann-Kendall Trends Tests
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Appendix C MANN-KENDALL TRENDS TESTS

**STATUS AND TRENDS OF WATER CHEMISTRY AND FLOW IN THE COPPERMINE AND LOCKHART RIVER
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Appendix C Mann-Kendall Trends Tests
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C.1 'KENDALL' PACKAGE FOR R – ADDITIONAL INFORMATION

Package ‘Kendall’

February 19, 2015

Version 2.2

Date 2011-05-16

Title Kendall rank correlation and Mann-Kendall trend test

Author A.I. McLeod

Maintainer A.I. McLeod <aimcleod@uwo.ca>

Depends R (>= 2.1.0)

Description Computes the Kendall rank correlation and Mann-Kendall trend test. See documentation for use of block bootstrap when there is autocorrelation.

Imports boot

LazyLoad yes

LazyData yes

Classification/ACM G.3, G.4, I.5.1

Classification/MSC 62M10, 91B84

License GPL (>= 2)

URL <http://www.stats.uwo.ca/faculty/aim>

Repository CRAN

Date/Publication 2011-05-18 04:53:55

NeedsCompilation yes

R topics documented:

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Kendall-package

Kendall correlation and trend tests.

Description

Compute Kendall's rank correlation and various trend tests.

Details

Package:	Kendall
Type:	Package
Version:	2.2
Date:	2011-05-16
License:	GPL (>= 2)
LazyLoad:	yes

If you just want to compute Kendall's tau or its significance level, the base function `cor` and `cor.test` are recommended. The purpose of this package is to implement the Mann-Kendall test, the seasonal Mann-Kendall trend test as well as computing the Kendall score. See documentation for Mann-Kendall on using the block bootstrap to deal with autocorrelation.

Author(s)

A. I. McLeod

Maintainer: aimcleod@uwo.ca

References

Hipel, K.W. and McLeod, A.I., (1994). Time Series Modelling of Water Resources and Environmental Systems.

See Also

[cor](#), [cor.test](#), [print.Kendall](#), [summary.Kendall](#), [MannKendall](#), [SeasonalMannKendall](#)

Examples

```
library(boot)
data(PrecipGL)
MKtau<-function(z) MannKendall(z)$tau
tsboot(PrecipGL, MKtau, R=500, l=5, sim="fixed")
```

GuelphP*Phosphorous Concentrations in Speed River, Monthly*

Description

Monthly time series of phosphorous (P) concentrations in mg/l, Speed River, Guelph, Ontario, 1972.1-1977.1."

Usage

```
data(GuelphP)
```

Format

The format is: Time-Series [1:72] from 1972 to 1978: 0.47 0.51 0.35 0.19 0.33 NA 0.365 0.65 0.825 1 ... - attr(*, "title")= chr "Phosphorous Data,Speed River,Guelph,1972.1-1977.1"

Details

See Hipel and McLeod (2005, pp.707-709 and p.986). Hipel and McLeod used intervention analysis to estimate the effect of a phosphorous removal scheme. Intervention analysis was also used to estimate the missing values.

Source

Hipel, K.W. and McLeod, A.I., (2005). Time Series Modelling of Water Resources and Environmental Systems. Electronic reprint of our book originally published in 1994. <http://www.stats.uwo.ca/faculty/aim/1994Book/>.

Examples

```
data(GuelphP)
plot(GuelphP)
#replace missing values in the series with estimates obtained from Hipel and McLeod
# (2005, p. 986)
missingEst<-c(0.1524, 0.2144, 0.3064, 0.1342)
GuelphP2<-GuelphP
GuelphP2[is.na(GuelphP)]<-missingEst
```

Kendall

*Kendall rank correlation***Description**

Computes the Kendall rank correlation and its p-value on a two-sided test of H_0 : x and y are independent. If there are no ties, the test is exact and in this case it should agree with the base function `cor(x,y,method="kendall")` and `cor.test(x,y,method="kendall")`. When there are ties, the normal approximation given in Kendall is used as discussed below. In the case of ties, both Kendall and `cor` produce the same result but `cor.test` produces a p-value which is not as accurate

Usage

```
Kendall(x, y)
```

Arguments

x	first variable, a vector
y	second variable, a vector the same length as x

Details

In many applications x and y may be ranks or even ordered categorical variables. In our function x and y should be numeric vectors or factors. Any observations corresponding to NA in either x or y are removed.

Kendall's rank correlation measures the strength of monotonic association between the vectors x and y . In the case of no ties in the x and y variables, Kendall's rank correlation coefficient, τ , may be expressed as $\tau = S/D$ where

$$S = \sum_{i < j} (\text{sign}(x[j] - x[i]) * \text{sign}(y[j] - y[i]))$$

and $D = n(n - 1)/2$. S is called the score and D , the denominator, is the maximum possible value of S . When there are ties, the formula for D is more complicated (Kendall, 1974, Ch. 3) and this general formula for ties in both rankings is implemented in our function.

The p-value of τ under the null hypothesis of no association is computed by in the case of no ties using an exact algorithm given by Best and Gipps (1974).

When ties are present, a normal approximation with continuity correction is used by taking S as normally distributed with mean zero and variance $\text{var}(S)$, where $\text{var}(S)$ is given by Kendall (1976, eqn 4.4, p.55). Unless ties are very extensive and/or the data is very short, this approximation is adequate. If extensive ties are present then the bootstrap provides an expedient solution (Davis and Hinkley, 1997). Alternatively an exact method based on exhaustive enumeration is also available (Valz and Thompson, 1994) but this is not implemented in this package.

An advantage of the Kendall rank correlation over the Spearman rank correlation is that the score function S is nearly normally distributed for small n and the distribution of S is easier to work with.

It may also be noted that usual Pearson correlation is fairly robust and it usually agrees well in terms of statistical significance with results obtained using Kendall's rank correlation.

An error is returned if `length(x)` is less than 3.

Value

A list with class `Kendall` is returned with the following components:

<code>tau</code>	Kendall's tau statistic
<code>sl</code>	two-sided p-value
<code>S</code>	Kendall Score
<code>D</code>	denominator, $\tau = S/D$
<code>varS</code>	variance of <code>S</code>

Note

Generic functions `print.Kendall` and `summary.Kendall` are provided.

If you want to use the output from `Kendall`, save the result as in `out<-Kendall(x,y)` and then select from the list `out` the value(s) needed.

Author(s)

A.I. McLeod, aim@uwo.ca

References

- Best, D.J. and Gipps, P.G. (1974), Algorithm AS 71: The Upper Tail Probabilities of Kendall's Tau Applied Statistics, Vol. 23, No. 1. (1974), pp. 98-100.
- Davison, A.C. and Hinkley, D.V. (1997) Bootstrap Methods and Their Application. Cambridge University Press.
- Kendall, M.G. (1976). Rank Correlation Methods. 4th Ed. Griffin.
- Hill, I.D. (1973), Algorithm AS 66: The Normal Integral Applied Statistics, Vol. 22, No. 3. (1973), pp. 424-427.
- Valz, P. (1990). Developments in Rank Correlation Procedures with Applications to Trend Assessment in Water Resources Research, Ph.D. Thesis, Department of Statistical and Actuarial Sciences, The University of Western Ontario.
- Valz, P.D. and Thompson, M.E. (1994), Exact inference for Kendall's S and Spearman's ρ . Journal of Computational and Graphical Statistics, 3, 459-472.

See Also

[cor](#), [print.Kendall](#), [summary.Kendall](#), [MannKendall](#), [SeasonalMannKendall](#)

Examples

```
#First Example
#From Kendall (1976, p.42-43, Example 3.4)
A<-c(2.5,2.5,2.5,2.5,5,6.5,6.5,10,10,10,10,10,14,14,14,16,17)
B<-c(1,1,1,1,2,1,1,2,1,1,1,1,1,1,2,2,2)
summary(Kendall(A,B))
#Kendall obtains S=34, D=sqrt(116*60), tau=0.41

#Second Example
#From Kendall (1976, p.55, Example 4.3)
x<-c(1.5,1.5,3,4,6,6,6,8,9.5,9.5,11,12)
y<-c(2.5,2.5,7,4.5,1,4.5,6,11.5,11.5,8.5,8.5,10)
summary(Kendall(x,y))
#Kendall obtains S=34 and Var(S)=203.30
```

MannKendall

Mann-Kendall trend test

Description

This is a test for monotonic trend in a time series $z[t]$ based on the Kendall rank correlation of $z[t]$ and t .

Usage

```
MannKendall(x)
```

Arguments

x a vector of data, often a time series

Details

The test was suggested by Mann (1945) and has been extensively used with environmental time series (Hipel and McLeod, 2005). For autocorrelated time series, the block bootstrap may be used to obtain an improved significance test.

Value

A list with class `Kendall`.

<code>tau</code>	Kendall's tau statistic
<code>sl</code>	two-sided p-value
<code>S</code>	Kendall Score
<code>D</code>	denominator, $\tau=S/D$
<code>varS</code>	variance of S

Generic function `print.Kendall` and `summary.Kendall` are provided to print the output.

Note

If you want to use the output from MannKendall, save the result as in `res<-MannKendall(x,y)` and then select from the list `res` the value(s) needed.

Author(s)

A.I. McLeod, aimcleod@uwo.ca

References

Davison, A.C. and Hinkley, D.V. (1997) Bootstrap Methods and Their Application. Cambridge University Press.

Hipel, K.W. and McLeod, A.I., (2005). Time Series Modelling of Water Resources and Environmental Systems. Electronic reprint of our book originally published in 1994. <http://www.stats.uwo.ca/faculty/aim/1994Book/>.

Mann, H.B. (1945), Nonparametric tests against trend, *Econometrica*, 13, 245-259.

See Also

[Kendall](#), [SeasonalMannKendall](#) [tsboot](#)

Examples

```
# Annual precipitation entire Great Lakes
# The time series plot with lowess smooth suggests an upward trend
# The autocorrelation in this data does not appear significant.
# The Mann-Kendall trend test confirms the upward trend.
data(PrecipGL)
plot(PrecipGL)
lines(lowess(time(PrecipGL),PrecipGL),lwd=3, col=2)
acf(PrecipGL)
MannKendall(PrecipGL)
#
#Use block bootstrap
library(boot)
data(PrecipGL)
MKtau<-function(z) MannKendall(z)$tau
tsboot(PrecipGL, MKtau, R=500, l=5, sim="fixed")
#
# Deseasonalize a monthly time series and use the block bootstrap
library(boot)
data(manaus)
z<-matrix(manaus, ncol=12, byrow=12)
zm<-apply(z, MARGIN=2, FUN=mean)
zs<-apply(z, MARGIN=2, FUN=sd)
z2<-sweep(z, MARGIN=2, STATS=zm) #subtract monthly means
z3<-sweep(z2, MARGIN=2, STATS=zs, FUN="/") #divide by monthly sd
zds<-c(t(z3))
attributes(zds)<-attributes(manaus)
plot(zds)
```

```
#do Mann-Kendall trend test
MannKendall(zds)
#check robustness by applying block bootstrap
MKtau<-function(z) MannKendall(z)$tau
tsboot(zds, MKtau, R=500, l=12, sim="fixed")
#the significance level has dropped!
#it is significant now at about 2 sd
```

PrecipGL	<i>Annual precipitation, inches, Great Lakes, 1900-1986</i>

Description

Annual precipitation, 1900-1986, Entire Great Lakes

Usage

```
data(PrecipGL)
```

Format

The format is: Time-Series [1:87] from 1900 to 1986: 31.7 29.8 31.7 33.1 31.3 ...

Source

Appendix A of H. Roberts (1992) "Data Analysis for Managers" published by Scientific Press.

Original Source: Great Lake Water Levels, U.S. Dept of Commerce, Rockville MD U.S. Lake Survey, Detroit, MI, US Army Corps of Engineers

Examples

```
data(PrecipGL)
plot(PrecipGL)
```

print.Kendall	<i>print Method for Class 'Kendall'</i>

Description

The value of Kendall's tau and its two-sided p-value are displayed.

Usage

```
## S3 method for class 'Kendall'
print(x, ...)
```

Arguments

x	output from Kendall, MannKendall or SeasonalMannKendall
...	any additional arguments

Value

NULL

Note

If you want to use the output from Kendall or the other functions, save the result as in `res<-Kendall(x,y)` and then select from `res` the value(s) needed.

Author(s)

A.I. McLeod, aimcleod@uwo.ca

See Also[summary.Kendall](#), [Kendall](#), [MannKendall](#), [SeasonalMannKendall](#), [summary.Kendall](#)**Examples**

```
x<-1:10
y<-rnorm(10)
Kendall(x,y)
#is equivalent to
out<-Kendall(x,y)
print(out)
```

SeasonalMannKendall	<i>Mann-Kendall trend test for monthly environmental time series</i>

Description

Hirst et al. (1982) suggested this test for monthly water quality time series. The test is also discussed by Hipel and McLeod (2005).

The score is computed separately for each month.

The purpose of this test is to test for monotonic trend. A common misconception is to look for trends in the individual monthly time series. Usually this does not make a lot of sense, in the context of environmental time series, since if there is a real trend of interest in the series it would not be expected to be greatly changed by seasonality. If indeed one were interested in detecting a trend a particular month then one could use the MannKendall trend test for that particular month or group of months.

Usage

```
SeasonalMannKendall(x)
```

Arguments

x a vector or a time series comprised of consecutive monthly values

Value

A list with class `Kendall`.

tau	Kendall's tau statistic
sl	two-sided p-value
S	Kendall Score
D	Denominator, $\tau = S/D$
varS	variance of S

Generic function `print.Kendall` and `summary.Kendall` are provided.

Note

If you want to use the output from `SeasonalMannKendall`, save the result as in `res<-SeasonalMannKendall(x,y)` and then select from the list `res` the value(s) needed.

Author(s)

A.I. McLeod, aimcleod@uwo.ca

References

Hirsch, R.M., Slack, J.R. and Smith, R.A. (1982), Techniques for trend assessment for monthly water quality data, *Water Resources Research* 18, 107-121.

Hipel, K.W. and McLeod, A.I., (2005). *Time Series Modelling of Water Resources and Environmental Systems*. Electronic reprint of our book originally published in 1994. <http://www.stats.uwo.ca/faculty/aim/1994Book/>.

See Also

[MannKendall](#)

Examples

```
#test for monotonic trend in monthly average river height data
#for the Rio Negro at Manaus. This data is included in the
#package boot.
library(boot)
data(manauas)
SeasonalMannKendall(manauas)
```

`summary.Kendall`*summary Method for Class 'Kendall'*

Description

In addition to the value of Kendall's tau and its two-sided p-value are displayed, the Kendall score, its variance and the value of the denominator for Kendall tau are printed.

Usage

```
## S3 method for class 'Kendall'
summary(object, ...)
```

Arguments

<code>object</code>	output from Kendall, MannKendall or SeasonalMannKendall
<code>...</code>	any additional arguments

Value

NULL

Note

If you want to use the output from Kendall or the other functions, save the result as in `res<-Kendall(x,y)` and then select from `res` the value(s) needed.

Author(s)

A.I. McLeod, aimcleod@uwo.ca

See Also

[summary.Kendall](#), [Kendall](#), [MannKendall](#), [SeasonalMannKendall](#), [print.Kendall](#)

Examples

```
x<-1:10
y<-rnorm(10)
out<-Kendall(x,y)
out
summary(out)
```

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Appendix C Mann-Kendall Trends Tests
March 31, 2015

C.2 MANN-KENDALL TREND RESULTS

Table C2-1: Data removed from temporal trends analysis due to highly variable detection limits

Parameter	Site	Water Years of Data Removed	% < DL During Water Years Removed	Rationale for Removal	Water Years Assessed
Coppermine watershed					
Sulphate	Lac De Gras	2002 and earlier	50%	High DL and many < DL	2003 - 2013
	Desteffany Lake	2002 and earlier	57%		
	Daring Lake	2002 and earlier	100%		
	Point Lake	2000 - 2003	50%	High DL and many < DL	1971 - 1999, 2004 - 2013
Total aluminum	Lac De Gras	2005 and earlier	44%	High DL and many < DL	2006 - 2013
	Desteffany Lake	2005 and earlier	31%		
	Daring Lake	2005 and earlier	25%		
	Point Lake	2000 - 2001	100%	All < DL	1992 - 1999, 2002 - 2013
Total arsenic	Lac De Gras	2004 and earlier	90%	Mostly < DL	2005 - 2013
	Desteffany Lake	2004 and earlier	100%		
	Daring Lake	All data	92%	Mostly < DL	-
	Coppermine River mouth	All data	84%		-
Total barium	Point Lake	1991 and earlier	100%	High DL and all < DL	1999 - 2013
Total copper	Lac De Gras	2001 and earlier	71%	High DL and many <DL	2002 - 2013
	Desteffany Lake	2001 and earlier	50%		
	Point Lake	1985 and earlier 2000 - 2001	67%	High DL and mostly < DL	1986 - 1999, 2002 - 2013
Total mercury	All sites	All data	85%	Mostly < DL	-
Total molybdenum	Lac De Gras	2001 and earlier	94%	High DL and many < DL	2002 - 2013
	Desteffany Lake	2001 and earlier	89%		
	Point Lake	2001 and earlier	83%		
	Coppermine River mouth	All data	50%	Mostly < DL	-
Total nickel	Lac De Gras	2001 and earlier	47%	High DL and many < DL	2002 - 2013
	Desteffany Lake	2001 and earlier	45%		
	Point Lake	2001 and earlier	36%		
	Coppermine River mouth	All data	19%	High DL and many < DL in recent years	-

Table C2-1: Data removed from temporal trends analysis due to highly variable detection limits

Parameter	Site	Water Years of Data Removed	% < DL During Water Years Removed	Rationale for Removal	Water Years Assessed
Total uranium	All sites but Coppermine River above Copper Creek	All data	84%	Mostly < DL	-
Lockhart watershed					
Alkalinity	Lockhart River	1976 - 1979	36%	High DL	1968 - 1975, 1980 - 2013
Total arsenic	King Lake	All data	97%	Mostly < DL	-
	Lake of the Enemy		100%		
	MacKay Lake		44%		
Total barium	Lockhart River	1992 and earlier	92%	High DL and many < DL	1993 - 2013
Total copper	Lockhart River	1992 and earlier	33%	High DL and many < DL	1993 - 2013
Total mercury	All sites	All data	88%	Mostly < DL	-
Total molybdenum	King Lake	All Data	91%	Mostly < DL	-
	Lake of the Enemy		94%		
	MacKay Lake		97%		
	Lockhart River	2001 and earlier	79%	High DL and many < DL	2002 - 2013
Total nickel	Lockhart River	1992 and earlier	64%	High DL and many < DL	1993 - 2013
Total uranium	King Lake	All data	97%	Mostly < DL	-
	Lake of the Enemy		94%		
	MacKay Lake		97%		

Table C-2-2: Results of Mann-Kendall tests for significance of water chemistry trends

Levels of Significance: p < 0.050 = marginally significant; p < 0.0125 = moderately significant; p ≤ 0.001 = highly significant

Site	Season	pH			Specific Conductance			Total Dissolved Solids			Turbidity			Total Hardness (as CaCO ₃)			Dissolved Calcium			Dissolved Magnesium			Total Alkalinity (as CaCO ₃)			Dissolved Chloride		
		tau ¹	p	Trend ²	tau ¹	p	Trend ²	tau ¹	p	Trend ²	tau ¹	p	Trend ²	tau ¹	p	Trend ²	tau ¹	p	Trend ²	tau ¹	p	Trend ²	tau ¹	p	Trend ²	tau ¹	p	Trend ²
Coppermine Watershed																												
Lac De Gras	All	0.619	0.002	Inc.	0.695	0.000	Inc.	-0.259	0.218	-	-0.631	0.001	Dec.	0.611	0.002	Inc.	0.573	0.004	Inc.	0.611	0.002	Inc.	-0.038	0.882	-	0.672	0.001	Inc.
	Baseflow	0.398	0.055	-	0.736	0.000	Inc.	-0.114	0.638	-	-0.211	0.323	-	0.648	0.002	Inc.	0.597	0.004	Inc.	0.648	0.002	Inc.	0.144	0.510	-	0.785	0.000	Inc.
	Freshet	0.800	0.086	-	-0.105	1.000	-	-0.105	1.000	-	-0.200	0.806	-	0.800	0.086	-	0.738	0.130	-	0.800	0.086	-	0.000	1.000	-	0.738	0.130	-
	Recession	0.505	0.010	Inc.	0.727	0.000	Inc.	-0.329	0.112	-	-0.325	0.102	-	0.657	0.001	Inc.	0.510	0.010	Inc.	0.657	0.001	Inc.	0.240	0.234	-	0.568	0.010	Inc.
Desteffany Lake	All	0.126	0.509	-	0.524	0.004	Inc.	-0.178	0.312	-	-0.180	0.284	-	0.780	0.000	Inc.	0.695	0.000	Inc.	0.780	0.000	Inc.	-0.032	0.871	-	0.369	0.033	Inc.
	Baseflow	-0.096	0.656	-	0.638	0.001	Inc.	-0.117	0.649	-	-0.221	0.298	-	0.595	0.005	Inc.	0.656	0.001	Inc.	0.595	0.005	Inc.	0.122	0.583	-	0.680	0.001	Inc.
	Freshet	-0.667	0.308	-	0.667	0.308	-	-0.138	0.848	-	0.600	0.133	-	0.828	0.035	Inc.	0.600	0.133	-	0.828	0.035	Inc.	0.333	0.452	-	-0.138	0.848	-
	Recession	0.486	0.018	Inc.	0.751	0.000	Inc.	-0.251	0.165	-	-0.371	0.030	Dec.	0.709	0.000	Inc.	0.605	0.000	Inc.	0.709	0.000	Inc.	0.317	0.067	-	0.255	0.179	-
Daring Lake	All	0.492	0.033	Inc.	-0.273	0.244	-	0.000	1.000	-	0.198	0.409	-	0.315	0.197	-	0.168	0.492	-	0.315	0.197	-	-0.419	0.072	-	0.510	0.055	-
	Baseflow	0.278	0.348	-	-0.197	0.529	-	-0.387	0.247	-	-0.278	0.348	-	-0.057	0.916	-	-0.254	0.402	-	-0.057	0.916	-	-0.572	0.045	Dec.	-0.471	0.175	-
	Freshet	-1.000	1.000	-	1.000	1.000	-	1.000	1.000	-	1.000	1.000	-	1.000	1.000	-	1.000	1.000	-	1.000	1.000	-	1.000	1.000	-	-1.000	1.000	-
	Recession	0.477	0.051	-	-0.183	0.482	-	-0.065	0.864	-	-0.019	1.000	-	0.112	0.694	-	0.187	0.480	-	0.112	0.694	-	-0.294	0.241	-	0.447	0.164	-
Point Lake	All	-0.240	0.061	-	0.513	0.000	Inc.	-0.200	0.248	-	-0.258	0.021	Dec.	0.528	0.000	Inc.	0.374	0.001	Inc.	0.528	0.000	Inc.	0.221	0.045	Inc.	0.502	0.000	Inc.
	Baseflow	-0.191	0.238	-	0.494	0.000	Inc.	-0.078	0.705	-	-0.328	0.009	Dec.	0.618	0.000	Inc.	0.470	0.000	Inc.	0.618	0.000	Inc.	0.511	0.000	Inc.	0.564	0.000	Inc.
	Freshet	-0.422	0.107	-	-0.022	0.934	-	0.067	1.000	-	-0.224	0.255	-	-0.123	0.630	-	0.019	0.960	-	-0.123	0.630	-	0.268	0.181	-	-0.248	0.229	-
	Recession	-0.203	0.144	-	0.440	0.000	Inc.	-0.184	0.290	-	-0.148	0.202	-	0.523	0.000	Inc.	0.301	0.010	Inc.	0.523	0.000	Inc.	0.252	0.031	Inc.	0.401	0.001	Inc.
Rocknest Lake	All	-0.085	0.834	-	-0.423	0.142	-	-0.029	1.000	-	-0.343	0.246	-	-0.667	0.020	Dec.	-0.423	0.142	-	-0.667	0.020	Dec.	-0.479	0.093	-	1.000	1.000	-
	Baseflow	-0.098	0.879	-	-0.333	0.368	-	-0.394	0.315	-	0.195	0.649	-	-0.507	0.188	-	-0.451	0.219	-	-0.507	0.188	-	-0.333	0.368	-	1.000	1.000	-
	Freshet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Recession	-0.056	0.917	-	-0.535	0.059	-	-0.141	0.675	-	-0.222	0.466	-	-0.589	0.042	Dec.	-0.423	0.142	-	-0.589	0.042	Dec.	-0.444	0.118	-	1.000	1.000	-
Coppermine River above Copper Creek	All	0.143	0.511	-	-0.048	0.843	-	-0.010	1.000	-	-0.010	1.000	-	-0.019	0.960	-	0.067	0.767	-	-0.019	0.960	-	0.048	0.843	-	-0.249	0.215	-
	Baseflow	-0.333	1.000	-	0.556	0.048	Inc.	0.197	0.529	-	-0.333	0.251	-	0.479	0.093	-	0.444	0.118	-	0.479	0.093	-	0.229	0.461	-	0.167	0.602	-
	Freshet	0.030	0.945	-	0.067	0.767	-	0.153	0.457	-	-0.314	0.113	-	0.077	0.743	-	-0.011	1.000	-	0.077	0.743	-	0.162	0.428	-	-0.589	0.004	Dec.
	Recession	0.143	0.764	-	0.061	0.837	-	-0.229	0.336	-	-0.061	0.837	-	0.107	0.680	-	0.121	0.631	-	0.107	0.680	-	0.121	0.631	-	-0.188	0.446	-
Coppermine River mouth	All	0.333	0.452	-	1.000	0.027	Inc.	0.333	0.368	-	0.233	0.224	-	0.238	0.548	-	-0.050	0.822	-	0.238	0.548	-	0.219	0.276	-	-0.226	0.241	-
	Baseflow	0.400	0.462	-	0.667	0.308	-	-0.195	0.649	-	-0.208	0.430	-	0.488	0.172	-	-0.055	0.876	-	0.488	0.172	-	0.382	0.119	-	-0.367	0.138	-
	Freshet	-1.000	1.000	-	1.000	1.000	-	0.667	0.308	-	0.200	0.474	-	1.000	0.089	-	0.333	0.210	-	1.000	0.089	-	0.500	0.076	-	-0.092	0.785	-
	Recession	0.333	1.000	-	1.000	1.000	-	1.000	0.027	Inc.	0.055	0.827	-	0.800	0.086	-	0.051	0.855	-	0.800	0.086	-	0.256	0.246	-	-0.199	0.351	-
Lockhart Watershed																												
King Lake	All	0.286	0.386	-	0.667	0.016	Inc.	0.000	1.000	-	-0.286	0.343	-	0.036	1.000	-	0.085	0.834	-	0.000	1.000	-	-0.111	0.754	-	0.767	0.011	Inc.
	Baseflow	0.000	1.000	-	0.333	0.734	-	0.183	1.000	-	0.000	1.000	-	0.000	1.000	-	-0.183	1.000	-	0.236	1.000	-	-0.333	0.734	-	0.548	0.470	-
	Freshet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Recession	0.214	0.536	-	0.722	0.009	Inc.	0.000	1.000	-	-0.197	0.529	-	-0.109	0.803	-	-0.087	0.832	-	-0.118	0.748	-	-0.197	0.529	-	0.713	0.032	Inc.
Lake of the Enemy	All	0.286	0.386	-	0.167	0.602	-	-0.327	0.300	-	-0.085	0.834	-	0.143	0.711	-	0.085	0.834	-	0.229	0.461	-	-0.118	0.748	-	1.000	1.000	-
	Baseflow	0.333	0.734	-	-0.333	0.734	-	-0.183	1.000	-	0.667	0.308	-	0.000	1.000	-	-0.183	1.000	-	0.000	1.000	-	-0.333	0.734	-	1.000	1.000	-
	Freshet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Recession	0.143	0.711	-	0.167	0.602	-	-0.300	0.353	-	0.111	0.754	-	-0.143	0.711	-	-0.114	0.752	-	-0.145	0.672	-	-0.141	0.675	-	1.000	1.000	-
MacKay Lake	All	0.286	0.386	-	0.389	0.175	-	-0.261	0.420	-	-0.028	1.000	-	0.071	0.902	-	0.056	0.917	-	0.030	1.000	-	0.085	0.834	-	1.000	1.000	-
	Baseflow	0.600	0.221	-	0.600	0.133	-	0.276	0.566	-	-0.138	0.848	-	-0.105	1.000	-	0.000	1.000	-	0.298	0.546	-	0.788	0.051	-	1.000	1.000	-
	Freshet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Recession	0.429	0.174	-	0.085	0.834	-	-0.261	0.420	-	0.141	0.675	-	-0.214	0.536	-	-0.197	0.529	-	-0.261	0.396	-	-0.114	0.752	-	1.000	1.000	-
Lockhart River below Artillery Lake	All	0.015	0.919	-	0.266	0.011	Inc.	-0.217	0.190	-	-0.280	0.008	Dec.	0.														

NOTES:

1. "tau" refers to Kendall's rank correlation coefficient and roughly approximates change over time
2. Trend: Inc. = increasing (tau is positive); Dec. = decreasing (tau is negative)

Table C-2-2: Results of Mann-Kendall tests for significance of water chemistry trends

Levels of Significance: p < 0.050 = marginally significant; p < 0.0125 = moderately significant; p ≤ 0.001 = highly significant

Site	Season	Sulphate			Total Nitrogen			Total Phosphorus			Total Aluminum			Total Arsenic			Total Barium			Total Copper			Total Mercury			Total Molybdenum		
		tau ¹	p	Trend ²	tau ¹	p	Trend ²	tau ¹	p	Trend ²	tau ¹	p	Trend ²	tau ¹	p	Trend ²	tau ¹	p	Trend ²	tau ¹	p	Trend ²	tau ¹	p	Trend ²	tau ¹	p	Trend ²
Coppermine Watershed																												
Lac De Gras	All	0.264	0.365	-	-	-	-	0.108	0.636	-	0.286	0.386	-	0.301	0.385	-	0.315	0.121	-	-0.709	0.002	Dec.	-	-	-	0.700	0.005	Inc.
	Baseflow	0.389	0.175	-	-	-	-	-0.366	0.086	-	-0.143	0.764	-	0.472	0.194	-	0.573	0.006	Inc.	-0.352	0.159	-	-	-	0.832	0.001	Inc.	
	Freshet	-0.816	1.000	-	-	-	-	0.949	0.043	Inc.	1.000	1.000	-	1.000	1.000	-	0.400	0.462	-	-1.000	0.089	-	-	-	1.000	1.000	-	
	Recession	0.212	0.481	-	-	-	-	-0.291	0.176	-	0.286	0.386	-	-0.043	1.000	-	0.567	0.004	Inc.	-0.638	0.008	Dec.	-	-	-	0.459	0.070	-
Desteffany Lake	All	0.159	0.615	-	-	-	-	-0.125	0.485	-	0.071	0.902	-	-0.224	0.528	-	0.042	0.832	-	-0.625	0.007	Dec.	-	-	-	0.225	0.413	-
	Baseflow	0.104	0.813	-	-	-	-	-0.346	0.122	-	-0.238	0.548	-	-0.049	1.000	-	0.458	0.031	Inc.	-0.210	0.466	-	-	-	0.696	0.011	Inc.	
	Freshet	1.000	1.000	-	-	-	-	0.215	0.697	-	1.000	1.000	-	1.000	1.000	-	-0.837	0.096	-	1.000	1.000	-	-	-	1.000	1.000	-	
	Recession	0.445	0.126	-	-	-	-	-0.149	0.423	-	0.000	1.000	-	-0.075	0.899	-	0.350	0.055	-	-0.677	0.003	Dec.	-	-	-	0.225	0.413	-
Daring Lake	All	-0.093	0.815	-	-	-	-	-0.704	0.003	Dec.	0.357	0.266	-	-	-	-	-0.678	0.004	Dec.	-0.921	0.000	Dec.	-	-	-	1.000	1.000	-
	Baseflow	-0.043	1.000	-	-	-	-	-0.680	0.028	Dec.	0.048	1.000	-	-	-	-	-0.197	0.529	-	-0.589	0.042	Dec.	-	-	-	-0.471	0.175	-
	Freshet	1.000	1.000	-	-	-	-	-1.000	1.000	-	1.000	1.000	-	-	-	-	-1.000	1.000	-	-1.000	1.000	-	-	-	1.000	1.000	-	
	Recession	0.256	0.429	-	-	-	-	-0.650	0.011	Dec.	-0.143	0.711	-	-	-	-	-0.496	0.048	Dec.	-0.583	0.025	Dec.	-	-	-	-0.256	0.429	-
Point Lake	All	0.634	0.000	Inc.	0.014	1.000	-	-0.072	0.573	-	-0.551	0.002	Dec.	1.000	1.000	-	-0.058	0.762	-	-0.420	0.006	Dec.	-	-	-	0.408	0.148	-
	Baseflow	0.537	0.000	Inc.	-0.091	0.755	-	-0.434	0.002	Dec.	-0.135	0.518	-	0.094	0.885	-	0.468	0.010	Inc.	0.027	0.896	-	-	-	0.325	0.300	-	
	Freshet	0.158	0.473	-	-0.056	1.000	-	0.037	0.938	-	0.333	0.452	-	1.000	1.000	-	0.333	0.452	-	0.357	0.266	-	-	-	1.000	1.000	-	
	Recession	0.579	0.000	Inc.	0.094	0.752	-	0.116	0.386	-	-0.554	0.002	Dec.	1.000	1.000	-	-0.164	0.358	-	-0.573	0.000	Dec.	-	-	-	0.134	0.669	-
Rocknest Lake	All	1.000	1.000	-	-	-	-	-0.612	0.049	Dec.	-0.278	0.348	-	-0.748	0.015	Dec.	-0.514	0.073	-	-0.535	0.059	-	-	-	1.000	1.000	-	
	Baseflow	-0.690	0.081	-	-	-	-	-0.467	0.234	-	-0.524	0.133	-	-0.690	0.081	-	-0.206	0.641	-	-0.720	0.041	Dec.	-	-	-	-0.178	0.803	-
	Freshet	1.000	1.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Recession	1.000	1.000	-	-	-	-	-0.609	0.044	Dec.	-0.222	0.466	-	-0.680	0.028	Dec.	-0.514	0.073	-	-0.530	0.069	-	-	-	1.000	1.000	-	
Copper River above Copper Creek	All	-0.010	1.000	-	0.352	0.075	-	-0.039	0.881	-	-0.099	0.661	-	-0.031	0.945	-	-0.029	0.921	-	-0.268	0.181	-	-	-	-0.077	0.729	-	
	Baseflow	0.556	0.048	Inc.	0.000	1.000	-	-0.031	1.000	-	-0.286	0.386	-	-0.400	0.212	-	0.000	1.000	-	-0.278	0.348	-	-	-	0.333	0.251	-	
	Freshet	-0.099	0.661	-	0.333	0.092	-	-0.500	0.012	Dec.	-0.099	0.661	-	-0.142	0.578	-	-0.219	0.276	-	-0.543	0.006	Dec.	-	-	-	-0.129	0.547	-
	Recession	0.123	0.630	-	-0.091	0.732	-	0.065	0.864	-	-0.564	0.020	Dec.	0.319	0.287	-	0.121	0.631	-	-0.168	0.492	-	-	-	-0.412	0.074	-	
Copper River mouth	All	0.150	0.484	-	-	-	-	0.496	0.048	Inc.	0.000	1.000	-	-	-	-	0.000	1.000	-	0.195	0.649	-	-	-	-	-	-	-
	Baseflow	0.213	0.441	-	-	-	-	-0.296	0.379	-	0.000	1.000	-	-	-	-	0.913	0.149	-	-0.293	0.448	-	-	-	-	-	-	-
	Freshet	0.665	0.016	Inc.	-	-	-	0.414	0.339	-	1.000	1.000	-	-	-	-	1.000	1.000	-	0.333	1.000	-	-	-	-	-	-	-
	Recession	0.088	0.724	-	-	-	-	0.650	0.028	Inc.	1.000	1.000	-	-	-	-	1.000	1.000	-	1.000	0.089	-	-	-	-	-	-	-
Lockhart Watershed																												
King Lake	All	0.674	0.025	Inc.	-	-	-	-0.745	0.020	Dec.	-0.167	0.602	-	-	-	-	0.229	0.461	-	-0.707	0.014	Dec.	-	-	-	-	-	-
	Baseflow	1.000	1.000	-	-	-	-	1.000	1.000	-	-0.333	0.734	-	-	-	-	0.000	1.000	-	-0.333	0.734	-	-	-	-	-	-	-
	Freshet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Recession	0.693	0.020	Inc.	-	-	-	-0.674	0.025	Dec.	0.028	1.000	-	-	-	-	0.141	0.675	-	-0.800	0.004	Dec.	-	-	-	-	-	-
Lake of the Enemy	All	0.236	0.561	-	-	-	-	-0.387	0.247	-	0.056	0.917	-	-	-	-	-0.087	0.831	-	-0.784	0.008	Dec.	-	-	-	-	-	-
	Baseflow	0.236	1.000	-	-	-	-	0.816	0.245	-	0.333	0.734	-	-	-	-	-0.333	0.734	-	-0.913	0.149	-	-	-	-	-	-	-
	Freshet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Recession	0.236	0.561	-	-	-	-	-0.236	0.561	-	0.167	0.602	-	-	-	-	-0.707	0.014	Dec.	-0.852	0.003	Dec.	-	-	-	-	-	-
MacKay Lake	All	0.408	0.203	-	-	-	-	-0.588	0.047	Dec.	-0.056	0.917	-	-	-	-	0.090	0.830	-	-0.530	0.069	-	-	-	-	-	-	-
	Baseflow	0.894	0.027	Inc.	-	-	-	-0.389	0.411	-	-0.467	0.260	-	-	-	-	0.552	0.181	-	0.298	0.546	-	-	-	-	-	-	-
	Freshet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Recession	0.408	0.203	-	-	-	-	-0.730	0.012	Dec.	0.000	1.000	-	-	-	-	0.031	1.000	-	-0.730	0.013	Dec.	-	-	-	-	-	-
Lockhart	All	0.364	0.001	Inc.	0.221	0.077	-	0.217	0.085	-	-0.431	0.008	Dec.	-0.412	0.081	-	0.495	0.003	Inc.	-0.178	0.343	-	-	-	-	0.121	0.659	-
	Baseflow	0.296	0.027	Inc.	0.347	0.023	Inc.	0.086	0.638	-	-0.565	0.007	Dec.	0.732	0.045	Inc.	0.515	0.010	Inc.	0.212	0.373	-	-	-	0.077	0.898	-	-
	Freshet	0.170	0.190	-	0.135	0.352	-	0.235	0.149	-	-0.160	0.416	-	-0.625	0.008	Dec.	0.312	0.104	-	-0.128	0.583	-	-	-	0.463	0.060	-	-
	Recession	0.265	0.020	Inc.	0.292	0.028	Inc.	0.184	0.186	-	-0.331	0.075	-	0.000	1.000	-	0.617	0.001	Inc.	0.055	0.827	-	-	-	-	-0.272	0.299	-

NOTES:

1. "tau" refers to Kendall's rank correlation coefficient and roughly approximates change over time

2. Trend: Inc. = increasing (tau is positive); Dec. = decreasing (tau is negative)

Table C-2-2: Results of Mann-Kendall tests for significance of water chemistry trends

Levels of Significance: p < 0.050 = marginally significant; p < 0.0125 = moderately significant; p ≤ 0.001 = highly significant

Site	Season	Total Nickel			Total Strontium			Total Uranium		
		tau ¹	p	Trend ²	tau ¹	p	Trend ²	tau ¹	p	Trend ²
Coppermine Watershed										
Lac De Gras	All	-0.382	0.115	-	0.771	0.000	Inc.	-	-	-
	Baseflow	0.305	0.235	-	0.840	0.000	Inc.	-	-	-
	Freshet	-0.707	0.371	-	0.316	0.613	-	-	-	-
	Recession	-0.080	0.779	-	0.804	0.000	Inc.	-	-	-
Desteffany Lake	All	-0.349	0.152	-	0.691	0.000	Inc.	-	-	-
	Baseflow	0.149	0.638	-	0.862	0.000	Inc.	-	-	-
	Freshet	1.000	1.000	-	0.667	0.308	-	-	-	-
	Recession	-0.034	0.943	-	0.762	0.000	Inc.	-	-	-
Daring Lake	All	-0.594	0.017	Dec.	-0.062	0.836	-	-	-	-
	Baseflow	-0.233	0.486	-	0.000	1.000	-	-	-	-
	Freshet	1.000	1.000	-	-1.000	1.000	-	-	-	-
	Recession	-0.324	0.251	-	0.449	0.070	-	-	-	-
Point Lake	All	-0.229	0.374	-	0.293	0.079	-	-	-	-
	Baseflow	0.072	0.853	-	0.554	0.002	Inc.	-	-	-
	Freshet	1.000	1.000	-	0.467	0.260	-	-	-	-
	Recession	-0.092	0.758	-	0.427	0.013	Inc.	-	-	-
Rocknest Lake	All	0.224	0.528	-	0.171	0.598	-	-	-	-
	Baseflow	-0.150	0.759	-	0.150	0.759	-	-	-	-
	Freshet	-	-	-	-	-	-	-	-	-
	Recession	0.149	0.705	-	0.029	1.000	-	-	-	-
Copper River above Copper Creek	All	-0.029	0.921	-	0.352	0.075	-	-	-	-
	Baseflow	-0.444	0.118	-	0.333	0.251	-	-	-	-
	Freshet	-0.162	0.428	-	0.200	0.322	-	-	-	-
	Recession	-0.107	0.680	-	0.242	0.304	-	-	-	-
Copper River mouth	All	-	-	-	1.000	1.000	-	-	-	-
	Baseflow	-	-	-	0.333	1.000	-	-	-	-
	Freshet	-	-	-	1.000	1.000	-	-	-	-
	Recession	-	-	-	1.000	1.000	-	-	-	-
Lockhart Watershed										
King Lake	All	-0.157	0.699	-	0.817	0.003	Inc.	-	-	-
	Baseflow	0.548	0.470	-	0.913	0.149	-	-	-	-
	Freshet	-	-	-	-	-	-	-	-	-
	Recession	-0.225	0.501	-	0.778	0.005	Inc.	-	-	-
Lake of the Enemy	All	-0.387	0.247	-	0.743	0.008	Inc.	-	-	-
	Baseflow	0.236	1.000	-	0.333	0.734	-	-	-	-
	Freshet	-	-	-	-	-	-	-	-	-
	Recession	-0.400	0.210	-	0.471	0.108	-	-	-	-
MacKay Lake	All	-0.310	0.295	-	0.833	0.002	Inc.	-	-	-
	Baseflow	0.733	0.060	-	0.867	0.024	Inc.	-	-	-
	Freshet	-	-	-	-	-	-	-	-	-
	Recession	-0.286	0.343	-	0.761	0.006	Inc.	-	-	-
Lockhart	All	0.151	0.378	-	0.631	0.000	Inc.	0.303	0.193	-
	Baseflow	0.314	0.130	-	0.562	0.004	Inc.	0.143	0.764	-
	Freshet	-0.026	0.928	-	0.728	0.000	Inc.	0.236	0.350	-
	Recession	0.113	0.561	-	0.603	0.001	Inc.	0.418	0.087	-

NOTES:

1. "tau" refers to Kendall's rank correlation coefficient and roughly approximates change over time
2. Trend: Inc. = increasing (tau is positive); Dec. = decreasing (tau is negative)

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D.1 COPPERMINE WATERSHED

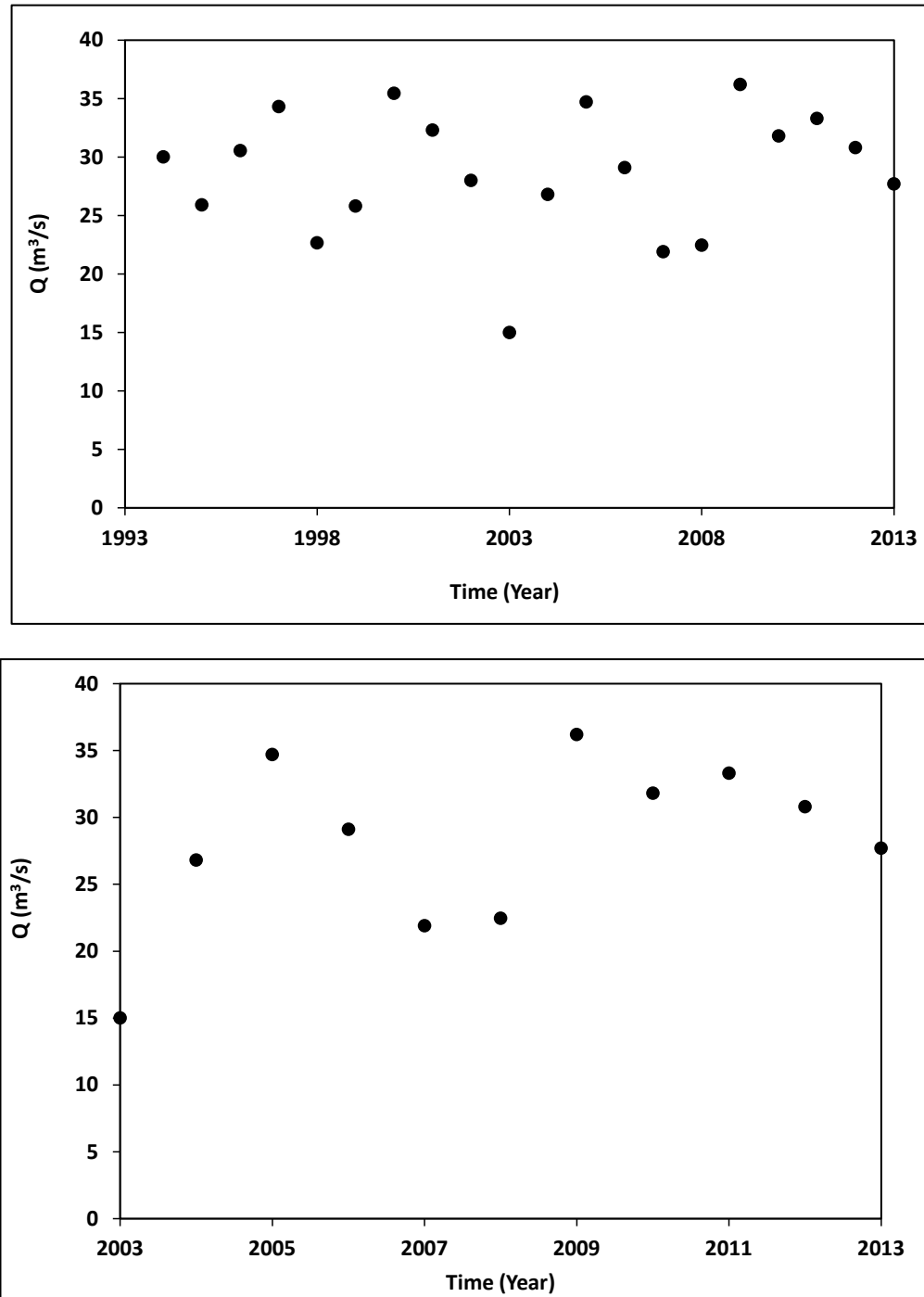


Figure D-1: Fairy Lake River Near Outlet of Napaktukik Lake Yearly Median Baseflow Rate (November to April) vs Time

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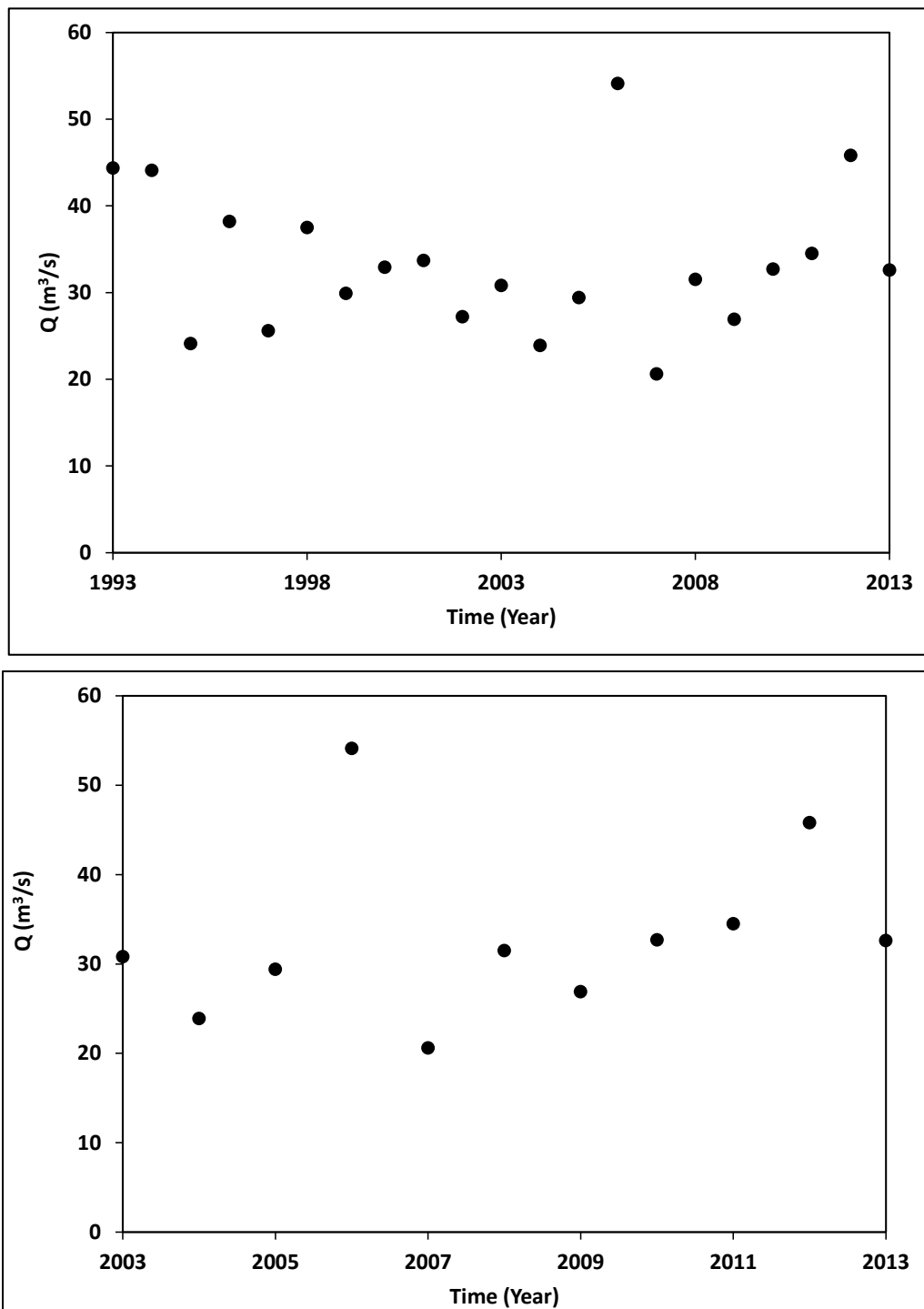


Figure D-2: Fairy Lake River Near Outlet of Napaktukik Lake Yearly Median Freshet Flow Rate (May & June) vs Time

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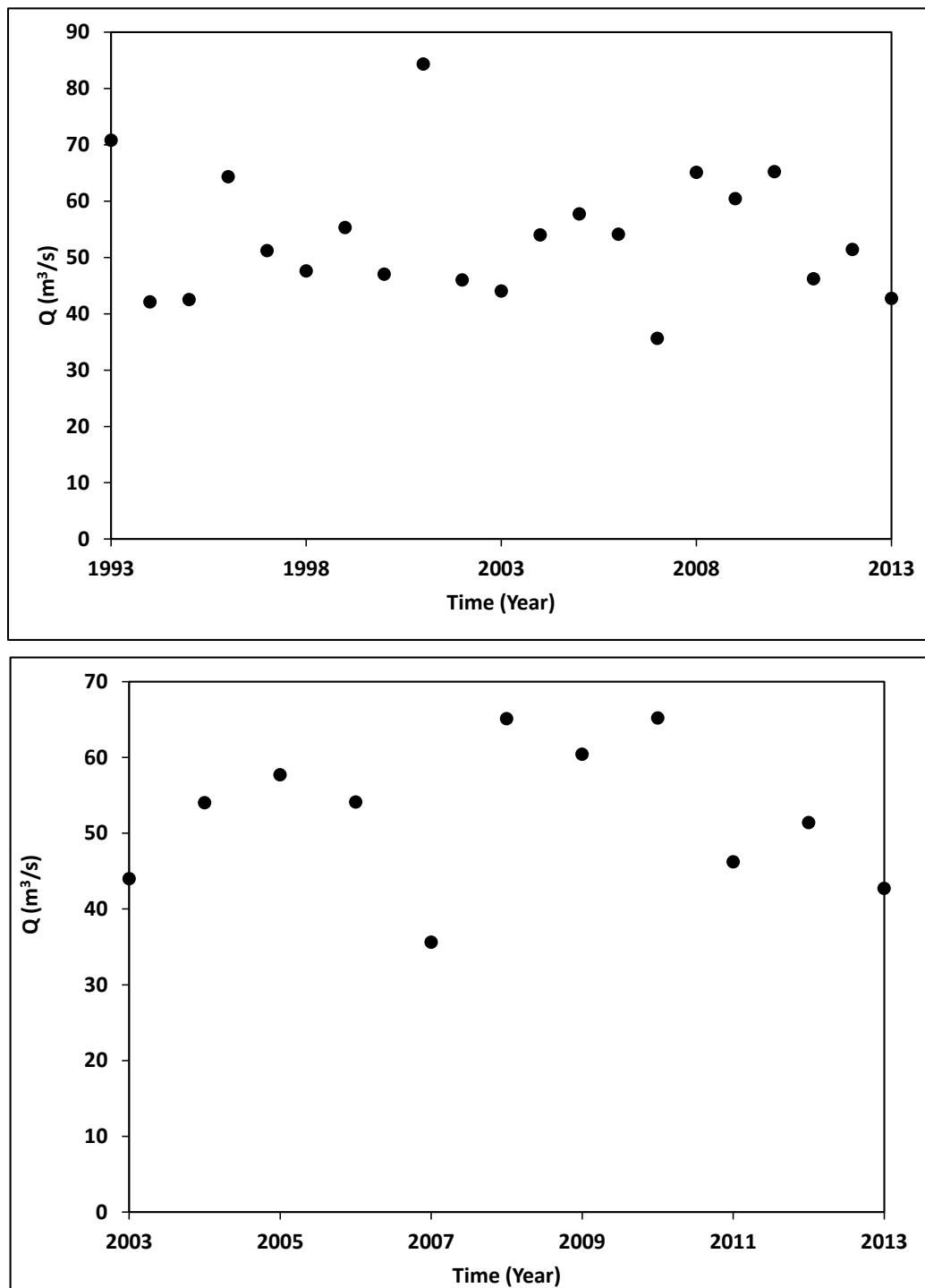


Figure D-3: Fairy Lake River Near Outlet of Napaktukik Lake. Yearly Median Recession Flow Rate (July 1 to October 31) vs Time

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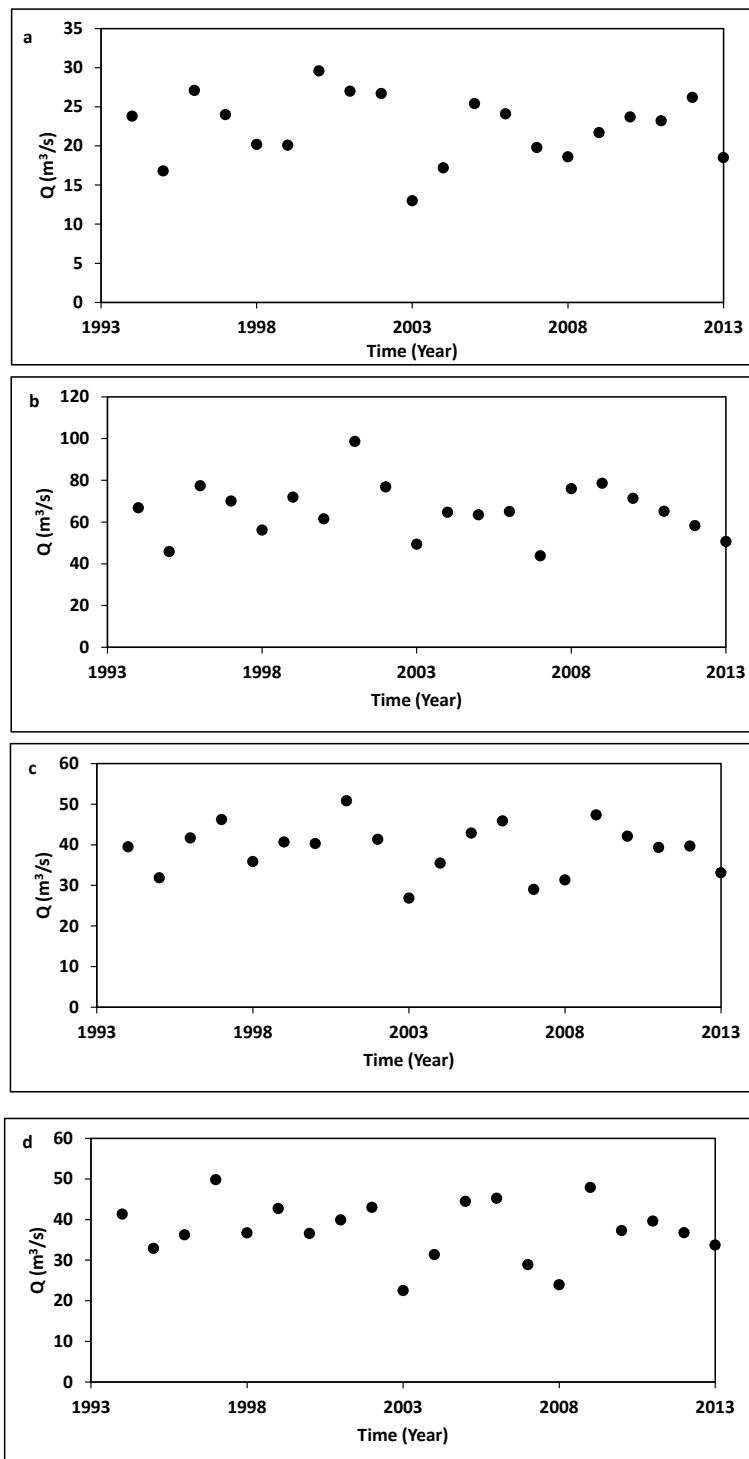


Figure D-4: Fairy Lake River Near Outlet of Napaktukik Lake. Annual Daily Minimum (a) and Maximum (b) Flow Rates and Mean Annual (c) and Median Annual (d) Flow Rates (1993-2013)

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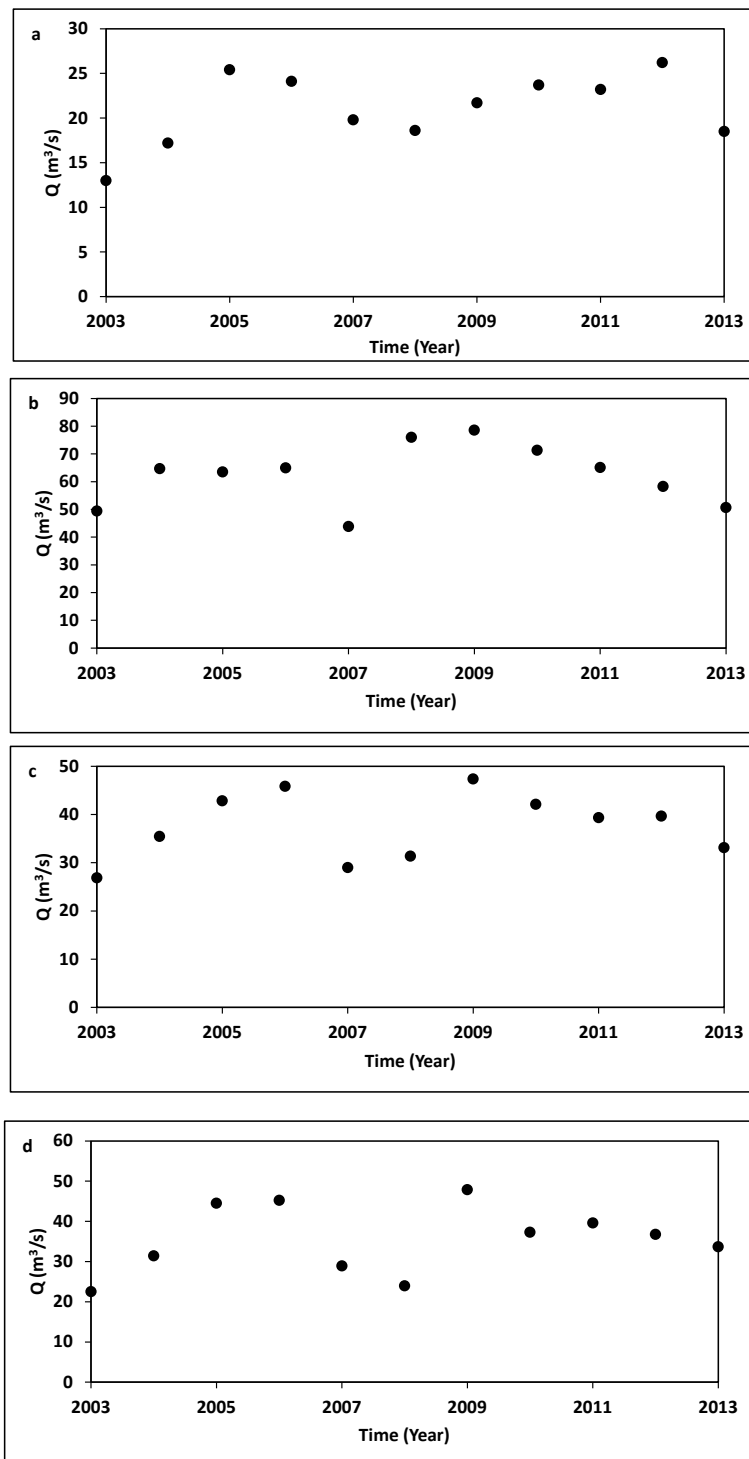


Figure D-5: Fairy Lake River Near Outlet of Napaktukik Lake Annual Daily Minimum (a) and Maximum (b) Flow Rates and Mean Annual (c) and Median Annual (d) Flow Rates (2003-2013)

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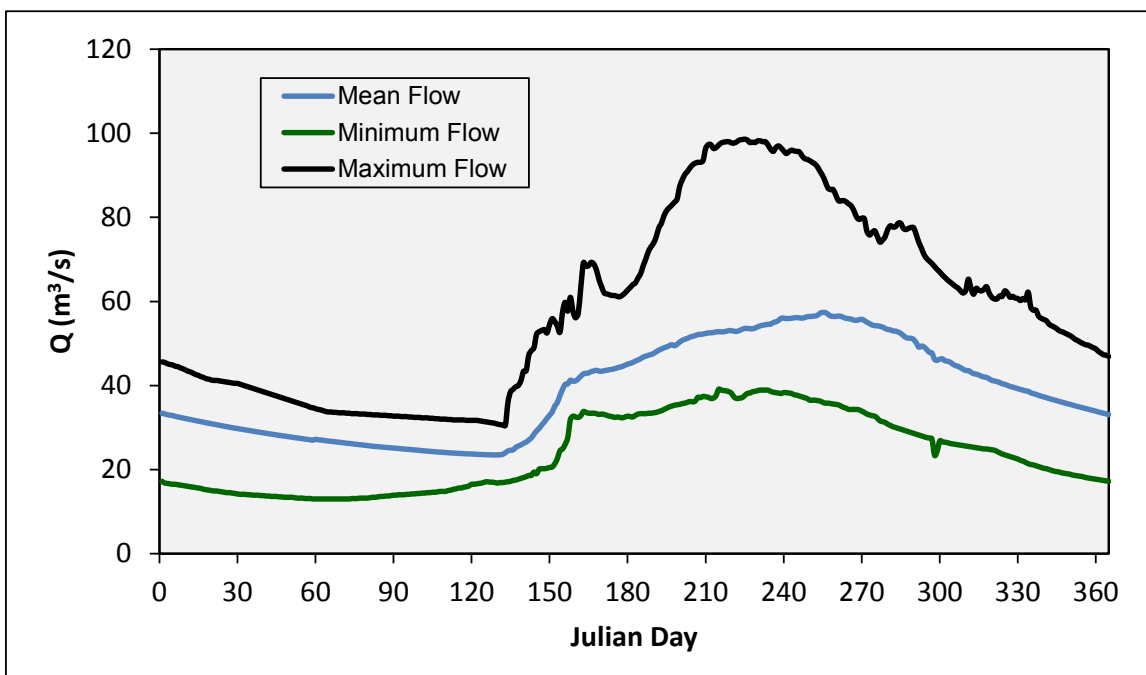


Figure D-6: Fairy Lake River Near Outlet of Napaktukik Lake Minimum, Mean and Maximum Daily Flow Rates

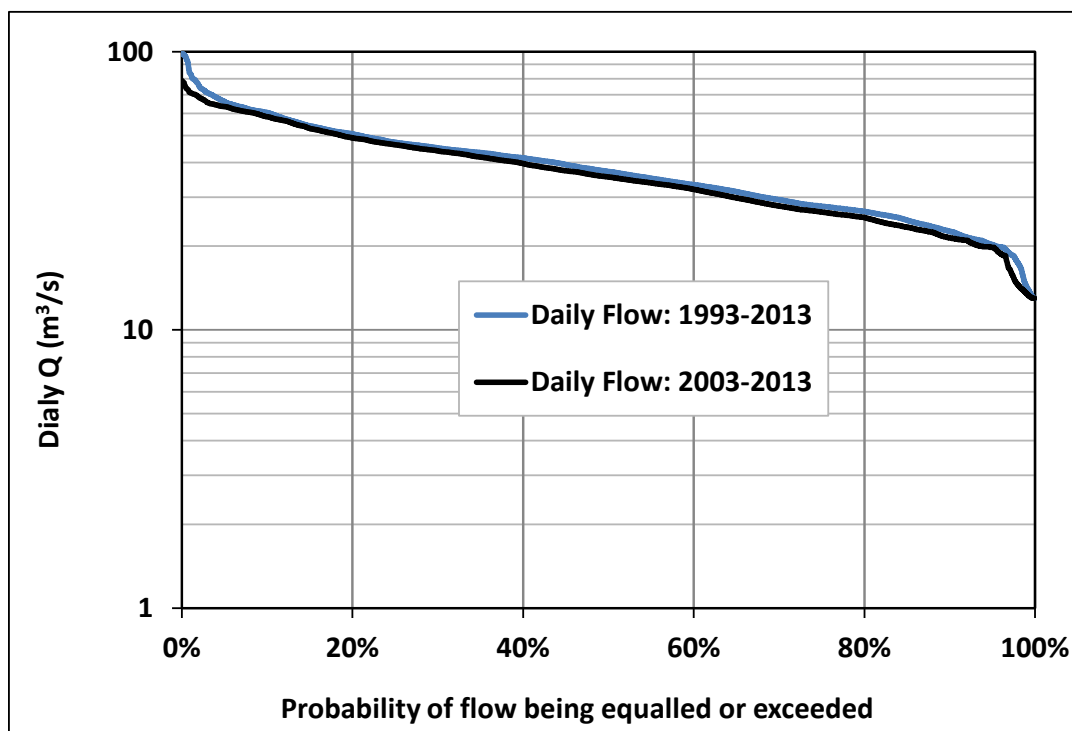


Figure D-7: Fairy Lake River Near Outlet of Napaktukik Lake Flow Duration Curve

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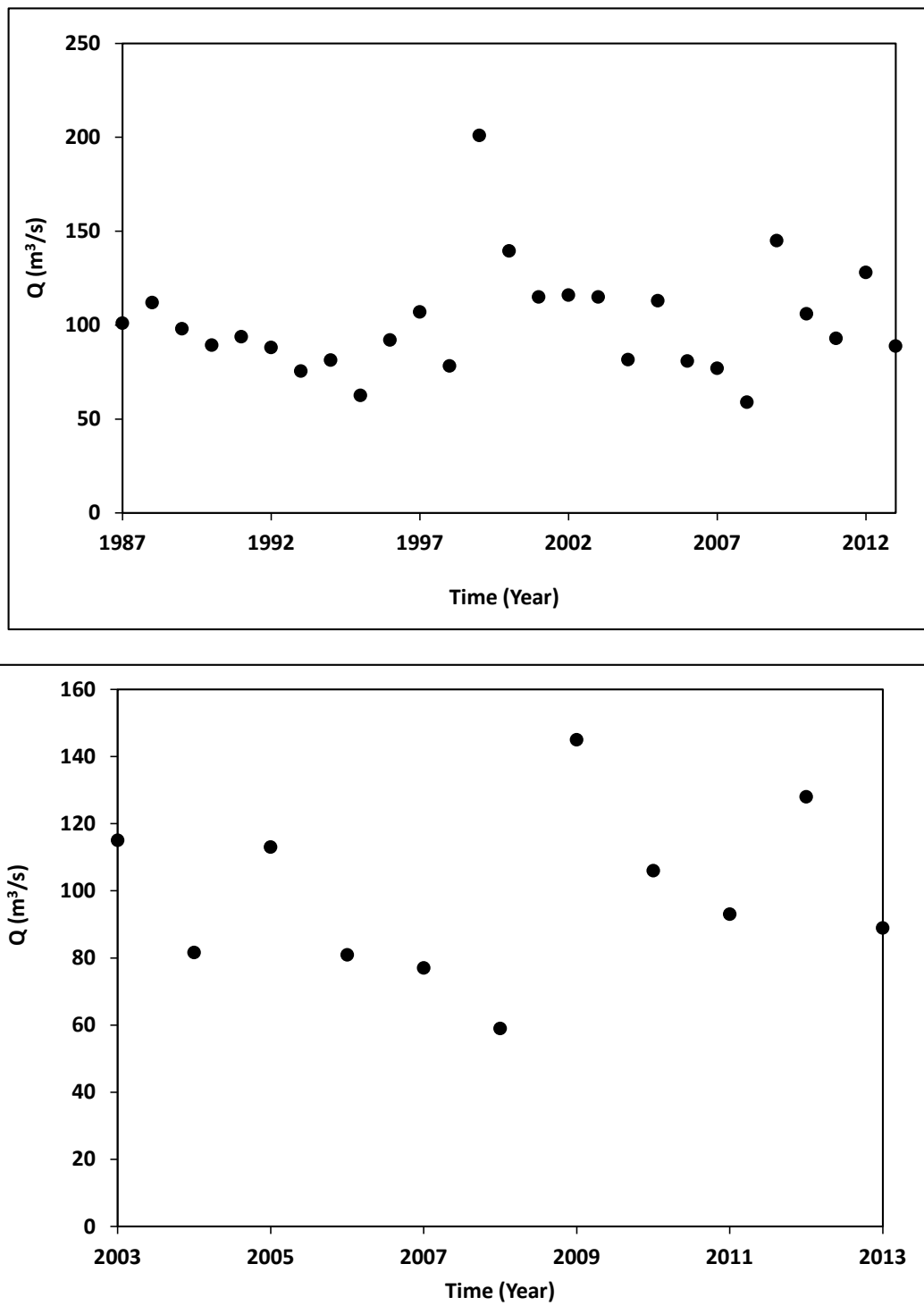


Figure D-8: Coppermine River above Copper Creek Yearly Median Baseflow Rate (November to April) vs Time

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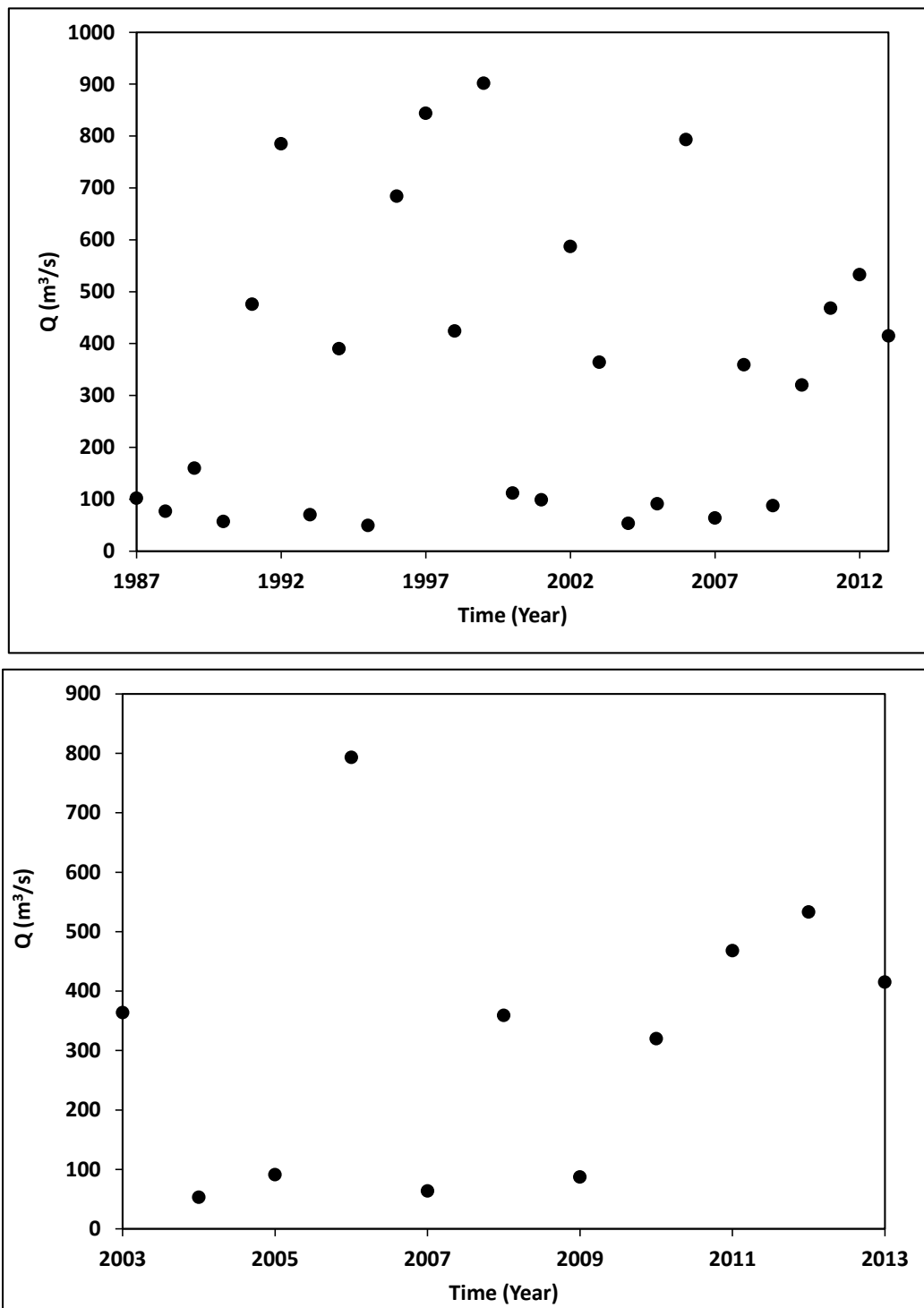


Figure D-9: Coppermine River above Copper Creek Yearly Median Freshet Flow Rate (May & June) vs Time

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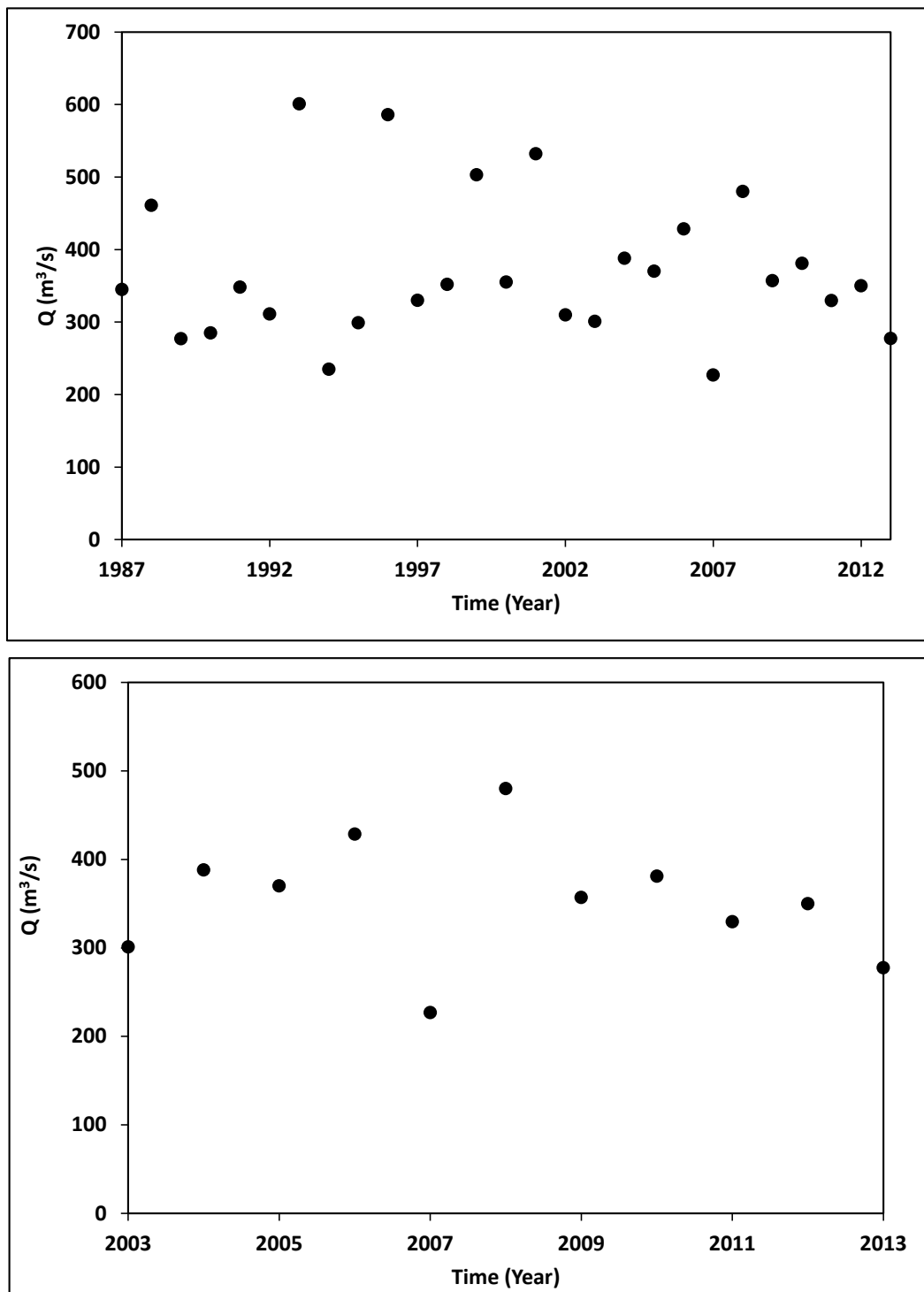


Figure D-10: Coppermine River above Copper Creek Yearly Median Recession Flow Rate (July 1 to October 31) vs Time

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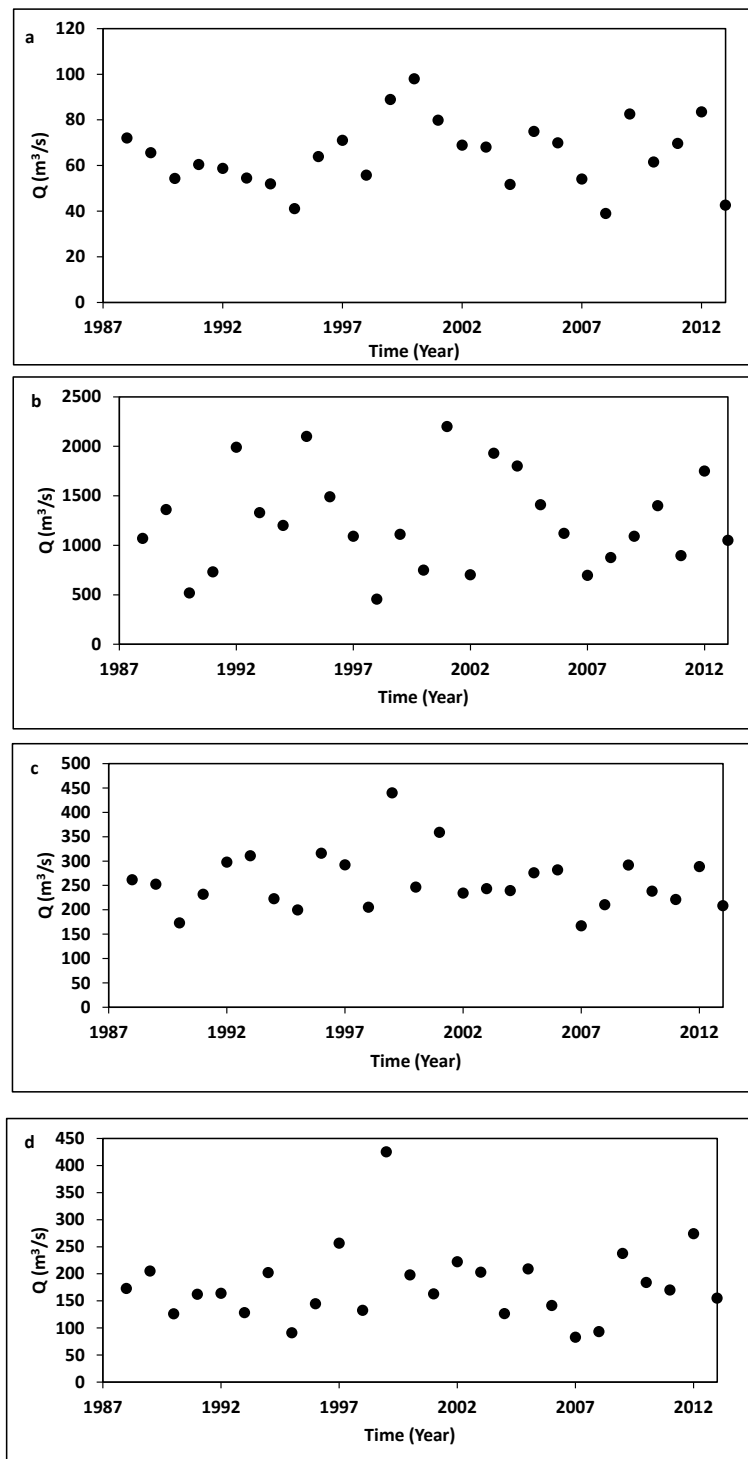


Figure D-11: Coppermine River above Copper Creek Annual Daily Minimum (a) and Maximum (b) Flow Rates and Mean Annual (c) and Median Annual (d) Flow Rates (1987-2013)

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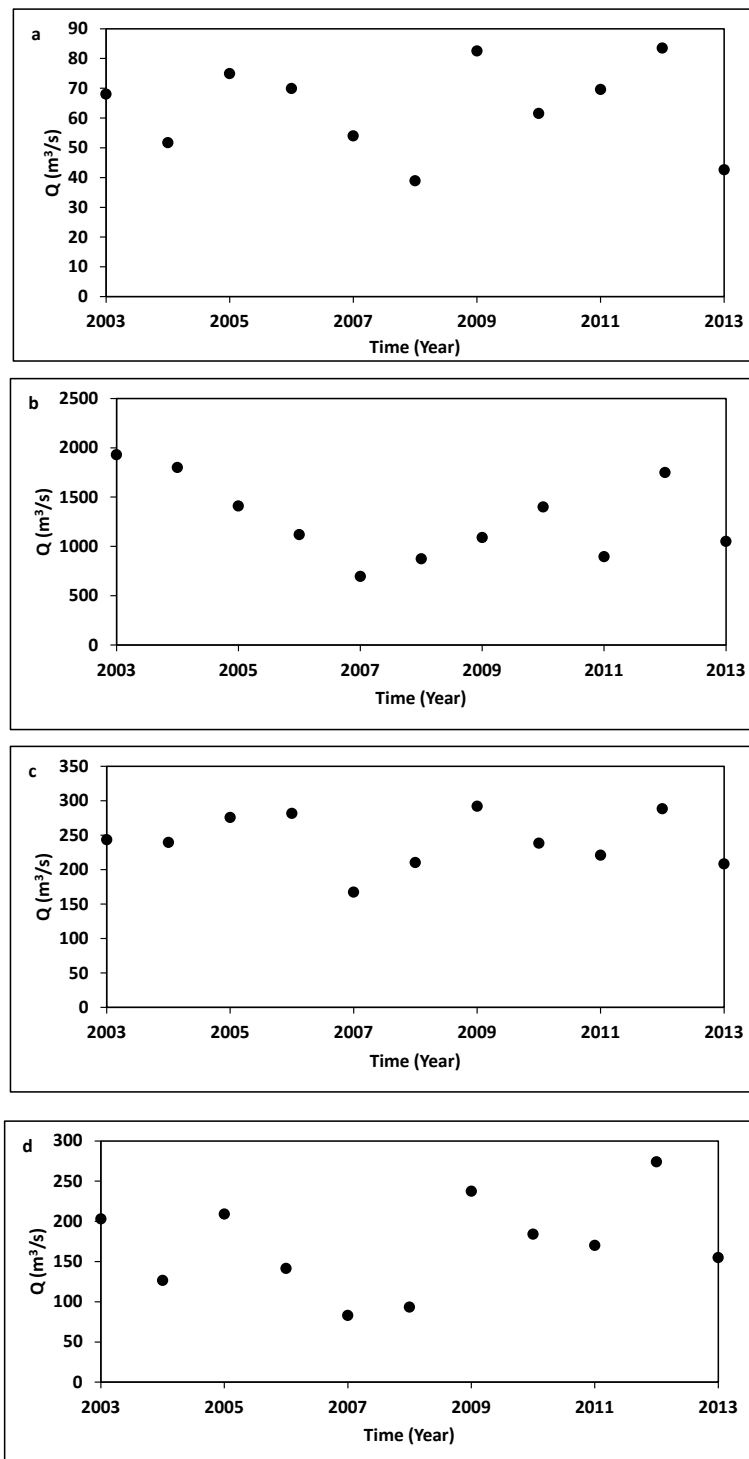


Figure D-12: Coppermine River above Copper Creek Annual Daily Minimum (a) and Maximum (b) Flow Rates and Mean Annual (c) and Median Annual (d) Flow Rates (2003-2013)

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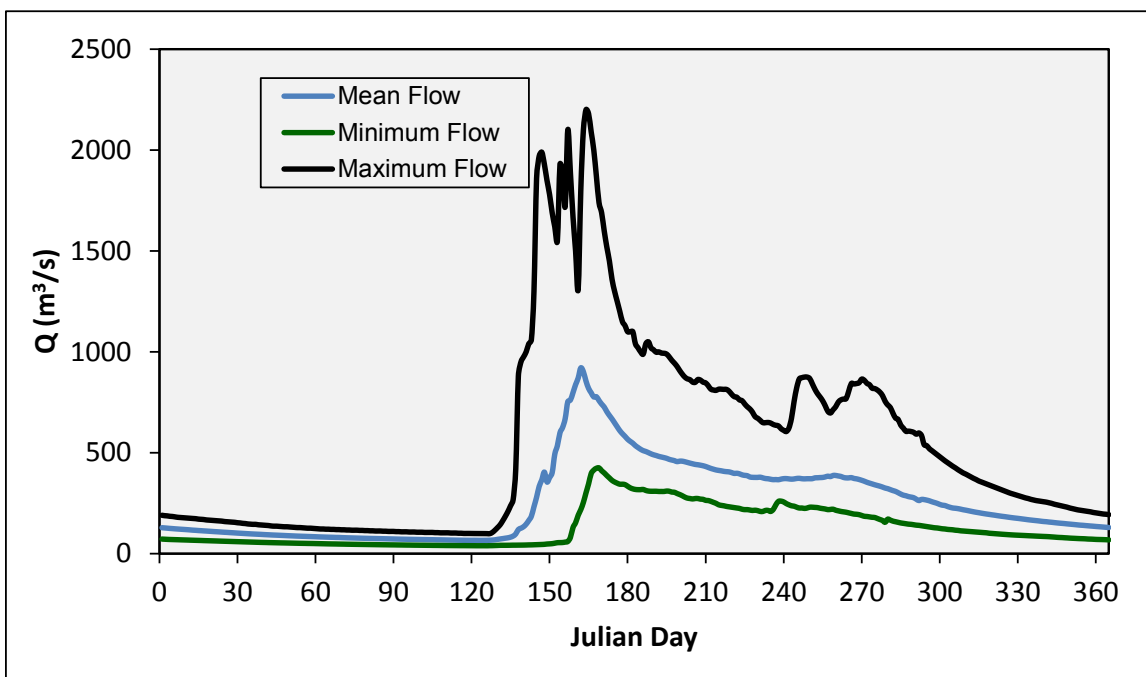


Figure D-13: Coppermine River above Copper Creek Minimum, Mean and Maximum Daily Flow Rates

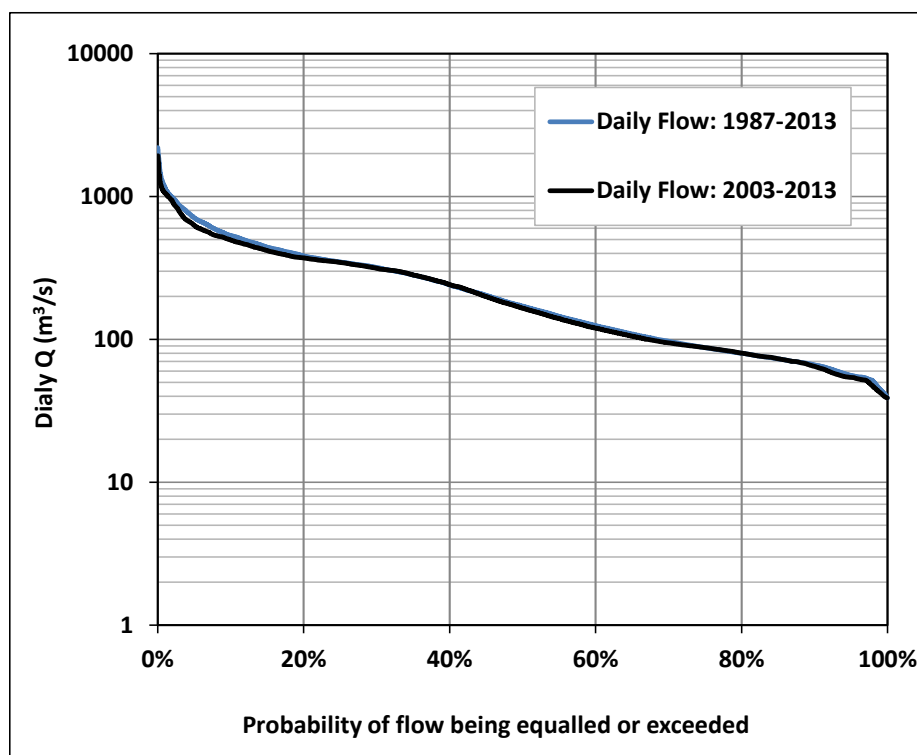


Figure D-14: Coppermine River above Copper Creek Flow Duration Curve

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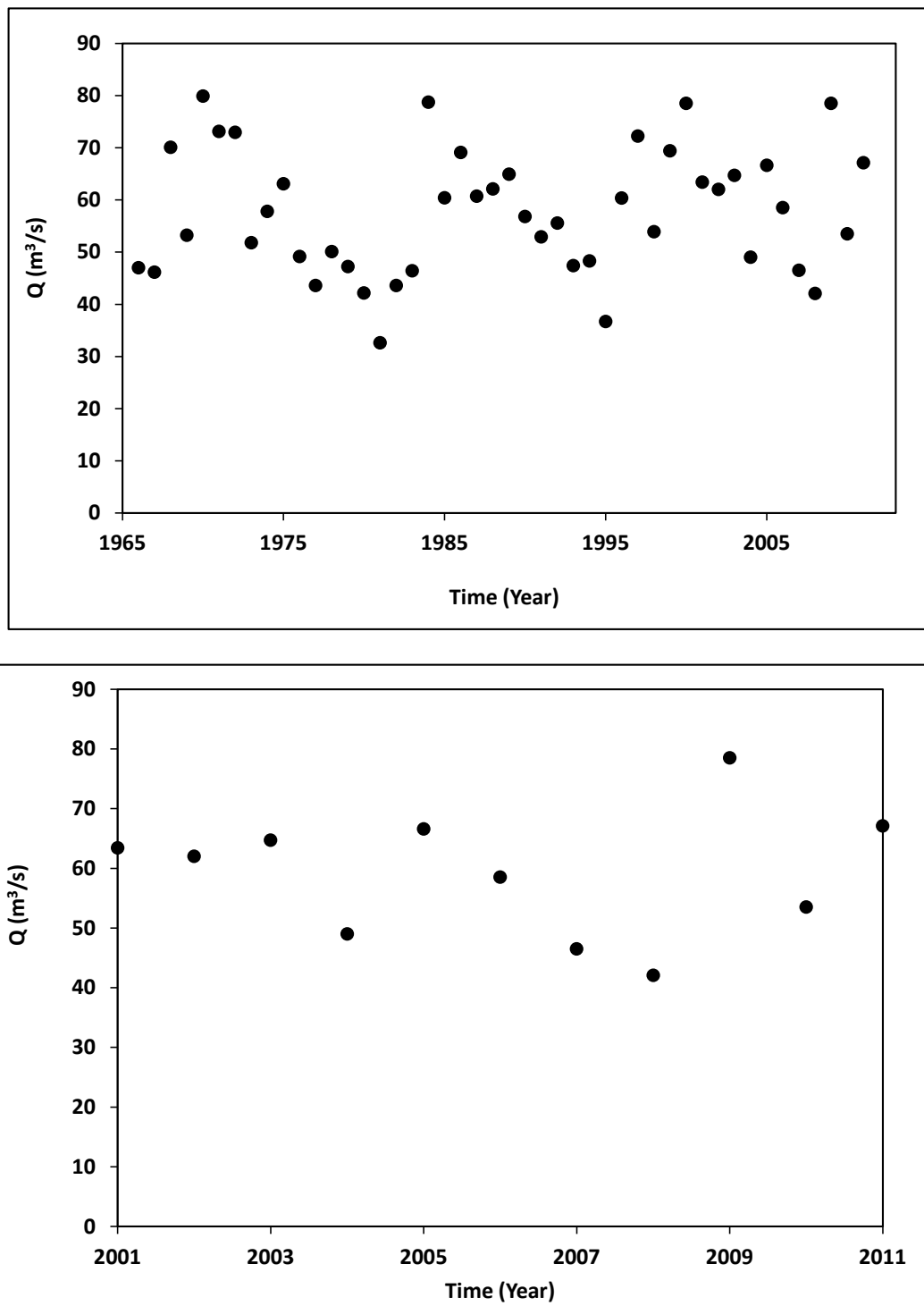


Figure D-15: Coppermine River at Outlet of Point Lake Yearly Median Baseflow Rate (November to April) vs Time

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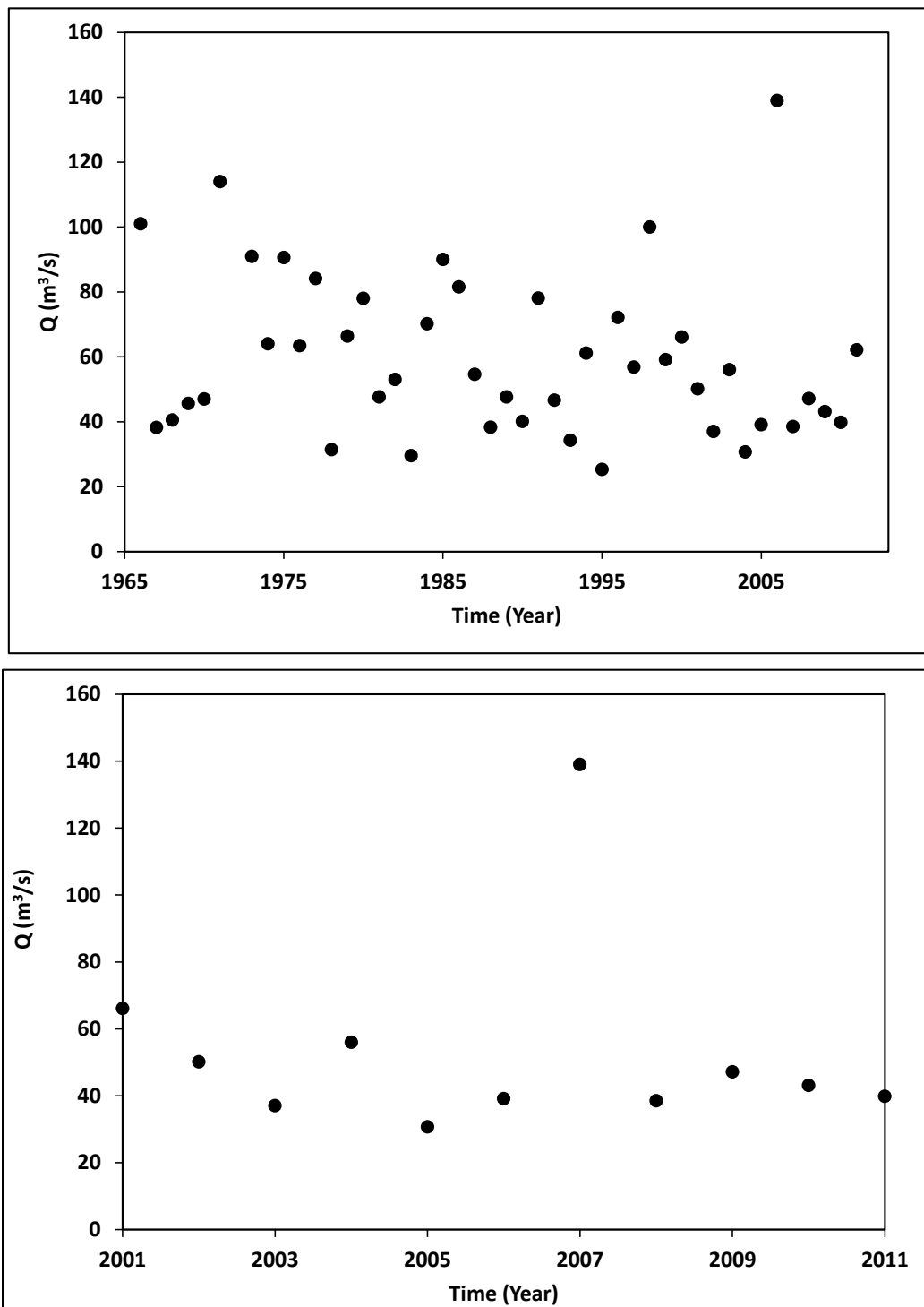


Figure D-16: Coppermine River at Outlet of Point Lake Yearly Median Freshet Flow Rate (May & June) vs Time

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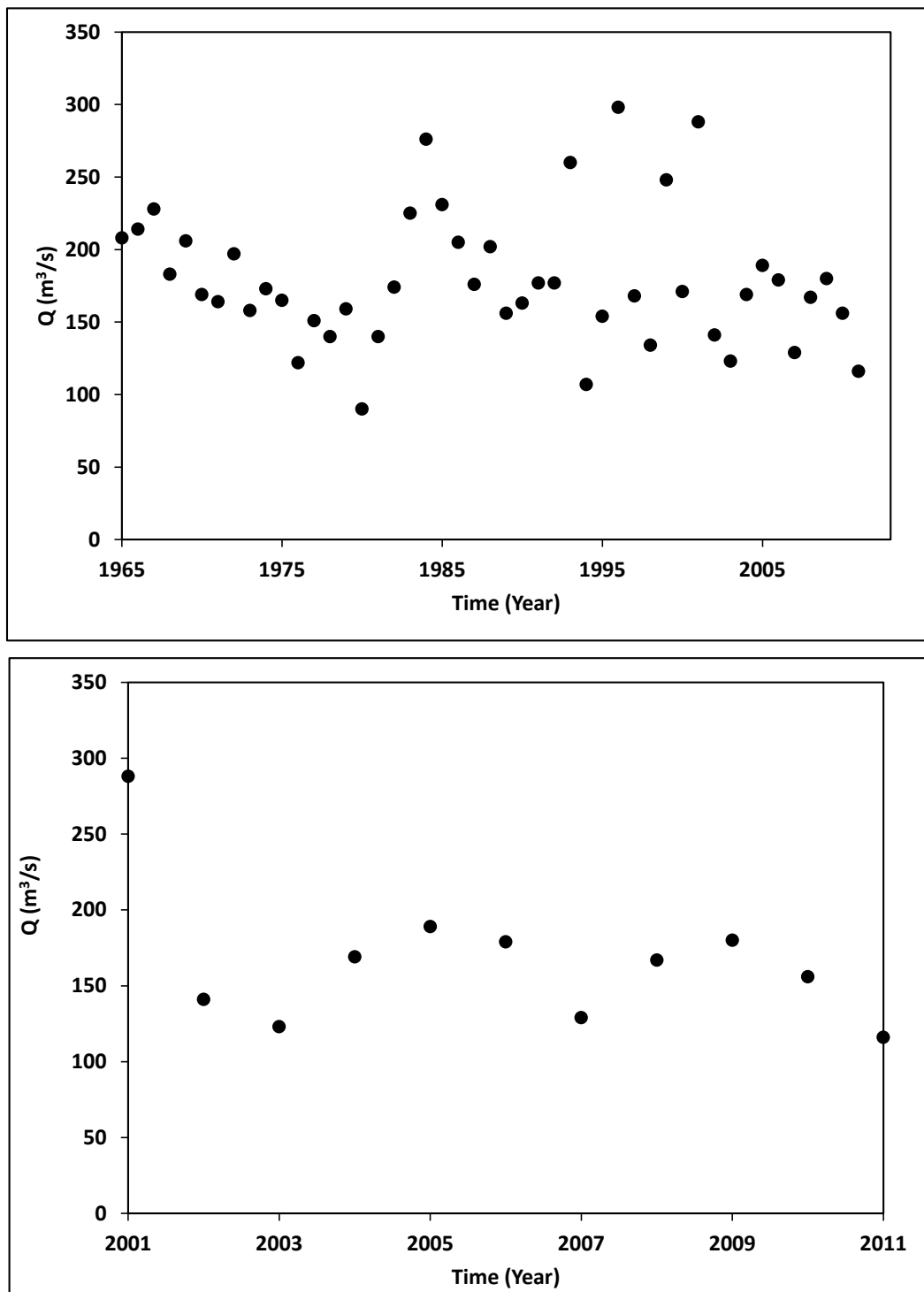


Figure D-17: Coppermine River at Outlet of Point Lake Yearly Median Recession Flow Rate (July 1 to October 31) vs Time

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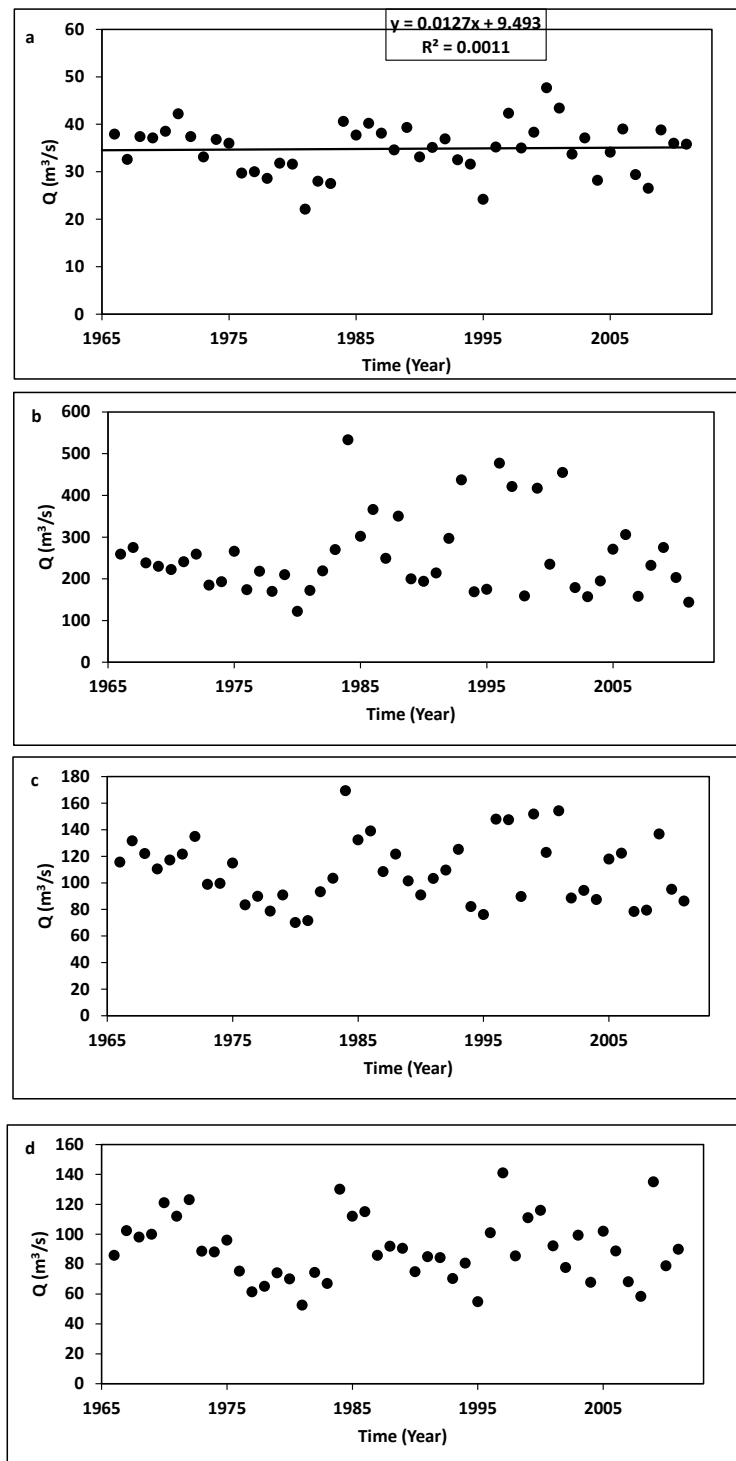


Figure D-18: Coppermine River at Outlet of Point Lake Annual Daily Minimum (a) and Maximum (b) Flow Rates and Mean Annual (c) and Median Annual (d) Flow Rates (1965-2011)

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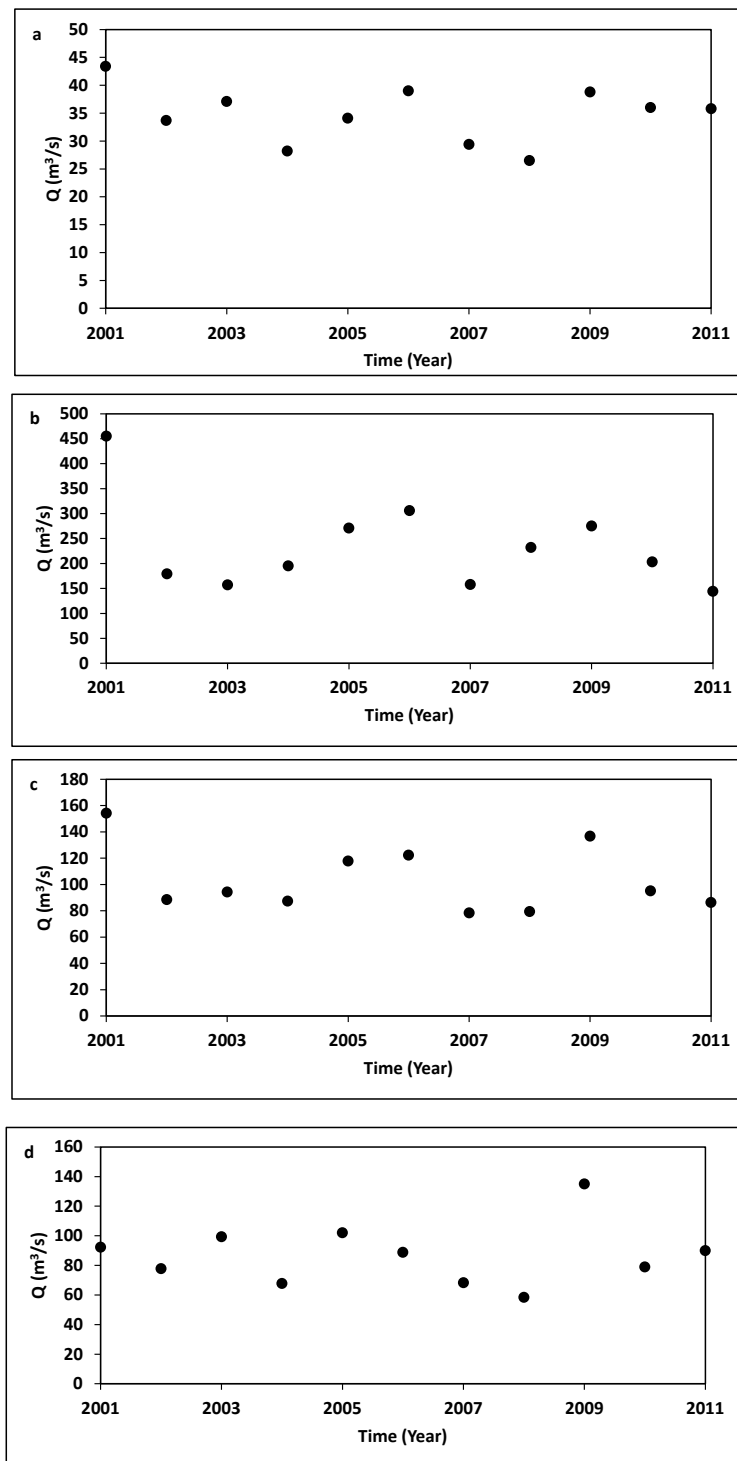


Figure D-19: Coppermine River at Outlet of Point Lake Annual Daily Minimum (a) and Maximum (b) Flow Rates and Mean Annual (c) and Median Annual (d) Flow Rates (2001-2011)

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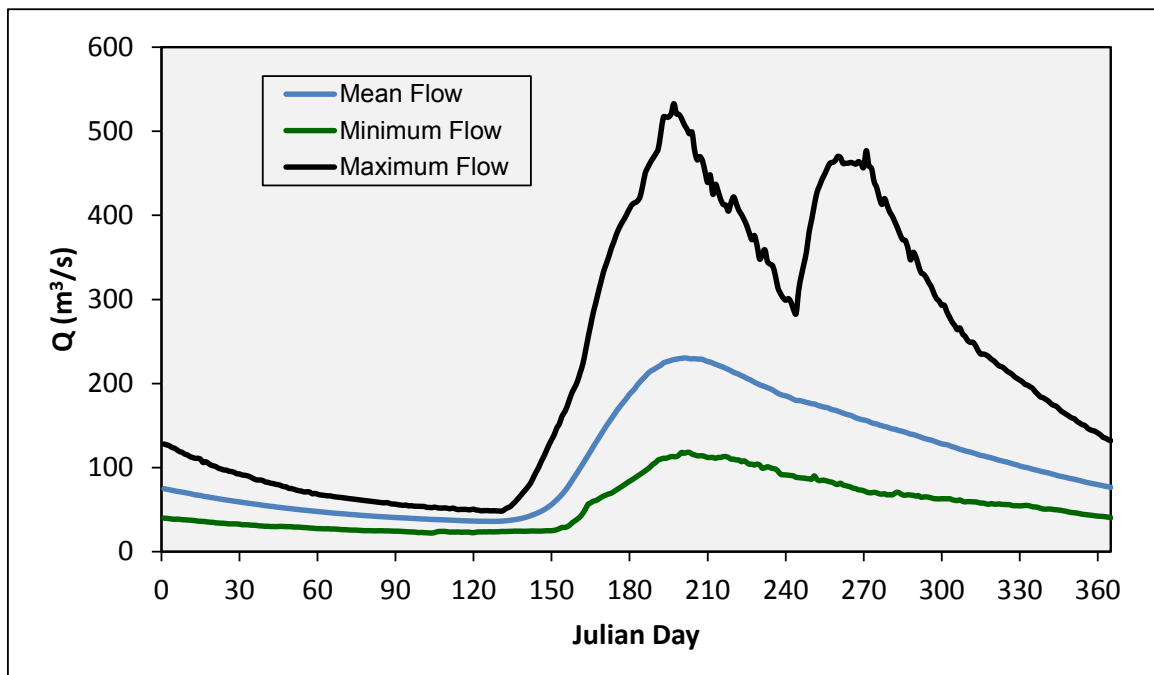


Figure D-20: Coppermine River at Outlet of Point Lake Minimum, Mean and Maximum Daily Flow Rates

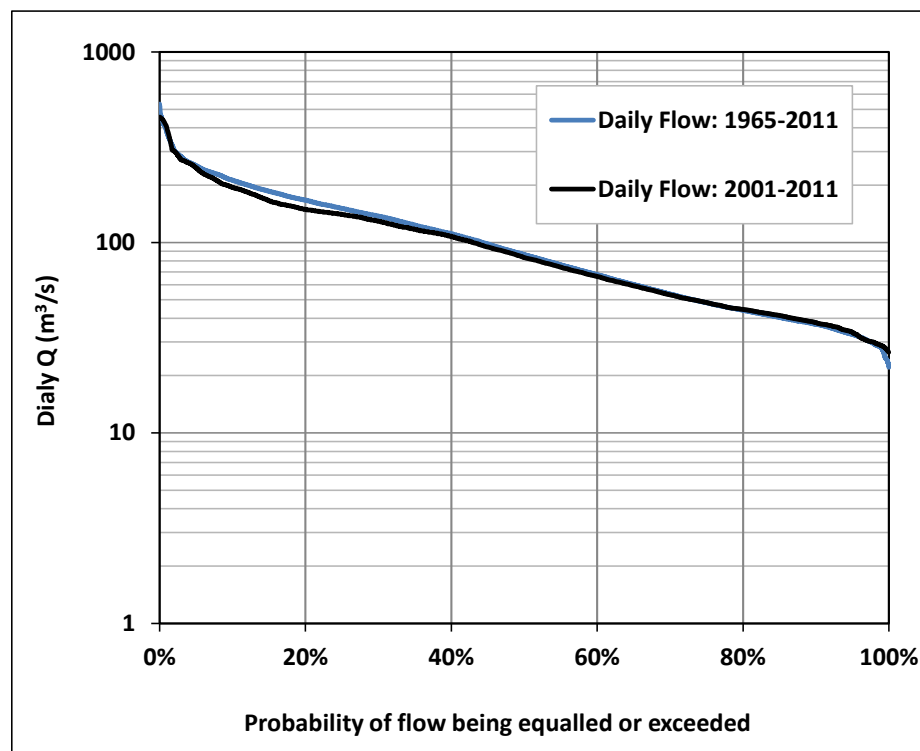


Figure D-21: Coppermine River at Outlet of Point Lake Flow Duration Curve

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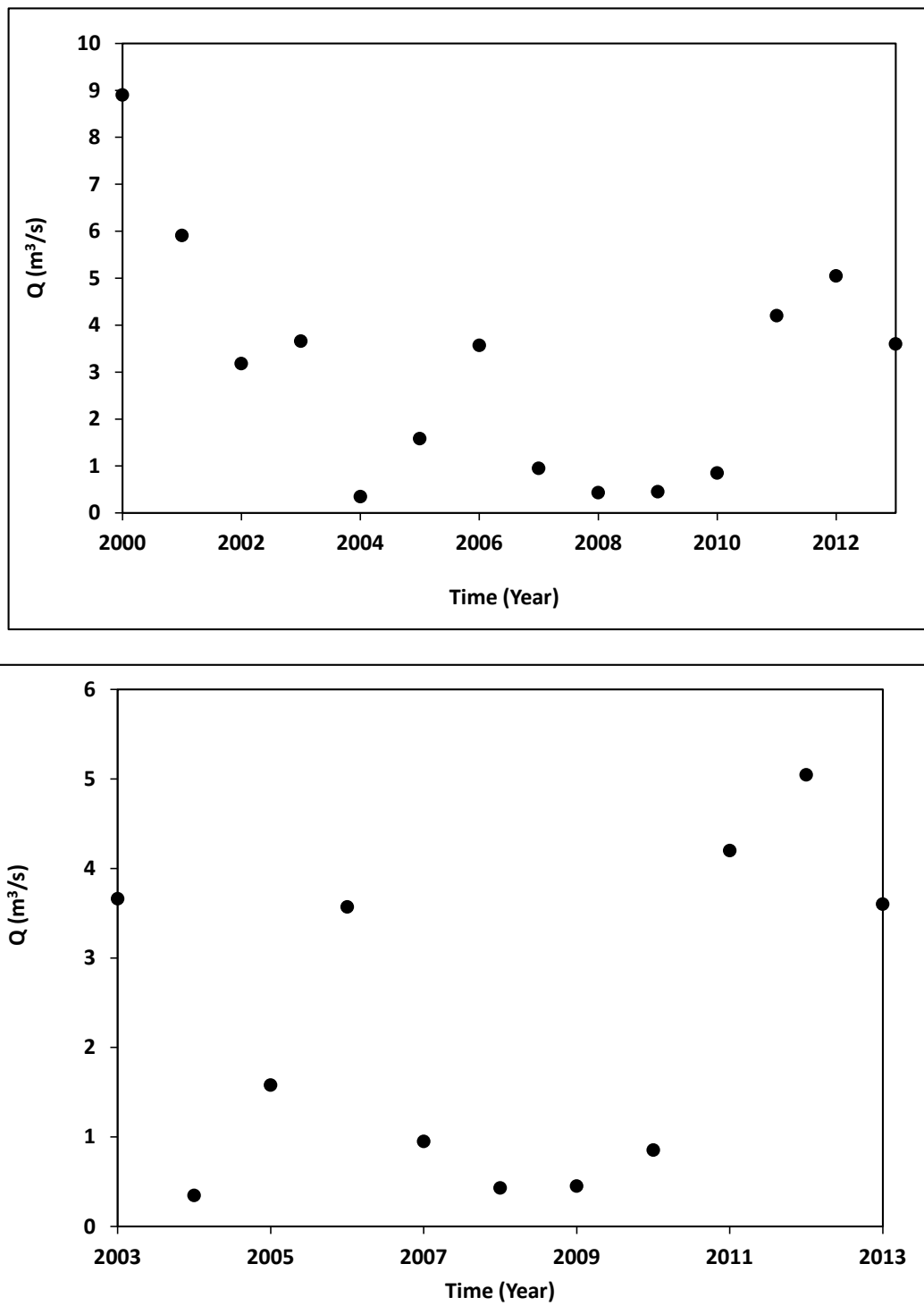


Figure D-22: Yamba River below Daring Lake Yearly Median Baseflow Rate (November to April) vs Time

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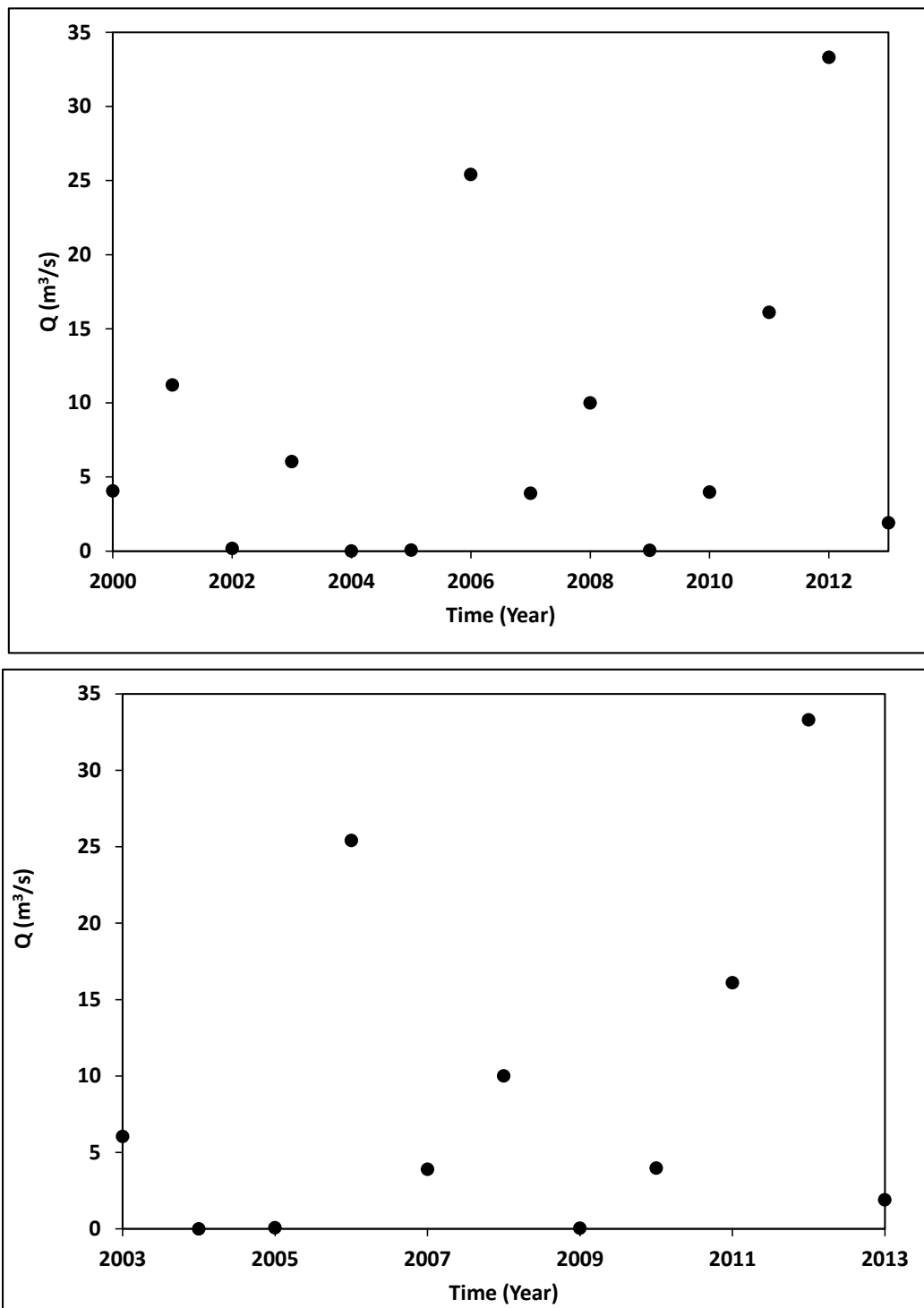


Figure D-23: Yamba River below Daring Lake Yearly Median Freshet Flow Rate (May & June) vs Time

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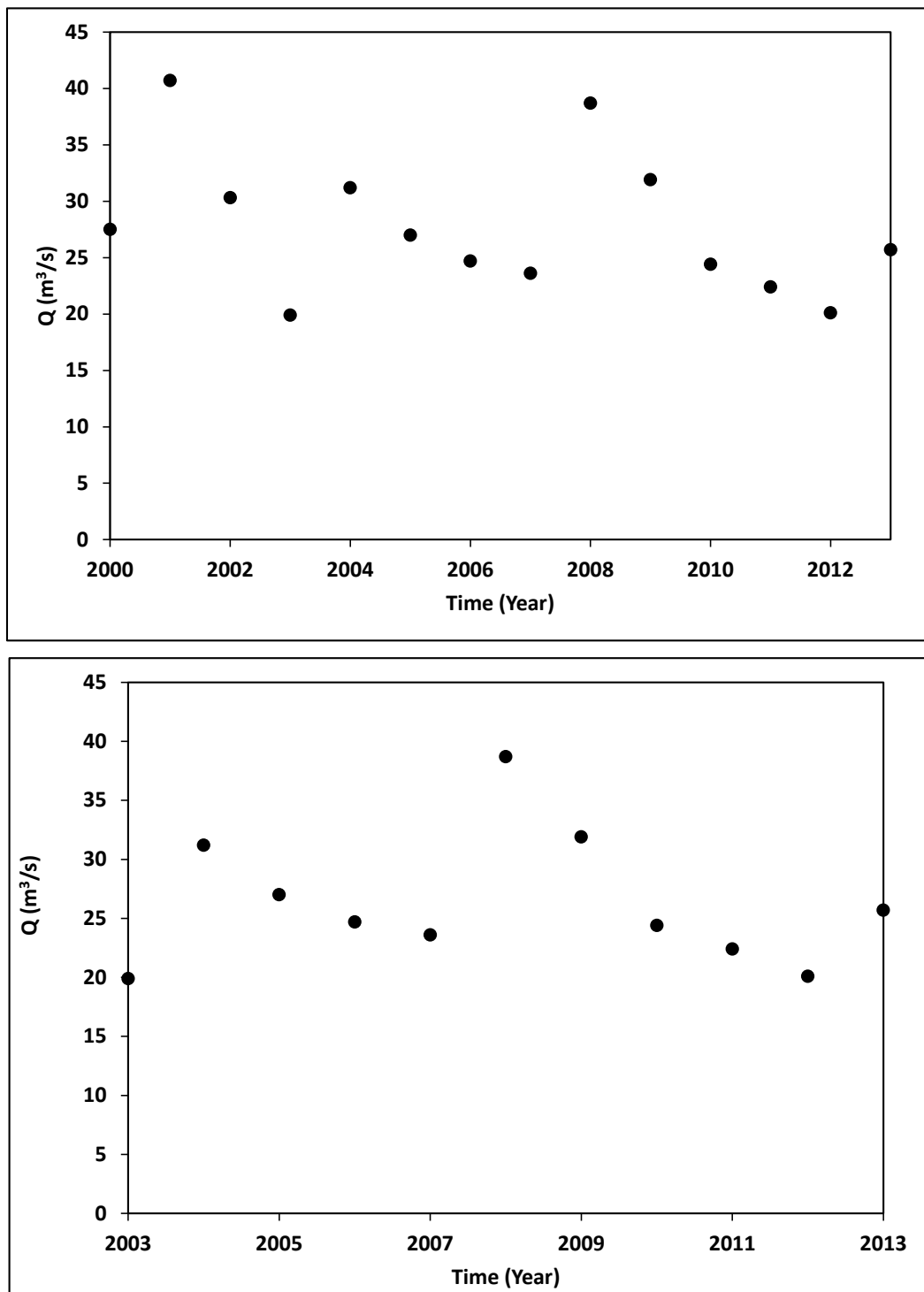


Figure D-24: Yamba River below Daring Lake Yearly Median Recession Flow Rate (July 1 to October 31) vs Time

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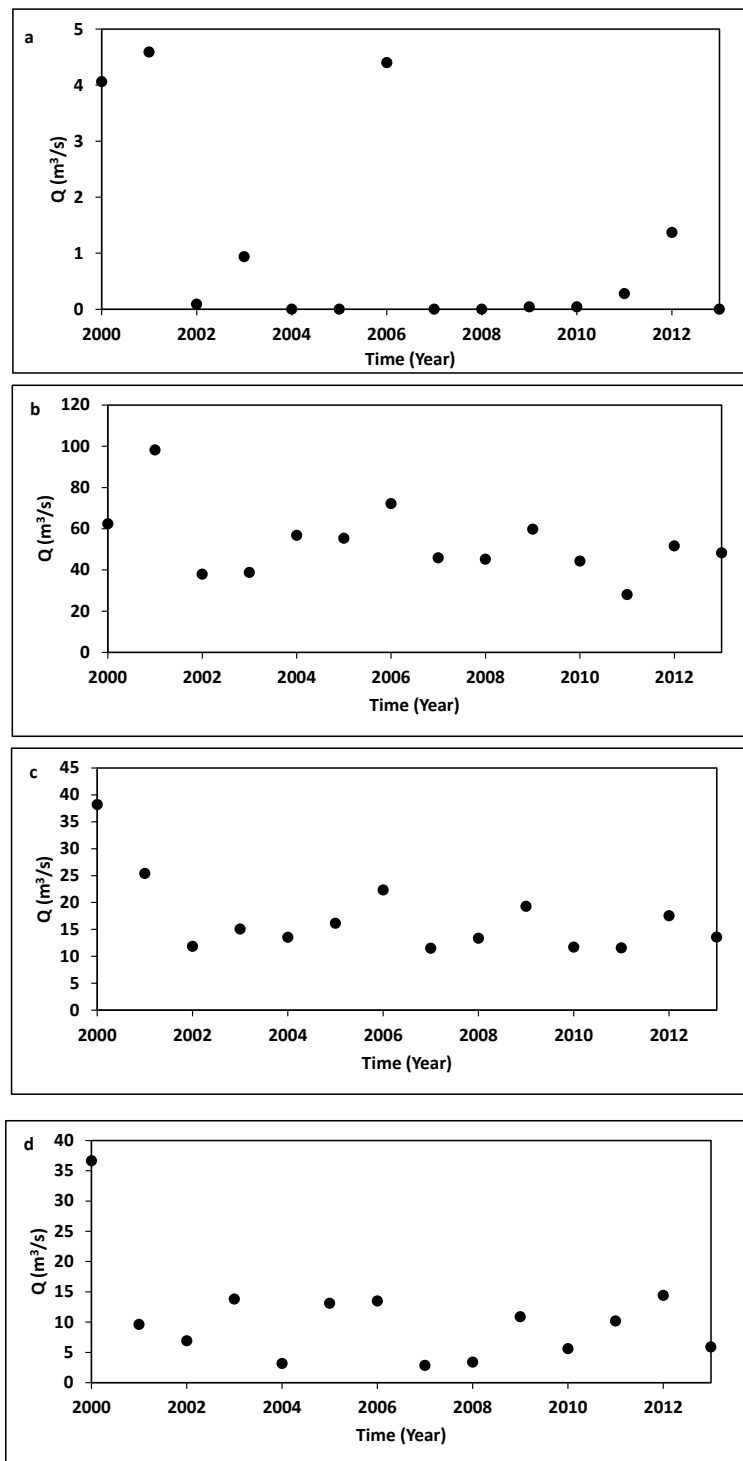


Figure D-25: Yamba River below Daring Lake Annual Daily Minimum (a) and Maximum (b) Flow Rates and Mean Annual (c) and Median Annual (d) Flow Rates (2000-2013)

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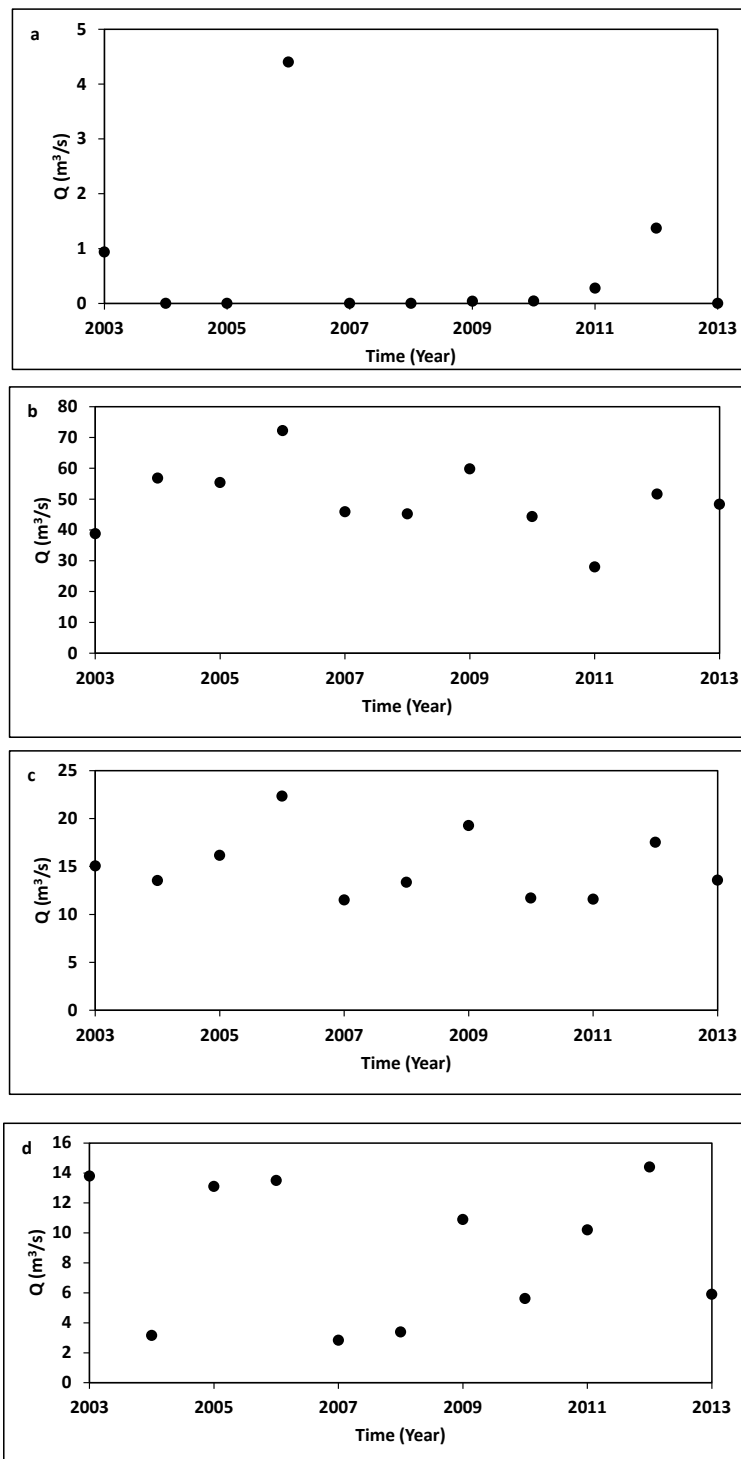


Figure D-26: Yamba River below Daring Lake Annual Daily Minimum (a) and Maximum (b) Flow Rates and Mean Annual (c) and Median Annual (d) Flow Rates (2003-2013)

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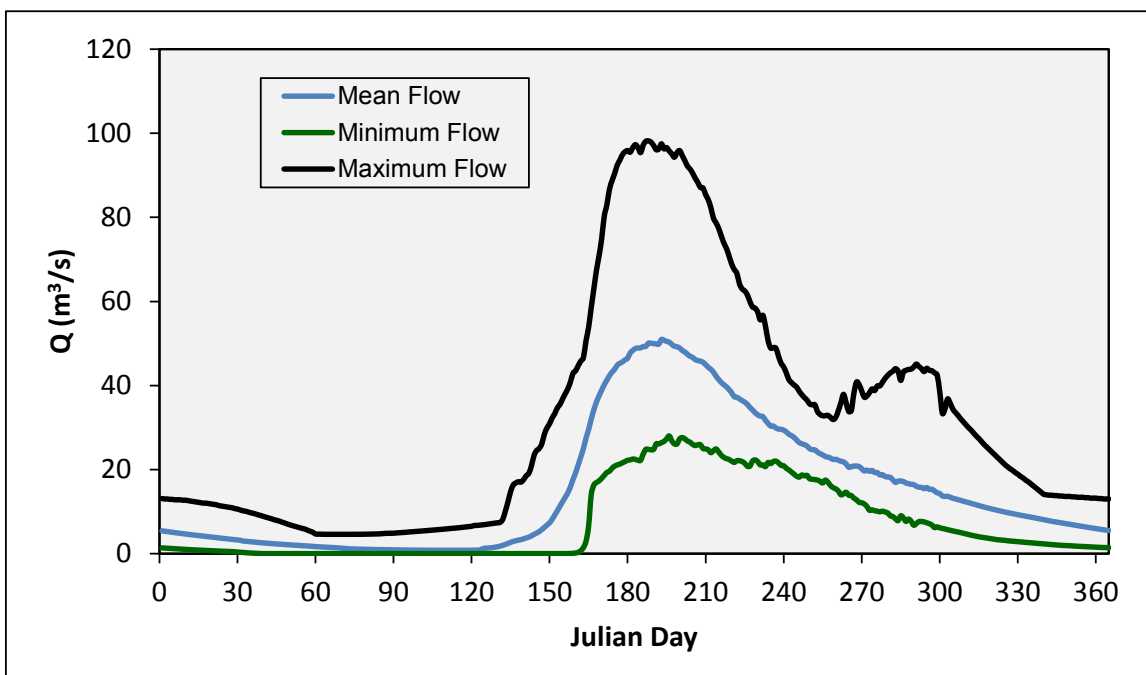


Figure D-27: Yamba River below Daring Lake Minimum, Mean and Maximum Daily Flow Rates

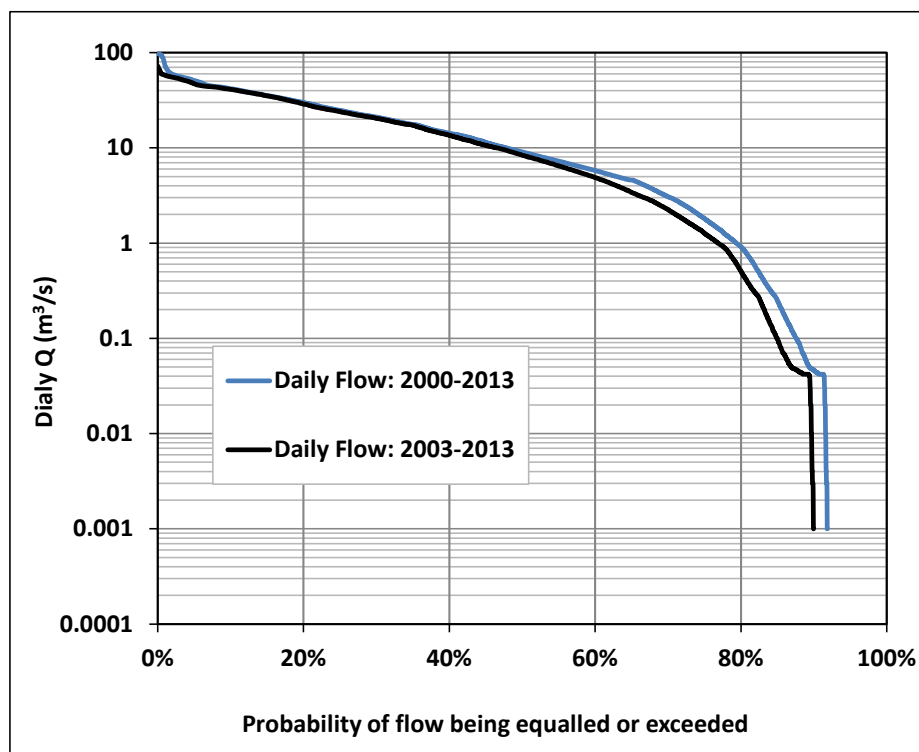


Figure D-28: Yamba River below Daring Lake Flow Duration Curve

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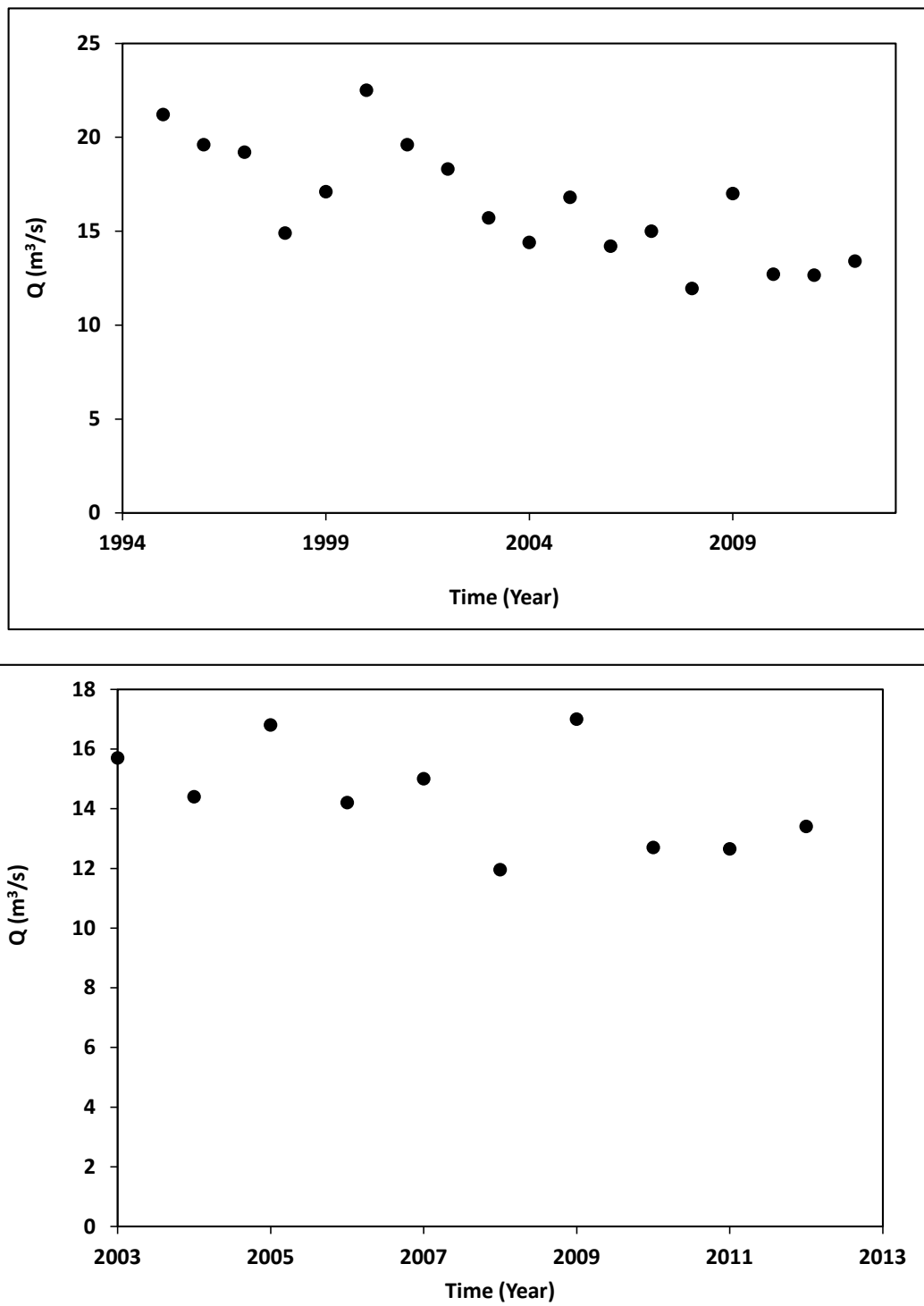


Figure D-29: Coppermine River below Desteffany Lake Yearly Median Baseflow Rate (November to April) vs Time

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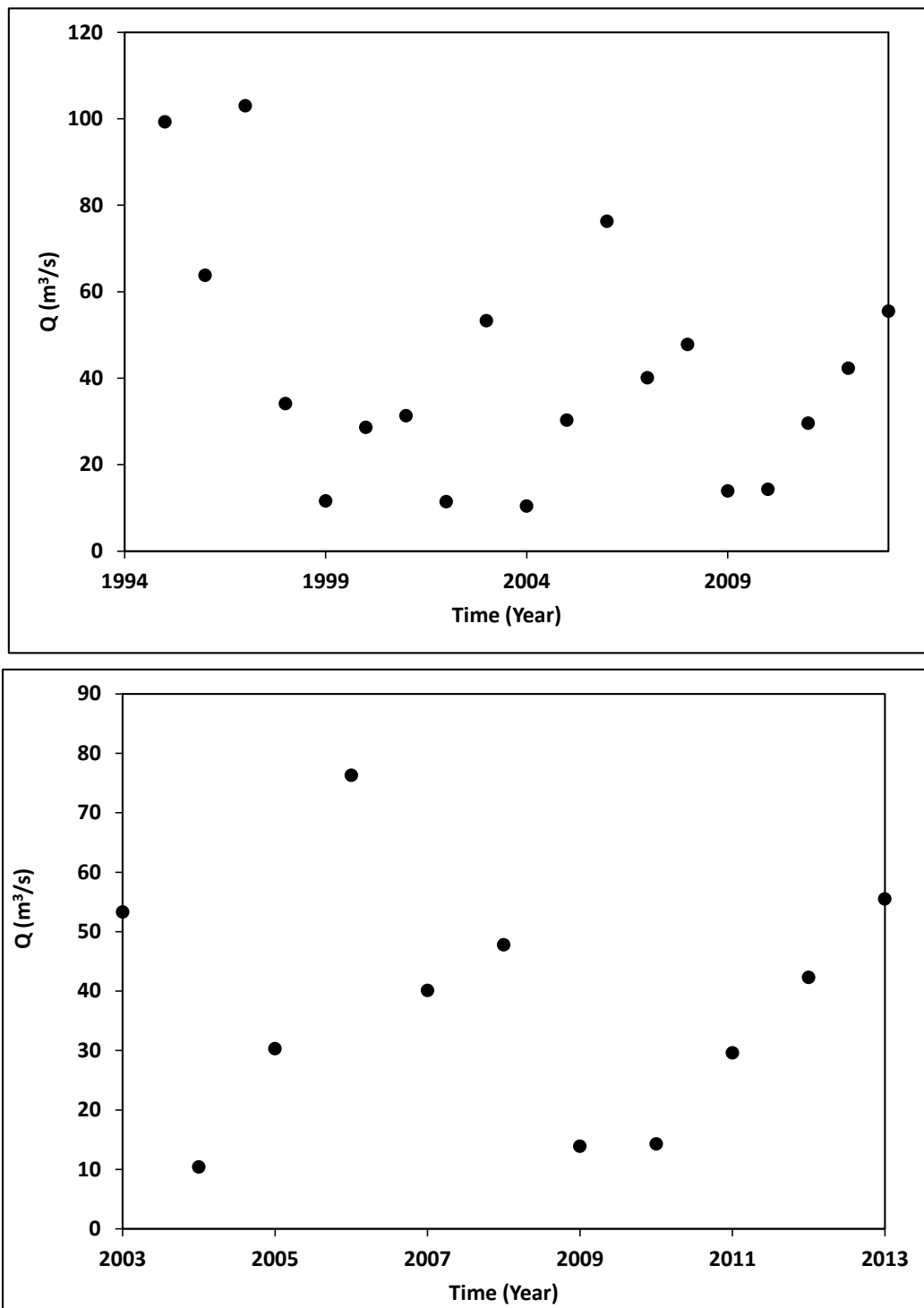


Figure D-30: Coppermine River below Desteffany Lake Yearly Median Freshet Flow Rate (May & June) vs Time

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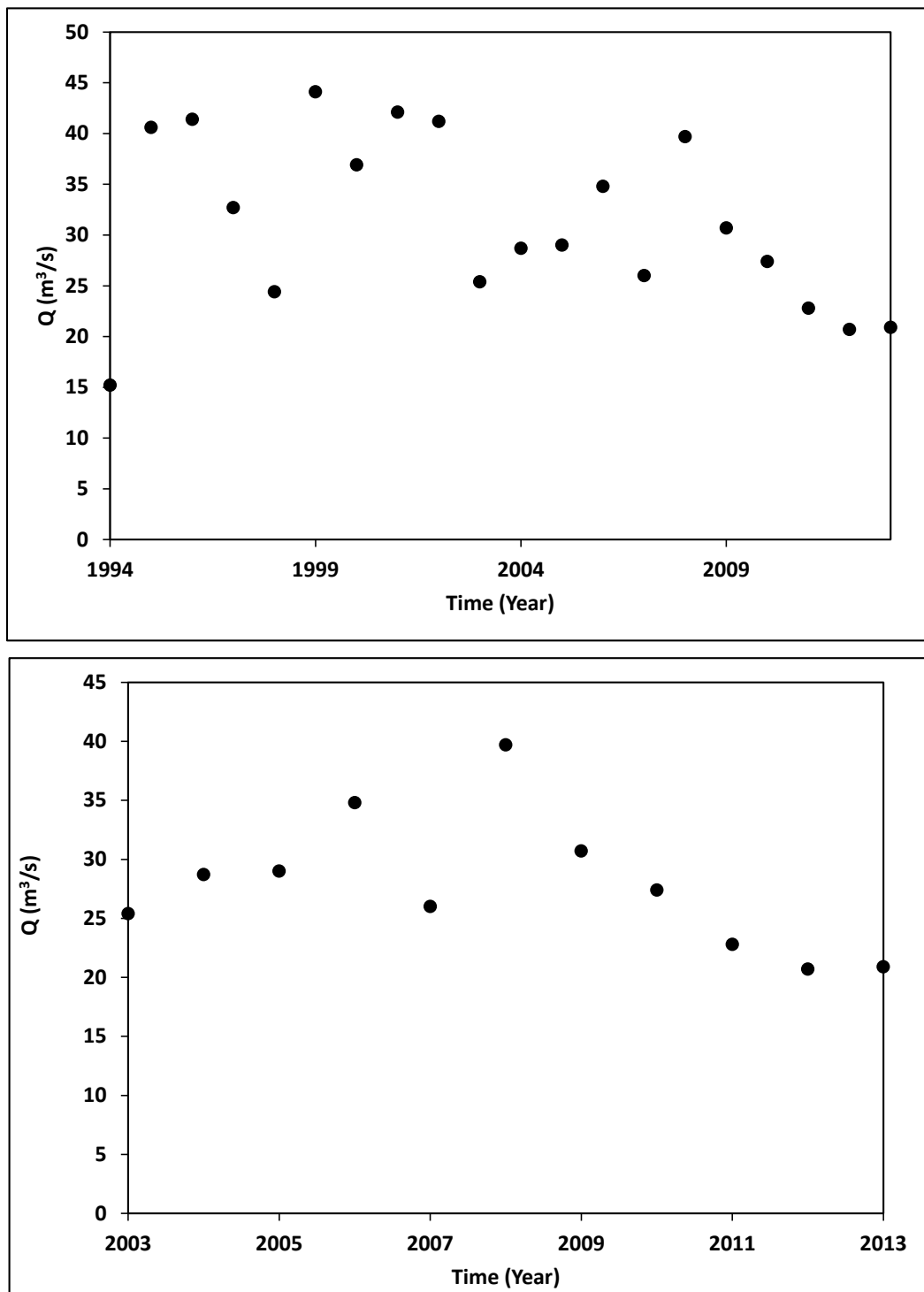


Figure D-31: Coppermine River below Desteffany Lake Yearly Median Recession Flow Rate (July 1 to October 31) vs Time

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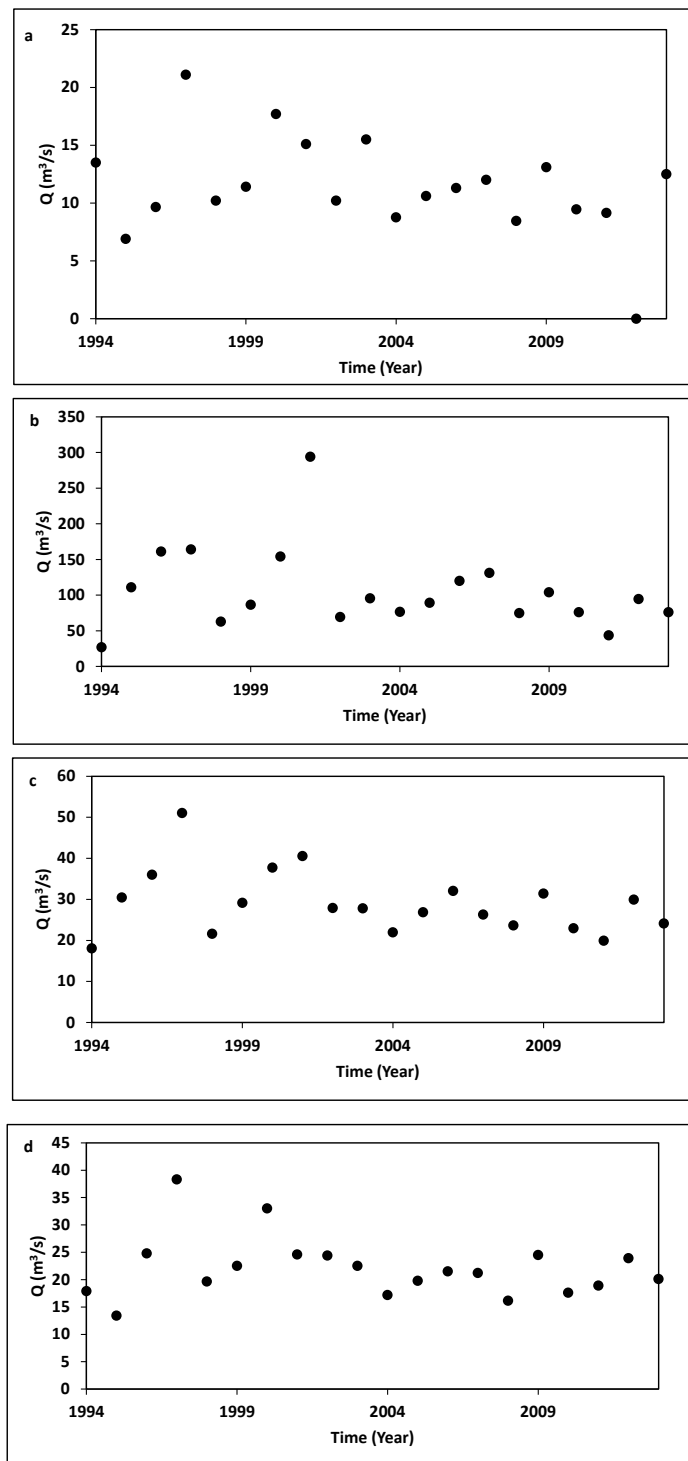


Figure D-32: Coppermine River below Desteffany Lake Annual Daily Minimum (a) and Maximum (b) Flow Rates and Mean Annual (c) and Median Annual (d) Flow Rates (1994-2013)

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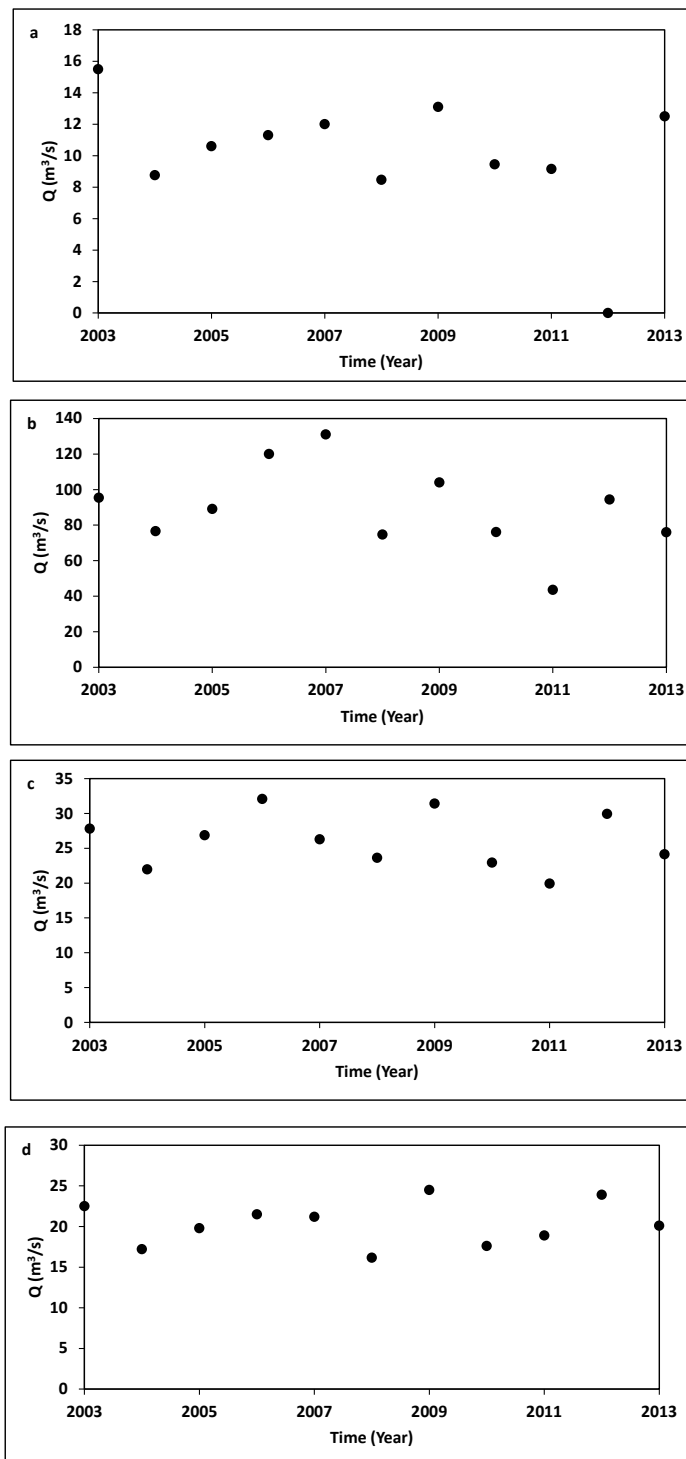


Figure D-33: Coppermine River below Desteffany Lake Annual Daily Minimum (a) and Maximum (b) Flow Rates and Mean Annual (c) and Median Annual (d) Flow Rates (2003-2013)

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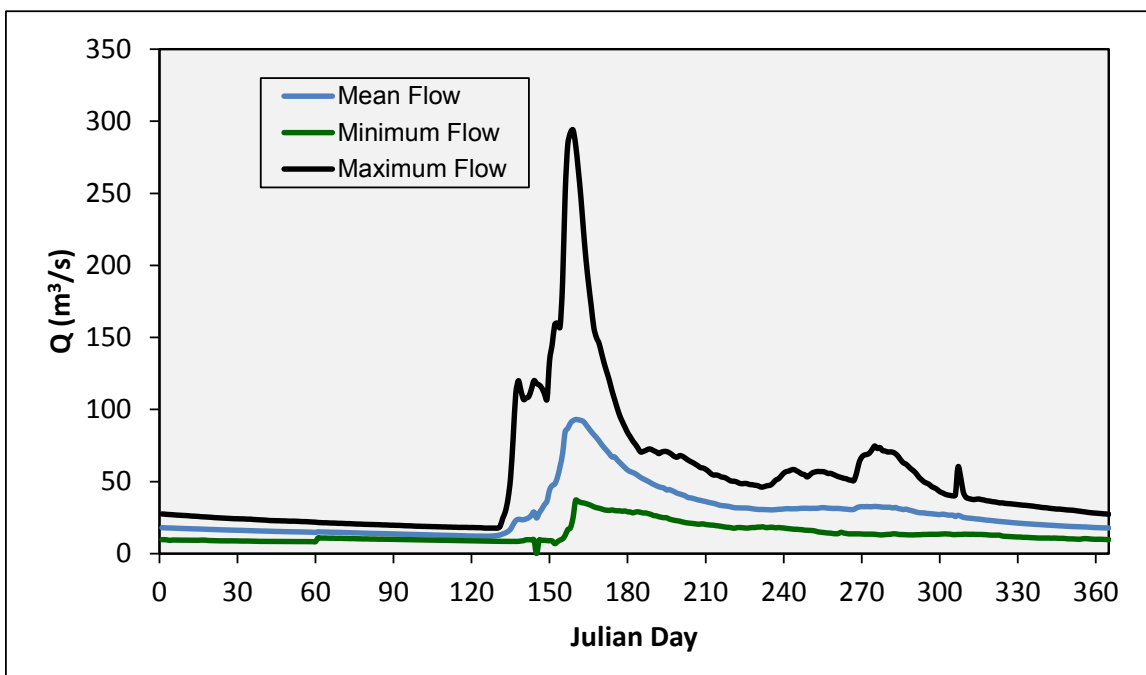


Figure D-34: Coppermine River below Desteffany Lake Minimum, Mean and Maximum Daily Flow Rates

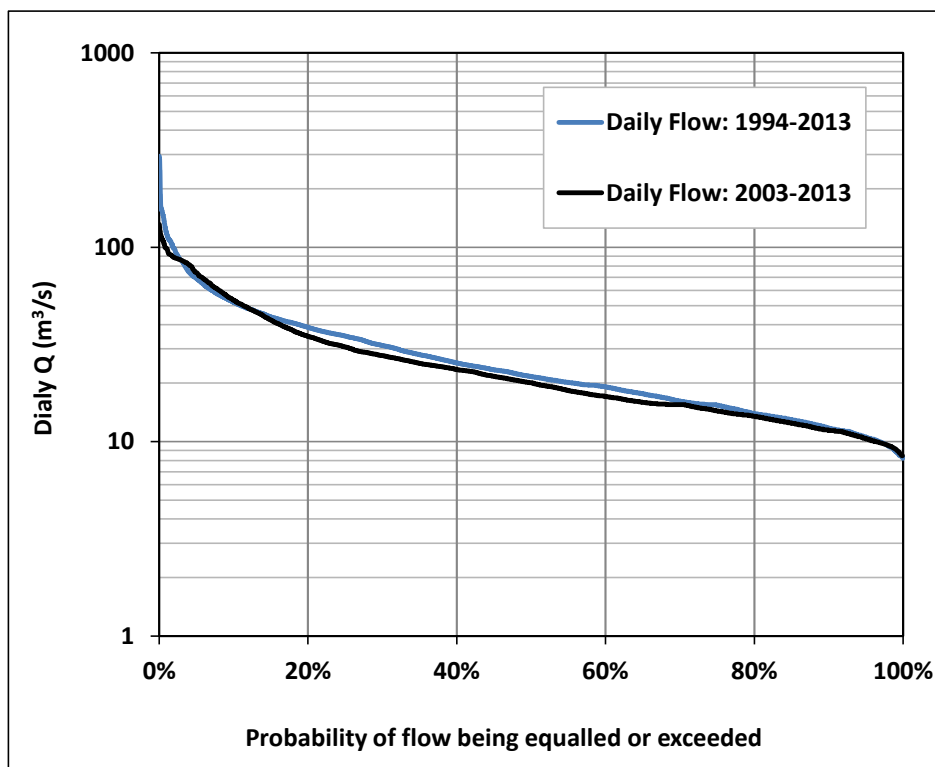


Figure D-35: Coppermine River below Desteffany Lake Flow Duration Curve

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D.2 LOCKHART WATERSHED

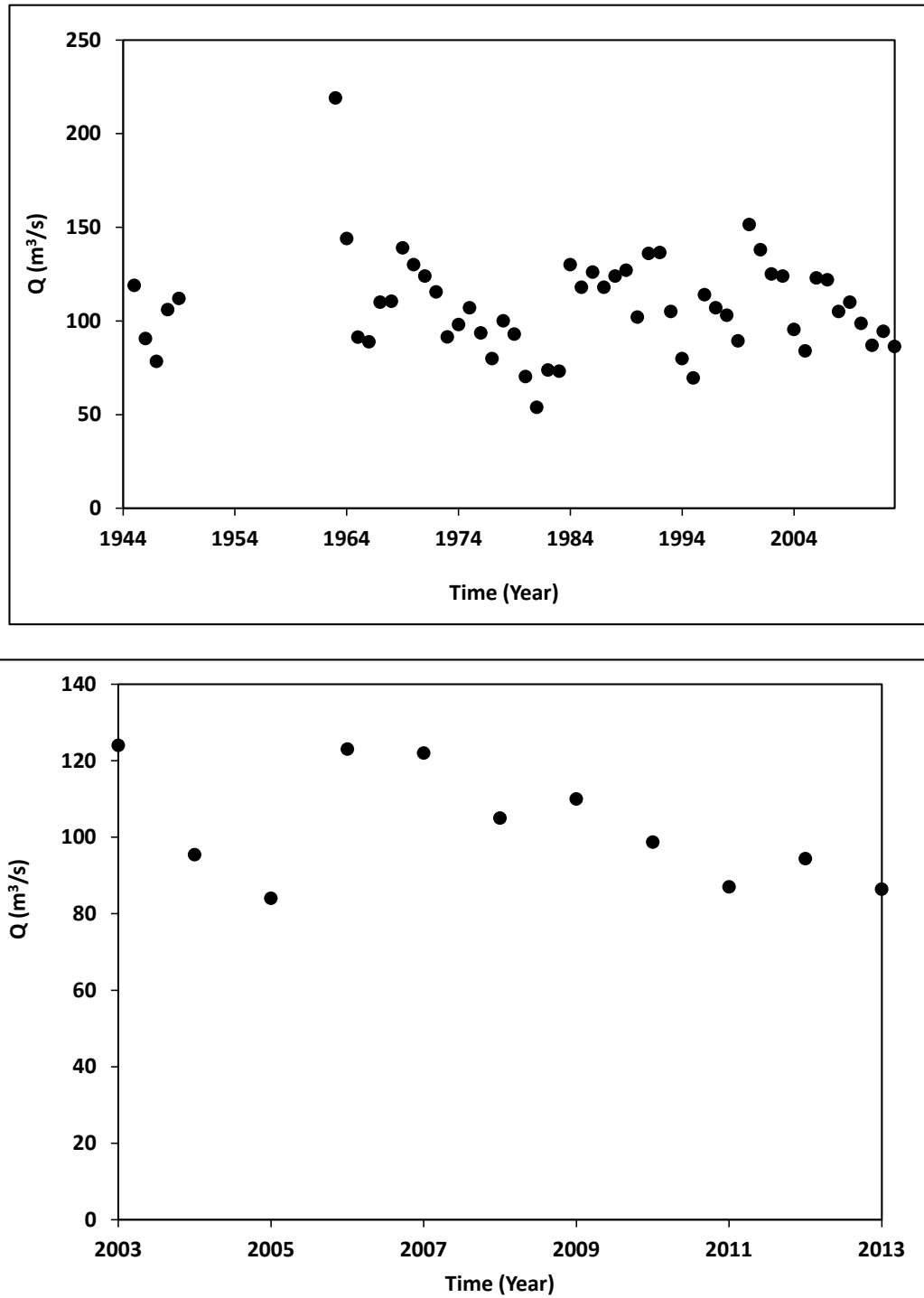


Figure D-36: Lockhart Outflow at Artillery Lake Yearly Median Baseflow Rate (November to April) vs Time

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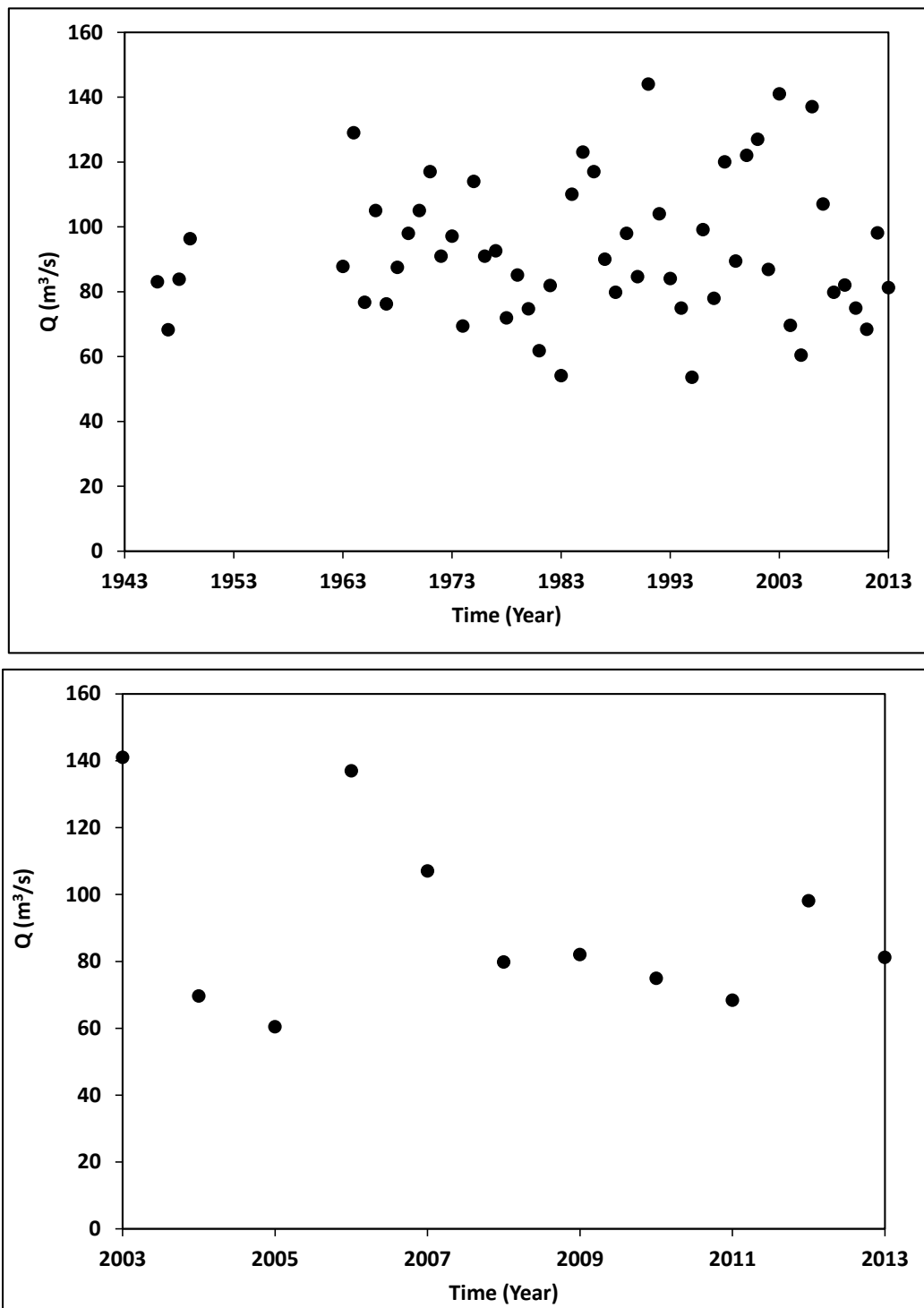


Figure D-37: Lockhart Outflow at Artillery Lake Yearly Median Freshet Flow Rate (May & June) vs Time

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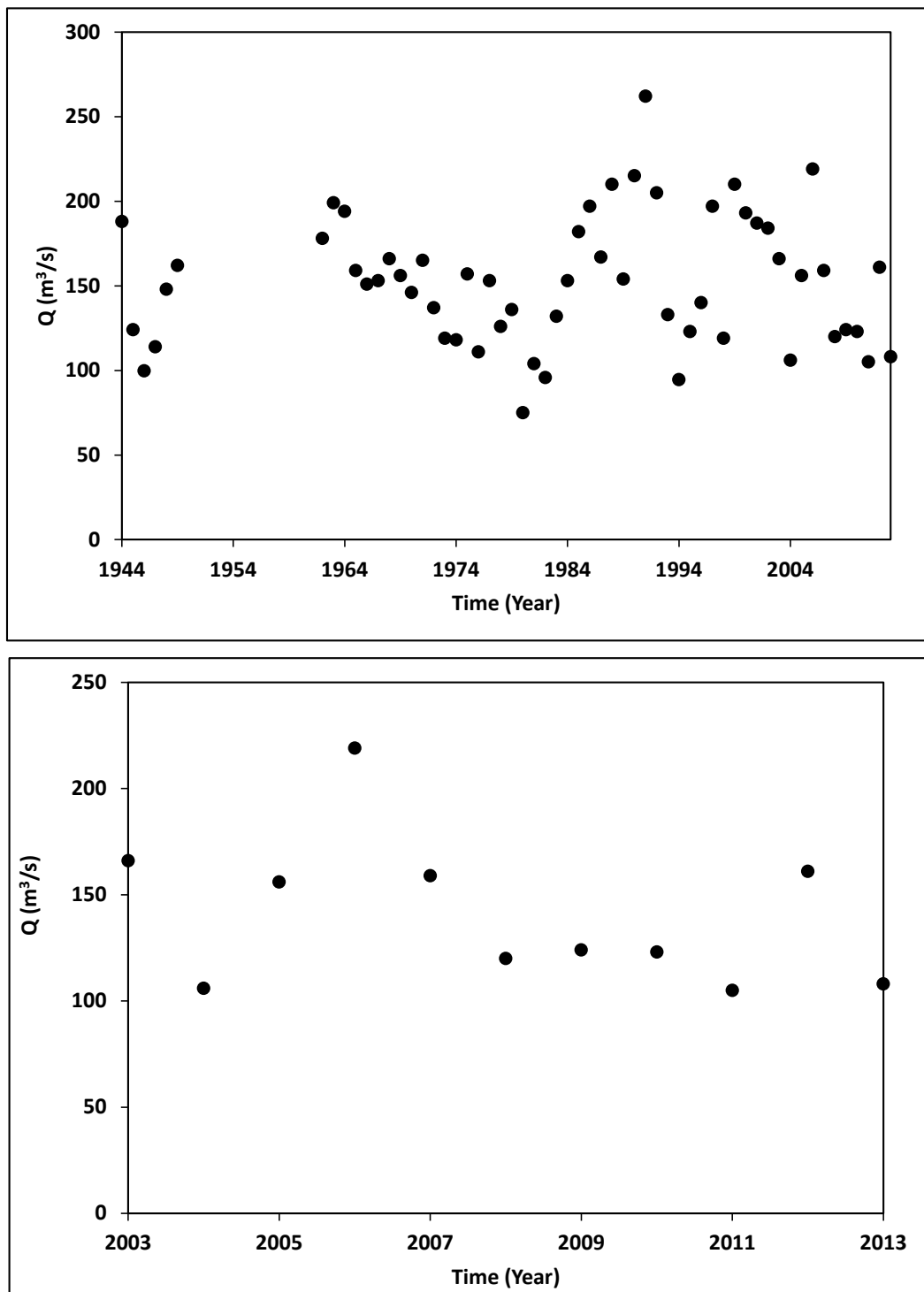


Figure D-38: Lockhart Outflow at Artillery Lake Yearly Median Recession Flow Rate (July 1 to October 31) vs Time

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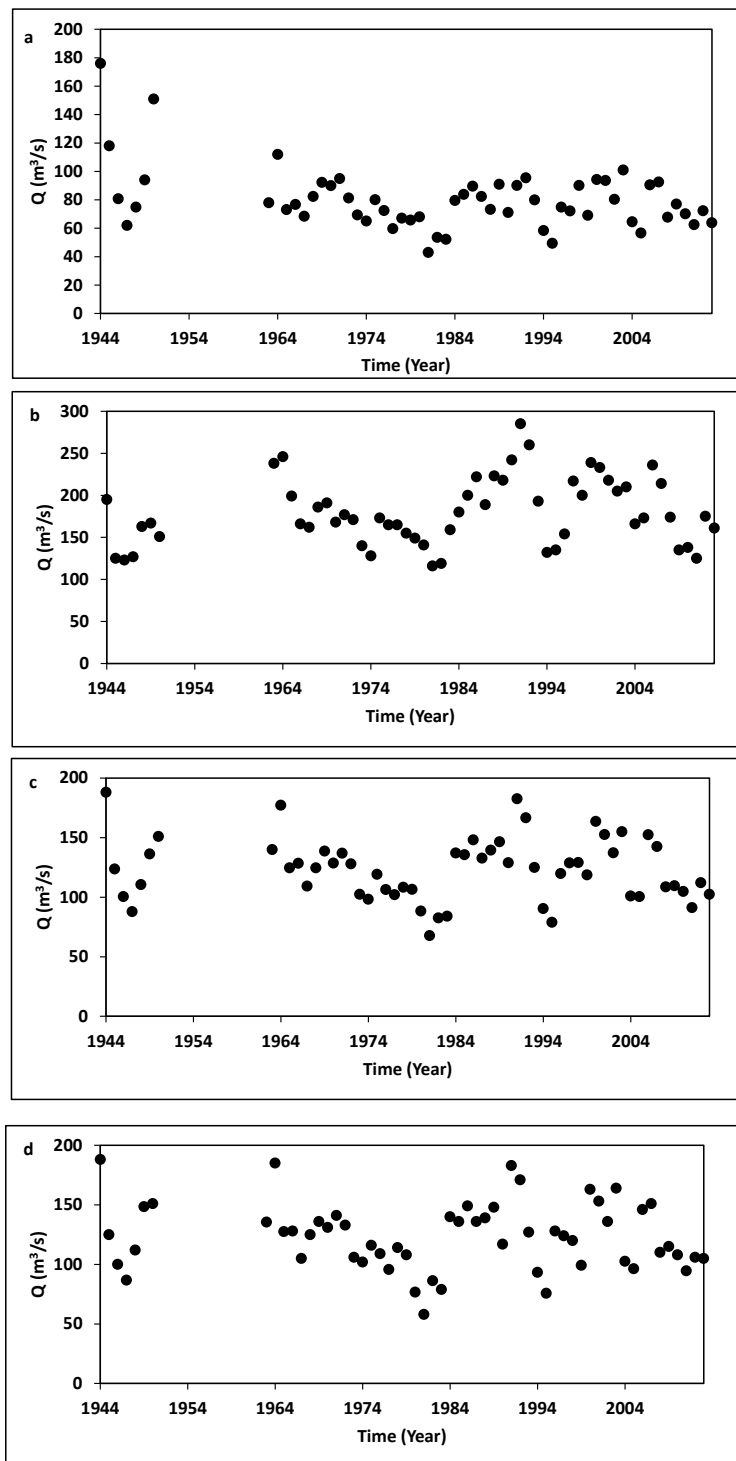


Figure D-39: Lockhart Outflow at Artillery Lake Annual Daily Minimum (a) and Maximum (b) Flow Rates and Mean Annual (c) and Median Annual (d) Flow Rates (1944-2013)

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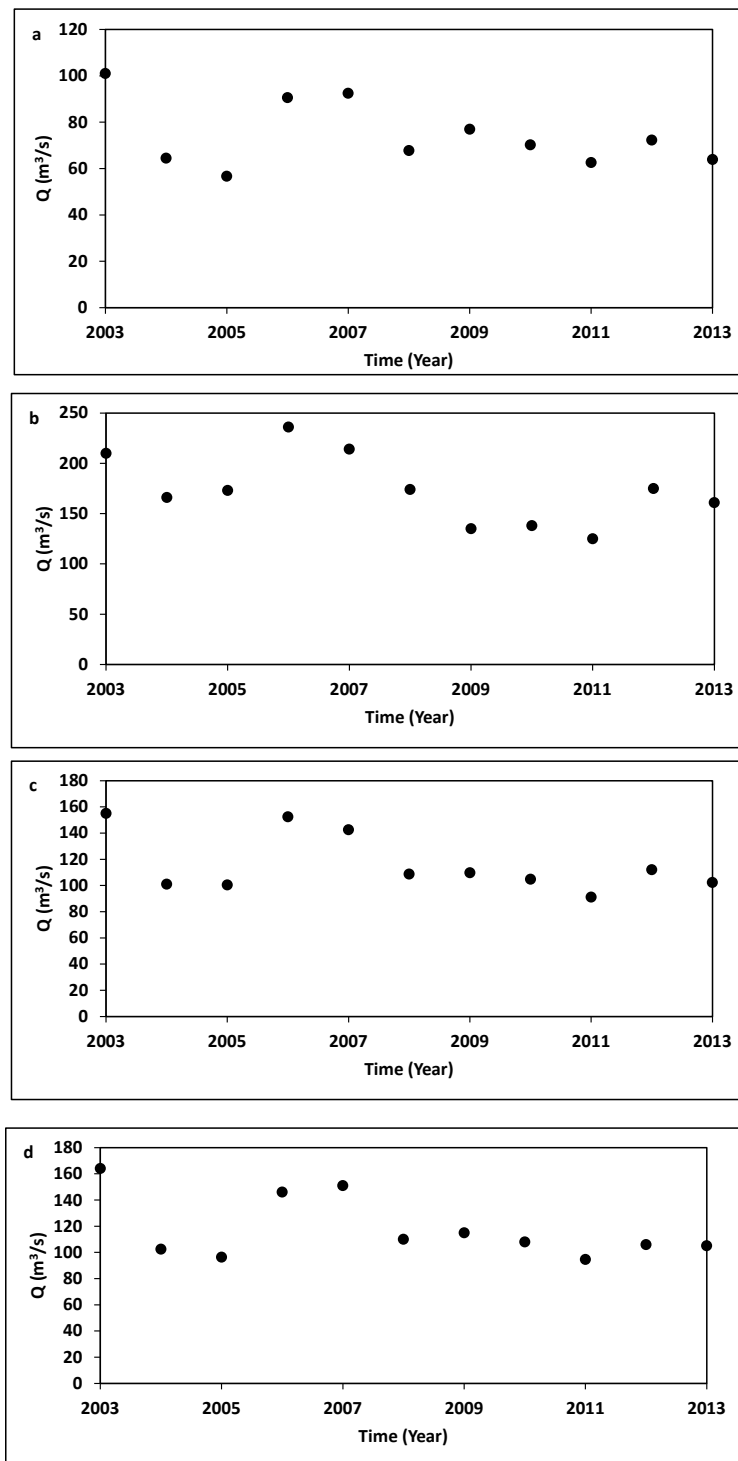


Figure D-40: Lockhart Outflow at Artillery Lake Annual Daily Minimum (a) and Maximum (b) Flow Rates and Mean Annual (c) and Median Annual (d) Flow Rates (2003-2013)

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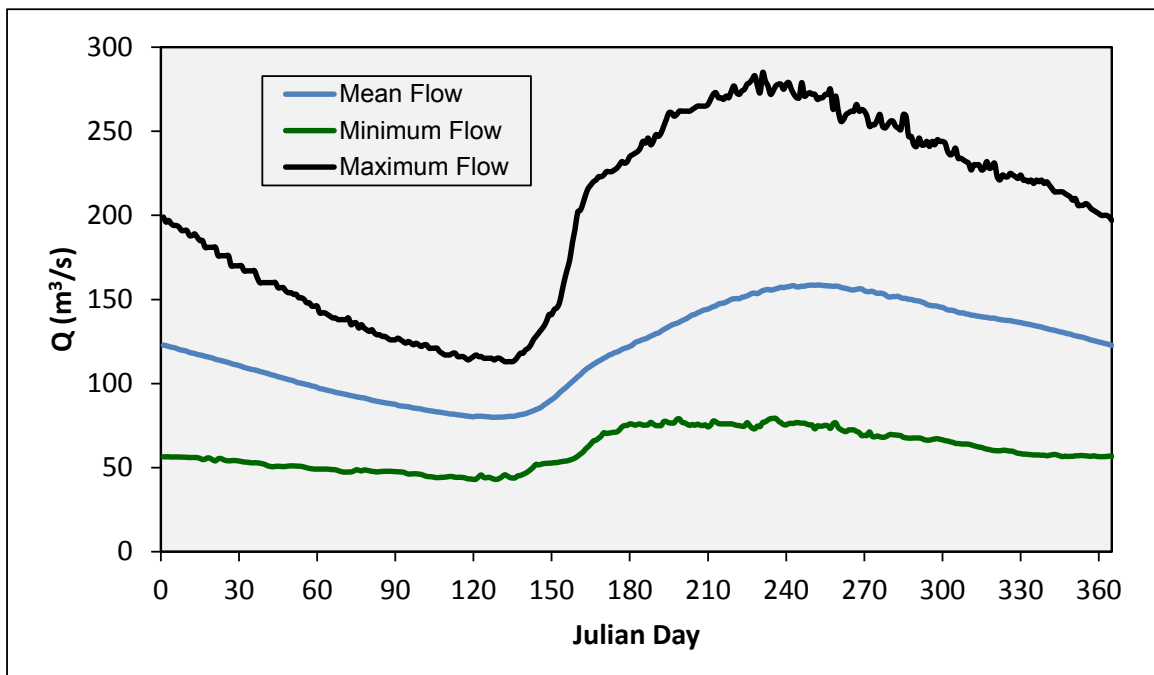


Figure D-41: Lockhart Outflow at Artillery Lake Minimum, Mean and Maximum Daily Flow Rates

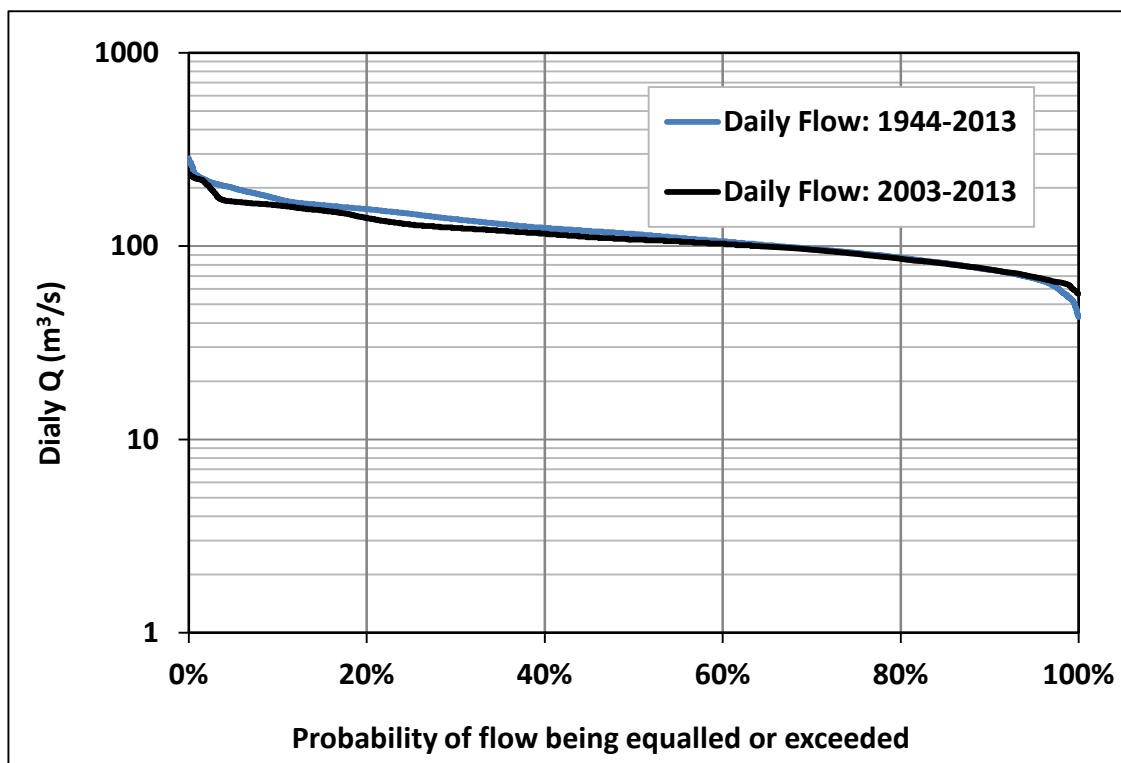


Figure D-42: Lockhart River below Artillery Lake Flow Duration Curve