

Clinton Creek Surface Water Quality and Hydrological Investigations: Two Year Data Summary

Prepared For

Assessment and Abandoned Mines
Department of Energy, Mines and Resources
Government of Yukon
Box 2703, K-419
Whitehorse, YT Y1A 2C6

Prepared By

EDI Environmental Dynamics Inc.
2195 – 2nd Avenue
Whitehorse, YT Y1A 3T8

EDI Contact

Lyndsay Doetzel
Aquatic Toxicologist

EDI Project

19Y0070
January 2020



This page is intentionally blank.



AUTHORSHIP

This report was prepared by EDI Environmental Dynamics Inc. Staff who contributed to this project include:

Annina Altherr, B.Sc. Section Author

Alexandre Mischler, Dipl. Tech..... Section Author

Lyndsay Doetzel, M.Sc, R.P.Bio..... Senior Review/Project Manager



TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	MONITORING SITES.....	1
2	METEOROLOGY	4
2.1	METEOROLOGICAL STATION DATA SUMMARY	4
2.2	SNOW SURVEY SUMMARY	7
3	HYDROLOGY	9
3.1	HUDGEON LAKE AND TRIBUTARIES	9
3.2	WOLVERINE CREEK	10
3.3	SNOWSHOE PIT LAKE AND OTHER TRIBUTARIES	11
3.4	CLINTON CREEK (DOWNSTREAM STATIONS)	11
4	WATER QUALITY	13
4.1	REFERENCE SITES	13
4.2	HUDGEON LAKE	15
4.2.1	<i>Hudgeon Lake In-Situ Depth Profiles</i>	16
4.3	CLINTON CREEK	16
4.4	WOLVERINE CREEK	17
4.5	SNOWSHOE LAKE	18
4.6	GROUNDWATER SEEPS.....	19
4.7	FORTY MILE RIVER	20
4.8	ASBESTOS	20
5	SUMMARY	22
6	REFERENCES	24



LIST OF APPENDICES

APPENDIX A.	MAPS OF HYDROMETRIC STATIONS AND WATER QUALITY STATIONS
APPENDIX B.	METEOROLOGY PLOTS – 2017-2019
APPENDIX C.	HYDROGRAPHS – 2017-2019
APPENDIX D.	WATER QUALITY SUMMARY DATA TABLES – 2017-2019
APPENDIX E.	TIME SERIES WATER QUALITY FIGURES
APPENDIX F.	HUDGEON LAKE DEPTH PROFILE DATA

LIST OF TABLES

Table 1.	List of monitoring program sites at the Clinton Creek Site (September 2017–August 2019).....	2
Table 2.	Mean monthly air temperatures at Clinton Creek Met Station (July 2017 to October 2019) and comparison with climate normals (1981-2010) at Dawson City Airport.....	5
Table 3.	Monthly total rainfall at Clinton Creek Met Station (July 2017 to October 2019) and comparison with climate normals (1981-2010) at Dawson City Airport.....	6
Table 4.	Snow depth at month's end at Clinton Creek Met Station (July 2017 to October 2019) and comparison with climate normals (1981-2010) at Dawson City Airport.....	6
Table 5.	Summary of snow survey results from February and March 2018 and 2019.....	8
Table B-1.	Erroneous data collected at wind sensors and removed from dataset (July 1, 2017 to March 31, 2019).....	B-7
Table B-2.	Erroneous data collected at snow depth sensor and removed from dataset (July 1, 2017 to March 31, 2019).....	B-7
Table B-3.	Rainfall events recorded at Clinton Creek meteorological station (July 1, 2017 to October 31, 2019) and removed from dataset (melt water in rain gauge).....	B-7
Table C-1.	Rating curve equation (provisional) for Clinton Creek at the outlet of Hudgeon Lake (E1(H)).....	C-3
Table C-2.	Rating curve equation (provisional) for Wolverine Creek above Clinton Creek confluence (E3(H)).....	C-5
Table C-3.	Instantaneous discharge and stage measurements for all Clinton Creek site hydrometric stations (July 1, 2017 to October 31, 2019) and removed from dataset (melt water in rain gauge).....	C-7



LIST OF FIGURES

Figure A-1.	Clinton Creek Sampling Program Overview.	A-2
Figure A-2.	Clinton Creek Sampling Program North Area.	A-3
Figure A-3.	Clinton Creek Sampling Program South Area.	A-4
Figure B-1.	Monthly rainfall at Clinton Creek Met Station (July 1, 2017 to October 31, 2019).	B-2
Figure B-2.	Snow depth (daily average of hourly sample) at Clinton Creek Met Station and average snow water equivalent measured on snow survey courses CC-1, CC-2 and CC-3 (July 1, 2017 to October 31, 2019).	B-2
Figure B-3.	Air temperature (hourly average) at Clinton Creek Met Station (July 1, 2017 to October 31, 2019).	B-3
Figure B-4.	Relative humidity (hourly average) at Clinton Creek Met Station (July 1, 2017 to October 31, 2019).	B-3
Figure B-5.	Atmospheric pressure (hourly sample) at Clinton Creek Met Station (July 1, 2017 to October 31, 2019).	B-4
Figure B-6.	Wind velocity (hourly average) at Clinton Creek Met Station (July 1, 2017 to October 31, 2019).	B-4
Figure B-7.	Seasonal wind roses (hourly average for wind velocity and direction) at Clinton Creek Met Station (July 1, 2017 to December 31, 2017).	B-5
Figure B-8.	Seasonal wind roses (hourly average for wind velocity and direction) at Clinton Creek Met Station (January 1, 2018 to December 31, 2018).	B-5
Figure B-9.	Seasonal wind roses (hourly average for wind velocity and direction) at Clinton Creek Met Station (January 1, 2019 to September 30, 2019).	B-6
Figure C-1.	Hydrograph for Clinton Creek upstream (R1) and downstream (E1(H)) of Hudgeon Lake, and Easter Creek (R2, lake tributary) (September 1, 2017 to October 31, 2019).	C-2
Figure C-2.	Hydrograph for small unnamed Hudgeon Lake tributaries (stations R8 and R9) (September 1, 2017 to October 31, 2019).	C-2
Figure C-3.	Hydrograph for Clinton Creek at the outlet of Hudgeon Lake (E1(H)) with provisional continuous discharge (September 1, 2017 to October 31, 2019).	C-3
Figure C-4.	Rating curve (provisional) for Clinton Creek at the outlet of Hudgeon Lake (E1(H)).	C-3
Figure C-5.	Water level and temperature in the outlet of Hudgeon Lake (Clinton Creek station E1(H)) (September 1, 2017 to October 31, 2019).	C-4
Figure C-6.	Water level and temperature in Wolverine Creek (station E3(H)) (September 1, 2017 to October 31, 2019).	C-4
Figure C-7.	Hydrograph for Wolverine Creek basin (stations E3(H), R11(H) and R3) with provisional continuous discharge at E3(H) (September 1, 2017 to October 31, 2019).	C-5
Figure C-8.	Rating curve (provisional) for Wolverine Creek above Clinton Creek confluence (E3(H)).	C-5
Figure C-9.	Hydrograph for groundwater seep in Clinton Creek floodplain (station GWCC-5) and for Porcupine Creek (station R7) upstream of waste rock (September 1, 2017 to October 31, 2019).	C-6
Figure C-10.	Hydrograph for Eagle Creek (station R4) (September 1, 2017 to October 31, 2019).	C-6
Figure C-11.	Hydrograph for Clinton Creek downstream of waste rock (stations E2, E4, E7) (September 1, 2017 to October 31, 2019).	C-7
Figure E-1.	Dissolved oxygen concentrations at reference sites R1, R2, R8, R9, and R4 between September 2017 and August 2019.	E-2



Figure E-2. Fluoride concentrations at reference sites R1, R2, R8, R9, and R4 between September 2017 and August 2019.	E-2
Figure E-3. Total aluminium concentrations at reference sites R1, R2, R8, R9, and R4 between September 2017 and August 2019.	E-3
Figure E-4. Dissolved aluminium concentrations at reference sites R1, R2, R8, R9, and R4 between September 2017 and August 2019.	E-3
Figure E-5. Total copper concentrations at reference sites R1, R2, R8, R9, and R4 between September 2017 and August 2019.	E-4
Figure E-6. Dissolved copper concentrations at reference sites R1, R2, R8, R9, and R4 between September 2017 and August 2019.	E-4
Figure E-7. Total iron concentrations at reference sites R1, R2, R8, R9, and R4 between September 2017 and August 2019. ..	E-5
Figure E-8. Dissolved iron concentrations at reference sites R1, R2, R8, R9, and R4 between September 2017 and August 2019.	E-5
Figure E-9. Total selenium concentrations at reference sites R1, R2, R8, R9, and R4 between September 2017 and August 2019.	E-6
Figure E-10. Dissolved selenium concentrations at reference sites R1, R2, R8, R9, and R4 between September 2017 and August 2019.	E-6
Figure E-11. Total aluminium concentrations at reference site R7 between September 2017 and August 2019.	E-7
Figure E-12. Dissolved aluminium concentrations at reference site R7 between September 2017 and August 2019.	E-7
Figure E-13. Total copper concentrations at reference site R7 between September 2017 and August 2019.	E-8
Figure E-14. Dissolved copper concentrations at reference site R7 between September 2017 and August 2019.	E-8
Figure E-15. Total iron concentrations at reference site R7 between September 2017 and August 2019.	E-9
Figure E-16. Dissolved iron concentrations at reference site R7 between September 2017 and August 2019.	E-9
Figure E-17. Dissolved oxygen concentrations in the top, middle and bottom of the water column at HL3 between September 2017 and August 2019.	E-10
Figure E-18. Fluoride concentrations in the top, middle and bottom of the water column at HL3 between September 2017 and August 2019.	E-10
Figure E-19. Total aluminium concentrations in the top, middle and bottom of the water column at HL3 between September 2017 and August 2019.	E-11
Figure E-20. Dissolved aluminium concentrations in the top, middle and bottom of the water column at HL3 between September 2017 and August 2019.	E-11
Figure E-21. Total arsenic concentrations in the top, middle and bottom of the water column at HL3 between September 2017 and August 2019.	E-12
Figure E-22. Dissolved arsenic concentrations in the top, middle and bottom of the water column at HL3 between September 2017 and August 2019.	E-12
Figure E-23. Total iron concentrations in the top, middle and bottom of the water column at HL3 between September 2017 and August 2019. The Y-axis has been transformed to a logarithmic scale (base 10) to show large variations in the data.	E-13
Figure E-24. Dissolved iron concentrations in the top, middle and bottom of the water column at HL3 between September 2017 and August 2019. The Y-axis has been transformed to a logarithmic scale (base 10) to show large variations in the data.	E-13



Figure E-25. Total selenium concentrations in the top, middle and bottom of the water column at HL3 between September 2017 and August 2019.	E-14
Figure E-26. Dissolved selenium concentrations in the top, middle and bottom of the water column at HL3 between September 2017 and August 2019.	E-14
Figure E-27. Fluoride concentrations at exposed sites E1(H), E1, E2, E4, and E7 on Clinton Creek between September 2017 and August 2019.	E-15
Figure E-28. Dissolved oxygen concentrations at exposed sites E1(H), E1, E2, E4, and E7 on Clinton Creek between September 2017 and August 2019.	E-15
Figure E-29. Total aluminium concentrations at exposed sites E1(H), E1, E2, E4, and E7 on Clinton Creek between September 2017 and August 2019.	E-16
Figure E-30. Dissolved aluminium concentrations at exposed sites E1(H), E1, E2, E4, and E7 on Clinton Creek between September 2017 and August 2019.	E-16
Figure E-31. Total copper concentrations at exposed sites E1(H), E1, E2, E4, and E7 on Clinton Creek between September 2017 and August 2019.	E-17
Figure E-32. Dissolved copper concentrations at exposed sites E1(H), E1, E2, E4, and E7 on Clinton Creek between September 2017 and August 2019.	E-17
Figure E-33. Total iron concentrations at exposed sites E1(H), E1, E2, E4, and E7 on Clinton Creek between September 2017 and August 2019.	E-18
Figure E-34. Dissolved iron concentrations at exposed sites E1(H), E1, E2, E4, and E7 on Clinton Creek between September 2017 and August 2019.	E-18
Figure E-35. Total selenium concentrations at exposed sites E1(H), E1, E2, E4, and E7 on Clinton Creek between September 2017 and August 2019.	E-19
Figure E-36. Dissolved selenium concentrations at exposed sites E1(H), E1, E2, E4, and E7 on Clinton Creek between September 2017 and August 2019.	E-19
Figure E-37. Fluoride concentrations at sites R3, R11, and E3 in the Wolverine Creek drainage between September 2017 and August 2019.	E-20
Figure E-38. Total aluminium concentrations at sites R3, R11, and E3 in the Wolverine Creek drainage between September 2017 and August 2019.	E-20
Figure E-39. Dissolved aluminium concentrations at sites R3, R11, and E3 in the Wolverine Creek drainage between September 2017 and August 2019.	E-21
Figure E-40. Total copper concentrations at sites R3, R11, and E3 in the Wolverine Creek drainage between September 2017 and August 2019.	E-21
Figure E-41. Dissolved copper concentrations at sites R3, R11, and E3 in the Wolverine Creek drainage between September 2017 and August 2019.	E-22
Figure E-42. Total iron concentrations at sites R3, R11, and E3 in the Wolverine Creek drainage between September 2017 and August 2019.	E-22
Figure E-43. Dissolved iron concentrations at sites R3, R11, and E3 in the Wolverine Creek drainage between September 2017 and August 2019.	E-23
Figure E-44. Total selenium concentrations at sites R3, R11, and E3 in the Wolverine Creek drainage between September 2017 and August 2019.	E-23



Figure E-45. Dissolved selenium concentrations at sites R3, R11, and E3 in the Wolverine Creek drainage between September 2017 and August 2019.	E-24
Figure E-46. Fluoride concentrations at Snowshoe Pit Lake (SL) between September 2017 and August 2019.	E-24
Figure E-47. Total arsenic concentrations at Snowshoe Pit Lake (SL) between September 2017 and August 2019.	E-25
Figure E-48. Dissolved arsenic concentrations at Snowshoe Pit Lake (SL) between September 2017 and August 2019.	E-25
Figure E-49. Total hexavalent chromium concentrations at Snowshoe Pit Lake (SL) between September 2017 and August 2019.	E-26
Figure E-50. Dissolved hexavalent chromium concentrations at Snowshoe Pit Lake (SL) between September 2017 and August 2019.	E-26
Figure E-51. Total selenium concentrations at Snowshoe Pit Lake (SL) between September 2017 and August 2019.	E-27
Figure E-52. Dissolved selenium concentrations at Snowshoe Pit Lake (SL) between September 2017 and August 2019.	E-27
Figure E-53. Dissolved oxygen concentrations at sites GWCC-1, GWCC-2, GWCC-3, GWCC-4, and GWCC-5 between September 2017 and August 2019.	E-28
Figure E-54. Fluoride concentrations at sites GWCC-1, GWCC-2, GWCC-3, GWCC-4, and GWCC-5 between September 2017 and August 2019.	E-28
Figure E-55. Total hexavalent chromium concentrations at sites GWCC-1, GWCC-2, GWCC-3, GWCC-4, and GWCC-5 between September 2017 and August 2019. Note: hexavalent chromium is only tested when chromium exceeds 0.001 mg/L.	E-29
Figure E-56. Dissolved hexavalent chromium concentrations at sites GWCC-1, GWCC-2, GWCC-3, GWCC-4, and GWCC-5 between September 2017 and August 2019. Note: hexavalent chromium is only tested when chromium exceeds 0.001 mg/L.	E-29
Figure E-57. Total selenium concentrations at sites GWCC-1, GWCC-2, GWCC-3, GWCC-4, and GWCC-5 between September 2017 and August 2019.	E-30
Figure E-58. Dissolved selenium concentrations at sites GWCC-1, GWCC-2, GWCC-3, GWCC-4, and GWCC-5 between September 2017 and August 2019.	E-30
Figure E-59. Fluoride concentrations at sites R6 and E8 on the Forty Mile River between September 2017 and August 2019.	E-31
Figure E-60. Total aluminium concentrations at sites R6 and E8 on the Forty Mile River between September 2017 and August 2019.	E-31
Figure E-61. Dissolved aluminium concentrations at sites R6 and E8 on the Forty Mile River between September 2017 and August 2019.	E-32
Figure E-62. Total copper concentrations at sites R6 and E8 on the Forty Mile River between September 2017 and August 2019.	E-32
Figure E-63. Dissolved copper concentrations at sites R6 and E8 on the Forty Mile River between September 2017 and August 2019.	E-33
Figure E-64. Total iron concentrations at sites R6 and E8 on the Forty Mile River between September 2017 and August 2019.	E-33
Figure E-65. Dissolved iron concentrations at sites R6 and E8 on the Forty Mile River between September 2017 and August 2019.	E-34
Figure E-66. Asbestos concentrations at sites R1, R3, E2, and E3 between September 2017 and August 2019.	E-35

This page is intentionally blank.



1 INTRODUCTION

Yukon Government Assessment and Abandoned Mines (YG AAM) retained the services of EDI Environmental Dynamics Inc. (EDI) to conduct the Clinton Creek Surface Water Quality and Hydrological Investigations program at the Clinton Creek Site between September 2017 and March 2020. Since mine closure, the movement of waste rock and tailings combined with weather events has resulted in widespread erosion and destabilization of creek channels around the Site, which has resulted in the potential for additional movement of mine waste material and flooding. The federal government began work in 2002 to mitigate further negative impacts to the Site, and in 2003 AAM assumed responsibility for care and maintenance and closure of the Site.

The current surface water monitoring program involves the following components: surface water quality sampling, groundwater seep sampling, hydrometric measurements, snow surveys, and meteorological data management. August 2019 marks the completion of two years of continuous monthly data collection. This report describes meteorology, hydrology, and water quality data, including seasonal and site-specific trends, for this two-year period. A complete description of methods can be found in the Clinton Creek Surface Water Quality and Hydrological Investigations 2019/20: Methodology Report (EDI Environmental Dynamics Inc. 2019).

1.1 MONITORING SITES

The Clinton Creek Site is located approximately 75 km northwest of Dawson City, Yukon (100 km by road) in the traditional territory of the Tr'ondëk Hwëch'in First Nation (Figure A-1). Clinton Creek is a tributary to the Forty Mile River, which flows into the Yukon River.

The Clinton Creek monitoring program includes 16 hydrometric stations, 16 stream water quality sites, three snow survey sites, five groundwater seep water quality sites, two pit lake stations, and three Hudgeon Lake samples (Table 1, Figure A-2, Figure A-3). Reference sites and exposed sites are located upstream and downstream, respectively, of historical mining activity to help compare unaffected watersheds to potentially impacted drainages.

**Table 1. List of monitoring program sites at the Clinton Creek Site (September 2017–August 2019).**

Water Quality Station	WQID	Monitoring Site Type	Water Quality ¹	Hydrology ¹	Snow Survey
Clinton Creek downstream of gabions	E1	Exposed	✓	-	-
Clinton Creek at the outlet of Hudgeon Lake	E1(H)	Exposed	✓	✓	-
Clinton Creek, downstream of Porcupine Creek, but upstream of Wolverine Creek	E2	Exposed	✓	✓	-
Wolverine Creek, upstream of culvert	E3	Exposed	✓	-	-
Wolverine Creek, approximately 300 m upstream of the Clinton Creek confluence	E3(H)	Exposed	-	✓	-
Clinton Creek, downstream of Wolverine Creek but upstream of Eagle Creek	E4	Exposed	✓	✓	-
Clinton Creek near mouth	E7	Exposed	✓	✓	-
Forty Mile River, downstream of Clinton Creek	E8	Exposed	✓	-	-
Clinton Creek, upstream of Hudgeon Lake	R1	Reference Site	✓	✓	✓ (one site)
Unnamed tributary of Clinton Creek, upstream of R1	R1B	Reference Site	-	✓	-
Easter Creek, upstream of Hudgeon Lake	R2	Reference Site	✓	✓	-
Wolverine Creek, upstream of tailings	R3	Reference Site	✓	✓	-
Eagle Creek, upstream of culvert	R4	Reference Site	✓	✓	-
Forty Mile River, upstream of Clinton Creek	R6	Reference Site	✓	-	-
Porcupine Creek, upstream of waste rock	R7	Reference Site	✓	✓	-
Unnamed creek that enters Hudgeon Lake west of Easter Creek	R8	Reference Site	✓	✓	-
Unnamed stream input on the south side of Hudgeon Lake	R9	Reference Site	✓	✓	✓ (two sites)
Unnamed tributary to Wolverine Creek between R3 and E3(H)	R11	Reference Site	✓	-	-
Unnamed tributary to Wolverine Creek between R3 and E3(H)	R11(H)	Reference Site	-	✓	-
Toe of the waste rock dump flowing into ponded area at Porcupine Creek	GWCC-1	Exposed	✓	-	-



Water Quality Station	WQID	Monitoring Site Type	Water Quality ¹	Hydrology ¹	Snow Survey
Toe of the waste rock dump flowing into ponded area approximately 10m NW of GWCC-1	GWCC-2	Exposed	✓	-	-
Toe of the waste rock dump flowing into ponded area approximately 10m NW of GWCC-2	GWCC-3	Exposed	✓	-	-
Toe of the waste rock dump flowing into ponded area approximately 10m NW of GWCC-3	GWCC-4	Exposed	✓	-	-
Groundwater flowing in old Clinton Creek channel	GWCC-5	Exposed	✓	✓	-
Snowshoe Pit Lake from shore	SL	Exposed	✓	✓	-
Porcupine Pit Lake, from shore ²	PL	Exposed	✓	✓	-
Hudgeon Lake, near the west end ³	HL1	Exposed	✓		
Hudgeon Lake, near the center ³	HL2	Exposed	✓		
Hudgeon Lake, near the outlet, top	HL3-T	Exposed	✓	-	-
Hudgeon Lake, near the outlet, middle	HL3-M	Exposed	✓	-	-
Hudgeon Lake, near the outlet, bottom	HL3-B	Exposed	✓	-	-

1- Winter sampling did not occur when sites became frozen to the ground, generally from November through March.

2- Porcupine Pit Lake (PL) was not sampled over the two-year period due to safety concerns associated with pit wall stability.

3- A scope change in June 2018 resulted in Hudgeon Lake sites HL1 and HL2 being removed from the sampling program.



2 METEOROLOGY

YG AAM established the Campbell Scientific meteorological (MET) station at the Clinton Creek Site on June 19, 2015. The station is located on a flat area of waste rock, near and southeast of Hudgeon Lake outlet site E1(H), at an elevation of approximately 432 m above sea level (Figure A-2). A satellite communication station (with a remote camera) is located on a flat area of ground north of Clinton Creek, near the outlet of Hudgeon Lake. EDI conducted a QA/QC review of the all available data for the period of July 1, 2017 to October 31, 2019 and provided a corrected dataset.

Section 2.1 presents a summary of continuous meteorological data collected between July 1, 2017 to October 31, 2019, and section 2.2 summarizes snow survey results for the data collected during February and March field visits in 2018 and 2019. Appendix B contains time series graphs for meteorological parameters and lists of corrections to the dataset EDI provides.

Canadian Climate Normals for the 1981 to 2010 climate period are available for the Dawson City weather station (airport location) and published by Government of Canada. This station, located approximately 90 km south of the Clinton Creek Station at an elevation of 370 m above sea level, is used for comparison purposes.

2.1 METEOROLOGICAL STATION DATA SUMMARY

This section presents a summary of air temperatures, rainfall, snowpack and wind data, as well as relative humidity and atmospheric pressure collected at the Clinton Creek Station between July 2017 and October 2019. Canadian Climate Normals (1981 to 2010) are computed from the Dawson City Airport Station, to serve as a comparison point for temperature and precipitation.

In 2017, the July to October period was warmer than normal (Table 2) with low summer precipitation (Table 3). This likely contributed to the low flows observed in September and October 2017. The winter season for 2017/2018 was overall within climate normals, with month to month variations for mean temperatures: colder in November, warmer in December and January, and colder in April. Snow accumulation was also within normals, peaking slightly above normal with a maximum depth of 59 cm on February 23, 2018. The mean snow water equivalent on March 13-14 was 93 mm (Table 5 and Figure B-2), slightly above precipitation normals of 90 mm for the November to March period. Timing of snow melt between April 7 and May 2, 2018 (Figure B-2) was close to climate normals as well (Table 4).

Monthly mean air temperatures were slightly below climate normals (Table 2) during the 2018 open water season (May to October). May to August precipitation totals were higher than normal. August 2018 rainfall was particularly high with a monthly total of 94.4 mm (+51 mm above normal), and heavy rain on August 21, 22 and 24 (54 mm rainfall over three days) which contributed to substantial increases in surface flows in the Clinton Creek watershed (Figure C-3 and Figure C-7). September and October were drier than normal. November and December 2018, as well as January 2019 were relatively warm. Snowpack was deeper than normal with a maximum depth of 72.8 cm on February 13, 2019. The mean snow water equivalent on February 20 was 119 mm and of 116 mm on March 6 (Table 5 and Figure B-2), about 32% above precipitation normals for the November to March period. Air temperatures were abnormally warm for the second half of



March, with daily mean air temperature above 0°C for 13 days starting on March 17 until end of the month, daily highs above +10°C on four days and a +6.7°C anomaly for the monthly average. This warming event triggered an early snowmelt between March 17 and April 22 (Figure B-2 and Table 4), followed by a short spring snowfall of 15 cm on April 23-24 that melted completely by April 29. Larger and early snowmelt contributed to moderate flows by mid-April, high flows by late April and very high flows in the first half of May 2019 (Figure C-3 and Figure C-7).

The 2019 open water season was overall within climate normals for mean air temperatures. Several moderate rain events influenced flows: May 31 – June 1 (17.1 mm total), June 16-17 (14.8 mm), July 11 (11.3 mm), August 16 (19.1 mm), and September 21 (12.9 mm). August 2019 was wetter than normal with a monthly total of 61.5 mm (Table 3). Daily mean air temperature began to drop below 0°C by October 4 and snow started accumulating on the ground on October 5.

Wind at the outlet of Hudgeon Lake is generally light to moderate, with wind velocities slightly higher during spring. Maximum hourly average wind speed was 9.5 m/s on May 20, 2018 (Figure B-6). In 2019, maximum hourly average was 8.3 m/s on March 17, in conjunction with the onset of abnormal warming period. Dominant winds blow from the west-northwest with light to moderate intensity. Stronger winds have been recorded blowing from east-southeast for shorter periods during spring (Figure B-7 for 2017, Figure B-8 for 2018, and Figure B-9 for 2019). Time-series plots for relative humidity (Figure B-4) and atmospheric pressure (Figure B-5) at the meteorological station are presented in Appendix B.

Table 2. Mean monthly air temperatures at Clinton Creek Met Station (July 2017 to October 2019) and comparison with climate normals (1981-2010) at Dawson City Airport.

Air Temperature in °C Monthly Average	Clinton Creek Site			Dawson Airport 1981-2010 Climate Normals	Temperature Anomalies		
	2017	2018	2019		2017	2018	2019
January	-	-21.6	-23.7	-26.0	-	+4.4	+2.3
February	-	-22.9	-22.0	-21.5	-	-1.4	-0.5
March	-	-10.7	-5.4	-12.1	-	+1.4	+6.7
April	-	-3.6	0.0	-0.1	-	-3.5	+0.1
May	-	7.7	10.2	8.2	-	-0.5	+2.0
June	-	13.2	15.2	14.0	-	-0.8	+1.2
July	17.3	16.4	17.1	15.7	+1.6	+0.7	+1.4
August	13.6	11.1	10.3	12.3	+1.3	-1.2	-2.0
September	7.1	4.6	6.9	5.8	+1.3	-1.2	+1.1
October	-2.4	-3.8	-2.7	-4.7	+2.3	+0.9	+2.0
November	-22.2	-15.1	-	-18.1	-4.1	+3.0	-
December	-18.5	-18.0	-	-22.9	+4.4	+4.9	-
Year Average	-	-3.6	-	-4.1	-	+0.6	-



Table 3. Monthly total rainfall at Clinton Creek Met Station (July 2017 to October 2019) and comparison with climate normals (1981-2010) at Dawson City Airport.

Rainfall in mm Monthly Total	Clinton Creek Site			Dawson Airport 1981-2010 Climate Normals	Rainfall Anomalies		
	2017	2018	2019		2017	2018	2019
January	-	0.0	0.0	0.1	-	-0.1	-0.1
February	-	0.0	0.0	0.0	-	0.0	0.0
March	-	0.0	0.0	0.3	-	-0.3	-0.3
April	-	0.8	0.0	2.6	-	-1.8	-2.6
May	-	38	18.3	28.4	-	+9.6	-10.1
June	-	42.9	49.0	38.2	-	+4.7	+10.8
July	30.9	52.5	43.5	49	-18.1	+3.5	-5.5
August	29.7	94.4	61.5	43.1	-13.4	+51.3	+18.4
September	32.7	17.8	33	29.7	+3.0	-11.9	+3.3
October	11.8	0.0	9.7	9.4	+2.4	-9.4	+0.3
November	0.0	0.0	-	0.1	-0.1	-0.1	-
December	0.0	0.0	-	0.4	-0.4	-0.4	-
Year Total	-	246.4	215.0	201.3	-	+45.1	+14.2

Table 4. Snow depth at month's end at Clinton Creek Met Station (July 2017 to October 2019) and comparison with climate normals (1981-2010) at Dawson City Airport.

Snow Depth in cm Month End	Clinton Creek Site			Dawson Airport 1981-2010 Climate Normals	Snow Depth Anomalies		
	2017	2018	2019		2017	2018	2019
January	-	41.3	63.7	49.0	-	-7.7	+14.7
February	-	54.2	62.1	52.0	-	+2.2	+10.1
March	-	51.5	30.0	45.0	-	+6.5	-15.0
April	-	2.0	0.5	3.0	-	-1.0	-2.5
May	-	0.0	0.0	0.0	-	0.0	0.0
June	-	0.0	0.0	0.0	-	0.0	0.0
July	0.0	0.0	0.0	0.0	0.0	0.0	0.0
August	0.0	0.0	0.0	0.0	0.0	0.0	0.0
September	1.1	0.8	0.7	1.0	+0.1	-0.2	-0.3
October	13.3	10.0	11.7	14.0	-0.7	-4.0	-2.3
November	27.3	36.3	-	29.0	-1.7	7.3	-
December	34.0	49.5	-	42.0	-8.0	7.5	-



2.2 SNOW SURVEY SUMMARY

EDI completed snow surveys twice per winter (once in February and once in March) over two consecutive years. The snow data inform run-off and groundwater infiltration calculations, compare stream volume data, and help identify correlation with precipitation data collected by the on-site meteorological station. Surveys were completed according to the Clinton Creek methodology report and the British Columbia Ministry of Environment (MOE) Snow Survey Sampling Guide (EDI Environmental Dynamics Inc. 2019, Province of British Columbia Ministry of Environment 1981). The snow survey program includes three sampling sites (Figure A-2). Snow courses CC1 and CC3 are located near site R9, on 20° east and 15° west slopes, respectively. Snow course CC2 is located near site R1 on a flat grass marsh. In 2018, mean snow depth and snow density increased between the two sampling. (Table 5). In 2019, mean snow depth decreased between sampling events, but overall snow density still increased. Snow depths and densities were higher in 2019 than in 2018. Snow density was higher at CC2 on the flat marsh than on the slopes near R9 for all sampling events. Snow at all sites over both years of sampling was characterized as dry, with loose undisturbed grains.



Table 5. Summary of snow survey results from February and March 2018 and 2019.

Survey Location	Date and Time dd/mm/yyyy HH:MM	Snow Depth (cm)				Snow Water Equivalent (mm)	Snow Density (%)
		Max	Min	Mean	SD	Mean	
CC1	13/02/2018 11:45	60.0	43.0	50.7	5.2	65	12.8%
	14/03/2018 9:45	65.0	54.0	59.4	4.1	97	16.3%
	20/02/2019 13:45	77.0	58.0	70.5	5.7	116	16.5%
	06/03/2019 14:30	76.0	58.0	66.1	5.1	112	16.9%
CC2	12/02/2018 15:30	51.0	46.0	48.0	1.4	70	14.6%
	13/03/2018 14:30	61.0	49.0	55.5	4.2	95	17.1%
	20/02/2019 12:15	77.0	65.0	69.3	3.5	122	17.6%
	06/03/2019 13:20	72.0	60.0	64.1	3.9	119	18.6%
CC3	13/02/2018 11:00	61.0	46.0	50.4	4.2	65	12.9%
	14/03/2018 10:40	74.0	54.0	62.3	6.4	86	13.8%
	20/02/2019 14:25	88.0	64.0	76.2	7.3	119	15.6%
	06/03/2019 14:25	80.0	67.0	73.0	4.5	118	16.2%



3 HYDROLOGY

The 2017-2019 Clinton Creek surface water monitoring program included 15 active hydrometric stations. EDI crews measured flows on each field visit at every station unless channel conditions were unsuitable. Two monitoring stations are equipped with continuous water level pressure transducers: E1(H), at the outlet of Hudgeon Lake, and E3(H), on Wolverine Creek (Figure A-2). A summary of hydrologic conditions over the period of September 1, 2017 to October 31, 2019 is presented in the following sections by general areas in upstream to downstream order.

Appendix C contains time series graphs for flow measurements, rating curve equations for continuous discharge hydrographs, continuous water temperature graphs, and the table for all instantaneous discharge and stage measurements. Database export files of the 2017-2019 hydrometric monitoring datasets are attached to this report.

3.1 HUDGEON LAKE AND TRIBUTARIES

Four hydrometric stations are located on tributary streams of Hudgeon Lake. Main tributaries include Clinton Creek monitored at R1 and Easter Creek at R2 (Figure C-1), and two small unnamed tributaries are monitored at R8 and R9 (Figure C-2). Hudgeon Lake level is monitored at the outlet station E1(H) (Figure C-5). R1B, an unnamed tributary to Clinton Creek, flows into Hudgeon Lake near R1. This hydrology station was added to the program in September 2018 in an attempt to measure flow not captured in measurements at R1. Channel conditions are often unsuitable for discharge measurement collection; therefore, only two data points are available (Table C-3). In September 2018 and June 2019, flows at R1B were 10.1% and 20.3% of those at R1.

Flows were low in September and October 2017 on Clinton Creek and Easter Creek and continued to decline with the onset of winter. No flow was observed at R8, and the creek at R9 was frozen to bed by November 2017. By the January 2018 field visit, R1 and R2 were also frozen to bed. Flow at E1(H) was very low in January and the outlet was frozen to bed by the February 12, 2018 visit (Figure C-5). Moderate flow characterized the 2018 open water, followed by low flows over the 2018/2019 winter: R1 and R2 kept flowing until March 2019 before freezing to bed. The early snowmelt starting on March 17, 2019 triggered the moderate flows measured on April 24 and subsequent snowmelt resulted in high flows during the May 2019 field visits to R1 (2.980 m³/s), R2 (0.601 m³/s), R8 (0.032 m³/s) and R9 (0.151 m³/s) (Table C-3). Moderate flows in response to rainfall were also measured in August 2019, but only to reach 0.613 m³/s at the lake outlet (Figure C-1).

EDI developed a provisional rating curve and computed the continuous discharge at E1(H) for the open water seasons of 2018 and 2019 (Figure C-4), derived from the water level logger record and field measurements. The record is provisional due to the absence of flow measurements at peak water level and mediocre rating curve fitting. Discharge for 2017 was not derived due to (1) beaver activity at the lake outlet affecting the water level and (2) suspected survey benchmark movements. In 2018, the stage-discharge relationship may also have been disrupted by the presence of woody debris, partly from beaver activity, in the



low flow notch of the first drop structure. Beavers were observed at the lake outlet on multiple site visits in the 2017-2019 period. The drop structure low flow orifice had low to moderate wood debris accumulation in 2019.

Continuous records at E1(H) (Figure C-3) indicate that peak flows above $3 \text{ m}^3/\text{s}$ occurred in 2018 on May 11 in response to spring thaw, on May 25 in response to a 12.5 mm rainfall, and on August 22 in response to heavy rain (35.5 mm rainfall on August 21-22). In 2019, spring freshet high flows occurred earlier than usual, starting April 30 and peaking on May 9-10 with water level above the rating curve provisional upper limit of $8 \text{ m}^3/\text{s}$ discharge. The highest flow measurement of the 2017-2019 period was $3.955 \text{ m}^3/\text{s}$ on May 14, 2019. Flow remained above $3 \text{ m}^3/\text{s}$ until May 18; this high flow duration was longer than the previous year likely due to the abundance of snow in winter 2018/2019. Rainfall on May 31–June 1 (17.1 mm total) resulted in one high flow event on June 1, peaking slightly above $4 \text{ m}^3/\text{s}$. Flow remained moderate from June to August. Another high flow event occurred in response to rainfall on August 16 (19.1 mm) but the continuous water level and discharge at E1(H) was not available from August 1 to September 25, 2019 due to a logger malfunction. The logger resumed recording on September 25 and flows remained low in October 2019 ($0.129 \text{ m}^3/\text{s}$ monthly average (SD $\pm 0.073 \text{ m}^3/\text{s}$)).

3.2 WOLVERINE CREEK

Three hydrometric stations are located in the Wolverine Creek basin: R3 on Wolverine Creek upstream of the tailings slumps, R11(H) on a small tributary flowing from a small valley to the east and downstream of the tailings, and E3(H) on Wolverine Creek downstream of the two first stations. Wolverine Creek flows into Clinton Creek in the reach downstream of Clinton Creek station E2.

Data collected at Wolverine Creek site E3(H) were used to develop a provisional stage-discharge rating curve (Figure C-8). However, this rating curve and its derived continuous discharge time series remains provisional with low confidence at high stage due to the lack of discrete peak flow measurements to date. Water level (local datum) has ranged from 98.9 m (low flow at freeze-up on October 2018) to 99.45 m (peak flow on May 1, 2019) (Figure C-6). However, the highest rating measurements at site E3(H) occurred on May 15, 2018 (99.171 m stage for $0.450 \text{ m}^3/\text{s}$ discharge). The provisional rating curve extends to 99.33 m stage ($0.9 \text{ m}^3/\text{s}$ derived discharge) and discharge at higher water level is not computed at this time.

Wolverine Creek flow was moderate in September and October 2017 and the channel was frozen to bed at R3 and R11(H) by the November 8 visit. Flow was very low at E3(H) in December 2017 and the channel was frozen to bed by January 15, 2018. The creek remained frozen to bed until late April (Figure C-6) and spring freshet peak flows occurred between May 5 and May 10, 2018 (Figure C-7) with water level above the rating curve upper limit of $0.9 \text{ m}^3/\text{s}$ discharge (Figure C-8).

High flows (above $0.3 \text{ m}^3/\text{s}$) in response to rainfall occurred in 2018 on May 23-27, June 9-10, June 22-23, and from August 22 to September 1. Decreasing flows were measured during the 2018/2019 winter visits until the channel was frozen to bed. Wolverine Creek at R3 was frozen to bed in November 2018. Logger records at E3(H) indicate that the station was affected by ice backwater effects beginning on October 8, 2018 and the pressure sensor location became encased in ice in early December 2018 (Figure C-6); though the



sensor was encased in ice, flowing water was still present in the stream during the December and January field events. The channel at E3(H) was frozen to bed by February 19, 2019.

Early snowmelt starting on March 17, 2019 triggered high flows in April with a $0.474 \text{ m}^3/\text{s}$ discharge measured on April 24 at station E3(H). Flows remained high (above $0.3 \text{ m}^3/\text{s}$) from April 19 until May 15. Other 2019 high flow events in response to rainfall occurred on June 1-2, June 17-18 and August 17. Flows remained moderate in September and were steadily decreasing in October with the onset of winter (Figure C-7).

3.3 SNOWSHOE PIT LAKE AND OTHER TRIBUTARIES

The Snowshoe Lake site is composed of two pit lakes, both equipped with water level survey stations: Upper SL and Lower SL. EDI installed the Upper SL station in June 2018. Both pit lakes drain through the ground, however, at high water levels, Upper SL lake flows into Lower SL. The lower pit lake tends to fill with water from snowmelt runoff and become dry through the summer: Lower SL was dry in September 2017, in August 2018 and August 2019. Upper SL has not been observed completely dry and its water level fluctuates considerably, with a 3.569 m difference between high water level surveyed on May 14, 2019 and low water surveyed on August 13, 2019 (Table C-3).

Porcupine Creek station R7 is located upstream of the waste rock pile, flows through beaver ponds and then into Upper Snowshoe Lake. Measured flows in 2017-2019 were below $0.020 \text{ m}^3/\text{s}$ except for May 2019 high flows ($0.071 \text{ m}^3/\text{s}$) (Figure C-9). Field crews assessed that Porcupine Creek froze to bed for each winter period by November 2017 and November 2018.

Groundwater seepage station GWCC-5 is in the Clinton Creek floodplain. Flows measured in 2017-2019 were below $0.010 \text{ m}^3/\text{s}$ except for the freshet periods in May 2018 ($0.023 \text{ m}^3/\text{s}$), April 2019 ($0.013 \text{ m}^3/\text{s}$) and May 2019 ($0.020 \text{ m}^3/\text{s}$) (Figure C-9). Field crews assessed that GWCC-5 froze to bed in March and April 2018 but kept flowing over the 2018/19 winter period.

Eagle Creek station R4 is located lower in the Clinton Creek watershed and flows into Clinton Creek downstream of station E4. Highest measured discharge was $0.433 \text{ m}^3/\text{s}$ on May 13, 2019 (Figure C-10) and field crews assessed that Eagle Creek froze to bed for each winter period by November 2017 and November 2018.

3.4 CLINTON CREEK (DOWNSTREAM STATIONS)

Three hydrometric stations are located on Clinton Creek downstream of the waste rock piles: E2 is just upstream of the Wolverine Creek confluence, E4 is downstream of Wolverine Creek and upstream of Eagle Creek confluences, and E7 is at the mouth of Clinton Creek, where it flows into the Forty Mile River.

Station E2 provided suitable conditions for discharge measurements during each monthly visit over winter (Figure C-11 and Table C-3); Clinton Creek at E2 remained open with limited ice formation at the station location. Minimum flow results were $0.010 \text{ m}^3/\text{s}$ on April 10, 2018 and $0.028 \text{ m}^3/\text{s}$ on March 4, 2019. Channel



conditions in the lower reaches of Clinton Creek (stations E4 and E7) did not provide suitable conditions for discharge measurements during the winter period due to ice in the channel forming braided stream patterns.

Flow measurements at station E4 could not be conducted until May 2018 since a large beaver dam was present at the station location. Spring freshet flows likely breached the beaver dam. Field crews have not observed beaver activity since the breach. At downstream station E7, freshet flows were the highest measured throughout the site: 5.403 m³/s on May 14, 2018 and 6.026 m³/s on May 13, 2019 (Figure C-11 and Table C-3).



4 WATER QUALITY

Water quality samples and in-situ data were collected monthly over the two-year period, except where sample sites were dry or frozen to bed. All samples were submitted for analysis to ALS Laboratories under chain of custody documentation. Analysis results are available in Appendix D. The water sampling program included a QA/QC program, which is described in the methodology report (EDI Environmental Dynamics Inc. 2019).

Water quality trends for the period of September 2017 to August 2019 were reviewed for all sample sites (Appendix E). Potential contaminants of concern were determined for each of the following watersheds based on parameters present at concentrations that exceeded the CCME Aquatic Life (CCME-AL) guideline during more than two sampling events:

1. □ Reference sites;
2. □ Hudgeon Lake;
3. □ Clinton Creek;
4. □ Wolverine Creek;
5. □ Snowshoe Lake;
6. □ Groundwater seeps; and
7. □ Forty Mile River.

Though dissolved oxygen (DO) is not a considered a contaminant of concern, it is discussed in the subsequent sections because DO concentrations at many sites were routinely below, and therefore not compliant with, the CCME-AL guideline.

Aluminium and copper have CCME-AL guidelines that vary based on pH and hardness, respectively. To simplify data display, the variable guidelines are shown at the 95th percentile of the guideline values; we consider this a conservative measure. Additionally, the y-axis of some Hudgeon Lake figures was transformed to a logarithmic scale to capture high data variability over the two-year data period.

Sites sampled for asbestos are compared in Section 4.8.

4.1 REFERENCE SITES

The surface water quality monitoring program at the Clinton Creek Site includes four reference sites (R1, R2, R8 and R9) located around the edges of Hudgeon Lake, which then drains into Clinton Creek (Figure A-2).

R1 is located on Clinton Creek as it flows into Hudgeon Lake upstream of the mine site. R2 is located on Easter Creek, which flows into the north end of Hudgeon Lake. R8 is located on an unnamed creek near Easter Creek, and flows into the north end of Hudgeon Lake near R2. The small nature of this creek causes



it to become dry during some summer months and freeze to bed over winter. R9 is located on an unnamed creek that flows into the south end of Hudgeon Lake. Reference site R4 is located on Eagle Creek, which drains directly into Clinton Creek near E4 downstream of Hudgeon Lake (Figure A-3). Because these reference sites are all located upstream of historical mining activity at the Clinton Creek Site, elevated concentrations are naturally occurring.

Sites R1, R2, R4, R8, and R9 are all characterized by clear water. Sites R1, R2, R8, and R9 around the edges of the lake have similar water chemistry, with an average pH of 7.59. Water at site R4 on Eagle Creek is considerably more basic, with average pH at 7.92. Parameters that exceeded the CCME-AL guidelines at these sites during the two-year monitoring period include fluoride, dissolved oxygen, aluminium, copper, iron, and selenium.

Fluoride concentrations at reference sites R1, R8 and R9 remained below the CCME-AL guideline (Figure E-1). High levels at R2 routinely exceeded the guideline. At all sites, fluoride levels were typically lowest during freshet and increased during the open water season.

In general, dissolved oxygen levels at the reference sites were close to or met the CCME-AL guideline during the open water season (Figure E-2). Levels at R1 did not meet the guideline over winter. DO levels were highest during freshet and in later summer.

Both total and dissolved aluminum levels were typically highest during freshet, exceeding the CCME-AL guideline (Figure E-3, Figure E-4). Levels decreased over subsequent months before rising again during late summer. At R1 and R2, the only sites that did not freeze to bed, levels were lowest during the winter. Notably, R8 had high concentrations of total aluminum during the 2018 open water season.

Total and dissolved copper concentrations generally peaked during freshet and decreased over the subsequent summer months (Figure E-5, Figure E-6). R1 and R2, the only sites with flowing water year-round, had much lower levels during winter. Copper levels at all the sites typically exceeded the CCME-AL guideline during freshet. R8 had high total copper levels during the 2018 open water season, and R9 had intermittently high levels of dissolved copper throughout the 2018 and 2019 open water seasons.

Iron followed similar patterns as aluminum and iron at the reference sites. At most sites, total and dissolved iron concentrations were highest during freshet, exceeding the CCME-AL guideline; levels then declined before rising again towards the end of the summer (Figure E-7, Figure E-8). At site R1, levels were often higher over winter than during summer. In general, sites R1 and R9 had higher levels of dissolved iron than the other sites. Total iron concentrations at R8 were elevated over the 2018 open water period.

Finally, sites R2, R4, and R9 saw total selenium concentrations increase throughout the open water period (Figure E-9, Figure E-10). Total selenium concentrations at R1 and R8 also increased during early summer, but then decreased again towards the end of the open water period. Total and dissolved concentrations at sites R1, R4 and R8 consistently exceeded the CCME-AL guideline during the open water season. Samples collected over winter from R1 and R2 had lower selenium concentrations than those collected during the summer months.



One additional reference site, R7, is located on Porcupine Creek at the south end of the Site (Figure A-2). Porcupine Creek flows into a pond, which eventually drains (through both surface and groundwater) into the Snowshoe Pit lakes. Due to site access safety concerns, R7 was not routinely sampled until May 2018. R7 is a relatively small creek and freezes to bed over winter. The creek is characterized by clear to lightly turbid water with an average pH of 7.19.

Three parameters routinely exceeded the CCME-AL guideline at R7: aluminium, copper and iron. Total and dissolved aluminum concentrations at R7 exceeded or came close to exceeding the CCME-AL guideline throughout the summer months (Figure E-11, Figure E-12). The highest levels typically occurred during freshet, with concentrations dropping off in subsequent months. August 2019 also had a high peak of total aluminium, which may be a result of a moderate 3-hour rain event (4.7 mm) the morning of August 13, 2019 prior to sampling.

Total and dissolved copper exceeded the CCME-AL guideline almost every time R7 was sampled (Figure E-13, Figure E-14). In general, the highest levels occurred during freshet and late summer.

Total iron concentrations exceeded the CCME-AL guideline in every sample collected, with levels often four or more times higher than the guideline (Figure E-15, Figure E-16). The highest levels occurred during freshet, fall and early winter. Dissolved iron levels also consistently exceeded the guideline, but levels were lower overall. Peaks of dissolved iron occurred in late summer and early winter.

4.2 HUDGEON LAKE

Hudgeon Lake was created when part of a waste rock pile slid into Clinton Creek, creating a blockage and a resulting lake. At its eastern extent, this lake drains into Clinton Creek. Hudgeon Lake is sampled at one location (HL3) between sites R9 and E1(H) (Figure A-2). HL3 is sampled at three depths that correspond to the epilimnion (top), the metalimnion (middle) and the hypolimnion (bottom). The top of the water column is characterized by clear water and slight alkalinity, with an average pH of 7.57. Water in the middle is mostly clear with a yellow hue and is closer to neutral (average pH 7.13). Near the lakebed, the water becomes more turbid, with visible suspended solids. Here, the water is neutral, with an average pH of 7.01. The lake is sampled every month of the year, except when ice conditions render the site unsafe.

Contaminants regularly present in the Hudgeon Lake water column include fluoride, aluminum, arsenic, iron, and selenium. In addition, dissolved oxygen concentrations were very low at all depths, rising above the CCME-AL minimum only twice near the surface (Figure E-17). Conditions below 5 m depth were anoxic during the entire two-year sampling period.

Fluoride concentrations increased with depth, hovering around the CCME-AL guideline at the top of the water column but exceeding it through the middle and bottom. Concentrations did not show strong seasonal trends (Figure E-18).

Aluminum concentrations were lowest at the surface and increased with depth (Figure E-19, Figure E-20). Total aluminum concentrations exceeded the CCME-AL guideline at all depths during freshet, and levels at



the lake bottom occasionally also exceeded the guideline at other times of the year. Dissolved aluminum did not exceed the guideline at any depth during the two-year data collection period.

Total and dissolved arsenic generally increased in concentrations closer to the lake bottom, where concentrations exceeded the CCME-AL guideline in all but one sample (July 2018) (Figure E-21, Figure E-22). Levels at the top and middle of the water column did not exceed the guideline. Concentrations did not show strong seasonal trends.

Total and dissolved iron concentrations generally increased with depth; levels in the middle and at the bottom of the lake exceeded the CCME-AL guideline while the top of the water column generally stayed below the guideline (Figure E-23, Figure E-24). Concentrations did not show strong seasonal trends. Over the two-year data period, the peak concentrations of total and dissolved iron occurred in October 2017, and concentrations have since decreased near the bottom of the lake.

Total selenium levels generally reached an annual peak in early winter, then decreased during the winter months before starting to increase again in spring (Figure E-25, Figure E-26). Total selenium concentrations were commonly lowest at the bottom of the water column, with levels in the middle and at the top often exceeding the CCME-AL guideline. Dissolved selenium concentrations showed less of a seasonal trend, but were also highest over the winter period, with levels at the middle and top of the water column exceeding the guideline more often than levels at the bottom.

4.2.1 HUDGEON LAKE IN-SITU DEPTH PROFILES

In-situ parameters were collected monthly through the water column at sites HL1, HL2, and HL3 (Figure A-2). In June 2018, sites HL1 and HL2 were removed from the scope of work. Water temperature, dissolved oxygen, specific conductance (SPC), pH, and oxidation-reduction potential (ORP) were recorded at each 1 m interval from lake surface to lakebed.

Because Hudgeon Lake is stratified, all three sites had similar results: temperature, DO, and pH generally decreased with depth, while SpC increased with depth. ORP trends varied depending on the site and time of year. All data are available in the appended profile summary table and graphs (Appendix F).

4.3 CLINTON CREEK

There are five exposed sites on Clinton Creek, strategically located to identify potential impacts on water quality from tributaries (Figure A-2, Figure A-3). E1(H) is located at the outlet of Hudgeon Lake; E1 is located downstream of the waste rock piles; E2 is located above the confluence with Wolverine Creek; E4 is located upstream of the confluence with Eagle Creek; and E7 is located just above the confluence with the Forty Mile River. The water in Clinton Creek is slightly alkaline, with an average pH of 7.58. Water clarity ranges from clear to lightly turbid, with suspended solid loads increasing during freshet. Parameters that routinely exceeded the CCME-AL guidelines in this drainage include fluoride, dissolved oxygen, aluminium, copper, iron, and selenium.



Levels of fluoride were lowest during freshet, after which concentrations gradually rose over the summer and then stayed steady through the winter, with some exceedances of the CCME-AL guideline during summer, fall, and winter (Figure E-27).

Dissolved oxygen levels were high during freshet, with levels decreasing during the open water season (dropping below the CCME-AL guideline at some sites) before increasing again with cooler water temperatures during the fall. Starting in late winter, levels increased again (Figure E-28). E1(H) at the outlet of the lake generally had the lowest concentrations of DO, while E4 and E7 (the furthest downstream) had the highest concentration of DO.

Total and dissolved aluminum concentrations generally stayed below the CCME-AL guideline, although the guideline was exceeded during freshet (Figure E-29, Figure E-30). During these peaks, concentrations generally increased in the upstream to downstream manner, with E1(H) typically having the lowest concentrations and sites E4 and E7 having the highest. Total aluminum trends during non-spike periods are not as clear, but dissolved aluminum showed a distinct upstream to downstream pattern, with site E1(H) consistently having the highest dissolved aluminum concentrations, and sites E4 and E7 having the lowest concentrations.

Total copper concentrations exceeded the CCME-AL guideline during freshet, before decreasing and remaining below the guideline for the rest of the open water period (Figure E-31, Figure E-32). Dissolved copper concentrations were also highest during spring but did not necessarily exceed the guideline. During the open water period, both total and dissolved copper showed a distinct upstream to downstream trend where sites E1 and E1(H) routinely had higher levels than sites farther downstream. Copper levels over winter were generally lower than during the summer months.

Both total and dissolved iron concentrations tended to peak during freshet, and then decreased over the subsequent open water months and winter (Figure E-33, Figure E-34). E2 is the exception; total iron concentrations trended higher in the winter than in the summer and dissolved iron levels were high year-round. Sites E2 and E4 regularly exceeded the CCME-AL guideline. E2, E4 and E7 often had higher total iron and dissolved concentrations than sites E1 and E1(H) upstream.

Selenium (both total and dissolved) levels were generally higher during the winter months than during the open season, with concentrations peaking mid-winter then dropping off to lows during late summer (Figure E-35, Figure E-36). Selenium levels at sites E1, E2, and E1(H) consistently exceeded the guideline; sites E4 and E7 had the lowest selenium levels, suggesting higher concentrations at the sites closer to the old mine infrastructure.

4.4 WOLVERINE CREEK

Wolverine Creek is a tributary to Clinton Creek (Figure A-2). The Wolverine Creek drainage encompasses two reference and one exposed water quality sampling sites. R3 is upstream of the waste rock pile on Wolverine Creek while R11 is located on a small unnamed stream that drains into Wolverine Creek downstream of the waste rock pile. E3 is the only exposed site in the drainage and is located on Wolverine



Creek just upstream of the confluence with Clinton Creek. Water clarity ranges from clear to lightly turbid, although total suspended solids become much more elevated during times of increased runoff. The watershed is moderately alkaline, with an average pH of 7.96. Due to their small, mountain-fed nature, these three sites typically freeze to bed over winter, although site E3 maintained flows over winter 2018/2019. Over the two-year sampling period, five parameters routinely exceeded the CCME-AL guidelines in the Wolverine Creek drainage: fluoride, aluminum, copper, iron, and selenium.

Fluoride concentrations at all three sites either came close to or did exceed the CCME-AL guideline during the open water season, with concentrations highest between June and September (Figure E-37). Fluoride levels were consistently higher at R3 than at R11 and E3.

Total and dissolved aluminum levels exceeded the CCME-AL guideline at all sites during freshet, before decreasing over the subsequent summer months (Figure E-38, Figure E-39). In the case of total aluminum, a second peak occurred during late summer. Levels at E3 were low during the winter months.

Total and dissolved copper generally exceeded the CCME-AL guideline during freshet (Figure E-40, Figure E-41); no other strong seasonal trends were observed. Copper concentrations were lower at E3 than at R3 and R11. Dissolved copper levels were highest at R11.

Total iron concentrations were highest during freshet and late summer; levels at the Wolverine sites exceeded the CCME-AL guideline almost every month during the open water season (Figure E-42). Dissolved iron levels were highest during freshet (exceeding the guideline), decreasing over the summer months before rising again in late summer (Figure E-43).

Total selenium was highest during the open water season, with CCME-AL guideline exceedances occurring mostly at R11 and E3 (Figure E-44). E3 also had a peak in January 2019. Dissolved selenium showed increasing concentrations from freshet to the end of the summer, with levels at E3 and R11 exceeding the guideline in late summer (Figure E-45).

4.5 SNOWSHOE LAKE

Snowshoe Pit is one of the two open pits at the Site (Figure A-2). The two depressions within Snowshoe Pit create two lakes, which are joined at high water. Water levels fluctuate wildly in the upper and lower pit lakes; lake water level is often high following freshet or periods of heavy rain, but the lakes also tend to dry up during mid to late summer and either stay dry or freeze to bottom over winter. The water in Snowshoe Lake (SL) is generally very clear as all the suspended solids settle out to the bottom of the pit, which is composed of fine silt. The water is moderately alkaline, with an average pH of 7.96.

Sampling at Upper SL was conducted during the open water season in 2018 and 2019; sampling was not conducted year-round as the water level dropped drastically before becoming frozen to bottom over winter. Over the sampling period, four parameters routinely exceeded the CCME-AL guideline: fluoride, arsenic, hexavalent chromium, and selenium.



Fluoride exceeded the CCME-AL guideline during each sampling event (Figure E-46). The highest concentrations occurred during freshet in May, when concentrations doubled the CCME-AL guideline. No strong seasonal trends over the two summers of data collection were observed, with levels first dropping and then increasing over summer 2018, and levels steadily decreasing after May in 2019.

All samples collected from SL contained total and dissolved arsenic at levels exceeding the CCME-AL guideline; total arsenic concentrations more than doubled the guideline during all sampling events, and dissolved arsenic doubled the guideline for all but two samples (Figure E-47, Figure E-48).

Total hexavalent chromium was in exceedance of the CCME-AL guideline in May, July and October 2018 (Figure E-49, Figure E-50). Concentrations started below the guideline in May 2019, then steadily rose to a peak in August 2019. Dissolved hexavalent chromium exceeded the CCME-AL guideline in May and July 2018; concentrations were otherwise below the detection limit. Concentrations remained below the guideline throughout 2019 except in July. No strong seasonal trends were identified.

Total and dissolved selenium were present in concentrations at least five times higher than the CCME-AL guideline in all samples collected from SL (Figure E-51, Figure E-52). The highest annual concentrations occurred during freshet, with concentrations decreasing during subsequent months.

4.6 GROUNDWATER SEEPS

Of the five groundwater seeps at Clinton Creek, four of them – GWCC-1 through GWCC-4 – are located at the base of a waste rock pile, downstream of Snowshoe Pit (Figure A-2). GWCC-1 and 2 generally flow year-round, while GWCC-3 and -4 freeze over winter and often dry up at other times of the year. GWCC-5, situated closer to the mine road, is fed by groundwater which creates a small pond with an outflow that drains into Clinton Creek approximately 300 m downstream. GWCC-5 generally flows year-round. The seep sites are characterized by very clear water and slight alkalinity, with an average pH of 7.45. Conductivity is highest at seeps GWCC-1 and 2, and lowest at GWCC-5. Dissolved oxygen, fluoride, hexavalent chromium, and selenium were the commonly exceeded parameters at the groundwater seep sites.

Dissolved oxygen is highest at the seep sites during freshet when contributions from surface runoff are highest, then decreases over the summer months before rising back up over winter (Figure E-53). Sites GWCC-1 and GWCC-2 typically have higher DO than sites GWCC-3, GWCC-4, and GWCC-5. Over the two-year period, DO levels at the seeps were often below the CCME-AL guideline; site GWCC-2 was the only seep where concentrations met the guideline after freshet.

Fluoride concentrations at site GWCC-5 are relatively consistent, with levels rising slightly higher than the CCME-AL guideline during the open water season. Over the summer months, GWCC-1 and GWCC-2 generally have the highest and GWCC-5 generally has the lowest levels of fluoride (Figure E-54). During the winter, high dissolved solids and high electrical conductivity in samples collected at GWCC-1 and GWCC-2 consistently forced the lab to raise the detection limit higher than the CCME-AL guideline, so direct comparisons cannot be made. Fluoride levels at GWCC-3 and GWCC-4 generally remained under the guideline, apart from higher concentrations during freshet.



Hexavalent chromium, which is analyzed when chromium is above 0.01 mg/L, routinely exceeded the CCME-AL guideline at sites GWCC-1 and GWCC-2 (Figure E-55, Figure E-56). Levels were higher in the winter than in the summer. Samples from all five seep sites were analyzed for hexavalent chromium during spring flows in May and June, with all five sites exceeding the guideline in 2018.

Both total and dissolved selenium results were highest during freshet, decreasing to annual lows in July and August before increasing again over winter (Figure E-57, Figure E-58). GWCC-3 and GWCC-4 had lower concentrations compared to GWCC-1, GWCC-2 and GWCC-5.

4.7 FORTY MILE RIVER

The Forty Mile River is sampled at two locations, one above (R6) and one below (E8) the confluence of Clinton Creek (Figure A-3). The two Forty Mile River sites flow year-round, although water levels in the river drop considerably over the winter months. The water is slightly alkaline with an average pH of 7.33 and is generally clear, with turbidity becoming elevated during times of increased runoff.

Between September 2017 and August 2019, four parameters routinely exceeded the CCME-AL guidelines at the Forty Mile River sites: fluoride, aluminum, copper, and iron.

Fluoride was highest during late summer and fall, with concentrations exceeding the CCME-AL guideline in October and November 2018 and 2019 before decreasing over winter; exceedances did not correlate with freshet (Figure E-59). Concentrations also exceeded the guideline in July 2019. Fluoride concentrations at R6 were commonly equal to or higher than at E8.

Total and dissolved aluminum generally exceeded the CCME-AL guideline during freshet, before dropping steadily over the summer and winter (Figure E-60, Figure E-61). Aluminum remained below the guideline throughout winter. Total aluminum concentrations at E8 were typically equal to or higher than at R6, while dissolved aluminum concentrations were similar at both sites.

Total and dissolved copper exceeded the CCME-AL guideline during freshet, with some additional exceedances over the summer months (Figure E-62, Figure E-63). Concentrations generally slowly declined during the open water season and throughout the winter, except for November 2017, when a spike in copper concentrations occurred at E8.

Finally, total and dissolved iron concentrations were high above the CCME-AL guideline during spring and early summer before decreasing to levels at or slightly below the guideline for the remainder of the open water period (Figure E-64, Figure E-65). Concentrations became very low over winter, rising again starting in April. When iron concentrations peaked during freshet, levels were generally higher at E8 than at R6.

4.8 ASBESTOS

Relics of historical mining activity at the Clinton Creek Site include fibrous asbestos. It is present in large quantities in the pit lakes as well as on the waste rock piles in the Wolverine Creek valley. The monitoring program involves analyzing asbestos concentrations at four sites: R1, R3, E2, and E3. Sites R1(at the west end



of Hudgeon Lake) and R3 (at the north end of the Wolverine Creek valley) are intended as control sites for the exposed E2 (Clinton Creek) and E3 (Wolverine Creek) sites near the waste rock piles. Although there is no CCME-AL guideline for asbestos, it is considered a contaminant of concern at this site.

Over the two-year sampling period, asbestos was occasionally detected in small concentrations at reference site R1 and was never detected at reference site R3. Note that sites R1, R3, and E3 were frozen to bed during some winter months.

Asbestos concentrations at sites E2 and E3 were generally lowest during the winter months, with large spikes occurring in May and September 2018 as well as April, May and August 2019 (Figure E-66). During these spikes, concentrations at E3 were typically higher than at E2. Higher asbestos concentrations during spring and early summer correspond with higher flows and increased turbidity resulting from spring snowmelt and runoff. Elevated concentrations on September 10, 2018 are likely the result of the August 21-September 2 rainy period and the tail end of the corresponding high flows in Clinton Creek and Wolverine Creek, with moderate flows at the time of sampling. Slightly elevated concentrations in August 13-14, 2019 samples correspond with rain events on August 10 and 13, which likely would have increased the amount of material entering the streams from the tailings and waste rock piles.



5 SUMMARY

Some key meteorological observations from the period of July 2017 to October 2019 include:

- □ Temperatures and snowpack at Clinton Creek during winter of 2017/2018 met climate normals for the region. Over winter 2018/2019, air temperatures were warmer, and snowpack was deeper than normal at Clinton Creek. The abnormally warm temperatures in March and April 2019 resulted in earlier snowmelt and freshet.
- □ Precipitation in summer 2018 was higher than the climate normals, while precipitation levels in summer 2019 were closer to the climate normals.

Key hydrology observations of note for the period of September 2017 to October 2019 include:

- □ Rating curves developed for stations E1(H) and E3(H) are provisional as flow measurements were not collected during peak flows. However, estimated peak flows at site E1(H) would be unsafe to measure by wading; accurate gauging would require a RiverSurveyor M9 or similar equipment.
- □ The rating curve for E1(H) at the outlet of Hudgeon Lake was difficult to develop due to a combination of factors increasing uncertainty of the stage-discharge relationship, mainly: survey benchmark movements, beaver activity altering lake levels, and hydraulic conditions in the outlet channel.
- □ Over winter, many of the smaller tributaries at the Clinton Creek Site freeze to bed. Stations on Clinton Creek tend to have flowing water over winter, although discharge measurements cannot always be collected due to ice and channel conditions. More tributaries had flowing water for longer over the winter 2018/2019 period than the winter 2017/2018 period, likely due to warmer temperatures.
- □ Beaver activity at station E4 prevented the collection of discharge measurements from September 2017 to April 2018. Beaver activity at site E4 is no longer an issue since freshet flows blew out the beaver dam in May 2018.
- □ Water levels in the Snowshoe Pit Lakes fluctuate substantially, with a measured range of over 3.5 m at the upper lake in summer 2019.

Noteworthy water quality trends for the period of September 2017 to October 2019 include:

- □ Many of the reference sites had elevated concentrations of aluminium, copper, iron and selenium. Concentrations repeatedly exceeded the CCME-AL guidelines. Given these conditions, it is not surprising that many of the other drainages at the Site, including Clinton Creek, Wolverine Creek, Hudgeon Lake, and the Forty Mile River, also had these parameters detected, although often at higher concentrations.
- □ Arsenic exceeded the CCME-AL guidelines in Snowshoe Pit Lake and Hudgeon Lake. Hexavalent chromium was elevated in Snowshoe Pit Lake and the groundwater seeps downstream. Finally, fluoride was also found at levels exceeding the CCME-AL guideline in all drainages.



- ☐ Most drainages saw a peak in heavy metals during freshet, when meltwater and runoff contribute additional sediment into the streams.
- ☐ Asbestos concentrations were also typically highest during freshet and after heavy rainfall events.



6 REFERENCES

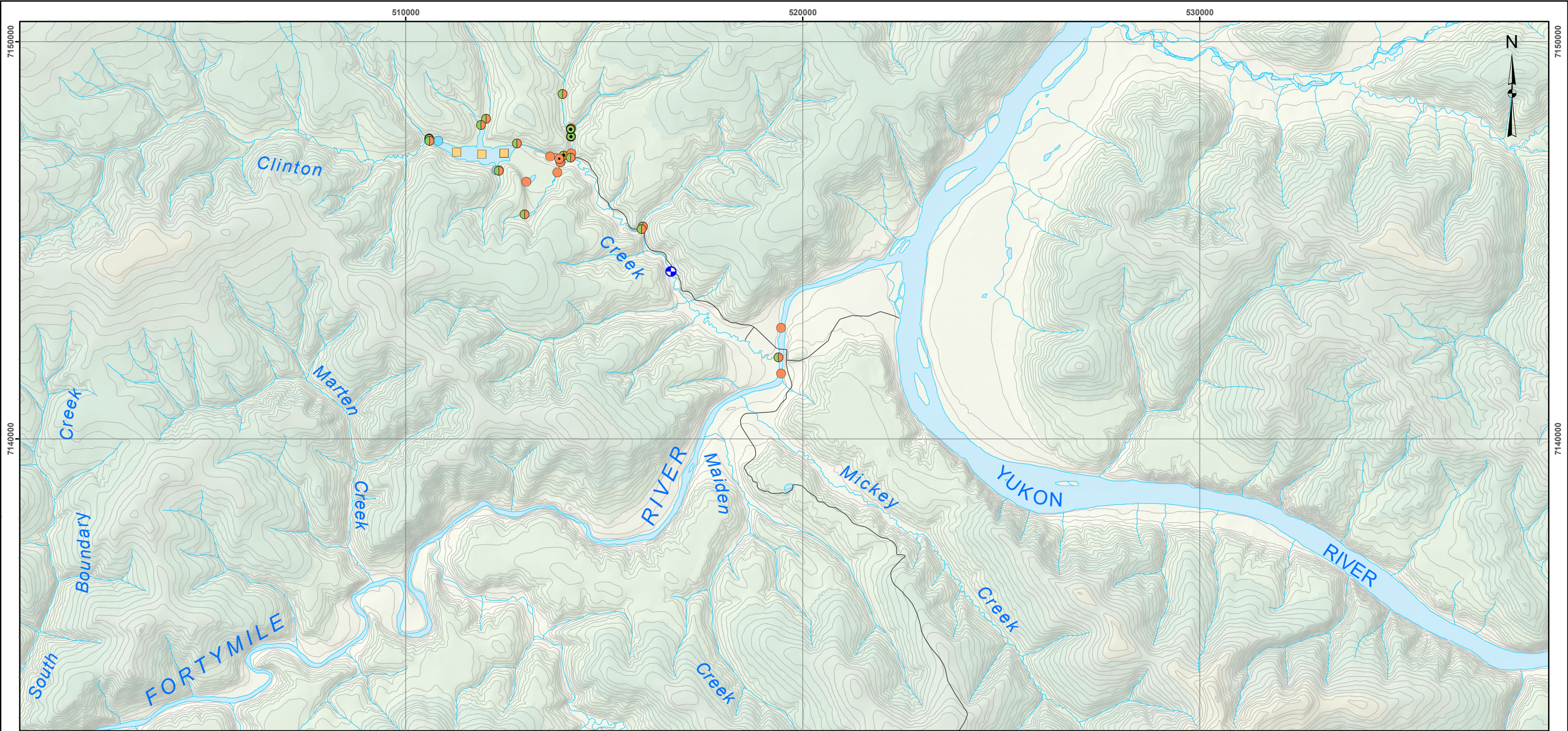
- EDI Environmental Dynamics Inc. 2019. Clinton Creek Surface Water Quality and Hydrological Investigations 2019/20: Methodology. Prepared for Assessment & Abandoned Mines, Government of Yukon, Whitehorse, Yukon. 68 pp.
- Province of British Columbia Ministry of Environment. 1981. Snow Survey Sampling Guide. Water Management Branch, Surface Water Section, Victoria, B.C. 31 pp.



This page is intentionally blank.



Appendix A. Maps of Hydrometric Stations and Water Quality Stations



Clinton Creek Sampling Program Overview

Legend

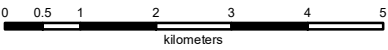
Sampling Stations

- Water Quality - Groundwater Seepage
- Water Quality - Surface Water
- Hydrology
- Water Quality/Hydrology
- Water Quality/Hydrology - Groundwater Seepage
- In-situ/Depth Profile
- Snow Survey Locations
- Environment Yukon - Water Resources Hydrometric Station

Data sources
1:50,000 Topographic Spatial Data courtesy of Her Majesty the Queen in Right of Canada, Department of Natural Resources. All Rights Reserved.

Digital Elevation Model provided by Geomatics Yukon - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

This document is not an official land survey and the spatial data presented is subject to change.



Map Scale: 1:100,000 (printed on 11 x 17)
Map Projection: NAD 1983 UTM Zone 7N

Drawn:
MP

Checked:
LD

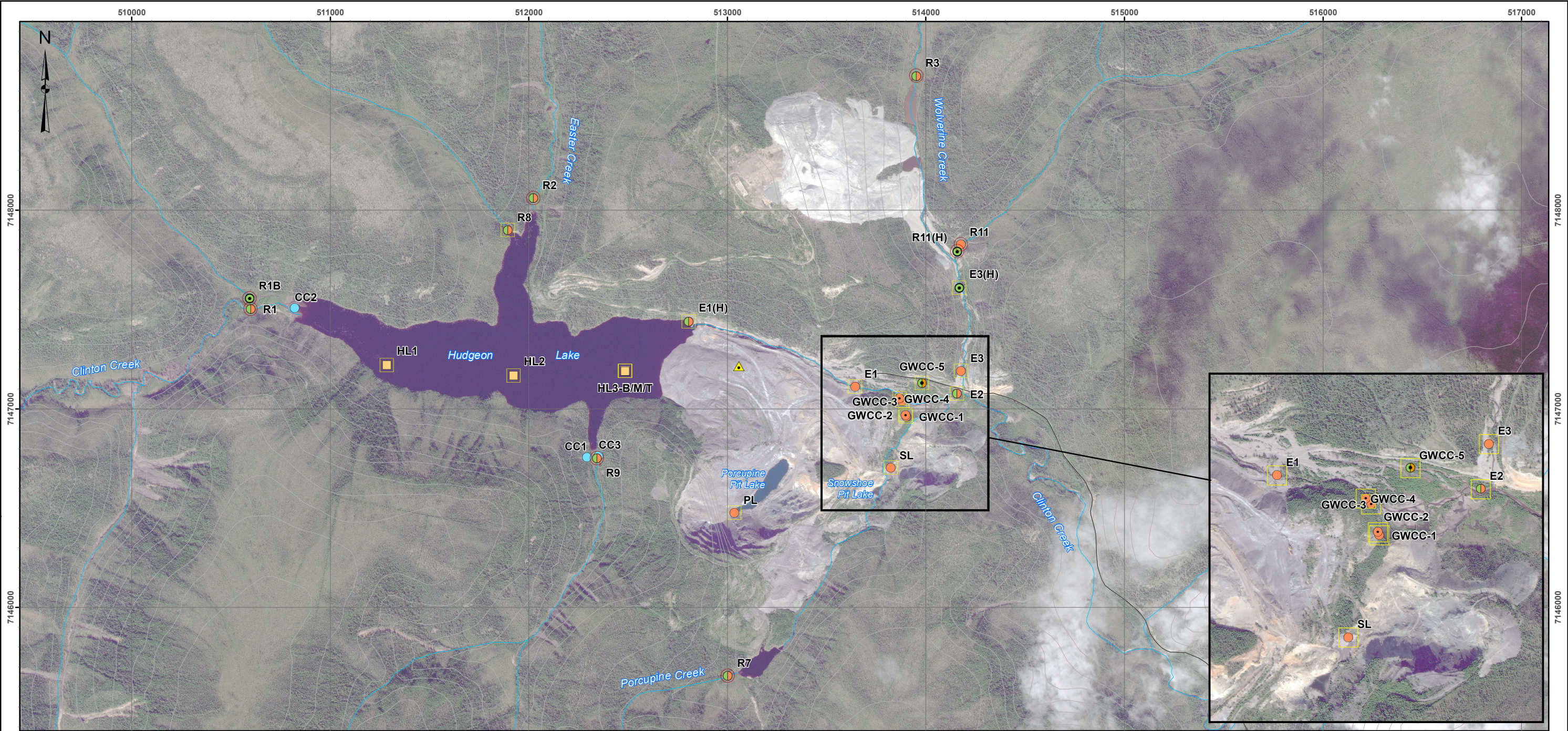
Date: 11/1/2018

FIGURE 1



Yukon

EDI



Clinton Creek Sampling Program North Area

Legend

- Environment Yukon - Water Resources Hydrometric Station
- Approximate Meteorological Station Location
- Site Type**
- Exposed
- Reference

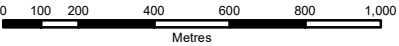
Sampling Stations

- Water Quality - Groundwater Seepage
- Water Quality - Surface Water
- Hydrology
- Water Quality/Hydrology
- Water Quality/Hydrology - Groundwater Seepage
- In-situ/Depth Profile
- Snow Survey Locations

Data sources
1:50,000 Topographic Spatial Data courtesy of Her Majesty the Queen in Right of Canada, Department of Natural Resources. All Rights Reserved.

Digital Elevation Model provided by Geomatics Yukon - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

This document is not an official land survey and the spatial data presented is subject to change.



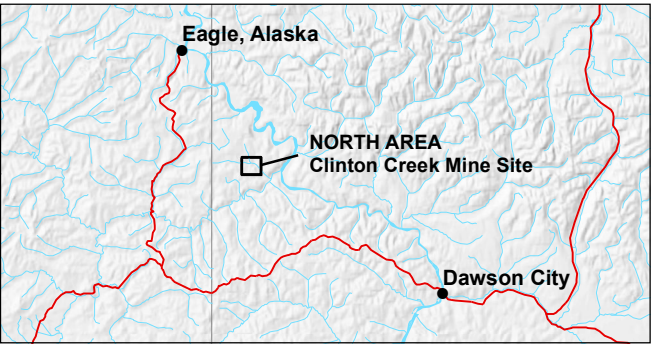
Map Scale: 1:20,000 (printed on 11 x 17)
Map Projection: NAD 1983 UTM Zone 7N

Drawn:
MP

Checked:
AA/LD

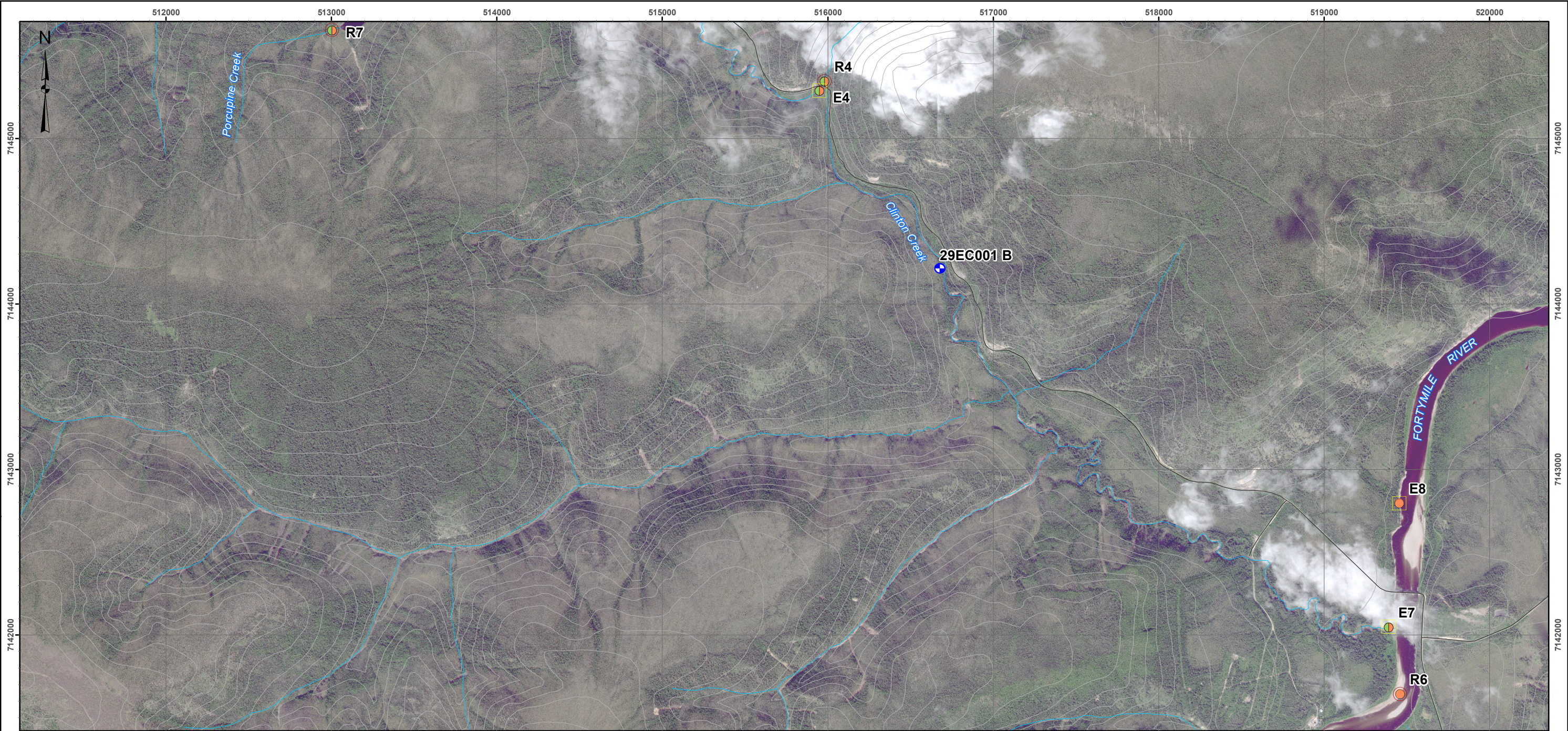
Date: 11/1/2018

FIGURE 2



Yukon

EDI



Clinton Creek Sampling Program South Area

Legend

- Environment Yukon - Water Resources Hydrometric Station
- Approximate Meteorological Station Location
- Site Type**
- Exposed
- Reference

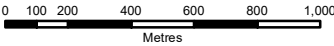
Sampling Stations

- Water Quality - Groundwater Seepage
- Water Quality - Surface Water
- Hydrology
- Water Quality/Hydrology
- Water Quality/Hydrology - Groundwater Seepage
- In-situ/Depth Profile
- Snow Survey Locations

Data sources
1:50,000 Topographic Spatial Data courtesy of Her Majesty the Queen in Right of Canada, Department of Natural Resources. All Rights Reserved.

Digital Elevation Model provided by Geomatics Yukon - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

This document is not an official land survey and the spatial data presented is subject to change.



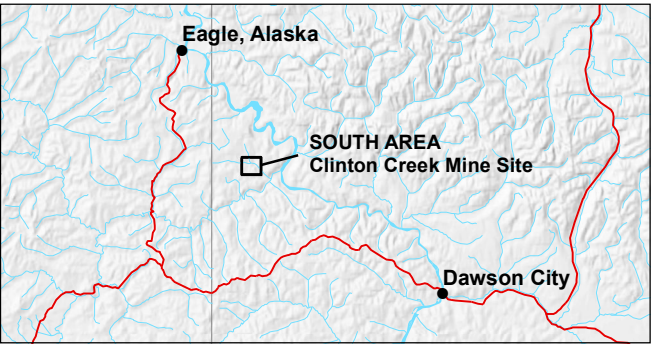
Map Scale: 1:24,000 (printed on 11 x 17)
Map Projection: NAD 1983 UTM Zone 7N

Drawn:
MP

Checked:
AA/LD

Date: 11/1/2018

FIGURE 3



Yukon

EDI



Appendix B. Meteorology Plots – 2017-2019

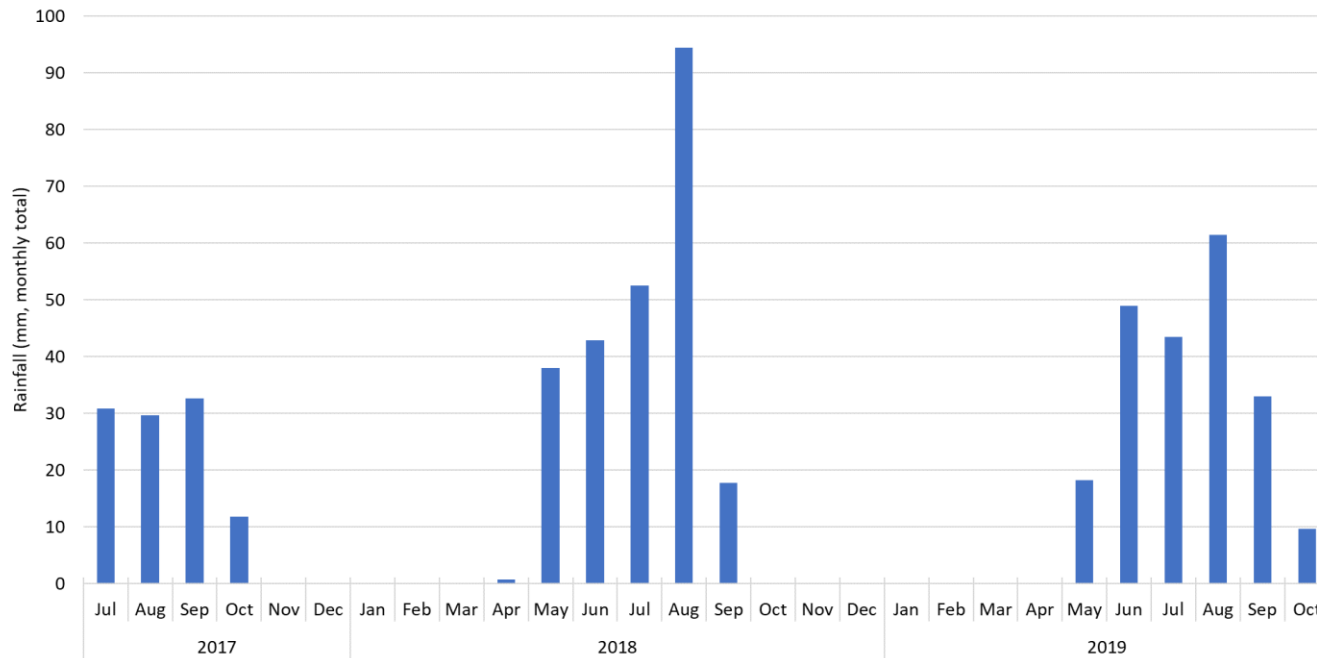


Figure B-1. Monthly rainfall at Clinton Creek Met Station (July 1, 2017 to October 31, 2019).

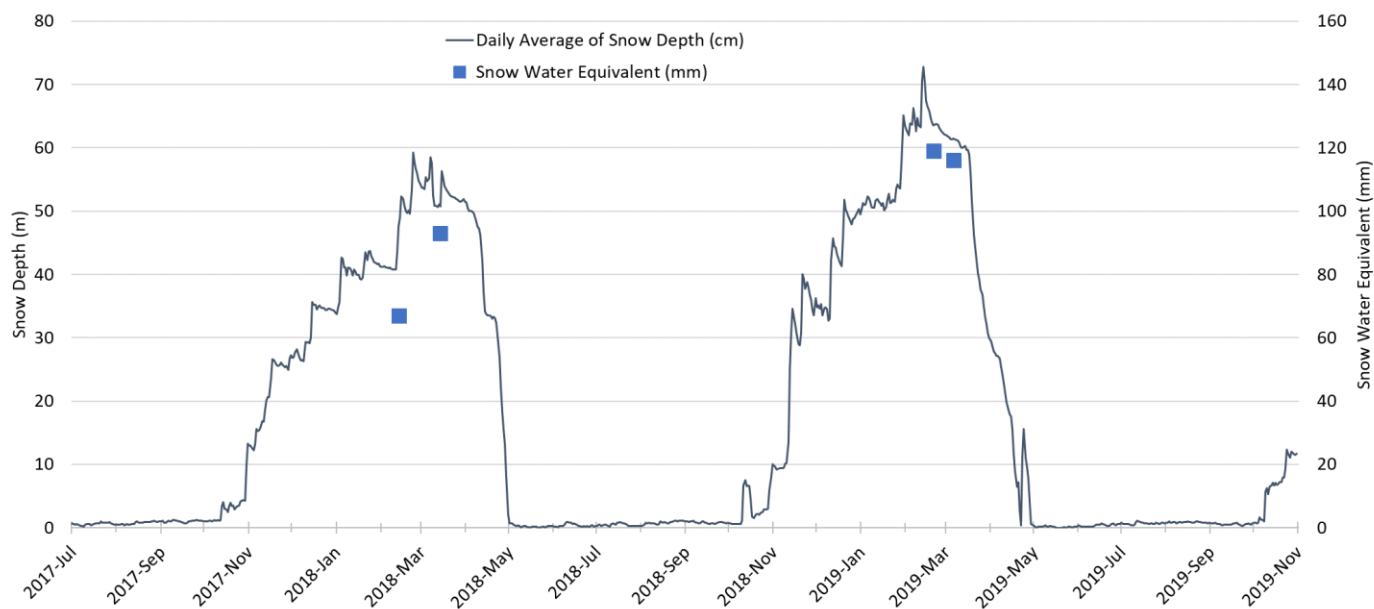


Figure B-2. Snow depth (daily average of hourly sample) at Clinton Creek Met Station and average snow water equivalent measured on snow survey courses CC-1, CC-2 and CC-3 (July 1, 2017 to October 31, 2019).

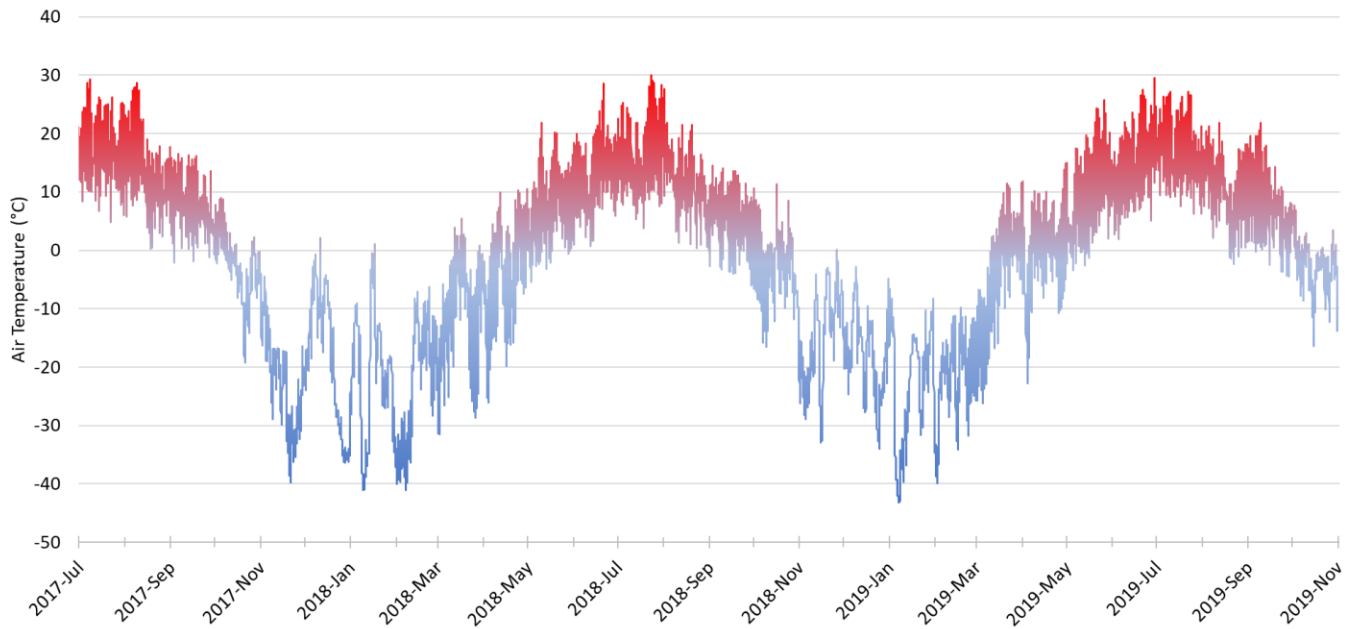


Figure B-3. Air temperature (hourly average) at Clinton Creek Met Station (July 1, 2017 to October 31, 2019).

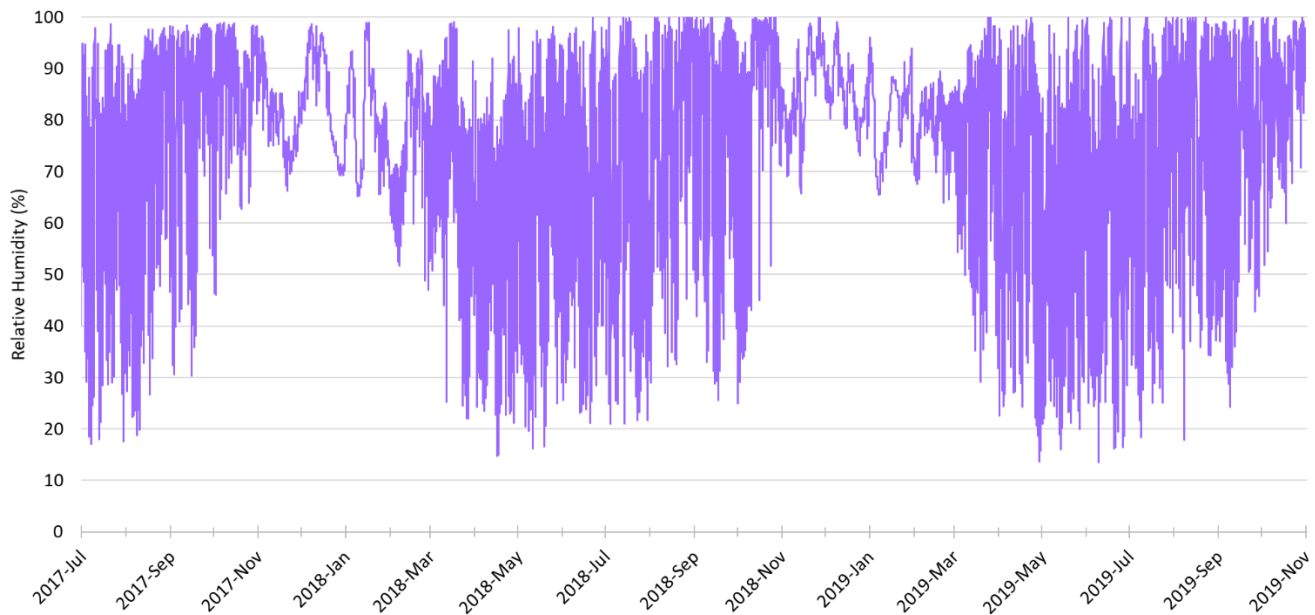


Figure B-4. Relative humidity (hourly average) at Clinton Creek Met Station (July 1, 2017 to October 31, 2019).

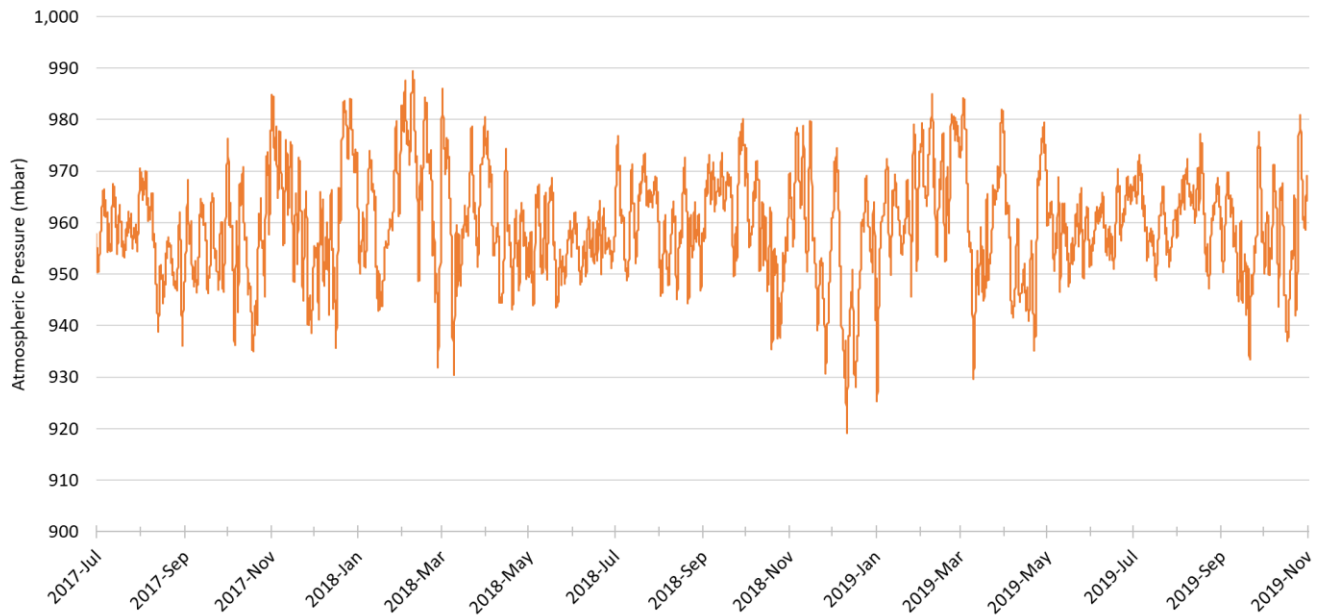


Figure B-5. Atmospheric pressure (hourly sample) at Clinton Creek Met Station (July 1, 2017 to October 31, 2019).

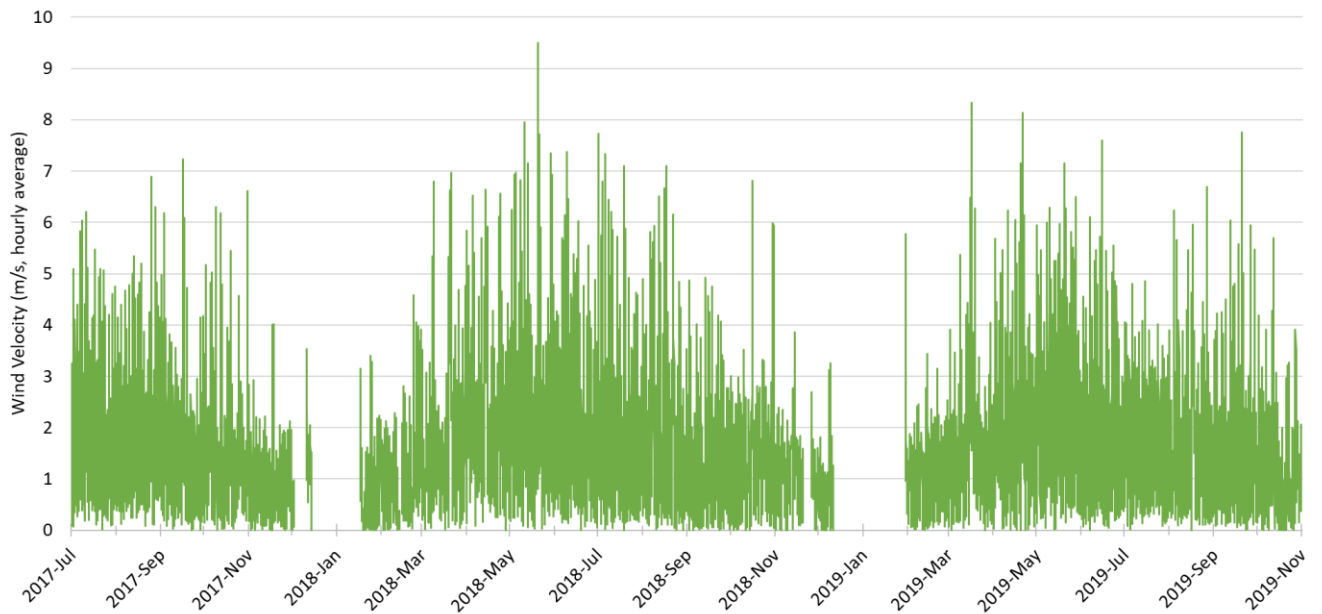


Figure B-6. Wind velocity (hourly average) at Clinton Creek Met Station (July 1, 2017 to October 31, 2019).

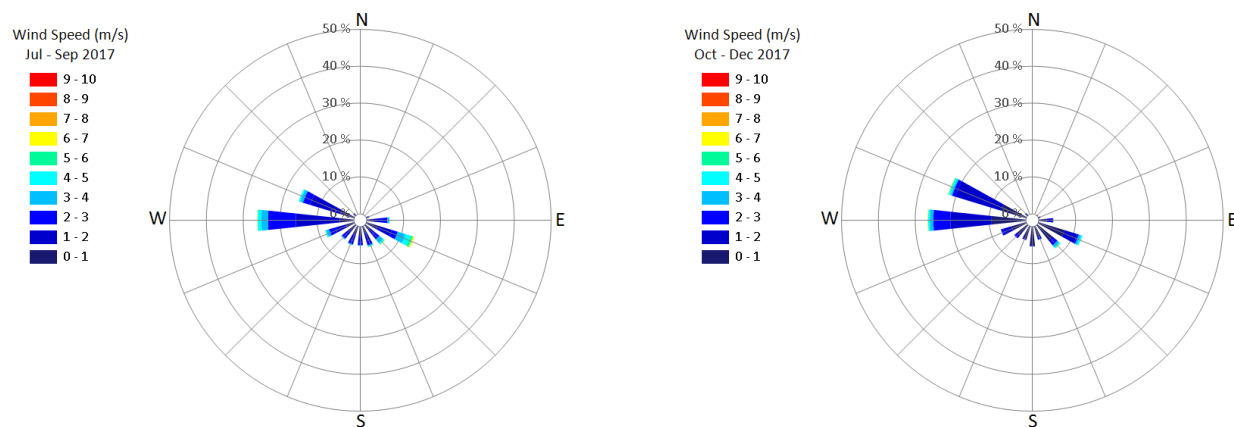


Figure B-7. Seasonal wind roses (hourly average for wind velocity and direction) at Clinton Creek Met Station (July 1, 2017 to December 31, 2017).

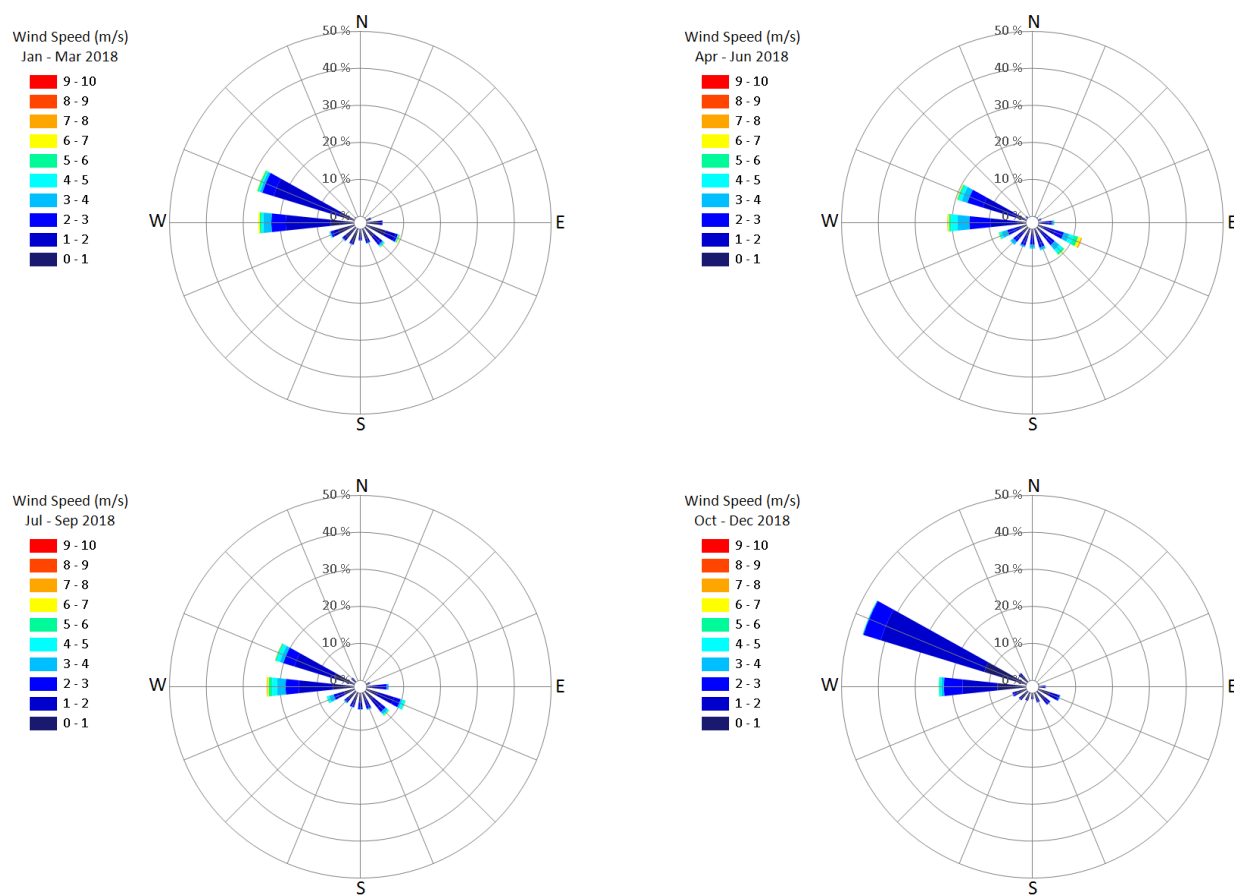


Figure B-8. Seasonal wind roses (hourly average for wind velocity and direction) at Clinton Creek Met Station (January 1, 2018 to December 31, 2018).

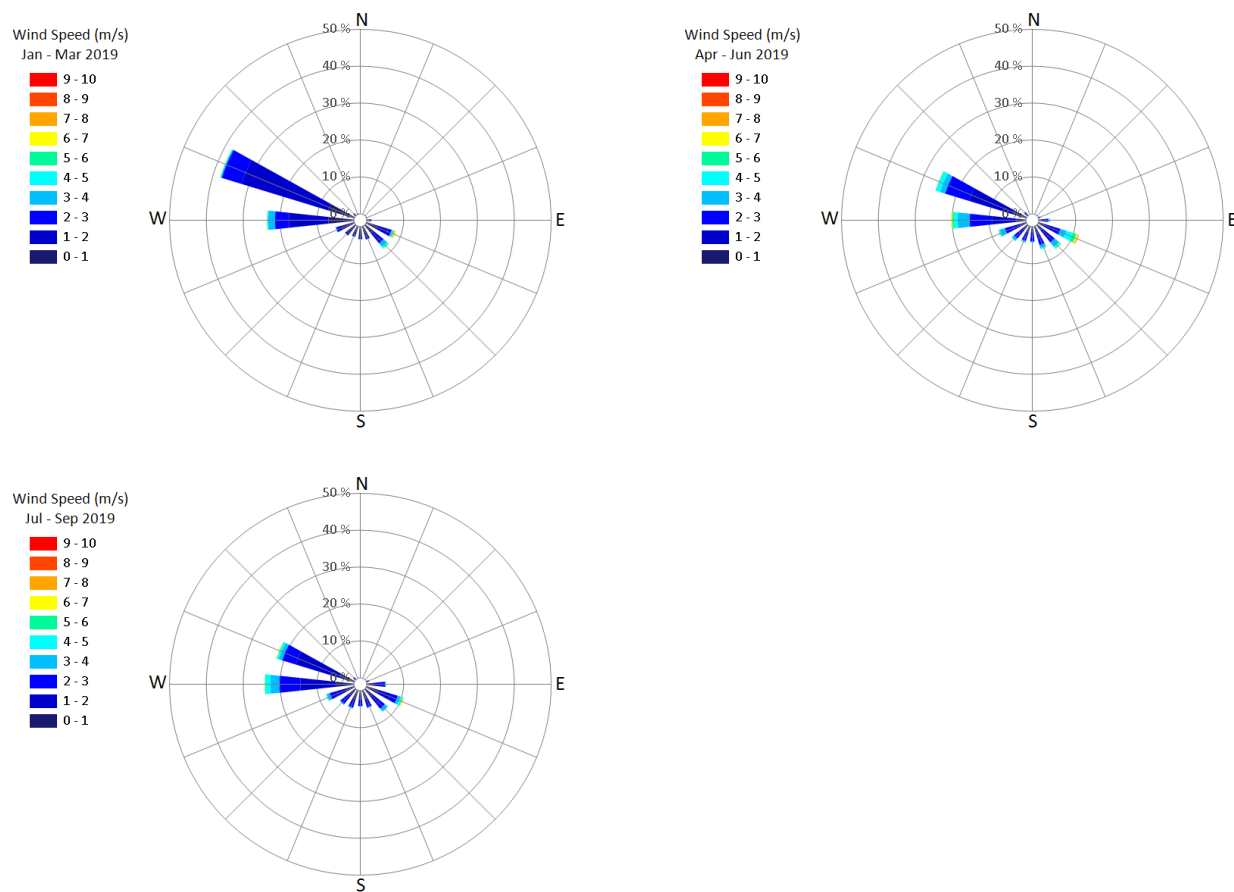


Figure B-9. Seasonal wind roses (hourly average for wind velocity and direction) at Clinton Creek Met Station (January 1, 2019 to September 30, 2019).



Table B-1. Erroneous data collected at wind sensors and removed from dataset (July 1, 2017 to March 31, 2019).

Year	Start Date/Time	End Date/Time	Duration
2017	December 2 - 19:00	December 11 - 06:00	8 days, 11 hours
2017	December 14 - 06:00	December 14 - 10:00	4 hours
2018	January 19 - 01:00	January 19 - 18:00	17 hours
2018	February 13 - 05:00	February 15 - 16:00	2 days, 11 hours
2018	February 22 - 11:00	February 23 - 12:00	1 day, 1 hour
2018	March 4 - 00:00	March 4 - 10:00	10 hours
2018	March 15 - 00:00	March 15 - 11:00	11 hours
2018	November 11 - 12:00	November 12 - 18:00	1 day, 6 hours
2018	November 20 - 19:00	November 26 - 13:00	5 days, 18 hours
2018	November 30 - 07:00	November 30 - 16:00	9 hours
2018-2019	December 11 - 05:00	January 30 - 01:00	49 days, 20 hours

Table B-2. Erroneous data collected at snow depth sensor and removed from dataset (July 1, 2017 to March 31, 2019).

Date of snow depth error		Erroneous snow depth (cm) removed from record
Year	Day	
2018	January 4	173.4
	January 7	173.4
	November 13	173.4
	December 19	173.4
2019	January 3	173.4
	August 1	35.0

Table B-3. Rainfall events recorded at Clinton Creek meteorological station (July 1, 2017 to October 31, 2019) and removed from dataset (melt water in rain gauge).

Date of snow melt in rain gauge		Rainfall (mm) removed from record
Year	Day	
2017	October 12	0.1
	October 13	2.5
	October 14	1.3
	October 22	0.1
	October 27	0.6
	October 28	0.1
	October 2017 removed rainfall total	4.7
2018	March 10	0.1
	March 12	3.5



Date of snow melt in rain gauge		Rainfall (mm) removed from record
Year	Day	
	March 13	4.5
	March 14	7.2
	March 15	1.8
	March 16	7.1
	March 18	0.8
	March 2018 removed rainfall total	25.0
2018	October 11	5.6
	October 12	1.4
	October 13	0.1
	October 14	0.2
	October 16	0.6
	October 18	0.1
	October 19	1.6
	October 20	1.0
	October 21	0.1
	October 23	0.3
	October 24	1.9
	October 25	0.1
	October 26	0.4
	October 27	0.1
	October 2018 removed rainfall total	13.5
2019	March 3	0.1
	March 10	0.3
	March 11	7.4
	March 24	8.4
	March 25	0.1
	March 27	0.1
	March 2019 removed rainfall total	16.4
2019	April 11	0.1
	April 18	0.4
	April 19	0.6
	April 20	1.5
	April 22	2.5
	April 23	13.0
	April 24	7.6
	April 2019 removed rainfall total	25.7
2019	October 04	0.7



Date of snow melt in rain gauge		Rainfall (mm) removed from record
Year	Day	
	October 05	6.3
	October 07	0.1
	October 09	5.2
	October 10	1.2
	October 11	2.8
	October 12	0.1
	October 13	0.4
	October 17	0.1
	October 19	0.4
	October 22	0.1
	October 27	0.1
	October 28	1.6
	October 30	0.8
October 2019 removed rainfall total		19.9



Appendix C. Hydrographs – 2017-2019

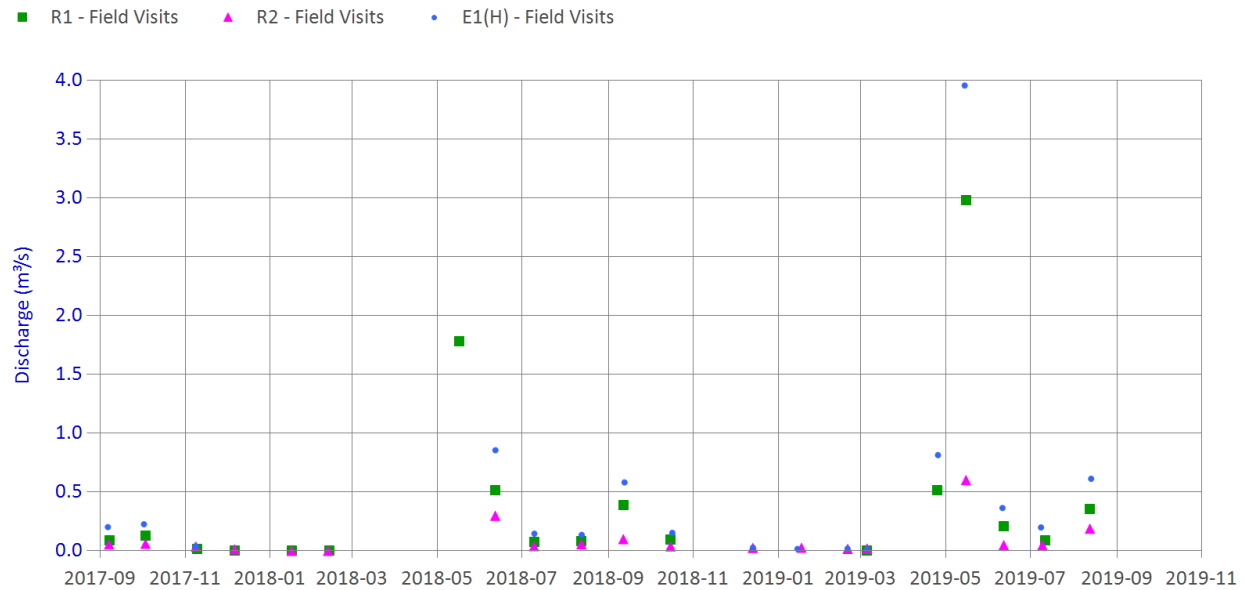


Figure C-1. Hydrograph for Clinton Creek upstream (R1) and downstream (E1(H)) of Hudgeon Lake, and Easter Creek (R2, lake tributary) (September 1, 2017 to October 31, 2019).

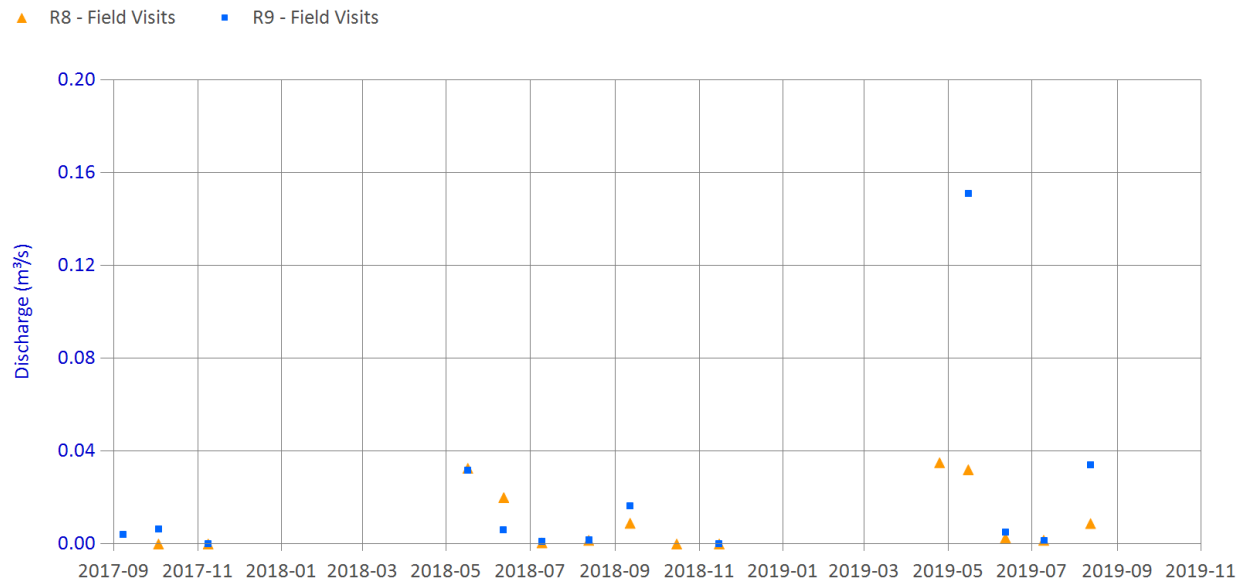


Figure C-2. Hydrograph for small unnamed Hudgeon Lake tributaries (stations R8 and R9) (September 1, 2017 to October 31, 2019).

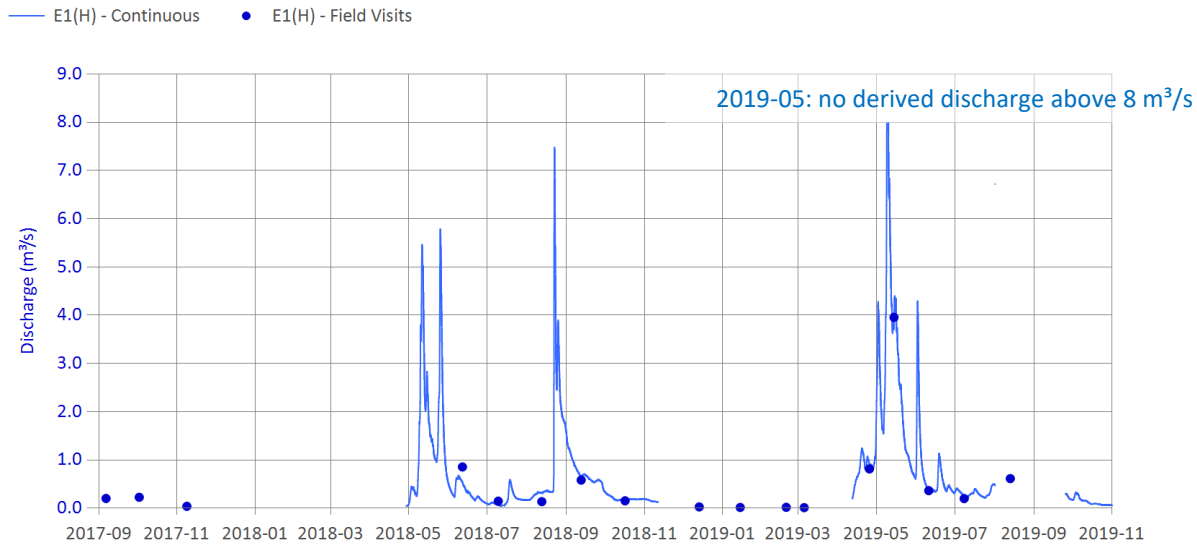


Figure C-3. Hydrograph for Clinton Creek at the outlet of Hudgeon Lake (E1(H)) with provisional continuous discharge (September 1, 2017 to October 31, 2019).

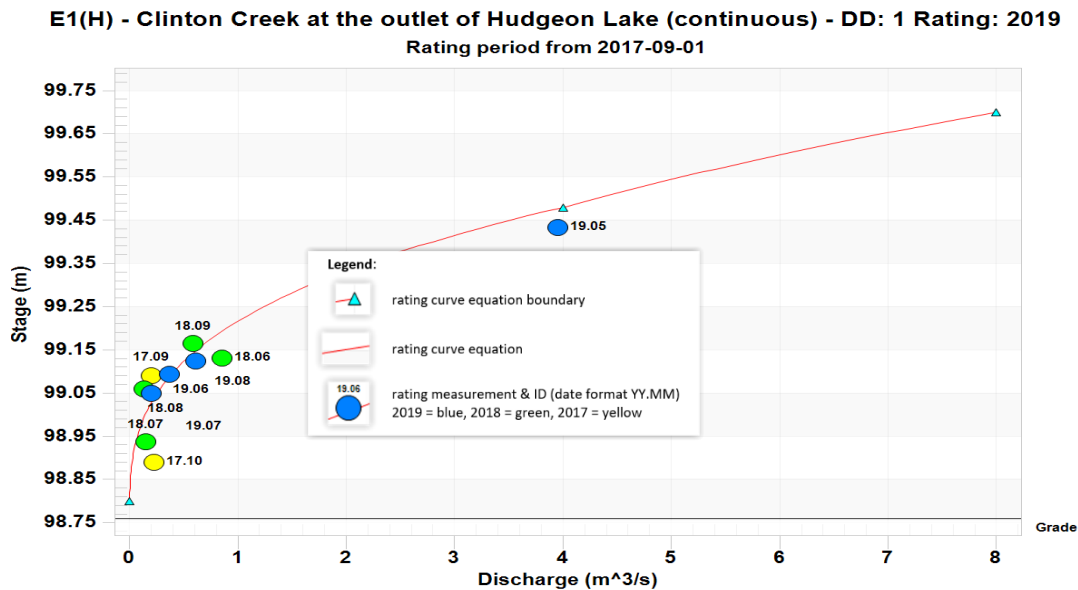


Figure C-4. Rating curve (provisional) for Clinton Creek at the outlet of Hudgeon Lake (E1(H)).

Table C-1. Rating curve equation (provisional) for Clinton Creek at the outlet of Hudgeon Lake (E1(H)).

Stage (m)	Discharge (m³/s)	Equation
98.8	0.001	----
99.48	4	$X=10.591 * (Y-98.75)^{3.094}$
99.7	8	$X = 9.156 * (Y-98.75)^{2.631}$

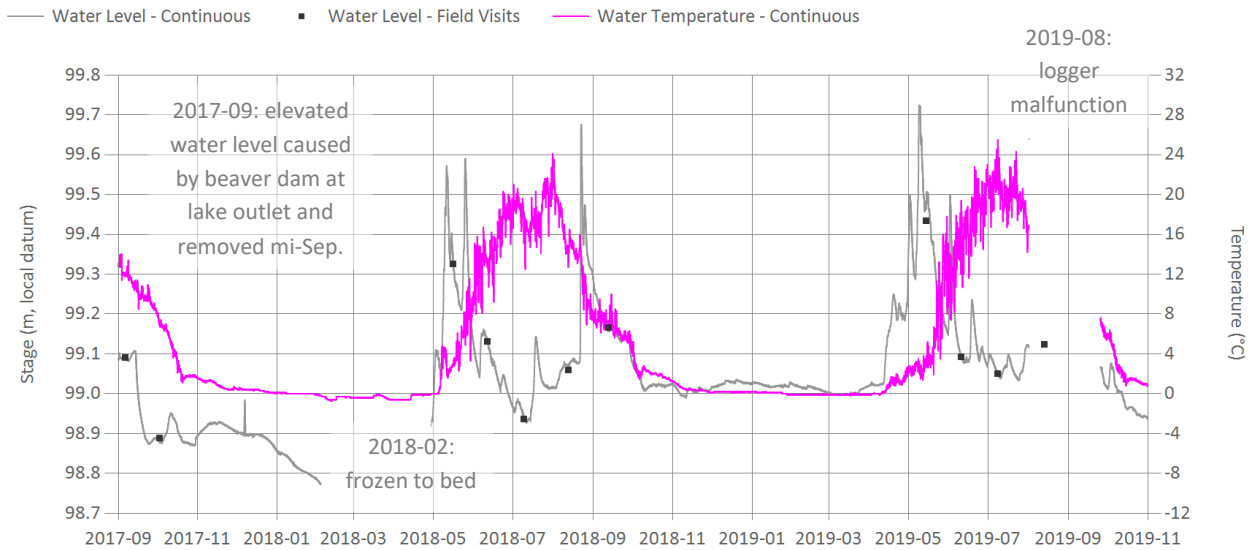


Figure C-5. Water level and temperature in the outlet of Hudgeon Lake (Clinton Creek station E1(H)) (September 1, 2017 to October 31, 2019).

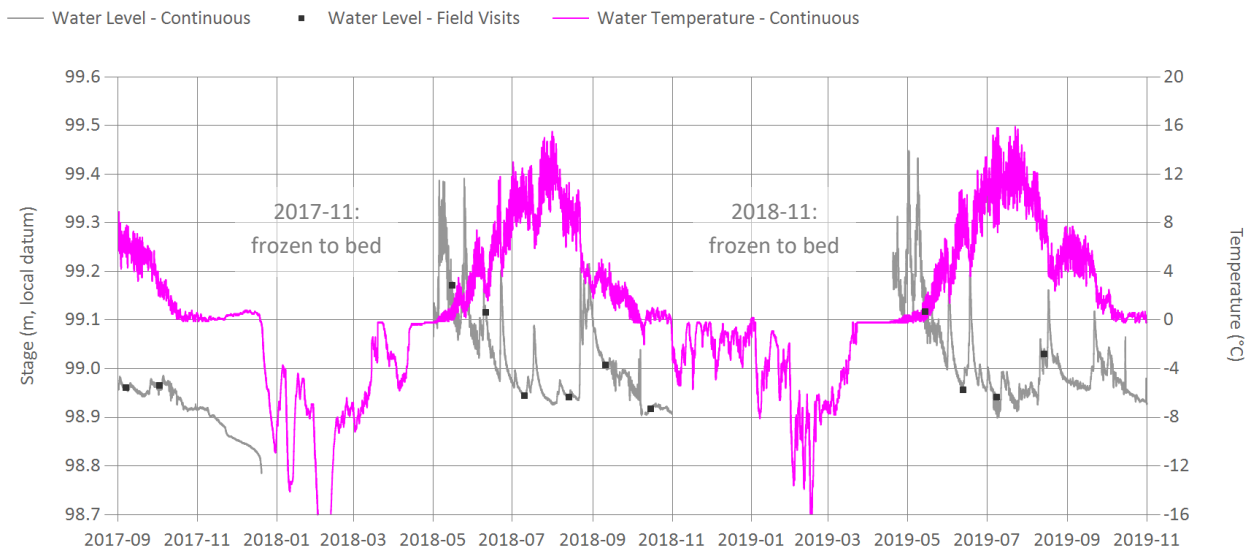


Figure C-6. Water level and temperature in Wolverine Creek (station E3(H)) (September 1, 2017 to October 31, 2019).

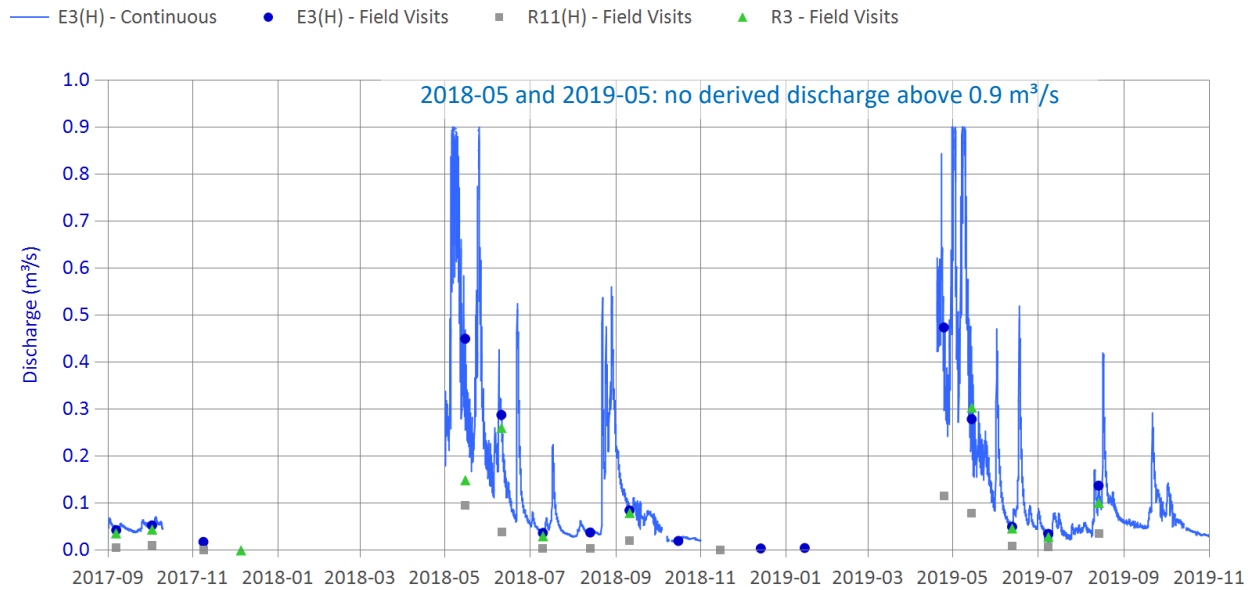


Figure C-7. Hydrograph for Wolverine Creek basin (stations E3(H), R11(H) and R3) with provisional continuous discharge at E3(H) (September 1, 2017 to October 31, 2019).

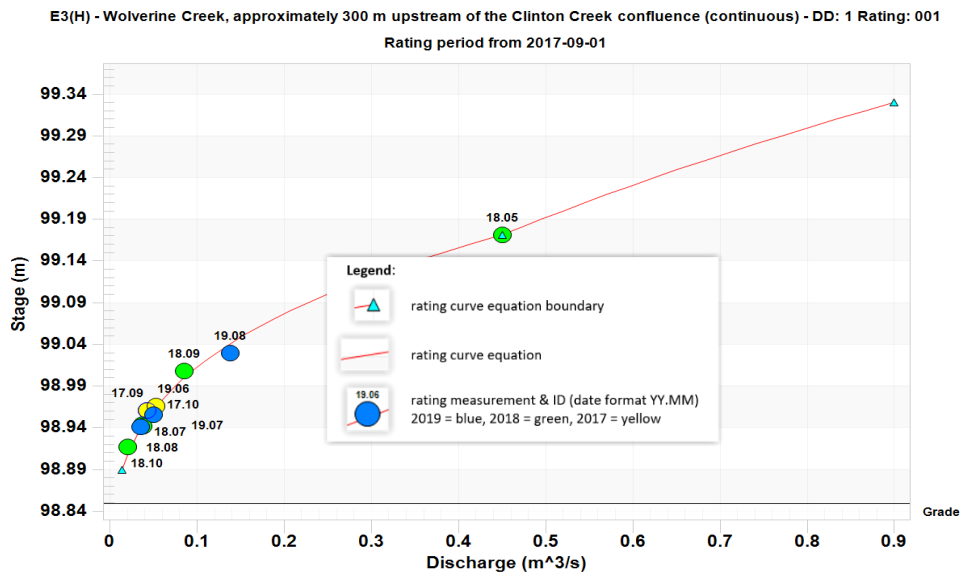


Figure C-8. Rating curve (provisional) for Wolverine Creek above Clinton Creek confluence (E3(H)).

Table C-2. Rating curve equation (provisional) for Wolverine Creek above Clinton Creek confluence (E3(H))

Stage (m)	Discharge (m³/s)	Equation
98.89	0.014	----
99.171	0.45	$X = 7.162 * (Y - 98.74)^{3.288}$
99.33	0.9	$X = 2.884 * (Y - 98.74)^{2.207}$

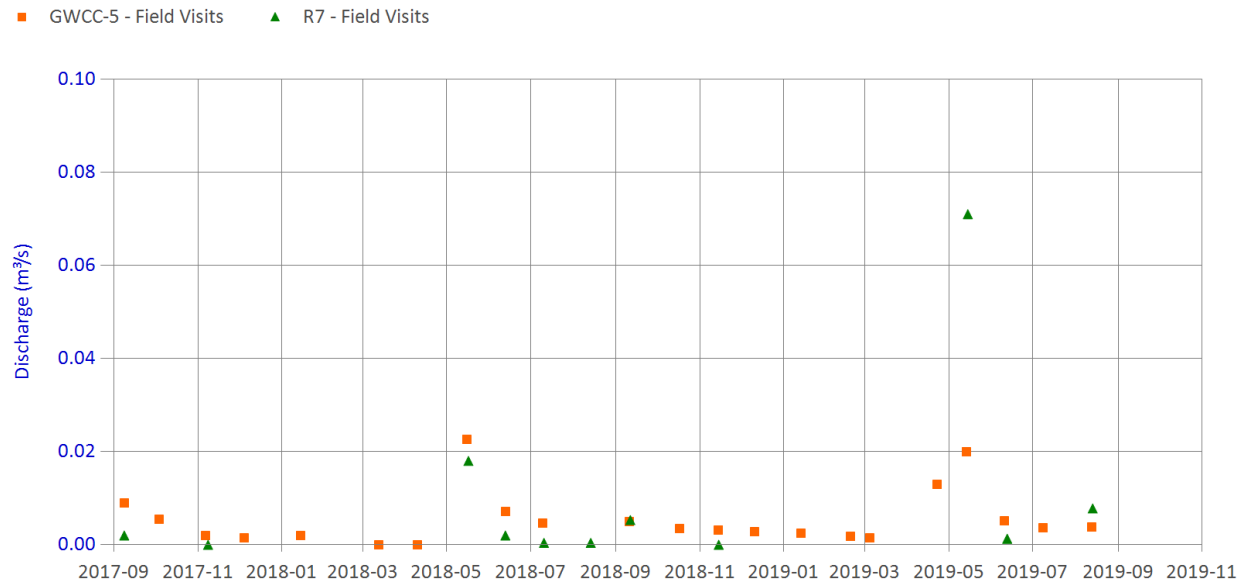


Figure C-9. Hydrograph for groundwater seep in Clinton Creek floodplain (station GWCC-5) and for Porcupine Creek (station R7) upstream of waste rock (September 1, 2017 to October 31, 2019).

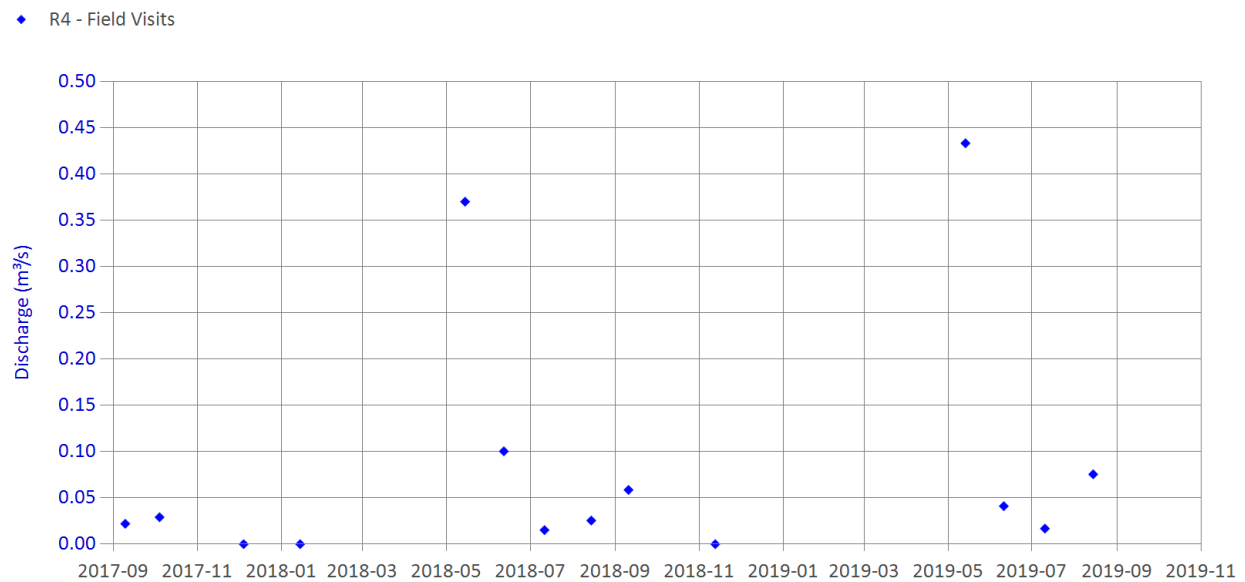


Figure C-10. Hydrograph for Eagle Creek (station R4) (September 1, 2017 to October 31, 2019).

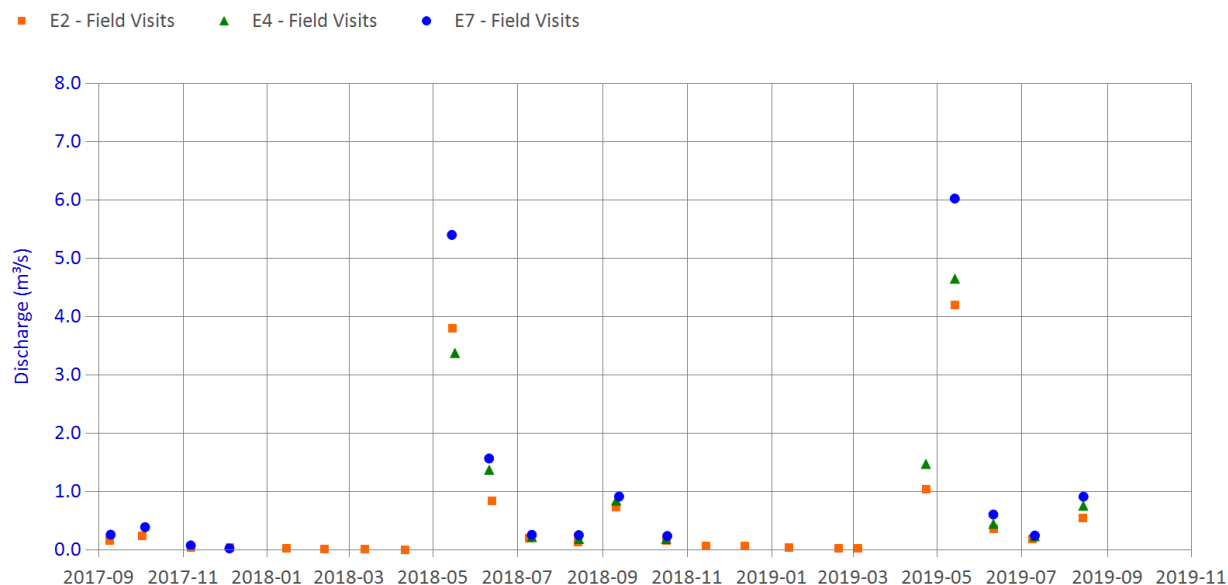


Figure C-11. Hydrograph for Clinton Creek downstream of waste rock (stations E2, E4, E7) (September 1, 2017 to October 31, 2019).

Table C-3. Instantaneous discharge and stage measurements for all Clinton Creek site hydrometric stations (July 1, 2017 to October 31, 2019) and removed from dataset (melt water in rain gauge).

Station ID	Date	Time	Discharge Method	Discharge (m³/s)	Discharge Data Flag	Surveyed Water Elevation (m)	Survey Data Flag	Staff gauge (m)
E1(H)	06/09/2017	12:24	ADV-MID	0.202	-	99.091	S	0.552
E1(H)	02/10/2017	10:04	ADV-MID	0.226	-	98.889	S	0.342
E1(H)	08/11/2017	14:45	ADV-MID	0.039	B	-	N	-
E1(H)	05/12/2017	13:45	ADV-MID	-	X	-	N	-
E1(H)	16/01/2018	11:45	N	-	X	-	N	-
E1(H)	12/02/2018	12:35	N	-	X	-	N	-
E1(H)	12/03/2018	16:00	N	0.000	X	-	N	-
E1(H)	10/04/2018	11:00	N	0.000	X	-	N	-
E1(H)	16/05/2018	10:10	CM-MID	2.957	S	99.325	-	0.768
E1(H)	11/06/2018	17:45	ADV-MID	0.855	-	99.131	-	0.498
E1(H)	09/07/2018	16:40	ADV-MID	0.146	-	98.937	-	0.316
E1(H)	12/08/2018	16:40	ADV-MID	0.136	-	99.060	-	0.442
E1(H)	12/09/2018	10:15	ADV-MID	0.582	-	99.165	-	0.541
E1(H)	16/10/2018	17:10	ADV-MID	0.153	-	-	N	-
E1(H)	15/11/2018	13:20	N	-	X	-	N	-
E1(H)	13/12/2018	14:35	ADV-MID	0.027	B	-	N	-
E1(H)	14/01/2019	14:10	ADV-MID	0.016	B	-	N	-
E1(H)	19/02/2019	12:20	ADV-MID	0.018	B	-	N	-
E1(H)	05/03/2019	12:50	ADV-MID	0.012	B	-	N	-
E1(H)	25/04/2019	10:54	ADV-MID	0.814	-	-	N	-
E1(H)	14/05/2019	15:00	ADV-MID	3.955	-	99.434	-	0.820
E1(H)	10/06/2019	18:25	ADV-MID	0.364	-	99.093	-	0.454
E1(H)	08/07/2019	09:45	ADV-MID	0.199	-	99.093	-	0.414
E1(H)	13/08/2019	10:00	ADV-MID	0.613	-	99.124	-	0.490
E2	08/09/2017	19:00	ADV-MID	0.164	-	-	-	-
E2	02/10/2017	11:26	ADV-MID	0.240	-	-	-	-
E2	06/11/2017	13:53	ADV-MID	0.050	B	-	-	-



Station ID	Date	Time	Discharge Method	Discharge (m ³ /s)	Discharge Data Flag	Surveyed Water Elevation (m)	Survey Data Flag	Staff gauge (m)
E2	04/12/2017	14:00	ADV-MID	0.047	B	-	-	-
E2	14/01/2018	14:09	SS	0.035	B	-	-	-
E2	11/02/2018	13:05	SS	0.017	B	-	-	-
E2	12/03/2018	13:45	SS	0.017	B	-	-	-
E2	10/04/2018	14:40	SS	0.010	B	-	-	-
E2	14/05/2018	15:30	CM-MID	3.806		-	-	-
E2	12/06/2018	10:00	ADV-MID	0.839	-	-	-	-
E2	09/07/2018	17:40	ADV-MID	0.199	-	-	-	-
E2	13/08/2018	17:40	ADV-MID	0.136	-	-	-	-
E2	10/09/2018	13:05	ADV-MID	0.731	-	-	-	-
E2	16/10/2018	19:40	ADV-MID	0.164	-	-	-	-
E2	14/11/2018	10:55	ADV-MID	0.070	B	-	-	-
E2	12/12/2018	13:00	ADV-MID	0.069	B	-	-	-
E2	13/01/2019	13:40	ADV-MID	0.040	B	-	-	-
E2	18/02/2019	14:00	ADV-MID	0.032	B	-	-	-
E2	04/03/2019	15:15	ADV-MID	0.028	B	-	-	-
E2	22/04/2019	15:34	ADV-MID	1.040	-	-	-	-
E2	13/05/2019	15:15	ADV_MID	4.197	-	-	-	-
E2	10/06/2019	13:50	ADV-MID	0.371	-	-	-	-
E2	08/07/2019	15:40	ADV-MID	0.195	-	-	-	-
E2	14/08/2019	11:00	ADV-MID	0.555	-	-	-	-
E3(H)	06/09/2017	20:03	SS	0.043	-	98.961	O	0.219
E3(H)	02/10/2017	13:14	SS	0.053	-	98.966	O	0.234
E3(H)	08/11/2017	11:03	SS	0.018	B	-	N	-
E3(H)	05/12/2017	10:50	SS	<0.001	X	-	N	-
E3(H)	15/01/2018	15:45	N	0.000	X	-	N	-
E3(H)	13/03/2018	10:15	N	0.000	X	-	N	-
E3(H)	10/04/2018	15:35	N	0.000	X	-	N	-
E3(H)	15/05/2018	13:00	CM-MID	0.450		99.171	-	0.465
E3(H)	10/06/2018	13:20	ADV-MID	0.288	-	99.116	-	0.388
E3(H)	10/07/2018	08:50	ADV-MID	0.037	-	98.944	-	0.204
E3(H)	13/08/2018	08:50	ADV-MID	0.038	-	98.942	-	0.202
E3(H)	10/09/2018	14:25	ADV-MID	0.085	-	99.008	-	0.269
E3(H)	15/10/2018	17:10	SS	0.020	-	98.917	-	0.179
E3(H)	16/11/2018	10:30	N	-	X	-	N	-
E3(H)	13/12/2018	11:00	SS	0.004	B	-	N	-
E3(H)	14/01/2019	11:15	SS	0.005	B	-	N	-
E3(H)	19/02/2019	11:30	N	0.000	X	-	N	-
E3(H)	24/04/2019	12:00	ADV-MID	0.474	-	-	N	-
E3(H)	14/05/2019	11:00	ADV_MID	0.279	-	0.382	99.117	-
E3(H)	12/06/2019	11:25	ADV-MID	0.050	-	0.226	98.956	-
E3(H)	08/07/2019	12:00	ADV-MID	0.035	-	0.204	98.941	-
E3(H)	13/08/2019	16:10	ADV-MID	0.138	-	0.295	99.030	-
E4	09/09/2017	10:30	N	-	X	-	-	-
E4	04/10/2017	09:25	N	-	X	-	-	-
E4	06/11/2017	12:25	N	-	X	-	-	-
E4	04/12/2017	13:00	N	-	X	-	-	-
E4	14/01/2018	13:30	N	-	X	-	-	-
E4	11/02/2018	13:30	N	-	X	-	-	-
E4	12/03/2018	12:50	N	-	X	-	-	-
E4	09/04/2018	13:05	N	-	X	-	-	-
E4	16/05/2018	17:55	CM-MID	3.379	S	-	-	-



Station ID	Date	Time	Discharge Method	Discharge (m ³ /s)	Discharge Data Flag	Surveyed Water Elevation (m)	Survey Data Flag	Staff gauge (m)
E4	10/06/2018	10:45	ADV-MID	1.378	-	-	-	-
E4	11/07/2018	09:30	ADV-MID	0.227	-	-	-	-
E4	14/08/2018	09:30	ADV-MID	0.193	-	-	-	-
E4	10/09/2018	09:35	ADV-MID	0.848	-	-	-	-
E4	16/10/2018	13:55	ADV-MID	0.191	-	-	-	-
E4	12/11/2018	14:57	N	-	X	-	-	-
E4	10/12/2018	13:30	N	-	X	-	-	-
E4	13/01/2019	13:10	N	-	X	-	-	-
E4	18/02/2019	13:00	N	-	X	-	-	-
E4	04/03/2019	13:00	N	-	X	-	-	-
E4	22/04/2019	13:30	ADV-MID	1.479	-	-	-	-
E4	13/05/2019	12:40	ADV_MID	4.652	-	-	-	-
E4	10/06/2019	11:00	ADV-MID	0.451	-	-	-	-
E4	10/07/2019	08:40	ADV-MID	0.240	-	-	-	-
E4	14/08/2019	12:05	ADV-MID	0.762	-	-	-	-
E7	09/09/2017	11:46	ADV-MID	0.266	-	-	-	-
E7	04/10/2017	10:20	ADV-MID	0.396	-	-	-	-
E7	06/11/2017	11:42	ADV-MID	0.082	B	-	-	-
E7	04/12/2017	11:36	SS	0.030	B	-	-	-
E7	14/01/2018	12:09	N	-	X	-	-	-
E7	11/02/2018	11:20	N	-	X	-	-	-
E7	12/03/2018	11:06	N	-	X	-	-	-
E7	09/04/2018	11:00	N	-	X	-	-	-
E7	14/05/2018	10:45	CM-MID	5.403	-	-	-	-
E7	10/06/2018	09:25	ADV-MID	1.572	-	-	-	-
E7	11/07/2018	08:00	ADV-MID	0.264	-	-	-	-
E7	14/08/2018	08:00	ADV-MID	0.259	-	-	-	-
E7	12/09/2018	12:10	ADV-MID	0.920	-	-	-	-
E7	17/10/2018	09:20	ADV-MID	0.244	-	-	-	-
E7	12/11/2018	13:05	N	-	X	-	-	-
E7	10/12/2018	12:20	N	-	X	-	-	-
E7	13/01/2019	12:25	N	-	X	-	-	-
E7	18/02/2019	11:55	N	-	X	-	-	-
E7	04/03/2019	11:25	N	-	X	-	-	-
E7	22/04/2019	11:30	N	-	X	-	-	-
E7	13/05/2019	11:45	ADV_MID	6.026	-	-	-	-
E7	10/06/2019	09:50	ADV-MID	0.611	-	-	-	-
E7	10/07/2019	11:00	ADV-MID	0.251	-	-	-	-
E7	14/08/2019	15:30	ADV-MID	0.917	-	-	-	-
R1	07/09/2017	14:13	ADV-MID	0.087	-	-	-	-
R1	03/10/2017	10:50	ADV-MID	0.128	-	-	-	-
R1	09/11/2017	09:51	SS	0.016	B	-	-	-
R1	06/12/2017	10:59	SS	0.002	B	-	-	-
R1	16/01/2018	12:30	N	0.000	X	-	-	-
R1	12/02/2018	16:15	N	0.000	X	-	-	-
R1	16/05/2018	15:20	CM-MID	1.783	S	-	-	-
R1	11/06/2018	13:30	ADV-MID	0.515	-	-	-	-
R1	09/07/2018	14:45	ADV-MID	0.077	-	-	-	-
R1	12/08/2018	14:45	ADV-MID	0.084	-	-	-	-
R1	11/09/2018	15:40	ADV-MID	0.386	-	-	-	-
R1	15/10/2018	10:15	SS	0.095	-	-	-	-
R1	15/11/2018	11:40	N	-	X	-	-	-



Station ID	Date	Time	Discharge Method	Discharge (m ³ /s)	Discharge Data Flag	Surveyed Water Elevation (m)	Survey Data Flag	Staff gauge (m)
R1	12/12/2018	14:40	N	-	X	-	-	-
R1	17/01/2019	10:45	N	-	X	-	-	-
R1	19/02/2019	15:30	N	-	X	-	-	-
R1	05/03/2019	14:40	N	0.000	X	-	-	-
R1	24/04/2019	16:31	ADV-MID	0.518	-	-	-	-
R1	15/05/2019	12:30	ADV_MID	2.980	-	-	-	-
R1	11/06/2019	14:20	ADV-MID	0.207	-	-	-	-
R1	11/07/2019	13:35	ADV-MID	0.091	-	-	-	-
R1	12/08/2019	17:00	ADV-MID	0.358	-	-	-	-
R1B	11/09/2018	16:30	SS	0.039	-	-	-	-
R1B	15/10/2018	11:25	N	-	-	-	-	-
R1B	15/05/2019	13:40	N	-	-	-	-	-
R1B	11/06/2019	15:20	ADV-MID	0.042	-	-	-	-
R1B	09/07/2019	14:14	N	-	X	-	-	-
R1B	12/08/2019	17:30	N	-	X	-	-	-
R2	07/09/2017	11:35	ADV-MID	0.054	-	-	-	-
R2	03/10/2017	13:05	SS	0.059	-	-	-	-
R2	08/11/2017	15:53	SS	0.036	B	-	-	-
R2	06/12/2017	13:10	SS	0.013	B	-	-	-
R2	16/01/2018	11:05	N	0.000	X	-	-	-
R2	11/02/2018	15:45	N	0.000	X	-	-	-
R2	16/05/2018	12:45	N	-	-	-	-	-
R2	11/06/2018	16:00	ADV-MID	0.298	-	-	-	-
R2	09/07/2018	12:15	ADV-MID	0.039	-	-	-	-
R2	12/08/2018	12:15	ADV-MID	0.056	-	-	-	-
R2	11/09/2018	13:50	ADV-MID	0.099	-	-	-	-
R2	15/10/2018	11:40	SS	0.038	-	-	-	-
R2	15/11/2018	10:50	N	-	X	-	-	-
R2	13/12/2018	12:55	SS	0.025	B	-	-	-
R2	17/01/2019	11:05	SS	0.026	B	-	-	-
R2	19/02/2019	15:00	SS	0.016	B	-	-	-
R2	05/03/2019	13:25	SS	0.019	B	-	-	-
R2	24/04/2019	17:20	N	-	-	-	-	-
R2	15/05/2019	14:15	ADV_MID	0.601	-	-	-	-
R2	11/06/2019	16:15	ADV-MID	0.048	-	-	-	-
R2	09/07/2019	11:25	SS	0.048	-	-	-	-
R2	12/08/2019	12:45	ADV-MID	0.188	-	-	-	-
R3	06/09/2017	17:57	SS	0.036	-	-	-	-
R3	02/10/2017	15:21	SS	0.044	-	-	-	-
R3	08/11/2017	12:30	N	-	X	-	-	-
R3	05/12/2017	12:41	N	0.000	X	-	-	-
R3	15/05/2018	15:55	SS	0.149	-	-	-	-
R3	10/06/2018	15:45	ADV-MID	0.260	-	-	-	-
R3	10/07/2018	10:55	SS	0.030	-	-	-	-
R3	13/08/2018	10:55	SS	-	F	-	-	-
R3	10/09/2018	18:15	ADV-MID	0.079	-	-	-	-
R3	15/10/2018	15:35	N	-	-	-	-	-
R3	14/11/2018	14:20	N	-	X	-	-	-
R3	24/04/2019	14:40	N	-	X	-	-	-
R3	14/05/2019	13:41	ADV_MID	0.303	-	-	-	-
R3	12/06/2019	13:40	ADV-MID	0.046	-	-	-	-
R3	08/07/2019	13:55	SS	0.028	-	-	-	-



Station ID	Date	Time	Discharge Method	Discharge (m³/s)	Discharge Data Flag	Surveyed Water Elevation (m)	Survey Data Flag	Staff gauge (m)
R3	13/08/2019	18:30	ADV-MID	0.101	-	-	-	-
R4	09/09/2017	09:31	SS	0.022	-	-	-	-
R4	04/10/2017	09:08	SS	0.029	-	-	-	-
R4	06/11/2017	13:06	N	-	X	-	-	-
R4	04/12/2017	13:10	N	0.000	X	-	-	-
R4	14/01/2018	13:36	N	0.000	X	-	-	-
R4	14/05/2018	14:10	CM-MID	0.370	-	-	-	-
R4	11/06/2018	19:45	SS	0.100	-	-	-	-
R4	11/07/2018	09:30	SS	0.015	-	-	-	-
R4	14/08/2018	09:30	ADV-MID	0.026	-	-	-	-
R4	10/09/2018	12:05	ADV-MID	0.059	-	-	-	-
R4	16/10/2018	14:30	N	-	-	-	-	-
R4	12/11/2018	14:14	N	0.000	X	-	-	-
R4	22/04/2019	14:00	N	-	X	-	-	-
R4	13/05/2019	13:50	ADV_MID	0.433	-	-	-	-
R4	10/06/2019	11:55	SS	0.041	-	-	-	-
R4	10/07/2019	09:30	SS	0.017	-	-	-	-
R4	14/08/2019	13:35	ADV-MID	0.076	-	-	-	-
R7	08/09/2017	11:40	V	0.002	-	-	-	-
R7	03/10/2017	-	N	-	-	-	-	-
R7	08/11/2017	09:45	N	0.000	-	-	-	-
R7	16/05/2018	16:40	SS	0.018	-	-	-	-
R7	12/06/2018	14:05	V	0.002	-	-	-	-
R7	10/07/2018	15:10	V	0.000	O	-	-	-
R7	13/08/2018	15:10	V	0.000	O	-	-	-
R7	11/09/2018	10:25	V	0.005	-	-	-	-
R7	15/10/2018	13:55	N	<0.001	-	-	-	-
R7	14/11/2018	16:04	N	0.000	X	-	-	-
R7	25/04/2019	13:30	N	-	X	-	-	-
R7	14/05/2019	17:45	SS	0.071	-	-	-	-
R7	12/06/2019	09:35	V	0.001	-	-	-	-
R7	09/07/2019	18:15	V	<0.001	-	-	-	-
R7	13/08/2019	12:15	V	0.008	-	-	-	-
R8	07/09/2017	12:30	N	<0.001	X	-	-	-
R8	03/10/2017	12:00	N	0.000	X	-	-	-
R8	08/11/2017	15:35	N	0.000	-	-	-	-
R8	16/05/2018	13:40	SS	0.033	-	-	-	-
R8	11/06/2018	16:40	SS	0.020	-	-	-	-
R8	09/07/2018	11:40	V	0.000	O	-	-	-
R8	12/08/2018	11:40	V	0.002	-	-	-	-
R8	11/09/2018	14:40	V	0.009	-	-	-	-
R8	15/10/2018	12:50	N	0.000	-	-	-	-
R8	15/11/2018	11:34	N	0.000	X	-	-	-
R8	24/04/2019	18:05	SS	0.035	-	-	-	-
R8	15/05/2019	15:00	SS	0.032	-	-	-	-
R8	11/06/2019	16:35	V	0.003	-	-	-	-
R8	09/07/2019	12:25	V	0.002	-	-	-	-
R8	12/08/2019	14:25	SS	0.009	-	-	-	-
R9	07/09/2017	19:00	SS	0.004	-	-	-	-
R9	03/10/2017	14:20	SS	0.007	-	-	-	-
R9	08/11/2017	15:08	N	0.000	-	-	-	-
R9	16/05/2018	11:35	SS	0.032	-	-	-	-



Station ID	Date	Time	Discharge Method	Discharge (m ³ /s)	Discharge Data Flag	Surveyed Water Elevation (m)	Survey Data Flag	Staff gauge (m)
R9	11/06/2018	12:05	SS	0.006	-	-	-	-
R9	09/07/2018	13:25	V	0.001	-	-	-	-
R9	12/08/2018	13:25	V	0.002	-	-	-	-
R9	11/09/2018	18:10	SS	0.016	-	-	-	-
R9	15/10/2018	13:15	N	-	-	-	-	-
R9	15/11/2018	10:25	N	0.000	X	-	-	-
R9	24/04/2019	18:50	N	-	X	-	-	-
R9	15/05/2019	11:30	SS	0.151	-	-	-	-
R9	11/06/2019	13:30	V	0.005	-	-	-	-
R9	09/07/2019	15:00	V	0.001	-	-	-	-
R9	12/08/2019	15:40	SS	0.034	-	-	-	-
R11(H)	06/09/2017	16:20	SS	0.005	-	-	-	-
R11(H)	02/10/2017	14:22	SS	0.011	-	-	-	-
R11(H)	08/11/2017	11:54	N	0.000	-	-	-	-
R11(H)	15/05/2018	14:35	SS	0.096	-	-	-	-
R11(H)	10/06/2018	17:00	SS	0.039	-	-	-	-
R11(H)	10/07/2018	09:45	SS	0.004	-	-	-	-
R11(H)	13/08/2018	09:45	SS	0.004	-	-	-	-
R11(H)	10/09/2018	17:20	SS	0.021	-	-	-	-
R11(H)	15/10/2018	16:35	N	-	-	-	-	-
R11(H)	14/11/2018	15:10	N	0.000	X	-	-	-
R11(H)	24/04/2019	13:35	SS	0.116	-	-	-	-
R11(H)	14/05/2019	12:35	SS	0.078	-	-	-	-
R11(H)	12/06/2019	12:25	SS	0.008	-	-	-	-
R11(H)	08/07/2019	12:55	SS	0.007	-	-	-	-
R11(H)	13/08/2019	17:30	SS	0.036	-	-	-	-
GWCC-5	08/09/2017	15:30	SS	0.009	-	-	-	-
GWCC-5	03/10/2017	16:30	SS	0.006	-	-	-	-
GWCC-5	06/11/2017	14:54	SS	0.002	-	-	-	-
GWCC-5	04/12/2017	15:00	SS	0.002	-	-	-	-
GWCC-5	14/01/2018	15:30	SS	0.002	B	-	-	-
GWCC-5	11/02/2018	14:00	N	<0.001	X	-	-	-
GWCC-5	12/03/2018	14:39	N	0.000	X	-	-	-
GWCC-5	09/04/2018	15:20	N	0.000	X	-	-	-
GWCC-5	15/05/2018	11:05	SS	0.023	-	-	-	-
GWCC-5	12/06/2018	17:40	SS	0.007	-	-	-	-
GWCC-5	09/07/2018	18:05	SS	0.005	-	-	-	-
GWCC-5	13/08/2018	18:05	SS	-	F	-	-	-
GWCC-5	10/09/2018	20:45	SS	0.005	-	-	-	-
GWCC-5	17/10/2018	10:45	SS	0.004	-	-	-	-
GWCC-5	14/11/2018	11:40	SS	0.003	B	-	-	-
GWCC-5	10/12/2018	14:38	SS	0.003	B	-	-	-
GWCC-5	13/01/2019	14:50	SS	0.002	B	-	-	-
GWCC-5	18/02/2019	15:00	SS	0.002	B	-	-	-
GWCC-5	04/03/2019	15:40	SS	0.001	B	-	-	-
GWCC-5	22/04/2019	15:57	SS	0.013	-	-	-	-
GWCC-5	13/05/2019	16:00	SS	0.020	-	-	-	-
GWCC-5	10/06/2019	14:20	SS	0.005	-	-	-	-
GWCC-5	08/07/2019	16:20	SS	0.004	-	-	-	-
GWCC-5	12/08/2019	19:30	SS	0.004	-	-	-	-
SL Lower	08/09/2017	14:00	N	-	-	-	N	-
SL Lower	03/10/2017	-	N	-	-	-	N	-



Station ID	Date	Time	Discharge Method	Discharge (m ³ /s)	Discharge Data Flag	Surveyed Water Elevation (m)	Survey Data Flag	Staff gauge (m)
SL Lower	06/11/2017	16:25	N	-	-	-	N	-
SL Lower	05/12/2017	12:25	N	-	-	-	N	-
SL Lower	16/01/2018	11:30	N	-	-	-	N	-
SL Lower	11/02/2018	14:15	N	-	-	-	N	-
SL Lower	13/03/2018	14:00	N	-	-	-	N	-
SL Lower	09/04/2018	17:35	N	-	-	-	N	-
SL Lower	16/05/2018	10:30	N	-	-	-	N	-
SL Upper	12/06/2018	16:40	N	-	-	-	N	-
SL Upper	10/07/2018	13:05	N	-	-	-	N	-
SL Lower	13/08/2018	13:05	N	-	-	-	N	-
SL Upper	11/09/2018	11:42	N	-	-	97.697	-	-
SL Lower	11/09/2018	12:20	N	-	-	100.171	-	-
SL Upper	15/10/2018	14:40	N	-	-	-	N	-
SL Upper	15/11/2018	10:04	N	-	-	-	N	-
SL Upper	13/12/2018	12:35	N	-	-	-	N	-
SL Upper	14/01/2019	12:39	N	-	-	-	N	-
SL Upper	19/02/2019	11:30	N	-	-	-	N	-
SL Upper	05/03/2019	14:45	N	-	-	-	N	-
SL Upper	25/04/2019	12:54	N	-	-	-	N	-
SL Upper	14/05/2019	16:45	N	-	-	97.866	-	1.438
SL Upper	11/06/2019	08:15	N	-	-	97.636	-	1.210
SL Upper	09/07/2019	16:30	N	-	-	96.640	-	0.207
SL Lower	09/07/2019	16:45	N	-	-	97.464	-	-1.551
SL Upper	13/08/2019	14:00	N	-	-	94.298	-	-2.131
SL Lower	13/08/2019	14:30	N	-	-	-	N	-

Note: - legend for discharge and survey flags on next page
 - associated comments for each station visits available in hydrology database export.

Discharge Measurement Method Legend

Measurement Method ID	Measurement Method	Measurement Description
ADV-MID	Mid Section Method - Acoustic Doppler Velocimeter	Cross-sectional velocity using an ADV, mid-section method.
SS	Brine Salt Slug Tracer	Salt dilution gauging using a brine salt slug.
V	Volumetric	Volumetric measurement obtained by filling a graduated contained at a culvert, pipe outlet or weir.
W	Weir	Measurement obtained by a rated structure (v-notch weir).
N	None	No measurement could be obtained.
SD	Dry Salt Slug Tracer	Salt dilution gauging using a dry salt slug.
HWM	High Water Mark - Indirect Method	Indirect method using high water mark in the slope-area calculation for estimating high discharges.
ADCP	Acoustic Doppler Current Profiler	Cross-sectional velocity using an ADCP, mid-section method.
SC	Constant Rate Salt Tracer	Salt dilution gauging using the constant rate method.
CM-MID	Mid Section Method - Current Meter	Cross-sectional velocity using a velocimeter (Swoffer or Pygmy AA)

**Discharge Data Flag Legend**

Discharge Data Flag	Discharge Data Flag Description
E	Estimated value
B	Backwater effects (ice related)
F	Instrument malfunction
M	Manual measurement
A	Automated measurement (logged)
ML	Missing length data
MD	Missing depth data
MW	Missing width data
O	Outside of measurement reporting range
S	Suspect data
X	Poor channel conditions for discharge measurement
MI	Missing Data
SH-L	Data logger Shift
SH-SG	Staff Gauge Shift
UR	Under review

Survey Data Flag Legend

Survey Flag	Survey Flag Description
S	Suspect data
MI	Missing data
UR	Under review
F	Instrument Malfunction
O	Outside measurement Accuracy (+/-0.003 m)
N	No survey conducted
B	Backwater effects (ice related)

Hudgeon Lake survey data			Units in m							Review notes
Site ID	Date	Time	Stage	BM1	BM2	BM3	Top of Staff Gauge	Sensor Casing	Staff Gauge	
E1(H)	06/09/2017	12:24	99.091	100.000	100.739	101.110	-	-	0.552	Top of staff gauge cannot be directly surveyed. Beaver damming activity at lake outlet.
E1(H)	02/10/2017	10:04	98.889	100.000	100.741	101.112	-	-	0.342	Beaver dam at lake outlet removed in September prior to site visit.
E1(H)	08/11/2017	13:30	-	100.000	100.735	101.101	99.506	99.480	-	Lake is frozen; stage not surveyed, staff gauge reading not collected. Pipe surveyed at highest point on metal; location marked with red paint marker.
E1(H)	15/05/2018	17:05	99.325	100.000	100.830	101.068	99.557	99.427	0.768	TOS likely not accurate as it is not stable in the water.
E1(H)	11/06/2018	18:08	99.131	100.000	100.909	101.143	99.629	99.443	0.498	TOS difficult to measure accurately due to instability in the water.
E1(H)	09/07/2018	16:24	98.937	100.000	100.850	101.143	99.623	99.442	0.316	No review notes.
E1(H)	12/08/2018	19:25	99.060	100.000	100.846	101.142	99.621	99.440	0.442	Beaver damming activity at lake outlet potentially impacting stage elevation
E1(H)	12/09/2018	10:46	99.165	100.000	100.847	101.143	99.621	99.442	0.541	Beaver damming activity at lake outlet potentially impacting stage elevation
E1(H)	16/10/2018	17:10	-	-	-	-	-	-	-	Lake frozen; survey not completed.
E1(H)	14/05/2019	15:45	99.434	100.000	100.967	101.150	99.618	99.428	0.820	Survey affected by spring thaw (frost heaving).
E1(H)	10/06/2019	17:30	99.093	100.000	100.943	101.169	99.636	99.445	0.454	BM2, BM3 and TOS movements since 2018. Stage not adjusted since Sensor Casing elevation is similar to Summer/Fall 2018 elevations. BM1 (primary) is assumed stable.
E1(H)	08/07/2019	09:40	99.050	100.000	100.939	101.169	99.636	99.447	0.414	Station elevations stable.
E1(H)	13/08/2019	10:28	99.124	100.000	100.938	101.169	99.633	99.445	0.490	Station elevations stable.

Wolverine Creek survey data			Units in m							Review notes
Site ID	Date	Time	Stage	BM1	BM2	BM3	Top of Staff Gauge	Sensor Casing	Staff Gauge	
E3(H)	06/09/2017	20:03	98.961	100.000	100.621	100.414	99.731	-	0.219	No review notes.
E3(H)	02/10/2017	13:14	98.966	100.000	100.619	100.413	99.730	-	0.234	Downstream rebar (99.931 m) on staff gauge structure measured as proxy for top of staff gauge; distance to actual TOS is 0.201 m.
E3(H)	08/11/2017	10:30	-	100.000	100.618	100.417	99.729	100.576	-	Ice conditions; stage not surveyed, SG not read. Bolt on pipe was measured for Sensor Casing.
E3(H)	15/05/2018	12:45	99.171	100.000	100.607	100.427	99.716	-	0.465	Benchmark movement due to spring thaw.
E3(H)	10/06/2018	12:40	99.116	100.000	100.612	100.437	99.729	100.571	0.388	Survey of old station heights completed prior to new station installation.
E3(H)	10/07/2018	08:55	98.944	100.000	100.615	100.439	99.742	-	0.204	Survey of new station installation. New Top of Staff Gauge benchmark. No suitable sensor casing survey with new installation.
E3(H)	13/08/2018	09:30	98.942	100.000	100.616	100.440	99.741	-	0.202	Good condition.
E3(H)	10/09/2018	15:05	99.008	100.000	100.617	100.441	99.740	-	0.269	Good condition. Redundant staff gauge at site removed.
E3(H)	15/10/2018	17:40	98.917	100.000	100.614	100.448	99.740	-	0.179	Good condition.
E3(H)	14/05/2019	11:45	99.117	100.000	100.600	100.470	99.732	-	0.382	Benchmark movement due to spring thaw.
E3(H)	12/06/2019	11:00	98.956	100.000	100.607	100.471	99.737	-	0.226	BM2, BM3 movements since 2018. Stage not adjusted since TOS (at stilling well) elevation is similar to Summer/Fall 2018 elevations. BM1 (primary) is assumed stable.
E3(H)	08/07/2019	12:00	98.941	100.000	100.611	100.472	99.740	-	0.204	Station elevations stable.
E3(H)	13/08/2019	15:45	99.030	100.000	100.610	100.470	99.738	-	0.295	Station elevations stable.

Snowshoe Pit Lake			Units in m							Review notes
Site ID	Date	Time	Stage	BM1	BM2	BM3	Top of Staff Gauge	Sensor Casing	Staff Gauge	
SL Lower	08/09/2017	14:00	-	100.000	-	-	100.013	-	-	Lower and upper pit lakes dry. BM2 located after survey complete.
SL Lower	16/05/2018	10:30	-	-	-	-	-	-	-	High water level (staff gauge and benchmarks submerged). Survey not possible.
SL Upper	12/06/2018	16:45	97.343	100.000	99.602	100.464	97.531	-	0.814	New survey site established on south shore of upper pit lake. New staff gauge and benchmarks installed and surveyed.
SL Lower	12/06/2018	16:45	-	-	-	-	-	-	-	Lower pit lake not surveyed. New upper pit lake site installed and surveyed.
SL Upper	10/07/2018	13:40	95.536	100.000	99.603	100.465	97.529	-	-	Staff gauge dry. Water surface and highest benchmark nearly 5 m apart.
SL Lower	10/07/2018	13:59	96.245	100.000	100.088	-	100.009	-	-	Staff gauge dry. Unable to locate BM3.
SL Upper	13/08/2018	16:30	-	-	-	-	-	-	-	Staff gauge dry. Survey not completed.
SL Lower	13/08/2018	16:40	-	-	-	-	-	-	-	Staff gauge dry. Survey not completed.
SL Upper	11/09/2018	11:42	97.697	100.000	99.604	100.465	97.525	-	-	Staff gauge underwater. Survey completed.
SL Lower	11/09/2018	12:20	100.171	100.000	100.088	-	100.006	-	-	Staff gauge underwater. Survey completed. Unable to locate BM3.
SL Upper	15/10/2018	14:30	-	-	-	-	-	-	-	Lake frozen. Survey not completed.
SL Lower	15/10/2018	14:40	-	-	-	-	-	-	-	Lake frozen. Survey not completed.
SL Upper	14/05/2019	17:00	97.866	100.000	99.604	100.466	97.431	-	1.438	Staff gauge underwater. Survey completed. Staff gauge sinking into ground by 0.1 m since 2018.
SL Lower	14/05/2019	17:30	-	-	-	-	-	-	-	Lower pit lake level high. Station including benchmarks under water, not surveyed.
SL Upper	11/06/2019	18:23	97.636	100.000	99.604	100.464	97.430	-	1.21	Staff gauge 0.2 m underwater.
SL Lower	11/06/2019	19:00	-	-	-	-	-	-	-	Lower pit lake level high. Station including benchmarks under water, not surveyed.
SL Upper	09/07/2019	16:30	96.64	100.000	99.603	100.464	97.432	-	0.207	Survey completed. Staff gauge is on an angle due to moving slope.
SL Lower	09/07/2019	16:45	97.464	100.000	100.089	-	100.015	-	-1.551	Lake level lower than staff gauge. BM3 not located.
SL Upper	13/08/2019	14:00	94.298	100.000	99.602	100.465	97.429	-	-2.131	Water level has dropped by 2.3 m since July 9. Lake level lower than staff gauge.
SL Lower	13/08/2019	-	-	-	-	-	-	-	-	Lake is dry. No survey completed.



Appendix D. Water Quality Summary Data Tables – 2017-2019

Water quality results collected at E1 during monthly surface water monitoring

				CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989169-11 E1 06/09/2017 13:50	L2002383-11 E1 02/10/2017 10:40	L2002383-12 E1-r 02/10/2017 10:45	L2032255-1 E1 05/12/2017 00:00	L2046329-3 E1 15/01/2018 14:20	L2055716-1 E1 11/02/2018 15:20	L2096262-1 E1 15/05/2018 10:20	L2110842-19 E1 11/06/2018 00:00	L2127254-6 E1 09/07/2018 16:50	L2147306-18 E1 12/08/2018 20:05	L2163862-3 E1 10/09/2018 19:20	L2163863-3 E1-r 10/09/2018 19:25
Analyte	Units																	
Physical Tests																		
Temperature (in-situ)	°C	-	-	-	-	12.3	6.7	6.7	4.5	0.9	2.5	2.6	12.6	18.3	15.3	7.8	7.8	7.8
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	-	8.93	11.28	11.28	12.35	2.98	13.68	8.66	7.72	7.12	11.01	11.01	11.01	11.01
Specific Conductivity (in-situ)	µS/cm	-	-	-	-	738.0	746.2	746.2	902.0	1010.0	1035.0	202.6	400.2	572.6	441.8	525.6	525.6	525.6
pH (in-situ)	pH	6.5 - 9.0	-	-	-	7.72	8.05	8.05	7.35	7.86	7.38	7.22	7.98	7.97	7.85	7.97	7.97	7.97
Oxidation - Redox Potential (in-situ)	mV	-	-	-	-	84.7	176.9	176.9	333.3	219.7	250.2	364.2	80.7	248.0	293.5	148.9	148.9	148.9
Turbidity (in-situ)	NTU	-	-	-	-	1.69	1.81	1.81	0.56	0.24	0.00	16.05	2.27	0.28	0.47	11.38	11.38	11.38
Conductivity	µS/cm	-	-	-	-	2	710	756	890	972	1020	214	411	574	707	522	520	520
Hardness (as CaCO3)	mg/L	-	-	-	0.5	388.0	430.0	427.0	491.0	589.0	602.0	113.0	232.0	317.0	344.0	274.0	274.0	291.0
pH (lab)	pH	6.5 - 9.0	-	-	0.1	8.15	8.27	8.27	8.06	8.26	7.70	7.68	8.10	8.26	8.24	8.24	8.22	8.23
Total Suspended Solids	mg/L	-	-	-	2	<3.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	19	3.3	<2.0	4	8.8	7.4
Anions and Nutrients																		
Ammonia, Total (as N) ^A	mg/L	Temp,pH-Dep	-	0.0050	0.0176	0.0154	0.0135	<0.0050	0.0254	0.0060	0.0170	0.0215	0.0223	0.0195	0.0067	0.0080	0.0080	0.0080
Temperature and pH adjusted Guideline																		
Bromide (Br)	mg/L	Temp,pH-Dep	-	0.050	<0.050	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Chloride (Cl)	mg/L	120	-	0.50	0.66	0.73	0.74	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Fluoride (F)	mg/L	0.12	-	0.020	0.114	0.126	0.134	0.110	0.130	<0.10	0.066	0.089	0.108	0.128	0.100	0.100	0.101	0.101
Nitrate (as N)	mg/L	13	-	0.0050	0.0530	0.0498	0.0492	0.1230	0.2240	0.1080	0.0687	0.0743	0.0665	0.0485	0.2600	0.2600	0.2600	0.2600
Nitrite (as N)	mg/L	0.06	-	0.0010	<0.0010	0.0023	0.0030	<0.0050	0.0083	<0.0050	<0.0010	0.0016	<0.0010	<0.0010	0.0025	0.0024	0.0024	0.0024
Phosphorus (P)-Total	mg/L	-	-	0.0020	0.0044	0.0049	0.0077	0.0092	0.0075	0.0095	0.0599	0.0153	0.0083	0.0075	0.0184	0.0184	0.0184	0.0184
Sulfate (SO4)	mg/L	-	-	0.30	254.00	270.00	270.00	319.00	363.00	381.00	57.50	125.00	191.00	234.00	173.00	173.00	173.00	173.00
Sulphide (as S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon																		
Dissolved Organic Carbon	mg/L	-	-	0.5	13.7	13.8	14.1	9.8	14.5	9.7	32.4	25.5	18.3	14.8	18.4	18.4	18.1	18.1
Aggregate Organics																		
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos																		
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																		
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.0030	0.0233	0.0182	0.0543	0.0331	0.0063	0.0046	-	0.4540	0.1060	0.0259	0.0177	0.1480	0.1200	0.1200
Aluminium (Al)-Total (pH Adjusted Guideline)																		
Antimony (Sb)-Total	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.00054	0.00034	0.00036	0.00086	0.00048	0.00063	0.00033	0.00031	0.00034	0.00037	0.00033	0.00035	0.00035	0.00035
Barium (Ba)-Total	mg/L	-	-	0.000050	0.066000	0.064000	0.066300	0.094400	0.071600	0.097400	0.046200	0.044700	0.047200	0.060300	0.060100	0.057400	0.057400	0.057400
Beryllium (Be)-Total	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000045	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Total	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	1.5	-	0.010	0.017	0.013	0.016	0.016	0.019	0.016	<0.010	<0.010	0.012	0.016	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.000050	0.0000579	0.0000333	0.0000459	0.0002090	0.0000633	0.0001960	0.0001170	0.0000576	0.0000434	0.0000524	0.0000514	0.0000511	0.0000511	0.0000511
Cadmium (Cd)-Total (Hardness Adjusted Guideline)																		
Calcium (Ca)-Total	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0001754	0.0003187	0.0003700	0.0003700	0.0003659	0.0003700	0.0003700
Chromium (Cr)-Total	mg/L	-	-	0.050	83.600	87.500	87.300	112.000	134.000	129.000	26.100	43.000	61.800	77.200	58.300	57.900	57.900	57.900
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	0.00084	0.00049	0.00092	0.00092	0.00052	0.00034	0.00384	0.00102	0.00071	<0.00080	0.00109	0.00095	0.00095	0.00095
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	-	-	-	-	-	-	0.00110	0.00102	-	-	0.00109	-	-	-
Cobalt (Co)-Total	mg/L	-	-	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	<0.0010	<0.0010	0.00039	0.00021	0.00038	0.00052	0.00049	0.00049
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.00050	0.000211	0.000192	0.000210	0.000224	0.000225	0.000237	0.00441	0.00379	0.00257	0.00230	0.00350	0.00339	0.00339	0.00339
Copper (Cu)-Total (Hardness Adjusted Guideline)																		
Iron (Fe)-Total	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00263	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Lead (Pb)-Total (Lab Result)	mg/L	0.3	-	0.010	0.061	0.069	0.156	0.119	0.035	0.013	1.150	0.347	0.092	0.076	0.540	0.470	0.540	0.470
Lead (Pb)-Total (Hardness Adjusted Guideline)																		
Lithium (Li)-Total	mg/L	HD	-	0.000050	0.000065	<0.000050	0.000086	0.000068	<0.000050	<0.000050	0.000533	0.000101	<0.000050	<0.000050	0.000305	0.000272	0.000272	0.000272
Lead (Pb)-Total	mg/L	-	-	0.00010	0.0042	0.0052	0.0052	0.0047	0.0084	0.0041	0.0018	0.0024	0.0036	0.0044	0.0029	0.0029	0.0029	0.0029
Magnesium (Mg)-Total	mg/L	-	-	0.10	48.70	53.90	54.90	53.70	71.90	69.10	13.60	25.20	35.30	45.60	33.70	32.00	32.00	32.00
Manganese (Mn)-Total	mg/L	-	-	0.00010	0.02960	0.03540	0.03540	0.03540	0.04380	0.04380	0.00693	0.01300	0.01300	0.01300	0.01200	0.01200	0.01200	0.01200
Mercury (Hg)-Total	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000211	0.0000102	<0.0000050	<0.0000050	0.0000098	0.0000104	0.0000104	0.0000104
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	0.001520	0.001480	0.001460	0.001410	0.001760	0.001400	0.000618	0.000909	0.001360	0.001540	0.001200	0.001260	0.001260	0.001260
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00987	0.00677	0.00795	0.02350	0.01490	0.02720	0.01150	0.00565	0.01050	0.01800	0.00499	0.00487	0.00487	0.00487
Nickel (Ni)-Total (Hardness Adjusted Guideline)																		
Phosphorus (P)-Total	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.069	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total	mg/L	-	-	0.10	0.87	0.86	0.90	0.88	1.02	0.99	1.09	0.69	0.73	0.75	0.56	0.57	0.57	0.57
Selenium (Se)-Total	mg/L	0.001	-	0.000050	0.001240	0.001170	0.001200	0.003010	0.002090	0.003760	0.000829	0.001120	0.000982	0.000878	0.001550	0.001590	0.001590	0.001590
Silicon (Si)-Total	mg/L	-	-	0.10	4.52	4.59	4.68	5.34	5.75	5.33	3.12	3.52	3.94	4.08	4.59	4.70	4.70	4.70
Silver (Ag)-Total	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000035	<0.000010	<0.000010	<0.000010	<0.000010	0.000013	0.000013	0.000013
Sodium (Na)-Total	mg/L	-	-	0.050	3.860	3.930	4.080	4.130	5.300	4.740	1.340	2.310	3.010	2.800	2.770	2.770	2.770	2.770
Strontium (Sr)-Total	mg/L	-	-	0.00020	0.42800	0.45300	0.44900	0.52600	0.59900	0.59600	0.12400	0.21900	0.31600	0.39000	0.27900	0.29300	0.29300	0.29300
Sulfur (S)-Total	mg/L	-	-	0.50	94.40	99.10	100.00	119.00	136.00	141.00	21.20	44.50	61.20	81.00	61.20	65.40	65.40	65.40
Thallium (Tl)-Total	mg/L	0.0008	-	0.000010	0.000029	0.000012	0.000014	0.000041	0.000028	0.000044	0.000019	<0.000010	0.000034	0.000044	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Total	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Total	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	0.00055	<0.00030	<0.00030	0.01090	<0.0024	<0.00030	<0.00060	0.00483	<0.0036	<0.0036	<0.0036
Uranium (U)-Total	mg/L	0.015	-	0.000010	0.003240	0.003680	0.003710	0.003710	0.004080	0.004080	0.001440	0.001440	0.001440	0.001440	0.001440	0.001440	0.001440	0.001440
Vanadium (V)-Total	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00167	<0.00050	<0.00050	<0.				

Water quality results collected at E1 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989169-11 E1 06/09/2017 13:50	L2002383-11 E1 02/10/2017 10:40	L2002383-12 E1-r 02/10/2017 10:45	L2032255-1 E1 05/12/2017 00:00	L2046329-3 E1 15/01/2018 14:20	L2055716-1 E1 11/02/2018 15:20	L2096262-1 E1 15/05/2018 10:20	L2110842-19 E1 11/06/2018 00:00	L2127254-6 E1 09/07/2018 16:50	L2147306-18 E1 12/08/2018 20:05	L2163862-3 E1 10/09/2018 19:20	L2163863-3 E1-r 10/09/2018 19:25
Dissolved Metals																
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0071	0.0484	0.0092	0.0025	0.0045	0.0021	0.1950	0.0828	0.0225	0.0095	0.0368	0.0398
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00050	0.00034	0.00033	0.00073	0.00046	0.00067	0.00016	0.00029	0.00029	0.00033	0.00030	0.00031
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00082	0.00075	0.00073	0.00057	0.00083	0.00060	0.00052	0.00091	0.00091	0.00101	0.00075	0.00080
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.061300	0.064100	0.063700	0.079400	0.069000	0.096200	0.033200	0.043900	0.058800	0.058800	0.053100	0.05700
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.016	0.019	0.011	0.016	0.017	0.016	<0.010	<0.010	0.011	0.014	<0.010	<0.010
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000553	0.0000354	0.0000321	0.0000795	0.0000617	0.0001810	0.0000753	0.0000549	0.0000467	0.0000452	0.0000338	0.0000342
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0001754	0.0003187	0.0003700	0.0003700	0.0003659	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	82.800	84.500	83.900	104.000	119.000	136.000	24.500	51.200	65.600	72.100	56.600	64.300
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00036	0.00037	0.00029	0.00037	0.00035	0.00029	0.00105	0.00047	0.00053	0.00046	0.00057	0.00057
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	<0.0010	-	-	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00013	0.00021	0.00022	<0.00010	<0.00010	<0.00010	0.00050	0.00034	0.00021	0.00034	0.00029	0.00031
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.000020	0.00179	0.00179	0.00181	0.00189	0.00208	0.00208	0.00331	0.00364	0.00268	0.00176	0.00298	0.00353
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00263	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.025	0.039	0.039	<0.010	0.025	<0.010	0.088	0.274	0.088	0.169	0.158	0.158
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000061	0.00008	<0.000050	<0.000050	0.000052	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.00717	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0042	0.0050	0.0049	0.0045	0.0060	0.0053	0.0015	0.0028	0.0028	0.0038	0.0031	0.0031
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	44.10	53.20	52.90	56.20	70.90	63.30	12.60	25.30	37.30	39.80	32.20	31.70
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.02430	0.08420	0.08630	0.00063	0.02300	0.00544	0.11500	0.08220	0.12200	0.08450	0.08980	0.08980
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000130	0.0000101	0.0000069	<0.0000050	0.0000063	0.0000064
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.001300	0.001310	0.001320	0.001240	0.001640	0.001280	0.000430	0.000878	0.001290	0.001420	0.001170	0.001120
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.00817	0.00684	0.00647	0.01720	0.01350	0.02490	0.00502	0.00529	0.01100	0.01530	0.00413	0.00441
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.10488	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	0.85	0.86	0.86	0.91	1.00	0.97	1.06	0.67	0.79	0.81	0.55	0.60
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.001300	0.001210	0.001130	0.003060	0.001880	0.004200	0.000660	0.001010	0.000911	0.000967	0.001500	0.001470
Silicon (Si)-Dissolved	mg/L	-	-	0.050	4.140	4.340	4.380	4.930	5.780	5.390	2.450	3.480	3.820	4.180	4.460	4.380
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	3.630	3.950	3.950	4.180	5.210	4.440	1.250	2.270	3.300	3.780	2.770	2.840
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.40000	0.43100	0.42800	0.54000	0.59600	0.61400	0.11600	0.25000	0.31900	0.35700	0.28200	0.29600
Sulfur (S)-Dissolved	mg/L	-	-	0.50	86.40	95.60	95.60	111.00	141.00	139.00	20.00	40.20	61.60	78.70	58.20	57.50
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	0.000028	0.000013	0.000012	0.000036	0.000025	0.000041	<0.000010	<0.000010	0.000037	0.000038	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0002	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00227	0.00163	<0.00030	<0.00030	<0.00030	<0.00030	0.00108
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.002980	0.003420	0.003450	0.003320	0.004340	0.003680	0.000682	0.001600	0.002210	0.002340	0.002010	0.002100
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	<0.0010	<0.0010	0.0017	<0.0010	<0.0010	<0.0010	0.0031	0.0018	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.31583	0.31639	0.31802	0.29143	0.32017	0.29100	0.17210	0.31334	0.31402	0.31474	0.31402	0.31402
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00045	0.00050	0.00049	0.00036	0.00054	0.00037	0.00091	0.00102	0.00060	0.00051	0.00105	0.00090

Applied Guidelines: *Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME: Freshwater
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
* The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:
Exceeds CCME Guideline
QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at E1 during monthly surface water monitoring

		CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2183280-1 E1 16/10/2018 06:45	L2197029-6 E1 12/11/2018 15:40	L2210580-4 E1 12/12/2018 16:15	L2210580-5 E1-r 12/12/2018 16:20	L2221037-3 E1 14/01/2019 13:35	L2235196-1 E1-r 19/02/2019 11:50	L2241106-5 E1 05/03/2019 11:20	L2263589-6 E1 24/04/2019 15:20	L2263589-5 E1-r 24/04/2019 15:30	L2273032-7 E1 13/05/2019 16:50	L2289891-14 E1 10/06/2019 16:45	L2307083-9 E1 08/07/2019 09:30	L2329874-2 E1 13/08/2019 08:45
Physical Tests																	
Temperature (in-situ)	°C	-	-	-	2.2	0.0	0.5	0.5	1.7	2.1	1.5	1.5	1.5	2.8	19.0	20.5	14.9
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	13.50	12.44	10.53	10.53	4.38	3.18	2.60	12.87	12.87	12.46	8.07	8.01	9.12
Specific Conductivity (in-situ)	µS/cm	-	-	-	643.1	750.1	820.7	820.7	840.8	871.2	901.0	532.0	532.0	188.8	382.3	539.4	662.0
pH (in-situ)	pH	6.5 - 9.0	-	-	8.00	8.01	7.56	7.56	7.53	7.52	7.54	8.01	8.01	7.54	8.21	8.17	8.08
Oxidation - Redox Potential (in-situ)	mV	-	-	-	198.9	214.0	214.3	214.3	210.2	228.5	147.3	186.9	186.9	127.7	210.2	208.4	236.8
Turbidity (in-situ)	NTU	-	-	-	12.80	0.98	0.20	0.20	0.41	0.35	3.50	14.40	14.40	3.14	0.49	0.49	2.46
Conductivity	µS/cm	-	-	-	2	612	707	773	778	795	869	902	521	518	193	388	555
Hardness (as CaCO3)	mg/L	-	-	0.5	339.0	400.0	445.0	431.0	489.0	462.0	517.0	294.0	301.0	100.0	204.0	284.0	357.0
pH (lab)	pH	6.5 - 9.0	-	0.1	8.22	8.16	8.06	8.02	8.02	7.93	7.68	8.04	8.06	7.53	8.20	8.27	8.29
Total Suspended Solids	mg/L	-	-	2	3.3	<2.0	2.4	<2.0	17	<2.0	2.6	2.4	3.2	19	<2.0	<2.0	5.9
Anions and Nutrients																	
Ammonia, Total (as N) ^A	mg/L	Temp,pH-Dep	-	0.0050	0.0154	0.0254	0.0072	0.0060	0.0603	0.0532	0.0603	0.0095	0.0092	0.0088	0.0198	0.0237	0.0101
Temperature and pH adjusted Guideline	mg/L	Temp,pH-Dep	-	-	1.9162	1.9162	6.0200	6.0200	6.0200	6.0200	6.0200	0.0095	0.0092	0.0088	0.0198	0.0237	0.0101
Bromide (Br)	mg/L	-	-	0.050	<0.050	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloride (Cl)	mg/L	120	-	0.50	0.50	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	mg/L	0.12	-	0.020	0.118	0.120	<0.10	<0.10	<0.10	<0.10	<0.10	0.094	0.093	0.048	0.095	0.105	0.118
Nitrate (as N)	mg/L	13	-	0.0050	0.2200	0.0920	0.2610	0.2640	0.0920	0.2210	0.0920	0.0876	0.0774	0.0459	0.0706	0.0407	0.0448
Nitrite (as N)	mg/L	0.06	-	0.0010	0.0024	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011
Phosphorus (P)-Total	mg/L	-	-	0.0020	0.0090	0.0066	0.0043	0.0046	0.0105	0.0086	0.0105	0.0403	0.0414	0.0574	0.0129	0.0075	0.0065
Sulfate (SO4)	mg/L	-	-	0.30	213.00	253.00	257.00	259.00	298.00	310.00	298.00	180.00	180.00	48.20	121.00	187.00	233.00
Sulphide (as S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon																	
Dissolved Organic Carbon	mg/L	-	-	0.5	16.6	17.2	14.5	14.4	12.1	10.5	12.1	22.9	23.0	37.2	21.4	18.2	15.3
Aggregate Organics																	
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos																	
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																	
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.0030	0.0375	0.0229	0.0083	0.0093	0.1120	0.0042	0.1120	0.1260	0.1230	0.6660	0.0831	0.0233	0.0338
Aluminium (Al)-Total (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Total	mg/L	-	-	0.00010	0.00035	0.00040	0.00061	0.00062	0.00084	0.00072	0.00084	0.00027	0.00028	0.00024	0.00030	0.00034	0.00032
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.00082	0.00085	0.00062	0.00062	0.00093	0.00066	0.00093	0.00070	0.00070	0.00130	0.00080	0.00084	0.00080
Barium (Ba)-Total	mg/L	-	-	0.000050	0.058100	0.057100	0.051400	0.051800	0.075900	0.070000	0.075900	0.042200	0.042900	0.047600	0.046000	0.056100	0.054400
Beryllium (Be)-Total	mg/L	-	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Bismuth (Bi)-Total	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	1.5	-	0.010	<0.010	0.014	0.015	0.015	0.015	0.014	0.015	0.011	0.012	<0.010	0.011	0.011	0.012
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.0000050	0.0000392	0.0000606	0.0000765	0.0000805	0.0001240	0.0000817	0.0001240	0.0000697	0.0000693	0.0001030	0.0000576	0.0000377	0.0000292
Cadmium (Cd)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0001585	0.0002864	0.0003700	0.0003700
Calcium (Ca)-Total	mg/L	-	-	0.050	69.400	87.500	80.700	81.600	91.000	90.900	91.000	59.000	59.600	21.700	43.700	59.000	68.100
Chromium (Cr)-Total	mg/L	-	-	0.00010	0.00074	0.00067	0.00055	0.00059	0.00586	0.00050	0.00586	0.00116	0.00122	0.00264	0.00089	0.00046	0.00124
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	-	-	-	-	0.00586	-	-	0.00116	0.00122	0.00264	-	-	0.00124
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	-	-	-	-	<0.00050	-	-	<0.00050	<0.00050	<0.00050	-	-	<0.00050
Cobalt (Co)-Total	mg/L	-	-	0.00010	0.00027	0.00017	<0.00010	<0.00010	0.00049	<0.00010	0.00049	0.00052	0.00051	0.00107	0.00035	0.00015	0.00030
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00274	0.00288	0.00334	0.00330	0.00309	0.00222	0.00309	0.00241	0.00245	0.00433	0.00362	0.00267	0.00250
Copper (Cu)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00236	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	0.010	0.154	0.120	0.027	0.029	0.360	0.014	0.360	0.329	0.329	1.370	0.333	0.081	0.130
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000191	<0.000050	0.000191	0.000072	0.000061	0.000649	0.000136	<0.000050	0.000050
Lead (Pb)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.003182	0.007000	0.007000	0.007000
Lithium (Li)-Total	mg/L	-	-	0.0010	0.0035	0.0042	0.0037	0.0037	0.0045	0.0039	0.0045	0.0040	0.0041	0.0015	0.0025	0.0034	0.0040
Magnesium (Mg)-Total	mg/L	-	-	0.10	43.40	47.20	46.80	46.90	52.20	46.20	52.20	35.40	35.90	10.90	23.70	38.30	48.30
Manganese (Mn)-Total	mg/L	-	-	0.00010	0.07300	0.04770	0.00237	0.00262	0.03900	0.00070	0.03900	0.16300	0.16500	0.16600	0.06790	0.03870	0.09210
Mercury (Hg)-Total	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	0.0000075	0.0000080	0.0000104	0.0000058	0.0000104	0.0000102	0.0000102	0.0000163	0.0000078	0.0000064	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	0.001400	0.001430	0.001230	0.001260	0.001280	0.001410	0.001280	0.000759	0.000759	0.000589	0.001050	0.001420	0.001290
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00540	0.00862	0.02280	0.02260	0.02340	0.01980	0.02340	0.00645	0.00645	0.00664	0.00574	0.00650	0.00507
Nickel (Ni)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.05588	0.15000	0.15000	0.15000
Phosphorus (P)-Total	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.057	<0.050	<0.050	<0.050
Potassium (K)-Total	mg/L	-	-	0.10	6.63	0.73	0.63	0.62	0.72	0.68	0.72	1.37	1.38	0.82	1.12	0.65	0.73
Selenium (Se)-Total	mg/L	0.001	-	0.000050	0.001760	0.002260	0.002980	0.003150	0.003150	0.005460	0.003150	0.001230	0.001150	0.000722	0.001030	0.001230	0.001150
Silicon (Si)-Total	mg/L	-	-	0.10	4.66	5.33	4.55	4.53	4.41	4.93	4.40	4.43	4.43	3.21	3.28	3.45	4.29
Silver (Ag)-Total	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000015	0.000016	0.000031	0.000011	<0.000010	<0.000010
Sodium (Na)-Total	mg/L	-	-	0.050	3.590	3.760	3.660	3.730	3.650	3.550	3.650	2.830	2.830	1.990	2.960	3.960	3.590
Strontium (Sr)-Total	mg/L	-	-	0.00020	0.35700	0.40600	0.37700	0.38100	0.45000	0.43800	0.45000	0.30100	0.30600	0.10700	0.21400	0.31200	0.36900
Sulfur (S)-Total	mg/L	-	-	0.50	76.40	96.30	93.30	106.00	106.00	106.00	106.00	67.60	66.80	18.00	4		

Water quality results collected at E1 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2183280-1 E1 16/10/2018 06:45	L2197029-6 E1 12/11/2018 15:40	L2210580-4 E1 12/11/2018 16:15	L2210580-5 E1-r 12/12/2018 16:20	L2221037-3 E1 14/01/2019 13:35	L2235196-1 E1 19/02/2019 11:50	L2241106-5 E1 05/03/2019 11:20	L2263589-6 E1 24/04/2019 15:20	L2263589-5 E1-r 24/04/2019 15:30	L2273032-7 E1 13/05/2019 16:50	L2289891-14 E1 10/06/2019 16:45	L2307083-9 E1 08/07/2019 09:30	L2329874-2 E1 13/08/2019 08:45
Dissolved Metals																	
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0214	0.0140	0.0065	0.0059	0.0026	0.0028	0.0026	0.0839	0.0849	0.1820	0.0622	0.0228	0.0164
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00031	0.00039	0.00060	0.00062	0.00077	0.00067	0.00077	0.00021	0.00021	0.00019	0.00028	0.00035	0.00030
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00071	0.00077	0.00068	0.00059	0.00059	0.00070	0.00061	0.00060	0.00061	0.00058	0.00071	0.00085	0.00075
Barium (Ba)-Dissolved	mg/L	-	-	0.00050	0.054600	0.055600	0.058400	0.055300	0.069900	0.069900	0.069900	0.045100	0.042700	0.036100	0.046900	0.051700	0.059600
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.010	0.014	0.014	0.014	0.015	0.016	0.015	0.011	0.011	<0.010	<0.010	0.011	0.010
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000341	0.0000558	0.0000868	0.0000890	0.0000827	0.0000848	0.0000827	0.0000684	0.0000570	0.0000662	0.0000477	0.0000396	0.0000218
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0001585	0.0002864	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	70.000	82.200	91.900	88.100	105.000	97.900	105.000	59.400	61.400	21.500	43.000	58.100	69.200
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00044	0.00057	0.00056	0.00056	0.00038	0.00039	0.00038	0.00078	0.00075	0.00136	0.00073	0.00042	0.00035
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00018	0.00016	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00044	0.00044	0.00062	0.00028	0.00015	0.00018
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00276	0.00277	0.00364	0.00357	0.00253	0.00236	0.00236	0.00229	0.00223	0.00338	0.00345	0.00251	0.00226
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00236	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.101	0.082	0.025	0.022	<0.010	<0.010	<0.010	0.223	0.215	0.409	0.239	0.071	0.049
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000084	0.000065	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.003182	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0037	0.0041	0.0038	0.0039	0.0045	0.0039	0.0045	0.0037	0.0040	0.0012	0.0034	0.0034	0.0041
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	39.90	47.40	52.30	51.30	55.30	52.80	55.30	35.40	35.80	11.30	23.40	33.70	44.80
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.05420	0.04220	0.00171	0.00149	0.00047	0.00042	0.00047	0.15300	0.15100	0.12000	0.05630	0.03690	0.04270
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	0.0000115	0.0000098	0.0000077	0.0000069	0.0000077	0.0000083	0.0000076	0.0000107	0.0000067	0.0000060	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.001230	0.001430	0.001250	0.001250	0.001250	0.001190	0.001250	0.000663	0.000659	0.000475	0.0000990	0.001510	0.001300
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.00481	0.00803	0.02430	0.02440	0.01740	0.01990	0.01740	0.00578	0.00564	0.00520	0.00533	0.00638	0.00482
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.00858	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	0.68	0.73	0.65	0.63	0.75	0.71	0.75	1.46	1.46	1.03	0.70	0.68	0.74
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.001880	0.002320	0.002980	0.003050	0.003860	0.005780	0.003860	0.001240	0.001230	0.000743	0.001230	0.001210	0.001280
Silicon (Si)-Dissolved	mg/L	-	-	0.050	4.790	4.930	4.310	4.560	4.870	4.560	4.870	3.880	3.830	2.570	3.290	3.430	4.110
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000011	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	3.340	3.620	4.060	4.040	4.040	3.740	4.040	2.790	2.970	1.170	2.120	2.940	3.550
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.34600	0.41700	0.42600	0.41400	0.46600	0.45200	0.46600	0.29100	0.29200	0.10500	0.21000	0.31000	0.37600
Sulfur (S)-Dissolved	mg/L	-	-	0.50	72.10	83.10	81.70	89.00	106.00	105.00	106.00	62.70	60.40	18.10	40.20	68.70	78.70
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	0.000014	0.000041	0.000037	0.000036	0.000027	0.000036	<0.000010	<0.000010	<0.000010	0.000013	0.000021	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0002	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00060	<0.00060	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00092	0.00085	0.00283	0.00162	<0.00030	<0.00030
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.002750	0.002920	0.002600	0.002560	0.003130	0.002640	0.003130	0.002390	0.002560	0.000580	0.001310	0.002330	0.003030
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	<0.0010	0.0014	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0048	0.0049	0.0030	0.0016	<0.0010	<0.0010
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.30073	0.30355	0.33017	0.31063	0.29830	0.30656	0.33402	0.30656	0.33402	0.15444	0.29451	0.39403	0.32432
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00082	0.00078	0.00051	0.00052	0.00046	0.00039	0.00046	0.00072	0.00066	0.00088	0.00102	0.00073	0.00060

Applied Guidelines: *Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME: Freshwater
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
*The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:
Exceeds CCME Guideline
QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at E1(H) during monthly surface water monitoring

Analyte	Units	CCME Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1898169-10 E1(H) 06/09/2017 11:40	L2002383-6 E1(H) 02/10/2017 09:39	L2020913-1 E1(H) 08/11/2017 14:20	L2020913-4 E1(H) 08/11/2017 14:25	L2032255-2 E1(H) 05/12/2017 13:50	L2046329-4 E1(H) 15/01/2018 14:45	L2046329-5 E1(H) 15/01/2018 14:50	L2056317-3 E1(H) 12/02/2018 12:15	L2056317-1 E1(H) 12/02/2018 12:20	L2079395-8 E1(H) 12/03/2018 15:40	L2079878-1 E1(H) 10/04/2018 11:00	L2079878-2 E1(H) 10/04/2018 11:05	L2096262-3 E1(H) 15/05/2018 16:35	L2110842-18 E1(H) 12/11/2018 17:55	L2127544-3 E1(H) 09/07/2018 15:30	L2147036-1 E1(H) 12/08/2018 18:45	L2164093-3 E1(H) 12/09/2018 10:15	
Physical Tests																						
Temperature (in-situ)	°C	-	-	-	11.7	6.9	1.6	1.6	1.5	0.8	0.8	0.5	0.5	0.2	2.4	2.4	2.3	12.8	18.1	12.9	7.2	
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	9.97	10.29	10.28	10.28	9.49	8.78	8.78	7.40	7.40	5.76	2.98	2.98	11.94	8.50	8.66	6.69	8.82	
Specific Conductivity (in-situ)	µS/cm	-	-	-	724.0	748.6	848.1	848.1	855.5	870.0	870.0	898.7	898.7	898.7	898.7	898.7	288.3	392.5	553.5	457.4	540.7	
pH (in-situ)	pH	6.5 - 9.0	-	-	7.09	7.45	8.02	8.02	7.62	7.48	7.48	7.37	7.37	7.52	7.24	7.24	7.24	7.54	7.88	7.45	7.17	
Oxidation - Redox Potential (in-situ)	mV	-	-	-	68.3	59.2	441.3	441.3	343.3	237.2	237.2	330.5	330.5	302.1	198.2	198.2	361.9	80.8	253.8	294.9	191.0	
Turbidity (in-situ)	NTU	-	-	-	0.79	1.68	1.16	1.16	2.19	0.71	0.62	0.78	0.78	0.64	0.69	0.69	13.71	3.08	0.69	2.04	7.41	
Conductivity	µS/cm	-	-	-	702	743	848	848	871	856	860	911	914	863	856	863	290	400	554	707	541	
Hardness (as CaCO3)	mg/L	-	-	-	0.5	373.0	422.0	494.0	488.0	512.0	508.0	507.0	513.0	517.0	522.0	522.0	148.0	237.0	343.0	275.0	275.0	
pH (lab)	pH	6.5 - 9.0	-	-	0.1	8.18	8.23	8.30	8.18	8.13	8.19	8.20	7.92	7.95	7.81	7.96	7.95	7.75	8.03	8.26	8.16	8.17
Total Suspended Solids	mg/L	-	-	-	2	<3.0	<2.0	2.7	2.5	<2.0	<2.0	<2.0	2.6	<2.0	<2.0	<2.0	9.8	<2.0	2.6	4.6	4.1	
Anions and Nutrients																						
Ammonia Total (as N) ¹	mg/L	Temp, pH-Dep	-	-	0.0050	0.0202	0.0291	0.0330	0.0332	0.0248	0.0102	0.0112	0.0128	0.0089	0.0085	0.0113	0.0152	0.0202	0.0148	0.0318	0.0160	0.0051
Ammonia (as N) ¹	mg/L	Temp, pH-Dep	-	-	8.4707	3.9804	1.9162	1.9162	6.0200	6.0200	6.0200	6.0200	6.0200	6.0200	6.0200	6.0200	18.9974	18.9974	1.8257	4.0204	1.8257	12.5827
Bromide (Br)	mg/L	-	-	-	0.050	<0.050	<0.050	<0.050	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.50	<0.50	<0.50	<0.50	<0.50	
Chloride (Cl)	mg/L	120	-	-	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
Fluoride (F)	mg/L	0.12	-	-	0.020	0.116	0.121	0.145	0.143	0.140	0.130	0.120	0.120	0.120	0.120	0.130	0.130	0.075	0.088	0.102	0.121	0.101
Nitrate (as N)	mg/L	13	-	-	0.0050	0.0172	0.0389	0.0767	0.1380	0.1120	0.1060	0.1090	0.1380	0.1360	0.1410	0.1400	0.0675	0.0742	0.0459	0.0754	0.2650	
Nitrite (as N)	mg/L	0.06	-	-	0.0010	0.0011	0.0052	0.0134	0.0128	0.0287	0.0287	0.0287	0.0287	0.0287	0.0287	0.0287	0.0050	0.0050	0.0050	0.0050	0.0050	
Phosphorus (P)-Total	mg/L	-	-	-	0.0020	0.0038	0.0047	0.0033	0.0036	0.0046	0.0038	0.0031	0.0034	0.0035	0.0047	0.0057	0.0039	0.0039	0.0039	0.0039	0.0039	
Sulfate (SO4)	mg/L	-	-	-	0.30	244.00	268.00	305.00	303.00	311.00	308.00	312.00	318.00	317.00	313.00	307.00	83.50	123.00	185.00	236.00	178.00	
Sulphide (as S)	mg/L	-	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sulphide (as H2S)	mg/L	-	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Organic / Inorganic Carbon																						
Dissolved Organic Carbon	mg/L	-	-	-	0.5	15.7	14.8	16.0	14.7	14.6	14.8	15.0	15.2	15.0	12.8	14.2	14.3	32.8	26.7	20.2	16.6	17.8
Aggregate Organics																						
Biological Oxygen Demand (BOD)	mg/L	-	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Asbestos																						
Total Asbestos concentration	MFL	-	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Metals																						
Aluminum (Al)-Total	mg/L	pH-Dep	-	-	0.0030	0.0234	0.0159	0.0160	0.0185	0.0339	0.0130	0.0125	0.0175	0.0151	0.0091	0.0100	0.0100	0.3680	0.1150	0.0410	0.0323	0.1430
Aluminum (Al)-Total (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Total	mg/L	-	-	-	0.00010	0.00036	0.00032	0.00032	0.00031	0.00039	0.00030	0.00031	0.00039	0.00063	0.00030	0.00030	0.00032	0.00021	0.00029	0.00032	0.00033	0.00035
Arsenic (As)-Total	mg/L	0.005	-	-	0.00010	0.00077	0.00075	0.00067	0.00070	0.00077	0.00068	0.00077	0.00068	0.00075	0.00068	0.00068	0.00068	0.00068	0.00068	0.00068	0.00068	0.00068
Barium (Ba)-Total	mg/L	-	-	-	0.000050	0.064100	0.063200	0.067100	0.067200	0.080000	0.071000	0.072300	0.065100	0.066500	0.065100	0.065100	0.065100	0.065100	0.065100	0.065100	0.065100	0.065100
Beryllium (Be)-Total	mg/L	-	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000039	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Total	mg/L	-	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	1.5	-	-	0.010	0.010	0.011	0.011	0.013	0.012	0.014	0.013	0.013	0.015	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	-	0.0000050	0.0000323	0.0000325	0.0000342	0.0000330	0.0000412	0.0000403	0.0000433	0.0000366	0.0000366	0.0000399	0.0000359	0.0000383	0.0000310	0.0000332	0.0000439	0.0000588	0.0000588
Cadmium (Cd)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700
Calcium (Ca)-Total	mg/L	-	-	-	0.50	79.100	87.600	99.100	99.100	101.000	115.000	117.000	107.000	107.000	109.000	95.700	92.600	42.200	58.700	77.800	57.800	57.800
Chromium (Cr)-Total	mg/L	-	-	-	0.00010	0.00047	0.00037	0.00039	0.00041	0.00102	0.00040	0.00041	0.00067	0.00048	0.00041	0.00036	0.00055	0.00171	0.00104	0.00063	<0.00080	0.00096
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	-	0.00010	-	-	-	-	0.00102	-	-	-	-	-	-	-	<0.0010	0.00104	-	-	-
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	-	0.00010	-	-	-	-	<0.0010	-	-	-	-	-	-	-	<0.0010	<0.0010	-	-	-
Cobalt (Co)-Total	mg/L	-	-	-	0.00010	0.00036	0.00035	0.00037	0.00037	0.00040	0.00032	0.00039	0.00035	0.00035	0.00035	0.00035	0.00035	0.00035	0.00035	0.00035	0.00035	0.00035
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	-	0.00236	0.00198	0.00198	0.00204	0.00203	0.00187	0.00213	0.00216	0.00173	0.00188	0.00173	0.00188	0.00173	0.00193	0.00193	0.00193	0.00193	0.00193
Copper (Cu)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	-	0.010	0.075	0.072	0.067	0.065	0.117	0.063	0.066	0.100	0.092	0.062	0.053	0.068	0.017	0.017	0.157	0.155	0.400
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000071	<0.000050	<0.000050	0.001150	0.001140	<0.000050	<0.000050	<0.000362	0.000118	<0.000050	<0.000050	<0.000050	0.000276
Lead (Pb)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Total	mg/L	-	-	-	0.0042	0.0054	0.0061	0.0057	0.0057	0.0067	0.0066	0.0072	0.0061	0.0061	0.0060	0.0060	0.0021	0.0023	0.0035	0.0045	0.0030	0.0030
Magnesium (Mg)-Total	mg/L	0.10	-	-	47.00	53.10	60.70	60.50	56.40	61.80	62.30	56.00	56.80	62.10	60.30	60.60	17.60	24.70	34.10	46.80	32.70	32.70
Manganese (Mn)-Total	mg/L	-	-	-	0.00010	0.12300	0.19200	0.30300	0.30000	0.29300	0.30800	0.31200	0.28700	0.29200	0.33600	0.32300	0.32200	0.18000	0.14700	0.06600	0.16300	0.14500
Mercury (Hg)-Total	mg/L	0.000050	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000150	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum (Mo)-Total	mg/L	0.073	-	-	0.000050	0.001530	0.001460	0.001580	0.001560	0.001480	0.001560	0.001470	0.001550	0.001600	0.001500	0.001590	0.000593	0.000863	0.001050	0.001350	0.001310	0.001310
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	-	0.000050	0.000470	0.000522	0.000531														

Water quality results collected at E1(H) during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L19891609-10 E1(H) 06/09/2017 11:40	L2002383-6 E1(H) 02/10/2017 09:39	L2020913-1 E1(H) 08/11/2017 14:20	L2020913-4 E1(H) 08/11/2017 14:25	L2032255-2 E1(H) 05/12/2017 13:50	L2046325-4 E1(H) 15/01/2018 14:45	L2046325-5 E1(H) 15/01/2018 14:50	L2056317-3 E1(H) 12/02/2018 12:15	L2056317-1 E1(H) 12/02/2018 12:20	L2067395-8 E1(H) 12/03/2018 15:40	L2078978-1 E1(H) 10/04/2018 11:00	L2078978-2 E1(H) 10/04/2018 11:05	L2096262-3 E1(H) 15/05/2018 16:35	L2110842-18 E1(H) 11/06/2018 17:55	L2127254-7 E1(H) 09/07/2018 15:30	L2147306-19 E1(H) 12/08/2018 18:45	L2164003-3 E1(H) 12/09/2018 10:15
Dissolved Metals																					
Aluminum (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0153	0.0121	0.0097	0.0109	0.0101	0.0083	0.0088	0.0076	0.0081	0.0086	0.0081	0.0076	0.1770	0.0993	0.0399	0.0230	0.0386
Aluminum (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00032	0.00030	0.00029	0.00027	0.00030	0.00028	0.00034	0.00033	0.00029	0.00026	0.00027	0.00014	0.00028	0.00029	0.00029	0.00031	0.00031
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00072	0.00065	0.00067	0.00062	0.00063	0.00061	0.00065	0.00071	0.00071	0.00063	0.00059	0.00061	0.00052	0.00075	0.00070	0.00064	0.00076
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.060400	0.061900	0.066900	0.066400	0.069200	0.067300	0.070200	0.070500	0.070200	0.065300	0.072100	0.073800	0.037400	0.049400	0.048600	0.054800	0.052300
Beryllium (Be)-Dissolved	mg/L	-	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	<0.010	0.010	<0.010	<0.010	0.012	0.012	0.012	0.011	0.011	0.011	0.011	<0.010	<0.010	<0.010	0.010	<0.010	<0.010
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000351	0.0000267	0.0000345	0.0000369	0.0000331	0.0000369	0.0000332	0.0000396	0.0000445	0.0000309	0.0000375	0.0000309	0.0000714	0.0000610	0.0000408	0.0000360	0.0000429
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	78.500	83.800	98.000	94.700	98.600	103.000	99.900	111.000	112.000	101.000	107.000	106.000	31.500	48.000	59.400	72.200	56.500
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00023	0.00024	0.00026	0.00031	0.00039	0.00028	0.00027	0.00021	0.00023	0.00024	0.00023	0.00023	0.00049	0.00046	0.00025	0.00030	0.00034
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00030	0.00032	0.00035	0.00034	0.00033	0.00027	0.00028	0.00023	0.00024	0.00024	0.00023	0.00023	0.00049	0.00046	0.00025	0.00030	0.00034
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00203	0.00171	0.00175	0.00180	0.00188	0.00177	0.00181	0.00216	0.00192	0.00164	0.00171	0.00173	0.00405	0.00307	0.00238	0.00307	0.00307
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.044	0.044	0.050	0.050	0.049	0.044	0.056	0.039	0.044	0.046	0.045	0.045	0.312	0.160	0.095	0.168	0.168
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	0.000052	0.000066	<0.000050	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0043	0.0050	0.0057	0.0050	0.0059	0.0060	0.0061	0.0064	0.0064	0.0058	0.0058	0.0056	0.0018	0.0026	0.0035	0.0043	0.0030
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	42.90	60.50	61.20	58.60	62.10	55.60	62.90	61.40	61.40	65.10	62.30	65.30	16.90	28.00	34.30	39.40	33.40
Manganese (Mn)-Dissolved	mg/L	-	-	0.0010	0.11000	0.17800	0.32500	0.32200	0.29300	0.30000	0.29500	0.27000	0.26900	0.34000	0.34500	0.33900	0.14900	0.14500	0.06250	0.13100	0.10400
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000093	0.0000094	<0.0000050	0.0000071	0.0000071
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.001280	0.001280	0.001340	0.001280	0.001440	0.001150	0.001440	0.001340	0.001440	0.001490	0.001490	0.001480	0.000481	0.000811	0.001170	0.001170	0.001170
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.00466	0.00466	0.00512	0.00515	0.00537	0.00534	0.00522	0.00536	0.00532	0.00557	0.00564	0.00564	0.00414	0.00528	0.00478	0.00476	0.00397
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.12875	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	0.93	0.93	0.84	1.01	0.97	0.96	1.13	1.05	1.05	1.04	1.11	1.04	0.75	0.68	0.79	0.55	0.55
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.001450	0.001280	0.001250	0.001250	0.001280	0.001140	0.001270	0.001340	0.001340	0.001340	0.001300	0.001290	0.000663	0.000910	0.001050	0.001030	0.001460
Silicon (Si)-Dissolved	mg/L	-	-	0.050	4.050	5.000	4.450	5.110	5.330	5.460	5.240	5.160	5.160	5.360	5.300	5.300	3.410	2.700	4.260	4.410	4.410
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	3.670	3.740	4.400	4.450	4.600	4.760	4.760	4.820	4.820	4.800	5.100	4.940	1.710	2.550	3.070	3.740	2.840
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.38900	0.47000	0.43000	0.47000	0.45200	0.54500	0.55300	0.53400	0.53400	0.55200	0.53800	0.54600	0.15400	0.15400	0.23800	0.31400	0.28600
Sulfur (S)-Dissolved	mg/L	-	-	0.50	85.60	91.90	98.50	98.10	107.00	115.00	119.00	111.00	108.00	98.50	110.00	108.00	27.10	99.60	61.70	79.90	57.60
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00196	0.00184	<0.00060	<0.00030	0.00102
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.003290	0.003510	0.003410	0.003290	0.003970	0.003820	0.003990	0.003860	0.003990	0.003860	0.003950	0.004050	0.001060	0.001600	0.002470	0.003080	0.002050
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	<0.0010	0.0018	0.0024	0.0024	0.0040	0.0023	0.0026	0.0044	0.0037	0.0066	0.0026	0.0013	0.0032	0.0017	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	0.32633	0.32174	0.32782	0.32782	0.32782	0.32669	0.32174	0.32278	0.32281	0.32278	0.31072	0.31856	0.31919	0.21548	0.31896	0.33602	0.33073	0.33602
Zinc (Zn)-Dissolved	mg/L	-	-	0.00050	0.00054	0.00055	0.00055	0.00055	0.00062	0.00063	0.00057	0.00059	0.00056	0.00063	0.00058	0.00061	0.00085	0.00100	0.00079	0.00068	0.00098

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:
 HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
 DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
 * The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MPL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:
 Exceeds CCME Guideline
 OATOC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at E1(H) during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2183280-8 E1(H) 16/10/2018 16:45	L2183280-9 E1(H) 16/10/2018 17:00	L2198094-1 E1(H) 15/11/2018 12:50	L2211082-2 E1(H) 13/12/2018 14:45	L2221037-4 E1(H) 14/01/2019 14:15	L2221037-5 E1(H) 14/01/2019 14:15	L2235196-3 E1(H) 19/02/2019 13:30	L2235196-7 E1(H) 19/02/2019 13:40	L2241106-6 E1(H) 05/03/2019 12:00	L2263589-12 E1(H) 25/04/2019 10:30	L2274425-5 E1(H) 14/05/2019 14:30	L2274425-4 E1(H) 14/05/2019 14:40	L2289891-12 E1(H) 10/06/2019 18:00	L2307083-10 E1(H) 08/07/2019 08:35	L2307083-11 E1(H) 08/07/2019 08:45	L2329874-4 E1(H) 13/08/2019 09:40
Physical Tests																				
Temperature (in-situ)	°C	-	-	-	2.4	2.4	0.4	0.6	0.5	0.5	0.4	0.4	0.4	0.8	2.2	2.2	19.2	20.9	20.9	15.2
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	11.41	11.41	11.39	8.12	10.48	10.48	8.40	8.40	9.68	10.38	11.81	11.81	8.91	8.07	8.07	6.71
Specific Conductivity (in-situ)	µS/cm	-	-	-	634.2	634.2	694.2	780.2	710.0	710.0	740.4	740.4	755.7	418.1	289.3	289.3	543.0	543.0	543.0	663.0
pH (in-situ)	pH	6.5 - 9.0	-	-	7.82	7.82	7.61	7.33	7.67	7.67	7.60	7.60	7.61	7.38	7.36	7.36	7.78	7.83	7.83	7.89
Oxidation - Redox Potential (in-situ)	mV	-	-	-	194.4	194.4	232.7	-34.6	221.0	221.0	231.0	231.0	161.4	194.8	177.2	177.2	190.0	231.8	231.8	229.6
Turbidity (in-situ)	NTU	-	-	-	3.59	3.59	1.35	0.98	0.97	0.97	0.85	0.85	0.97	2.52	2.30	2.30	5.15	0.57	0.57	1.13
Conductivity	µS/cm	-	-	-	2	2	995	596	689	703	670	668	737	713	787	292	199	562	550	658
Hardness (as CaCO3)	mg/L	-	-	-	0.5	0.5	328.0	384.0	395.0	408.0	392.0	409.0	424.0	229.0	141.0	135.0	280.0	276.0	276.0	362.0
pH (lab)	pH	6.5 - 9.0	-	-	0.1	0.1	8.24	8.24	7.87	8.11	8.10	7.95	7.94	7.79	7.92	7.88	8.14	8.22	8.24	8.33
Total Suspended Solids	mg/L	-	-	-	2	13	3.4	<2.0	<2.0	<2.0	2	2.3	<2.0	<2.0	12	9.5	4.5	<2.0	<2.0	2.4
Anions and Nutrients																				
Ammonia Total (as N)	mg/L	Temp, pH-Dep	-	-	0.0050	0.0094	0.0110	0.0186	0.0232	0.0123	0.0071	0.0122	0.0142	0.0093	0.0082	0.0128	0.0131	0.0106	0.0141	0.0091
(Temperature and pH adjusted Guideline)																				
Bromide (Br)	mg/L	Temp, pH-Dep	-	-	1.9162	1.9162	6.0200	6.0200	6.0200	6.0200	6.0200	6.0200	6.0200	6.0200	6.0200	6.0200	6.0200	6.0200	6.0200	6.0200
Chloride (Cl)	mg/L	-	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Fluoride (F)	mg/L	0.12	-	-	0.020	0.117	0.116	0.115	0.120	0.129	0.129	0.127	0.110	0.078	0.075	0.089	0.107	0.109	0.116	0.116
Nitrate (as N)	mg/L	13	-	-	0.0050	0.1970	0.2010	0.2210	0.2130	0.2400	0.2380	0.2490	0.2590	0.0323	0.0508	0.0508	0.0686	0.0207	0.0173	0.0364
Nitrite (as N)	mg/L	0.06	-	-	0.0010	0.0036	0.0041	0.0057	0.0024	0.0024	<0.0010	<0.0010	<0.0050	<0.0010	<0.0010	<0.0010	0.0013	0.0013	0.0015	0.0015
Phosphorus (P)-Total	mg/L	-	-	-	0.0020	0.0171	0.0204	0.0076	0.0083	0.0052	0.0063	0.0061	0.0056	0.0047	0.0031	0.0034	0.0163	0.0083	0.0087	0.0058
Sulfate (SO4)	mg/L	-	-	-	0.30	205.00	205.00	231.00	234.00	241.00	241.00	253.00	264.00	135.00	89.30	87.60	119.00	182.00	183.00	233.00
Sulphide (as S)	mg/L	-	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon																				
Dissolved Organic Carbon	mg/L	-	-	-	0.5	17.6	18.0	17.3	16.7	19.7	18.2	16.4	16.3	16.1	26.6	31.8	21.6	19.4	20.3	14.7
Aggregate Organics																				
Biological Oxygen Demand (BOD)	mg/L	-	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos																				
Total Asbestos concentration	MFL	-	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																				
Aluminium (Al)-Total	mg/L	pH-Dep	-	-	0.0030	0.0553	0.0503	0.0295	0.0286	0.0212	0.0245	0.0186	0.0183	0.0221	0.1200	0.5280	0.5460	0.1250	0.0365	0.0264
(Aluminium (Al)-Total (pH Adjusted Guideline))																				
Antimony (Sb)-Total	mg/L	-	-	-	0.00010	0.00038	0.00034	0.00033	0.00032	0.00033	0.00032	0.00031	0.00031	0.00021	0.00027	0.00013	0.00028	0.00033	0.00033	0.00031
Arsenic (As)-Total	mg/L	0.005	-	-	0.00010	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005
Barium (Ba)-Total	mg/L	-	-	-	0.000050	0.057900	0.058000	0.057200	0.058600	0.056700	0.055000	0.059000	0.057000	0.053000	0.035800	0.052800	0.048800	0.053800	0.056400	0.056800
Beryllium (Be)-Total	mg/L	-	-	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.000042	0.000034	0.000026	<0.00020	<0.00020
Bismuth (Bi)-Total	mg/L	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	1.5	-	-	0.010	<0.010	<0.010	0.011	0.011	0.010	<0.010	0.010	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.012
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	-	0.0000050	0.0000501	0.0000495	0.0000520	0.0000491	0.0000471	0.0000503	0.0000468	0.0000505	0.0000526	0.0000688	0.0000818	0.0000792	0.0000558	0.0000321	0.0000344
(Cadmium (Cd)-Total (Hardness Adjusted Guideline))																				
Calcium (Ca)-Total	mg/L	-	-	-	0.050	65.900	66.300	81.100	74.800	74.800	72.600	71.500	88.100	44.600	32.300	31.500	42.900	56.400	58.100	71.600
Chromium (Cr)-Total	mg/L	-	-	-	0.00010	0.00156	0.00069	0.00070	0.00055	0.00042	0.00096	0.00092	0.00051	0.00051	0.00111	0.00230	0.00237	0.00097	0.00050	0.00036
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	-	0.00156	-	-	-	-	-	0.00596	-	-	-	0.00111	0.00230	0.00237	-	-	-
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	-	<0.00010	-	-	-	-	-	<0.00050	-	-	-	<0.00050	<0.00050	-	-	-	-
Cobalt (Co)-Total	mg/L	-	-	-	0.00010	0.00041	0.00037	0.00037	0.00031	0.00030	0.00033	0.00025	0.00025	0.00026	0.00043	0.00095	0.00091	0.00056	0.00033	0.00034
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	-	0.00050	0.00290	0.00292	<0.0030	0.00276	0.00250	0.00266	0.00226	0.00216	0.00216	0.00380	0.00377	0.00394	0.00303	0.00302	0.00280
(Copper (Cu)-Total (Hardness Adjusted Guideline))																				
Iron (Fe)-Total	mg/L	0.3	-	-	0.010	0.0237	0.186	0.140	0.115	0.111	0.132	0.102	0.094	0.094	0.292	1.060	1.060	0.466	0.147	0.145
(Iron (Fe)-Total (Hardness Adjusted Guideline))																				
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	-	0.000050	0.000093	0.000079	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000052	0.000477	0.000207	<0.000050	<0.000050	0.000056
(Lead (Pb)-Total (Hardness Adjusted Guideline))																				
Lithium (Li)-Total	mg/L	-	-	-	0.0010	0.0035	0.0033	0.0038	0.0037	0.0042	0.0042	0.0040	0.0038	0.0043	0.0031	0.0024	0.0023	0.0025	0.0033	0.0034
Magnesium (Mg)-Total	mg/L	-	-	-	0.10	39.60	41.00	46.30	44.20	42.80	44.00	39.60	49.20	27.00	18.50	19.00	23.70	38.20	36.90	48.10
Manganese (Mn)-Total	mg/L	-	-	-	0.00010	0.14500	0.13800	0.14900	0.15100	0.15000	0.15300	0.15300	0.17400	0.15400	0.16600	0.16800	0.08310	0.08830	0.08880	0.09240
Mercury (Hg)-Total	mg/L	0.000026	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000100	0.0000092	0.0000098	0.0000080	0.0000055	0.0000052	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.073	-	-	0.000050	0.001380	0.001360	0.001330	0.001380	0.001370	0.001400	0.001340	0.001380	0.001374	0.000688	0.000664	0.001280	0.001230	0.001270	0.001420
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	-	0.00050	0.00627	0.00513	0.00495	0.00490	0.00475	0.00563	0.00458	0.00438	0.00519	0.0518	0.0655	0.00492	0.00434	0.00389	0.00389
(Nickel (Ni)-Total (Hardness Adjusted Guideline))																				
Phosphorus (P)-Total	mg/L	-	-	-	0.0020	0.0171	0.0204	0.0076	0.0083	0.0052	0.0063	0.0061	0.0056	0.0047	0.0031	0.0034	0.0163	0.0083	0.0087	0.0058
Potassium (K)-Total	mg/L	-	-	-	0.10	0.62	0.64	0.67	0.66	0.62	0.63	0.68	0.63	0.73	1.38	1.11	1.15	0.66	0.66	0.74
Selenium (Se)-Total	mg/L	0.001	-	-	0.000050	0.001790	0.001660	0.001610	0.001570	0.001590	0.001600	0.001730	0.001650	0.001730	0.001680	0.001680	0.001370	0.001370	0.001470	0.001200
Silver (Ag)-Total	mg/L	0.10	-	-	0.000050	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Silver (Ag)-Total	mg/L	0.00025	-	-	0.000010	<0.000010	<0.000010	0.000014	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000013	0.000024	0.000029	0.000011	<0.000010	<0.000010
Sodium (Na)-Total	mg/L	-	-	-	0.950	3.360	3.530	3.600	3.420	3.390	3.480	3.470	3.950	2.330	1.810	1.680	2.940	2.930	2.930	3.520
Strontium (Sr)-Total	mg/L	-	-	-	0.00020	0.34100	0.33700	0.40000	0.40400	0.38500	0.37100	0.36000	0.36800	0.28000	0.16900	0.16100	0.21200	0.38600	0.34400	0.37600
Sulfur (S)-Total	mg/L	0.50	-	-	71.90	71.90	80.40	80.40	80.40	80.40	86.80	86.80	92.70	50.80	32.70	31.60	66.10	66.10	66.20	80.90
Thallium (Tl)-Total	mg/L	0.0008	-	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Total	mg/L	-	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	&					

Water quality results collected at E1(H) during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2189280-8 E1(H) 16/10/2018 16:45	L2189280-9 E1(H) 16/10/2018 17:00	L2198094-1 E1(H) 15/11/2018 12:50	L2211082-2 E1(H) 13/12/2018 14:45	L2221037-4 E1(H) 14/01/2019 14:10	L2221037-5 E1(H) 14/01/2019 14:15	L2235196-3 E1(H) 19/02/2019 13:30	L2235196-7 E1(H) 19/02/2019 13:40	L2341106-6 E1(H) 05/03/2019 12:00	L2263589-12 E1(H) 25/04/2019 10:30	L2274425-5 E1(H) 14/05/2019 14:30	L2274425-4 E1(H) 14/05/2019 14:40	L2289891-12 E1(H) 10/06/2019 18:00	L2307083-10 E1(H) 08/07/2019 08:35	L2307083-11 E1(H) 08/07/2019 08:45	L2329874-4 E1(H) 13/08/2019 09:40
Dissolved Metals																				
Aluminum (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0248	0.0244	0.0200	0.0226	0.0174	0.0187	0.0175	0.0170	0.0168	0.0096	0.1560	0.1530	0.0680	0.0342	0.0350	0.0185
Aluminum (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00029	0.00029	0.00032	0.00030	0.00031	0.00031	0.00030	0.00030	0.00030	0.00031	0.00018	0.00017	0.00026	0.00032	0.00032	0.00030
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00069	0.00073	0.00071	0.00070	0.00067	0.00071	0.00065	0.00062	0.00062	0.00054	0.00064	0.00061	0.00072	0.00074	0.00076	0.00066
Barium (Ba)-Dissolved	mg/L	-	-	0.00050	0.055600	0.055300	0.057000	0.066400	0.057100	0.056800	0.055100	0.054700	0.061600	0.036400	0.037900	0.036100	0.046500	0.049700	0.049400	0.058700
Beryllium (Be)-Dissolved	mg/L	-	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.00050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	<0.010	<0.010	<0.010	0.011	0.010	0.011	0.011	0.011	0.011	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000429	0.0000394	0.0000506	0.0000466	0.0000391	0.0000390	0.0000447	0.0000446	0.0000461	0.0000569	0.0000536	0.0000557	0.0000336	0.0000353	0.0000292	0.0000292
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001513	0.0002108	0.0002013	0.0002817	0.0001725	0.0001681	0.0001700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	67.300	65.100	78.600	81.400	85.400	79.500	86.100	89.000	89.000	48.000	29.500	28.300	41.800	57.000	55.600	71.200
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00044	0.00047	0.00043	0.00043	0.00041	0.00044	0.00038	0.00042	0.00042	0.00096	0.00248	0.00242	0.00071	0.00045	0.00047	0.00033
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	-	0.00248	0.00242	-	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	-	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00026	0.00026	0.00031	0.00031	0.00025	0.00025	0.00023	0.00021	0.00022	0.00042	0.00058	0.00057	0.00043	0.00032	0.00033	0.00021
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00277	0.00277	0.00275	0.00274	0.00250	0.00252	0.00245	0.00240	0.00249	0.00214	0.00279	0.00282	0.00353	0.00285	0.00292	0.00234
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.108	0.109	0.104	0.110	0.084	0.086	0.084	0.083	0.084	0.234	0.339	0.355	0.280	0.130	0.124	0.046
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000066	0.000073	0.000069	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.004927	0.004662	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0034	0.0035	0.0038	0.0041	0.0043	0.0041	0.0041	0.0039	0.0046	0.0029	0.0019	0.0019	0.0023	0.0033	0.0031	0.0043
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	38.80	39.30	45.50	46.50	47.30	46.90	46.20	45.60	48.90	26.60	16.40	15.60	23.30	33.50	33.30	44.80
Manganese (Mn)-Dissolved	mg/L	-	-	0.0010	0.10600	0.10600	0.13800	0.14800	0.13500	0.13500	0.13500	0.14500	0.14100	0.16700	0.15600	0.12900	0.11000	0.07700	0.07700	0.05190
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000061	0.0000058	0.0000058	0.0000054	0.0000050	0.0000079	<0.0000050	<0.0000050	<0.0000050	0.0000059	0.0000066	0.0000052	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.001170	0.001190	0.001390	0.001490	0.001420	0.001410	0.001440	0.001390	0.000495	0.000495	0.000543	0.000598	0.000945	0.001230	0.001210	0.001340
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.00444	0.00443	0.00464	0.00501	0.00469	0.00461	0.00458	0.00464	0.00497	0.00522	0.00521	0.00443	0.00426	0.00426	0.00426	0.00448
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.12410	0.12006	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	0.69	0.68	0.70	0.68	0.71	0.68	0.71	0.68	0.72	1.54	1.02	0.99	0.67	0.66	0.66	0.74
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.001730	0.001780	0.002080	0.001780	0.002120	0.002130	0.002010	0.001900	0.002010	0.001020	0.000806	0.000699	0.001260	0.001330	0.001230	0.001310
Silicon (Si)-Dissolved	mg/L	-	-	0.050	4.720	4.940	4.880	5.050	5.100	4.940	4.840	4.970	3.360	2.920	2.860	3.250	3.580	3.420	3.580	4.220
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	3.300	3.280	3.620	3.800	3.840	3.800	3.710	3.630	3.740	2.350	1.540	1.540	2.110	2.930	2.950	3.550
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.32700	0.32400	0.40100	0.40900	0.39600	0.41000	0.41700	0.41300	0.39900	0.21600	0.16000	0.15100	0.20100	0.29600	0.28200	0.38200
Sulfur (S)-Dissolved	mg/L	-	-	0.50	69.10	69.30	85.00	80.20	88.80	90.20	88.00	87.20	86.60	44.30	27.70	27.20	40.10	66.40	62.00	78.40
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	0.00035	0.00043	0.00042	0.00043	0.00033	0.00033	0.00032	<0.00030	0.00038	0.00103	0.00190	0.00181	0.00150	0.00051	0.00039	<0.00030
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.002590	0.002630	0.002790	0.002830	0.003010	0.002800	0.002760	0.003000	0.001830	0.001180	0.001200	0.001190	0.002430	0.002340	0.002950	0.002950
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	<0.0010	<0.0010	<0.0010	0.00012	<0.0010	0.0001	<0.0010	<0.0010	<0.0010	0.0060	0.0028	0.0030	0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	0.33402	0.33402	0.33402	0.33321	0.33402	0.33402	0.33377	0.33298	0.32831	0.32831	0.30957	0.30959	0.27600	0.33402	0.33402	0.33402	0.32122
Zinc (Zn)-Dissolved	mg/L	-	-	0.00078	0.00083	0.00087	0.00080	0.00080	0.00088	0.00089	0.00082	0.00081	0.00071	0.00062	0.00089	0.00086	0.00098	0.00084	0.00086	0.00062

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:
 HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
 DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
 * The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MPL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:
 Exceeds CCME Guideline
 OA/OC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at E2 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L198917-17 E2 08/09/2017 18:35	L2002383-15 E2 02/10/2017 11:20	L2020322-8 E2 06/11/2017 13:45	L2031552-1 E2 04/12/2017 14:05	L2045168-6 E2 14/01/2018 14:05	L2055716-5 E2 11/02/2018 13:00	L2067395-9 E2 12/03/2018 13:35	L2067395-6 E2 12/03/2018 13:40	L2078526-9 E2 09/04/2018 14:25	L2094958-6 E2 14/05/2018 16:20	L2112699-7 E2 12/06/2018 10:45	L2127254-11 E2 09/07/2018 17:20	L2147306-10 E2 13/08/2018 13:35	L2147306-11 E2 13/08/2018 13:50
Physical Tests																		
Temperature (in-situ)	°C	-	-	-	10.0	6.7	1.7	1.0	1.3	1.0	1.4	1.4	2.7	2.7	11.9	14.0	13.1	13.1
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	9.83	11.07	9.58	9.88	10.50	8.90	8.63	8.63	8.01	13.42	10.04	7.88	7.95	7.95
Specific Conductivity (in-situ)	µS/cm	-	-	-	1272.0	1020.0	1640.0	1667.0	1818.0	1505.0	1720.0	1720.0	912.0	280.8	557.6	1033.0	1180.0	1180.0
pH (in-situ)	pH	6.5 - 9.0	-	-	7.81	8.33	7.67	7.60	7.60	7.53	7.64	7.64	7.57	7.61	7.67	7.67	7.66	7.66
Oxidation-Redox Potential (in-situ)	mV	-	-	-	145.0	76.2	284.3	174.9	141.3	207.5	207.5	207.5	150.7	347.3	270.6	206.6	133.4	133.4
Turbidity (in-situ)	NTU	-	-	-	0.46	1.93	7.46	7.48	7.71	9.60	10.45	10.45	9.88	17.83	1.64	0.64	1.24	1.24
Conductivity	µS/cm	-	-	2	1220	999	1560	1640	1760	1440	1740	1690	1540	273	547	1030	1270	1260
Hardness (as CaCO3)	mg/L	-	-	0.5	712.0	606.0	984.0	993.0	1020.0	891.0	1080.0	1150.0	916.0	147.0	278.0	591.0	794.0	812.0
pH (lab)	pH	6.5 - 9.0	-	0.1	8.23	8.24	8.30	8.18	8.10	7.85	7.94	7.93	8.30	7.61	7.90	8.32	8.26	8.26
Total Suspended Solids	mg/L	-	-	2	<3.0	<2.0	<2.0	5	<2.0	<2.0	<2.0	<2.0	2.5	31	<2.0	7.4	8.5	5.7
Anions and Nutrients																		
Ammonia, Total (as N) (Temperature and pH adjusted Guideline)	mg/L	Temp,pH-Dep	-	0.0050	0.0130	0.0147	0.0419	0.0451	0.0506	0.0749	0.0644	0.0655	0.0677	0.0128	0.0179	0.0242	0.0191	0.0184
Bromide (Br)	mg/L	Temp,pH-Dep	-	-	0.8553	0.4128	6.0200	6.0200	6.0200	6.0200	6.0200	6.0200	3.9804	3.9804	2.6810	1.8257	1.8257	1.8257
Chloride (Cl)	mg/L	-	-	0.050	-	-	<0.25	<0.50	<0.50	<0.25	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	<0.25	<0.25
Fluoride (F)	mg/L	120	-	0.50	1.94	1.45	3.27	<5.0	<5.0	2.60	3.50	3.50	3.30	<0.50	0.55	1.27	<2.5	<2.5
Nitrate (as N)	mg/L	0.12	-	0.020	0.120	0.110	0.160	<0.20	<0.20	0.110	0.110	0.120	0.120	0.063	0.091	0.117	0.140	0.140
Nitrite (as N)	mg/L	13	-	0.0050	0.1060	0.0920	0.1680	0.1850	0.1710	0.0890	0.0890	0.0910	0.0710	0.0846	0.0752	0.0888	0.0940	0.0950
Nitrite (as N) (Temperature and pH adjusted Guideline)	mg/L	0.06	-	0.0010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0010	<0.0010	0.0011	<0.0050	<0.0050
Phosphorus (P)-Total	mg/L	-	-	0.0020	<0.0020	0.0137	0.0026	0.0022	0.0035	0.0026	0.0036	0.0036	0.0048	0.0768	0.0109	0.0075	0.0055	0.0045
Sulfate (SO4)	mg/L	-	-	0.30	566.00	372.00	767.00	803.00	860.00	644.00	781.00	784.00	749.00	89.00	191.00	410.00	527.00	530.00
Sulphide (as S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon																		
Dissolved Organic Carbon	mg/L	-	-	0.5	9.3	10.9	7.4	7.1	7.3	7.7	7.2	6.6	7.4	32.6	22.8	13.5	10.6	10.4
Aggregate Organics																		
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos																		
Total Asbestos concentration	MFL	-	-	0.20	7.54	2.83	0.38	<AS	<AS	<AS	<AS	-	<AS	221.23	<AS	2.11	0.42	-
Total Metals																		
Aluminum (Al)-Total	mg/L	pH-Dep	-	0.0030	<0.0030	0.0256	<0.0030	0.0031	0.0105	0.0036	<0.0030	<0.0030	<0.0030	0.5780	0.0876	0.0160	0.0069	0.0077
Aluminum (Al)-Total (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Total	mg/L	-	-	0.00010	0.00084	0.00054	0.00069	0.00075	0.00063	0.00058	0.00053	0.00054	0.00048	0.00041	0.00044	0.00059	0.00059	0.00059
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.00152	0.00196	0.00224	0.00231	0.00245	0.00239	0.00289	0.00293	0.00295	0.00157	0.00094	0.00143	0.00160	0.00165
Aurium (Ba)-Total	mg/L	-	-	0.000050	0.061600	0.060900	0.058000	0.061200	0.061900	0.069000	0.069200	0.068700	0.080500	0.045500	0.053100	0.065900	0.065900	0.065300
Beryllium (Be)-Total	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000038	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Total	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	1.5	-	0.010	0.094	0.090	0.154	0.158	0.142	0.114	0.183	0.187	0.149	<0.010	0.020	0.065	0.083	0.085
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.0000050	0.0001130	0.0000782	0.0000861	0.0000737	0.0000900	0.0000686	0.0000618	0.0000686	0.0000528	0.0001230	0.0000633	0.0000888	0.0000957	0.0001040
Cadmium (Cd)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0002182	0.0003703	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Total	mg/L	-	-	0.050	114.000	106.000	169.000	170.000	170.000	159.000	180.000	181.000	162.000	30.100	52.600	102.000	127.000	126.000
Chromium (Cr)-Total	mg/L	-	-	0.00010	0.00072	0.00101	0.00089	0.00083	0.00080	0.00062	0.00063	0.00061	0.00059	0.00552	0.00101	0.00077	<0.00090	0.00071
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	0.00101	0.00101	-	-	-	-	-	-	-	0.00550	0.00101	-	-	-
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	-	<0.0010	-	-	-	-	-	-	-	<0.0010	<0.0010	-	-	-
Cobalt (Co)-Total	mg/L	-	-	0.00010	0.00116	0.00114	0.00293	0.00304	0.00353	0.00731	0.00559	0.00567	0.00605	0.00144	0.00054	0.00104	0.00155	0.00152
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.000050	0.00105	0.00136	0.00059	0.00057	0.00058	0.00061	<0.00050	<0.00050	<0.00050	0.00460	0.00369	0.00169	0.00145	0.00156
Copper (Cu)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00329	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	0.010	0.450	0.598	0.983	1.030	1.200	1.990	1.620	1.610	1.730	1.480	0.367	0.394	0.457	0.453
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.001005	<0.000050	<0.000050	0.000705	0.00077	<0.000050	<0.000050	<0.000050
Lead (Pb)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.005196	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Total	mg/L	-	-	0.0010	0.0174	0.0127	0.0295	0.0359	0.0288	0.0189	0.0409	0.0429	0.0314	0.0026	0.0054	0.0145	0.0197	0.0197
Magnesium (Mg)-Total	mg/L	-	-	0.10	100.00	84.40	167.00	157.00	167.00	130.00	161.00	160.00	127.00	18.50	40.50	82.70	105.00	107.00
Manganese (Mn)-Total	mg/L	-	-	0.00010	0.15100	0.15000	0.30300	0.29500	0.33700	0.53700	0.51000	0.49900	0.48300	0.17300	0.10700	0.14500	0.18900	0.18900
Mercury (Hg)-Total	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000261	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	0.002330	0.002160	0.002840	0.002530	0.002410	0.002550	0.002560	0.002270	0.000669	0.001120	0.001960	0.002230	0.002230	0.002230
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.00050	0.03230	0.02250	0.04170	0.04360	0.05000	0.05820	0.05470	0.05490	0.01650	0.01160	0.02170	0.03670	0.03690	0.03690
Nickel (Ni)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.12800	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Total	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.097	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total	mg/L	-	-	0.10	1.44	1.18	1.74	1.91	1.99	1.62	1.85	1.84	1.67	1.06	0.81	1.23	1.41	1.42
Selenium (Se)-Total	mg/L	0.001	-	0.000050	0.002740	0.001420	0.002310	0.002380	0.002240	0.001380	0.001240	0.001040	0.000795	0.001580	0.001230	0.001310	0.001300	0.001270
Silicon (Si)-Total	mg/L	-	-	0.10	5.62	5.28	6.09	6.33	6.33	6.81	6.97	7.05	6.95	3.28	3.84	5.24	5.60	5.58

Water quality results collected at E2 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1899173-17 E2 08/09/2017 18:35	L2002383-15 E2 02/10/2017 11:20	L2020322-8 E2 06/11/2017 13:45	L2031552-1 E2 04/12/2017 14:05	L2045168-6 E2 14/01/2018 14:05	L2055716-5 E2 11/02/2018 13:00	L2067395-9 E2 12/03/2018 13:35	L2067395-6 E2- 12/03/2018 13:40	L2078526-9 E2 09/04/2018 14:25	L2094958-6 E2 14/05/2018 16:20	L2112699-7 E2 12/06/2018 10:45	L2127254-11 E2 09/07/2018 17:20	L2147306-10 E2 13/08/2018 13:35	L2147306-11 E2- 13/08/2018 13:50
Dissolved Metals																		
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0019	0.0043	0.0020	0.0023	<0.0010	0.0010	0.0012	0.0014	<0.0010	0.1860	0.0610	0.0093	0.0035	0.0037
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00081	0.00051	0.00061	0.00066	0.00066	0.00062	0.00049	0.00052	0.00041	0.00019	0.00038	0.00053	0.00056	0.00054
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00135	0.00138	0.00127	0.00144	0.00133	0.00201	0.00155	0.00149	0.00260	0.00061	0.00080	0.00121	0.00134	0.00129
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.058600	0.061400	0.057700	0.057300	0.060000	0.076000	0.083300	0.079900	0.075000	0.034600	0.042400	0.056200	0.062700	0.064300
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000024	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.094	0.082	0.130	0.122	0.136	0.113	0.149	0.170	0.126	<0.010	0.020	0.064	0.083	0.086
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0001070	0.0000642	0.0000699	0.0000653	0.0000725	0.0000589	0.0000539	0.0000508	0.0000495	0.0000762	0.0000624	0.0000918	0.0000853	0.0001010
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	125.000	103.000	148.000	157.000	174.000	169.000	165.000	175.000	147.000	27.600	52.400	109.000	129.000	132.000
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00056	0.00046	<0.00010	0.00021	0.00018	0.00027	0.00018	0.00035	0.00037	0.00126	0.00083	0.00067	0.00062	0.00062
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	<0.010	-	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	<0.0010	-	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00113	0.00108	0.00281	0.00284	0.00345	0.00665	0.00553	0.00559	0.00570	0.00057	0.00043	0.00100	0.00163	0.00176
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00096	0.00118	0.00048	0.00063	0.00049	0.00031	0.00043	0.00034	0.00030	0.00317	0.00325	0.00165	0.00103	0.00111
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.288	0.306	0.044	0.114	0.169	0.504	0.158	0.129	0.939	0.295	0.273	0.332	0.280	0.269
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000053	<0.000050	<0.000050	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0181	0.0122	0.0353	0.0311	0.0330	0.0242	0.0335	0.0343	0.0243	0.0023	0.0051	0.0145	0.0197	0.0199
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	97.30	84.50	149.00	143.00	143.00	114.00	162.00	173.00	133.00	18.80	35.60	80.70	115.00	117.00
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.15100	0.14600	0.30100	0.28500	0.33300	0.49900	0.47700	0.50900	0.48100	0.11600	0.09380	0.14100	0.19600	0.20800
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000122	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.002140	0.001820	0.002420	0.002350	0.002210	0.002220	0.002180	0.002270	0.002380	0.000503	0.001030	0.001930	0.002210	0.002230
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.03040	0.02130	0.04050	0.04150	0.04920	0.05240	0.05300	0.05390	0.05000	0.00699	0.01030	0.02730	0.03580	0.03710
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	1.44	1.20	1.70	1.82	1.96	1.88	2.00	1.64	1.07	0.80	1.24	1.43	1.48	1.48
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.000300	0.001560	0.002170	0.002350	0.002230	0.001330	0.001020	0.001140	0.000777	0.001290	0.001340	0.001180	0.001140	0.001100
Silicon (Si)-Dissolved	mg/L	-	-	0.050	5.190	5.040	5.650	5.940	5.930	6.730	6.520	6.540	6.490	2.500	3.670	4.750	5.260	5.140
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000012	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	6.030	5.520	9.400	9.400	10.200	7.800	10.100	11.400	9.800	1.530	5.560	6.750	6.900	6.900
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.80500	0.61600	1.11000	1.19000	1.50000	1.04000	1.20000	1.26000	1.17000	0.15100	0.29800	0.64500	0.83400	0.85700
Sulfur (S)-Dissolved	mg/L	-	-	0.50	192.00	148.00	253.00	278.00	282.00	231.00	250.00	247.00	238.00	29.20	65.80	141.00	176.00	169.00
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	0.000051	0.000028	0.000028	0.000030	0.000034	0.000030	0.000027	0.000026	0.000026	0.000010	0.000015	0.000050	0.000052	0.000058
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.000219	<0.0012	<0.00030	<0.00030	<0.00030
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.003230	0.003180	0.003700	0.004110	0.005170	0.003680	0.004130	0.004020	0.004290	0.000845	0.001750	0.002740	0.003020	0.003140
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00059	0.00059	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	0.0015	0.0011	0.0015	0.0013	0.0018	0.0011	0.0014	0.0012	0.0012	0.0032	0.0155	0.0013	0.0011	0.0011
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	0.28730	0.28997	0.27226	0.26994	0.27164	0.27504	0.27030	0.26515	0.27279	0.27426	0.31402	0.31472	0.29697	0.29562	0.29562
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00032	0.00042	0.00031	0.00030	<0.00030	0.00034	0.00033	0.00034	0.00036	0.00086	0.00080	0.00048	0.00040	0.00040

Applied Guidelines: *Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
* The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at E2 during monthly surface water monitoring

		CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2163861-4 E2 10/09/2018 13:10	L2183280-2 E2 16/10/2018 19:30	L2197781-2 E2 14/11/2018 11:00	L2210580-1 E2 12/12/2018 13:00	L2220316-5 E2 13/01/2019 13:40	L2234470-8 E2 18/02/2019 13:30	L2240869-3 E2 04/03/2019 14:45	L2261985-8 E2 22/04/2019 15:20	L2273032-4 E2 13/05/2019 14:30	L2289891-7 E2 10/06/2019 13:15	L2307083-5 E2 08/07/2019 15:15	L2329874-16 E2 14/08/2019 10:25	L2329874-17 E2-1 14/08/2019 11:00
Analyte	Units																
Physical Tests																	
Temperature (in-situ)	°C	-	-	-	7.5	2.9	0.5	1.0	0.6	0.9	0.7	2.0	3.2	15.0	19.1	14.3	14.3
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	10.52	11.31	9.98	11.84	9.26	8.59	11.44	11.73	12.33	8.07	7.59	8.67	8.67
Specific Conductivity (in-situ)	µS/cm	-	-	-	668.9	1098.0	1507.0	1706.0	1710.0	1791.0	1828.0	734.7	270.9	642.0	894.0	800.0	800.0
pH (in-situ)	pH	6.5 - 9.0	-	-	7.76	7.78	7.41	7.63	7.58	7.70	7.71	8.00	7.59	7.93	7.75	8.02	8.02
Oxidation- Redox Potential (in-situ)	mV	-	-	-	113.1	116.2	131.4	96.2	130.3	41.0	44.8	194.7	201.7	208.5	191.8	219.1	219.1
Turbidity (in-situ)	NTU	-	-	-	12.83	2.02	4.76	5.46	7.20	8.56	9.56	2.70	20.90	1.96	0.54	1.29	1.29
Conductivity	µS/cm	-	-	2	664	1060	1450	1540	1700	1750	1780	713	272	650	932	810	797
Hardness (as CaCO3)	mg/L	-	-	0.5	373.0	618.0	924.0	1010.0	1020.0	1210.0	1130.0	399.0	150.0	377.0	502.0	435.0	426.0
pH (lab)	pH	6.5 - 9.0	-	0.1	8.18	8.28	8.07	8.15	8.07	7.89	7.91	8.09	7.63	8.27	8.20	8.35	8.36
Total Suspended Solids	mg/L	-	-	2	12	2.7	2.8	4.5	4.5	<2.0	5.2	10	<2.0	2	2.3	6	2.7
Anions and Nutrients																	
Ammonia Total (as N) *	mg/L	Temp,pH-Dep	-	0.0050	0.0134	0.0219	0.0377	0.0387	0.0483	0.0478	0.0476	0.0101	0.0091	0.0203	0.0123	0.0165	0.0200
(Temperature and pH adjusted Guideline)	mg/L	Temp,pH-Dep	-	-	0.8553	1.2665	6.0200	6.0200	6.0200	6.0200	6.0200	1.9162	3.9804	0.5880	0.4104	0.5880	0.5880
Bromide (Br)	mg/L	-	-	0.050	<0.050	<0.25	<0.25	<0.25	<0.50	<0.50	<0.25	<0.050	<0.050	<0.050	<0.25	<0.25	<0.25
Chloride (Cl)	mg/L	120	-	0.50	0.64	<2.5	2.80	2.80	<5.0	<5.0	3.60	0.73	<0.50	0.69	<2.5	<2.5	<2.5
Fluoride (F)	mg/L	0.12	-	0.020	0.107	0.120	0.140	0.140	<0.20	<0.20	0.130	0.096	0.061	0.102	0.110	0.130	0.130
Nitrate (as N)	mg/L	0.3	-	0.0050	0.2390	0.1890	0.1740	0.1910	0.1730	0.2070	0.1720	0.1220	0.0654	0.0887	0.0740	0.0570	0.0590
Nitrite (as N)	mg/L	0.06	-	0.0010	0.0024	<0.0050	<0.0050	<0.0050	<0.010	<0.010	<0.0050	<0.0010	<0.0010	<0.0050	<0.0050	<0.0050	<0.0050
Phosphorus (P)-Total	mg/L	-	-	0.0020	0.0175	0.0088	0.0035	0.0032	0.0022	0.0037	0.0028	0.0351	0.0534	0.0104	0.0067	0.0070	0.0064
Sulfate (SO4)	mg/L	-	-	0.30	240.00	447.00	660.00	708.00	813.00	880.00	875.00	272.00	89.30	241.00	366.00	291.00	310.00
Sulphide (as S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon																	
Dissolved Organic Carbon	mg/L	-	-	0.5	17.7	12.6	9.2	8.7	7.7	7.0	7.5	17.3	36.7	19.7	14.4	14.0	14.1
Aggregate Organics																	
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos																	
Total Asbestos concentration	MFL	-	-	0.20	229.23	23.71	7.38	4.22	0.42	<AS	<AS	274.02	92.22	-	3.16	67.45	-
Total Metals																	
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.0030	0.1920	0.0199	0.0060	0.0040	<0.0030	<0.0030	<0.0030	0.0985	0.8030	0.0586	0.0118	0.0269	0.0258
(Aluminium (Al)-Total (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Total	mg/L	-	-	0.00010	0.00050	0.00053	0.00061	0.00068	0.00069	0.00072	0.00069	0.00033	0.00032	0.00051	0.00055	0.00039	0.00037
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.00149	0.00139	0.00213	0.00197	0.00256	0.00231	0.00262	0.00101	0.00142	0.00109	0.00120	0.00094	0.00098
Barium (Ba)-Total	mg/L	-	-	0.000050	0.059200	0.053800	0.064300	0.052100	0.061200	0.057700	0.048900	0.047100	0.046900	0.059000	0.055800	0.056000	0.056000
Beryllium (Be)-Total	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Total	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	1.5	-	0.010	0.025	0.063	0.142	0.116	0.158	0.154	0.150	0.026	<0.010	0.036	0.053	0.025	0.026
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.0000050	0.0000726	0.0000601	0.0000724	0.0000757	0.0000861	0.0000745	0.0000753	0.0000777	0.0001200	0.0000678	0.0000735	0.0000444	0.0000464
(Cadmium (Cd)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0002219	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Total	mg/L	-	-	0.050	69.200	100.000	138.000	159.000	165.000	165.000	162.000	72.500	28.600	65.800	90.100	82.200	78.300
Chromium (Cr)-Total	mg/L	-	-	0.00010	0.00390	0.00091	0.00084	0.00085	0.00085	0.00097	0.00085	0.00131	0.00378	0.00084	0.00065	0.00069	0.00064
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	0.00390	0.00091	-	-	-	-	-	0.00131	0.00378	-	-	-	-
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	<0.00050	-	-	-	-	-	-	<0.00050	<0.00050	-	-	-	-
Cobalt (Co)-Total	mg/L	-	-	0.00010	0.00103	0.00110	0.00208	0.00203	0.00337	0.00303	0.00354	0.00065	0.00108	0.00058	0.00078	0.00053	0.00049
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.000050	0.00351	0.00178	0.00107	0.00093	0.00071	0.00056	0.00056	0.00211	0.00424	0.00299	0.00186	0.00223	0.00209
(Copper (Cu)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00334	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	0.010	0.822	0.464	0.809	0.806	1.050	1.070	1.220	0.447	1.350	0.363	0.221	0.205	0.183
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.000050	0.000404	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000066	0.000619	0.000081	<0.000050	<0.000050	<0.000050
(Lead (Pb)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.005331	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Total	mg/L	-	-	0.0010	0.0064	0.0158	0.0267	0.0267	0.0346	0.0349	0.0358	0.0059	0.0026	0.0081	0.0129	0.0073	0.0069
Magnesium (Mg)-Total	mg/L	-	-	0.10	48.60	94.90	137.00	138.00	176.00	158.00	173.00	56.40	18.10	48.70	80.30	62.00	59.30
Manganese (Mn)-Total	mg/L	-	-	0.00010	0.13500	0.14300	0.23200	0.21200	0.30600	0.27200	0.32100	0.15100	0.14800	0.08150	0.11100	0.10700	0.10100
Mercury (Hg)-Total	mg/L	0.000026	-	0.0000050	0.0000127	<0.0000050	<0.0000050	<0.0000050	0.0000061	<0.0000050	<0.0000050	0.0000074	0.0000170	0.0000086	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	0.001420	0.001890	0.002290	0.002220	0.002580	0.002510	0.002500	0.001030	0.000683	0.001440	0.001190	0.001170	0.001660
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.00050	0.01630	0.02390	0.03730	0.03820	0.04670	0.04320	0.04710	0.01230	0.00959	0.01460	0.02230	0.01200	0.01130
(Nickel (Ni)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.13007	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Total	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.055	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total	mg/L	-	-	0.10	0.71	1.08	1.49	1.55	1.95	1.76	1.92	1.31	1.20	0.91	1.15	0.84	0.83
Selenium (Se)-Total	mg/L	0.001	-	0.000050	0.001840	0.001920	0.002590	0.002960	0.003010	0.002680	0.002620	0.002300	0.001710	0.001500	0.001340	0.001210	0.001160
Silicon (Si)-Total	mg/L	-	-	0.10	5.03	5.13	5.94	5.71	6.50	6.11	6.22	4.32	3.85	4.01	4.49	4.94	4.55
Silver (Ag)-Total	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	0.000028	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Total	mg/L	-	-	0.050	3.580	6.430	8.740	11.100	8.350	11.100	10.500	3.620	3.350	5.000	4.770	5.000	4.190
Strontium (Sr)-Total	mg/L	-	-	0.00020	0.38100	0.69600	1.19900	1.24000	1.24000	1.24000	1.24000	0.41700	0.38000	0.47700	0.44000	0.47700	0.44000
Sulfur (S)-Total	mg/L	-	-	0.50	85.30	163.00	235.00	272.00	303.00	312.00	322.00	98.50	29.30	91.80	136.		

Water quality results collected at E2 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2163861-4 E2	L2183280-2 E2	L2197781-2 E2	L2210580-1 E2	L2220316-5 E2	L2234470-8 E2	L2240869-3 E2	L2261985-8 E2	L2273032-4 E2	L2289891-7 E2	L2307083-5 E2	L2329874-16 E2	L2329874-17 E2
					10/09/2018 13:10	16/10/2018 19:30	14/11/2018 11:00	12/12/2018 13:00	13/01/2019 13:40	18/02/2019 13:50	04/03/2019 14:45	22/04/2019 15:20	13/05/2019 14:30	10/06/2019 13:15	08/07/2019 15:15	14/08/2019 10:25	14/08/2019 11:00
Dissolved Metals																	
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0284	0.0095	0.0023	0.0018	0.0013	0.0014	0.0011	0.0475	0.1530	0.0399	0.0100	0.0146	0.0123
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00039	0.00045	0.00059	0.00068	0.00061	0.00068	0.00064	0.00031	0.00023	0.00049	0.00057	0.00037	0.00038
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00090	0.00129	0.00115	0.00130	0.00133	0.00167	0.00146	0.00078	0.00065	0.00101	0.00120	0.00098	0.00102
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.051700	0.052800	0.052800	0.058000	0.055500	0.068500	0.059100	0.045800	0.03400	0.045300	0.053500	0.056300	0.057200
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000028	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.025	0.071	0.123	0.114	0.131	0.154	0.145	0.025	<0.010	0.039	0.061	0.025	0.024
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000483	0.0000579	0.0000628	0.0000742	0.0000661	0.0000731	0.0000615	0.0000725	0.0000487	0.0000617	0.0000744	0.0000353	0.0000428
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	72.600	99.000	135.000	152.000	149.000	168.000	170.000	73.000	29.200	65.700	90.200	79.100	78.400
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00057	0.00066	0.00028	0.00029	0.00027	0.00043	0.00031	0.00065	0.00136	0.00075	0.00052	0.00043	0.00038
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	0.00136	-	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	<0.00050	-	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00051	0.00115	0.00209	0.00229	0.00302	0.00329	0.00335	0.00055	0.00017	0.00054	0.00084	0.00043	0.00042
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00256	0.00171	0.00092	0.00090	0.00055	0.00053	0.00045	0.00199	0.00341	0.00286	0.00165	0.00202	0.00196
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.176	0.400	0.060	0.097	0.144	0.121	0.164	0.225	0.332	0.270	0.185	0.118	0.118
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000052	<0.000050	<0.000050	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.005331	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0065	0.0159	0.0262	0.0292	0.0312	0.0319	0.0330	0.0061	0.0022	0.0084	0.0129	0.0069	0.0068
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	46.50	90.00	142.00	153.00	156.00	191.00	171.00	52.80	18.70	51.60	67.20	57.70	55.90
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.00810	0.16000	0.23200	0.23200	0.28500	0.32300	0.29900	0.14000	0.01590	0.07850	0.11500	0.07020	0.06910
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	0.0000081	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000071	0.0000156	0.0000066	0.0000071	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.001390	0.001730	0.002220	0.002280	0.002160	0.002570	0.002300	0.001040	0.000590	0.001390	0.002010	0.001630	0.001650
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.01020	0.02330	0.03600	0.04080	0.04170	0.04620	0.04620	0.01090	0.00713	0.01440	0.02130	0.01500	0.01020
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.13007	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	0.72	1.19	1.54	1.63	1.79	2.38	1.84	1.34	0.93	1.12	0.84	0.83	0.83
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.001780	0.001990	0.002770	0.002800	0.002760	0.002850	0.002880	0.002670	0.001780	0.001700	0.001350	0.001340	0.001420
Silicon (Si)-Dissolved	mg/L	-	-	0.050	4.620	5.370	5.690	5.270	5.880	5.950	5.950	4.270	2.700	4.140	4.390	4.370	4.420
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	3.500	6.090	8.450	9.550	10.500	10.800	10.400	3.430	1.440	3.450	4.840	4.150	4.010
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.40100	0.65100	0.97900	1.11000	1.11000	1.35000	1.23000	0.42300	0.14300	0.38300	0.60100	0.47500	0.47300
Sulfur (S)-Dissolved	mg/L	-	-	0.50	89.60	155.00	238.00	224.00	264.00	284.00	303.00	92.40	31.50	81.70	144.00	100.00	102.00
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	0.000013	0.000025	0.000033	0.000031	0.000026	0.000028	0.000030	0.000013	<0.000010	0.000014	0.000016	0.000017	0.000017
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	0.00062	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00070	0.00207	0.00105	<0.00030	<0.00030	<0.00030	<0.00030
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.002170	0.003260	0.003860	0.004290	0.004400	0.004650	0.005060	0.002810	0.000730	0.001820	0.002670	0.002850	0.002970
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	<0.0010	0.0012	0.0016	0.0021	0.0016	0.0016	0.0014	0.0033	0.0022	0.0010	<0.0010	0.0015	<0.0010
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	0.33402	0.33402	0.33055	0.28227	0.28135	0.27695	0.28055	0.27305	0.33402	0.33402	0.33402	0.33402	0.33402	0.33402
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00084	0.00056	0.00037	0.00036	<0.00030	0.00034	<0.00030	0.00066	0.00085	0.00072	0.00057	0.00056	0.00058

Applied Guidelines: *Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
* The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at E3 during monthly surface water monitoring

			CCME- Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989173-16 E3 08/09/2017 17:55	L2002383-14 E3 02/10/2017 12:15	L2020322-7 E3 06/11/2017 13:30	L2031552-2 E3 04/12/2017 13:45	L2094958-7 E3 14/05/2018 15:30	L2110842-9 E3 10/06/2018 12:00	L2127254-1 E3 09/07/2018 18:35	L2147306-6 E3 13/08/2018 08:10	L2128251-10 E3-R 13/08/2018 08:15	L2163861-3 E3 10/09/2018 13:40	L2183280-3 E3 16/10/2018 20:00
Physical Tests																
Temperature (in-situ)	°C	-	-	-	-	7.4	2.7	0.1	0.2	1.2	3.1	11.4	6.9	6.9	3.6	0.9
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	-	11.48	13.53	12.18	11.99	14.18	13.25	9.65	10.16	10.16	12.65	12.95
Specific Conductivity (in-situ)	µS/cm	-	-	-	-	1084.0	993.0	1243.0	1125.0	308.1	494.5	958.0	665.4	665.4	694.8	1106.0
pH (in-situ)	pH	6.5 - 9.0	-	-	-	8.38	8.19	8.08	8.03	7.83	7.73	8.21	8.09	8.09	7.95	8.12
Oxidation - Redox Potential (in-situ)	mV	-	-	-	-	150.6	176.7	339.3	293.9	357.1	280.8	101.5	211.5	211.5	137.3	132.5
Turbidity (in-situ)	NTU	-	-	-	-	3.21	4.89	1.73	1.03	117.00	120.00	3.68	2.14	2.14	19.66	3.58
Conductivity	µS/cm	-	-	-	2	1030	973	1180	1110	293	504	953	1120	1120	687	1100
Hardness (as CaCO3)	mg/L	-	-	-	0.5	595.0	563.0	711.0	638.0	160.0	264.0	544.0	590.0	591.0	378.0	669.0
pH (lab)	pH	6.5 - 9.0	-	-	0.1	8.37	8.33	8.37	8.31	7.81	8.10	8.42	8.40	8.41	8.25	8.39
Total Suspended Solids	mg/L	-	-	-	2	2.8	13	<2.0	3.8	170	130	6.5	4.2	3.3	8.6	3.4
Anions and Nutrients																
Ammonia, Total (as N) ^A	mg/L	Temp,pH-Dep	-	-	0.0050	0.0060	0.0109	0.0143	0.0131	0.0306	0.0525	0.0112	<0.0050	<0.0050	0.0067	0.0074
(Temperature and pH adjusted Guideline)	mg/L	Temp,pH-Dep	-	-	-	0.4128	1.2665	1.9162	1.9162	1.9162	3.9804	0.8553	1.2665	1.2665	1.2665	1.9162
Bromide (Br)	mg/L	-	-	-	0.050	-	-	<0.25	<0.25	<0.050	<0.050	<0.050	<0.25	<0.25	<0.050	<0.25
Chloride (Cl)	mg/L	120	-	-	0.50	1.71	1.75	2.37	3.30	<0.50	0.53	1.18	<2.5	<2.5	0.90	<2.5
Fluoride (F)	mg/L	0.12	-	-	0.020	0.120	0.140	0.160	<0.10	0.077	0.115	0.134	0.140	0.150	0.122	0.120
Nitrate (as N)	mg/L	13	-	-	0.0050	0.2250	0.2580	0.3410	0.0880	0.0265	0.0938	0.1600	0.1870	0.1870	0.1360	0.3300
Nitrite (as N)	mg/L	0.06	-	-	0.0010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0010	0.0020	0.0041	<0.0050	<0.0050	0.0021	<0.0050
Phosphorus (P)-Total	mg/L	-	-	-	0.0020	0.0055	0.0089	0.0050	0.0064	0.1940	0.1280	0.0100	0.0106	0.0093	0.0189	0.0097
Sulfate (SO4)	mg/L	-	-	-	0.30	396.00	415.00	491.00	377.00	95.30	167.00	346.00	423.00	426.00	241.00	431.00
Sulphide (as S)	mg/L	-	-	-	0.180	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon																
Dissolved Organic Carbon	mg/L	-	-	-	0.5	8.5	9.9	7.4	6.7	33.1	22.7	10.9	9.2	9.0	14.8	9.2
Aggregate Organics																
Biological Oxygen Demand (BOD)	mg/L	-	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-
Asbestos																
Total Asbestos concentration	MFL	-	-	-	0.20	2.26	<AS	3.77	7.54	411.03	<AS	0.35	12.65	-	118.57	7.38
Total Metals																
Aluminum (Al)-Total	mg/L	pH-Dep	-	-	0.0030	0.0639	0.1140	0.0150	0.0070	3.1300	3.0600	0.0525	0.0422	0.0335	0.2730	0.0165
(Aluminum (Al)-Total (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Total	mg/L	-	-	-	0.00010	0.00128	0.00101	0.00158	0.00148	0.00039	0.00067	0.00125	0.00133	0.00135	0.00072	0.00152
Arsenic (As)-Total	mg/L	0.005	-	-	0.00010	0.00129	0.00131	0.00159	0.00160	0.00298	0.00384	0.00131	0.00136	0.00149	0.00135	0.00143
Barium (Ba)-Total	mg/L	-	-	-	0.000050	0.067400	0.066600	0.069700	0.084800	0.137000	0.141000	0.055800	0.063900	0.066100	0.060000	0.066600
Beryllium (Be)-Total	mg/L	-	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000122	0.000107	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Total	mg/L	-	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	1.5	-	-	0.010	0.104	0.089	0.197	0.458	0.012	0.024	0.115	0.121	0.125	0.054	0.148
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	-	0.0000050	0.0000180	0.0000210	0.0000203	0.0000137	0.0001740	0.0001700	0.0000162	0.0000182	0.0000196	0.0000385	0.0000192
(Cadmium (Cd)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0002341	0.0003548	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Total	mg/L	-	-	-	0.050	92.600	98.400	123.000	86.300	32.400	46.900	91.100	108.000	110.000	64.700	102.000
Chromium (Cr)-Total	mg/L	-	-	-	0.00010	0.00080	0.00090	0.00111	0.00086	0.01440	0.00873	0.00110	0.00094	0.00094	0.00456	0.00095
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	-	0.00010	-	-	0.00111	-	0.01440	0.00873	<0.00073	-	-	0.00456	-
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	-	0.00010	-	-	<0.0010	-	<0.0010	<0.00050	0.00050	-	-	<0.00050	-
Cobalt (Co)-Total	mg/L	-	-	-	0.00010	0.00036	0.00039	0.00021	<0.00010	0.00339	0.00293	0.00025	0.00024	0.00025	0.00066	0.00019
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	-	0.00050	0.00125	0.00141	0.00103	0.00085	0.01120	0.01040	0.00154	0.00149	0.00175	0.00294	0.00117
(Copper (Cu)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	0.00400	0.00400	0.00400	0.00400	0.00353	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	-	0.010	0.246	0.432	0.083	0.021	6.080	6.370	0.147	0.168	0.162	0.761	0.092
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	-	0.000050	0.000085	0.000109	<0.000050	<0.000050	0.003680	0.003670	0.000073	0.000060	0.000057	0.000278	<0.000050
(Lead (Pb)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	0.007000	0.007000	0.007000	0.007000	0.005787	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Total	mg/L	-	-	-	0.0010	0.0065	0.0063	0.0078	0.0171	0.0041	0.0051	0.0072	0.0076	0.0077	0.0040	0.0080
Magnesium (Mg)-Total	mg/L	-	-	-	0.10	83.60	83.40	120.00	109.00	22.80	37.80	78.40	91.30	96.00	54.90	102.00
Manganese (Mn)-Total	mg/L	-	-	-	0.00010	0.16900	0.17500	0.10900	0.01870	0.35400	0.34500	0.07740	0.09070	0.09610	0.11300	0.08100
Mercury (Hg)-Total	mg/L	0.000026	-	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000300	0.0000513	<0.0000050	<0.0000050	<0.0000050	0.0000092	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.073	-	-	0.000050	0.001610	0.001430	0.001490	0.002120	0.000713	0.001660	0.001660	0.001660	0.001720	0.001170	0.001550
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	-	0.00050	0.00997	0.00898	0.01550	0.01800	0.02300	0.01560	0.01330	0.01220	0.01460	0.01240	0.01330
(Nickel (Ni)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	0.15000	0.15000	0.15000	0.15000	0.13661	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Total	mg/L	-	-	-	0.050	<0.050	<0.050	<0.050	<0.050	0.168	0.136	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total	mg/L	-	-	-	0.10	1.17	1.06	1.27	1.45	1.26	1.24	1.03	1.10	1.16	0.69	1.11
Selenium (Se)-Total	mg/L	0.001	-	-	0.000050	0.000872	0.000821	0.001020	0.000469	0.000673	0.000819	0.001570	0.001150	0.001150	0.001170	0.001190
Silicon (Si)-Total	mg/L	-	-	-	5.51	5.92	5.92	5.98	6.66	9.03	9.33	5.25	5.43	5.58	6.29	5.88
Silver (Ag)-Total	mg/L	0.00025	-	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000086	0.000094	<0.000010	<0.000010	<0.000010	<0.000020	<0.000010
Sodium (Na)-Total	mg/L	-	-	-	0.050	6.390	6.110	6.910	7.810	2.190	3.390	5.600	6.280	6.750	4.490	6.760
Strontium (Sr)-Total	mg/L	-	-	-	0.00020	0.54900	0.52000	0.64700	0.67500	0.16400	0.25900	0.49300	0.58900	0.60700	0.33200	0.62000
Sulfur (S)-Total	mg/L	-	-	-	0.50	156.00	147.00	176.00	142.00	34.30	59.70	121.00	149.00	154.00	85.60	154.00
Thallium (Tl)-Total	mg/L	0.0008	-	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000036	0.000053	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Total	mg/L	-	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Total	mg/L	-	-	-	0.00030	0.00171	0.00306	0.00055	<0.00030	0.05210	0.05450	0.00146	<0.00090	<0.00090	0.00703	<0.00060
Uranium (U)-Total</																

Water quality results collected at E3 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample WQ Site ID Date Sampled Detection Limit	L1989173-16 E3 08/09/2017 17:55	L2002383-14 E3 02/10/2017 12:15	L2020322-7 E3 06/11/2017 13:30	L2031552-2 E3 04/12/2017 13:45	L2094958-7 E3 14/05/2018 15:30	L2110842-9 E3 10/06/2018 12:00	L2127254-1 E3 09/07/2018 18:35	L2147306-6 E3 13/08/2018 08:10	L2128251-10 E3-R 13/08/2018 08:15	L2163861-3 E3 10/09/2018 13:40	L2183280-3 E3 16/10/2018 20:00
Dissolved Metals															
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0085	0.0101	0.0035	0.0012	0.1640	0.0538	0.0140	0.0086	0.0092	0.0283	0.0063
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00123	0.00094	0.00140	0.00139	0.00020	0.00045	0.00123	0.00125	0.00119	0.00064	0.00142
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00116	0.00103	0.00153	0.00150	0.00064	0.00103	0.00127	0.00115	0.00121	0.00077	0.00135
Barium (Ba)-Dissolved	mg/L	-	-	0.00050	0.062000	0.06100	0.068400	0.080000	0.045800	0.039300	0.058400	0.058900	0.058800	0.051300	0.069800
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000021	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.105	0.084	0.145	0.375	<0.010	0.022	0.107	0.114	0.115	0.055	0.145
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000152	0.0000127	0.0000163	0.0000131	0.0000273	0.0000142	0.0000140	0.0000165	0.0000137	0.0000192	0.0000156
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0002341	0.0003548	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	103.000	94.900	111.000	87.400	29.700	48.000	90.400	98.400	98.400	65.500	104.000
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00056	0.00054	0.00105	0.00067	0.00239	0.00139	0.00084	0.00077	0.00068	0.00093	0.00088
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	0.00105	-	0.01400	0.00139	-	-	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	<0.0010	-	<0.0010	<0.0010	-	-	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00029	0.00029	0.00018	<0.00010	0.00072	0.00051	0.00024	0.00020	0.00020	0.00028	0.00017
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00104	0.00111	0.00097	0.00081	0.00316	0.00252	0.00149	0.00122	0.00126	0.00202	0.00119
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00353	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.024	0.041	0.022	<0.010	0.392	0.391	0.032	0.029	0.027	0.164	0.034
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000108	0.000155	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.005787	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0067	0.0059	0.0097	0.0159	0.0017	0.0027	0.0069	0.0073	0.0073	0.0040	0.0082
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	82.200	79.10	105.00	102.00	21.00	35.00	77.20	83.50	83.80	52.10	99.30
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.15400	0.15100	0.16000	0.01580	0.17700	0.22700	0.07650	0.07900	0.08020	0.09510	0.08080
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000106	0.0000059	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.001440	0.001270	0.001430	0.001820	0.000377	0.001080	0.001570	0.001520	0.001500	0.001200	0.001400
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.00895	0.00797	0.01520	0.01740	0.00629	0.00616	0.01370	0.01120	0.01130	0.00641	0.01340
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.13661	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	1.15	1.00	1.24	1.41	0.94	0.75	1.07	1.17	1.13	0.69	1.29
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.000982	0.000813	0.001020	0.000478	0.000326	0.000678	0.001520	0.001310	0.001110	0.001240	0.001290
Silicon (Si)-Dissolved	mg/L	-	-	0.050	5.040	5.520	5.560	6.290	3.570	4.320	5.090	5.200	5.230	5.570	6.040
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000011	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	6.160	5.870	6.540	7.420	2.180	3.370	5.820	6.530	6.630	4.490	6.610
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.54400	0.50600	0.65500	0.66000	0.15000	0.24700	0.50100	0.52800	0.51500	0.35300	0.58400
Sulfur (S)-Dissolved	mg/L	-	-	0.50	148.00	141.00	152.00	130.00	31.40	54.50	118.00	137.00	142.00	89.70	141.00
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00030	0.00076	0.00034	<0.00030	0.00249	0.00171	<0.00060	<0.00030	<0.00030	0.00065	<0.00030
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.006850	0.005390	0.005930	0.002730	0.001730	0.003530	0.006420	0.006890	0.006770	0.002990	0.006610
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00082	0.00103	0.00052	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0013	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.28133	0.29236	0.27243	0.26611	0.22993	0.33402	0.29897	0.28682	0.28584	0.32174	0.28690
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00032	0.00033	<0.00030	<0.00030	0.00119	0.00093	0.00040	0.00037	0.00035	0.00073	0.00031

Applied Guidelines: "Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
A The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:
Exceeds CCME Guideline
QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at E3 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2197781-1 E3 14/11/2018 11:20	L2210580-2 E3 12/12/2018 13:20	L2220316-6 E3 13/01/2019 14:00	L2234470-3 E3 18/02/2019 13:30	L2240869-4 E3 04/03/2019 14:00	L2261985-9 E3 22/04/2019 15:00	L2273032-8 E3 13/05/2019 14:45	L2289891-8 E3 10/06/2019 13:30	L2307083-4 E3 08/07/2019 10:35	L2329874-5 E3 13/08/2019 14:45
Physical Tests														
Temperature (in-situ)	°C	-	-	-	0.5	0.4	0.2	0.0	-0.1	0.1	2.0	9.7	9.6	8.1
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	11.21	12.78	10.99	10.19	12.17	14.56	12.74	9.92	10.11	11.31
Specific Conductivity (in-situ)	µS/cm	-	-	-	1106.0	1334.0	1230.0	1190.0	1211.0	201.8	266.3	631.0	945.0	791.0
pH (in-situ)	pH	6.5 - 9.0	-	-	8.04	8.06	8.06	8.21	8.24	7.86	7.77	8.32	8.27	8.20
Oxidation - Redox Potential (in-situ)	mV	-	-	-	177.2	157.9	131.6	120.6	142.2	213.9	206.4	244.5	208.0	208.3
Turbidity (in-situ)	NTU	-	-	-	0.18	0.08	0.17	0.58	1.07	9.42	32.00	3.36	5.13	25.80
Conductivity	µS/cm	-	-	2	1090	1210	1240	1200	1180	200	270	736	960	794
Hardness (as CaCO3)	mg/L	-	-	0.5	657.0	770.0	706.0	720.0	701.0	108.0	146.0	427.0	514.0	438.0
pH (lab)	pH	6.5 - 9.0	-	0.1	8.28	8.32	8.31	8.18	8.24	7.62	7.77	8.36	8.37	8.35
Total Suspended Solids	mg/L	-	-	2	3.6	3.2	<2.0	2.8	<2.0	23	19	3.1	7	2.1
Anions and Nutrients														
Ammonia, Total (as N) ^A	mg/L	Temp,pH-Dep	-	0.0050	0.0053	<0.0050	0.0109	0.0058	0.0475	0.0121	0.0150	0.0123	0.0081	0.0149
(Temperature and pH adjusted Guideline)	mg/L	Temp,pH-Dep	-	-	1.9162	1.9162	1.9162	1.9162	1.9162	1.9162	1.9162	0.2821	0.2821	0.8553
Bromide (Br)	mg/L	-	-	0.050	<0.25	<0.25	<0.25	<0.25	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25
Chloride (Cl)	mg/L	120	-	0.50	3.20	3.80	3.80	3.80	4.30	<0.50	0.52	<2.5	<2.5	<2.5
Fluoride (F)	mg/L	0.12	-	0.020	0.110	0.110	<0.10	<0.10	<0.10	0.061	0.068	0.130	0.120	0.140
Nitrate (as N)	mg/L	13	-	0.0050	0.0930	0.3710	0.3200	0.1000	0.0590	0.0052	0.0172	0.1470	0.0810	0.0790
Nitrite (as N)	mg/L	0.06	-	0.0010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0050	<0.0050	<0.0050
Phosphorus (P)-Total	mg/L	-	-	0.0020	0.0082	0.0093	0.0112	0.0946	0.0494	0.0667	0.0667	0.0126	0.0118	0.0292
Sulfate (SO4)	mg/L	-	-	0.30	351.00	430.00	432.00	402.00	411.00	52.60	78.30	263.00	348.00	301.00
Sulphide (as S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	0.0190	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon														
Dissolved Organic Carbon	mg/L	-	-	0.5	7.3	7.4	7.4	6.9	8.1	46.9	31.2	16.1	12.8	14.9
Aggregate Organics														
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	-	-	-	-	-	-	-	-	-	-
Asbestos														
Total Asbestos concentration	MFL	-	-	0.20	0.18	0.7	0.53	26.35	0.18	279.29	279.29	-	1.05	31.62
Total Metals														
Aluminum (Al)-Total	mg/L	pH-Dep	-	0.0030	0.0033	<0.0030	<0.0030	0.0115	0.0058	0.5310	0.8080	0.0954	0.1210	0.3450
(Aluminum (Al)-Total (pH Adjusted Guideline))	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Total	mg/L	-	-	0.00010	0.00153	0.00176	0.00201	0.00169	0.00143	0.00018	0.00031	0.00094	0.00129	0.00053
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.00156	0.00162	0.00197	0.00169	0.00179	0.00076	0.00137	0.00136	0.00149	0.00129
Barium (Ba)-Total	mg/L	-	-	0.000050	0.080200	0.075400	0.088300	0.082700	0.074100	0.048600	0.061700	0.056100	0.074300	0.071100
Beryllium (Be)-Total	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000038	0.000043	<0.000020	<0.000020	0.000020
Bismuth (Bi)-Total	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	1.5	-	0.010	0.440	0.351	0.364	0.450	0.412	0.010	0.013	0.081	0.103	0.038
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.0000050	0.0000152	0.0000158	0.0000141	0.0000123	0.0000136	0.0000695	0.0000647	0.0000232	0.0000299	0.0000819
(Cadmium (Cd)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0001689	0.0002170	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Total	mg/L	-	-	0.050	81.300	92.300	99.900	83.200	83.000	21.500	21.500	70.700	85.900	75.400
Chromium (Cr)-Total	mg/L	-	-	0.00010	0.00092	0.00117	0.00154	0.00097	0.00081	0.00585	0.00595	0.00143	0.00131	0.00160
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	-	<0.00079	<0.00079	-	-	0.00585	0.00595	0.00143	<0.00075	0.00160
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	-	0.00140	0.00140	-	-	<0.00050	<0.00050	<0.00050	0.00080	<0.00050
Cobalt (Co)-Total	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00073	0.00138	0.00028	0.00025	0.00069
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00089	0.00089	0.00105	0.00077	0.00071	0.00317	0.00454	0.00219	0.00197	0.00365
(Copper (Cu)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00253	0.00327	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	0.010	<0.010	<0.010	<0.010	0.025	0.014	0.854	1.810	0.303	0.277	0.990
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000250	0.000845	0.000106	0.000126	0.000554
(Lead (Pb)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.003509	0.005151	0.007000	0.007000	0.007000
Lithium (Li)-Total	mg/L	-	-	0.0010	0.0149	0.0134	0.0149	0.0162	0.0160	0.0015	0.0021	0.0057	0.0072	0.0047
Magnesium (Mg)-Total	mg/L	-	-	0.10	110.00	118.00	132.00	112.00	119.00	14.70	18.80	62.20	81.90	67.00
Manganese (Mn)-Total	mg/L	-	-	0.00010	0.01310	0.01040	0.00794	0.01060	0.01010	0.10400	0.20300	0.08440	0.04940	0.13900
Mercury (Hg)-Total	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000159	0.0000146	0.0000052	<0.0000050	0.0000101
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	0.001830	0.001840	0.002020	0.001970	0.001910	0.000258	0.000564	0.001420	0.001730	0.001250
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.00050	0.01590	0.01950	0.02150	0.01880	0.01950	0.01150	0.01210	0.01170	0.01350	0.00715
(Nickel (Ni)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.10133	0.12743	0.15000	0.15000	0.15000
Phosphorus (P)-Total	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	0.109	0.054	0.056	<0.050	<0.050	<0.050
Potassium (K)-Total	mg/L	-	-	0.10	1.32	1.36	1.54	1.36	1.79	1.28	0.99	0.92	1.04	0.81
Selenium (Se)-Total	mg/L	0.001	-	0.000050	0.000600	0.000991	0.002640	0.000805	0.000575	0.000283	0.000432	0.001060	0.001590	0.000961
Silicon (Si)-Total	mg/L	-	-	0.10	6.44	6.44	7.04	6.46	6.23	4.12	4.91	5.48	5.69	6.42
Silver (Ag)-Total	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000018	0.000031	<0.000010	<0.000010	0.000016
Sodium (Na)-Total	mg/L	-	-	0.050	7.110	7.770	8.550	7.560	8.090	1.400	3.630	4.740	5.810	5.180
Strontium (Sr)-Total	mg/L	-	-	0.00020	0.62500	0.64300	0.70800	0.65600	0.63300	0.10500	0.13000	0.38200	0.52300	0.41300
Sulfur (S)-Total	mg/L	-	-	0.50	121.00	163.00	164.00	144.00	142.00	18.20	27.60	98.90	127.00	105.00
Thallium (Tl)-Total	mg/L	0.0008	-	0.000010	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000012	<0.000010	<0.000010	<0.000010
Tin (Sn)-Total	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Total	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.000965	0.01950	0.00257	0.00039	0.00794
Uranium (U)-Total	mg/L	0.015	-	0.000010	0.002880	0.004670	0.004630	0.003300	0.002840	0.000902	0.001440	0.004230	0.005330	0.004260
Vanadium (V)-Total	mg/L	-	-	0.00050	0.00061	<0.00050	0.00054	<0.00050	<0.00050	0.00124	0.00244	0.00081	0.00126	0.00178
Zinc (Zn)-Total	mg/L	-	-	0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0079	0.0064	<0.0030	<0.0030	0.0043
Zirconium (Zr)-Total	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00101	0.00108	0.00059	0.00051	0.00062

Water quality results collected at E3 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2197781-1 E3 14/11/2018 11:20	L2210580-2 E3 12/12/2018 13:20	L2220316-6 E3 13/01/2019 14:00	L2234470-3 E3 18/02/2019 13:30	L2240869-4 E3 04/03/2019 14:00	L2261985-9 E3 22/04/2019 15:00	L2273032-8 E3 13/05/2019 14:45	L2289891-8 E3 10/06/2019 13:30	L2307083-4 E3 08/07/2019 10:35	L2329874-5 E3 13/08/2019 14:45
Dissolved Metals														
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0017	0.0020	0.0018	0.0013	0.0016	0.3060	0.1540	0.0258	0.0127	0.0317
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00147	0.00183	0.00188	0.00163	0.00139	0.00014	0.00022	0.00094	0.00130	0.00049
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00149	0.00182	0.00171	0.00191	0.00191	0.00059	0.00075	0.00114	0.00139	0.00082
Barium (Ba)-Dissolved	mg/L	-	-	0.00050	0.072300	0.091200	0.082000	0.084900	0.082200	0.040100	0.040700	0.053000	0.066600	0.062700
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000031	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.387	0.332	0.343	0.429	0.421	0.010	0.012	0.080	0.104	0.033
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000102	0.0000184	0.0000144	0.0000102	0.0000169	0.0000544	0.0000311	0.0000159	0.0000158	0.0000191
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0001689	0.0002170	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	78.400	99.700	83.800	86.100	20.800	25.400	68.900	84.700	73.200	-
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00085	0.00130	0.00135	0.00095	0.00069	0.00329	0.00269	0.00116	0.00092	0.00082
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	<0.00071	<0.00072	-	-	0.00329	0.00269	0.00116	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	0.00120	0.00120	-	-	<0.00050	<0.00050	<0.00050	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00044	0.00080	0.00022	0.00016	0.00030
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00084	0.00103	0.00094	0.00069	0.00069	0.00264	0.00281	0.00187	0.00154	0.00201
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00253	0.00327	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.398	0.536	0.119	0.044	0.150
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000103	<0.000050	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.003509	0.005151	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0145	0.0138	0.0132	0.0159	0.0158	0.0013	0.0016	0.0056	0.0068	0.0043
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	112.00	127.00	114.00	124.00	118.00	13.70	20.00	62.00	73.40	62.00
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.01290	0.01190	0.00708	0.00889	0.00708	0.00190	0.17300	0.07610	0.04170	0.11300
Mercury (Hg)-Dissolved	mg/L	0.00026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000157	0.0000073	<0.0000050	0.0000056	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.001830	0.001920	0.001830	0.002000	0.001840	0.000210	0.000436	0.001360	0.001670	0.001250
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.01510	0.02180	0.01940	0.01890	0.02000	0.00707	0.00763	0.01110	0.01220	0.00569
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.10133	0.12743	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	0.109	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	1.30	1.48	1.33	1.49	1.79	1.30	0.90	0.92	1.03	0.77
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.000679	0.000911	0.002640	0.000823	0.000667	0.000292	0.000363	0.001240	0.001590	0.001010
Silicon (Si)-Dissolved	mg/L	-	-	0.050	6.330	6.280	6.700	6.450	6.090	3.500	3.870	5.480	5.620	5.750
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000012	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	7.110	8.820	8.050	7.460	7.750	1.270	1.890	4.730	5.930	5.040
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.58600	0.74700	0.67000	0.69100	0.66400	0.11000	0.13000	0.37000	0.50100	0.40800
Sulfur (S)-Dissolved	mg/L	-	-	0.50	125.00	146.00	154.00	135.00	135.00	17.20	26.80	91.80	133.00	99.50
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00233	0.00227	0.00057	<0.00030	0.00061
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.002770	0.004580	0.004290	0.002950	0.002960	0.000874	0.001290	0.003930	0.005280	0.003930
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00063	0.00050	0.00050	<0.00050	0.00053
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0060	0.0017	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.27172	0.27243	0.27199	0.26771	0.27808	0.16573	0.21305	0.32831	0.31072	0.32226
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00102	0.00101	0.00057	0.00050	0.00068

Applied Guidelines: "Federal CCME Canadian Environmental Quality Guidelines February 2015", CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
A The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:
Exceeds CCME Guideline
QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at E4 during monthly surface water monitoring

		CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989173-2 E4 09/09/2017 10:10	L2003229-2 E4 04/10/2017 09:25	L2020322-2 E4 06/11/2017 12:20	L2020322-1 E4 06/11/2017 12:25	L2031552-3 E4 04/12/2017 13:00	L2045168-5 E4 14/01/2018 13:30	L2055716-6 E4 11/02/2018 12:20	L2055716-7 E4 11/02/2018 12:25	L2067395-4 E4 12/03/2018 12:50	L2078526-1 E4 09/04/2018 13:05	L2078526-2 E4 09/04/2018 13:10	L2094958-10 E4 14/05/2018 13:15	L2110842-5 E4 10/06/2018 10:45	L2110842-4 E4 10/06/2018 10:50	L2128251-13 E4 11/07/2018 09:25	L2147306-4 E4 14/08/2018 08:40	
Physical Tests																					
Temperature (in-situ)	°C	-	-	-	6.9	3.5	0.0	0.0	0.0	0.1	-0.1	-0.1	0.0	0.0	0.0	2.5	10.0	10.0	9.2	9.5	
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	11.41	12.66	-	11.11	10.71	10.71	10.71	9.50	10.06	10.06	10.06	13.39	10.69	10.69	10.25	11.36	
Specific Conductivity (in-situ)	µS/cm	-	-	-	1280.0	1082.0	1462.0	1462.0	1566.0	1890.0	1861.0	1861.0	1876.0	1876.0	1876.0	316.6	552.7	552.7	1098.0	513.0	
pH (in-situ)	pH	6.5 - 9.0	-	-	7.97	7.76	7.25	7.25	7.02	6.81	6.95	6.95	6.90	6.87	6.87	7.54	7.51	7.51	7.63	7.79	
Oxidation - Redox Potential (in-situ)	mV	-	-	-	158.2	379.4	330.2	330.2	262.1	228.1	211.6	211.6	275.9	221.3	221.3	339.6	261.8	261.8	317.7	215.7	
Turbidity (in-situ)	NTU	-	-	-	3.73	2.47	4.78	4.78	3.67	1.52	0.67	0.67	0.81	0.36	0.36	28.20	23.30	23.30	1.00	2.87	
Conductivity	µS/cm	-	-	-	1220	1130	1380	1390	1560	1770	1810	1800	1900	1790	1810	306	568	568	1110	1270	
Hardness (as CaCO3)	mg/L	-	-	-	0.5	730.0	653.0	837.0	864.0	976.0	1140.0	1120.0	1120.0	1170.0	1120.0	304.0	304.0	301.0	589.0	683.0	
pH (lab)	pH	6.5 - 9.0	-	-	8.25	8.11	8.26	8.23	7.95	7.58	7.34	7.35	7.42	8.07	8.09	7.79	8.22	8.16	8.24	8.31	
Total Suspended Solids	mg/L	-	-	-	2	2.4	<2.0	6	4.1	3.9	<2.0	<2.0	<2.0	<2.0	<2.0	53	26	25	6.1	5.5	
Anions and Nutrients																					
Ammonia, Total (as N) ^a	mg/L	Temp,pH-Dep	-	-	<0.0050	0.0096	0.0317	0.0318	0.0531	0.0337	0.0136	0.0156	0.0194	0.0183	0.0257	0.0139	0.0229	0.0216	0.0064	0.0372	
Temperature and pH adjusted Guideline																					
Bromide (Br)	mg/L	-	-	-	0.050	-	<0.25	<0.25	<0.25	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.050	<0.050	<0.050	<0.25	<0.25	
Chloride (Cl)	mg/L	120	-	-	0.50	2.34	<2.5	3.47	3.48	<5.0	5.70	6.10	6.10	7.10	6.70	6.90	<0.50	0.68	<2.5	<2.5	
Fluoride (F)	mg/L	0.12	-	-	0.010	0.130	0.130	0.130	0.140	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.069	0.103	0.104	0.140	0.150	
Nitrate (as N)	mg/L	13	-	-	0.0050	0.0910	0.0940	0.1400	0.1350	0.1180	0.1590	0.1090	0.1020	0.0930	0.0900	0.0793	0.0722	0.0701	0.0790	0.0680	
Nitrite (as N)	mg/L	0.06	-	-	0.0010	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	
Phosphorus (P)-Total	mg/L	-	-	-	0.0020	0.0025	0.0040	0.0031	0.0030	0.0024	0.0022	0.0034	0.0035	0.0025	0.0023	0.0130	0.0378	0.0277	0.0039	0.0078	
Sulfate (SO4)	mg/L	-	-	-	0.30	503.00	453.00	598.00	600.00	699.00	783.00	812.00	819.00	839.00	800.00	101.00	192.00	192.00	439.00	504.00	
Sulphide (as S)	mg/L	-	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sulphide (as H2S)	mg/L	-	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Organic / Inorganic Carbon																					
Dissolved Organic Carbon	mg/L	-	-	-	0.5	9.0	10.3	8.5	7.8	7.6	7.8	7.7	7.4	7.1	6.7	6.8	32.3	22.8	22.9	11.5	9.4
Aggregate Organics																					
Biological Oxygen Demand (BOD)	mg/L	-	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Asbestos																					
Total Asbestos concentration	MFL	-	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Metals																					
Aluminum (Al)-Total	mg/L	pH-Dep	-	-	0.0030	0.0063	0.0147	0.0280	0.0256	0.0083	0.0079	0.0058	0.0057	0.0076	0.0069	0.0074	0.9150	0.7140	0.6730	0.0127	0.0112
Aluminum (Al)-Total (pH Adjusted Guideline)																					
Antimony (Sb)-Total	mg/L	-	-	-	0.00010	0.00066	0.00056	0.00047	0.00048	0.00043	0.00047	0.00044	0.00044	0.00042	0.00042	0.00040	0.00052	0.00050	0.00058	0.00055	
Arsenic (As)-Total	mg/L	0.005	-	-	0.00010	0.00129	0.00146	0.00128	0.00134	0.00130	0.00073	0.00067	0.00068	0.00063	0.00067	0.00195	0.00223	0.00162	0.00130	0.00153	
Barium (Ba)-Total	mg/L	-	-	-	0.000050	0.066300	0.060100	0.062500	0.063300	0.075700	0.086600	0.091500	0.083500	0.094500	0.098800	0.096400	0.063900	0.063400	0.055700	0.065500	
Beryllium (Be)-Total	mg/L	-	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000058	0.000037	0.000033	<0.000020	<0.000020	
Bismuth (Bi)-Total	mg/L	-	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Boron (B)-Total	mg/L	1.5	-	-	0.010	0.111	0.081	0.162	0.159	0.167	0.149	0.139	0.138	0.155	0.146	0.013	0.030	0.030	0.093	0.113	
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	-	0.000050	0.000050	0.0000418	0.0000594	0.0000666	0.0000675	0.0000877	0.0001140	0.0001200	0.0001260	0.0001460	0.0001500	0.0001530	0.0000857	0.0000680	0.0000532	
Cadmium (Cd)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	
Calcium (Ca)-Total	mg/L	-	-	-	0.050	112.000	112.000	147.000	148.000	166.000	169.000	183.000	178.000	201.000	187.000	189.000	32.000	55.400	55.400	111.000	124.000
Chromium (Cr)-Total	mg/L	-	-	-	0.00010	0.00064	0.00062	0.00063	0.00092	0.00080	0.00131	0.00108	0.00113	0.00118	0.00102	0.00088	0.00735	0.00266	0.00281	<0.00080	
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	-	0.00010	-	-	-	-	0.00131	0.00108	0.00113	0.00118	0.00102	-	0.00740	0.00104	0.00105	-	-	
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	-	0.00010	-	-	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-	<0.0010	-	-	-	
Cobalt (Co)-Total	mg/L	-	-	-	0.00010	0.00111	0.00112	0.00177	0.00186	0.00191	0.00132	0.00116	0.00117	0.00209	0.00198	0.00191	0.00196	0.00104	0.00105	0.00124	
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	-	0.00050	0.00100	0.00217	0.00080	0.00088	0.00099	0.00118	0.00153	0.00151	0.00170	0.00113	0.00115	0.00561	0.00463	0.00469	0.00145	
Copper (Cu)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	
Iron (Fe)-Total	mg/L	0.3	-	-	0.010	0.414	0.448	0.451	0.543	0.499	0.271	0.181	0.173	0.292	0.303	0.251	2.230	1.580	1.580	0.351	0.427
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.001160	0.000823	0.000789	<0.000050	<0.000050	
Lead (Pb)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.006440	0.007000	0.007000	0.007000	
Lithium (Li)-Total	mg/L	-	-	-	0.0010	0.0224	0.0153	0.0286	0.0326	0.0424	0.0404	0.0374	0.0368	0.0583	0.0567	0.0622	0.0038	0.0069	0.0065	0.0209	0.0246
Magnesium (Mg)-Total	mg/L	-	-	-	0.10	308.00	142.00	151.00	174.00	142.00	168.00	174.00	170.00	200.00	162.00	166.00	22.40	42.00	41.00	111.00	
Manganese (Mn)-Total	mg/L	-	-	-	0.0010	0.22300	0.21700	0.43700	0.46800	0.41800	0.32100	0.32800	0.32500	0.63600	0.54000	0.54200	0.22500	0.15100	0.15500	0.23600	0.24800
Mercury (Hg)-Total	mg/L	0.000026	-	-	0.000050	0.0000146	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.0000253	<0.000050	0.0000147	<0.000050	<0.000050	
Molybdenum (Mo)-Total	mg/L	0.073	-	-	0.00050	0.002200	0.002250	0.001940	0.001920	0.002010	0.001460	0.001130	0.001120	0.000999	0.001060	0.000765	0.001230	0.001260	0.002340	0.002340	
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	-	0.00050	0.002200	0.002250	0.001940	0.001920	0.002010	0.001460	0.001130	0.001120	0.000999	0.001060	0.000765	0.001230	0.001260	0.002340	0.002340	
Nickel (Ni)-Total (Hardness Adjusted Guideline)																					
Nickel (Ni)-Total	mg/L	-	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	
Phosphorus (P)-Total	mg/L	-	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.113	<0.050	<0.050	<0.050	<0.050	
Potassium (K)-Total	mg/L	-	-	-	1.53	1.42	1.64	1.68	1.88	2.15	2.12	2.08	2.24	2.18	2.18	0.94	0.95	0.94	1.38	1.50	

Water quality results collected at E4 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989173-2 E4 09/09/2017 10:10	L2003229-2 E4 04/10/2017 09:25	L2020322-2 E4 06/11/2017 12:20	L2020322-1 E4+ 06/11/2017 12:25	L2013152-3 E4 04/12/2017 13:00	L2045168-5 E4 14/01/2018 13:30	L2055716-6 E4 11/02/2018 12:20	L2055716-7 E4+ 11/02/2018 12:25	L2067395-4 E4 12/03/2018 12:50	L2078526-1 E4 09/04/2018 13:05	L2078526-2 E4+ 09/04/2018 13:10	L2094958-10 E4 14/05/2018 13:15	L2110842-5 E4 10/06/2018 10:45	L2110842-4 E4+ 10/06/2018 10:50	L2128251-13 E4 11/07/2018 09:25	L2147306-4 E4 14/08/2018 08:40
Dissolved Metals																				
Aluminum (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0020	0.0032	0.0019	0.0018	0.0024	0.0017	0.0020	0.0022	0.0029	0.0017	0.0018	0.1970	0.0588	0.0561	0.0060	0.0032
Aluminum (Al)-Dissolved (pH Adjusted Guideline)	mg/L	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00005	0.00052	0.00039	0.00042	0.00037	0.00047	0.00045	0.00046	0.00041	0.00037	0.00036	0.00023	0.00044	0.00043	0.00053	0.00052
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00099	0.00120	0.00070	0.00079	0.00060	0.00053	0.00055	0.00059	0.00068	0.00054	0.00054	0.00079	0.00098	0.00092	0.00118	0.00111
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.061600	0.058100	0.057900	0.057200	0.073600	0.082600	0.091300	0.091600	0.103000	0.103000	0.085900	0.039200	0.043300	0.043500	0.058700	0.059400
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000027	0.000024	0.000021	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.116	0.077	0.133	0.134	0.127	0.137	0.138	0.137	0.152	0.124	0.141	0.011	0.027	0.027	0.083	0.106
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000472	0.0000400	0.0000487	0.0000425	0.0000644	0.0000813	0.0001100	0.0001140	0.0001110	0.0001480	0.0001360	0.0000685	0.0000417	0.0000416	0.0000569	0.0000523
Cadmium (Cd)-Dissolved (Hardness Adjusted Guideline)	mg/L	HD	-	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	124.000	108.000	131.000	130.000	157.000	164.000	193.000	189.000	190.000	172.000	179.000	29.900	56.600	56.900	96.100	112.000
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00013	0.00041	0.00015	0.00024	0.00036	0.00057	0.00090	0.00093	0.00051	0.00083	0.00068	0.00171	0.00105	0.00097	0.00062	0.00044
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	<0.010	0.00105	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	<0.0010	<0.0010	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00099	0.00107	0.00164	0.00168	0.00181	0.00133	0.00111	0.00137	0.00187	0.00187	0.00180	0.00069	0.00052	0.00053	0.00109	0.00114
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00018	0.00009	0.00056	0.00069	0.00071	0.00102	0.00115	0.00108	0.00132	0.00059	0.00100	0.00335	0.00311	0.00129	0.00093	0.00093
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.047	0.151	0.046	0.043	0.071	0.124	0.116	0.119	0.202	0.220	0.204	0.317	0.329	0.324	0.247	0.091
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000062	0.000085	0.000074	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.006440	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0250	0.0146	0.0316	0.0321	0.0374	0.0452	0.0483	0.0483	0.0537	0.0452	0.0557	0.0031	0.0062	0.0065	0.0180	0.0240
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	102.00	93.00	124.00	131.00	142.00	145.00	161.00	158.00	189.00	180.00	163.00	24.20	39.60	38.60	84.70	98.10
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.2200	0.2100	0.3880	0.4070	0.3970	0.3300	0.3290	0.3200	0.5930	0.5970	0.5200	0.1340	0.1280	0.1240	0.2180	0.2350
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000088	0.0000076	0.0000081	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.071	-	0.000050	0.002060	0.001950	0.001960	0.002000	0.001440	0.001340	0.001040	0.001190	0.000960	0.000956	0.000522	0.001170	0.001110	0.001110	0.002070	0.002070
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.02500	0.02320	0.02980	0.03060	0.03580	0.04540	0.02960	0.02930	0.03170	0.03220	0.03030	0.00968	0.01140	0.01110	0.02550	0.02610
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.14560	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.10	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	1.53	1.38	1.53	1.57	1.84	1.97	2.12	2.25	2.21	2.08	1.17	0.90	0.84	1.45	1.50	1.50
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.001740	0.001230	0.000971	0.000848	0.001210	0.001040	0.000876	0.001090	0.000750	0.000675	0.000405	0.001380	0.001110	0.000991	0.000978	0.000800
Silicon (Si)-Dissolved	mg/L	-	-	0.050	5.090	4.970	5.590	6.220	7.790	7.790	7.640	8.010	7.300	7.300	7.300	3.830	3.830	3.830	4.920	5.370
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000025	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	7.520	7.110	9.330	9.640	11.100	14.400	14.400	16.800	16.800	17.400	16.100	3.320	6.980	6.980	8.160	8.160
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.84400	0.75600	1.00000	1.09000	1.30000	1.36000	1.36000	1.51000	1.50000	1.43000	0.17000	0.32700	0.32500	0.77000	0.80300	0.80300
Sulfur (S)-Dissolved	mg/L	-	-	0.50	189.00	154.00	199.00	200.00	244.00	267.00	294.00	291.00	268.00	269.00	259.00	33.90	65.10	65.30	137.00	173.00
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	0.000021	0.000015	0.000011	0.000011	0.000010	<0.000020	<0.000010	<0.000020	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000021	0.000024
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000140	0.000149	0.000130	<0.00010	<0.00010
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.004080	0.003640	0.004090	0.004060	0.004470	0.005940	0.005350	0.005770	0.005760	0.005650	0.005650	0.001020	0.002160	0.002150	0.003990	0.003890
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.010	<0.00050	<0.00050	0.00072	0.00055	0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	0.0011	<0.0010	0.0016	0.0017	0.0016	0.0050	0.0109	0.0097	0.0063	0.0068	0.0058	0.0029	0.0019	<0.0010	0.0010	<0.0010
DOC (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	0.28154	0.29494	0.28125	0.27615	0.27625	0.27627	0.27624	0.27470	0.27270	0.26992	0.26619	0.26687	0.24657	0.24602	0.24602	0.24602	0.24602
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00069	0.00072	0.00113	0.00121	0.00129	0.00120	0.00068	0.00070	0.00075	0.00063	0.00070	0.00087	0.00097	0.00093	0.00095	0.00082

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015). CCME: HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent, DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
* The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at E4 during monthly surface water monitoring

				CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2128251-10 E4 10/09/2018 09:00	L2183280-6 E4 16/10/2018 14:00	L2197029-4 E4 12/11/2018 14:50	L2197029-5 E4 12/11/2018 15:00	L2209213-4 E4 10/12/2018 13:35	L2220316-4 E4 13/01/2019 13:10	L2234470-2 E4 18/02/2019 13:00	L2240869-6 E4 04/03/2019 13:00	L2240869-7 E4 04/03/2019 13:05	L2261985-1 E4 22/04/2019 13:00	L2261985-5 E4 22/04/2019 13:20	L2279032-2 E4 13/05/2019 12:30	L2289891-5 E4 10/06/2019 11:00	L2308450-3 E4 10/07/2019 08:10	L2308450-2 E4 10/07/2019 08:20	L2329874-15 E4 14/08/2019 12:00
Physical Tests																						
Temperature (in-situ)	°C	-	-	-	-	-	4.3	1.3	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1.6	1.6	3.5	11.4	10.9	10.9	12.4
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	-	-	12.65	13.50	10.30	10.30	13.85	11.70	10.72	13.85	13.85	12.26	12.26	12.19	9.40	9.82	9.82	9.92
Specific Conductivity (in-situ)	µS/cm	-	-	-	-	-	721.5	1168.0	1465.0	1465.0	1618.0	1714.0	1714.0	1759.0	1759.0	1596.5	1596.5	285.5	721.0	1031.0	1031.0	841.0
pH (in-situ)	pH	6.5 - 9.0	-	-	-	-	7.63	7.72	7.09	7.09	7.16	7.14	7.14	7.89	7.89	7.54	7.82	7.53	7.82	7.53	7.86	7.86
Oxidation - Redox Potential (in-situ)	mV	-	-	-	-	-	113.9	153.6	196.7	196.7	189.3	183.6	118.7	116.2	116.2	228.9	228.9	205.6	219.9	258.4	258.4	219.3
Turbidity (in-situ)	NTU	-	-	-	-	-	7.49	7.39	3.06	3.06	2.87	3.10	5.37	5.14	5.14	12.09	12.09	23.40	1.99	0.79	0.79	2.50
Conductivity	µS/cm	-	-	-	-	2	710	1100	1370	1360	1470	1600	1690	1740	1730	633	635	284	729	1050	1050	851
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	407.0	660.0	861.0	865.0	1080.0	966.0	1070.0	1060.0	1060.0	315.0	324.0	159.0	415.0	612.0	614.0	473.0
pH (lab)	pH	6.5 - 9.0	-	-	-	0.1	8.13	8.33	7.78	7.70	8.22	7.89	7.48	7.52	7.58	8.10	8.12	7.67	8.34	8.32	8.35	8.38
Total Suspended Solids	mg/L	-	-	-	-	2	7.6	2.3	8.3	6.6	8.8	2.6	3	2.3	4.3	19	18	31	2.1	<2.0	<2.0	7.6
Anions and Nutrients																						
Ammonia, Total (as N) ^a	mg/L	Temp,pH-Dep	-	-	-	0.0050	0.0124	0.0142	0.0315	0.0331	0.0298	0.0347	0.0387	0.0423	0.0434	0.0143	0.0143	0.0085	0.0177	0.0068	0.0067	0.0105
Temperature and pH adjusted Guideline																						
Bromide (Br)	mg/L	-	-	-	-	0.050	<0.050	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.50	<0.50	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.25
Chloride (Cl)	mg/L	120	-	-	-	0.50	0.87	<2.5	3.60	3.40	3.50	4.30	5.10	4.90	5.00	0.69	0.67	<0.50	<0.50	<2.5	<2.5	<2.5
Fluoride (F)	mg/L	0.12	-	-	-	0.010	0.113	0.130	0.120	0.120	0.120	0.150	<0.20	0.130	0.130	0.085	0.086	0.062	0.120	0.130	0.130	0.130
Nitrate (as N)	mg/L	13	-	-	-	0.0050	0.2050	0.1560	0.1200	0.1200	0.1430	0.1300	0.1330	0.1100	0.0694	0.0638	0.0557	0.0770	0.0490	0.0520	0.0530	
Nitrite (as N)	mg/L	0.06	-	-	-	0.0010	<0.0010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0027	0.0027	<0.0010	<0.0050	<0.0050	<0.0050	<0.0050
Phosphorus (P)-Total	mg/L	-	-	-	-	0.0020	0.0112	0.0049	0.0037	0.0032	0.0027	<0.0020	<0.0020	<0.0020	<0.0020	0.0423	0.0398	0.0499	0.0075	0.0036	0.0041	0.0076
Sulfate (SO4)	mg/L	-	-	-	-	0.30	253.00	456.00	602.00	582.00	671.00	696.00	773.00	786.00	784.00	210.00	209.00	92.50	269.00	405.00	405.00	305.00
Sulphide (as S)	mg/L	-	-	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon																						
Dissolved Organic Carbon	mg/L	-	-	-	-	0.5	15.8	11.1	8.8	8.8	8.2	8.1	7.4	7.2	7.4	24.6	25.4	34.4	16.3	12.9	12.0	13.6
Aggregate Organics																						
Biological Oxygen Demand (BOD)	mg/L	-	-	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Asbestos concentration	MFL	-	-	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Laboratory																						
Total Metals																						
Aluminum (Al)-Total	mg/L	pH-Dep	-	-	0.0030	0.0968	0.0112	0.0107	0.0121	0.0039	0.0033	0.0043	<0.0030	0.0057	0.3330	0.2610	0.6560	0.0512	0.0170	0.0137	0.0368	0.0368
Aluminum (Al)-Total (pH Adjusted Guideline)																						
Antimony (Sb)-Total	mg/L	0.005	-	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Arsenic (As)-Total	mg/L	pH-Dep	-	-	0.00010	0.00042	0.00046	0.00039	0.00037	0.00040	0.00037	0.00034	0.00035	0.00032	0.00032	0.00040	0.00056	0.00051	0.00050	0.00040	0.00040	0.00040
Barium (Ba)-Total	mg/L	-	-	-	0.00010	0.00127	0.00137	0.00093	0.00097	0.00092	0.00092	0.00107	0.00126	0.00125	0.00125	0.00117	0.00117	0.00160	0.00121	0.00134	0.00130	0.00113
Bismuth (Bi)-Total	mg/L	-	-	-	0.000050	0.0005200	0.0005200	0.0006170	0.0006800	0.0006800	0.0006800	0.0006800	0.0006800	0.0006800	0.0006800	0.0006800	0.0006800	0.0006800	0.0006800	0.0006800	0.0006800	0.0006800
Beryllium (Be)-Total	mg/L	-	-	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Total	mg/L	-	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	1.5	-	-	0.010	0.039	0.085	0.129	0.129	0.130	0.158	0.144	0.137	0.135	0.024	0.023	0.013	0.051	0.098	0.095	0.040	0.040
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	-	0.000050	0.0000591	0.0000517	0.0000674	0.0000566	0.0000586	0.0000668	0.0000574	0.0000625	0.0000551	0.0000808	0.0000773	0.0001190	0.0000481	0.0000638	0.0000585	0.0000439	0.0000439
Cadmium (Cd)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700
Calcium (Ca)-Total	mg/L	-	-	-	0.050	71.500	105.000	134.000	131.000	137.000	158.000	153.000	157.000	155.000	57.900	57.100	28.300	71.700	104.000	100.000	85.800	85.800
Chromium (Cr)-Total	mg/L	-	-	-	0.00010	0.00114	0.00066	0.00070	0.00071	0.00068	0.00074	0.00099	0.00096	0.00110	0.00283	0.00257	0.00420	0.00097	0.00091	0.00085	0.00063	0.00063
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	-	0.00010	0.00114	-	-	-	-	-	-	-	-	0.00110	0.00283	0.00257	0.00420	-	-	-	-
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	-	0.00010	<0.00050	-	-	-	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	-
Cobalt (Co)-Total	mg/L	-	-	-	0.00010	0.00073	0.00132	0.00130	0.00135	0.00143	0.00204	0.00254	0.00273	0.00274	0.00092	0.00089	0.00125	0.00065	0.00096	0.00081	0.00067	0.00067
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	-	0.00050	0.00071	0.00133	0.00091	0.00092	0.00082	0.00084	0.00064	0.00063	0.00080	0.00287	0.00281	0.00463	0.00277	0.00151	0.00151	0.00207	0.00207
Copper (Cu)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	-	0.010	0.527	0.421	0.310	0.311	0.363	0.396	0.571	0.552	0.545	0.456	0.410	1.380	0.448	0.328	0.253	0.302	0.302
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	-	0.000050	0.000181	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000235	0.000253	0.000557	0.000063	<0.000050	<0.000050	<0.000050
Lead (Pb)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Total	mg/L	-	-	-	0.0010	0.0085	0.0211	0.0333	0.0327	0.0339	0.0414	0.0402	0.0418	0.0431	0.0059	0.0056	0.0029	0.0110	0.0235	0.0226	0.0100	0.0100
Magnesium (Mg)-Total	mg/L	-	-	-	0.10	53.00	99.60	125.00	125.00	140.00	157.00	152.00	158.00	161.00	161.00	43.80	42.60	20.50	56.70	92.40	92.50	67.30
Manganese (Mn)-Total	mg/L	-	-	-	0.0010	0.14000	0.22800	0.25000	0.25400	0.27200	0.37200	0.45000	0.51700	0.51100	0.15600	0.14800	0.16200	0.11100	0.20800	0.14200	0.14200	0.14200
Mercury (Hg)-Total	mg/L	0.000026	-	-	0.0000050	0.0000071	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000109	0.0000090	0.0000179	0.0000058	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.073	-	-	0.00050	0.0014500	0.0018600	0.001660	0.001660	0.001720	0.002400											

Water quality results collected at E4 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2128251-10 E4 10/09/2018 09:00	L2183280-6 E4 16/10/2018 14:00	L2197029-4 E4 12/11/2018 14:50	L2197029-5 E4 12/11/2018 15:00	L2209213-4 E4 10/12/2018 13:35	L2220916-4 E4 13/01/2019 13:10	L2234470-2 E4 18/02/2019 13:00	L2240869-6 E4 04/03/2019 13:00	L2240869-7 E4 04/03/2019 13:05	L2261985-1 E4 22/04/2019 13:00	L2261985-5 E4 22/04/2019 13:20	L2279392-2 E4 13/05/2019 12:30	L2289891-5 E4 10/06/2019 11:00	L2308450-3 E4 10/07/2019 08:10	L2308450-2 E4 10/07/2019 08:20	L2329874-15 E4 14/08/2019 12:00
Dissolved Metals																				
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0245	0.0050	0.0025	0.0023	<0.0030	0.0022	0.0014	0.0018	0.0014	0.1260	0.1250	0.1650	0.0293	0.0055	0.0055	0.0122
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00041	0.00043	0.00038	0.00038	0.00040	0.00038	0.00036	0.00033	0.00033	0.00026	0.00026	0.00024	0.00051	0.00051	0.00053	0.00040
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00113	0.00116	0.00055	0.00057	0.00062	0.00061	0.00084	0.00068	0.00073	0.00084	0.00083	0.00080	0.00105	0.00120	0.00116	0.00113
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.050800	0.054900	0.060700	0.061900	0.066800	0.061400	0.069800	0.069100	0.068400	0.042300	0.042600	0.037300	0.045700	0.055800	0.055700	0.05300
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.039	0.082	0.116	0.117	0.129	0.145	0.140	0.134	0.138	0.022	0.023	0.012	0.055	0.094	0.093	0.039
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000183	0.0000054	0.0000629	0.0000617	0.0000545	0.0000523	0.0000559	0.0000622	0.0000542	0.0000502	0.0000508	0.0000704	0.0000499	0.0000620	0.0000504	0.0000351
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	77.000	105.000	133.000	133.000	172.000	151.000	155.000	162.000	162.000	55.600	58.600	28.500	70.000	101.000	103.000	83.000
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00067	0.00058	0.00053	0.00056	0.00058	0.00055	0.00058	0.00061	0.00060	0.00148	0.00149	0.00169	0.00075	0.00065	0.00066	0.00051
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	0.00148	0.00149	0.00169	-	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	<0.00050	-	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00065	0.00126	0.00138	0.00129	0.00159	0.00194	0.00259	0.00265	0.00270	0.00063	0.00061	0.00068	0.00098	0.00090	0.00076	0.00058
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00251	0.00132	0.00084	0.00084	0.00085	0.00071	0.00060	0.00057	0.00059	0.00223	0.00218	0.00344	0.00252	0.00140	0.00132	0.00185
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.255	0.269	0.048	0.047	0.053	0.062	0.061	0.054	0.065	0.346	0.342	0.394	0.298	0.237	0.214	0.173
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0093	0.0215	0.0325	0.0323	0.0410	0.0387	0.0411	0.0395	0.0413	0.0058	0.0060	0.0026	0.0122	0.0205	0.0204	0.0096
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	52.10	96.80	129.00	129.00	159.00	143.00	166.00	159.00	159.00	42.70	43.00	21.40	58.40	87.40	86.80	64.50
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.13000	0.23100	0.25100	0.25100	0.29700	0.36100	0.48600	0.47100	0.47200	0.13900	0.14000	0.11500	0.10500	0.18900	0.16500	0.12600
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.0000104	0.0000087	0.0000081	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum (Mo)-Dissolved	mg/L	0.071	-	0.000050	0.001420	0.001690	0.001750	0.001680	0.001850	0.001690	0.001840	0.001700	0.001790	0.000752	0.000603	0.001450	0.002070	0.002120	0.001790	0.001790
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.01330	0.02550	0.03060	0.03040	0.03390	0.03390	0.03840	0.03870	0.03910	0.01160	0.01160	0.00967	0.01660	0.02560	0.02500	0.01350
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	0.85	1.39	1.52	1.50	1.87	1.75	1.94	1.86	1.84	1.35	1.38	1.10	1.31	1.32	1.02	0.92
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.001450	0.001350	0.001300	0.001330	0.001510	0.001430	0.001230	0.001160	0.001020	0.001810	0.001700	0.001470	0.001410	0.000888	0.000794	0.001140
Silicon (Si)-Dissolved	mg/L	-	-	0.050	4.890	5.960	5.970	6.320	6.340	6.190	5.970	6.080	4.110	4.120	2.750	4.470	4.630	4.520	4.800	4.800
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000011	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	4.280	7.510	9.870	12.300	12.200	2.990	11.900	12.300	12.300	1.830	3.010	6.590	6.590	6.590	6.590	6.590
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.43600	0.73600	1.06000	1.05000	1.33000	1.16000	1.28000	1.27000	1.34000	0.34800	0.34000	0.44800	0.72200	0.74000	0.53800	0.53800
Sulfur (S)-Dissolved	mg/L	-	-	0.50	88.00	154.00	203.00	205.00	228.00	242.00	258.00	263.00	266.00	73.90	72.80	31.50	91.70	139.00	137.00	106.00
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	0.000012	0.000015	<0.000010	0.000012	0.000011	<0.000010	<0.000010	0.000010	0.000010	<0.000010	<0.000010	<0.000010	0.000016	0.000023	0.000025	0.000013
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00115	0.00115	<0.00010	0.00069	<0.00010	<0.00010	<0.00010
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.000440	0.003980	0.004200	0.004130	0.004910	0.004750	0.005050	0.005700	0.005790	0.002060	0.002180	0.000758	0.002170	0.002980	0.003010	0.002950
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00052	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	<0.0010	0.0012	0.0016	0.0016	0.0050	0.0017	0.0016	0.0017	0.0017	0.0038	0.0032	0.0027	0.0011	<0.0020	<0.0010	<0.0010
DOC (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.01003	0.00108	0.00172	0.00171	0.00185	0.00156	0.00189	0.00194	0.00194	0.00082	0.00085	0.00080	0.00106	0.00107	0.00107	0.00078

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015). CCME: HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent, DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH dependent.
* The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent.

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline
QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

[illegible]

Water quality results collected at E7 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989173-11 E7 09/09/2017 11:25	L1989173-3 E7-4 09/09/2017 11:40	L2003229-4 E7 04/10/2017 10:15	L2020322-3 E7 06/11/2017 11:15	L2031552-4 E7 04/12/2017 11:20	L2045168-3 E7 14/01/2018 11:45	L2045168-4 E7-4 14/01/2018 11:50	L2055716-9 E7 11/02/2018 11:20	L2067395-2 E7 12/03/2018 11:00	L2067395-5 E7-4 12/03/2018 11:05	L2078526-8 E7 09/04/2018 11:00	L2094958-11 E7 14/05/2018 12:05	L2094958-9 E7-4 14/05/2018 12:10	L2110842-1 E7 10/06/2018 10:00	L2128251-10 E7 11/07/2018 07:55
Dissolved Metals																			
Aluminum (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0042	0.0030	0.0046	0.0035	0.0035	0.0029	0.0031	0.0032	0.0031	0.0035	0.0033	0.1880	0.1890	0.0445	0.0051
Aluminum (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	0.0020	0.0040	0.0030	0.0046	0.0035	0.0035	0.0029	0.0031	0.0032	0.0031	0.0035	0.0033	0.1880	0.1890	0.0445	0.0051
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00040	0.00039	0.00036	0.00024	0.00021	0.00020	0.00020	0.00027	0.00032	0.00031	0.00029	0.00022	0.00023	0.00040	0.00036
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00063	0.00060	0.00067	0.00041	0.00038	0.00035	0.00036	0.00037	0.00041	0.00040	0.00040	0.00071	0.00072	0.00082	0.00062
Barium (Ba)-Dissolved	mg/L	-	-	0.00050	0.069300	0.069000	0.061000	0.072200	0.084100	0.092200	0.091000	0.095300	0.098600	0.098800	0.107000	0.037900	0.037600	0.044200	0.064100
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000028	0.000028	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.087	0.087	0.068	0.076	0.069	0.071	0.069	0.068	0.075	0.075	0.063	0.012	0.011	0.027	0.065
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000636	0.0000606	0.000512	0.000915	0.000632	0.000505	0.000508	0.000286	0.000369	0.000420	0.000477	0.000660	0.0000758	0.000464	0.000627
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0002462	0.0002450	0.0001700	0.0001700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	135.000	133.000	113.000	141.000	161.000	161.000	167.000	194.000	178.000	177.000	177.000	31.200	31.000	61.500	103.000
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00030	0.00029	0.00034	0.00023	0.00035	0.00053	0.00047	0.00075	0.00071	0.00065	0.00069	0.00171	0.00171	0.00096	0.00034
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	0.01100	0.01200	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	<0.0010	<0.0010	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00124	0.00124	0.00148	0.00204	0.00085	0.00048	0.00048	<0.00010	<0.00010	<0.00010	<0.00010	0.00074	0.00074	0.00049	0.00078
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00092	0.00092	0.00116	0.02390	0.00105	0.00111	0.00111	0.00133	0.00142	0.00152	0.00131	0.00355	0.00355	0.00395	0.00139
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.034	0.040	0.070	0.059	0.049	0.046	0.045	<0.010	<0.010	<0.010	<0.010	0.396	0.412	0.281	0.084
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000116	0.00011	0.000062	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0247	0.0241	0.0144	0.0237	0.0224	0.0227	0.0216	0.0245	0.0240	0.0235	0.0202	0.0035	0.0035	0.0074	0.0179
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	104.00	102.00	91.50	110.00	120.00	124.00	127.00	133.00	150.00	149.00	147.00	22.40	22.30	43.10	83.30
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.63200	0.63200	0.61900	1.13000	0.46500	0.23400	0.23700	0.00396	0.00246	0.00226	0.00150	0.14800	0.14600	0.14100	0.35500
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000107	0.0000110	0.0000075	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.001790	0.001760	0.001760	0.001540	0.001300	0.000971	0.000998	0.000886	0.000961	0.000880	0.000913	0.000561	0.000538	0.001110	0.001170
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.02140	0.02130	0.02110	0.02380	0.01360	0.01210	0.01230	0.00786	0.00672	0.00692	0.00673	0.00970	0.00964	0.01170	0.01790
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.14245	0.14305	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	1.60	1.59	1.43	1.44	1.53	1.58	1.58	1.70	1.63	1.56	1.04	1.04	0.91	1.56	1.56
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.001200	0.001160	0.000972	0.000680	0.000785	0.000693	0.000775	0.001080	0.001020	0.001050	0.000755	0.001030	0.000594	0.000558	0.000597
Silicon (Si)-Dissolved	mg/L	-	-	0.050	4.920	4.990	5.220	5.610	5.990	6.020	6.400	5.850	5.800	5.920	2.710	2.760	3.960	4.810	
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000012	0.000011	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	7.970	7.880	7.200	8.450	9.480	11.100	11.200	11.800	11.400	12.000	11.800	1.940	1.940	3.660	7.160
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.86400	0.86100	0.79300	0.94100	1.01000	1.07000	1.07000	1.14000	1.14000	1.17000	1.17000	0.18000	0.18000	0.36200	0.75800
Sulfur (S)-Dissolved	mg/L	-	-	0.50	198.00	194.00	172.00	184.00	220.00	232.00	226.00	257.00	202.00	208.00	233.00	32.70	33.90	72.60	136.00
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00253	0.00256	0.00115	<0.00030
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.004890	0.004880	0.004190	0.004700	0.005750	0.007480	0.007500	0.006980	0.006680	0.006910	0.007440	0.001090	0.001090	0.002330	0.003740
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00074	0.00072	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	0.0020	0.0018	0.0029	0.0184	0.0013	0.0016	0.0015	0.0028	0.0046	0.0062	0.0030	0.0027	0.0028	0.0032	0.0016
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	0.29021	0.28883	0.29562	0.28468	0.28699	0.28045	0.28145	0.27907	0.26919	0.26855	0.27641	0.27641	0.24184	0.24066	0.23402	0.30028
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00107	0.00106	0.00109	0.00139	0.00094	0.00085	0.00087	0.00086	0.00094	0.00094	0.00090	0.00107	0.00108	0.00100	0.00108

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015). CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
* The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent.

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:
Exceeds CCME Guideline
QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at E7 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2147306-2 E7 14/08/2018 12:20	L2164003-2 E7 12/09/2018 12:45	L2183280-4 E7 17/10/2018 09:45	L2183280-5 E7 17/10/2018 10:00	L2197029-2 E7 12/11/2018 13:10	L2209213-2 E7 10/12/2018 12:40	L2220316-3 E7 13/01/2019 12:30	L2220316-6 E7 13/01/2019 12:35	L2234470-1 E7 18/02/2019 11:50	L2240869-5 E7 04/03/2019 11:30	L2261985-3 E7 22/04/2019 11:15	L2273032-1 E7 13/05/2019 10:50	L2289891-1 E7 10/06/2019 09:30	L2289891-6 E7 10/06/2019 09:40	L2308450-5 E7 10/07/2019 10:30	L2329874-9 E7 14/08/2019 15:30
Physical Tests																				
Temperature (in-situ)	°C	-	-	-	10.1	5.9	0.1	0.1	-0.1	-0.1	0.0	0.0	-0.1	-0.1	0.0	2.2	8.7	8.7	11.8	12.5
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	11.01	11.60	14.04	14.04	11.09	13.62	10.71	10.71	10.15	13.45	12.43	12.71	9.60	9.60	9.81	10.15
Specific Conductivity (in-situ)	µS/cm	-	-	-	677.5	790.0	1134.0	1134.0	1321.0	1523.0	1496.0	1496.0	1606.0	1658.0	1658.0	781.0	741.0	741.0	1007.0	851.0
pH (in-situ)	pH	6.5 - 9.0	-	-	7.74	7.66	7.23	7.23	7.43	7.23	7.33	7.33	7.37	7.85	7.82	7.82	7.82	7.82	7.86	7.95
Oxidation - Redox Potential (in-situ)	mV	-	-	-	300.7	186.6	233.8	233.8	192.4	214.0	203.3	203.3	149.5	133.2	235.3	202.0	241.2	241.2	216.8	225.4
Turbidity (in-situ)	NTU	-	-	-	4.81	5.26	3.53	3.53	1.61	1.86	1.42	1.42	1.33	1.89	33.40	34.40	2.56	2.56	2.56	2.59
Conductivity	µS/cm	-	-	2	1240	779	1060	1060	1230	1360	1550	1520	1580	1610	616	282	747	770	1010	829
Hardness (as CaCO3)	mg/L	-	-	0.5	675.0	418.0	634.0	627.0	769.0	913.0	912.0	913.0	1000.0	985.0	314.0	155.0	440.0	440.0	590.0	477.0
pH (lab)	pH	6.5 - 9.0	-	0.1	8.29	8.31	8.34	8.34	8.03	8.36	8.00	8.04	7.65	7.78	8.08	7.67	8.36	8.36	8.36	8.27
Total Suspended Solids	mg/L	-	-	2	4	9.3	3.1	5.2	4	5.1	2.2	<2.0	6.2	3.6	73	59	4.4	3.6	<2.0	5.7
Anions and Nutrients																				
Ammonia, Total (as N) ^a	mg/L	Temp, pH-Dep	-	0.0050	0.0096	0.0185	0.0287	0.0300	0.0338	0.0335	0.0308	0.0309	0.0416	0.0287	0.0163	0.0100	0.0207	0.0201	0.0103	0.0183
(Temperature and pH adjusted Guideline)	mg/L	Temp, pH-Dep	-	-	2.6810	3.9804	18.9974	18.9974	6.0200	6.0200	18.9974	18.9974	6.0200	6.0200	1.9162	6.0200	0.8553	0.8553	0.8553	0.5880
Bromide (Br)	mg/L	pH-Dep	-	0.050	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.50	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.25
Chloride (Cl)	mg/L	120	-	0.50	<2.5	<2.5	<2.5	<2.5	3.10	3.70	4.10	4.10	5.00	4.80	0.75	<0.50	<2.5	<2.5	<2.5	<2.5
Fluoride (F)	mg/L	0.12	-	0.020	0.180	0.120	0.120	0.120	0.110	0.110	0.180	0.110	0.110	0.085	0.063	0.180	0.120	0.180	0.140	0.140
Nitrate (as N)	mg/L	13	-	0.0050	0.0470	0.2030	0.1230	0.1220	0.1000	0.1200	0.1190	0.1220	0.1320	0.1200	0.0579	0.0520	0.0730	0.0640	<0.025	0.0970
Nitrite (as N)	mg/L	0.06	-	0.0010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	0.0018	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Phosphorus (P)-Total	mg/L	-	-	0.0020	0.0041	0.0130	0.0025	0.0020	0.0026	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0651	0.0670	0.0085	0.0094	0.0036	0.0046
Sulfate (SO4)	mg/L	-	-	0.30	502.00	287.00	432.00	432.00	495.00	579.00	622.00	626.00	690.00	693.00	200.00	89.50	265.00	274.00	375.00	316.00
Sulphide (as S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon																				
Dissolved Organic Carbon	mg/L	-	-	0.5	10.5	14.4	10.7	10.7	9.6	9.0	8.5	8.9	7.5	7.9	26.8	36.1	16.3	15.8	12.8	13.4
Aggregate Organics																				
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos																				
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																				
Aluminum (Al)-Total	mg/L	pH-Dep	-	0.0030	0.0143	0.1480	0.0158	0.0149	0.0123	0.0696	0.0147	0.0125	0.0051	0.0040	0.7040	0.8520	0.0799	0.0637	0.0163	0.0449
(Aluminum (Al)-Total (pH Adjusted Guideline))	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Total	mg/L	-	-	0.00010	0.00036	0.00040	0.00033	0.00034	0.00024	0.00025	0.00025	0.00023	0.00023	0.00042	0.00042	0.00046	0.00039	0.00037	0.00037	0.00037
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.00089	0.00119	0.00085	0.00097	0.00050	0.00061	0.00048	0.00048	0.00040	0.00039	0.00091	0.00191	0.00093	0.00100	0.00096	0.00105
Barium (Ba)-Total	mg/L	-	-	0.00050	0.074700	0.057300	0.057500	0.056100	0.069200	0.074400	0.084100	0.084800	0.084900	0.079300	0.065900	0.055100	0.051400	0.051400	0.063700	0.059300
Beryllium (Be)-Total	mg/L	-	-	0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.000037	0.000045	<0.00020	<0.00020	<0.00020	<0.00020
Bismuth (Bi)-Total	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron (B)-Total	mg/L	1.5	-	0.010	0.081	0.041	0.063	0.063	0.075	0.079	0.094	0.091	0.090	0.083	0.024	0.012	0.048	0.050	0.078	0.038
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.000050	0.0000865	0.0000707	0.0000739	0.0000768	0.0000824	0.0000873	0.0000960	0.0000948	0.0000798	0.0000749	0.0001630	0.0001280	0.0000593	0.0000697	0.0000605	0.0000605
(Cadmium (Cd)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700
Calcium (Ca)-Total	mg/L	-	-	0.050	128.000	77.800	104.000	107.000	130.000	135.000	160.000	160.000	162.000	164.000	56.400	27.700	70.600	71.100	105.000	85.300
Chromium (Cr)-Total	mg/L	-	-	0.00010	<0.00070	0.00116	0.00058	0.00069	0.00063	0.00068	0.00063	0.00067	0.00045	0.00052	0.00569	0.00544	0.00097	0.00089	0.00080	0.00071
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	-	0.00116	-	-	-	-	-	-	-	-	0.00569	0.00544	-	-	-	-
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	-	<0.00050	-	-	-	-	-	-	-	-	<0.00050	<0.00050	-	-	-	-
Cobalt (Co)-Total	mg/L	-	-	0.00010	0.00091	0.00094	0.00144	0.00150	0.00142	0.00158	0.00165	0.00160	0.00180	0.00190	0.00214	0.00166	0.00070	0.00072	0.00095	0.00087
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00161	0.00272	0.00128	0.00130	0.00113	0.00123	0.00121	0.00107	0.00089	0.00092	0.00456	0.00548	0.00274	0.00682	0.00170	0.00210
(Copper (Cu)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	0.010	0.497	0.489	0.489	0.506	0.302	0.495	0.286	0.260	0.223	0.233	2.620	2.840	0.442	0.412	0.440	0.434
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.000050	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000011	0.001010	0.000105	0.000168	<0.000050	0.000033
(Lead (Pb)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Total	mg/L	-	-	0.0010	0.0222	0.0106	0.0183	0.0186	0.0224	0.0239	0.0296	0.0286	0.0290	0.0283	0.0068	0.0033	0.0125	0.0127	0.0216	0.0106
Magnesium (Mg)-Total	mg/L	-	-	0.10	106.00	57.70	121.00	90.40	141.00	107.00	121.00	139.00	131.00	139.00	43.50	19.70	61.00	59.50	87.20	66.00
Manganese (Mn)-Total	mg/L	-	-	0.00010	0.46800	0.28000	0.55100	0.57800	0.63600	0.71300	0.82500	0.82700	0.81400	0.85500	0.33200	0.21000	0.21400	0.22100	0.42100	0.31300
Mercury (Hg)-Total	mg/L	0.000026	-	0.000050	<0.000050	0.000073	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.0000192	0.0000204	0.0000050	<0.000050	<0.000050	<0.000050
Molybdenum (Mo)-Total	mg/L	0.073	-	0.00050	0.001800	0.001450	0.001550	0.001280	0.001280	0.001320	0.001360	0.001290	0.001290	0.001290	0.001020	0.000768	0.001370	0.001370	0.001690	0.001690
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.00050	0.001800	0.001450	0.001550	0.001280	0.001280	0.001320	0.001360	0.001290	0.001290	0.001290	0.001020	0.000768	0.001370	0.001370	0.001690	0.001690
(Nickel (Ni)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.015000	0.015000	0.015000	0.015000	0.015000	0.015000	0.015000	0.015000	0.015000	0.0						

Water quality results collected at E7 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2147306-2 E7 14/08/2018 12:20	L2164003-2 E7 12/09/2018 12:45	L2183280-4 E7 17/10/2018 09:45	L2183280-5 E7 17/10/2018 10:00	L2197029-2 E7 12/11/2018 13:10	L2209213-2 E7 10/12/2018 12:40	L2220316-3 13/01/2019 12:30	L2220316-8 13/01/2019 12:35	L2234470-1 18/02/2019 11:50	L2240869-5 04/03/2019 11:30	L2261985-3 22/04/2019 11:15	L2273032-1 13/05/2019 10:50	L2288891-1 10/06/2019 09:30	L2288891-6 10/06/2019 09:40	L2308450-5 10/07/2019 10:30	L2329874-9 14/08/2019 15:30
Dissolved Metals																				
Aluminum (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0045	0.0187	0.0049	0.0051	0.0034	<0.0050	0.0033	0.0042	0.0028	0.0034	0.1310	0.1650	0.0218	0.0205	0.0088	0.0147
Aluminum (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	0.1000	0.0001	0.0001	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00029	0.00036	0.00030	0.00031	0.00023	0.00023	0.00023	0.00022	0.00022	0.00021	0.00023	0.00023	0.00041	0.00043	0.00040	0.00032
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00060	0.00091	0.00057	0.00054	0.00040	0.00035	0.00034	0.00035	0.00046	0.00033	0.00073	0.00069	0.00084	0.00079	0.00074	0.00088
Barium (Ba)-Dissolved	mg/L	-	-	0.00050	0.073200	0.051200	0.058400	0.057700	0.069000	0.078600	0.076300	0.082600	0.089500	0.087300	0.040200	0.032800	0.052500	0.052600	0.062400	0.055200
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.037	0.074	0.063	0.067	0.081	0.086	0.085	0.087	0.081	0.081	0.023	0.012	0.049	0.050	0.074	0.035
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000655	0.0000483	0.0000615	0.0000604	0.0000841	0.0000827	0.0000822	0.0000909	0.0000812	0.0000790	0.0000491	0.0000533	0.0000526	0.0000495	0.0000554	0.0000497
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700	0.0001700
Calcium (Ca)-Dissolved	mg/L	-	-	0.50	117.000	74.900	104.000	104.000	130.000	172.000	153.000	151.000	162.000	167.000	56.600	29.000	75.800	76.400	105.000	83.600
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00031	0.00058	0.00042	0.00039	0.00041	0.00039	0.00039	0.00041	0.00055	0.00037	0.00041	0.00160	0.00070	0.00068	0.00055	0.00044
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	-	0.00141	0.00160	-	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	-	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00081	0.00079	0.00139	0.00140	0.00139	0.00180	0.00153	0.00158	0.00190	0.00188	0.00076	0.00059	0.00060	0.00088	0.00079	0.00079
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00138	0.00020	0.00025	0.00125	0.00122	0.00100	0.00100	0.00095	0.00098	0.00089	0.00087	0.00235	0.00374	0.00248	0.00242	0.00144	0.00196
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.064	0.293	0.113	0.113	0.071	0.052	0.068	0.068	0.069	0.070	0.368	0.400	0.300	0.294	0.180	0.249
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000094	<0.000050	<0.000050	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0215	0.0103	0.0193	0.0190	0.0221	0.0290	0.0275	0.0266	0.0292	0.0269	0.0063	0.0029	0.0132	0.0133	0.0192	0.0103
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	93.30	56.00	89.60	89.30	108.00	134.00	129.00	130.00	145.00	138.00	41.90	19.90	62.00	60.50	79.70	65.30
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.43000	0.25900	0.55900	0.55800	0.66800	0.78200	0.78100	0.79700	0.85100	0.78800	0.18000	0.11500	0.20800	0.20600	0.39000	0.28300
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000100	0.0000058	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.001600	0.001370	0.001440	0.001440	0.001270	0.001370	0.001220	0.001200	0.001240	0.001140	0.000766	0.000640	0.001120	0.001110	0.001440	0.001440
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.01790	0.01340	0.02030	0.02000	0.01790	0.01980	0.01820	0.01870	0.01840	0.01740	0.01220	0.00929	0.01390	0.01380	0.01910	0.01400
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.13335	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	1.62	0.90	1.35	1.34	1.31	1.66	1.58	1.61	1.68	1.57	1.37	1.19	1.38	1.38	0.99	0.99
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.000540	0.001360	0.001130	0.001100	0.000889	0.000985	0.001150	0.001160	0.001030	0.000963	0.001520	0.001350	0.000964	0.001070	0.000571	0.000926
Silicon (Si)-Dissolved	mg/L	-	-	0.050	5.040	4.900	5.240	5.620	5.900	5.840	5.810	5.960	5.990	4.140	2.780	4.860	4.820	4.530	4.970	4.970
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000011	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	7.940	4.400	7.050	6.990	8.080	11.200	11.000	10.800	11.680	10.900	3.070	1.680	6.410	6.430	4.860	4.860
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.72400	0.45400	0.70000	0.69600	0.87100	1.15500	1.05000	1.04000	1.10000	1.10000	0.33800	0.14900	0.47500	0.47500	0.49500	0.49500
Sulfur (S)-Dissolved	mg/L	-	-	0.50	161.00	90.80	147.00	147.00	171.00	192.00	213.00	210.00	230.00	235.00	70.10	31.30	93.30	92.30	127.00	109.00
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	0.000011	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000015	0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00030	0.00051	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00128	0.00232	0.00070	0.00041	<0.00030	<0.00030
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.004150	0.002460	0.004080	0.004690	0.005530	0.005760	0.005710	0.006290	0.006930	0.006270	0.000789	0.002250	0.002400	0.003190	0.002980	0.002980
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	0.0017	0.0017	0.0022	0.0025	0.0029	0.0030	0.0055	0.0049	0.0029	0.0024	0.0036	0.0028	0.0017	0.0015	<0.0020	0.0037
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	0.29630	0.31983	0.29764	0.29764	0.29764	0.29764	0.29764	0.29764	0.29764	0.29764	0.29764	0.34002	0.22393	0.22683	0.22683	0.31072	0.31416
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00093	0.00112	0.00129	0.00132	0.00144	0.00156	0.00139	0.00137	0.00140	0.00125	0.00100	0.00094	0.00116	0.00118	0.00115	0.00095

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015). CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent.

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at E8 during monthly surface water monitoring

				CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989173-4 E8 09/09/2017 13:10	L2003229-5 E8 04/10/2017 11:30	L2020222-5 E8 06/11/2017 10:10	L2031552-5 E8 04/12/2017 10:45	L2045168-1 E8 14/01/2018 11:20	L2055716-10 E8 11/02/2018 10:40	L2067395-1 E8 12/03/2018 10:25	L2078526-6 E8 09/04/2018 10:30	L2094958-12 E8 14/05/2018 10:30	L2110842-6 E8 10/06/2018 08:45	L2128251-11 E8 11/07/2018 07:30	L2147306-1 E8 14/08/2018 11:40	L2164003-4 E8 12/09/2018 12:10
Analyte	Units																		
Physical Tests																			
Temperature (in-situ)	°C	-	-	-	-	8.4	2.6	0.0	-0.1	0.0	0.1	-0.1	0.3	2.0	7.0	14.9	13.0	5.7	
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	-	11.84	13.93	11.19	12.02	12.64	11.78	10.02	10.62	13.76	12.06	9.28	10.81	12.04	
Specific Conductivity (in-situ)	µS/cm	-	-	-	-	232.4	254.7	341.1	403.6	479.2	575.0	733.1	873.9	98.9	104.3	216.3	189.0	229.1	
pH (in-situ)	pH	6.5 - 9.0	-	-	-	8.01	7.77	6.97	6.78	6.51	6.65	6.65	6.58	7.09	6.79	7.36	7.85	7.67	
Oxidation- Redox Potential (in-situ)	mV	-	-	-	-	167.4	388.8	261.4	240.5	221.7	180.4	264.0	212.8	318.5	173.4	316.1	277.0	183.8	
Turbidity (in-situ)	NTU	-	-	-	-	2.45	1.87	2.45	1.87	0.55	4.17	0.16	0.54	28.90	48.30	0.65	3.22	1.65	
Conductivity	µS/cm	-	-	-	2	229	288	389	392	476	577	734	871	95	107	218	273	227	
Hardness (as CaCO3)	mg/L	-	-	-	0.5	106.0	118.0	191.0	196.0	227.0	271.0	389.0	453.0	48.4	53.7	92.7	114.0	103.0	
pH (lab)	pH	6.5 - 9.0	-	-	0.1	7.92	7.93	8.18	7.91	7.72	7.64	7.14	8.01	7.44	7.83	7.94	8.07	8.02	
Total Suspended Solids	mg/L	-	-	-	2	<3.0	<2.0	4	<2.0	<2.0	<2.0	<2.0	7.8	54	76	2.1	<2.0	3.2	
Anions and Nutrients																			
Ammonia, Total (as N) ^a	mg/L	Temp,pH-Dep	-	-	0.0050	<0.0050	<0.0050	0.0167	0.0134	0.0147	0.0132	0.0133	0.0132	0.0091	0.0130	<0.0050	<0.0050	<0.0050	
(Temperature and pH adjusted Guideline)	mg/L	Temp,pH-Dep	-	-	-	0.8553	1.2665	18.9974	18.9974	60.0352	60.0352	60.0352	60.0352	18.9974	12.5827	1.8257	0.5880	3.9804	
Bromide (Br)	mg/L	-	-	-	0.050	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Chloride (Cl)	mg/L	120	-	-	0.50	0.89	1.21	2.57	2.61	3.60	4.61	5.91	6.60	0.57	<0.50	0.97	1.03	0.77	
Fluoride (F)	mg/L	0.12	-	-	0.020	0.101	0.107	0.128	0.107	0.110	0.115	0.107	<0.10	0.055	0.070	0.105	0.122	0.095	
Nitrate (as N)	mg/L	13	-	-	0.0050	0.0703	0.1630	0.3180	0.3310	0.4080	0.4690	0.4460	0.3640	0.0224	0.0404	0.0208	0.0409	0.1500	
Nitrite (as N)	mg/L	0.06	-	-	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Phosphorus (P)-Total	mg/L	-	-	-	0.0020	0.0033	0.0057	0.0088	<0.0020	<0.0020	0.0040	0.0030	0.0084	0.0909	0.0937	0.0072	0.0104	0.0072	
Sulfate (SO4)	mg/L	-	-	-	0.30	51.40	58.90	106.00	88.60	101.00	129.00	186.00	223.00	18.60	18.00	45.60	59.60	49.90	
Sulphide (as S)	mg/L	-	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sulphide (as H2S)	mg/L	-	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-	-	
Organic / Inorganic Carbon																			
Dissolved Organic Carbon	mg/L	-	-	-	0.5	13.3	12.7	11.3	6.6	7.1	6.3	5.0	5.5	29.1	23.5	14.9	12.5	12.5	
Aggregate Organics																			
Biological Oxygen Demand (BOD)	mg/L	-	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	
Asbestos																			
Total Asbestos concentration	MFL	-	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Metals																			
Aluminium (Al)-Total	mg/L	pH-Dep	-	-	0.0030	0.1470	0.1410	0.1570	0.0671	0.0446	0.0847	0.0230	0.2400	1.4400	2.3400	0.1060	0.1610	0.1400	
(Aluminum (Al)-Total (pH Adjusted Guideline))	mg/L	pH-Dep	-	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	
Antimony (Sb)-Total	mg/L	-	-	-	0.00010	0.00012	0.00011	0.00023	0.00013	0.00014	0.00078	0.00016	0.00015	0.00011	0.00017	0.00013	0.00014	0.00012	
Arsenic (As)-Total	mg/L	0.005	-	-	0.00010	0.00097	0.00055	0.00030	0.00040	0.00045	0.00034	0.00057	0.00126	0.00172	0.00060	0.00063	0.00058	0.00058	
Barium (Ba)-Total	mg/L	-	-	-	0.000500	0.037100	0.035900	0.059200	0.068000	0.071000	0.085700	0.104000	0.128000	0.051800	0.058100	0.035200	0.041100	0.035800	
Beryllium (Be)-Total	mg/L	-	-	-	0.000020	<0.000020	0.000021	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000063	0.000101	0.000025	<0.000020	0.000024	
Bismuth (Bi)-Total	mg/L	-	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000057	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Boron (B)-Total	mg/L	1.5	-	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	-	0.0000050	0.0000213	0.0000168	0.0000615	0.0000168	0.0000190	0.0000696	0.0000382	0.0000378	0.0000774	0.0000683	0.0000192	0.0000213	0.0000272	
(Cadmium (Cd)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	-	0.0001663	0.0001818	0.0002712	0.0002771	0.0003130	0.0003625	0.0003700	0.0003700	0.0000868	0.0000946	0.0001488	0.0001767	0.0001624	
Calcium (Ca)-Total	mg/L	-	-	-	0.050	24.500	30.200	54.100	53.100	59.600	66.900	96.400	106.000	13.500	14.200	25.600	29.400	26.200	
Chromium (Cr)-Total	mg/L	-	-	-	0.00010	0.00058	0.00045	0.00178	0.00017	0.00017	0.00055	0.00029	0.00054	0.00222	0.00396	0.00041	<0.00060	0.00048	
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	-	0.00010	<0.00010	<0.00010	0.00178	-	-	-	-	-	0.00220	0.00396	-	-	-	
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	-	0.00010	-	-	<0.0010	-	-	-	-	-	<0.0010	<0.00050	-	-	-	
Cobalt (Co)-Total	mg/L	-	-	-	0.00010	0.00044	0.00058	0.00053	<0.00010	0.00013	0.00022	0.00031	0.00061	0.00170	0.00176	0.00018	0.00030	0.00038	
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	-	0.00050	0.00253	0.00248	0.00452	0.00184	0.00152	0.00340	0.00181	0.00192	0.00530	0.00716	0.00287	0.00267	0.00271	
(Copper (Cu)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	-	0.00249	0.00272	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00200	0.00200	0.00222	0.00264	0.00243	
Iron (Fe)-Total	mg/L	0.3	-	-	0.010	0.409	0.431	0.413	0.051	0.042	0.172	0.053	0.429	2.200	3.410	0.264	0.372	0.350	
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	-	0.000050	<0.000050	<0.000050	0.002887	<0.000050	<0.000050	0.002890	<0.000050	0.000155	0.000850	0.001490	<0.000050	0.000083	0.000064	
(Lead (Pb)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	-	0.001427	0.003028	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.001000	0.001000	0.00359	0.00359	0.00359	
Lithium (Li)-Total	mg/L	-	-	-	0.0010	0.0041	0.0042	0.0061	0.0079	0.0093	0.0102	0.0165	0.0160	0.0028	0.0033	0.0046	0.0055	0.0036	
Magnesium (Mg)-Total	mg/L	-	-	-	0.10	9.82	11.20	21.30	16.30	20.20	24.30	37.80	43.90	4.32	5.36	9.32	11.60	9.86	
Manganese (Mn)-Total	mg/L	-	-	-	0.00010	0.02780	0.03790	0.03970	0.01770	0.04100	0.05940	0.15500	0.17100	0.15800	0.11400	0.01350	0.02710	0.02640	
Mercury (Hg)-Total	mg/L	0.000026	-	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000126	<0.000010	<0.0000050	<0.0000050	<0.0000050	
Molybdenum (Mo)-Total	mg/L	0.073	-	-	0.000050	0.000456	0.000506	0.000534	0.000491	0.000592	0.000502	0.000498	0.000245	0.000314	0.000456	0.000502	0.000437	0.000437	
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	-	0.00050	0.00278	0.00332	0.00396	0.00200	0.00193	0.00225	0.00370	0.00463	0.00459	0.00557	0.00246	0.00273	0.00289	
(Nickel (Ni)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	-	0.00990	0.01039	0.015000	0.015000	0.015000	0.015000	0.015000	0.025000	0.025000	0.09023	0.10558	0.09775	0.09775	
Phosphorus (P)-Total	mg/L	-	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.080	0.121	<0.050	<0.050	<0.050	
Potassium (K)-Total	mg/L	-	-	-	0.10	0.87	0.90	1.62	1.35	1.61	1.92	2.13	2.29	1.56	0.95	0.95	1.02	0.82	
Selenium (Se)-Total	mg/L	0.001	-	-	0.000050	0.000166	0.000215	0.000327	0.000247	0.000306	0.000304	0.000350	0.000511	0.000151	0.000198	0.000132	0.000163	0.000258	
Silicon (Si)-Total	mg/L	-	-	-	0.10	5.03	5.07	5.79	5.69	5.54	5.66	5.89	5.81	4.12	7.12	4.58	4.90	5.39	
Silver (Ag)-Total	mg/L	0.00025	-	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000018	0.000023	<0.000010	<0.000010	<0.000010	
Sodium (Na)-Total	mg/L	-	-	-	0.050	4.500	4.6.												

Water quality results collected at E8 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989173-4 E8 09/09/2017 13:10	L2003229-5 E8 04/10/2017 11:30	L2020322-5 E8 06/11/2017 10:10	L2031552-5 E8 04/12/2017 10:45	L2045168-1 E8 14/01/2018 11:20	L2055716-10 E8 11/02/2018 10:40	L2067395-1 E8 12/03/2018 10:25	L2078526-6 E8 09/04/2018 10:30	L2094958-12 E8 14/05/2018 10:30	L2110842-6 E8 10/06/2018 08:45	L2128251-11 E8 11/07/2018 07:30	L2147306-1 E8 14/08/2018 11:40	L2164003-4 E8 12/09/2018 12:10
Dissolved Metals																	
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0747	0.0696	0.0537	0.0483	0.0304	0.0153	0.0143	0.0122	0.1880	0.1630	0.0802	0.0690	0.0706
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00011	<0.00010	0.00017	0.00011	0.00010	0.00016	<0.00020	0.00013	<0.00010	<0.00010	0.00011	0.00011	0.00010
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00053	0.00047	0.00042	0.00025	0.00024	0.00046	0.00032	0.00048	0.00059	0.00059	0.00051	0.00046	0.00046
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.03990	0.03400	0.054100	0.065200	0.075200	0.082500	0.121000	0.145000	0.039900	0.026400	0.036400	0.041200	0.03600
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000021	<0.000020	0.000029	0.000036	<0.000020	<0.000020	0.000023
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	0.013	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000199	0.0000239	0.0000491	0.0000113	0.0000213	0.0000270	0.0000439	0.0000469	0.0000376	0.0000185	0.0000153	0.0000157	0.0000184
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.0001663	0.0001818	0.0002712	0.0002771	0.0003130	0.0003625	0.0003700	0.0003700	0.0003700	0.0003688	0.0003916	0.0001488	0.0001767	0.0001624
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	27.100	29.300	46.100	51.700	59.900	72.600	90.600	101.000	12.300	14.200	22.300	27.400	25.000
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00036	0.00036	<0.00010	0.00017	0.00015	<0.00010	0.00018	0.00016	0.00035	0.00051	0.00046	0.00039	0.00037
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00034	0.00053	0.00040	<0.00010	0.00013	0.00012	0.00032	0.00031	0.00061	0.00025	0.00015	0.00022	0.00033
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00020	0.00023	0.00381	0.00177	0.00157	0.00153	0.00155	0.00142	0.00321	0.00387	0.00272	0.00252	0.00246
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.00249	0.00272	0.00460	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00210	0.00210	0.00222	0.00264	0.00243
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.267	0.318	0.201	0.032	0.030	0.024	0.036	0.042	0.327	0.361	0.219	0.200	0.226
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	0.000125	<0.000050	<0.000050	0.000075	<0.000050	<0.000050	<0.000050	<0.000050	0.000074	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.003427	0.003928	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.001000	0.001000	0.002889	0.003759	0.003304
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0039	0.0043	0.0078	0.0068	0.0102	0.0122	0.0155	0.0129	0.0019	0.0019	0.0037	0.0055	0.0036
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	9.29	10.80	18.40	16.20	18.80	21.70	39.60	48.90	4.27	4.45	9.00	11.20	9.94
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.0230	0.0390	0.0290	0.01700	0.04260	0.04340	0.15300	0.14600	0.07570	0.01380	0.01020	0.01950	0.02290
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000067	0.0000063	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.000394	0.000411	0.000549	0.000437	0.000385	0.000452	0.000480	0.000480	0.000194	0.000247	0.000392	0.000425	0.000439
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.00257	0.00308	0.00341	0.00200	0.00191	0.00195	0.00368	0.00404	0.00260	0.00248	0.00237	0.00255	0.00284
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.00990	0.01039	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.02500	0.02500	0.09023	0.10558	0.09775
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	0.84	0.88	1.57	1.33	1.61	1.82	2.25	2.46	1.47	0.71	1.02	1.09	0.83
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.000153	0.000188	0.000350	0.000253	0.000353	0.000341	0.000439	0.000553	0.000100	0.000104	0.000214	0.000141	0.000226
Silicon (Si)-Dissolved	mg/L	-	-	0.050	4.610	4.900	5.430	5.320	5.550	5.640	5.810	5.500	2.180	3.540	4.480	4.820	5.240
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	4.260	4.500	7.470	7.620	9.530	9.890	13.600	14.900	1.870	2.330	4.610	5.500	3.900
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.16200	0.18100	0.30100	0.31300	0.34900	0.41200	0.54700	0.66700	0.07170	0.07760	0.15000	0.15300	0.14500
Sulfur (S)-Dissolved	mg/L	-	-	0.50	17.20	19.70	33.00	30.60	35.00	44.00	57.60	83.40	5.78	5.65	14.20	19.10	15.70
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	0.00061	0.00064	0.00067	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00194	0.00236	0.00072	0.00093	0.00096
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.001040	0.001170	0.001820	0.001790	0.002610	0.003210	0.004320	0.006420	0.000590	0.000526	0.000892	0.001140	0.000931
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	0.00063	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00080	0.00096	0.00081	0.00080	0.00059
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	0.0023	0.0028	0.0121	0.0024	0.0060	0.0065	0.0058	0.0485	0.0032	0.0016	0.0012	0.0017	0.0023
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	0.15119	0.16566	0.24059	0.21806	0.24883	0.24833	0.24833	0.25326	0.08493	0.09051	0.14079	0.16036	0.14736	0.14736
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00073	0.00067	0.00050	0.00036	0.00038	0.00076	0.00213	0.00221	0.00056	0.00094	0.00075	0.00064	0.00074

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
* The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at E8 during monthly surface water monitoring

			CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2182241-9 E8 15/10/2018 06:45	L2197029-1 E8 12/11/2018 11:20	L2209213-1 E8 10/12/2018 11:55	L2202316-1 E8 13/01/2019 11:50	L2234470-5 E8 18/02/2019 10:55	L2234470-6 E8 18/02/2019 11:00	L2240869-1 E8 04/03/2019 11:00	L2261985-2 E8 22/04/2019 10:30	L2273032-6 E8 13/05/2019 10:15	L2273032-10 E8 13/05/2019 10:20	L2289891-2 E8 10/06/2019 09:00	L2308450-7 E8 10/07/2019 12:15	L2329874-10 E8 14/08/2019 14:40
Analyte	Units																	
Physical Tests																		
Temperature (in-situ)	°C	-	-	-	-	-0.1	0.0	-0.1	0.0	0.1	0.1	0.0	0.1	2.9	2.9	13.2	18.8	13.6
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	-	14.24	12.28	12.88	11.88	10.40	10.40	14.48	12.46	12.47	12.47	9.44	8.73	9.87
Specific Conductivity (in-situ)	µS/cm	-	-	-	-	358.7	500.4	495.6	505.4	501.5	501.5	591.4	291.7	99.4	99.4	191.7	291.1	241.0
pH (in-situ)	pH	6.5 - 9.0	-	-	-	8.21	6.81	6.87	6.97	7.07	7.07	7.09	7.88	6.92	6.92	7.83	7.95	8.00
Oxidation- Redox Potential (in-situ)	mV	-	-	-	-	211.5	210.2	206.2	187.6	139.0	139.0	175.0	228.4	214.4	214.4	244.5	214.8	217.5
Turbidity (in-situ)	NTU	-	-	-	-	3.85	0.48	0.12	0.50	0.44	0.44	0.52	1.55	21.80	21.80	2.13	1.05	1.71
Conductivity	µS/cm	-	-	2	351	439	450	516	547	550	593	209	101	99.9	200	293	238	238
Hardness (as CaCO3)	mg/L	-	-	0.5	168.0	225.0	257.0	244.0	274.0	282.0	299.0	138.0	51.5	49.0	99.2	137.0	114.0	114.0
pH (lab)	pH	6.5 - 9.0	-	0.1	8.18	7.94	8.15	7.88	7.43	7.49	7.52	8.00	7.46	7.51	8.01	8.17	8.15	8.15
Total Suspended Solids	mg/L	-	-	2	4.2	3.8	<2.0	<2.0	<2.0	2.5	<2.0	<2.0	2.8	31	33	<2.0	<2.0	<2.0
Anions and Nutrients																		
Ammonia, Total (as N) ^a	mg/L	Temp, pH-Dep	-	0.0050	<0.0050	0.0073	0.0107	0.0104	0.0242	0.0141	0.0065	0.0064	0.0070	0.0097	0.0064	0.0104	<0.0050	<0.0050
(Temperature and pH adjusted Guideline)																		
Bromide (Br)	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	120	-	0.50	1.91	2.61	2.68	3.59	4.98	4.96	5.41	1.84	0.55	0.56	0.97	1.18	0.62	0.62
Fluoride (F)	mg/L	0.12	-	0.020	0.122	0.145	0.108	0.115	0.121	0.119	0.118	0.093	0.052	0.052	0.105	0.128	0.103	0.103
Nitrate (as N)	mg/L	13	-	0.0050	0.2220	0.3220	0.3220	0.3720	0.4060	0.4010	0.3790	0.0118	0.0183	0.0176	0.0295	0.0095	0.0095	0.0550
Nitrite (as N)	mg/L	0.06	-	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total	mg/L	-	-	0.0020	0.0066	0.0036	0.0024	0.0038	<0.0020	0.0028	0.0151	0.0212	0.0485	0.0528	0.0099	0.0052	0.0057	0.0057
Sulfate (SO4)	mg/L	-	-	0.30	87.40	113.00	112.00	123.00	137.00	137.00	147.00	70.70	18.10	18.30	43.40	65.50	51.00	51.00
Sulphide (as S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon																		
Dissolved Organic Carbon	mg/L	-	-	0.5	9.1	9.1	4.9	4.6	3.5	3.7	3.8	17.9	27.3	26.9	16.8	12.9	12.7	12.7
Aggregate Organics																		
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos																		
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																		
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.0030	0.1030	0.0413	0.0215	0.0397	0.0210	0.0199	0.0153	0.1120	0.8830	0.9310	0.1350	0.1040	0.1080	0.1080
(Aluminium (Al)-Total (pH Adjusted Guideline)																		
Antimony (Sb)-Total	mg/L	-	-	0.00010	0.00017	0.00013	0.00012	0.00013	0.00019	0.00015	0.00014	<0.00010	0.00011	0.00010	0.00012	0.00013	0.00012	0.00012
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.00047	0.00042	0.00025	0.00027	0.00042	0.00029	0.00025	0.00041	0.00099	0.00111	0.00061	0.00057	0.00055	0.00055
Barium (Ba)-Total	mg/L	-	-	0.000500	0.05100	0.065900	0.064200	0.076000	0.078400	0.076300	0.078400	0.045400	0.042100	0.042000	0.036000	0.045700	0.035900	0.035900
Beryllium (Be)-Total	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000049	0.000055	0.000024	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Total	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	1.5	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.0000050	0.0000229	0.0000267	0.0000137	0.0000169	0.0000190	0.0000199	0.0000259	0.0000403	0.0000659	0.0000577	0.0000152	0.0000160	0.0000228	0.0000228
(Cadmium (Cd)-Total (Hardness Adjusted Guideline)																		
Calcium (Ca)-Total	mg/L	-	-	0.050	41.600	53.600	52.100	64.500	64.200	63.900	68.700	31.800	12.900	12.900	22.000	34.200	27.900	27.900
Chromium (Cr)-Total	mg/L	-	-	0.00010	0.00040	0.00028	0.00013	0.00018	0.00016	0.00024	0.00019	0.00030	0.00153	0.00159	0.00044	0.00049	0.00060	0.00060
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	0.00153	0.00159	-	-	-	-
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	<0.00050	<0.00050	-	-	-	-
Cobalt (Co)-Total	mg/L	-	-	0.00010	0.00037	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00071	0.00111	0.00119	0.00027	0.00022	0.00035	0.00035
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00224	0.00285	0.00136	0.00150	0.00113	0.00111	0.00108	0.00228	0.00432	0.00449	0.00316	0.00282	0.00244	0.00244
(Copper (Cu)-Total (Hardness Adjusted Guideline)																		
Iron (Fe)-Total	mg/L	0.3	-	0.010	0.304	0.147	0.032	0.041	0.026	0.024	0.039	0.285	1.340	1.480	0.340	0.143	0.290	0.290
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.000050	0.000063	<0.000050	<0.000050	<0.000050	0.000169	0.000052	<0.000050	<0.000050	0.000555	0.000567	0.000065	<0.000050	<0.000050	<0.000050
(Lead (Pb)-Total (Hardness Adjusted Guideline)																		
Lithium (Li)-Total	mg/L	-	-	0.0010	0.0057	0.0078	0.0071	0.0091	0.0100	0.0098	0.0117	0.0062	0.0023	0.0037	0.0037	0.0064	0.0040	0.0040
Magnesium (Mg)-Total	mg/L	-	-	0.10	16.80	19.40	20.20	25.60	23.70	22.90	27.50	14.00	4.54	4.65	9.43	14.10	11.20	11.20
Manganese (Mn)-Total	mg/L	-	-	0.00010	0.02710	0.01110	0.01440	0.01710	0.02180	0.02060	0.02840	0.08020	0.10500	0.11200	0.01470	0.02300	0.02810	0.02810
Mercury (Hg)-Total	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000095	0.0000117	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	0.000594	0.000668	0.000485	0.000563	0.000521	0.000521	0.000498	0.000370	0.000249	0.000243	0.000383	0.000524	0.000524	0.000524
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00254	0.00253	0.00186	0.00186	0.00153	0.00152	0.00157	0.00301	0.00391	0.00408	0.00274	0.00259	0.00289	0.00289
(Nickel (Ni)-Total (Hardness Adjusted Guideline)																		
Phosphorus (P)-Total	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.059	0.064	0.064	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total	mg/L	-	-	0.10	1.16	1.47	1.47	1.75	1.61	1.59	1.78	1.97	1.41	1.45	0.97	1.34	0.93	0.93
Selenium (Se)-Total	mg/L	0.001	-	0.000050	0.000317	0.000345	0.000383	0.000442	0.000513	0.000482	0.000550	0.000283	0.000128	0.000115	0.000160	0.000225	0.000181	0.000181
Silicon (Si)-Total	mg/L	-	-	0.10	5.39	6.10	4.98	5.50	4.99	4.97	5.19	3.30	3.44	3.71	4.16	4.52	5.24	5.24
Silver (Ag)-Total	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000015	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Total	mg/L	-	-	0.050	6.480	8.290	8.150	9.940	9.330	9.300	10.000	5.370	1.970	1.990	4.270	5.770	4.160	4.160
Strontium (Sr)-Total	mg/L	-	-	0.00020	0.24600	0.31600	0.30600	0.38800	0.40500	0.40900	0.44500	0.18500	0.07680	0.07350	0.13800	0.20000	0.18400	0.18400
Sulfur (S)-Total	mg/L	-	-	0.50	31.30	41.00	40.70	47.50	48.00	48.00	52.30	24.00	6.39	6.26	15.20	24.90	18.40	18.40
Thallium (Tl)-Total	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Total	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Total	mg/L	-	-	0.00030	0.00258													

Water quality results collected at E8 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2182241-9 E8 15/10/2018 06:45	L2197029-1 E8 12/11/2018 11:20	L2209213-1 E8 10/12/2018 11:55	L2220316-1 E8 13/01/2019 11:50	L2234470-5 E8 18/02/2019 10:55	L2234470-6 E8-r 18/02/2019 11:00	L2240869-1 E8 04/03/2019 11:00	L2261985-2 E8 22/04/2019 10:30	L2273032-6 E8 13/05/2019 10:15	L2273032-10 E8-r 13/05/2019 10:20	L2289891-2 E8 10/06/2019 09:00	L2308450-7 E8 10/07/2019 12:15	L2329874-10 E8 14/08/2019 14:40
Dissolved Metals																	
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0340	0.0250	0.0205	0.0192	0.0138	0.0148	0.0110	0.0863	0.1950	0.1880	0.0865	0.0791	0.0680
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00013	0.00012	0.00011	0.00011	0.00012	0.00013	0.00012	<0.00010	<0.00010	<0.00010	0.00011	0.00014	0.00010
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00042	0.00036	0.00023	0.00021	0.00034	0.00036	0.00021	0.00036	0.00045	0.00045	0.00052	0.00052	0.00053
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.045600	0.067900	0.070600	0.067000	0.096000	0.091600	0.083800	0.045500	0.029800	0.027800	0.034400	0.044700	0.035900
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000033	0.000028	0.000026	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000162	0.0000268	0.0000144	0.0000138	0.0000175	0.0000166	0.0000202	0.0000443	0.0000415	0.0000320	0.0000137	0.0000119	0.0000275
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0000438	0.0001107	0.0003469	0.0003323	0.0003659	0.0003700	0.0003700	0.0003711	0.0003914	0.0003877	0.0001574	0.0002058	0.0001767
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	40.900	56.600	64.600	61.300	66.800	69.200	73.800	32.400	13.000	12.600	23.400	33.700	27.100
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00023	-	-	<0.00010	0.00020	0.00023	0.00014	0.00028	0.00036	0.00034	0.00038	0.00038	0.00030
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00028	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00074	0.00053	0.00047	0.00021	0.00018	0.00028
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00020	0.00028	0.00148	0.00121	0.00110	0.00109	0.00105	0.00218	0.00336	0.00304	0.00301	0.00239	0.00222
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.000368	0.000490	0.000490	0.000490	0.000490	0.000490	0.000490	0.000490	0.000490	0.000490	0.000490	0.000490	0.000490
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.179	0.094	0.025	0.022	0.016	0.017	0.018	0.245	0.376	0.354	0.238	0.094	0.191
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000054	0.000061	<0.000050	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.006158	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0055	0.0083	0.0083	0.0083	0.0096	0.0097	0.0115	0.0067	0.0018	0.0017	0.0041	0.0056	0.0038
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	16.10	20.40	23.10	22.10	26.00	26.40	27.90	13.90	4.60	4.28	9.87	12.90	11.10
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.00260	0.01060	0.01550	0.01570	0.02170	0.02190	0.02800	0.08260	0.05430	0.05050	0.01660	0.02180	0.02180
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000061	0.0000070	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.000560	0.000653	0.000524	0.000490	0.000566	0.000532	0.000454	0.000377	0.000207	0.000247	0.000405	0.000572	0.000447
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.00240	0.00225	0.00191	0.00167	0.00154	0.00158	0.00165	0.00322	0.00282	0.00251	0.00270	0.00258	0.00277
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.14177	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.12208	0.02500	0.02500	0.09500	0.12141	0.10558
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	1.15	1.45	1.63	1.75	1.80	1.80	1.76	2.11	1.33	1.24	1.00	1.27	0.89
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.000315	0.000399	0.000375	0.000452	0.000461	0.000417	0.000521	0.000320	0.000114	0.000101	0.000164	0.000177	0.000234
Silicon (Si)-Dissolved	mg/L	-	-	0.050	4.920	5.930	5.100	5.150	5.060	5.130	4.910	3.420	2.400	2.470	4.260	4.260	4.920
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	6.190	8.340	8.860	9.550	9.580	10.200	5.490	1.980	1.730	4.390	5.770	4.310	4.310
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.24700	0.33000	0.39600	0.37300	0.44100	0.44500	0.44400	0.19100	0.07340	0.07040	0.13800	0.20800	0.16400
Sulfur (S)-Dissolved	mg/L	-	-	0.50	28.10	38.30	37.00	41.90	44.20	45.90	46.00	6.04	6.09	14.20	21.60	17.20	17.20
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0002	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00083	0.00295	0.00202	0.00092	0.00043	<0.00060
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.001640	0.002520	0.002630	0.002850	0.003270	0.003420	0.003830	0.002860	0.000505	0.000524	0.000806	0.001050	0.000940
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00057	0.00054	0.00070	0.00064	0.00064
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	0.00028	0.00131	0.0057	0.0032	0.0054	0.0050	0.0362	0.0038	0.0031	0.0030	0.0014	<0.0020	0.0021
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.20515	0.26167	0.24225	0.23829	0.22747	0.23126	0.23231	0.20208	0.08943	0.08580	0.15332	0.16831	0.16097
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00045	0.00045	<0.00030	<0.00030	<0.00030	0.00030	0.00033	0.00044	0.00059	0.00054	0.00073	0.00055	0.00061

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
* The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.



Water quality results collected at R1 during monthly surface water monitoring

[illegible]

[illegible]

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline
QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Client: Assessment and Abandoned Mines Branch, Yukon Government

Project: 19Y0070

[illegible]

COLOUR KEY:
 Exceeds CCME Guideline
 QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at R3 during monthly surface water monitoring

Analyte	Units	CMCE-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989169-5 R3 06/09/2017 17:35	L2002383-13 R3 02/10/2017 15:20	L2020913-6 R3 08/11/2017 12:25	L2096262-5 R3 15/05/2018 15:30	L2110842-8 R3 10/06/2018 15:50	L2128251-6 R3 10/07/2018 10:45	L2147306-9 R3 13/08/2018 11:55	L2163862-5 R3 10/09/2018 18:00	L2182241-1 R3 15/10/2018 15:40	L2263589-7 R3 24/04/2019 14:40	L2274425-1 R3 14/05/2019 13:40	L2291429-9 R3 12/06/2019 13:40	L2307083-3 R3 08/07/2019 13:45	L2329874-6 R3 13/08/2019 18:30
Physical Tests																		
Temperature (in-situ)	°C	-	-	-	4.9	0.8	-0.1	0.1	1.1	5.6	4.3	2.5	-0.1	0.0	0.1	3.5	8.3	5.3
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	12.68	14.34	14.04	14.49	14.05	11.49	12.45	12.77	13.04	13.32	13.25	11.87	11.63	12.15
Specific Conductivity (in-situ)	µS/cm	-	-	-	1133.0	1031.0	1304.0	373.3	242.5	1150.0	661.0	755.9	1310.0	195.5	319.2	921.0	1113.0	795.1
pH (in-situ)	pH	6.5 - 9.0	-	-	8.25	8.18	8.46	8.02	7.71	8.12	8.15	7.89	7.70	7.82	7.88	8.36	8.31	8.02
Oxidation- Redox Potential (in-situ)	mV	-	-	-	123.0	289.8	428.4	352.2	318.0	305.8	299.0	135.5	186.6	179.0	175.1	226.1	199.8	202.1
Turbidity (in-situ)	NTU	-	-	-	32.20	76.70	2.18	146.00	242.00	22.50	7.57	7.73	0.80	1.20	53.60	6.97	4.00	46.20
Conductivity	µS/cm	-	-	2	1080	1000	1390	371	461	1390	1260	742	1270	194	324	904	1130	806
Hardness (as CaCO3)	mg/L	-	-	0.5	620.0	606.0	984.0	195.0	239.0	637.0	669.0	404.0	817.0	115.0	153.0	515.0	620.0	468.0
pH (lab)	pH	6.5 - 9.0	-	0.1	8.29	8.27	8.12	7.88	8.10	8.36	8.39	8.27	8.30	7.59	7.96	8.41	8.37	8.25
Total Suspended Solids	mg/L	-	-	2	75	130	13	290	270	23	11	12	7.4	2.3	120	21	4.6	140
Anions and Nutrients																		
Ammonia, Total (as N) (Temperature and pH adjusted Guideline)	mg/L Temp,pH-Dep	- Temp,pH-Dep	- -	- -	0.0273 0.4128	0.0368 1.9162	0.0383 0.6160	0.0424 1.9162	0.0847 6.0200	0.0310 1.2665	0.0093 1.2665	0.0097 1.2665	0.0201 6.0200	0.0117 1.9162	0.0321 1.9162	0.0215 0.4128	<0.0050 0.2821	0.0226 1.2665
Bromide (Br)	mg/L	-	-	0.050	<0.25	-	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	<0.25	<0.25	<0.050	<0.25	<0.25	<0.25
Chloride (Cl)	mg/L	120	-	0.50	<2.5	1.03	1.11	<0.50	<0.50	<2.5	<2.5	<2.5	<2.5	<0.50	<0.50	<2.5	<2.5	<2.5
Fluoride (F)	mg/L	0.12	-	0.020	0.140	0.140	0.170	0.080	0.118	0.160	0.170	0.140	0.120	0.062	0.088	0.130	0.160	0.160
Nitrate (as N)	mg/L	13	-	0.0050	0.0820	0.1400	0.1340	<0.0050	0.0322	0.0840	0.0600	0.0690	0.0880	<0.0050	0.0890	0.0300	0.0520	0.0300
Nitrite (as N)	mg/L	0.06	-	0.0010	<0.0050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0050	<0.0050	<0.0050
Phosphorus (P)-Total	mg/L	-	-	0.0020	0.0421	0.1530	0.0065	0.2460	0.7510	0.0220	0.0173	0.0061	0.0383	0.0171	0.0183	0.0121	0.0494	0.0121
Sulfate (SO4)	mg/L	-	-	0.30	470.00	417.00	663.00	120.00	153.00	470.00	511.00	288.00	489.00	51.40	98.80	339.00	453.00	324.00
Sulphide (as S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon																		
Dissolved Organic Carbon	mg/L	-	-	0.5	8.3	9.1	7.1	28.7	25.4	10.5	8.7	14.4	8.3	46.1	23.6	12.5	11.0	15.2
Aggregate Organics																		
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos																		
Total Asbestos concentration	MFL	-	-	0.20	<AS	<AS	<AS	<AS	<AS	<AS	<AS	<AS	<AS	<AS	<AS	-	<AS	<AS
Total Metals																		
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.0030	1.3900	2.9900	0.1540	4.4600	10.6000	0.4930	0.1880	0.3230	0.0155	0.3240	1.3500	0.1540	0.0337	0.9690
Aluminium (Al)-Total (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Total	mg/L	-	-	0.00010	0.00029	0.00027	0.00015	0.00035	0.00072	0.00025	0.00018	0.00018	0.00018	<0.00010	0.00025	0.00022	0.00019	0.00029
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.00167	0.00057	0.00054	0.00406	0.01020	0.00105	0.00082	0.00076	0.00043	0.00083	0.00081	0.00058	0.00048	0.00140
Barium (Ba)-Total	mg/L	-	-	0.000050	0.101000	0.142000	0.076500	0.182000	0.397000	0.071000	0.064900	0.054500	0.072400	0.039700	0.079300	0.052200	0.058800	0.080300
Beryllium (Be)-Total	mg/L	-	-	0.000020	0.000059	0.000108	<0.000020	0.000175	0.000441	0.000027	<0.000020	<0.000020	<0.000020	<0.000036	0.000072	<0.000020	<0.000020	0.000054
Bismuth (Bi)-Total	mg/L	-	-	0.000050	<0.000050	<0.000050	0.000064	0.000125	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	1.5	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.0000050	0.0000711	0.0001340	0.0000443	0.0001930	0.0006900	0.0000443	0.0000263	0.0000345	0.0000364	0.0000555	0.0000738	0.0000251	0.0000161	0.0000827
Cadmium (Cd)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0002759	0.0003266	0.0003700	0.0003700	0.0003700	0.0003700	0.0001780	0.0002256	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Total	mg/L	-	-	0.050	123.000	109.000	185.000	43.300	51.900	129.000	73.100	154.000	22.000	35.600	94.600	119.000	82.300	82.300
Chromium (Cr)-Total	mg/L	-	-	0.00010	0.00286	0.00563	0.00062	0.01050	0.02310	0.00142	<0.00080	0.00114	0.00030	0.00359	0.00435	0.00080	0.00042	0.00247
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	-	0.00563	-	0.00210	0.02240	0.00142	-	0.00114	-	0.00359	0.00435	-	-	0.00247
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	-	<0.0010	-	<0.0010	-	-	-	<0.00050	-	<0.00050	-	-	-	<0.00050
Cobalt (Co)-Total	mg/L	-	-	0.00010	0.00168	0.00273	0.00076	0.00503	0.01140	0.00087	0.00059	0.00057	0.00036	0.00043	0.00191	0.00047	0.00028	0.00121
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00440	0.00704	0.00164	0.01490	0.03350	0.00257	0.00208	0.00265	0.00134	0.00278	0.00646	0.00197	0.00170	0.00448
Copper (Cu)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00266	0.00340	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	0.010	2.800	5.450	0.360	9.340	20.000	1.090	0.625	0.800	0.093	0.458	3.070	0.463	0.238	2.280
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.000050	0.001150	0.002200	0.000117	0.005570	0.011200	0.000476	0.000170	0.000240	<0.000050	<0.000050	0.001320	0.000169	<0.000050	0.000882
Lead (Pb)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.003801	0.005467	0.007000	0.007000	0.007000
Lithium (Li)-Total	mg/L	-	-	0.0010	0.0063	0.0075	0.0084	0.0060	0.0113	0.0067	0.0066	0.0040	0.0073	0.0015	0.0031	0.0066	0.0056	0.0056
Magnesium (Mg)-Total	mg/L	-	-	0.10	96.60	83.10	129.00	24.40	37.20	85.10	99.00	56.30	113.00	13.50	23.70	69.60	94.30	65.90
Manganese (Mn)-Total	mg/L	-	-	0.00010	0.38300	0.44000	0.46200	0.44300	0.69900	0.24500	0.24600	0.16300	0.22100	0.07230	0.26700	0.14300	0.11800	0.21200
Mercury (Hg)-Total	mg/L	0.000026	-	0.0000050	<0.000025	<0.000025	<0.000050	0.0000436	<0.00050	0.0000991	<0.000050	<0.000050	0.0000183	0.0000191	<0.000050	<0.000050	0.0000110	0.0000110
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	0.001420	0.001230	0.001210	0.000712	0.001550	0.001730	0.001410	0.000981	0.001110	0.000981	0.000656	0.001520	0.001430	0.001390
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00764	0.01040	0.00471	0.01720	0.04040	0.00454	0.00402	0.00404	0.00337	0.00648	0.00903	0.00332	0.00301	0.00601
Nickel (Ni)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.10629	0.13204	0.15000	0.15000	0.15000
Phosphorus (P)-Total	mg/L	-	-	0.050	0.085	0.159	<0.050	0.231	0.778	<0.050	<0.050	<0.050	<0.050	0.084	<0.050	<0.050	<0.050	0.076
Potassium (K)-Total	mg/L	-	-	0.10	1.28	1.44	1.39	1.53	1.67	1.27	1.18	0.70	1.20	1.24	1.03	1.01	1.13	0.85
Selenium (Se)-Total	mg/L	0.001	-	0.000050	0.000538	0.000678	0.000603	0.000653	0.001220	0.000460	0.000401	0.000848	0.000549	0.000280	0.000449	0.000425	0.000466	0.000627
Silver (Ag)-Total	mg/L	-	-	0.10	7.93	10.80	7.49	10.30	20.20	6.42	6.02	6.05	7.01	3.91	5.41	5.77	5.63	8.20
Silicon (Si)-Total	mg/L	0.00025	-	0.000010	0.000027	0.000041	<0.000010	0.000099	0.000208	0.000012	<0.000010	<0.000010	<0.000010	0.000013	0.000045	<0.000010		

Water quality results collected at R3 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID VQ Site ID Date Sampled Detection Limit	L1989169-5 R3 06/09/2017 17:35	L2002383-13 R3 02/10/2017 15:20	L2020913-6 R3 08/11/2017 12:25	L2096262-5 R3 15/05/2018 15:30	L2110842-8 R3 10/06/2018 15:50	L2128251-6 R3 10/07/2018 10:45	L2147306-9 R3 13/08/2018 11:55	L2163862-5 R3 10/09/2018 18:00	L2182241-1 R3 15/10/2018 15:40	L2263589-7 R3 24/04/2019 14:40	L2274425-1 R3 14/05/2019 13:40	L2291429-9 R3 12/06/2019 13:40	L2307083-3 R3 08/07/2019 13:45	L2329874-6 R3 13/08/2019 18:30
Dissolved Metals																		
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0107	0.0188	0.0055	0.1410	0.0709	0.0137	0.0112	0.0264	0.0079	0.3180	0.1050	0.0162	0.0149	0.0325
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00017	0.00013	0.00012	0.00011	0.00024	0.00020	0.00015	0.00016	0.00013	<0.00010	0.00013	0.00018	0.00022	0.00016
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00048	0.00036	0.00036	0.00034	0.00038	0.00036	0.00048	0.00045	0.00037	0.00048	0.00065	0.00051	0.00054	0.00055
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.053600	0.051500	0.066000	0.047000	0.032400	0.055000	0.051700	0.044600	0.033100	0.044600	0.033100	0.043600	0.052500	0.051200
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000030	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000091	0.0000122	0.0000346	0.0000169	0.0000160	0.0000125	0.0000155	0.0000147	0.0000294	0.0000514	0.0000155	0.0000136	0.0000129	0.0000192
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	119.000	108.000	178.000	41.000	44.900	120.000	128.000	72.000	153.000	23.400	29.700	90.900	115.000	78.500
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00021	0.00026	0.00016	0.00211	0.00149	0.00026	0.00034	0.00060	0.00025	0.00036	0.00231	0.00050	0.00027	0.00063
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	<0.010	0.00149	-	-	-	-	0.00336	0.00231	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	<0.0010	<0.0010	-	-	-	-	<0.00050	<0.00050	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00050	0.00051	0.00060	0.00069	0.00056	0.00045	0.00040	0.00034	0.00033	0.00044	0.00070	0.00034	0.00026	0.00041
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00100	0.00118	0.00109	0.00274	0.00269	0.00121	0.00120	0.00188	0.00124	0.00287	0.00237	0.00155	0.00146	0.00201
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.055	0.073	0.041	0.336	0.484	0.063	0.070	0.166	0.053	0.426	0.491	0.087	0.061	0.189
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	0.000087	0.000143	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000077	<0.000050	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.003801	0.005467	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0049	0.0050	0.0070	0.0019	0.0024	0.0054	0.0062	0.0040	0.0072	0.0015	0.0018	0.0053	0.0061	0.0041
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	78.30	81.60	131.00	22.60	30.80	82.00	85.00	54.50	106.00	13.70	19.20	70.10	81.10	66.10
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.30900	0.31000	0.45200	0.19000	0.23800	0.22500	0.21600	0.14400	0.19300	0.07380	0.18700	0.14000	0.10800	0.16100
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000085	0.0000072	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000172	<0.0000050	<0.0000050	0.0000063	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.001210	0.001060	0.000970	0.000361	0.000917	0.001600	0.001260	0.000997	0.001070	0.000164	0.000433	0.001490	0.001510	0.001160
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.00288	0.00293	0.00397	0.00493	0.00494	0.00303	0.00298	0.00324	0.00326	0.00662	0.00496	0.00294	0.00285	0.00358
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.10629	0.13204	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	1.04	0.98	1.25	0.93	0.67	1.26	1.18	0.69	1.24	0.79	1.01	1.11	0.71	0.71
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.000531	0.000549	0.000543	0.000299	0.000522	0.000498	0.000367	0.000784	0.000600	0.000305	0.000301	0.000486	0.000540	0.000635
Silicon (Si)-Dissolved	mg/L	-	-	0.050	5.250	5.610	7.090	3.750	4.610	5.250	5.500	5.750	3.460	3.870	5.460	5.240	5.960	5.960
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	5.560	5.570	2.090	3.260	5.800	6.220	4.170	6.240	1.230	1.670	5.000	5.800	4.570	4.570
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.58900	0.53800	0.85100	0.19100	0.21400	0.64400	0.61300	0.37100	0.75400	0.10400	0.15900	0.54700	0.65700	0.40900
Sulfur (S)-Dissolved	mg/L	-	-	0.50	162.00	152.00	247.00	39.90	51.10	140.00	165.00	93.30	182.00	31.50	128.00	170.00	110.00	110.00
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00160	<0.00060	<0.00060	0.00059	<0.00030	0.00223	0.00138	<0.00060	0.00034	0.00068
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.009160	0.007100	0.012400	0.002250	0.003020	0.012300	0.010800	0.004430	0.009460	0.001020	0.001890	0.008050	0.010200	0.004740
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	0.00056	0.00117	0.00063	<0.00050	<0.00050	<0.00050	0.00053	0.00053	0.00055	0.00054	0.00053
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	<0.0010	<0.0010	0.0031	0.0013	0.0018	<0.0010	0.0015	<0.0010	0.0028	0.0080	0.0013	0.0012	<0.0010	<0.0010
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	0.28037	0.28037	0.28037	0.28037	0.28037	0.28037	0.28037	0.28037	0.28037	0.28037	0.28037	0.28037	0.28037	0.28037	0.28037
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00037	0.00036	0.00037	0.00097	0.00096	0.00046	0.00043	0.00059	0.00044	0.00098	0.00087	0.00051	0.00058	0.00065

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:
HD = Hardness Dependent guideline for CCME-Aquatic Life dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
* The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at R4 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Detection Limit	L1989173-13 R4 09/09/2017 09:15	L2003229-1 R4 04/10/2017 09:00	L2020322-9 R4 06/11/2017 12:55	L2094958-5 R4 14/05/2018 13:45	L2110842-16 R4 11/06/2018 19:45	L2128251-14 R4 11/07/2018 09:50	L2147306-5 R4 14/08/2018 21:50	L2163862-1 R4 10/09/2018 11:45	L2183280-7 R4 16/10/2018 14:40	L2261985-6 R4 22/04/2019 14:00	L2273032-5 R4 13/05/2019 13:15	L2289891-10 R4 10/06/2019 11:30	L2308450-4 R4 10/07/2019 09:00	L2329874-19 R4 14/08/2019 13:15	
Physical Tests																			
Temperature (in-situ)	°C	-	-	-	3.1	0.4	-0.1	0.0	3.8	5.3	4.9	-0.1	-0.1	-0.1	0.1	3.7	5.4	5.8	
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	13.16	14.62	12.89	14.59	10.91	11.86	13.77	14.39	12.44	13.05	13.71	11.96	11.83	12.30	
Specific Conductivity (in-situ)	µS/cm	-	-	-	1087.0	613.0	1285.0	244.8	475.7	79.9	694.0	619.5	1101.0	188.5	203.2	855.0	1020.0	686.9	
pH (in-situ)	pH	6.5 - 9.0	-	-	8.24	7.87	7.39	7.70	8.03	8.17	8.11	7.65	7.53	7.92	7.66	8.31	8.14	8.19	
Oxidation- Redox Potential (in-situ)	mV	-	-	-	131.0	341.7	299.0	347.3	96.2	317.4	253.4	133.6	128.2	220.5	196.2	250.9	229.3	222.5	
Turbidity (in-situ)	NTU	-	-	-	47.10	20.60	2.02	121.00	39.20	1.65	5.25	3.00	0.77	5.14	60.20	1.82	0.41	7.81	
Conductivity	µS/cm	-	2	-	1030	980	1220	240	480	1260	1170	240	416	1030	200	201	858	1020	691
Hardness (as CaCO3)	mg/L	-	-	0.5	593.0	539.0	701.0	131.0	285.0	685.0	632.0	342.0	598.0	102.0	110.0	517.0	601.0	372.0	
pH (lab)	pH	6.5 - 9.0	-	0.1	8.34	8.22	8.27	7.73	8.17	8.38	8.40	8.07	8.32	7.65	7.59	8.43	8.42	8.41	
Total Suspended Solids	mg/L	-	-	2	54	48	<2.0	290	65	9.6	4.7	52	<2.0	4.1	150	3.8	3	16	
Anions and Nutrients																			
Ammonia, Total (as N)	mg/L	Temp,pH-Dep	-	0.0050	0.0204	0.0339	0.0513	0.0369	0.0255	0.0084	0.0377	0.0129	0.0262	0.0133	0.0173	0.0138	0.0116	0.0260	
(Temperature and pH adjusted Guideline)	mg/L	Temp,pH-Dep	-	-	1.2665	1.9162	6.0200	6.0200	1.2665	1.2665	1.2665	6.0200	6.0200	1.9162	6.0200	0.4128	1.2665	1.2665	
Bromide (Br)	mg/L	-	-	0.050	-	<0.25	<0.25	<0.050	<0.050	<0.25	<0.25	<0.050	<0.25	<0.050	<0.050	<0.25	<0.25	<0.25	
Chloride (Cl)	mg/L	120	-	0.50	1.13	<2.5	1.43	<0.50	<0.50	<2.5	<2.5	<0.50	<2.5	<0.50	<0.50	<2.5	<2.5	<2.5	
Fluoride (F)	mg/L	0.12	-	0.020	0.120	0.140	0.120	0.072	0.108	0.130	0.140	0.106	0.120	0.075	0.057	0.120	0.120	0.130	
Nitrate (as N)	mg/L	13	-	0.0050	0.1350	0.2530	0.1520	0.0360	0.2220	0.1400	0.1390	0.1050	0.1140	<0.0050	0.0091	0.1510	0.0780	0.1740	
Nitrite (as N)	mg/L	0.06	-	0.0010	<0.0050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0050	<0.0010	0.0010	<0.0050	<0.0010	<0.0010	<0.0050	<0.0050	<0.0050	
Phosphorus (P)-Total	mg/L	-	-	0.0020	0.0320	0.0346	0.0030	0.2820	0.0665	0.0062	0.0062	0.0092	0.0039	0.0110	0.0104	0.0054	0.0054	0.0156	
Sulfate (SO4)	mg/L	-	-	0.30	363.00	332.00	499.00	70.90	144.00	491.00	437.00	141.00	401.00	45.90	55.40	309.00	370.00	207.00	
Sulphide (as S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sulphide (as H2S)	mg/L	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Organic / Inorganic Carbon																			
Dissolved Organic Carbon	mg/L	-	-	0.5	8.3	9.5	8.0	38.4	24.5	9.6	9.9	14.8	10.6	46.9	38.0	16.2	14.4	14.5	
Aggregate Organics																			
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Asbestos																			
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Metals																			
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.0030	1.0300	0.7550	0.0736	4.6200	1.0500	0.0175	0.0560	0.1130	0.0085	0.4030	1.8900	0.1630	0.0156	0.1720	
(Aluminium (Al)-Total (pH Adjusted Guideline))	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	
Antimony (Sb)-Total	mg/L	-	-	0.00010	0.00043	0.00044	0.00036	0.00067	0.00046	0.00038	0.00039	0.00037	0.00041	0.00013	0.00039	0.00032	0.00037	0.00040	
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.00038	0.00038	0.000439	0.00638	0.00241	0.00128	0.00251	0.00078	0.00296	0.00078	0.00044	0.00121	0.00230	0.00191	
Barium (Ba)-Total	mg/L	-	-	0.000050	0.108000	0.094200	0.089900	0.198000	0.086600	0.077800	0.070000	0.059200	0.085000	0.052200	0.102000	0.073100	0.085100	0.066000	
Beryllium (Be)-Total	mg/L	-	-	0.000020	0.000045	0.000035	<0.000020	0.000184	0.000048	<0.000020	<0.000020	<0.000020	<0.000020	0.000039	0.000084	<0.000020	<0.000020	<0.000020	
Bismuth (Bi)-Total	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	0.000068	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Boron (B)-Total	mg/L	1.5	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.0000050	0.0002740	0.0002110	0.0002070	0.000580	0.0001640	0.0002200	0.0001710	0.0000872	0.0001740	0.0000817	0.0002690	0.0001610	0.0001490	0.0001170	
(Cadmium (Cd)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0001983	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0001611	0.0001715	0.0003700	0.0003700	0.0003700	
Calcium (Ca)-Total	mg/L	-	-	0.050	115.000	124.000	169.000	35.100	55.300	161.000	141.000	71.600	123.000	24.100	24.600	108.000	125.000	78.700	
Chromium (Cr)-Total	mg/L	-	-	0.00010	0.00332	0.00243	0.00048	0.01160	0.00350	0.00032	<0.00050	0.00072	0.00026	0.00182	0.00051	0.00076	0.00056	0.00081	
Trivalent Chromium (Cr [III])-Total	mg/L	0.0089	-	0.00010	-	0.00243	-	0.01160	0.00350	-	-	-	-	0.00182	0.00051	-	-	-	
Hexavalent Chromium (Cr [VI])-Total	mg/L	0.001	-	0.00010	<0.0010	<0.0010	-	<0.0010	<0.00050	-	-	-	-	<0.00050	<0.00050	-	-	-	
Cobalt (Co)-Total	mg/L	-	-	0.00010	0.00201	0.00214	0.00421	0.00455	0.00126	0.00081	0.00117	0.00063	0.00124	0.00045	0.00198	0.00057	0.00066	0.00062	
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.000050	0.00470	0.00410	0.00126	0.01600	0.00697	0.00154	0.00174	0.00268	0.00132	0.00339	0.00788	0.00274	0.00185	0.00289	
(Copper (Cu)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00298	0.00400	0.00400	0.00400	0.00400	0.00400	0.00241	0.00257	0.00400	0.00400	0.00400	
Iron (Fe)-Total	mg/L	0.3	-	0.010	2.070	1.660	0.507	8.060	2.020	0.189	0.357	0.349	0.092	0.506	3.370	0.361	0.171	0.490	
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.000050	0.001180	0.000860	0.000084	0.004880	0.001280	<0.000050	0.000084	0.000087	<0.000050	0.000177	0.001810	0.000165	<0.000050	0.000195	
(Lead (Pb)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.004487	0.007000	0.007000	0.007000	0.007000	0.007000	0.002163	0.003992	0.007000	0.007000	0.007000	
Lithium (Li)-Total	mg/L	-	-	0.0010	0.0078	0.0070	0.0064	0.0053	0.0037	0.0083	0.0078	0.0034	0.0053	0.0014	0.0024	0.0058	0.0068	0.0040	
Magnesium (Mg)-Total	mg/L	-	-	0.10	64.80	63.20	93.80	14.80	29.30	89.90	77.60	36.60	71.20	10.40	11.10	59.50	72.90	43.20	
Manganese (Mn)-Total	mg/L	-	-	0.00010	0.55900	0.54900	0.74700	0.46000	0.20700	0.26600	0.39400	0.29200	0.19000	0.08190	0.25300	0.16300	0.17400	0.17300	
Mercury (Hg)-Total	mg/L	0.000026	-	0.0000050	<0.000025	0.0000090	<0.000050	0.0000590	0.0000214	<0.000050	<0.000050	0.0000067	<0.000050	0.0000180	0.0000197	0.0000050	<0.000050	<0.000050	
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	0.001620	0.001590	0.001280	0.001030	0.001190	0.001800	0.001580	0.001190	0.001520	0.000404	0.000722	0.001410	0.001620	0.001410	
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.000050	0.00390	0.00350	0.02210	0.02830	0.02210	0.01600	0.01730	0.01430	0.01330	0.00814	0.01410	0.01540	0.01030	0.01370	
(Nickel (Ni)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.11735	0.15000	0.15000	0.15000	0.15000	0.15000	0.09703	0.10276	0.15000	0.15000	0.15000	
Phosphorus (P)-Total	mg/L	-	-	0.050	0.063	0.052	<0.050	0.333	0.072	<0.050	<0.050	<0.050	<0.050	<0.050	0.144	<0.050	<0.050	<0.050	
Potassium (K)-Total	mg/L	-	-	0.10	0.98	0.89	0.87	0.92	0.63	0.92	0.78	0.46	0.68	1.14	0.81	0.69	0.79	0.55	
Selenium (Se)-Total	mg/L	0.001	-	0.000050	0.001960	0.002060	0.001940	0.001440	0.001210	0.001580	0.001570	0.003060	0.002510	0.000643	0.000919	0.001490	0.001750	0.001910	
Silicon (Si)-Total	mg/L	-	-	0.10	7.10	6.91	5.93	9.61	5.08	4.99	4.99	5.17	5.35	3.79	5.14	5.17	5.45	5.28	
Silver (Ag)-Total	mg/L	0.00025	-	0.000010	0.000043	0.000050	<0.000010	0.000027	0.000044	<0.000010	<0.000010	<0.000010	<0.000010	0.000022	0.000068</				

Water quality results collected at R4 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1898173-13 R4 09/09/2017 09:15	L2003229-1 R4 04/10/2017 09:00	L2020322-9 R4 06/11/2017 12:55	L2094958-5 R4 14/05/2018 13:45	L2110842-16 R4 11/06/2018 19:45	L2128251-14 R4 11/07/2018 09:50	L2147306-5 R4 14/08/2018 21:50	L2163862-1 R4 10/09/2018 11:45	L2183280-7 R4 16/10/2018 14:40	L2261985-6 R4 22/04/2019 14:00	L2273032-5 R4 13/05/2019 13:15	L2289891-10 R4 10/06/2019 11:30	L2308450-4 R4 10/07/2019 09:00	L2329874-19 R4 14/08/2019 13:15
Dissolved Metals																		
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0077	0.0089	0.0037	0.1890	0.0669	0.0072	0.0078	0.0246	0.0047	0.2790	0.1980	0.0232	0.0095	0.0200
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00032	0.00035	0.00029	0.00016	0.00032	0.00032	0.00036	0.00037	0.00039	<0.00010	0.00013	0.00031	0.00036	0.00039
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00182	0.00125	0.00085	0.00098	0.00122	0.00125	0.00187	0.00296	0.00063	0.00063	0.00075	0.00103	0.00225	0.00148
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.069700	0.070400	0.076900	0.049900	0.054800	0.081100	0.066000	0.059700	0.087500	0.043900	0.045100	0.069800	0.084000	0.061900
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	0.000025	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000040	0.000026	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000811	0.0000818	0.0001320	0.0000709	0.0000588	0.0001940	0.0001380	0.0000839	0.0001760	0.0000753	0.0000907	0.0001480	0.0001370	0.0000761
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	132.000	117.000	151.000	29.700	62.000	137.000	135.000	77.100	126.000	24.100	26.300	106.000	126.000	80.800
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00018	0.00026	0.00016	0.00127	0.00054	0.00019	0.00027	0.00053	0.00021	0.00151	0.00134	0.00046	0.00040	0.00039
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	0.01200	-	-	-	-	-	0.00151	0.00134	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	<0.0010	-	-	-	-	-	<0.00050	<0.00050	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00113	0.00133	0.00382	0.00053	0.00044	0.00077	0.00109	0.00057	0.00124	0.00042	0.00064	0.00045	0.00063	0.00047
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00103	0.00133	0.00089	0.00421	0.00403	0.00141	0.00128	0.00243	0.00126	0.00325	0.00347	0.00231	0.00191	0.00235
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.059	0.123	0.080	0.346	0.198	0.074	0.133	0.180	0.080	0.357	0.341	0.119	0.145	0.149
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	0.000067	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000074	0.000058	<0.000050	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.00700	0.00700	0.00700	0.00700	0.004487	0.00700	0.00700	0.00700	0.00700	0.00700	0.003263	0.003592	0.00700	0.00700	0.00700
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0078	0.0060	0.0077	0.0016	0.0032	0.0069	0.0078	0.0037	0.0055	0.0014	0.0011	0.0056	0.0060	0.0040
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	64.10	60.00	78.70	13.70	31.60	83.40	71.90	36.40	69.00	10.00	10.80	61.30	69.50	41.40
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.51300	0.44600	0.68200	0.15400	0.15400	0.26600	0.19700	0.38400	0.19700	0.07950	0.15000	0.15100	0.16600	0.16000
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000148	0.0000093	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000202	0.0000128	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.001390	0.001340	0.001270	0.000419	0.001020	0.001590	0.001410	0.001190	0.001330	0.000363	0.000373	0.001330	0.001710	0.001360
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.02330	0.02530	0.02010	0.00805	0.01630	0.01660	0.01510	0.01470	0.01300	0.00785	0.00761	0.01470	0.01000	0.01220
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.15000	0.15000	0.15000	0.15000	0.11735	0.15000	0.15000	0.15000	0.15000	0.15000	0.09703	0.10276	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	0.84	0.78	0.78	0.62	0.54	0.98	0.88	0.51	0.75	1.14	0.61	0.72	0.75	0.53
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.001900	0.001820	0.001660	0.000618	0.001170	0.001720	0.001670	0.000920	0.002610	0.000587	0.000722	0.001710	0.001690	0.002040
Silicon (Si)-Dissolved	mg/L	-	-	0.050	5.270	5.320	5.180	2.790	4.210	5.100	5.060	5.060	5.650	3.670	2.630	5.080	5.210	4.870
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	0.000013	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000013	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	7.520	7.210	7.730	2.100	3.950	9.000	8.410	4.350	6.660	1.540	1.680	6.210	7.010	4.860
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.71100	0.71800	0.86300	0.16700	0.35100	0.85600	0.71300	0.41400	0.68700	0.14600	0.14300	0.58400	0.69300	0.47400
Sulfur (S)-Dissolved	mg/L	-	-	0.50	141.00	116.00	150.00	23.20	46.60	161.00	146.00	61.60	132.00	15.50	18.20	110.00	126.00	71.30
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	0.00295	0.00141	<0.00030	<0.00030	<0.00030	<0.00030	0.00275	0.00203	0.00065	<0.00030	0.00039
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.010000	0.007510	0.009770	0.001700	0.003680	0.013000	0.010400	0.003900	0.008020	0.001200	0.001080	0.007750	0.008320	0.004250
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	0.00087	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00055	0.00061	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	0.0024	0.0027	0.0083	0.0018	0.0015	0.0044	0.0035	0.0020	0.0061	0.0041	0.0029	0.0027	<0.0030	0.0016
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	0.27980	0.28919	0.27758	0.19465	0.33402	0.29014	0.29236	0.32174	0.29697	0.15803	0.16629	0.32680	0.31963	0.31963	0.31963
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00182	0.00163	0.00123	0.00138	0.00149	0.00137	0.00141	0.00119	0.00074	0.00164	0.00115	0.00130	0.00100	0.00106

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
* The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

02/12/2019

Water quality results collected at R6 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989173-15 R6 09/09/2017 12:10	L2003229-3 R6 04/10/2017 11:00	L2020322-4 R6 06/11/2017 12:00	L2031552-8 R6 04/12/2017 12:30	L2045168-2 R6 14/01/2018 12:45	L2055716-8 R6 11/02/2018 11:40	L2067395-3 R6 12/03/2018 12:15	L2078526-7 R6 09/04/2018 12:10	L2094958-8 R6 14/05/2018 11:15	L2110842-3 R6 10/06/2018 09:30	L2128251-9 R6 11/07/2018 08:25	L2147306-3 R6 14/08/2018 13:00
Dissolved Metals																
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0663	0.0700	0.0492	0.0442	0.0321	0.0154	0.0138	0.0114	0.2100	0.1700	0.0780	0.0691
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	0.00010	0.00012	0.00011	0.00013	0.00014	0.00011	<0.00010	0.00011	0.00011	0.00010
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00065	0.00073	0.00041	0.00026	0.00027	0.00025	0.00031	0.00029	0.00047	0.00057	0.00058	0.00048
Barium (Ba)-Dissolved	mg/L	-	-	0.00050	0.034700	0.037300	0.051500	0.062900	0.071200	0.083000	0.121000	0.138000	0.031800	0.026300	0.037500	0.038700
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	0.000022	<0.000020	<0.000020	<0.000020	<0.000020	0.000029	0.000041	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	0.0000177	0.0000241	0.0000196	0.0000123	0.0000158	0.0000179	0.0000309	0.0000410	0.0000369	0.0000188	0.0000165	0.0000183
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0001676	0.0001895	0.0002570	0.0002735	0.0002934	0.0003402	0.0003700	0.0003700	0.0000863	0.0000893	0.0001456	0.0001728
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	27.100	30.400	43.300	51.500	56.400	67.200	85.500	88.300	12.200	13.400	22.200	28.100
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00036	0.00038	<0.00010	0.00022	0.00010	0.00013	<0.00010	0.00016	0.00054	0.00050	0.00039	0.00032
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00036	0.00062	0.00037	<0.00010	<0.00010	0.00012	0.00033	0.00030	0.00067	0.00025	0.00013	0.00020
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00214	0.00233	0.00201	0.00210	0.00159	0.00133	0.00142	0.00126	0.00324	0.00384	0.00282	0.00240
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00251	0.00284	0.00389	0.00400	0.00400	0.00400	0.00400	0.00400	0.00200	0.00200	0.00217	0.00259
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.323	0.439	0.191	0.031	0.030	0.027	0.042	0.044	0.360	0.373	0.204	0.197
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.003468	0.004184	0.006676	0.007000	0.007000	0.007000	0.007000	0.007000	0.001000	0.001000	0.002794	0.003634
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0041	0.0040	0.0072	0.0074	0.0099	0.0119	0.0160	0.0115	0.0020	0.0017	0.0036	0.0055
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	9.56	11.80	17.10	15.60	16.80	20.30	33.70	35.40	4.28	4.05	8.45	9.84
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.03680	0.04880	0.02610	0.01500	0.02790	0.04220	0.16200	0.14200	0.07480	0.01280	0.00712	0.01500
Mercury (Hg)-Dissolved	mg/L	0.00026	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000081	0.000073	<0.000050	<0.000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.000405	0.000423	0.000529	0.000467	0.000404	0.000443	0.000442	0.000468	0.000207	0.000245	0.000395	0.000423
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	<0.0025	0.00323	0.00309	0.00219	0.00182	0.00175	0.00309	0.00295	0.00264	0.00258	0.00220	0.00231
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.10062	0.11255	0.14877	0.15000	0.15000	0.15000	0.15000	0.15000	0.02500	0.02500	0.08845	0.10347
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	0.87	0.93	1.24	1.26	1.60	1.81	2.28	2.44	1.49	0.71	1.03	1.08
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.000135	0.000209	0.000249	0.000213	0.000276	0.000267	0.000336	0.000431	0.000176	0.000147	0.000214	0.000165
Silicon (Si)-Dissolved	mg/L	-	-	0.050	4.480	5.050	5.070	5.150	5.500	5.610	5.810	5.130	2.230	3.550	4.290	4.800
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	4.300	4.810	6.720	7.520	9.570	10.500	14.000	13.600	1.890	2.290	4.770	5.500
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.16300	0.18700	0.27300	0.32500	0.34100	0.40100	0.51000	0.54100	0.07170	0.07390	0.14400	0.15600
Sulfur (S)-Dissolved	mg/L	-	-	0.50	17.00	20.50	30.80	28.10	31.30	41.30	49.70	65.40	5.69	5.21	12.40	17.80
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00060	<0.00090	0.00035	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00359	0.00253	0.00073	0.00080
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.001020	0.001130	0.001750	0.001840	0.002690	0.003290	0.004020	0.005930	0.000601	0.000520	0.000876	0.001110
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	0.00058	0.00051	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00092	0.00092	0.00080	0.00083
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	0.0028	0.0032	0.0036	0.0026	0.0036	0.0041	0.0029	0.0029	0.0030	0.0019	0.0011	0.0014
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.15412	0.17330	0.22070	0.21461	0.21999	0.25259	0.24592	0.24844	0.08449	0.08740	0.13753	0.15593
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00083	0.00096	0.00050	0.00036	0.00040	0.00069	0.00251	0.00219	0.00056	0.00092	0.00073	0.00072

Applied Guidelines: "Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:

HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,

DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.

A The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

02/12/2019

Water quality results collected at R6 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2164003-1 R6 12/09/2018 12:45	L2182241-8 R6 15/10/2018 18:50	L2197029-3 R6 12/11/2018 12:10	L2209213-3 R6 10/12/2018 13:10	L2220316-2 R6 13/01/2019 12:15	L2234470-7 R6 18/02/2019 12:30	L2240869-2 R6 04/03/2019 12:15	L2261985-4 R6 22/04/2019 12:10	L2273032-9 R6 13/05/2019 11:00	L2289891-3 R6 10/06/2019 10:00	L2308450-1 R6 10/07/2019 11:10	L2329874-8 R6 14/08/2019 16:30
Dissolved Metals																
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0719	0.0346	0.0283	0.0209	0.0201	0.0146	0.0113	0.0897	0.1820	0.0799	0.0829	0.0683
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	<0.00010	0.00012	0.00013	0.00013	0.00011	0.00012	0.00011	<0.00010	<0.00010	0.00011	0.00013	0.00010
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00044	0.00040	0.00030	0.00030	0.00022	0.00032	0.00023	0.00043	0.00046	0.00054	0.00054	0.00051
Barium (Ba)-Dissolved	mg/L	-	-	0.00050	0.033600	0.045400	0.067300	0.067600	0.071400	0.092600	0.083100	0.043800	0.030000	0.041300	0.043500	0.035300
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000041	0.000026	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000180	0.0000134	0.0000139	0.0000145	0.0000182	0.0000176	0.0000151	0.0000386	0.0000302	0.0000181	0.0000148	0.0000153
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0001555	0.0002390	0.0003026	0.0003221	0.0003266	0.0003700	0.0003700	0.0002058	0.0000918	0.0001983	0.0001996	0.0001689
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	24.400	39.900	55.400	59.400	58.800	70.900	73.100	32.400	29.700	27.900	32.700	26.900
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00039	0.00023	0.00016	0.00016	0.00020	0.00021	<0.00010	0.00021	0.00040	0.00035	0.00036	0.00029
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00031	0.00026	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00078	0.00054	0.00020	0.00017	0.00027
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00241	0.00196	0.00182	0.00184	0.00133	0.00106	0.00095	0.00218	0.00331	0.00295	0.00246	0.00222
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00232	0.00361	0.00400	0.00400	0.00400	0.00400	0.00400	0.00309	0.00200	0.00298	0.00300	0.00253
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.219	0.176	0.075	0.039	0.021	0.017	0.022	0.254	0.368	0.215	0.092	0.182
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00309	0.005922	0.007000	0.007000	0.007000	0.007000	0.007000	0.004750	0.001000	0.004487	0.004530	0.003509
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0034	0.0055	0.0080	0.0074	0.0080	0.0095	0.0111	0.0071	0.0018	0.0044	0.0057	0.0039
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	8.90	15.60	19.40	21.00	22.30	26.00	26.50	13.50	4.60	13.90	12.20	9.90
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.01770	0.01630	0.00918	0.01390	0.01450	0.02130	0.02850	0.08300	0.05270	0.01320	0.01170	0.01610
Mercury (Hg)-Dissolved	mg/L	0.00026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000066	0.0000051	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.000413	0.000529	0.000538	0.000481	0.000481	0.000544	0.000450	0.000362	0.000227	0.000354	0.000493	0.000447
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.00246	0.00228	0.00197	0.00204	0.00172	0.00146	0.00153	0.00312	0.00283	0.00248	0.00230	0.00242
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.09390	0.13920	0.15000	0.15000	0.15000	0.15000	0.15000	0.12141	0.02500	0.11735	0.11803	0.10133
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	0.81	1.13	1.41	1.63	1.64	1.77	1.73	2.14	1.29	1.09	1.29	0.89
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.000200	0.000291	0.000367	0.000419	0.000414	0.000497	0.000509	0.000285	0.000094	0.000190	0.000199	0.000177
Silicon (Si)-Dissolved	mg/L	-	-	0.050	5.100	4.870	5.840	5.800	5.010	4.970	4.840	3.420	2.430	4.380	4.120	4.930
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	3.870	5.990	8.360	8.480	9.780	9.440	9.680	5.870	1.930	4.720	5.720	4.360
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.13900	0.23500	0.33600	0.36100	0.35100	0.45100	0.42900	0.19200	0.07680	0.16500	0.20000	0.16000
Sulfur (S)-Dissolved	mg/L	-	-	0.50	13.90	27.20	34.90	35.90	39.10	43.30	47.80	24.40	6.35	21.60	19.90	15.40
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	0.00087	0.00034	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00075	0.00218	0.00090	0.00035	0.00061
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.000903	0.001570	0.002480	0.002350	0.002680	0.003280	0.003860	0.002940	0.000505	0.001080	0.001090	0.000904
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	0.00059	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00054	0.00068	0.00067	0.00060
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	0.0024	0.0023	0.0022	0.0037	0.0040	0.0023	0.0020	0.0039	0.0029	0.0018	<0.0020	0.0018
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.14075	0.20139	0.24986	0.26192	0.23299	0.22778	0.23754	0.20205	0.08987	0.19301	0.18290	0.15503
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00073	0.00048	0.00041	0.00034	<0.00030	<0.00030	<0.00030	0.00048	0.00056	0.00073	0.00057	0.00065

Applied Guidelines: *Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:

HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent, DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.

A The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

		CME-Aquatic Life (AL)		Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1898173-9 R7 08/09/2017 11:10	L2096824-1 R7 16/05/2018 16:30	L2112699-8 R7 12/06/2018 12:40	L2112699-9 R7 12/06/2018 13:00	L2128251-5 R7 10/07/2018 15:05	L2147306-17 R7 13/08/2018 15:10	L2164007-3 R7 11/09/2018 10:10	L2182241-2 R7 15/10/2018 14:15	L2263589-13 R7 25/04/2019 13:30	L2274425-6 R7 14/05/2019 17:30	L2291429-7 R7 12/06/2019 09:30	L2308450-12 R7 09/07/2019 18:10	L2329874-1 R7 13/08/2019 12:00
Analyte	Units																	
Physical Tests																		
Temperature (in-situ)	°C	-	-	-	-	2.2	2.0	3.1	3.1	6.7	6.0	1.2	0.2	0.0	0.3	3.9	8.6	3.7
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	-	13.01	13.75	12.69	12.69	9.31	8.52	14.36	3.07	11.97	13.30	10.53	8.40	12.12
Specific Conductivity (in-situ)	µS/cm	-	-	-	-	257.0	70.0	164.0	164.0	185.7	98.0	245.2	308.8	243.8	42.4	217.9	303.0	226.1
pH (in-situ)	pH	6.5 - 9.0	-	-	-	7.23	6.59	7.04	7.04	7.51	7.33	7.10	7.34	6.71	6.86	7.67	7.26	7.67
Oxidation - Redox Potential (in-situ)	mV	-	-	-	-	133.1	319.6	298.2	298.2	239.0	201.0	100.4	125.7	170.9	161.8	202.4	272.0	183.7
Turbidity (in-situ)	NTU	-	-	-	-	7.80	28.90	5.13	5.13	4.49	4.21	6.44	0.70	0.70	82.40	3.88	2.66	73.50
Conductivity	µS/cm	-	-	-	-	248	20.2	161	206	252	161	240	279	240	199	221	43.5	221
Hardness (as CaCO3)	mg/L	-	-	-	-	128.0	44.9	82.1	80.9	104.0	121.0	127.0	146.0	153.0	26.1	106.0	146.0	117.0
pH (lab)	pH	6.5 - 9.0	-	-	-	7.89	6.60	7.45	7.41	6.89	7.90	7.78	7.76	6.75	6.88	7.89	8.02	7.68
Total Suspended Solids	mg/L	-	-	-	-	2	5.5	100	50	10	<2.0	0.2	<3.0	6.2	4	340	3.4	190
Anions and Nutrients																		
Ammonia, Total (as N)	mg/L	Temp, pH-Dep	-	-	0.0050	0.0481	0.0242	0.0449	0.0358	0.0208	0.0510	0.0209	0.0608	0.0299	0.0279	0.0504	0.0404	0.0487
(Temperature and pH Adjusted Guideline)																		
Bromide (Br)	mg/L	Temp, pH-Dep	-	-	0.050	18.9974	60.0352	12.5827	12.5827	3.9804	3.9804	18.9974	3.0280	18.9974	3.0280	3.9804	0.050	0.050
Chloride (Cl)	mg/L	120	-	-	0.50	0.25	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	mg/L	0.12	-	-	0.020	0.075	0.044	0.065	0.064	0.077	0.089	0.063	0.062	<0.060	0.042	0.070	0.086	0.073
Nitrate (as N)	mg/L	13	-	-	0.0050	0.0240	0.0261	0.1570	0.1550	0.0949	0.1040	0.1630	0.0138	<0.0050	<0.0050	0.0880	0.0993	0.1760
Nitrite (as N)	mg/L	0.06	-	-	0.0010	<0.0010	<0.0010	0.0011	<0.0010	0.0026	0.0020	0.0019	<0.0010	<0.0010	<0.0010	0.0012	0.0020	0.0026
Phosphorus (P)-Total	mg/L	-	-	-	0.0020	0.0156	0.0130	0.0235	0.0138	0.0347	0.0304	0.0158	0.0274	0.0170	0.1650	0.0252	0.0086	0.0086
Sulfate (SO4)	mg/L	-	-	-	0.30	51.50	13.20	28.60	28.60	33.40	42.20	65.90	79.40	82.80	4.53	40.30	60.10	57.20
Sulphide (as S)	mg/L	-	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon																		
Dissolved Organic Carbon	mg/L	-	-	-	0.5	26.7	51.7	36.1	34.1	32.								

Water quality results collected at R7 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989173-9 R7 08/09/2017 11:10	L2096824-1 R7 16/05/2018 16:30	L2112699-8 R7 12/06/2018 12:40	L2112699-9 R7-R 12/06/2018 13:00	L2128251-5 R7 10/07/2018 15:05	L2147306-17 R7 13/08/2018 15:10	L2164007-3 R7 11/09/2018 10:10	L2182241-2 R7 15/10/2018 14:15	L2263589-13 R7 25/04/2019 13:30	L2274425-6 R7 14/05/2019 17:30	L2291429-7 R7 12/06/2019 09:30	L2308450-12 R7 09/07/2019 18:10	L2329874-1 R7 13/08/2019 12:00
Dissolved Metals																	
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0674	0.3250	0.1170	0.1140	0.0868	0.0656	0.1320	0.0746	0.3510	0.2260	0.1090	0.0736	0.1120
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00019	0.00011	0.00019	0.00019	0.00019	0.00016	0.00019	0.00019	0.00011	<0.00010	0.00021	0.00020	0.00020
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00127	0.00066	0.00101	0.00105	0.00133	0.00149	0.00101	0.00211	0.00056	0.00056	0.00108	0.00131	0.00106
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.063700	0.052900	0.055300	0.055000	0.067600	0.068700	0.067100	0.083900	0.063700	0.038800	0.069300	0.080300	0.065700
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	0.000025	0.000049	0.000032	0.000032	<0.000020	0.000022	0.000028	0.000027	0.000047	0.000031	0.000030	<0.000020	0.000023
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000208	0.0000489	0.0000259	0.0000239	0.0000284	0.0000253	0.0000221	0.0000406	0.0001730	0.0000419	0.0000312	0.0000267	0.0000246
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0001945	0.0000815	0.0001346	0.0001329	0.0001637	0.0001857	0.0001933	0.0002170	0.0002256	0.0000520	0.0001663	0.0001770	0.0001805
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	30.600	9.580	18.600	18.400	24.400	28.800	27.600	31.600	25.700	6.100	22.900	32.700	24.900
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00114	0.00319	0.00167	0.00162	0.00134	0.00110	0.00143	0.00102	0.00888	0.00384	0.00157	0.00133	0.00146
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	0.00114	<0.010	0.00167	0.00162	0.00134	0.00110	0.00143	0.00102	0.00888	0.00384	0.00157	0.00133	0.00146
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00093	0.00066	0.00049	0.00049	0.00049	0.00058	0.00053	0.00118	0.00041	0.00070	0.00061	0.00053	0.00068
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00310	0.00551	0.00532	0.00513	0.00381	0.00289	0.00517	0.00291	0.00555	0.00325	0.00465	0.00371	0.00499
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00292	0.00200	0.00209	0.00230	0.00245	0.00278	0.00290	0.00327	0.00349	0.00200	0.00249	0.00327	0.00270
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	1.390	0.622	0.880	0.887	1.300	1.540	0.908	2.840	0.542	0.469	1.110	1.140	0.932
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000072	0.000051	<0.000050	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.004356	0.001000	0.002475	0.002429	0.003344	0.004055	0.004313	0.005151	0.005467	0.001000	0.003427	0.005151	0.003885
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	12.40	5.09	8.68	8.51	10.60	11.90	14.10	16.30	21.60	2.65	11.80	15.60	13.40
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.46900	0.11200	0.16300	0.16100	0.18900	0.27400	0.18600	0.54600	0.03030	0.13300	0.22500	0.20300	0.23000
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.000050	0.0000110	<0.000050	<0.000050	<0.000050	<0.000050	0.0000060	<0.000050	0.0000290	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.000508	0.000132	0.000479	0.000458	0.000639	0.000574	0.000465	0.000434	0.000104	0.000126	0.000517	0.000738	0.000607
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.00430	0.00527	0.00433	0.00420	0.00396	0.00468	0.00361	0.00373	0.01400	0.00425	0.00456	0.00442	0.00422
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.11530	0.02500	0.08227	0.08136	0.09847	0.11048	0.11462	0.12743	0.13204	0.02500	0.09990	0.12743	0.10769
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.056	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	0.22	0.40	0.20	0.18	0.27	0.15	0.20	0.15	0.20	0.52	0.24	0.25	0.18
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.000242	0.000158	0.000315	0.000283	0.000327	0.000238	0.000403	0.000211	0.000424	0.000177	0.000356	0.000282	0.000391
Silicon (Si)-Dissolved	mg/L	-	-	0.050	5.150	1.980	3.970	4.080	4.890	5.620	5.110	5.790	6.280	1.290	5.710	5.320	5.320
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	2.150	0.792	1.460	1.890	2.050	1.580	1.980	1.980	0.434	1.980	1.680	2.170	1.750
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.09000	0.03180	0.05860	0.05640	0.07930	0.08450	0.08240	0.09800	0.07490	0.02150	0.08430	0.10500	0.08330
Sulfur (S)-Dissolved	mg/L	-	-	0.50	17.60	4.08	9.81	9.94	9.55	26.60	25.70	28.40	1.52	15.10	20.90	19.00	19.00
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	0.00186	0.00302	0.00233	0.00230	0.00251	0.00241	0.00239	0.00247	0.00198	0.00198	0.00243	0.00215	0.00238
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.000086	0.000081	0.000086	0.000080	0.000083	0.000091	0.000127	0.000050	0.000086	0.000066	0.000090	0.000094	0.000105
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	0.00077	0.00094	0.00087	0.00082	0.00111	0.00098	0.00079	0.00100	0.00060	0.00091	0.00092	0.00099	0.00094
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	<0.0010	0.0024	0.0011	0.0011	<0.0010	<0.0010	<0.0010	0.0034	0.0170	0.0026	0.0037	<0.0020	<0.0010
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.13993	0.07978	0.13189	0.13038	0.16060	0.18219	0.18889	0.21305	0.22152	0.05077	0.16317	0.21305	0.17716
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00102	0.00078	0.00124	0.00125	0.00123	0.00103	0.00136	0.00091	0.00104	0.00052	0.00126	0.00106	0.00137

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME: Freshwater
 HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
 DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
 * The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at R8 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989169-9 R8 07/09/2017 12:30	L2096824-5 R8 16/05/2018 13:15	L2110842-17 R8 11/06/2018 16:30	L2127254-8 R8 09/07/2018 11:30	L2147306-23 R8 12/08/2018 15:00	L2164008-1 R8 11/09/2018 14:40	L2263589-9 R8 24/04/2019 17:50	L2275161-6 R8 15/05/2019 14:45	L2291429-5 R8 11/06/2019 16:30	L2308450-8 R8 09/07/2019 12:10	L2328273-2 R8 12/08/2019 13:45
Physical Tests															
Temperature (in-situ)	°C	-	-	-	3.6	1.9	3.3	8.0	7.3	2.3	0.1	2.6	5.6	9.2	6.1
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	1.87	14.01	11.01	10.93	10.77	13.95	13.43	12.50	11.24	9.53	11.82
Specific Conductivity (in-situ)	µS/cm	-	-	-	450.0	151.6	151.6	288.5	244.0	257.7	76.4	98.6	227.5	303.7	303.7
pH (in-situ)	pH	6.5 - 9.0	-	-	7.17	7.12	7.51	7.63	7.77	7.73	6.95	7.47	8.04	7.86	7.82
Oxidation - Redox Potential (in-situ)	mV	-	-	-	109.9	352.7	87.9	141.3	271.0	137.9	190.2	187.9	208.9	221.9	293.2
Turbidity (in-situ)	NTU	-	-	-	1.17	8.54	146.00	84.50	139.00	3.59	0.87	23.20	25.50	3.16	14.24
Conductivity	µS/cm	-	-	2	439	89.8	151	291	343	254	75.6	99.7	235	305	322
Hardness (as CaCO3)	mg/L	-	-	0.5	218.0	55.4	83.1	136.0	159.0	118.0	50.6	53.8	107.0	146.0	148.0
pH (lab)	pH	6.5 - 9.0	-	0.1	7.78	7.20	7.50	7.99	7.97	7.88	6.79	7.51	7.85	7.97	7.94
Total Suspended Solids	mg/L	-	-	2	<3.0	15	26	4.9	25	5.6	<2.0	26	27	4.6	8.2
Anions and Nutrients															
Ammonia, Total (as N) ^A	mg/L	Temp,pH-Dep	-	0.0050	0.0111	0.0118	0.0439	0.0823	0.0456	0.0069	0.0138	0.0119	0.0228	0.0197	0.0121
(Temperature and pH adjusted Guideline)	mg/L	Temp,pH-Dep	-	-	12.5827	18.9974	3.9804	2.68	1.2665	6.0200	18.9974	3.9804	1.2665	0.8553	1.2665
Bromide (Br)	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	120	-	0.65	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	mg/L	0.12	-	0.020	0.072	0.082	0.091	0.086	0.095	0.091	<0.060	0.083	0.084	0.095	0.105
Nitrate (as N)	mg/L	13	-	0.0050	<0.0050	<0.0050	0.0232	0.0115	<0.0050	<0.0050	<0.0050	<0.0050	0.0119	0.0131	<0.0050
Nitrite (as N)	mg/L	0.06	-	0.0010	<0.0010	<0.0010	0.0010	0.0016	0.0012	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total	mg/L	-	-	0.0020	0.0027	0.0359	1.5000	0.0634	0.0073	0.0461	0.0451	0.0451	0.0188	0.0078	0.0102
Sulfate (SO4)	mg/L	-	-	0.30	127.00	18.00	39.30	86.70	105.00	75.20	12.50	18.80	67.70	93.00	95.10
Sulphide (as S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon															
Dissolved Organic Carbon	mg/L	-	-	0.5	11.3	42.0	27.8	19.1	18.0	16.0	67.5	34.2	20.6	19.7	19.9
Aggregate Organics															
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-
Asbestos															
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.0030	0.0073	0.3310	3.5000	8.0000	1.8600	0.1080	0.3100	0.6980	0.4110	0.0806	0.1480
(Aluminium (Al)-Total (pH Adjusted Guideline))	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Total	mg/L	-	-	0.00010	0.00034	0.00090	0.00537	0.00739	0.00354	0.00073	0.00037	0.00113	0.00182	0.00151	0.00090
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.00026	0.00082	0.00296	0.00544	0.00188	0.00048	0.00059	0.00101	0.00107	0.00061	0.00057
Barium (Ba)-Total	mg/L	-	-	0.000050	0.054800	0.036800	0.155000	0.294000	0.107000	0.037700	0.025300	0.048500	0.062300	0.060500	0.050600
Beryllium (Be)-Total	mg/L	-	-	0.000020	<0.000020	0.000042	0.000188	0.000383	0.000105	<0.000020	0.000031	0.000032	0.000037	<0.000020	0.000022
Bismuth (Bi)-Total	mg/L	-	-	0.000050	<0.000050	0.000081	0.000174	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	1.5	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.0000050	0.0000936	0.0000659	0.0003550	0.0008350	0.0002300	0.0000271	0.0000768	0.0000791	0.0000808	0.0000444	0.0000353
(Cadmium (Cd)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.0003026	0.0000971	0.0001359	0.0002046	0.0002329	0.0001818	0.0000900	0.0000947	0.0001676	0.0002170	0.0002194
Calcium (Ca)-Total	mg/L	-	-	0.050	54.100	13.200	20.200	38.900	28.900	12.900	12.000	12.900	27.300	36.500	36.500
Chromium (Cr)-Total	mg/L	-	-	0.00010	0.00027	0.00059	0.00904	0.01580	0.00489	0.00105	0.00842	0.00469	0.00183	0.00124	0.00135
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	-	0.00320	0.00844	0.01580	0.00489	0.00105	0.00842	0.00469	0.00183	0.00124	0.00135
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	-	0.00140	0.00060	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt (Co)-Total	mg/L	-	-	0.00010	<0.00010	0.00032	0.00399	0.00795	0.00234	0.00019	0.00017	0.00063	0.00083	0.00040	0.00028
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00185	0.00553	0.01560	0.02760	0.00862	0.00217	0.00336	0.00469	0.00418	0.00309	0.00266
(Copper (Cu)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.00400	0.00200	0.00202	0.00308	0.00351	0.00272	0.00200	0.00200	0.00251	0.00327	0.00331
Iron (Fe)-Total	mg/L	0.3	-	0.010	0.010	0.660	8.000	17.300	4.160	0.247	0.308	1.090	1.220	0.271	0.389
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.000050	<0.000050	0.000248	0.004690	0.010300	0.002100	0.000095	<0.000050	0.000462	0.000705	0.000063	0.000130
(Lead (Pb)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.007000	0.001000	0.002514	0.004706	0.005741	0.003928	0.001000	0.001000	0.003468	0.005151	0.005241
Lithium (Li)-Total	mg/L	-	-	0.0010	<0.0010	<0.0010	0.0036	0.0083	0.0025	<0.0010	<0.0010	0.0011	0.0010	<0.0010	<0.0010
Magnesium (Mg)-Total	mg/L	-	-	0.10	22.60	5.10	8.38	15.50	16.20	11.20	5.36	5.60	11.10	14.90	15.20
Manganese (Mn)-Total	mg/L	-	-	0.00010	0.03770	0.01500	0.18000	0.38600	0.24700	0.02560	0.00979	0.04860	0.07090	0.10900	0.05770
Mercury (Hg)-Total	mg/L	0.000026	-	0.0000050	<0.0000050	0.0000215	0.0000480	0.0000920	<0.000025	0.0000067	0.0000266	<0.0000050	<0.0000050	0.0000055	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	0.000746	0.000555	0.001410	0.001940	0.001430	0.000691	0.000120	0.000879	0.000791	0.001080	0.000884
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00261	0.00800	0.01640	0.02950	0.01040	0.00318	0.00861	0.00821	0.00619	0.00493	0.00398
(Nickel (Ni)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.15000	0.02500	0.08303	0.12074	0.13596	0.10839	0.02500	0.02500	0.12743	0.12743	0.12875
Phosphorus (P)-Total	mg/L	-	-	0.050	<0.050	<0.050	0.201	0.550	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total	mg/L	-	-	0.10	0.22	0.55	0.44	0.71	0.29	<0.10	1.51	0.77	0.23	0.12	<0.10
Selenium (Se)-Total	mg/L	0.001	-	0.000050	0.000461	0.000957	0.001570	0.001910	0.001030	0.002770	0.001300	0.002050	0.001250	0.000798	0.001190
Silicon (Si)-Total	mg/L	-	-	0.10	6.21	4.28	9.75	16.60	8.45	6.07	4.65	5.75	6.18	6.71	6.71
Silver (Ag)-Total	mg/L	0.00025	-	0.000010	<0.000010	0.000022	0.000111	0.000264	0.000076	<0.000010	0.000021	0.000031	0.000022	<0.000010	<0.000010
Sodium (Na)-Total	mg/L	-	-	0.050	4.950	1.850	2.720	4.120	4.160	3.470	1.370	4.770	4.270	4.130	4.130
Strontium (Sr)-Total	mg/L	-	-	0.00020	0.23900	0.05270	0.08980	0.18300	0.17500	0.11700	0.04610	0.05310	0.12500	0.15300	0.15100
Sulfur (S)-Total	mg/L	-	-	0.50	47.00	6.16	13.00	29.30	35.50	24.50	4.82	22.90	34.60	33.00	33.00
Thallium (Tl)-Total	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	0.000045	0.000092	0.000034	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Total	mg/L	-	-	0.00010	<0.00010	<0.00010	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Total	mg/L	-	-	0.00030	<0.00030	0.00574	0.07280	0.12000	0.04050	<0.0033	0.00277	<0.0027	0.00679	0.00204	<0.0042
Uranium (U)-Total	mg/L	0.015	-	0.000010	0.000248	0.000142	0.000775	0.001400	0.000438	0.000088	0.000076	0.000175	0.000151	0.000111	0.000108
Vanadium (V)-Total	mg/L	-	-	0.00050	<0.000										

Water quality results collected at R8 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989169-9 R8 07/09/2017 12:30	L2096824-5 R8 16/05/2018 13:15	L2110842-17 R8 11/06/2018 16:30	L2127254-8 R8 09/07/2018 11:30	L2147306-23 R8 12/08/2018 15:00	L2164008-1 R8 11/09/2018 14:40	L2263589-9 R8 24/04/2019 17:50	L2275161-6 R8 15/05/2019 14:45	L2291429-5 R8 11/06/2019 16:30	L2308450-8 R8 09/07/2019 12:10	L2328723-2 R8 12/08/2019 13:45
Dissolved Metals															
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0052	0.1790	0.1080	0.0355	0.0364	0.0412	0.2960	0.1210	0.0449	0.0382	0.0484
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00031	0.00068	0.00129	0.00178	0.00117	0.00066	0.00032	0.00076	0.00157	0.00145	0.00082
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00028	0.00060	0.00076	0.00060	0.00058	0.00038	0.00062	0.00063	0.00062	0.00050	0.00053
Barium (Ba)-Dissolved	mg/L	-	-	0.00050	0.055500	0.032300	0.051300	0.071200	0.046800	0.037300	0.024900	0.032100	0.047400	0.057600	0.049500
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	0.000036	0.000028	<0.000020	<0.000020	<0.000020	0.000026	0.000030	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000802	0.0000433	0.0000334	0.0000444	0.0000439	0.0000290	0.0000787	0.0000473	0.0000182	0.0000382	0.0000308
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003026	0.0000971	0.0001359	0.0002046	0.0002329	0.0001818	0.0000900	0.0000947	0.0001676	0.0002170	0.0002194
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	53.400	13.300	19.900	32.800	36.800	27.500	11.400	13.200	25.100	35.700	35.300
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00018	0.00469	0.00209	0.00096	0.00077	0.00092	0.00075	0.00350	0.00114	0.00101	0.00116
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	<0.010	0.00209	-	-	-	0.00075	0.00350	0.00114	0.00101	0.00116
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	0.00140	<0.0010	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00012	0.00017	0.00064	0.00041	0.00068	0.00015	0.00017	0.00028	0.00030	0.00036	0.00021
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00145	0.00477	0.00397	0.00314	0.00226	0.00210	0.00332	0.00327	0.00259	0.00275	0.00250
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00200	0.00202	0.00308	0.00351	0.00272	0.00200	0.00200	0.00251	0.00327	0.00331
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.022	0.281	0.460	0.115	0.140	0.110	0.284	0.329	0.227	0.169	0.170
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	0.000065	<0.000050	<0.000050	<0.000050	<0.000050	0.000054	<0.000050	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.001000	0.002514	0.004706	0.005741	0.003928	0.001000	0.001000	0.003468	0.005151	0.005241
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	20.50	5.42	8.08	13.10	16.40	12.10	5.34	5.08	10.80	13.70	14.50
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.007000	0.00478	0.06190	0.09190	0.20900	0.02340	0.00948	0.02530	0.05810	0.10100	0.05180
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	0.0000181	0.0000090	<0.0000050	<0.0000050	<0.0000050	0.0000238	0.0000130	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.000589	0.000392	0.000704	0.000801	0.000811	0.000836	0.000086	0.000730	0.001020	0.001040	0.000756
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.00198	0.00769	0.00616	0.00492	0.00473	0.00312	0.00867	0.00647	0.00453	0.00472	0.00417
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.02500	0.08303	0.12074	0.13596	0.10839	0.02500	0.02500	0.10062	0.12743	0.12875
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	0.22	0.54	0.15	0.12	0.11	<0.10	1.54	0.67	0.19	<0.10	<0.10
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.000430	0.000980	0.001110	0.000576	0.000560	0.002830	0.001330	0.001870	0.001180	0.000740	0.001280
Silicon (Si)-Dissolved	mg/L	-	-	0.050	5.780	3.960	5.230	5.570	5.360	6.060	4.020	3.630	5.210	6.110	6.570
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000016	0.000011	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	4.770	1.890	2.840	4.070	4.310	3.670	1.430	1.760	3.370	4.140	4.190
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.22200	0.05270	0.08030	0.14400	0.15500	0.11600	0.04060	0.05140	0.12300	0.14600	0.15100
Sulfur (S)-Dissolved	mg/L	-	-	0.50	43.60	5.48	12.70	28.40	32.40	24.20	4.35	6.00	24.10	31.10	34.10
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00030	0.00216	0.00174	0.00067	0.00073	<0.00090	0.00269	0.00169	<0.00090	0.00084	0.00091
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.000221	0.000112	0.000114	0.000136	0.000190	0.000078	0.000076	0.000128	0.000092	0.000102	0.000091
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	0.0013	0.0025	0.0017	0.0014	0.0012	0.0014	0.0144	0.0016	0.0016	<0.0030	0.0016
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.26860	0.09504	0.13323	0.20082	0.22874	0.17511	0.08813	0.09275	0.16445	0.21305	0.21548
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	<0.00030	0.00099	0.00091	0.00062	0.00056	0.00074	0.00082	0.00075	0.00071	0.00067	0.00086

Applied Guidelines: "Federal CCME Canadian Environmental Quality Guidelines February 2015", CCME: Freshwater
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
^ The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:
Exceeds CCME Guideline
QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at R9 during monthly surface water monitoring

Analyte	Units	CMHE-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1909169-8	L2002583-7	L2002883-8	L2009624-7	L2110942-10	L2127254-10	L2147386-24	L2164008-2	L2164008-3	L2182241-6	L2263589-11	L2275161-5	L2291429-6	L2308450-9	L2328273-1
					R9 07/09/2017 18:15	R9 03/10/2017 14:00	R9 03/10/2017 14:05	R9 16/09/2018 11:30	R9 11/06/2018 12:05	R9 09/07/2018 13:30	R9 12/08/2018 17:30	R9 11/09/2018 17:30	R9 11/09/2018 17:45	R9 15/10/2018 13:35	R9 24/04/2019 18:50	R9 15/05/2019 11:30	R9 11/06/2019 13:30	R9 09/07/2019 14:45	R9 12/08/2019 15:15
Physical Tests																			
Temperature (in-situ)	°C	-	-	-	5.6	1.1	1.1	0.8	4.1	8.4	7.2	2.6	2.6	0.2	<0.1	0.1	5.7	9.0	6.4
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	11.81	14.41	14.41	14.35	10.41	6.87	9.92	13.86	13.86	6.84	13.26	12.61	10.77	9.63	11.62
Specific Conductivity (in-situ)	µS/cm	-	-	-	594.7	471.4	471.4	106.1	364.5	512.6	419.0	416.6	436.6	820.2	182.6	71.0	410.7	594.3	351.2
pH (in-situ)	pH	6.5 - 9.0	-	-	7.81	7.71	7.71	6.94	7.54	7.41	7.56	7.67	7.67	7.58	7.18	7.31	7.72	7.54	7.78
Redox Potential (in-situ)	mV	-	-	-	101.4	322.3	322.3	311.9	78.2	182.1	261.0	86.1	86.1	186.0	199.7	188.2	209.1	220.9	278.4
Turbidity (in-situ)	NTU	-	-	-	3.35	3.34	3.34	45.30	1.02	4.68	1.78	4.04	4.04	0.90	0.83	84.80	1.32	0.75	16.46
Conductivity	µS/cm	-	-	2	585	478	484	103	366	512	419	416	436	765	179	70.9	426	576	368
Hardness (as CaCO3)	mg/L	-	-	0.5	110.0	268.0	268.0	63.4	188.0	219.0	217.0	219.0	219.0	446.0	40.1	221.0	320.0	188.0	
pH (lab)	pH	6.5 - 9.0	-	0.1	8.08	8.07	8.07	7.03	8.06	8.16	8.16	8.02	8.03	7.58	7.01	7.01	8.10	8.19	7.99
Total Suspended Solids	mg/L	-	-	2	<3.0	<2.0	<2.0	120	2.9	2.7	2.4	<3.0	3.9	<2.0	3.7	140	35	4.3	55
Anions and Nutrients																			
Ammonia - Total (as N) ^a	mg/L	Temp, pH Dep	-	0.0050	0.0610	0.0676	0.0575	0.0195	0.0184	0.0151	0.0149	0.0460	0.0466	0.0197	0.0181	0.0218	0.0102	0.0122	0.0411
Temperature and pH adjusted Guidelines																			
Bromide (Br)	mg/L	-	-	0.050	2.265	0.0200	2.265	2.265	2.265	2.265	2.265	2.265	2.265	2.265	2.265	2.265	2.265	2.265	2.265
Chloride (Cl)	mg/L	120	-	0.50	0.59	0.47	0.47	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.5	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	mg/L	0.12	-	0.010	0.103	0.103	0.085	0.085	0.095	0.115	0.085	0.085	0.085	<0.10	<0.060	0.052	0.086	0.110	0.091
Nitrate (as N)	mg/L	13	-	0.0050	0.2210	0.3150	0.3150	0.1410	0.2630	0.0840	0.1130	0.3560	0.3570	0.1470	0.1380	0.0749	0.2310	0.1170	0.2670
Nitrite (as N)	mg/L	0.06	-	0.0010	0.0036	0.0033	0.0033	<0.0010	<0.0010	0.0011	0.0012	<0.0010	0.0013	<0.0050	<0.0010	<0.0010	0.0016	0.0012	0.0028
Phosphorus (P) Total	mg/L	-	-	0.0020	<0.0020	0.0020	0.0107	0.0120	0.0107	0.0132	0.0125	0.0124	0.0148	0.0113	0.0527	0.1450	0.0115	0.0110	0.0563
Sulfate (SO4)	mg/L	-	-	0.30	197.00	158.00	158.00	24.50	114.00	163.00	204.00	145.00	145.00	271.00	55.90	14.00	140.00	202.00	103.00
Sulphide (as S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon																			
Dissolved Organic Carbon	mg/L	-	-	0.5	20.1	21.8	21.9	52.6	30.2	27.4	20.7	25.3	26.1	19.2	72.7	46.6	29.7	24.4	29.6
Aggregate Organics																			
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos																			
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																			
Aluminum (Al) - Total	mg/L	pH Dep	-	0.0030	0.0210	0.0260	0.0346	1.8100	0.0098	0.0968	0.0247	0.1880	0.1070	0.0257	0.2520	2.4900	0.0600	0.0398	0.7200
Aluminum (Al) Total (pH Adjusted Guidelines)																			
Antimony (Sb) - Total	mg/L	-	-	0.00010	0.00020	0.00020	0.00020	0.00020	0.00023	0.00023	0.00019	0.00021	0.00022	0.00019	0.00010	0.00010	0.00022	0.00019	0.00025
Arsenic (As) - Total	mg/L	0.005	-	0.00010	0.00078	0.00078	0.00078	0.00074	0.00177	0.00064	0.00066	0.00066	0.00066	0.00064	0.00066	0.00066	0.00066	0.00066	0.00133
Barium (Ba) - Total	mg/L	-	-	0.000050	0.070300	0.058400	0.094200	0.050400	0.057000	0.066500	0.073000	0.073800	0.118000	0.044000	0.098200	0.071200	0.081800	0.092000	
Beryllium (Be) - Total	mg/L	-	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Bismuth (Bi) - Total	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B) - Total	mg/L	1.5	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd) - Total (Lab Result)	mg/L	HD	-	0.0000010	0.0000401	0.0000294	0.0000347	0.0000169	0.0000294	0.0000293	0.0000333	0.0000472	0.0000332	0.0000361	0.0000230	0.0000230	0.0000407	0.0000315	0.0000593
Cadmium (Cd) Total (Hardness Adjusted Guidelines)																			
Calcium (Ca) - Total	mg/L	-	-	0.050	77.800	64.300	62.600	16.400	43.900	64.100	82.600	54.000	54.100	109.000	25.600	11.700	49.500	79.600	45.400
Chromium (Cr) - Total	mg/L	-	-	0.00010	0.00060	0.00075	0.00069	0.00041	0.00106	0.00024	0.00108	0.00107	0.00108	0.00107	0.00048	0.00037	0.00061	0.00065	0.00254
Trivalent Chromium (Cr III) - Total	mg/L	0.0089	-	0.00010	-	-	-	0.00030	0.00106	-	0.00108	0.00107	-	-	-	-	-	-	0.00254
Hexavalent Chromium (Cr VI) - Total	mg/L	0.001	-	0.00010	-	-	-	<0.0010	-	-	<0.0010	<0.0010	-	-	<0.00050	0.00060	<0.00050	<0.00050	<0.00050
Cobalt (Co) - Total	mg/L	-	-	0.00010	0.00077	0.00068	0.00063	0.00037	0.00021	0.00027	0.00032	0.00060	0.00064	0.00021	0.00028	0.00040	0.00027	0.00024	0.00111
Copper (Cu) - Total (Lab Result)	mg/L	HD	-	0.00050	0.00240	0.00284	0.00284	0.00992	0.00459	0.00386	0.00059	0.00493	0.00420	0.00295	0.00468	0.00468	0.00471	0.00308	0.00629
Copper (Cu) Total (Hardness Adjusted Guidelines)																			
Iron (Fe) - Total	mg/L	HD	-	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400
Lead (Pb) - Total (Lab Result)	mg/L	0.1	-	0.010	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.001260	<0.000001	0.000001	0.000001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lead (Pb) Total (Hardness Adjusted Guidelines)																			
Lithium (Li) - Total	mg/L	-	-	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0012
Magnesium (Mg) - Total	mg/L	-	-	0.10	31.20	26.20	25.00	6.72	23.00	23.60	32.40	30.70	30.70	43.30	10.10	5.25	24.70	35.50	18.40
Manganese (Mn) - Total	mg/L	-	-	0.00010	0.7100	0.54400	0.31100	0.1800	0.07900	0.1100	0.28100	0.13300	0.13600	0.21900	0.0400	0.23600	0.11400	0.14200	0.77600
Mercury (Hg) - Total	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000030	0.0000057	<0.0000050	<0.0000050	0.0000060	0.0000065	<0.0000050	0.0000118	<0.000025	<0.0000050	0.0000056	0.0000054
Molybdenum (Mo) - Total	mg/L	0.073	-	0.000050	0.00180	0.001300	0.001310	0.000419	0.001110	0.001410	0.001450	0.000956	0.000956	0.000805	0.000190	0.000350	0.001050	0.001550	0.000960
Nickel (Ni) - Total (Lab Result)	mg/L	HD	-	0.00050	0.00172	0.00137	0.00110	0.00770	0.00180	0.00134	0.00295	0.00375	0.00350	0.00275	0.00742	0.00050	0.00174	0.00114	0.00496
Nickel (Ni) Total (Hardness Adjusted Guidelines)																			
Phosphorus (P) - Total	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K) - Total	mg/L	-	-	0.10	0.63	0.47	0.44	0.67	0.44	0.51	0.54	0.32	0.33	0.57	2.75	0.70	0.47	0.58	0.36
Phosphorus (P) - Total	mg/L	0.001	-	0.00050	0.00056	0.000714	0.000641	0.000214	0.000461	0.000213	0.000461	0.000213	0.000461	0.000213	0.000461	0.000213	0.000461	0.000213	0.000461
Silver (Ag) - Total	mg/L	-	-	0.10	1.475	4.28	4.21	4.40	0.85	1.85	4.27	4.65	4.91	4.87	5.90	5.38	4.54	4.90	6.53
Silicon (Si) - Total	mg/L	0.00025	-	0.00010	<0.00010	<0.00010	<0.00010	0.000035	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000013	0.000041	<0.00010	<0.00010	0.000013
Sulfur (S) - Total	mg/L	-	-	0.300	3.390	3.110	2.810	1.110	3.110	3.110	2.310	2.310	2.310	4.80	2.30	1.40	2.30	2.40	2.30
Sulfuric (S ₆) - Total	mg/L	-	-	0.030	0.2940	0.2130	0.2300	0.0640	0.1600	0.2380	0.1000	0.2160	0.2160	0.3310	0.0740	0.1700	0.2910	0.1950	
Sulfur (S ₂) - Total	mg/L	-	-	0.30	71.30	60.40	56.00	8.33	41.40	55.10	68.20	47.90	47.90	80.70	21.90	11.50	72.00	96.20	
Sulfur (S ₄) - Total	mg/L	0.0008	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin (Sn) - Total	mg/L	-	-	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti) - Total	mg/L	-	-	0.00010	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
Tungsten (W) - Total	mg/L	0																	

Water quality results collected at R9 during monthly surface water monitoring

Analyte	Units	CCME: Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1909169-8 R9 07/09/2017 18:15	L2002583-7 R9 03/10/2017 14:00	L2002803-8 R9- 03/10/2017 14:05	L2009624-7 R9 16/05/2018 11:30	L2110542-10 R9 11/06/2018 12:05	L2127254-10 R9 09/07/2018 13:30	L2147386-24 R9 12/08/2018 17:30	L2164006-2 R9 11/09/2018 17:30	L2164006-3 R9- 11/09/2018 17:45	L2182241-6 R9 15/10/2018 13:35	L2263589-11 R9 24/04/2019 18:50	L2271561-5 R9 15/05/2019 11:30	L2291429-6 R9 11/06/2019 13:30	L2308450-9 R9 09/07/2019 14:45	L2328773-1 R9 12/08/2019 15:15
Dissolved Metals																			
Aluminum (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0170	0.0081	0.0271	0.3290	0.0526	0.0256	0.0196	0.0701	0.0692	0.0230	0.2390	0.2420	0.0502	0.0254	0.1180
Aluminum (Al)-Dissolved (pH Adjusted Guideline)	mg/L	-	-	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00018	0.00018	0.00018	0.00013	0.00023	0.00019	0.00017	0.00022	0.00022	0.00016	<0.00010	<0.00010	0.00023	0.00019	0.00022
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00068	0.00060	0.00070	0.00066	0.00064	0.00061	0.00064	0.00064	0.00065	0.00047	0.00051	0.00047	0.00070	0.00060	0.00109
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.005400	0.005400	0.005400	0.005400	0.005400	0.005400	0.005400	0.005400	0.005400	0.005400	0.005400	0.005400	0.005400	0.005400	0.005400
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	0.000059	0.000028	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000035	0.000041	<0.000020	<0.000020	0.00026
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000383	0.0000324	0.0000305	0.0000675	0.0000339	0.0000323	0.0000315	0.0000489	0.0000492	0.0000403	0.0000200	0.0000550	0.0000391	0.0000291	0.0000334
Cadmium (Cd)-Dissolved (Hardness Adjusted Guideline)	mg/L	HD	-	0.0000050	0.0000383	0.0000324	0.0000305	0.0000675	0.0000339	0.0000323	0.0000315	0.0000489	0.0000492	0.0000403	0.0000550	0.0000550	0.0000391	0.0000291	0.0000334
Calcium (Ca)-Dissolved	mg/L	-	-	0.0001	76.700	64.900	61.500	15.200	45.900	66.600	85.200	52.300	50.000	25.100	50.000	50.000	74.100	43.300	50.000
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00050	0.00067	0.00066	0.00227	0.00098	0.00064	0.00053	0.00095	0.00091	0.00043	0.00184	0.00177	0.00091	0.00072	0.00128
Trivalent Chromium (Cr-III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	<0.0010	-	-	-	-	-	-	<0.00050	<0.00050	-	-	<0.00050
Hexavalent Chromium (Cr-VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	<0.0010	-	-	-	-	-	-	<0.00050	<0.00050	-	-	<0.00050
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00070	0.00085	0.00061	0.00062	0.00021	0.00018	0.00032	0.00061	0.00061	0.00021	0.00025	0.00068	0.00025	0.00022	0.00061
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00010	0.00014	0.00087	0.00075	0.00647	0.00621	0.00133	0.00126	0.00423	0.00427	0.00113	0.00465	0.00387	0.00449	0.00278	0.00496
Copper (Cu)-Dissolved (Hardness Adjusted Guideline)	mg/L	HD	-	0.00010	0.00014	0.00087	0.00075	0.00647	0.00621	0.00133	0.00126	0.00423	0.00427	0.00113	0.00465	0.00387	0.00449	0.00278	0.00496
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.812	0.810	0.808	0.805	0.369	0.366	0.509	0.362	0.362	0.221	0.347	0.486	0.404	0.416	0.387
Iron (Fe)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lead (Pb)-Dissolved (Hardness Adjusted Guideline)	mg/L	HD	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	28.80	25.70	25.30	6.34	17.80	25.10	33.40	21.30	21.40	46.00	9.78	3.75	23.90	32.80	18.10
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mercury (Hg)-Dissolved	mg/L	0.000036	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.001370	0.001200	0.001210	0.000273	0.001060	0.001430	0.001500	0.000944	0.000929	0.000766	0.000154	0.000195	0.001180	0.001490	0.000847
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.00030	0.000328	0.000306	0.000481	0.000352	0.000308	0.000293	0.000348	0.000346	0.000272	0.000736	0.000366	0.000365	0.000320	0.000397
Nickel (Ni)-Dissolved (Hardness Adjusted Guideline)	mg/L	HD	-	0.00050	0.00030	0.000328	0.000306	0.000481	0.000352	0.000308	0.000293	0.000348	0.000346	0.000272	0.000736	0.000366	0.000365	0.000320	0.000397
Potassium (K)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.33	0.38	2.74	0.53	0.45	0.31
Potassium (K)-Dissolved	mg/L	-	-	0.10	0.65	0.47	0.45	0.43	0.43	0.47	0.56	0.14	0.14	0.33	0.38	2.74	0.53	0.45	0.31
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.000057	0.000053	0.000058	0.000054	0.000053	0.000053	0.001100	0.001110	0.001900	0.000429	0.000179	0.000053	0.000053	0.000053	0.001100
Silicon (Si)-Dissolved	mg/L	-	-	0.050	4.510	4.140	4.330	2.280	3.400	4.010	4.490	4.890	4.830	5.970	3.890	1.630	4.230	4.780	5.580
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	3.890	3.600	3.880	2.160	3.090	3.300	3.490	2.170	2.170	3.100	2.618	2.200	3.100	2.100	2.100
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.27200	0.23200	0.27200	0.05440	0.18200	0.23700	0.31400	0.21000	0.21200	0.35900	0.07000	0.03690	0.22000	0.28800	0.18200
Sulfur (S)-Dissolved	mg/L	0.50	-	69.30	53.60	54.00	54.00	7.80	38.30	67.80	46.30	46.30	46.30	107.00	24.40	4.77	49.40	72.20	36.40
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	0.00097	0.00234	0.00131	<0.00090	<0.00090	0.00166	0.00112	<0.00090	0.00238	0.00234	0.00075	0.00235	0.00235
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.000557	0.000514	0.000542	0.000590	0.000465	0.000463	0.000695	0.000803	0.000807	0.000825	0.000991	0.000136	0.000647	0.000862	0.000766
Vanadium (V)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	0.000090	<0.000050	<0.000050	<0.000050	0.000075	0.000075	<0.000050	<0.000050	0.000078	<0.000050	<0.000050	0.00102
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	<0.0010	<0.0010	<0.0010	0.00029	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	0.00029	<0.00010	<0.00010	<0.00010	0.00011
Zinc (Zn)-Dissolved (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	0.0010	<0.0010	<0.0010	<0.0010	0.00029	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	0.00029	<0.00010	<0.00010	<0.00010	0.00011
Zinc (Zn)-Dissolved	mg/L	-	-	0.00030	0.00073	0.00088	0.00090	0.00115	0.00111	0.00081	0.00073	0.00125	0.00127	0.00059	0.00081	0.00073	0.00113	0.00078	0.00157

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015; CCME: Freshwater
HD = Hardness Dependent guideline for CCME-AL dependent guidelines; HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
* The CCME WATER-AL guideline is for total ammonia-N at temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:
Exceeds CCME Guideline
QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <ZNDL - less than two times the detection limit.

Water quality results collected at R11 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989169-12 R11 06/09/2017 15:40	L2002383-5 R11 02/10/2017 14:15	L2096262-4 R11 15/05/2018 14:30	L2110842-2 R11 10/06/2018 17:00	L2128251-7 R11 10/07/2018 09:45	L2147306-8 R11 13/08/2018 22:40	L2163862-4 R11 10/09/2018 16:55	L2182241-7 R11 15/10/2018 16:20	L2263589-1 R11 24/04/2019 13:45	L2274425-3 R11 14/05/2019 13:00	L2291429-8 R11 12/06/2019 12:15	L2307083-2 R11 08/07/2019 12:45	L2329874-7 R11 13/08/2019 17:50
Physical Tests																	
Temperature (in-situ)	°C	-	-	-	4.0	0.1	0.6	2.7	6.2	4.2	1.7	-0.1	0.0	0.4	3.7	7.3	4.2
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	12.82	14.56	14.42	13.31	11.45	12.36	13.75	11.52	13.41	13.30	11.87	12.23	12.59
Specific Conductivity (in-situ)	µS/cm	-	-	-	625.0	600.1	190.5	287.7	531.3	427.3	422.8	643.4	131.1	192.5	440.3	535.5	481.9
pH (in-situ)	pH	6.5 - 9.0	-	-	8.07	7.69	7.57	7.62	7.65	7.90	7.64	7.67	7.45	7.58	8.02	8.01	7.69
Oxidation-Redox Potential (in-situ)	mV	-	-	-	93.1	269.9	334.4	325.5	303.1	278.2	141.0	201.4	175.8	150.3	239.3	203.0	195.4
Turbidity (in-situ)	NTU	-	-	-	9.12	25.50	146.00	76.60	11.87	3.38	26.60	0.58	1.07	35.50	2.25	38.20	141.00
Conductivity	µS/cm	-	-	2	600	589	191	293	533	633	423	636	129	195	443	563	485
Hardness (as CaCO3)	mg/L	-	-	0.5	308.0	312.0	100.0	146.0	256.0	297.0	208.0	333.0	73.8	91.1	217.0	264.0	249.0
pH (lab)	pH	6.5 - 9.0	-	0.1	8.16	8.08	7.55	7.97	8.14	8.21	8.03	8.06	7.20	7.70	8.11	8.11	8.01
Total Suspended Solids	mg/L	-	-	2	4.1	36	300	110	5.8	3.5	54	2.6	<2.0	120	<2.0	55	260
Anions and Nutrients																	
Ammonia, Total (as N)	mg/L	Temp, pH-Dep	-	0.0050	0.0151	0.0126	0.0796	0.0257	0.0100	0.0173	0.0136	<0.0050	0.0153	0.0212	0.0121	0.0299	0.0609
Temperature and pH adjusted Guideline	mg/L	Temp, pH-Dep	-	-	1.2665	6.0200	6.0200	3.9804	3.9804	1.2665	6.0200	6.0200	6.0200	6.0200	1.2665	1.2665	3.9804
Bromide (Br)	mg/L	-	-	0.050	<0.050	-	<0.050	0.085	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	120	-	0.50	0.92	0.86	<0.50	<0.50	0.56	0.67	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	mg/L	0.12	-	0.020	0.125	0.131	0.080	0.105	0.125	0.141	0.107	0.108	<0.060	0.081	0.111	0.118	0.123
Nitrate (as N)	mg/L	13	-	0.0050	0.2030	0.2110	0.0422	0.1000	0.1330	0.1400	0.1060	0.0435	<0.0050	0.0209	0.1540	0.1090	0.0837
Nitrite (as N)	mg/L	0.06	-	0.0010	<0.0010	0.0023	<0.0010	<0.0010	<0.0010	0.0012	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0014
Phosphorus (P)-Total	mg/L	-	-	0.0020	0.0080	0.0483	0.2430	0.1020	0.0103	0.0094	0.0614	0.0059	0.0489	0.0227	0.0107	0.0382	0.1230
Sulfate (SO4)	mg/L	-	-	0.30	211.00	217.00	52.60	88.80	185.00	213.00	141.00	243.00	33.80	54.50	146.00	198.00	173.00
Sulphide (as S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon																	
Dissolved Organic Carbon	mg/L	-	-	0.5	13.3	14.6	40.6	27.3	15.6	14.1	18.3	16.4	51.7	32.0	20.1	19.2	20.1
Aggregate Organics																	
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos																	
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																	
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.0030	0.1450	0.1030	4.6800	1.7500	0.1640	0.0620	0.8710	0.0248	0.4140	1.1100	0.0642	0.2160	3.1200
Aluminium (Al)-Total (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Total	mg/L	-	-	0.00010	0.00023	0.00031	0.00046	0.00046	0.00030	0.00023	0.00031	0.00023	<0.00010	0.00024	0.00022	0.00032	0.00073
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.00076	0.00143	0.00045	0.00233	0.00071	0.00058	0.00133	0.00039	0.00051	0.00146	0.00053	0.00074	0.00392
Barium (Ba)-Total	mg/L	-	-	0.00050	0.074700	0.098100	0.212000	0.120000	0.067000	0.079000	0.079000	0.075700	0.045900	0.073000	0.052700	0.067700	0.154000
Beryllium (Be)-Total	mg/L	-	-	0.000020	<0.000020	0.000046	0.000203	0.000086	<0.000020	<0.000020	0.000034	<0.000020	0.000044	0.000071	<0.000020	<0.000020	0.000142
Bismuth (Bi)-Total	mg/L	-	-	0.000050	<0.000050	<0.000050	0.000059	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000059
Boron (B)-Total	mg/L	1.5	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.0000050	0.0000498	0.0000858	0.0004640	0.0002300	0.0000576	0.0000388	0.0001160	0.0000533	0.0000749	0.0001200	0.0000373	0.0000394	0.0003520
Cadmium (Cd)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0001585	0.0002170	0.0003458	0.0003700	0.0002911	0.0003700	0.0001232	0.0001467	0.0003015	0.0003348	0.0003379
Calcium (Ca)-Total	mg/L	-	-	0.050	74.200	70.900	24.300	32.700	63.600	72.000	47.300	84.100	16.400	23.200	60.100	57.800	57.800
Chromium (Cr)-Total	mg/L	-	-	0.00010	0.00088	0.00269	0.01340	0.00556	0.00102	<0.00090	0.00227	0.00062	0.00357	0.00509	0.00105	0.00116	0.00763
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	-	0.00269	0.00310	0.00496	<0.00072	-	0.00227	-	0.00357	0.00509	0.00105	0.00116	0.00763
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	-	<0.00010	<0.00010	0.00050	<0.00050	-	<0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt (Co)-Total	mg/L	-	-	0.00010	0.00050	0.00090	0.00535	0.00165	0.00029	0.00019	0.00543	0.00012	0.00031	0.00102	0.00018	0.00039	0.00348
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00233	0.00361	0.01600	0.00994	0.00328	0.00263	0.00543	0.00237	0.00309	0.00608	0.00285	0.00341	0.01500
Copper (Cu)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00236	0.00327	0.00400	0.00400	0.00400	0.00400	0.00200	0.00218	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	0.010	0.530	2.010	9.020	3.450	0.416	0.181	1.850	0.070	0.439	2.010	0.184	0.320	6.570
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.00050	0.000207	0.000969	0.002690	0.00078	0.00078	0.000974	<0.00069	0.00066	0.001080	0.000673	0.000194	0.000194	0.003490
Lead (Pb)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.002000	0.002000	0.001142	0.001111	0.002000	0.002000	0.002000	0.002000	0.001161	0.001161	0.002000	0.002000	0.002000
Lithium (Li)-Total	mg/L	-	-	0.0010	<0.0010	0.0015	0.0040	0.0018	<0.0010	<0.0010	0.0013	<0.0010	<0.0010	0.0014	<0.0010	<0.0010	0.0038
Magnesium (Mg)-Total	mg/L	-	-	0.10	34.20	33.50	13.20	17.00	29.20	34.40	23.40	36.20	9.21	12.40	23.90	31.80	29.00
Manganese (Mn)-Total	mg/L	-	-	0.00010	0.16000	0.10700	0.56800	0.10300	0.02510	0.02530	0.10100	0.02370	0.01830	0.07480	0.01710	0.05330	0.17000
Mercury (Hg)-Total	mg/L	0.000026	-	0.0000050	<0.0000050	0.0000088	0.0000269	<0.0000050	0.0000099	<0.0000050	0.0000175	<0.0000050	0.0000214	0.0000155	0.0000054	0.0000092	0.0000430
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	0.001340	0.001040	0.001450	0.001580	0.001490	0.001300	0.000841	0.000663	0.000999	0.001550	0.000750	0.001550	0.002750
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00352	0.00488	0.01610	0.00968	0.00338	0.00325	0.00522	0.00256	0.00555	0.00715	0.00320	0.00320	0.01460
Nickel (Ni)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.09558	0.12743	0.15000	0.15000	0.15000	0.15000	0.07587	0.08904	0.15000	0.15000	0.15000
Phosphorus (P)-Total	mg/L	-	-	0.050	<0.050	0.061	0.279	0.122	<0.050	<0.050	0.064	<0.050	0.050	0.099	<0.050	<0.050	0.199
Potassium (K)-Total	mg/L	-	-	0.10	0.60	0.62	1.16	0.75	0.59	0.50	0.49	0.50	1.30	0.87	0.48	0.53	0.69
Selenium (Se)-Total	mg/L	0.001	-	0.000050	0.000602	0.000696	0.000945	0.001090	0.000573	0.000661	0.001370	0.001580	0.000287	0.000672	0.000617	0.000897	0.001680
Silicon (Si)-Total	mg/L	-	-	0.10	6.01	7.55	11.10	7.08	5.58	5.35	6.85	6.58	3.93	4.96	5.14	5.73	11.60
Silver (Ag)-Total	mg/L	0.00025	-	0.000010	<0.000010	0.000028	0.000137	0.000113	0.000011	<0.000010	<0.000040	<0.000010	0.000016	0.000057	<0.000010	0.000013	0.000193
Sodium (Na)-Total	mg/L	-	-	0.050	7.380	6.040	2.740	3.530	6.940	4.110	5.360	1.650	2.560	4.910	5.640	4.720	4.720
Strontium (Sr)-Total	mg/L	-	-	0.00020	0.35400	0.33000	0.12900	0.16100	0.29500	0.31700	0.21300	0.34700	0.08650	0.11300	0.24500	0.30400	0.29600
Sulfur (S)-Total	mg/L	-	-	0.50	76.00	75.90	19.40	30.70	73.60	73.60	49.90	89.80	12.40	17.40	54.30	71.50	64.00
Thallium (Tl)-Total	mg/L	0.0008	-	-													

Water quality results collected at R11 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989169-12 R11 06/09/2017 15:40	L2002383-5 R11 02/10/2017 14:15	L2096262-4 R11 15/05/2018 14:30	L2110842-2 R11 10/06/2018 17:00	L2128251-7 R11 10/07/2018 09:45	L2147306-8 R11 13/08/2018 22:40	L2163862-4 R11 10/09/2018 16:55	L2182241-7 R11 15/10/2018 16:20	L2263589-1 R11 24/04/2019 13:45	L2274425-3 R11 14/05/2019 13:00	L2291429-8 R11 12/06/2019 12:15	L2307083-2 R11 08/07/2019 12:45	L2329874-7 R11 13/08/2019 17:50
Dissolved Metals																	
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0231	0.0207	0.2230	0.1120	0.0241	0.0192	0.0500	0.0205	0.3920	0.1630	0.0338	0.0297	0.0457
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00019	0.00020	0.00013	0.00021	0.00023	0.00020	0.00021	0.00022	<0.00010	0.00013	0.00020	0.00027	0.00027
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00024	0.00024	0.00024	0.00046	0.00046	0.00047	0.00048	0.00037	0.00049	0.00048	0.00044	0.00057	0.00077
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.063800	0.071300	0.064000	0.064000	0.064300	0.064300	0.064300	0.064300	0.064700	0.064700	0.064600	0.064600	0.067800
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	0.000027	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000036	0.000022	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000365	0.0000325	0.0000542	0.0000450	0.0000233	0.0000230	0.0000342	0.0000533	0.0000723	0.0000483	0.0000304	0.0000203	0.0000225
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	72.600	69.400	21.600	32.700	56.800	66.200	45.000	76.000	15.200	20.200	45.300	59.600	54.100
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00047	0.00057	0.00034	0.00201	0.00064	0.00063	0.00094	0.00050	0.00323	0.00378	-	-	0.00105
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	<0.010	0.00201	-	-	-	-	0.00323	0.00378	-	-	0.00105
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	<0.0010	<0.0010	-	-	-	-	<0.00050	<0.00050	-	-	<0.00050
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00034	0.00017	0.00055	0.00029	0.00012	0.00014	0.00029	<0.00010	0.00030	0.00055	0.00014	0.00026	0.00032
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00166	0.00163	0.00385	0.00382	0.00261	0.00217	0.00272	0.00231	0.00294	0.00296	0.00260	0.00263	0.00261
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.188	0.142	0.365	0.353	0.092	0.091	0.315	0.062	0.395	0.350	0.106	0.119	0.325
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	0.000078	0.000068	<0.000050	<0.000050	<0.000050	<0.000050	0.00005	0.000062	<0.000050	<0.000050	0.000052
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	30.80	33.70	11.30	15.60	27.70	32.10	23.30	34.70	8.71	9.90	25.20	27.90	27.70
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.14600	0.04910	0.13000	0.03200	0.01560	0.02370	0.06840	0.02230	0.01750	0.09750	0.01430	0.04900	0.07230
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	0.0000144	0.0000110	<0.0000050	<0.0000050	0.0000068	<0.0000050	0.0000194	<0.0000050	<0.0000050	<0.0000050	0.0000055
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.001110	0.001040	0.000359	0.000813	0.001440	0.001380	0.001020	0.000801	0.000094	0.000399	0.001070	0.001380	0.001180
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.00242	0.00265	0.00494	0.00405	0.00277	0.00257	0.00289	0.00254	0.00529	0.00448	0.00306	0.00286	0.00312
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	0.150000	0.150000	0.150000	0.150000	0.150000	0.150000	0.150000	0.150000	0.150000	0.150000	0.150000	0.150000	0.150000	0.150000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	0.57	0.49	0.76	0.49	0.57	0.61	0.39	0.51	1.31	0.70	0.49	0.51	0.36
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.000551	0.000643	0.000425	0.000551	0.000625	0.000625	0.001160	0.001620	0.000315	0.000430	0.000562	0.000849	0.000854
Silicon (Si)-Dissolved	mg/L	-	-	0.050	5.530	5.700	4.030	4.330	5.160	5.380	5.650	6.300	3.470	3.600	4.920	5.490	6.070
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000020	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000012	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	7.100	6.230	2.530	3.480	6.380	7.230	4.130	5.310	1.580	2.990	5.010	5.740	4.680
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.32900	0.31300	0.10400	0.15100	0.28400	0.29100	0.21200	0.34600	0.07570	0.11300	0.24400	0.28700	0.24800
Sulfur (S)-Dissolved	mg/L	-	-	0.50	73.00	75.20	17.40	28.80	57.60	70.50	46.60	82.60	11.90	17.00	52.00	72.60	60.70
Thallium (Tl)-Dissolved	mg/L	0.00008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00030	0.00059	0.00253	0.00146	0.00046	<0.00060	0.00098	0.00037	0.00258	0.00172	0.00066	0.00056	0.00016
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.001710	0.001310	0.000513	0.000524	0.001070	0.001530	0.000640	0.000565	0.000583	0.000527	0.000783	0.000944	0.000813
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	0.00068	0.00066	<0.00050	<0.00050	<0.00050	<0.00050	0.00055	0.00063	<0.00050	<0.00050	0.00059
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	0.0010	0.0010	0.0017	0.0012	<0.0010	<0.0010	<0.0010	0.0022	0.0077	0.0017	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	0.31360	0.32069	0.32069	0.31544	0.31305	0.32983	0.31982	0.28610	0.32977	0.32069	0.31363	0.29637	0.31402	0.31363
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00070	0.00070	0.00163	0.00126	0.00081	0.00071	0.00114	0.00070	0.00120	0.00129	0.00092	0.00099	0.00118

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
* The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at GWCC-1 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989173-7 GWCC-1 08/09/2017 17:10	L2002383-1 GWCC-1 02/10/2017 17:25	L2020322-10 GWCC-1 06/11/2017 15:45	L2032255-3 GWCC-1 05/12/2017 15:05	L2046329-1 GWCC-1 15/01/2018 13:55	L2055716-4 GWCC-1 11/02/2018 14:35	L2068058-4 GWCC-1 13/03/2018 10:55	L2078526-4 GWCC-1 09/04/2018 16:20	L2094958-4 GWCC-1 14/05/2018 17:20	L2112699-1 GWCC-1 12/06/2018 18:50	L2128251-2 GWCC-1 10/07/2018 16:40	L2147306-13 GWCC-1 13/08/2018 18:30	L2163863-1 GWCC-1 10/09/2018 19:50
Physical Tests																	
Temperature (in-situ)	°C	-	-	-	3.2	4.1	3.4	2.8	2.4	2.1	2.0	1.8	1.7	2.6	3.3	3.6	4.3
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	5.10	5.50	5.45	7.06	6.85	6.76	4.90	5.57	11.30	5.26	4.93	4.50	5.72
Specific Conductivity (in-situ)	µS/cm	-	-	-	2754.0	2440.0	2794.0	2970.0	3070.0	3267.0	3510.0	3826.0	1648.0	2670.0	2729.0	2563.0	2303.0
pH (in-situ)	pH	6.5 - 9.0	-	-	7.38	7.29	7.31	7.42	7.28	7.43	7.29	7.40	7.56	7.11	7.29	7.28	7.34
Oxidation - Redox Potential (in-situ)	mV	-	-	-	156.7	321.3	333.3	380.3	227.8	240.0	59.6	247.5	372.1	277.5	307.4	218.7	164.8
Turbidity (in-situ)	NTU	-	-	-	0.02	0.62	3.34	1.89	0.07	0.07	1.99	0.65	0.99	0.23	0.01	0.39	0.02
Conductivity	µS/cm	-	-	2	2590	2330	2670	2840	2920	3130	3420	3660	1580	2520	2620	2770	2200
Hardness (as CaCO3)	mg/L	-	-	0.5	1820.0	1710.0	1890.0	2000.0	2360.0	2160.0	2520.0	2700.0	1020.0	1870.0	1690.0	1970.0	1500.0
pH (lab)	pH	6.5 - 9.0	-	0.1	8.09	8.18	8.25	8.09	8.12	7.99	7.99	8.06	8.19	7.90	8.10	8.11	8.05
Total Suspended Solids	mg/L	-	-	2	<3.0	<2.0	2.7	12	<2.0	3	<2.0	41	<2.0	<2.0	18	21	19
Anions and Nutrients																	
Ammonia, Total (as N) ^A	mg/L	Temp,pH-Dep	-	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0103	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
(Temperature and pH adjusted Guideline)	mg/L	Temp,pH-Dep	-	-	3.9804	3.9804	3.9804	3.9804	6.0200	6.0200	6.0200	6.0200	6.0200	12.5827	3.9804	3.9804	3.9804
Bromide (Br)	mg/L	-	-	0.050	-	-	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.25	<0.25	<1.0	<0.50
Chloride (Cl)	mg/L	120	-	0.50	5.80	4.90	7.60	<10	<10	<10	<10	11.00	<5.0	4.80	5.50	<10	5.60
Fluoride (F)	mg/L	0.12	-	0.020	0.220	<0.20	<0.20	<0.40	<0.40	<0.40	<0.40	0.240	0.160	0.160	<0.40	<0.20	<0.20
Nitrate (as N)	mg/L	13	-	0.0050	0.6340	0.5520	0.5530	0.5500	0.5700	0.4900	0.4400	0.4800	0.4400	0.4400	0.4950	0.4940	0.5000
Nitrite (as N)	mg/L	0.06	-	0.0010	<0.010	<0.010	<0.010	<0.020	<0.020	<0.020	<0.020	<0.020	<0.010	<0.0050	<0.0050	<0.020	<0.010
Phosphorus (P)-Total	mg/L	-	-	0.0020	<0.0020	0.0023	0.0308	0.0029	<0.0020	0.0022	0.0329	0.0471	0.0127	0.0029	<0.0020	0.0030	0.0026
Sulfate (SO4)	mg/L	-	-	0.30	1680.00	1330.00	1690.00	1750.00	1920.00	1890.00	2100.00	2350.00	855.00	1430.00	1520.00	1570.00	1240.00
Sulphide (as S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon																	
Dissolved Organic Carbon	mg/L	-	-	0.5	5.8	5.9	5.6	5.3	5.1	5.1	4.7	4.4	15.7	6.3	6.0	5.4	6.5
Aggregate Organics																	
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos																	
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																	
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.0030	<0.0060	<0.0030	0.5280	0.0638	<0.0060	0.0202	0.1840	0.3350	0.0179	<0.0060	<0.0060	<0.0060	<0.0060
Aluminium (Al)-Total (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Total	mg/L	-	-	0.00010	0.00130	0.00130	0.00145	0.00116	0.00113	0.00109	0.00121	0.00132	0.00219	0.00137	0.00126	0.00122	0.00174
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.00010	0.00026	0.000324	0.000208	0.000219	0.000231	0.000264	0.000326	0.000397	0.000283	0.000265	0.000283	0.000303
Barium (Ba)-Total	mg/L	-	-	0.000050	0.019100	0.017400	0.054900	0.025700	0.023800	0.024900	0.032300	0.036800	0.011700	0.026700	0.019100	0.020600	0.020600
Beryllium (Be)-Total	mg/L	-	-	0.000020	<0.000040	<0.000020	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000020	<0.000040	<0.000040	<0.000040	<0.000020
Bismuth (Bi)-Total	mg/L	-	-	0.000050	<0.00010	<0.000050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000050	<0.00010	<0.00010	<0.00010	<0.00010
Boron (B)-Total	mg/L	1.5	-	0.010	0.260	0.236	0.336	0.267	0.303	0.277	0.382	0.420	0.124	0.259	0.263	0.271	0.241
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.000050	0.0002200	0.0001900	0.0002940	0.0002300	0.0002440	0.0002480	0.0002910	0.0002990	0.0001080	0.0002600	0.0002180	0.0002330	0.0001890
Cadmium (Cd)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Total	mg/L	-	-	0.050	185.000	204.000	245.000	240.000	287.000	269.000	284.000	317.000	149.000	222.000	201.000	224.000	204.000
Chromium (Cr)-Total	mg/L	-	-	0.00010	0.00265	0.00222	0.01760	0.00432	0.00260	0.00292	0.00306	0.00461	0.00126	0.00253	0.00242	0.00271	0.00240
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	-	<0.00085	0.01500	0.00160	<0.00096	0.00102	0.00116	0.00250	<0.0010	0.00123	<0.00095	0.00111	0.00130
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	-	0.00200	0.00260	0.00270	0.00280	0.00190	0.00190	0.00210	0.00160	0.00130	0.00240	0.00160	0.00110
Cobalt (Co)-Total	mg/L	-	-	0.00010	<0.00020	<0.00010	0.00143	<0.00020	<0.00020	<0.00020	0.00026	0.00046	0.00011	<0.00020	<0.00020	<0.00020	<0.00020
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.000050	0.00140	0.00094	0.00270	<0.0010	<0.0010	0.00200	0.00120	0.00170	0.00211	0.00110	0.00150	0.00120	<0.0010
Copper (Cu)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	0.010	0.024	<0.010	1.180	0.139	<0.020	0.054	0.346	0.619	0.036	<0.020	<0.020	<0.020	<0.020
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.000050	<0.00010	<0.000050	0.000410	<0.00010	<0.00010	<0.00010	0.000120	0.000240	<0.000050	<0.00010	<0.00010	<0.00010	<0.00010
Lead (Pb)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Total	mg/L	-	-	0.010	0.0678	0.0666	0.0853	0.0875	0.0881	0.0670	0.1170	0.1380	0.0345	0.0738	0.0670	0.0797	0.0760
Magnesium (Mg)-Total	mg/L	-	-	0.10	318.00	305.00	374.00	342.00	395.00	415.00	443.00	466.00	152.00	347.00	307.00	355.00	256.00
Manganese (Mn)-Total	mg/L	-	-	0.00010	0.00050	0.00025	0.02510	0.00312	0.00032	0.00123	0.00690	0.01000	0.00073	0.00038	0.00023	0.00021	0.00023
Mercury (Hg)-Total	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	0.0000067	<0.0000050	<0.0000050	<0.0000050	<0.000025	<0.0000050	0.0000092	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	0.002910	0.002910	0.002750	0.002920	0.003310	0.003230	0.003120	0.003230	0.002850	0.002770	0.002800	0.002380	0.002380
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.000050	0.08180	0.06570	0.10500	0.08210	0.08630	0.09260	0.10500	0.12500	0.04790	0.07690	0.07400	0.08900	0.06670
Nickel (Ni)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Total	mg/L	-	-	0.050	<0.10	<0.050	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.050	<0.10	<0.10	<0.10	<0.10
Potassium (K)-Total	mg/L	-	-	0.10	3.40	3.15	3.35	3.52	3.61	3.91	4.49	4.78	1.99	3.36	3.21	3.40	2.96
Selenium (Se)-Total	mg/L	0.001	-	0.000050	0.005950	0.004420	0.004910	0.004420	0.005270	0.004820	0.004060	0.004820	0.004060	0.006750	0.004570	0.004630	0.007980
Silicon (Si)-Total	mg/L	-	-	0.10	6.69	6.53	8.57	6.91	6.76	6.92	7.95	8.42	6.17	6.33	6.21	6.66	6.71
Silver (Ag)-Total	mg/L	0.00025	-	0.000010	<0.000020	<0.000010	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000010	<0.000020	<0.000020	<0.000020	<0.000020
Sodium (Na)-Total	mg/L	-	-	0.050	17.100	14.600	20.600	19.900	20.700	23.500	26.4						

Water quality results collected at GWCC-1 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989173-7 GWCC-1 08/09/2017 17:10	L2002383-1 GWCC-1 02/10/2017 17:25	L2020322-10 GWCC-1 06/11/2017 15:45	L2032255-3 GWCC-1 05/12/2017 15:05	L2046329-1 GWCC-1 15/01/2018 13:55	L2055716-4 GWCC-1 11/02/2018 14:35	L2068058-4 GWCC-1 13/03/2018 10:55	L2078526-4 GWCC-1 09/04/2018 16:20	L2094958-4 GWCC-1 14/05/2018 17:20	L2112699-1 GWCC-1 12/06/2018 18:50	L2128251-2 GWCC-1 10/07/2018 16:40	L2147306-13 GWCC-1 13/08/2018 18:30	L2163863-1 GWCC-1 10/09/2018 19:50
Dissolved Metals																	
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0013	0.0064	<0.0020	<0.0010	<0.0020	<0.0020	0.0028	<0.0020	0.0017	0.0025	<0.0020	<0.0020	0.0020
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00126	0.00128	0.00115	0.00111	0.00112	0.00104	0.00119	0.00115	0.00211	0.00133	0.00115	0.00122	0.00167
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00194	0.00200	0.00195	0.00210	0.00202	0.00217	0.00245	0.00256	0.00413	0.00264	0.00210	0.00199	0.00293
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.018300	0.017600	0.019200	0.020500	0.022300	0.022700	0.025700	0.025100	0.012000	0.019300	0.019600	0.020000	0.020500
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000040	<0.000020	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000020	<0.000040	<0.000040	<0.000040
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000010	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.281	0.218	0.275	0.291	0.289	0.373	0.401	0.121	0.246	0.230	0.262	0.223	0.223
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	0.0001950	0.0001920	0.0002140	0.0002190	0.0002280	0.0002400	0.0002690	0.0002970	0.0001010	0.0002060	0.0001820	0.0002110	0.0001700
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	207.000	200.000	225.000	230.000	266.000	275.000	290.000	290.000	145.000	194.000	198.000	222.000	197.000
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00243	0.00215	0.00223	0.00284	0.00205	0.00260	0.00181	0.00225	0.00125	0.00251	0.00205	0.00250	0.00226
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	<0.00074	<0.00074	<0.00074	<0.00076	<0.00073	<0.00075	<0.00074	<0.00077	<0.010	0.00151	<0.00075	<0.00078	0.00116
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	0.00180	0.00230	0.00210	0.00260	0.00270	0.00190	0.00160	0.00170	0.00190	0.00100	0.00180	0.00200	0.00110
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00020	<0.00010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00010	<0.00020	<0.00020	<0.00020	<0.00020
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00089	0.00089	0.00091	0.00082	0.00083	0.00076	0.00077	0.00074	0.00212	0.00149	0.00091	0.00093	0.00096
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	<0.010	0.014	<0.020	<0.010	<0.020	<0.020	<0.020	<0.020	<0.010	<0.020	0.044	<0.020	<0.020
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000010	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0734	0.0574	0.0794	0.0812	0.0882	0.0875	0.1160	0.1190	0.0372	0.0656	0.0566	0.0735	0.0718
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	317.00	294.00	323.00	345.00	387.00	364.00	445.00	479.00	158.00	337.00	291.00	344.00	245.00
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.00010	0.00053	0.00021	0.00020	0.00023	0.00022	0.00030	0.00025	0.00034	<0.00020	0.00043	<0.00020	<0.00020
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000073	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.002660	0.002600	0.002910	0.003840	0.003080	0.003050	0.003070	0.003210	0.002800	0.002700	0.002680	0.002780	0.002370
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.07530	0.06260	0.07520	0.07800	0.08150	0.08350	0.09960	0.11200	0.05050	0.08020	0.07170	0.08100	0.06490
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.10	<0.050	<0.10	<0.10	<0.10	<0.10	<0.050	<0.10	<0.10	<0.10	<0.100
Potassium (K)-Dissolved	mg/L	-	-	0.10	3.42	3.13	3.22	3.68	3.55	3.72	4.03	4.65	2.23	3.16	3.32	3.26	2.84
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.005890	0.004870	0.004540	0.005330	0.004970	0.004850	0.004330	0.005390	0.036800	0.006780	0.004790	0.004530	0.008400
Silicon (Si)-Dissolved	mg/L	-	-	0.050	6.590	6.220	6.220	6.510	6.890	7.050	7.280	7.850	5.510	6.090	6.350	6.320	6.800
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000020	<0.000010	<0.000020	<0.000020	<0.000020	<0.000020	<0.000010	<0.000020	<0.000020	<0.000020	<0.000020
Sodium (Na)-Dissolved	mg/L	-	-	0.050	15.800	14.100	19.300	20.900	21.500	21.500	27.200	32.000	8.100	17.200	15.900	18.300	15.900
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	2.07000	1.68000	2.11000	2.24000	2.37000	2.18000	2.84000	3.17000	1.36000	2.80000	2.60000	2.80000	1.86000
Sulfur (S)-Dissolved	mg/L	-	-	0.50	563.00	525.00	548.00	671.00	747.00	720.00	810.00	916.00	277.00	528.00	503.00	525.00	437.00
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	0.000081	0.000078	0.000074	0.000081	0.000076	0.000073	0.000088	0.000098	0.000052	0.000083	0.000078	0.000080	0.000080
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00020	<0.00010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00010	<0.00020	<0.00020	<0.00020	<0.00020
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00060	<0.00030	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00030	<0.00060	<0.00060	<0.00060
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.007970	0.006330	0.007120	0.008760	0.009490	0.009240	0.011400	0.013100	0.003940	0.007420	0.007390	0.007350	0.006410
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.0010	<0.00050	<0.0010	<0.0010	<0.0010	<0.0010	<0.00050	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	0.0069	0.0061	0.0079	0.0077	0.0065	0.0074	0.0090	0.0091	0.0027	0.0075	0.0070	0.0068	0.0067
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.25839	0.25844	0.25513	0.25089	0.24858	0.24950	0.24869	0.24848	0.24663	0.24681	0.24696	0.24682	0.24648
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
* The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at GWCC-1 during monthly surface water monitoring

			CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2183280-12 GWCC-1 17/10/2018 11:40	L2197781-5 GWCC-1 14/11/2018 13:15	L2209213-6 GWCC-1 10/12/2018 14:10	L2221037-1 GWCC-1 14/01/2019 13:00	L2235196-5 GWCC-1 19/02/2019 10:45	L2241106-1 GWCC-1 05/03/2019 10:40	L2241106-2 GWCC-1-r 05/03/2019 10:45	L2263589-4 GWCC-1 24/04/2019 10:50	L2275161-4 GWCC-1 15/05/2019 10:20	L2289891-15 GWCC-1 10/06/2019 15:30	L2307083-6 GWCC-1 08/07/2019 17:15	L2328874-13 GWCC-1 14/08/2019 09:05
Analyte	Units																
Physical Tests																	
Temperature (in-situ)	°C	-	-	-	-	3.0	2.7	2.2	2.0	1.8	1.9	1.9	1.7	3.1	4.3	3.2	4.0
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	-	5.24	5.68	5.76	6.39	6.32	8.11	8.11	5.18	11.14	5.20	5.31	4.52
Specific Conductivity (in-situ)	µS/cm	-	-	-	-	2838.0	2897.0	3138.0	3017.0	3167.0	3246.0	3246.0	3130.0	1021.0	2300.0	2653.0	2676.0
pH (in-situ)	pH	6.5 - 9.0	-	-	-	7.31	7.52	7.32	7.40	7.46	7.35	7.35	7.47	7.73	7.47	7.37	7.31
Oxidation - Redox Potential (in-situ)	mV	-	-	-	-	106.3	161.6	229.9	218.2	259.8	156.0	156.0	166.9	173.6	194.0	116.3	225.7
Turbidity (in-situ)	NTU	-	-	-	-	0.11	0.01	0.12	0.48	0.14	1.95	1.95	0.97	5.36	0.13	0.00	0.18
Conductivity	µS/cm	-	-	-	2	2660	2780	2800	2770	3120	3230	3210	3020	1010	2230	2640	2480
Hardness (as CaCO3)	mg/L	-	-	-	0.5	1840.0	2060.0	2140.0	2210.0	2170.0	2400.0	2400.0	2380.0	596.0	1540.0	1730.0	1860.0
pH (lab)	pH	6.5 - 9.0	-	-	0.1	8.20	7.89	8.27	7.95	7.95	7.65	7.68	8.05	8.25	8.50	8.02	8.02
Total Suspended Solids	mg/L	-	-	-	2	6	6.4	8.5	8	4.2	7.9	9.6	7.5	4.2	2.5	<2.0	12
Anions and Nutrients																	
Ammonia, Total (as N) ^A	mg/L	Temp,pH-Dep	-	-	0.0050	<0.0050	<0.0050	<0.0050	0.0079	<0.0050	<0.0050	<0.0050	<0.0050	0.0069	<0.0050	<0.0050	<0.0050
(Temperature and pH adjusted Guideline)	mg/L	Temp,pH-Dep	-	-	-	3.9804	3.9804	6.0200	6.0200	6.0200	6.0200	6.0200	6.0200	3.9804	3.9804	3.9804	3.9804
Bromide (Br)	mg/L	-	-	-	0.050	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.25	<1.0	<1.0	<1.0
Chloride (Cl)	mg/L	120	-	-	0.50	<10	<10	<10	<10	<10	<10	<10	<10	<2.5	<10	<10	<10
Fluoride (F)	mg/L	0.12	-	-	0.020	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.280	<0.40	<0.40	<0.40
Nitrate (as N)	mg/L	13	-	-	0.0050	0.5200	0.5700	0.5800	0.5900	0.5800	0.5900	0.5600	0.7600	0.2890	<0.10	0.5100	0.5700
Nitrite (as N)	mg/L	0.06	-	-	0.0010	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.0050	<0.020	<0.020	<0.020
Phosphorus (P)-Total	mg/L	-	-	-	0.0020	0.0021	<0.0020	0.0021	0.0028	0.0031	0.0057	0.0034	0.0030	0.0150	0.0025	0.0039	<0.0020
Sulfate (SO4)	mg/L	-	-	-	0.30	1610.00	1670.00	1740.00	1800.00	1940.00	1960.00	1940.00	1890.00	454.00	293.00	1530.00	1560.00
Sulphide (as S)	mg/L	-	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon																	
Dissolved Organic Carbon	mg/L	-	-	-	0.5	5.5	5.8	5.5	5.7	4.9	4.8	4.9	6.1	20.9	7.4	6.1	5.9
Aggregate Organics																	
Biological Oxygen Demand (BOD)	mg/L	-	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos																	
Total Asbestos concentration	MFL	-	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																	
Aluminium (Al)-Total	mg/L	pH-Dep	-	-	0.0030	<0.0060	<0.0060	<0.0060	0.0140	<0.0060	0.0651	0.0176	<0.0060	0.0400	<0.0060	<0.0060	<0.0060
(Aluminium (Al)-Total (pH Adjusted Guideline)	mg/L	Temp, pH-Dep	-	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Total	mg/L	-	-	-	0.00010	0.00124	0.00112	0.00108	0.00107	0.00105	0.00108	0.00105	0.00113	0.00191	0.00163	0.00134	0.00126
Arsenic (As)-Total	mg/L	0.005	-	-	0.00010	0.00216	0.00215	0.00199	0.00202	0.00207	0.00246	0.00226	0.00219	0.000976	0.00317	0.00319	0.00321
Barium (Ba)-Total	mg/L	-	-	-	0.00050	0.021300	0.020800	0.020600	0.021000	0.021000	0.021500	0.021900	0.018600	0.011600	0.021700	0.021300	0.021400
Beryllium (Be)-Total	mg/L	-	-	-	0.000020	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000020	<0.000040	<0.000040	<0.000040
Bismuth (Bi)-Total	mg/L	-	-	-	0.000050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000050	<0.00010	<0.00010	<0.00010
Boron (B)-Total	mg/L	1.5	-	-	0.010	0.276	0.303	0.276	0.301	0.267	0.300	0.303	0.227	0.052	0.220	0.258	0.264
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	-	0.0000050	0.0002180	0.0002320	0.0002150	0.0002330	0.0002190	0.0002370	0.0002160	0.0002210	0.0000490	0.0001780	0.0001900	0.0002010
(Cadmium (Cd)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Total	mg/L	-	-	-	0.050	216.000	230.000	216.000	224.000	216.000	261.000	260.000	215.000	123.000	197.000	203.000	208.000
Chromium (Cr)-Total	mg/L	-	-	-	0.00010	0.00291	0.00335	0.00321	0.00372	0.00322	0.00521	0.00363	0.00349	0.00169	0.00240	0.00306	0.00345
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	-	0.00010	0.00111	0.00165	0.00201	<0.0011	<0.0010	0.00230	0.00100	<0.0011	0.00109	<0.00088	<0.0010	<0.0011
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	-	0.00010	0.00180	0.00170	0.00120	0.00360	0.00300	0.00290	0.00260	0.00060	0.00190	0.00300	0.00330	0.00330
Cobalt (Co)-Total	mg/L	-	-	-	0.00010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00023	<0.00020	<0.00020	0.00016	<0.00020	<0.00020	<0.00020
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	-	0.000050	<0.00010	0.00100	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00338	0.00110	<0.00010	0.00100	0.00100
(Copper (Cu)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	-	0.010	<0.020	<0.020	<0.020	0.028	<0.020	0.127	0.041	<0.020	0.095	<0.020	<0.020	<0.020
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	-	0.000050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000050	<0.00010	<0.00010	<0.00010
(Lead (Pb)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Total	mg/L	-	-	-	0.010	0.0911	0.0886	0.0822	0.0909	0.0815	0.0881	0.0885	0.0827	0.0136	0.0682	0.0817	0.0760
Magnesium (Mg)-Total	mg/L	-	-	-	0.10	342.00	357.00	354.00	362.00	327.00	406.00	395.00	452.00	80.20	265.00	336.00	342.00
Manganese (Mn)-Total	mg/L	-	-	-	0.00010	<0.00020	<0.00020	<0.00020	0.00076	0.00056	0.00312	0.00123	0.00030	0.00241	0.00026	<0.00020	<0.00020
Mercury (Hg)-Total	mg/L	0.000026	-	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000094	<0.0000050	0.0000055	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.073	-	-	0.000050	0.002640	0.002850	0.002680	0.002990	0.002870	0.003400	0.003400	0.002700	0.002400	0.002600	0.002890	0.002890
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	-	0.000050	0.08330	0.08400	0.08380	0.08290	0.08190	0.09720	0.09370	0.09570	0.03260	0.06310	0.07570	0.08070
(Nickel (Ni)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Total	mg/L	-	-	-	0.050	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.050	<0.10	<0.10	<0.10	<0.10
Potassium (K)-Total	mg/L	-	-	-	0.10	3.35	3.40	3.49	3.41	3.59	3.77	3.69	3.41	1.16	2.80	3.32	3.44
Selenium (Se)-Total	mg/L	0.001	-	-	0.000050	0.005090	0.005140	0.005050	0.006150	0.005660	0.005670	0.005620	0.010800	0.004500	0.009010	0.005740	0.005110
Silicon (Si)-Total	mg/L	-	-	-	0.10	6.53	6.44	6.47	6.56	6.21	6.70	6.59	6.75	5.52	6.78	6.41	7.41
Silver (Ag)-Total	mg/L	0.00025	-	-	0.000010	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000010	<0.000020	<0.000020	<0.000020
Sodium (Na)-Total	mg/L	-	-	-	0.050	21.900	21.400	21.000	20.000	19.600	22.900	22.000	17.200	3.110	14.200	17.900	17.900
Strontium (Sr)-Total	mg/L	-	-	-	0.00020	2.31000	2.44000	2.14000	2.21000	2.01000	2.53000	2.50000	2.07000	0.72000	1.75000	2.06000	2.12000
Sulfur (S)-Total	mg/L	-	-	-	0.50	579.00	570.00	630.00	667.00	662.00	687.00	698.00	787.00	163.00	493.00	553.00	587.00
Thallium (Tl)-Total	mg/L	0.0008	-	-	-												

Water quality results collected at GWCC-1 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2183280-12 GWCC-1 17/10/2018 11:40	L2197781-5 GWCC-1 14/11/2018 13:15	L2209213-6 GWCC-1 10/12/2018 14:10	L2221037-1 GWCC-1 14/01/2019 13:00	L2235196-5 GWCC-1 19/02/2019 10:45	L2241106-1 GWCC-1 05/03/2019 10:40	L2241106-2 GWCC-1-r 05/03/2019 10:45	L2263589-4 GWCC-1 24/04/2019 10:50	L2275161-4 GWCC-1 15/05/2019 10:20	L2289891-15 GWCC-1 10/06/2019 15:30	L2307083-6 GWCC-1 08/07/2019 17:15	L2329874-13 GWCC-1 14/08/2019 09:05
Dissolved Metals																
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	<0.0020	<0.0020	<0.0090	0.0022	0.0021	0.0024	<0.0020	0.0023	0.0052	<0.0020	<0.0020	<0.0020
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00116	0.00108	0.00112	0.00107	0.00105	0.00105	0.00100	0.00116	0.00178	0.00163	0.00127	0.00117
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00215	0.00213	0.00204	0.00213	0.00212	0.00232	0.00225	0.00218	0.00558	0.00310	0.00221	0.00197
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.021000	0.020800	0.020900	0.020400	0.021500	0.023100	0.022900	0.019100	0.009980	0.027000	0.019300	0.021400
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000020	<0.000040	<0.000040	<0.000040
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000050	<0.00010	<0.00010	<0.00010
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.272	0.275	0.276	0.305	0.296	0.333	0.334	0.257	0.052	0.245	0.252	0.241
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	0.0002110	0.0002180	0.0002160	0.0002020	0.0002020	0.0002330	0.0002270	0.0002130	0.0000519	0.0001530	0.0002180	0.0002120
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	199.000	223.000	249.000	246.000	244.000	275.000	265.000	243.000	121.000	191.000	191.000	208.000
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00279	0.00308	0.00307	0.00341	0.00323	0.00349	0.00360	0.00318	0.00108	0.00238	0.00280	0.00305
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	0.00129	0.00178	0.00197	<0.00084	<0.00083	<0.00084	0.00130	<0.00082	<0.00071	<0.00077	<0.00080	<0.00082
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	0.00150	0.00130	0.00110	0.00300	0.00290	0.00270	0.00230	0.00270	0.00050	0.00250	0.00240	0.00260
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00010	<0.00020	<0.00020	<0.00020
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00080	0.00099	0.00081	0.00069	0.00083	0.00095	0.00100	0.00095	0.00110	0.00103	0.00089	0.00110
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000050	<0.00010	<0.00010	<0.00010
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0856	0.0861	0.0939	0.0888	0.0800	0.1060	0.0986	0.0652	0.0153	0.0665	0.0710	0.0661
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	325.00	365.00	368.00	388.00	379.00	409.00	423.00	430.00	71.60	258.00	303.00	326.00
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	<0.00020	<0.00020	0.00096	0.00022	<0.00020	<0.00020
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000144	<0.0000050	0.0000057	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.0002370	0.0002610	0.0003980	0.0003980	0.0003980	0.002970	0.002850	0.003410	0.001950	0.002470	0.002530	0.002680
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.08060	0.08150	0.08090	0.08350	0.08410	0.08780	0.08890	0.08940	0.02900	0.06100	0.07270	0.07630
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.050	<0.10	<0.10	<0.10
Potassium (K)-Dissolved	mg/L	-	-	0.10	3.48	3.45	3.54	3.53	3.64	3.69	3.77	3.39	1.19	2.81	3.25	3.21
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.005490	0.006050	0.005850	0.007010	0.005560	0.005650	0.005840	0.011100	0.023400	0.009770	0.005330	0.005370
Silicon (Si)-Dissolved	mg/L	-	-	0.050	6.870	6.360	6.850	6.790	6.620	6.760	6.660	5.890	5.200	6.620	6.520	6.830
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000010	<0.000020	<0.000020	<0.000020
Sodium (Na)-Dissolved	mg/L	-	-	0.050	20.200	21.100	21.900	22.900	21.700	22.100	16.600	2.900	14.600	17.800	17.500	17.500
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	2.08000	2.16000	2.40000	2.45000	2.40000	2.20000	2.20000	0.70700	1.71000	1.96000	2.02000	2.02000
Sulfur (S)-Dissolved	mg/L	-	-	0.50	585.00	611.00	675.00	692.00	591.00	737.00	737.00	715.00	160.00	474.00	591.00	555.00
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	0.000085	0.000078	0.000076	0.000074	0.000071	0.000068	0.000067	0.000070	0.000037	0.000074	0.000085	0.000081
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00010	<0.00020	<0.00020	0.0002
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00030	<0.00060	<0.00060	<0.00060
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.008650	0.007860	0.008450	0.009070	0.008510	0.009330	0.009230	0.009900	0.001790	0.005870	0.007290	0.007380
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.00050	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	0.0070	0.0079	0.0126	0.0079	0.0072	0.0080	0.0075	0.0078	<0.0010	0.0059	0.0066	0.0070
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.25349	0.25664	0.25371	0.25578	0.24677	0.24531	0.24653	0.23978	0.23402	0.23720	0.23050	0.23760
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00040	<0.00040	<0.00040

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
* The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at GWCC-2 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989173-1 GWCC-2 08/09/2017 16:50	L2002383-2 GWCC-2 02/10/2017 17:15	L2020322-6 GWCC-2 06/11/2017 15:45	L2032255-4 GWCC-2 05/12/2017 15:00	L2032255-5 GWCC-2 05/12/2017 15:10	L2046329-2 GWCC-2 15/01/2018 13:45	L2055716-2 GWCC-2 11/02/2018 14:30	L2094958-1 GWCC-2 14/05/2018 17:10	L2112699-2 GWCC-2 12/06/2018 18:40	L2128251-1 GWCC-2 10/07/2018 16:45	L2147306-14 GWCC-2 13/08/2018 18:20	L2153861-1 GWCC-2 10/09/2018 19:45
Physical Tests																
Temperature (in-situ)	°C	-	-	-	5.8	6.0	3.0	2.3	2.3	1.2	0.0	2.0	2.9	5.3	6.7	4.9
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	7.34	8.67	8.16	10.40	10.40	10.98	10.26	10.68	8.39	7.63	6.87	8.15
Specific Conductivity (in-situ)	µS/cm	-	-	-	1896.0	1691.0	2098.0	2292.0	2292.0	1345.0	2767.0	2309.0	2009.0	1983.0	1939.0	2150.0
pH (in-situ)	pH	6.5 - 9.0	-	-	7.55	7.57	7.61	7.69	7.69	7.58	7.64	7.59	7.36	7.52	7.50	7.46
Oxidation- Redox Potential (in-situ)	mV	-	-	-	141.2	325.4	323.5	371.5	371.5	218.2	240.1	379.2	276.8	306.3	225.4	167.0
Turbidity (in-situ)	NTU	-	-	-	0.00	0.25	0.74	0.61	0.61	0.29	0.07	0.89	0.73	0.85	0.09	0.01
Conductivity	µS/cm	-	-	2	1800	1630	2000	2180	2160	2330	2630	2170	1920	1900	2050	2050
Hardness (as CaCO3)	mg/L	-	-	0.5	1160.0	1080.0	1360.0	1470.0	1440.0	1780.0	1910.0	1500.0	1370.0	1170.0	1230.0	1430.0
pH (lab)	pH	6.5 - 9.0	-	0.1	8.11	8.27	8.28	8.16	8.19	8.25	7.83	8.18	7.99	8.22	8.22	8.14
Total Suspended Solids	mg/L	-	-	2	<3.0	<2.0	9.6	16	9.6	5.2	6.1	3.4	<2.0	11	6.8	14
Anions and Nutrients																
Ammonia, Total (as N) (Temperature and pH adjusted Guideline)	mg/L	Temp, pH-Dep	-	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0064	<0.0050	<0.0050	<0.0050
Bromide (Br)	mg/L	-	-	0.050	-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<0.25	<0.25	<0.50	<0.50
Chloride (Cl)	mg/L	120	-	0.50	1.90	1.73	2.25	<10	<10	<10	<10	30.00	<2.5	<2.5	<5.0	<5.0
Fluoride (F)	mg/L	0.12	-	0.020	0.140	0.140	0.160	<0.40	<0.40	<0.40	<0.40	<0.40	0.120	0.140	<0.20	<0.20
Nitrate (as N)	mg/L	13	-	0.0050	0.4270	0.3690	0.4240	0.4200	0.4400	0.4700	0.4500	1.7400	0.3420	0.3380	0.3770	0.4440
Nitrite (as N)	mg/L	0.06	-	0.0010	<0.0050	<0.0050	<0.0050	<0.020	<0.020	<0.020	<0.020	<0.020	<0.0050	<0.0050	<0.010	<0.010
Phosphorus (P)-Total	mg/L	-	-	0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	<0.0020	<0.0020	0.0020	0.0020
Sulfate (SO4)	mg/L	-	-	0.30	983.00	896.00	1130.00	1240.00	1260.00	1440.00	1560.00	1370.00	988.00	1020.00	1060.00	1140.00
Sulphide (as S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon																
Dissolved Organic Carbon	mg/L	-	-	0.5	7.4	7.6	6.6	6.7	6.8	6.5	6.1	12.8	8.6	8.0	7.4	7.1
Aggregate Organics																
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos																
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.0030	<0.0030	<0.0030	0.0059	0.0153	0.0134	<0.0060	0.0149	0.0081	<0.0030	<0.0030	<0.0030	<0.0060
Aluminium (Al)-Total (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Total	mg/L	-	-	0.00010	0.00117	0.00111	0.00105	0.00093	0.00096	0.00094	0.00092	0.00158	0.00110	0.00110	0.00112	0.00125
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.00144	0.00141	0.00149	0.00161	0.00149	0.00181	0.00210	0.00153	0.00148	0.00156	0.00168	0.00168
Barium (Ba)-Total	mg/L	-	-	0.000050	0.023400	0.021800	0.023400	0.023400	0.023400	0.023400	0.023400	0.018800	0.017700	0.022500	0.026600	0.021000
Beryllium (Be)-Total	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000020	<0.000020	<0.000020	<0.000040
Bismuth (Bi)-Total	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Boron (B)-Total	mg/L	1.5	-	0.010	0.118	0.106	0.109	0.103	0.099	0.123	0.114	0.146	0.103	0.105	0.117	0.165
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.000050	0.0001780	0.0001500	0.0001820	0.0001570	0.0001830	0.0001940	0.0002280	0.0001690	0.0001510	0.0001580	0.0001750	0.0001970
Cadmium (Cd)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Total	mg/L	-	-	0.050	147.000	159.000	203.000	209.000	216.000	256.000	253.000	185.000	142.000	180.000	189.000	202.000
Chromium (Cr)-Total	mg/L	-	-	0.00010	0.00120	0.00099	0.00251	0.00357	0.00569	0.00179	0.00395	0.00208	0.00146	0.00142	0.00147	0.00215
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	-	-	0.00101	0.00197	0.00419	<0.00084	0.00205	<0.0010	0.00086	<0.00078	<0.00079	0.00135
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	-	-	0.00150	0.00150	0.00150	0.00190	0.00230	0.00060	0.00130	0.00130	0.00130	0.00080
Cobalt (Co)-Total	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00010	<0.00010	<0.00010	<0.00020
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00016	0.00011	0.00100	0.00100	0.00100	0.00110	0.00160	0.00180	0.00162	0.00143	0.00127	0.00110
Copper (Cu)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	0.010	<0.010	<0.010	0.019	0.048	0.053	<0.020	0.064	0.031	<0.010	<0.010	<0.010	<0.020
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000050	<0.000050	<0.000050	<0.00010
Lead (Pb)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Total	mg/L	-	-	0.010	0.0131	0.0121	0.0141	0.0164	0.0166	0.0190	0.0157	0.0325	0.0146	0.0142	0.0151	0.0313
Magnesium (Mg)-Total	mg/L	-	-	0.10	192.00	182.00	242.00	230.00	227.00	285.00	323.00	266.00	213.00	203.00	209.00	273.00
Manganese (Mn)-Total	mg/L	-	-	0.00010	0.00012	0.00023	0.00044	0.00132	0.00083	0.00030	0.00093	0.00064	0.00021	0.00027	0.00013	<0.00020
Mercury (Hg)-Total	mg/L	0.000026	-	0.0000050	0.0000053	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000087	0.0000056	0.0000056	<0.0000050	0.0000056
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	0.002910	0.002620	0.002680	0.003110	0.002990	0.003170	0.003300	0.002550	0.002790	0.002900	0.002840	0.002840
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.00050	0.04410	0.03710	0.04520	0.04940	0.04970	0.05310	0.06610	0.05670	0.04640	0.04290	0.04720	0.05430
Nickel (Ni)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Total	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.10	<0.10	<0.10	<0.10	<0.10	<0.050	<0.050	<0.050	<0.10
Potassium (K)-Total	mg/L	-	-	0.10	1.93	1.85	1.91	2.02	2.01	2.20	2.44	2.18	2.01	2.14	2.07	2.40
Selenium (Se)-Total	mg/L	0.001	-	0.000050	0.004180	0.003900	0.004210	0.003870	0.003780	0.004810	0.004420	0.003800	0.004030	0.003230	0.003340	0.005190
Silicon (Si)-Total	mg/L	-	-	0.10	5.83	5.53	5.35	5.69	5.74	5.66	5.86	5.56	4.93	5.66	5.77	5.81
Silver (Ag)-Total	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000020	<0.000020	<0.000020	<0.000020	<0.000010	<0.000010	<0.000010	<0.000010	<0.000020
Sodium (Na)-Total	mg/L	-	-	0.050	6.830	6.330	8.210	8.610	8.360	9.670	11.100	8.330	7.250	7.500	7.690	10.900
Strontium (Sr)-Total	mg/L	-	-	0.00020	0.86500	0.82900	1.04000	1.12000	1.10000	1.29000	1.38000	1.43000	0.89300	1.00000	1.02000	1.33000
Sulfur (S)-Total	mg/L	-	-	0.50	357.00	323.00	477.00	453.00	461.00	504.00	579.00	477.00	362.00	374.00	366.00	465.00
Thallium (Tl)-Total	mg/L	0.0008	-	0.000010	0.000059	0.000057	0.000052	0.000055	0.000052	0.000055	0.000054	0.000057	0.000056	0.000060	0.000059	0.000063
Tin (Sn)-Total	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
Titanium (Ti)-Total	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00030	<0.00030	<0.00030	<0.00060
Uranium (U)-Total	mg/L	0.015	-	0.00010	0.000010	0.000030	0.000660	0.005310	0.005330	0.006120	0.00					

Water quality results collected at GWCC-2 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989173-1 GWCC-2 08/09/2017 16:50	L2002383-2 GWCC-2 02/10/2017 17:15	L2020322-6 GWCC-2 06/11/2017 15:45	L2032255-4 GWCC-2 05/12/2017 15:00	L2032255-5 GWCC-2-r 05/12/2017 15:10	L2046329-2 GWCC-2 15/01/2018 13:45	L2055716-2 GWCC-2 11/02/2018 14:30	L2094958-1 GWCC-2 14/05/2018 17:10	L2112699-2 GWCC-2 12/06/2018 18:40	L2128251-1 GWCC-2 10/07/2018 16:45	L2147306-14 GWCC-2 13/08/2018 18:20	L2163861-1 GWCC-2 10/09/2018 19:45
Dissolved Metals																
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0069	<0.0010	<0.0010	0.0010	0.0012	<0.0020	<0.0020	<0.0020	0.0020	0.0021	0.0019	0.0026
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00113	0.00110	0.00098	0.00095	0.00094	0.00094	0.00097	0.00162	0.00101	0.00099	0.00104	0.00125
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00139	0.00124	0.00144	0.00151	0.00151	0.00156	0.00164	0.00215	0.00135	0.00138	0.00148	0.00154
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.02300	0.020700	0.024300	0.025800	0.025400	0.026800	0.028300	0.019100	0.019100	0.021900	0.025600	0.026000
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000040	<0.000040	<0.000040	<0.000020	<0.000040	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.00010	<0.00010	<0.00010	<0.000050	<0.00010	<0.000050	<0.000100
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.120	0.098	0.102	0.098	0.097	0.114	0.122	0.144	0.109	0.104	0.110	0.151
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0001630	0.0001380	0.0001590	0.0001820	0.0001630	0.0001610	0.0001930	0.0001720	0.0001650	0.0001550	0.0001870	0.0001980
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	165.000	154.000	183.000	202.000	202.000	241.000	278.000	175.000	165.000	159.000	179.000	185.000
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00122	0.00080	0.00129	0.00169	0.00136	0.00144	0.00159	0.00177	0.00128	0.00108	0.00129	0.00191
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	0.00122	-	<0.00071	<0.00072	<0.00072	<0.00072	<0.00072	<0.010	0.00128	0.00108	0.00129	0.00191
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	<0.0010	-	0.00120	0.00140	0.00140	0.00160	0.00190	0.00230	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020	<0.00020	<0.00020	<0.00010	<0.00020	<0.00010	<0.00020
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00104	0.00093	0.00095	0.00094	0.00090	0.00108	0.00089	0.00173	0.00148	0.00123	0.00112	0.00105
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.020	<0.020	<0.010	<0.020	<0.010	<0.020
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.00010	<0.00010	<0.00010	<0.000050	<0.00010	<0.000050	<0.00010
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0134	0.0115	0.0174	0.0151	0.0158	0.0179	0.0215	0.0332	0.0148	0.0126	0.0149	0.0312
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	181.00	168.00	218.00	235.00	228.00	287.00	296.00	259.00	233.00	189.00	190.00	236.00
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	<0.00010	0.00011	0.00013	0.00016	0.00014	0.00049	<0.00020	0.00036	0.00012	<0.00020	0.00013	<0.00020
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000075	<0.0000050	0.0000059	<0.0000050	0.0000062
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.002700	0.002390	0.002740	0.002960	0.002920	0.003100	0.003180	0.003320	0.002700	0.002590	0.002630	0.002680
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.04020	0.03400	0.04410	0.04680	0.04580	0.05130	0.05370	0.05750	0.04730	0.04420	0.04460	0.05060
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.10	<0.10	<0.10	<0.050	<0.10	<0.050	<0.100
Potassium (K)-Dissolved	mg/L	-	-	0.10	2.01	1.74	1.89	2.14	2.10	2.20	2.46	2.23	2.18	2.09	2.10	2.32
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.004530	0.003250	0.003770	0.004230	0.004320	0.003980	0.004300	0.029200	0.003580	0.003300	0.003560	0.005140
Silicon (Si)-Dissolved	mg/L	-	-	0.050	5.260	5.240	5.160	5.370	5.510	5.880	6.140	4.950	4.860	5.360	5.890	5.580
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000020	<0.000020	<0.000020	<0.000010	<0.000020	<0.000010	<0.000020
Sodium (Na)-Dissolved	mg/L	-	-	0.050	6.480	5.860	7.800	8.260	8.050	9.630	10.500	7.680	6.980	7.840	10.200	10.200
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.87700	0.80600	1.06000	1.19000	1.17000	1.26000	1.36000	1.36000	0.91900	0.94600	0.91500	1.30000
Sulfur (S)-Dissolved	mg/L	-	-	0.50	355.00	307.00	375.00	443.00	455.00	545.00	596.00	443.00	366.00	313.00	361.00	392.00
Thallium (Tl)-Dissolved	mg/L	0.00008	-	0.000010	0.000062	0.000053	0.000052	0.000052	0.000055	0.000052	0.000055	0.000057	0.000053	0.000058	0.000061	0.000066
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020	<0.00020	<0.00020	<0.00010	<0.00020	<0.00010	<0.00020
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00060	<0.00060	<0.00060	<0.00030	<0.00060	<0.00030	<0.00060
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.003580	0.002860	0.003940	0.005210	0.005260	0.005970	0.006770	0.005880	0.003870	0.003980	0.003930	0.004560
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0010	<0.0010	<0.0010	<0.00050	<0.0010	<0.00050	<0.0010
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	0.0048	0.0039	0.0045	0.0050	0.0050	0.0046	0.0054	0.0050	0.0049	0.0045	0.0048	0.0056
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.27235	0.27392	0.26667	0.26582	0.26696	0.26628	0.26640	0.31072	0.28275	0.27741	0.27252	0.26956
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00051	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
* The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at GWCC-2 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2183280-15 GWCC-2 17/10/2018 11:45	L2197781-6 GWCC-2 14/11/2018 13:20	L2209213-7 GWCC-2 10/12/2018 14:15	L2209213-8 GWCC-2 10/12/2018 14:20	L2221037-2 GWCC-2 14/01/2019 13:05	L2235196-6 GWCC-2 19/02/2019 10:30	L2241106-3 GWCC-2 05/03/2019 10:55	L2263589-2 GWCC-2 24/04/2019 11:00	L2275161-3 GWCC-2 15/05/2019 10:15	L2289891-9 GWCC-2 10/06/2019 15:25	L2307083-1 GWCC-2 08/07/2019 17:20	L2329874-12 GWCC-2 14/08/2019 08:45
Physical Tests																
Temperature (in-situ)	°C	-	-	-	4.2	2.4	2.1	2.1	0.6	0.8	0.3	2.1	3.0	3.4	5.7	7.8
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	8.42	9.15	9.18	9.18	10.43	8.25	11.21	8.21	10.90	8.12	8.50	6.98
Specific Conductivity (in-situ)	µS/cm	-	-	-	2149.0	2150.0	2364.0	2364.0	2265.0	2591.0	2737.0	2199.0	1083.0	2094.0	1938.0	1798.0
pH (in-situ)	pH	6.5 - 9.0	-	-	7.63	7.82	7.61	7.61	7.65	7.67	7.72	7.63	7.68	7.66	7.65	7.48
Oxidation- Redox Potential (in-situ)	mV	-	-	-	153.3	167.8	227.5	227.5	212.2	253.7	155.9	176.8	183.3	183.8	11.1	224.9
Turbidity (in-situ)	NTU	-	-	-	0.56	0.92	0.24	0.24	0.28	4.81	0.76	0.31	4.11	0.15	0.00	0.04
Conductivity	µS/cm	-	-	2	2040	2070	2130	2150	2120	2530	2710	2130	1080	2030	1970	1690
Hardness (as CaCO3)	mg/L	-	-	0.5	1310.0	1450.0	1550.0	1580.0	1660.0	1710.0	1960.0	1520.0	614.0	1370.0	1200.0	1050.0
pH (lab)	pH	6.5 - 9.0	-	0.1	8.24	8.04	8.34	8.32	8.18	8.09	7.87	8.12	8.26	8.42	8.13	8.16
Total Suspended Solids	mg/L	-	-	2	5.7	6.3	7.1	3.4	4.1	18	6.2	5.9	3.6	4.6	3.7	10
Anions and Nutrients																
Ammonia, Total (as N) (Temperature and pH adjusted Guideline)	mg/L Temp,pH-Dep	-	-	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0108	0.0276	<0.0050	0.0057	<0.0050	<0.0050	<0.0050	<0.0050
Bromide (Br)	mg/L	-	-	0.050	3.9804	1.9162	6.0200	6.0200	6.0200	6.0200	6.0200	6.0200	3.9804	3.9804	2.6810	2.6810
Chloride (Cl)	mg/L	120	-	0.50	<1.0	<0.50	<1.0	<1.0	<0.50	<1.0	<1.0	<0.50	<2.5	<5.0	<10	<5.0
Fluoride (F)	mg/L	0.12	-	0.020	<0.40	<0.20	<0.40	<0.40	<0.40	<0.40	<0.40	<0.20	0.250	<0.20	<0.40	<0.20
Nitrate (as N)	mg/L	13	-	0.0050	0.4300	0.4450	0.5500	0.4300	0.4790	0.4600	0.4800	0.5180	0.3020	0.4370	0.3600	0.3090
Nitrite (as N)	mg/L	0.06	-	0.0010	<0.020	<0.010	0.0390	<0.020	<0.010	<0.020	<0.020	0.0010	<0.0050	<0.010	<0.020	<0.010
Phosphate (P)-Total	mg/L	-	-	0.0020	<0.0020	0.0022	0.0027	0.0024	0.0112	0.0033	0.0021	0.0109	<0.0020	0.0033	0.0023	0.0023
Sulfate (SO4)	mg/L	-	-	0.30	1160.00	1160.00	1190.00	1170.00	1280.00	1500.00	1560.00	1190.00	495.00	1170.00	1030.00	902.00
Sulphide (as S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon																
Dissolved Organic Carbon	mg/L	-	-	0.5	7.5	7.7	8.2	7.3	8.0	6.7	6.3	8.7	20.0	7.8	8.9	8.1
Aggregate Organics																
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos																
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.0030	<0.0060	0.0369	<0.0060	<0.0060	<0.0060	0.1480	0.0281	<0.0060	0.0087	<0.0060	<0.0030	0.0115
Aluminium (Al)-Total (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Total	mg/L	-	-	0.00010	0.00108	0.00093	0.00088	0.00089	0.00089	0.00105	0.00091	0.00088	0.00184	0.00121	0.00118	0.00121
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.00164	0.00165	0.00150	0.00149	0.00151	0.00275	0.00177	0.00145	0.00393	0.00191	0.00153	0.00157
Barium (Ba)-Total	mg/L	-	-	0.000050	0.022200	0.022800	0.022800	0.022800	0.023700	0.031800	0.031700	0.022400	0.010200	0.018600	0.022500	0.024900
Beryllium (Be)-Total	mg/L	-	-	0.000020	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000020	<0.000040	<0.000020	<0.000040
Bismuth (Bi)-Total	mg/L	-	-	0.000050	0.000120	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Boron (B)-Total	mg/L	1.5	-	0.010	0.102	0.112	0.099	0.098	0.110	0.133	0.117	0.058	0.164	0.118	0.109	0.109
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.0000050	0.0001790	0.0001680	0.0001660	0.0001600	0.0001710	0.0002080	0.0001770	0.0001460	0.0000664	0.0001720	0.0001600	0.0001620
Cadmium (Cd)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Total	mg/L	-	-	0.050	178.000	195.000	184.000	183.000	199.000	204.000	252.000	178.000	121.000	181.000	166.000	161.000
Chromium (Cr)-Total	mg/L	-	-	0.00010	0.00177	0.00682	0.00203	0.00195	0.00253	0.02370	0.00634	0.00148	0.00134	0.00217	0.00161	0.00228
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	<0.00079	0.00612	0.00143	0.00115	<0.00090	0.02190	0.00434	<0.00079	<0.00075	0.00097	<0.00086	0.00108
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	0.00100	0.00070	0.00060	0.00060	0.00060	0.00140	0.00140	0.00080	0.00080	0.00120	0.00020	0.00120
Cobalt (Co)-Total	mg/L	-	-	0.00010	0.00020	0.00036	<0.00020	<0.00020	<0.00020	0.00150	0.00024	<0.00020	0.00012	<0.00020	<0.00010	<0.00020
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00110	0.00130	0.00110	0.00110	0.00110	0.00180	0.00100	0.00110	0.00328	0.00130	0.00131	0.00150
Copper (Cu)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	0.010	<0.020	0.134	<0.020	<0.020	<0.020	0.713	0.096	<0.020	0.030	<0.020	<0.010	0.042
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.000050	0.000130	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lead (Pb)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Total	mg/L	-	-	0.0010	0.0188	0.0179	0.0158	0.0160	0.0176	0.0197	0.0245	0.0147	0.0123	0.0111	0.0184	0.0141
Magnesium (Mg)-Total	mg/L	-	-	0.10	240.00	238.00	235.00	236.00	265.00	241.00	321.00	264.00	89.10	246.00	228.00	195.00
Manganese (Mn)-Total	mg/L	-	-	0.00010	<0.00020	0.00344	0.00046	0.00033	0.00027	0.01470	0.00183	0.00022	0.00065	0.00025	0.00013	0.00132
Mercury (Hg)-Total	mg/L	0.000026	-	0.0000050	<0.0000050	0.0000051	0.0000053	0.0000054	<0.0000050	<0.0000050	<0.0000050	0.0000058	0.0000094	0.0000063	0.0000067	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	0.002880	0.002790	0.002840	0.002890	0.002840	0.003000	0.002950	0.002710	0.002810	0.002710	0.002710	0.003080
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.00050	0.04850	0.05080	0.04640	0.04740	0.05080	0.07670	0.06290	0.04620	0.03210	0.05050	0.04630	0.04680
Nickel (Ni)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Total	mg/L	-	-	0.050	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.050	<0.10	<0.050	<0.10
Potassium (K)-Total	mg/L	-	-	0.10	1.96	1.92	1.95	2.00	2.10	2.19	2.45	1.83	1.17	2.33	2.17	2.05
Selenium (Se)-Total	mg/L	0.001	-	0.000050	0.004110	0.004790	0.004480	0.004770	0.005990	0.004760	0.005680	0.007290	0.024100	0.005300	0.004000	0.002810
Silicon (Si)-Total	mg/L	-	-	0.10	5.32	5.58	5.15	5.32	5.51	6.17	5.69	5.62	5.21	5.67	5.75	6.67
Silver (Ag)-Total	mg/L	0.00025	-	0.000010	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000010	<0.000020	<0.000010	<0.000020
Sodium (Na)-Total	mg/L	-	-	0.050	9.200	8.720	8.660	8.720	9.390	11.400	7.760	2.890	2.890	9.350	7.610	6.940
Strontium (Sr)-Total	mg/L	-	-	0.00020	1.13000	1.14000	1.03000	1.06000	1.11000	1.18000	1.43000	0.98100	0.71200	1.21000	1.03000	0.97700
Sulfur (S)-Total	mg/L	-	-	0.50	405.00	399.00	424.00	434.00	496.00	522.00	563.00	484.00	175.00	438.00	392.00	336.00
Thallium (Tl)-Total	mg/L	0.0008	-	0.000010	0.000189	0.000052	0.000055	0.000055	0.000050	0.000061	0.000053	0.000045	0.000037	0.000064	0.000063	0.000071
Tin (Sn)-Total	mg/L	-	-	0.00010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00010	<0.00020	<0.00010	<0.00020
Titanium (Ti)-Total	mg/L	-	-	0.00030	<0.00060	<0.0012	<0.00060	<0.00060	<0.00060	<0.00060	<0.00090	<0.00060	<0.00060	<0.00060	<0.00030	<0.00060
Transthalium (Tl)-Total	mg/L	0.015	-	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.0						

Water quality results collected at GWCC-2 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2183280-15 GWCC-2 17/10/2018 11:45	L2197781-6 GWCC-2 14/11/2018 13:20	L2209213-7 GWCC-2 10/12/2018 14:15	L2209213-8 GWCC-2 10/12/2018 14:20	L221037-2 GWCC-2 14/01/2019 13:05	L2235196-6 GWCC-2 19/02/2019 10:30	L2241106-3 GWCC-2 05/03/2019 10:55	L2263589-2 GWCC-2 24/04/2019 11:00	L2275161-3 GWCC-2 15/05/2019 10:15	L2289891-9 GWCC-2 10/06/2019 15:25	L2307083-1 GWCC-2 08/07/2019 17:20	L2329874-12 GWCC-2 14/08/2019 08:45
Dissolved Metals																
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0025	<0.0020	<0.0050	<0.0060	0.0020	0.0022	0.0022	<0.0020	0.0044	0.0029	<0.0020	0.0012
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00093	0.00092	0.00090	0.00090	0.00085	0.00088	0.00088	0.00094	0.00163	0.00123	0.00113	0.00107
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00144	0.00144	0.00154	0.00156	0.00150	0.00150	0.00179	0.00145	0.00378	0.00163	0.00133	0.00133
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.021900	0.020600	0.023200	0.022900	0.022900	0.025900	0.028100	0.022800	0.010000	0.016900	0.020900	0.024300
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000020	<0.000040	<0.000040	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000050	<0.00010	<0.00010	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.104	0.107	0.102	0.107	0.108	0.121	0.136	0.111	0.052	0.148	0.116	0.092
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0001450	0.0001580	0.0001750	0.0001510	0.0001630	0.0001740	0.0001800	0.0001520	0.0000683	0.0001570	0.0001660	0.0001370
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	166.000	193.000	210.000	213.000	219.000	232.000	261.000	179.000	112.000	170.000	162.000	151.000
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00161	0.00178	0.00163	0.00201	0.00198	0.00179	0.00243	0.00116	0.00112	0.00184	0.00128	0.00100
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	<0.00073	0.00178	0.00163	0.00201	<0.00075	<0.00074	0.00083	<0.00071	<0.00071	<0.00074	<0.00072	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	0.00100	<0.0010	<0.0010	<0.0010	0.00150	0.00170	0.00160	0.00140	0.00080	0.00200	0.00160	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00011	<0.00020	<0.00020	<0.00010
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.000020	0.000102	0.000109	0.000115	0.000120	0.000239	0.000086	0.000099	0.000145	0.000310	0.000123	0.000119	0.000122
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.000400	0.000400	0.000400	0.000400	0.000400	0.000400	0.000400	0.000400	0.000400	0.000400	0.000400	0.000400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	<0.020	<0.020	<0.010
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000050	<0.00010	<0.00010	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0184	0.0173	0.0182	0.0188	0.0185	0.0193	0.0260	0.0148	0.0124	0.0268	0.0163	0.0132
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	218.00	235.00	249.00	255.00	270.00	275.00	319.00	260.00	81.10	228.00	194.00	163.00
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00028	0.00053	<0.00020	<0.00020	0.00074
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	0.0000058	0.0000052	0.0000058	0.0000051	<0.0000050	0.0000055	0.0000142	0.0000063	0.0000079	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.002490	0.002630	0.002960	0.003030	0.002780	0.002910	0.002870	0.003050	0.002020	0.002590	0.002670	0.002890
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.04570	0.04470	0.04480	0.04560	0.04660	0.04550	0.04290	0.02940	0.04960	0.04360	0.04060	0.04060
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.050	<0.10	<0.10	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	1.98	1.86	2.01	2.06	2.02	2.71	2.36	1.80	1.19	2.15	2.06	1.83
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.004380	0.004720	0.004930	0.004930	0.005880	0.004800	0.005370	0.005730	0.024200	0.005570	0.003720	0.002730
Silicon (Si)-Dissolved	mg/L	-	-	0.050	5.610	5.320	5.650	5.600	5.330	5.670	5.670	4.780	4.940	5.670	5.630	5.860
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000010	<0.000020	<0.000020	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	8.340	8.550	8.960	9.330	9.590	9.370	11.000	7.060	3.000	8.780	7.310	6.270
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.99200	1.07000	1.22000	1.22000	1.14000	1.31000	1.37000	0.99400	0.66800	1.18000	0.99000	0.89200
Sulfur (S)-Dissolved	mg/L	-	-	0.50	416.00	424.00	433.00	437.00	475.00	528.00	567.00	439.00	174.00	429.00	387.00	286.00
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	0.000056	0.000049	0.000047	0.000049	0.000047	0.000051	0.000045	0.000044	0.000035	0.000057	0.000058	0.000070
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00010	<0.00020	<0.00020	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00030	<0.00060	<0.00060	<0.00030
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.004480	0.004530	0.004930	0.004960	0.005330	0.005760	0.006430	0.004770	0.001970	0.004120	0.003720	0.002900
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.00050	<0.0010	<0.0010	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	0.0047	0.0046	0.0054	0.0053	0.0057	0.0045	0.0052	0.0053	0.0015	0.0055	0.0050	0.0042
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.27340	0.27330	0.27947	0.27155	0.27758	0.26639	0.26241	0.28315	0.33402	0.27624	0.28462	0.27789
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00040	<0.00040	<0.00030

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
* The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at GWCC-3 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989173-8 GWCC-3 08/09/2017 16:35	L2002383-3 GWCC-3 02/10/2017 17:45	L2094958-3 GWCC-3 14/05/2018 17:40	L2112699-3 GWCC-3 12/06/2018 18:15	L2163863-2 GWCC-3 10/09/2018 20:10	L2263589-3 GWCC-3 24/04/2019 11:25	L2275161-2 GWCC-3 15/05/2019 10:40	L2289891-11 GWCC-3 10/06/2019 16:00
Physical Tests												
Temperature (in-situ)	°C	-	-	-	8.9	7.7	2.2	3.9	8.0	1.8	2.2	3.8
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	4.01	4.92	6.42	4.52	4.17	7.25	6.27	4.54
Specific Conductivity (in-situ)	µS/cm	-	-	-	1273.0	1151.0	2005.0	1084.0	1248.0	1366.0	1920.0	1207.0
pH (in-situ)	pH	6.5 - 9.0	-	-	7.42	7.36	7.57	7.20	7.37	7.62	7.48	7.64
Oxidation - Redox Potential (in-situ)	mV	-	-	-	125.1	318.8	381.2	236.7	166.4	162.2	186.7	208.1
Turbidity (in-situ)	NTU	-	-	-	0.00	0.24	0.10	0.34	0.00	0.19	0.80	0.20
Conductivity	µS/cm	-	-	2	1220	1110	1910	1050	1220	1380	1880	1180
Hardness (as CaCO3)	mg/L	-	-	0.5	735.0	679.0	1290.0	605.0	774.0	868.0	1250.0	759.0
pH (lab)	pH	6.5 - 9.0	-	0.1	8.15	8.27	8.21	7.91	8.03	8.10	8.33	8.47
Total Suspended Solids	mg/L	-	-	2	<3.0	<2.0	<2.0	<2.0	6.9	<2.0	5.1	<2.0
Anions and Nutrients												
Ammonia, Total (as N) ^A	mg/L	Temp,pH-Dep	-	0.0050	<0.0050	<0.0050	0.0052	0.0051	0.0106	0.0060	<0.0050	<0.0050
(Temperature and pH Adjusted Guideline)	mg/L	Temp,pH-Dep	-	-	2.6810	2.6810	6.0200	12.5827	2.6810	6.0200	6.0200	3.9804
Bromide (Br)	mg/L	-	-	0.050	-	-	<0.50	<0.25	<0.25	<0.25	<0.50	<0.25
Chloride (Cl)	mg/L	120	-	0.50	1.21	1.20	<5.0	<2.5	<2.5	<2.5	<5.0	<2.5
Fluoride (F)	mg/L	0.12	-	0.020	0.110	0.120	<0.20	0.110	0.130	0.120	<0.20	0.140
Nitrate (as N)	mg/L	13	-	0.0050	0.2230	0.1980	0.6530	0.1240	0.1970	0.3370	0.4670	0.1590
Nitrite (as N)	mg/L	0.06	-	0.0010	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050	<0.010	<0.0050
Phosphorus (P)-Total	mg/L	-	-	0.0020	<0.0020	<0.0020	0.0058	0.0026	0.0030	0.0024	0.0054	0.0020
Sulfate (SO4)	mg/L	-	-	0.30	508.00	475.00	1120.00	413.00	558.00	604.00	1040.00	542.00
Sulphide (as S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	0.0190	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon												
Dissolved Organic Carbon	mg/L	-	-	0.5	8.6	8.8	10.8	12.1	9.7	9.7	11.8	10.8
Aggregate Organics												
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	-	-	-	-	-	-	-	-
Asbestos												
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-
Total Metals												
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.0030	<0.0030	0.0091	<0.0030	0.0059	<0.0030	<0.0030	0.0056	0.0036
(Aluminium (Al)-Total (pH Adjusted Guideline))	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Total	mg/L	-	-	0.00010	0.00090	0.00089	0.00096	0.00092	0.00091	0.00076	0.00113	0.00097
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.00094	0.00087	0.00113	0.00093	0.00093	0.00090	0.00123	0.00092
Barium (Ba)-Total	mg/L	-	-	0.000050	0.045100	0.034300	0.037700	0.025500	0.029800	0.033600	0.024900	0.021700
Beryllium (Be)-Total	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Total	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	1.5	-	0.010	0.079	0.068	0.096	0.053	0.064	0.059	0.137	0.080
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.0000050	0.0000954	0.0000816	0.0001030	0.0000763	0.0000971	0.0000701	0.0001090	0.0000756
(Cadmium (Cd)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Total	mg/L	-	-	0.050	113.000	120.000	156.000	88.200	113.000	134.000	149.000	109.000
Chromium (Cr)-Total	mg/L	-	-	0.00010	0.00089	0.00050	0.00108	0.00106	0.00068	0.00068	0.00186	0.00074
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	-	-	<0.0010	0.00106	-	-	<0.00087	-
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	-	-	0.00160	<0.00050	-	-	0.00200	-
Cobalt (Co)-Total	mg/L	-	-	0.00010	<0.00010	<0.00010	0.00011	0.00011	<0.00010	<0.00010	0.00011	<0.00010
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00108	0.00097	0.00139	0.00286	0.00123	0.00127	0.00176	0.00176
(Copper (Cu)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	0.010	0.010	<0.010	0.018	0.029	<0.010	<0.010	0.018	0.014
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
(Lead (Pb)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Total	mg/L	-	-	0.0010	0.0091	0.0086	0.0134	0.0070	0.0084	0.0094	0.0199	0.0096
Magnesium (Mg)-Total	mg/L	-	-	0.10	101.00	99.60	220.00	91.50	115.00	132.00	230.00	115.00
Manganese (Mn)-Total	mg/L	-	-	0.00010	0.00025	0.00014	0.00063	0.00115	0.00016	0.00023	0.00053	0.00023
Mercury (Hg)-Total	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	0.0000084	0.0000054	0.0000069	0.0000062	<0.0000050	0.0000072
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	0.002610	0.002320	0.003030	0.002010	0.002600	0.002170	0.003190	0.002340
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.00050	0.03660	0.02950	0.04920	0.03300	0.03290	0.03480	0.04580	0.03140
(Nickel (Ni)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Total	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total	mg/L	-	-	0.10	1.40	1.26	1.57	1.21	1.40	1.17	1.70	1.44
Selenium (Se)-Total	mg/L	0.001	-	0.000050	0.002120	0.001560	0.009760	0.001550	0.001980	0.005110	0.012500	0.002040
Silicon (Si)-Total	mg/L	-	-	0.10	5.77	5.48	4.63	4.65	5.45	5.13	4.80	4.85
Silver (Ag)-Total	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Total	mg/L	-	-	0.050	4.920	4.550	6.300	3.970	4.940	5.320	7.480	4.360
Strontium (Sr)-Total	mg/L	-	-	0.00020	0.64600	0.61600	0.92800	0.51000	0.62500	0.66400	0.89400	0.58100
Sulfur (S)-Total	mg/L	-	-	0.50	202.00	183.00	411.00	154.00	223.00	240.00	381.00	204.00
Thallium (Tl)-Total	mg/L	0.0008	-	0.000010	0.000071	0.000060	0.000056	0.000047	0.000065	0.000038	0.000057	0.000051
Tin (Sn)-Total	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Total	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Uranium (U)-Total	mg/L	0.015	-	0.000010	0.002820	0.002050	0.004740	0.001970	0.002130	0.003330	0.003690	0.002110
Vanadium (V)-Total	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Total	mg/L	-	-	0.0030	<0.0030	0.0033	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium (Zr)-Total	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	0.00032	<0.00030	0.00030	<0.00030	0.00030

Water quality results collected at GWCC-3 during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989173-8 GWCC-3 08/09/2017 16:35	L2002383-3 GWCC-3 02/10/2017 17:45	L2094958-3 GWCC-3 14/05/2018 17:40	L2112699-3 GWCC-3 12/06/2018 18:15	L2163863-2 GWCC-3 10/09/2018 20:10	L2263589-3 GWCC-3 24/04/2019 11:25	L2275161-2 GWCC-3 15/05/2019 10:40	L2289891-11 GWCC-3 10/06/2019 16:00
Dissolved Metals												
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	<0.0010	<0.0010	0.0012	0.0028	0.0019	0.0018	0.0028	0.0030
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00089	0.00087	0.00091	0.00085	0.00090	0.00067	0.00100	0.00094
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00092	0.00079	0.00120	0.00081	0.00099	0.00088	0.00118	0.00086
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.043800	0.033300	0.039800	0.025400	0.029900	0.037100	0.025600	0.022200
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.082	0.060	0.093	0.053	0.065	0.057	0.120	0.081
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	0.0000876	0.0000735	0.0001090	0.0000713	0.0000920	0.0000704	0.0001040	0.0000779
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	129.000	114.000	151.000	95.500	125.000	132.000	143.000	106.000
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00058	0.00042	0.00109	0.00054	0.00066	0.00061	0.00172	0.00068
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	<0.010	-	-	-	<0.00074	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	0.00170	-	-	-	0.00160	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	0.00010	<0.00010
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00098	0.00087	0.00142	0.00179	0.00123	0.00124	0.00167	0.00166
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	<0.010	<0.010	<0.010	0.014	<0.010	<0.010	0.012	0.010
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0098	0.0080	0.0143	0.0072	0.0094	0.0089	0.0218	0.0095
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	100.00	95.80	222.00	89.00	112.00	131.00	218.00	120.00
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.00018	<0.00010	0.00063	0.00023	0.00016	0.00028	0.00043	0.00012
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	0.0000072	<0.0000050	0.0000073	0.0000059	0.0000141	0.0000075
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.002330	0.002090	0.002960	0.002050	0.002450	0.002040	0.002810	0.002230
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.03480	0.02800	0.05210	0.03000	0.03480	0.03360	0.04250	0.03090
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	1.45	1.22	1.67	1.24	1.46	1.21	1.81	1.56
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.002220	0.001560	0.008790	0.001600	0.001910	0.005770	0.012800	0.002210
Silicon (Si)-Dissolved	mg/L	-	-	0.050	5.510	5.130	4.230	4.830	4.990	4.660	4.640	5.040
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	4.830	4.370	6.530	4.030	4.970	5.460	7.310	4.570
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.65200	0.59000	0.86800	0.49700	0.63700	0.62800	0.82600	0.56700
Sulfur (S)-Dissolved	mg/L	-	-	0.50	194.00	166.00	366.00	157.00	189.00	218.00	375.00	191.00
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	0.000077	0.000058	0.000053	0.000047	0.000064	0.000038	0.000054	0.000047
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.002580	0.001940	0.004460	0.001920	0.002170	0.003280	0.003560	0.001970
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	0.0022	0.0019	0.0029	0.0020	0.0027	0.0021	0.0025	0.0025
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.28252	0.28408	0.29831	0.30656	0.29079	0.29036	0.30472	0.29831
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	0.00031	<0.00030	<0.00030	<0.00030	<0.00030

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
^A The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:
Exceeds CCME Guideline
QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at GWCC-4 during monthly surface water monitoring

Analyte	Units	CCME Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989173-12 GWCC-4 08/09/2017 16:15	L2002383-4 GWCC-4 02/10/2017 18:00	L2094958-2 GWCC-4 14/05/2018 17:40	L2112699-4 GWCC-4 12/06/2018 18:25	L2128251-3 GWCC-4 10/07/2018 17:05	L2128251-4 GWCC-4-R 10/07/2018 17:15	L2147306-15 GWCC-4 13/08/2018 17:55	L2163863-4 GWCC-4 10/09/2018 20:20	L2183280-13 GWCC-4 17/10/2018 11:55	L2275161-1 GWCC-4 15/05/2019 10:50	L2289891-13 GWCC-4 10/06/2019 16:15	L2307083-7 GWCC-4 08/07/2019 17:40	L2329874-11 GWCC-4 14/08/2019 09:45
Physical Tests																	
Temperature (in-situ)	°C	-	-	-	9.8	9.1	1.9	3.4	8.1	8.1	10.7	9.3	6.6	1.9	4.0	9.4	12.3
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	3.82	3.74	7.00	4.54	3.04	3.04	1.78	3.02	3.60	6.36	3.86	2.62	1.66
Specific Conductivity (in-situ)	µS/cm	-	-	-	1039.0	918.0	1613.0	767.5	828.0	828.0	568.0	866.0	906.0	1757.0	797.6	814.0	851.0
pH (in-situ)	pH	6.5 - 9.0	-	-	7.45	7.34	7.62	7.40	7.46	7.46	7.33	7.43	7.75	7.53	7.68	7.52	7.42
Oxidation- Redox Potential (in-situ)	mV	-	-	-	112.5	303.7	376.6	238.2	302.4	302.4	237.1	161.8	155.7	191.0	222.6	120.3	235.4
Turbidity (in-situ)	NTU	-	-	-	0.00	0.28	0.39	1.13	0.40	0.40	0.35	0.04	0.54	1.54	0.70	0.04	0.04
Conductivity	µS/cm	-	-	2	1090	906	1530	737	811	816	943	860	860	1730	816	824	824
Hardness (as CaCO3)	mg/L	-	-	0.5	637.0	542.0	990.0	403.0	438.0	425.0	493.0	526.0	501.0	1140.0	476.0	433.0	483.0
pH (lab)	pH	6.5 - 9.0	-	0.1	8.18	8.17	8.21	7.97	8.15	8.15	8.13	8.11	8.24	8.28	8.45	8.14	8.07
Total Suspended Solids	mg/L	-	-	2	<3.0	<2.0	2.5	5.3	3.8	<2.0	5.2	5.8	2.8	3.8	2.1	<2.0	7.2
Anions and Nutrients																	
Ammonia, Total (as N) [†]	mg/L	Temp,pH-Dep	-	0.0050	<0.0050	0.0058	0.0091	0.0070	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0065	<0.0050	0.0089
Temperature and pH adjusted Guideline	mg/L	Temp,pH-Dep	-	-	2.6810	2.6810	6.0200	3.9804	2.6810	2.6810	2.6810	2.6810	1.2665	6.0200	3.9804	2.6810	2.6810
Bromide (Br)	mg/L	-	-	0.050	-	-	<0.50	<0.50	<0.050	<0.050	<0.25	<0.25	<0.25	<0.50	<0.25	<0.25	<0.25
Chloride (Cl)	mg/L	120	-	0.50	1.12	0.83	<5.0	0.54	0.61	0.60	<2.5	<2.5	<2.5	<5.0	5.00	<2.5	<2.5
Fluoride (F)	mg/L	0.12	-	0.020	0.120	0.134	<0.20	0.116	0.140	0.132	0.140	0.130	0.130	<0.20	0.200	0.140	0.140
Nitrate (as N)	mg/L	13	-	0.0050	0.1670	0.1040	0.5690	0.0565	0.0481	0.0487	0.0620	0.0960	0.1350	0.4650	0.4370	0.0510	0.0540
Nitrite (as N)	mg/L	0.06	-	0.0010	<0.0050	<0.0010	<0.010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050	<0.0050
Phosphorus (P)-Total	mg/L	-	-	0.0020	<0.0020	0.0023	0.0070	0.0037	0.0022	0.0024	0.0042	0.0046	<0.0020	0.0044	0.0120	0.0041	<0.0020
Sulfate (SO4)	mg/L	-	-	0.30	432.00	342.00	811.00	250.00	283.00	284.00	341.00	341.00	348.00	930.00	1290.00	285.00	301.00
Sulphide (as S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon																	
Dissolved Organic Carbon	mg/L	-	-	0.5	9.3	9.5	11.5	13.5	11.5	11.7	10.4	10.8	10.3	11.6	11.9	12.3	10.6
Aggregate Organics																	
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos																	
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																	
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.0030	0.0032	<0.0030	0.0091	0.0303	<0.0030	0.0033	<0.0030	0.0045	<0.0030	0.0046	0.0139	<0.0030	<0.0030
Aluminium (Al)-Total (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Total	mg/L	-	-	0.00010	0.00100	0.00093	0.00095	0.00102	0.00104	0.00105	0.00097	0.00092	0.00076	0.00100	0.00116	0.00114	0.00093
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.00125	0.00121	0.00121	0.00123	0.00120	0.00125	0.00118	0.00115	0.00130	0.00130	0.00123	0.00127	0.00140
Barium (Ba)-Total	mg/L	-	-	0.000050	0.051100	0.041300	0.042400	0.025100	0.033300	0.033700	0.045200	0.031900	0.033800	0.037000	0.024300	0.034700	0.041200
Beryllium (Be)-Total	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Total	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	1.5	-	0.010	0.066	0.051	0.074	0.041	0.052	0.051	0.056	0.047	0.032	0.125	0.057	0.052	0.051
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.0000050	0.0000704	0.0000600	0.0000707	0.0000491	0.0000541	0.0000419	0.0000737	0.0000540	0.0000478	0.0000622	0.0000514	0.0000484	0.0000613
Cadmium (Cd)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Total	mg/L	-	-	0.050	106.000	100.000	141.000	66.000	88.900	89.000	99.100	82.700	85.400	137.000	73.600	80.000	89.800
Chromium (Cr)-Total	mg/L	-	-	0.00010	0.00060	0.00049	0.00114	0.00433	0.00045	0.00056	<0.00060	0.00068	0.00048	0.00165	0.00156	0.00046	0.00042
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	-	-	<0.0010	0.00433	-	-	-	-	-	<0.00081	0.00156	-	-
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	-	-	0.00150	<0.00050	-	-	-	-	-	0.00150	<0.00050	-	-
Cobalt (Co)-Total	mg/L	-	-	0.00010	<0.00010	<0.00010	0.00012	0.00029	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00017	<0.00010	<0.00010
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00118	0.00099	0.00184	0.00214	0.00167	0.00163	0.07440	0.00146	0.00117	0.00156	0.00210	0.00171	0.00131
Copper (Cu)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	0.010	0.015	<0.010	0.040	0.125	<0.010	<0.010	<0.010	0.017	0.013	0.019	0.131	0.011	<0.010
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000107	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lead (Pb)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Total	mg/L	-	-	0.0010	0.0084	0.0076	0.0104	0.0062	0.0076	0.0075	0.0080	0.0066	0.0057	0.0155	0.0072	0.0075	0.0074
Magnesium (Mg)-Total	mg/L	-	-	0.10	85.40	73.80	159.00	60.20	59.60	60.30	68.20	70.50	70.30	211.00	69.90	66.40	64.10
Manganese (Mn)-Total	mg/L	-	-	0.00010	0.00048	0.00021	0.00116	0.00357	0.00019	0.00024	0.00040	0.00082	0.00018	0.00045	0.000250	0.00035	0.00128
Mercury (Hg)-Total	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	0.0000084	0.0000058	0.0000076	0.0000074	<0.0000050	0.0000055	<0.0000050	0.0000054	0.0000085	0.0000059	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	0.002430	0.002060	0.002570	0.001930	0.002240	0.002250	0.002380	0.002320	0.002800	0.002600	0.002370	0.003000	0.003000
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.00050	0.014170	0.013340	0.045480	0.03680	0.03420	0.03480	0.04140	0.03410	0.03170	0.04640	0.03420	0.03710	0.03960
Nickel (Ni)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Total	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total	mg/L	-	-	0.10	1.33	1.14	1.26	0.91	1.13	1.17	1.23	1.10	0.87	1.54	1.02	1.21	1.24
Selenium (Se)-Total	mg/L	0.001	-	0.000050	0.001470	0.000948	0.006310	0.001000	0.000816	0.000853	0.000790	0.001080	0.001650	0.008070	0.001290	0.001030	0.000664
Silicon (Si)-Total	mg/L	-	-	0.10	6.50	6.25	4.66	4.93	6.18	6.20	6.56	5.71	5.12	4.88	5.28	6.11	7.48
Silver (Ag)-Total	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Total	mg/L	-	-	0.050	4.550	3.960	3.120	3.330	3.530	3.560	4.030	3.690	3.830	5.440	3.150	3.520	3.610
Strontium (Sr)-Total	mg/L	-	-	0.00020	0.60700	0.52100	0.77100	0.37300	0.46000	0.47100	0.52200	0.46900	0.46300	0.72500	0.38200	0.45700	0.53800
Sulfur (S)-Total	mg/L	-	-	0.50	1												

Water quality results collected at GWCC-4 during monthly surface water monitoring

Analyte	Units	CCME Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989173-12 GWCC-4 08/09/2017 16:15	L2002383-4 GWCC-4 02/10/2017 18:00	L2094958-2 GWCC-4 14/05/2018 17:40	L2112699-4 GWCC-4 12/06/2018 18:25	L2128251-3 GWCC-4 10/07/2018 17:05	L2128251-4 GWCC-4-R 10/07/2018 17:15	L2147306-15 GWCC-4 13/08/2018 17:55	L2163863-4 GWCC-4 10/09/2018 20:20	L2183280-13 GWCC-4 17/10/2018 11:55	L2275161-1 GWCC-4 15/05/2019 10:50	L2289891-13 GWCC-4 10/06/2019 16:15	L2307083-7 GWCC-4 08/07/2019 17:40	L2329874-11 GWCC-4 14/08/2019 09:45
Dissolved Metals																	
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0014	0.0015	0.0015	0.0030	0.0020	0.0017	0.0014	0.0015	0.0016	0.0022	0.0027	0.0016	0.0014
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00097	0.00093	0.00088	0.00092	0.00093	0.00094	0.00089	0.00094	0.00070	0.00092	0.00103	0.00111	0.00083
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00121	0.00114	0.00124	0.00104	0.00122	0.00116	0.00130	0.00121	0.00116	0.00115	0.00108	0.00132	0.00139
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.047800	0.041800	0.044500	0.024900	0.034700	0.033100	0.043400	0.033900	0.034900	0.031900	0.022100	0.031400	0.039200
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.065	0.047	0.073	0.041	0.047	0.046	0.052	0.050	0.032	0.117	0.059	0.052	0.046
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000722	0.0000653	0.0000715	0.0000408	0.0000508	0.0000492	0.0000665	0.0000651	0.0000417	0.0000625	0.0000424	0.0000587	0.0000651
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	119.000	97.100	135.000	69.200	80.500	77.300	97.800	92.600	87.500	137.000	74.100	79.600	88.000
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00048	0.00040	0.00071	0.00042	0.00036	0.00038	0.00040	0.00050	0.00046	0.00138	0.00050	0.00036	0.00035
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	<0.00072	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	0.00140	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00104	0.00089	0.00143	0.00188	0.00146	0.00144	0.00123	0.00131	0.00118	0.00150	0.00190	0.00155	<0.00014
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	<0.010	<0.010	<0.010	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	0.011	<0.010	<0.010
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0087	0.0072	0.0112	0.0058	0.0065	0.0064	0.0081	0.0073	0.0060	0.0168	0.0071	0.0069	0.0070
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	82.30	72.80	158.00	56.00	57.40	56.20	60.50	71.70	68.60	193.00	70.60	56.80	64.00
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.00058	0.00014	0.00042	0.00025	0.00011	0.00015	0.00035	0.00047	<0.00010	0.00028	0.00012	0.00023	0.00125
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	0.0000059	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000066	<0.0000050	0.0000123	0.0000073	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.00230	0.001830	0.002480	0.001960	0.002030	0.002030	0.002200	0.002310	0.002050	0.002730	0.002120	0.002350	0.002680
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.03260	0.03270	0.04600	0.02960	0.03300	0.03300	0.03810	0.03600	0.03240	0.04230	0.03080	0.03460	0.03940
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	1.35	1.13	1.33	0.91	1.20	1.18	1.30	1.16	0.99	1.64	1.09	1.18	1.17
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.001630	0.000917	0.005850	0.001070	0.000898	0.000943	0.000800	0.001050	0.001820	0.006320	0.001360	0.001030	0.000758
Silicon (Si)-Dissolved	mg/L	-	-	0.050	6.130	6.220	4.310	4.870	5.970	5.790	6.680	5.520	5.460	4.580	5.170	6.130	6.910
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	4.390	3.910	5.420	3.110	3.630	3.470	4.210	3.900	3.780	6.380	4.070	3.440	3.620
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.60800	0.49800	0.70800	0.35900	0.44900	0.43500	0.48200	0.46700	0.45400	0.73500	0.38500	0.45200	0.46800
Sulfur (S)-Dissolved	mg/L	-	-	0.50	160.00	124.00	262.00	90.10	88.20	85.40	110.00	112.00	113.00	338.00	103.00	105.00	104.00
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	0.000051	0.000043	0.000061	0.000059	0.000071	0.000066	0.000055	0.000054	0.000048	0.000069	0.000080
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.002400	0.001550	0.003560	0.001370	0.001370	0.001360	0.001470	0.001410	0.001570	0.003160	0.001290	0.001330	0.001260
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	0.0013	0.0011	0.0015	0.0010	0.0010	0.0010	0.0012	0.0011	0.0012	0.0016	0.0013	0.0010	0.0012
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.28802	0.28897	0.30284	0.31472	0.30410	0.29562	0.30431	0.29562	0.30494	0.30347	0.30354	0.30777	0.29697
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	0.00031	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00034	<0.00030

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
* The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Quality Results collected at GWCC during monthly pump-and-treat monitoring																				
Analyte		Units	CMC-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1189173-10 GWCC-5 08/09/2017 15:10	L2002383-10 GWCC-5 03/10/2017 16:25	L2002322-11 GWCC-5 06/11/2017 14:50	L2031552-6 GWCC-5 04/12/2017 14:50	L2031552-7 GWCC-5-r 04/12/2017 14:55	L2045168-7 GWCC-5 14/01/2018 15:15	L2055716-3 GWCC-5 11/02/2018 14:00	L2067395-7 GWCC-5 12/03/2018 14:35	L2078526-5 GWCC-5 09/04/2018 15:20	L2096262-2 GWCC-5 15/05/2018 11:00	L2096262-6 GWCC-5 15/05/2018 11:15	L2112699-5 GWCC-5 12/06/2018 17:40	L2127254-2 GWCC-5 09/07/2018 17:40	L2127254-3 GWCC-5-r 09/07/2018 18:00	
Physical Tests																				
Temperature (In-situ)	°C	-	-	-	-	8.2	6.3	3.9	4.0	4.0	4.0	3.0	3.7	4.9	7.5	7.5	8.9	9.8	9.8	
Dissolved Oxygen (In-situ)	mg/L	9.5	-	-	-	8.32	4.75	3.52	3.31	3.54	2.85	2.60	1.21	5.30	3.30	3.82	1.74	1.74	1.74	
Specific Conductivity (In-situ)	µS/cm	-	-	-	-	950.0	971.0	986.0	906.0	906.0	1073.0	1093.0	1090.0	1120.0	984.0	984.0	949.0	945.0	945.0	
pH (In-situ)	mg/L	6.5 - 9.0	-	-	-	7.55	7.35	7.42	7.13	7.13	7.23	7.25	7.40	7.24	7.75	7.75	7.40	7.14	7.14	
Oxidation - Redox Potential (In-situ)	rmv	-	-	-	-	143.0	361.5	228.6	228.6	228.6	133.4	167.4	241.6	239.8	289.7	289.7	315.2	205.7	205.7	
Turbidity (In-situ)	NTU	-	-	-	-	0.02	0.90	0.50	0.62	0.62	0.59	0.59	0.17	0.28	0.17	0.28	0.17	0.28	0.28	
Conductivity	µS/cm	-	-	2	-	965	959	982	997	1000	1050	1070	1090	1090	1050	1050	912	940	949	
Hardness (as CaCO3)	mg/L	-	-	0.5	-	559.0	561.0	574.0	590.0	583.0	578.0	648.0	647.0	613.0	627.0	624.0	514.0	518.0	525.0	
pH (lab)	mg/L	6.5 - 9.0	-	0.1	-	8.14	8.28	8.27	8.06	8.03	7.91	7.62	7.77	8.17	8.23	8.25	7.79	8.24	8.21	
Total Suspended Solids	mg/L	-	-	2	-	<3.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.4	<2.0	<2.0	<2.0	<2.0	<2.0	
Anions and Nutrients																				
Ammonia, Total (as N) ¹	mg/L	Temp,pH-Dep	-	0.0050	-	<0.0050	0.0155	<0.0050	0.0052	<0.0050	<0.0050	<0.0050	0.0073	0.0084	<0.0050	0.0054	0.0071	0.0076	0.0069	
(Temperature and pH adjusted Guideline)																				
Bromide (Br)	mg/L	Temp,pH-Dep	-	-	-	2.6810	3.9804	3.9804	12.5827	12.5827	12.5827	3.9804	3.9804	12.5827	0.8553	0.8553	2.6810	8.4707	8.4707	
Bromide (Br)	mg/L	-	-	0.050	-	-	-	<0.050	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050	
Chloride (Cl)	mg/L	120	-	0.50	-	1.43	1.13	1.03	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	1.02	1.01	1.01	
Fluoride (F)	mg/L	0.1020	-	-	-	0.1020	0.1020	0.1020	0.1020	0.1020	0.1020	0.1020	0.1020	0.1020	0.1020	0.1020	0.1020	0.1020	0.1020	
Nitrate (as N)	mg/L	13	-	0.0050	-	0.0103	0.0063	0.0216	0.0216	0.0216	0.0216	0.0216	0.0216	0.0216	0.0216	0.0216	0.0216	0.0216	0.0216	
Nitrite (as N)	mg/L	0.06	-	0.0010	-	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0010	
Phosphorus (P)-Total	mg/L	-	-	0.0020	-	<0.0020	<0.0005	<0.0020	<0.0020	0.0032	0.0027	0.0047	0.0045	0.0042	0.0042	0.0036	0.0043	0.0040	0.0040	
Sulfate (SO4)	mg/L																			

Water quality results collected at GWCC-5 during monthly surface water monitoring

Analyte	Units	CCME Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989173-10 GWCC-5 06/09/2017 15:10	L2002383-10 GWCC-5 03/10/2017 16:25	L2020322-11 GWCC-5 06/11/2017 14:50	L2031552-4 GWCC-5 04/12/2017 14:50	L2031552-7 GWCC-5 04/12/2017 14:55	L2045168-7 GWCC-5 14/01/2018 15:15	L2055716-3 GWCC-5 11/02/2018 14:00	L2067395-7 GWCC-5 12/03/2018 14:35	L2078526-5 GWCC-5 09/04/2018 15:20	L2096262-2 GWCC-5 15/05/2018 11:00	L2096262-6 GWCC-5 15/05/2018 11:15	L2112699-5 GWCC-5 12/06/2018 17:40	L2127254-2 GWCC-5 09/07/2018 17:40	L2127254-3 GWCC-5 09/07/2018 18:00
Dissolved Metals																		
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0014	0.0015	0.0015	0.0030	0.0015	0.0018	0.0018	0.0017	0.0012	0.0010	<0.0010	0.0016	0.0037	0.0020
Ammonium (NH ₄)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00105	0.00072	0.00069	0.00068	0.00067	0.00068	0.00067	0.00068	0.00067	0.00068	0.00067	0.00068	0.00067	0.00068
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00066	0.00144	0.00047	0.00049	0.00047	0.00047	0.00048	0.00043	0.00047	0.00069	0.00075	0.00059	0.00061	0.00088
Barium (Ba)-Dissolved	mg/L	-	-	0.00050	0.049700	0.057200	0.052000	0.054900	0.054000	0.064800	0.062100	0.063000	0.064600	0.064100	0.047100	0.052300	0.057100	0.058300
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.062	0.037	0.026	0.023	0.022	0.023	0.024	0.022	0.050	0.049	0.036	0.032	0.030	0.030
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	0.0001130	0.0000904	0.0001510	0.0001530	0.0001400	0.0001730	0.0001650	0.0001590	0.0001720	0.0000785	0.0000797	0.0001300	0.0001810	0.0001840
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	135.000	129.000	131.000	143.000	140.000	142.000	159.000	150.000	140.000	143.000	142.000	117.000	120.000	122.000
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00102	0.00048	0.00016	0.00049	0.00048	0.00040	0.00044	0.00030	0.00072	0.00112	0.00107	0.00067	0.00026	0.00015
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	<0.00071	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	0.00100	-	-	-	-	-	-	-	-	0.00180	0.00180	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	<0.00010	0.00030	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00030	0.00030	0.00030
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00067	0.00071	0.00086	0.00091	0.00088	0.00124	0.00087	0.00092	0.00090	0.00074	0.00078	0.00094	0.00078	0.00077
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	<0.010	0.020	0.013	0.024	0.023	0.022	0.010	0.010	0.014	<0.010	<0.010	0.011	0.062	0.066
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0085	0.0088	0.0088	0.0072	0.0070	0.0067	0.0086	0.0082	0.0065	0.0075	0.0073	0.0078	0.0080	0.0080
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	54.00	56.10	59.90	56.60	56.90	54.50	60.90	65.90	53.60	65.70	65.60	52.90	53.40	53.40
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.00065	0.00480	0.00139	0.00180	0.00168	0.00174	0.00118	0.00111	0.00102	0.00051	0.00055	0.00071	0.00430	0.05450
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.002220	0.001910	0.001540	0.001600	0.001600	0.001540	0.001600	0.001670	0.001780	0.002130	0.002180	0.001670	0.001790	0.001790
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.01840	0.01890	0.02280	0.02360	0.02320	0.02650	0.02480	0.02590	0.02550	0.02560	0.02580	0.01970	0.02690	0.02850
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	0.89	0.93	0.94	1.01	1.01	1.12	1.18	1.17	1.10	1.18	1.18	0.99	0.82	0.83
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.006400	0.007420	0.006450	0.006990	0.006960	0.006030	0.007350	0.004790	0.004310	0.003910	0.003950	0.009670	0.000729	0.000709
Silicon (Si)-Dissolved	mg/L	-	-	0.050	4.510	5.160	5.050	4.980	4.970	5.140	5.330	5.220	4.970	4.460	4.430	5.000	4.970	5.040
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	4.110	4.150	4.300	4.380	4.510	4.760	4.770	4.910	4.900	4.620	4.520	4.090	4.650	3.970
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.74900	0.74500	0.77600	0.75300	0.76600	0.73500	0.78600	0.79900	0.82400	0.79200	0.79000	0.66200	0.65200	0.68600
Sulfur (S)-Dissolved	mg/L	-	-	0.50	127.00	123.00	116.00	132.00	129.00	131.00	148.00	127.00	140.00	140.00	134.00	115.00	106.00	106.00
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	0.000018	0.000017	0.000017	0.000018	0.000019	0.000020	0.000018	0.000020	0.000023	0.000018	0.000021	0.000019	0.000038	0.000039
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.003490	0.002830	0.002810	0.003230	0.003180	0.003960	0.003720	0.003600	0.003930	0.004100	0.004080	0.002970	0.002540	0.002440
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	<0.0010	<0.0010	0.0012	0.0012	<0.0010	0.0017	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.27401	0.27349	0.27020	0.27590	0.27418	0.27581	0.27750	0.26677	0.27349	0.28125	0.27841	0.28061	0.28181	0.28212
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015). CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
* The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:
Exceeds CCME Guideline
QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Quality Results Generated by QMS-Q during Morning Shift																				
Analyte		Units	COM-E Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2147306-12 GWCC-5 13/08/2018 17:20	L2163861-2 GWCC-5 10/09/2018 20:35	L2183280-14 GWCC-5 17/10/2018 10:50	L2197781-3 GWCC-5 14/11/2018 11:45	L2197781-4 GWCC-5 14/11/2018 11:55	L2209213-5 GWCC-5 10/12/2018 14:50	L2220316-7 GWCC-5 13/01/2019 14:50	L2234470-4 GWCC-5 18/02/2019 15:00	L2240869-9 GWCC-5 04/03/2019 15:35	L2261985-7 GWCC-5-r 22/04/2019 16:00	L2273032-3 GWCC-5-r 13/05/2019 16:00	L2289891-4 GWCC-5-r 10/06/2019 14:15	L2307083-8 GWCC-5-r 08/07/2019 15:45	L2328273-8 GWCC-5-r 12/08/2019 18:50	L2328273-9 GWCC-5-r 12/08/2019 19:00
Physical Tests																				
Temperature (In-situ)	°C	-	-	-	-	9.3	6.5	3.8	3.3	3.3	3.2	4.1	4.0	3.7	3.8	8.0	9.6	10.4	8.8	8.8
Dissolved Oxygen (In-situ)	mg/L	9.5	-	-	-	1.68	1.82	2.66	3.23	3.23	4.30	1.51	2.34	2.48	8.75	7.87	1.12	0.98	1.18	1.18
Specific Conductivity (In-situ)	µS/cm	-	-	-	-	614.3	986.0	1011.0	1008.0	1008.0	1094.0	1030.0	1076.0	1095.0	1058.0	907.0	849.0	891.0	974.0	974.0
pH (In-situ)	pH	6.5 - 9.0	-	-	-	7.18	7.27	7.32	7.45	7.45	7.35	7.25	7.27	7.30	7.68	7.45	7.45	7.26	7.17	7.17
Oxidation - Redox Potential (In-situ)	mV	-	-	-	-	236.0	132.8	227.9	166.4	166.4	232.9	154.3	111.8	43.4	189.8	205.1	218.2	176.4	269.0	269.0
Turbidity (In-situ)	NTU	-	-	-	-	1.33	0.04	0.04	0.04	0.04	0.28	0.17	0.04	0.17	0.14	0.21	0.14	0.77	0.77	0.77
Conductivity	µS/cm	-	-	-	-	2	1010	986	961	986	985	1040	1070	1100	1130	916	916	983	981	981
Hardness (as CaCO3)	mg/L	-	-	-	-	0.5	606.0	576.0	535.0	589.0	582.0	647.0	590.0	624.0	620.0	608.0	541.0	518.0	500.0	539.0
pH (Lab)	pH	6.5 - 9.0	-	-	-	0.1	8.07	8.12	8.23	7.83	7.84	8.27	8.00	7.64	7.65	8.38	8.36	8.39	7.97	8.36
Total Suspended Solids	mg/L	-	-	-	-	2	<2.0	7.1	3.4	3	<2.0	3.7	<2.0	<2.0	<2.0	3	<2.0	<2.0	<2.0	<2.0
Anions and Nutrients																				
Ammonia, Total (as N) ^a	mg/L	Temp,pH-Dep	-	-	-	0.0050	<0.0050	<0.0050	<0.0050	0.0055	<0.0050	<0.0050	0.0071	<0.0050	<0.0050	<0.0050	<0.0050	0.0107	<0.0050	<0.0050
(Temperature and pH adjusted Guideline)																				
Bromide (Br)	mg/L	Temp,pH-Dep	-	-	-	8.4707	3.9804	3.9804	3.9804	3.9804	3.9804	3.9804	3.9804	3.9804	3.9804	2.6810	2.6810	2.6810	8.4707	8.4707
Chloride (Cl)	mg/L	120	-	-	-	0.050	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Fluoride (F)	mg/L	0.10	-	-	-	0.0050	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120
Nitrate (as N)	mg/L	13	-	-	-	0.0050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.0450	0.0450	0.0380	0.0225	0.0225	0.0225	<0.025	<0.025
Nitrite (as N)	mg/L	0.06	-	-	-	0.0010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Phosphorus (P)-Total	mg/L	-	-	-	-	0.0020	0.0039	0.0023	0.0039	0.0023	0.0039	0.0032	0.0030	0.0030	0.0037	0.0029	0.0026	0.0030	0.0030	0.0030
Sulfate (SO4)	mg/L	-	-	-	-	0.30	357.00	373.00	368.00	381.00	372.00	378.00	392.0							

Water quality results collected at GWCC-5 during monthly surface water monitoring

Analyte	Units	CCME Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2147306-12 GWCC-5 13/08/2018 17:20	L2163861-2 GWCC-5 10/09/2018 20:35	L2183280-14 GWCC-5 17/10/2018 10:50	L2197781-3 GWCC-5 14/11/2018 11:45	L2197781-4 GWCC-5 14/11/2018 11:55	L2209213-5 GWCC-5 10/12/2018 14:50	L2220316-7 GWCC-5 13/01/2019 14:50	L2234470-4 GWCC-5 18/02/2019 15:00	L2240869-8 GWCC-5 04/03/2019 15:35	L2261985-7 GWCC-5 22/04/2019 16:00	L2273032-3 GWCC-5 13/05/2019 16:00	L2289891-4 GWCC-5 10/06/2019 14:15	L2307083-8 GWCC-5 08/07/2019 15:45	L2328273-8 GWCC-5 12/08/2019 18:50	L2328273-9 GWCC-5 12/08/2019 19:00
Dissolved Metals																			
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0021	0.0013	0.0016	<0.0010	<0.0010	<0.0030	0.0014	0.0013	0.0016	0.0012	0.0013	0.0015	0.0010	0.0017	0.0018
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	0.00010	0.00021	0.00006	0.00007	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00054	0.00066	0.00051	0.00060	0.00057	0.00059	0.00056	0.00056	0.00054	0.00052	0.00055	0.00078	0.00059	0.00045	0.00045
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00053	0.00053	0.00046	0.00044	0.00047	0.00053	0.00044	0.00059	0.00048	0.00065	0.00064	0.00054	0.00062	0.00075	0.00072
Barium (Ba)-Dissolved	mg/L	-	-	0.00050	0.058500	0.054500	0.050900	0.051200	0.051100	0.057900	0.060200	0.066900	0.060100	0.050700	0.040400	0.047700	0.047400	0.054100	0.052700
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.027	0.030	0.022	0.023	0.021	0.024	0.025	0.021	0.023	0.045	0.046	0.037	0.024	0.024	0.024
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0001130	0.0001340	0.0001310	0.0001390	0.0001250	0.0001260	0.0001190	0.0001540	0.0001560	0.0001120	0.0000794	0.0001170	0.0001360	0.0001110	0.0001210
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	137.000	130.000	120.000	135.000	131.000	153.000	137.000	142.000	144.000	138.000	121.000	115.000	116.000	128.000	123.000
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00040	0.00060	0.00049	0.00044	0.00047	0.00059	0.00054	0.00062	0.00047	0.00133	0.00088	0.00042	0.00017	0.00034	0.00033
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0039	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	0.00120	-	-	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00017	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00038	0.00050	0.00051
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00083	0.00080	0.00082	0.00085	0.00086	0.00090	0.00081	0.00081	0.00081	0.00072	0.00088	0.00058	0.00067	0.00066	0.00066
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.022	0.016	0.022	0.017	0.036	0.024	0.020	0.019	0.019	<0.010	0.015	0.023	0.088	0.079	0.079
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0083	0.0074	0.0073	0.0077	0.0075	0.0085	0.0076	0.0078	0.0076	0.0078	0.0074	0.0080	0.0076	0.0075	0.0076
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	64.00	61.50	57.10	60.00	62.00	64.00	60.10	65.20	63.20	64.00	58.10	56.00	51.20	56.20	56.20
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.00084	0.00187	0.00119	0.00152	0.00149	0.00181	0.00163	0.00155	0.00147	0.00073	0.00067	0.00192	0.03470	0.02690	0.02650
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.001700	0.001770	0.001450	0.001670	0.001650	0.001770	0.001810	0.001930	0.001630	0.002230	0.002010	0.001840	0.001680	0.001590	0.001620
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.02650	0.02130	0.02230	0.02280	0.02280	0.02420	0.02470	0.02420	0.02550	0.02280	0.02450	0.02010	0.02560	0.02860	0.02830
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	0.80	0.85	0.87	0.93	0.92	1.05	1.10	1.16	1.10	1.21	1.07	0.91	0.73	0.79	0.79
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.001180	0.004170	0.004810	0.005390	0.005140	0.005550	0.004150	0.005270	0.006210	0.004100	0.018500	0.001950	0.000713	0.001370	0.001340
Silicon (Si)-Dissolved	mg/L	-	-	0.050	4.900	4.850	4.810	4.750	4.720	4.970	4.940	4.890	4.680	4.580	4.240	5.570	5.290	5.340	5.400
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	4.160	4.430	4.120	4.250	4.320	4.620	4.320	4.390	4.080	4.090	3.850	3.540	3.980	3.760	3.760
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.71700	0.76700	0.63700	0.73100	0.71300	0.82500	0.78800	0.81800	0.76000	0.79000	0.69200	0.63400	0.65100	0.69200	0.68000
Sulfur (S)-Dissolved	mg/L	-	-	0.50	117.00	139.00	126.00	129.00	128.00	126.00	131.00	132.00	139.00	139.00	108.00	118.00	113.00	114.00	114.00
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	0.000026	0.000021	0.000017	0.000018	0.000019	0.000019	0.000017	0.000020	0.000019	0.000012	0.000018	0.000021	0.000031	0.000029	0.000026
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.002920	0.003060	0.003370	0.003290	0.003250	0.003530	0.003590	0.003740	0.004170	0.004240	0.002890	0.002390	0.002540	0.002810	0.002790
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	0.0028	<0.0010
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.27691	0.27573	0.27758	0.27907	0.27980	0.27708	0.28077	0.27427	0.27536	0.27683	0.28890	0.28752	0.28581	0.27287	0.27226
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015). CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
* The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:
Exceeds CCME Guideline
QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water Quality Results Collected at St during monthly surface water monitoring					L2096824-8	L2112699-6	L2128251-8	L2147306-16	L2164007-4	L2182241-3	L2274425-2	L2291429-1	L2291429-2	L2308450-13	L2329874-3
Analyte	Units	CCME Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2096824-8 SL 16/05/2018 10:20	L2112699-6 SL 12/06/2018 15:45	L2128251-8 SL 10/07/2018 13:05	L2147306-16 SL 13/08/2018 16:25	L2164007-4 SL 11/09/2018 12:00	L2182241-3 SL 15/10/2018 15:00	L2274425-2 SL 14/05/2019 16:45	L2291429-1 SL 11/06/2019 18:15	L2291429-2 SL-r 11/06/2019 18:30	L2308450-13 SL 09/07/2019 16:20	L2329874-3 SL 13/08/2019 13:40
Physical Tests															
Temperature (in-situ)	°C	-	-	-	3.1	9.5	10.9	12.8	5.8	3.6	4.5	10.0	10.0	15.8	9.3
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	13.39	12.92	13.30	10.10	11.46	10.37	11.87	11.38	11.38	9.56	10.91
Specific Conductivity (in-situ)	µS/cm	-	-	-	12.4	1519.0	1750.0	1651.0	1337.0	1700.0	989.0	1304.0	1304.0	1654.0	1619.0
pH (in-situ)	pH	6.5 - 9.0	-	-	7.90	8.12	7.88	8.22	7.42	7.49	8.01	8.26	8.26	8.16	8.12
Oxidation - Redox Potential (in-situ)	mV	-	-	-	336.9	344.7	311.2	269.5	172.2	131.1	185.0	207.7	207.7	211.4	215.1
Turbidity (in-situ)	NTU	-	-	-	0.46	0.58	3.57	6.83	0.36	0.69	3.85	0.22	0.22	1.75	7.83
Conductivity	µS/cm	-	-	-	2	1170	1460	1800	1740	1300	965	1260	1270	1550	1570
Hardness (as CaCO3)	mg/L	-	-	-	0.5	888.0	1090.0	1040.0	772.0	1110.0	515.0	768.0	787.0	1080.0	999.0
pH (lab)	pH	6.5 - 9.0	-	-	0.1	8.29	8.24	8.36	8.41	8.36	8.34	8.28	8.37	8.47	8.50
Total Suspended Solids	mg/L	-	-	-	2	<2.0	<2.0	21	8.1	3.5	5.4	7.1	5.8	6.9	8.1
Anions and Nutrients															
Ammonia, Total (as N) ^	mg/L	Temp,pH-Dep	-	0.0050	0.0061	0.0065	<0.0050	<0.0050	<0.0050	0.0056	0.0097	0.0050	0.0056	0.0063	0.0104
(Temperature and pH Adjusted Guideline)	mg/L	Temp,pH-Dep	-	-	1.2665	0.8553	0.8553	0.5880	3.9804	3.9804	1.2665	0.2821	0.2821	0.5880	0.8553
Bromide (Br)	mg/L	-	-	0.050	<0.25	<0.25	<0.25	<0.50	<0.25	<0.25	<0.25	<0.25	<0.25	<0.50	<0.25
Chloride (Cl)	mg/L	120	-	0.50	<2.5	<2.5	<2.5	<5.0	<2.5	<2.5	<2.5	<2.5	<2.5	<5.0	<2.5
Fluoride (F)	mg/L	0.12	-	0.020	0.250	0.200	0.210	0.220	0.230	<0.20	0.260	0.220	0.210	0.210	0.180
Nitrate (as N)	mg/L	13	-	0.0050	0.3560	0.1020	<0.025	<0.050	0.1440	0.2300	0.1470	0.0550	0.0680	<0.050	0.1330
Nitrite (as N)	mg/L	0.06	-	0.0010	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.010	<0.0050	<0.0050	<0.0050	<0.010	<0.0050
Phosphorus (P)-Total	mg/L	-	-	0.0020	0.0155	0.0046	0.0162	0.0103	0.0040	0.0082	0.0192	0.0047	0.0066	0.0041	0.0080
Sulfate (SO4)	mg/L	-	-	0.30	552.00	702.00	935.00	870.00	576.00	841.00	432.00	571.00	579.00	806.00	806.00
Sulphide (as S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon															
Dissolved Organic Carbon	mg/L	-	-	0.5	16.4	9.1	6.8	6.7	9.3	6.3	22.2	9.3	9.3	8.0	8.9
Aggregate Organics															
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-
Asbestos															
Total Asbestos Concentration	MFL	-	-	0.20	-	-	-	-	-						

Water quality results collected at SL during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2096824-8 SL 16/05/2018 10:20	L2112699-6 SL 12/06/2018 15:45	L2128251-8 SL 10/07/2018 13:05	L2147306-16 SL 13/08/2018 16:25	L2164007-4 SL 11/09/2018 12:00	L2182241-3 SL 15/10/2018 15:00	L2274425-2 SL 14/05/2019 16:45	L2291429-1 SL 11/06/2019 18:15	L2291429-2 SL-r 11/06/2019 18:30	L2308450-13 SL 09/07/2019 16:20	L2329874-3 SL 13/08/2019 13:40
Dissolved Metals															
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0071	0.0043	0.0013	0.0017	0.0061	0.0015	0.0174	0.0027	0.0031	<0.0010	0.0270
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00348	0.00270	0.00248	0.00269	0.00338	0.00385	0.00197	0.00296	0.00316	0.00310	0.00205
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.01980	0.01770	0.01510	0.01560	0.01600	0.01860	0.00961	0.01630	0.01640	0.01640	0.00905
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.013200	0.018700	0.026900	0.029100	0.018800	0.031800	0.010900	0.016000	0.016700	0.022300	0.040800
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.048	0.038	0.041	0.045	0.046	0.058	0.028	0.046	0.045	0.062	0.050
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000242	0.0000227	0.0000264	0.0000304	0.0000197	0.0000333	0.0000428	0.0000225	0.0000219	0.0000301	0.0000333
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	161.000	198.000	233.000	234.000	185.000	239.000	118.000	167.000	170.000	238.000	201.000
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00117	0.00174	0.00133	0.00142	0.00131	0.00149	0.00220	0.00115	0.00131	0.00160	0.00170
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	<0.010	0.00174	<0.00073	0.00142	0.00131	<0.00073	0.00160	<0.00071	<0.00071	<0.00073	0.00110
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	0.00160	<0.0010	0.00130	<0.0010	0.00100	0.00060	0.00100	0.00070	0.00070	0.00150	0.00060
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00010	0.00013	0.00010	<0.00010	<0.00010	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	0.00021
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00221	0.00113	0.00074	0.00079	0.00125	0.00081	0.00350	0.00119	0.00126	0.00101	0.00152
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.022	0.018	<0.010	<0.010	0.019	<0.010	0.057	<0.010	0.011	<0.010	0.039
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0081	0.0086	0.0093	0.0106	0.0087	0.0106	0.0060	0.0079	0.0080	0.0103	0.0093
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	83.20	95.70	124.00	112.00	75.30	126.00	53.70	85.20	88.10	117.00	121.00
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.00098	0.00362	0.01520	0.00768	0.00276	0.00404	0.00301	0.00229	0.00249	0.00995	0.03660
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.000050	0.0000089	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000108	<0.0000050	0.0000050	0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.002810	0.002050	0.002010	0.001880	0.002100	0.002420	0.001910	0.001990	0.002170	0.002220	0.001770
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.01610	0.01770	0.01760	0.01770	0.01540	0.01660	0.01190	0.01580	0.01620	0.01900	0.01650
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	1.13	1.31	1.57	1.49	1.16	1.43	0.93	1.19	1.24	1.42	1.37
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.038900	0.026500	0.012000	0.012400	0.015800	0.012000	0.021900	0.017900	0.017500	0.012100	0.005330
Silicon (Si)-Dissolved	mg/L	-	-	0.050	4.960	5.290	4.830	4.840	5.590	5.910	4.010	5.400	5.420	5.050	4.920
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	2.490	3.630	3.770	3.760	2.390	3.260	1.680	2.410	2.560	3.540	3.230
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.77300	0.91800	1.20000	1.04000	0.85500	1.14000	0.58100	0.89400	0.96400	1.08000	1.01000
Sulfur (S)-Dissolved	mg/L	-	-	0.50	184.00	256.00	295.00	295.00	191.00	291.00	141.00	219.00	217.00	285.00	272.00
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	0.000016	0.000014	0.000013	0.000013	0.000017	0.000010	0.000025	0.000013	0.000019	0.000015	0.000014
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00060	<0.00030	<0.00030	<0.00030	0.00044
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.002020	0.003350	0.004980	0.004300	0.002370	0.003480	0.002220	0.002400	0.003610	0.003910	0.003910
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	0.0012	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.32977	0.28599	0.26734	0.26592	0.28742	0.26191	0.33402	0.28757	0.28787	0.27758	0.28454
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00039

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
^ The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:
Exceeds CCME Guideline
QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at HL3-T during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989169-1 HL3-T 07/09/2017 17:50	L2002383-17 HL3-T 03/10/2017 14:30	L2032623-2 HL3-T 06/12/2017 14:55	L2046710-1 HL3-T 17/01/2018 11:50	L2056317-5 HL3-T 12/02/2018 14:35	L2068058-1 HL3-T 13/03/2018 12:05	L2078978-3 HL3-T 10/04/2018 12:15	L2110842-12 HL3-T 11/06/2018 09:50	L2127254-12 HL3-T 09/07/2018 09:35	L2147306-25 HL3-T 12/08/2018 12:55
Physical Tests														
Temperature (in-situ)	°C	-	-	-	12.0	6.7	1.7	0.4	0.9	0.2	1.2	12.4	17.6	15.1
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	8.72	9.08	7.06	6.61	6.21	5.98	5.20	8.44	8.39	8.58
Specific Conductivity (in-situ)	µS/cm	-	-	-	709.0	759.0	866.5	905.1	913.7	902.2	911.8	394.6	548.5	432.0
pH (in-situ)	pH	6.5 - 9.0	-	-	8.00	7.75	7.52	7.46	7.48	7.55	7.34	7.51	7.65	7.86
Oxidation - Redox Potential (in-situ)	mV	-	-	-	55.3	36.0	-6.5	72.1	-26.8	91.7	3.6	43.4	112.2	177.2
Turbidity (in-situ)	NTU	-	-	-	0.49	-	1.41	1.05	1.24	0.82	0.94	3.14	1.02	1.38
Conductivity	µS/cm	-	-	2	691	765	831	930	922	895	852	400	560	674
Hardness (as CaCO3)	mg/L	-	-	0.5	370.0	431.0	475.0	543.0	515.0	540.0	511.0	207.0	292.0	374.0
pH (lab)	pH	6.5 - 9.0	-	0.1	8.17	8.21	8.09	8.06	7.92	8.11	8.09	8.06	8.25	8.27
Total Suspended Solids	mg/L	-	-	2	-	<2.0	2.6	<2.0	<2.0	<2.0	<2.0	<2.0	3.5	3.9
Anions and Nutrients														
Ammonia, Total (as N) ^A	mg/L	Temp,pH-Dep	-	0.0050	0.0232	0.0295	0.0348	0.0088	0.0096	0.0095	0.0087	0.0171	0.0309	0.0068
(Temperature and pH adjusted Guideline)	mg/L	Temp,pH-Dep	-	-	0.8553	1.2665	6.0200	6.0200	6.0200	6.0200	6.0200	2.6810	1.2665	0.5880
Bromide (Br)	mg/L	-	-	0.050	<0.050	-	<0.25	<0.25	<0.25	<0.25	<0.25	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	120	-	0.50	0.65	0.75	<2.5	<2.5	<2.5	<2.5	<2.5	<0.50	<0.50	<0.50
Fluoride (F)	mg/L	0.12	-	0.020	0.117	0.131	0.120	0.140	0.120	0.130	0.130	0.088	0.101	0.119
Nitrate (as N)	mg/L	13	-	0.0050	0.0136	0.0470	0.0820	0.1140	0.1470	0.1470	0.1460	0.0802	0.0471	0.0328
Nitrite (as N)	mg/L	0.06	-	0.0010	<0.0010	0.0043	0.0284	0.0339	0.0139	0.0066	<0.0050	<0.0010	0.0022	0.0022
Phosphorus (P)-Total	mg/L	-	-	0.0020	0.0038	0.0055	0.0025	0.0046	0.0031	0.0050	0.0050	0.0159	0.0082	0.0102
Sulfate (SO4)	mg/L	-	-	0.30	246.00	273.00	307.00	333.00	323.00	322.00	310.00	123.00	185.00	225.00
Sulphide (as S)	mg/L	-	-	0.0180	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018
Sulphide (as H2S)	mg/L	-	-	0.0190	<0.019	<0.019	-	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
Organic / Inorganic Carbon														
Dissolved Organic Carbon	mg/L	-	-	0.5	16.0	14.4	14.1	15.8	15.0	15.1	14.3	26.8	21.4	17.3
Aggregate Organics														
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Asbestos														
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-	-	-
Total Metals														
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.0030	0.0208	0.0156	0.0249	0.0144	0.0130	0.0091	0.0090	0.1190	0.0441	0.0325
(Aluminium (Al)-Total (pH Adjusted Guideline))	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Total	mg/L	-	-	0.00010	0.00035	0.00031	0.00032	0.00031	0.00046	0.00033	0.00030	0.00029	0.00031	0.00035
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.00076	0.00078	0.00071	0.00072	0.00066	0.00064	0.00066	0.00081	0.00073	0.00080
Barium (Ba)-Total	mg/L	-	-	0.000050	0.064300	0.067700	0.072500	0.075800	0.067100	0.070900	0.064200	0.045300	0.046600	0.056000
Beryllium (Be)-Total	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	0.000027	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Total	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	1.5	-	0.010	0.011	0.012	0.012	0.014	0.013	0.013	0.012	<0.010	0.010	0.018
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.0000050	0.0000312	0.0000400	0.0000402	0.0000417	0.0000443	0.0000402	0.0000358	0.0000598	0.0000391	0.0000398
(Cadmium (Cd)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0002899	0.0003700	0.0003700
Calcium (Ca)-Total	mg/L	-	-	0.50	82.400	89.500	107.000	120.000	98.300	91.200	81.500	41.500	58.800	74.900
Chromium (Cr)-Total	mg/L	-	-	0.00010	0.00042	0.00034	0.00022	0.00052	0.00070	0.00042	0.00037	0.00012	0.00069	0.00050
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	-	-	0.00212	-	-	-	-	0.00102	-	-
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	-	-	<0.0010	-	-	-	-	<0.00050	-	-
Cobalt (Co)-Total	mg/L	-	-	0.00010	0.00032	0.00037	0.00038	0.00033	0.00025	0.00022	0.00017	0.00046	0.00027	0.00037
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00233	0.00196	0.00186	0.00197	0.00187	0.00176	0.00184	0.00398	0.00309	0.00315
(Copper (Cu)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	0.010	0.060	0.086	0.146	0.055	0.055	0.047	0.047	0.375	0.165	0.116
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000130	<0.000050	<0.000050
(Lead (Pb)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Total	mg/L	-	-	0.0010	0.0048	0.0054	0.0054	0.0147	0.0071	0.0064	0.0058	0.0023	0.0035	0.0041
Magnesium (Mg)-Total	mg/L	-	-	0.10	47.50	54.30	60.40	76.70	58.70	58.30	60.10	24.30	34.70	45.40
Manganese (Mn)-Total	mg/L	-	-	0.00010	0.11900	0.22400	0.32700	0.32300	0.30600	0.31900	0.27700	0.14600	0.06360	0.13000
Mercury (Hg)-Total	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000091	<0.0000050	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	0.001550	0.001490	0.001640	0.001740	0.001550	0.001590	0.001460	0.000894	0.001050	0.001330
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00551	0.00515	0.00603	0.00594	0.00545	0.00532	0.00504	0.00510	0.00473	0.00483
(Nickel (Ni)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Total	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total	mg/L	-	-	0.10	0.86	0.89	0.87	1.29	0.99	0.99	0.89	0.66	0.69	0.73
Selenium (Se)-Total	mg/L	0.001	-	0.000050	0.001200	0.001220	0.001360	0.001440	0.001350	0.001220	0.001190	0.000994	0.001180	0.001160
Silicon (Si)-Total	mg/L	-	-	0.10	4.46	4.78	5.10	6.08	5.38	5.43	5.14	3.42	3.90	4.14
Silver (Ag)-Total	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000015	<0.000010	<0.000010
Sodium (Na)-Total	mg/L	-	-	0.050	3.860	4.140	4.560	7.040	4.750	4.460	4.830	2.320	3.060	3.600
Strontium (Sr)-Total	mg/L	-	-	0.00020	0.42100	0.46600	0.54400	0.59800	0.55100	0.50300	0.51200	0.21200	0.30600	0.38400
Sulfur (S)-Total	mg/L	-	-	0.50	92.10	103.00	109.00	138.00	111.00	118.00	43.30	65.30	80.50	80.50
Thallium (Tl)-Total	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Total	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Total	mg/L	-	-	0.00030	<0.00030	<0.00030	0.00056	<0.00030	0.00047	<0.00030	<0.00030	0.00246	<0.00030	<0.00060
Uranium (U)-Total	mg/L	0.015	-	0.000010	0.003560	0.003860	0.004110	0.004170	0.004450	0.004190	0.004380	0.001460	0.002330	0.003010
Vanadium (V)-Total	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Total	mg/L	-	-	0.0030	<0.0030	<0.0030	<0.0030	0.0032	0.0035	0.0035	0.0042	<0.0030	<0.0030	<0.0030
Zirconium (Zr)-Total	mg/L	-	-	0.00030	0.00062	0.00061	0.00066	0.00068	0.00065	0.00065	0.00059	0.00093	0.00078	0.00068

Water quality results collected at HL3-T during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989169-1 HL3-T 07/09/2017 17:50	L2002383-17 HL3-T 03/10/2017 14:30	L2032623-2 HL3-T 06/12/2017 14:55	L2046710-1 HL3-T 17/01/2018 11:50	L2056317-5 HL3-T 12/02/2018 14:35	L2068058-1 HL3-T 13/03/2018 12:05	L2078978-3 HL3-T 10/04/2018 12:15	L2110842-12 HL3-T 11/06/2018 09:50	L2127254-12 HL3-T 09/07/2018 09:35	L2147306-25 HL3-T 12/08/2018 12:55
Dissolved Metals														
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0154	0.0135	0.0112	0.0078	0.0086	0.0087	0.0074	0.0903	0.0452	0.0243
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00032	0.00029	0.00029	0.00030	0.00035	0.00029	0.00028	0.00029	0.00027	0.00030
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00069	0.00069	0.00067	0.00071	0.00060	0.00057	0.00057	0.00077	0.00074	0.00072
Barium (Ba)-Dissolved	mg/L	-	-	0.00050	0.058800	0.065500	0.069300	0.071200	0.069900	0.075900	0.071100	0.045900	0.051400	0.053300
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000026	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.010	0.011	0.011	0.014	0.012	0.013	0.011	<0.010	<0.010	0.011
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	0.0000273	0.0000541	0.0000376	0.0000356	0.0000355	0.0000440	0.0000346	0.0000576	0.0000337	0.0000292
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0002899	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	78.100	87.300	97.100	111.000	112.000	107.000	103.000	45.000	60.100	73.600
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00025	0.00027	0.00037	0.00032	0.00036	0.00030	0.00029	0.00087	0.00072	0.00038
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00029	0.00034	0.00032	0.00027	0.00019	0.00017	0.00013	0.00044	0.00026	0.00031
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00197	0.00177	0.00181	0.00172	0.00183	0.00168	0.00377	0.00329	0.00258	0.00258
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.042	0.059	0.102	0.040	0.033	0.038	0.029	0.296	0.165	0.061
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000068	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0046	0.0050	0.0056	0.0061	0.0065	0.0063	0.0053	0.0024	0.0035	0.0045
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	42.60	51.80	56.40	64.30	57.40	66.00	61.50	22.90	34.40	46.30
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.10600	0.20200	0.28500	0.26700	0.25300	0.30000	0.27000	0.13200	0.06260	0.09830
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000092	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.001270	0.001280	0.001380	0.001500	0.001360	0.001560	0.001470	0.000824	0.000993	0.001250
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.00449	0.00482	0.00508	0.00562	0.00524	0.00552	0.00528	0.00475	0.00487	0.00444
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	0.82	0.87	1.00	1.04	1.05	1.06	1.00	0.67	0.69	0.71
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.001320	0.001160	0.001180	0.001720	0.001400	0.001300	0.001400	0.000965	0.001040	0.001200
Silicon (Si)-Dissolved	mg/L	-	-	0.050	4.120	4.540	4.950	5.060	5.360	5.360	5.070	3.290	3.710	3.840
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	3.560	4.000	4.620	5.080	4.950	5.090	4.850	2.260	3.130	3.430
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.38900	0.44600	0.52600	0.57800	0.56600	0.57900	0.53400	0.21900	0.29500	0.38100
Sulfur (S)-Dissolved	mg/L	-	-	0.50	83.80	96.60	101.00	117.00	112.00	107.00	106.00	39.90	62.60	74.60
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00185	0.00055	<0.00030
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.003290	0.003600	0.004100	0.004310	0.004110	0.004420	0.004080	0.001550	0.002440	0.002890
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	<0.0010	0.0013	0.0018	0.0031	0.0025	0.0029	<0.0010	0.0098	0.0014	<0.0010
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.32782	0.31963	0.31802	0.32683	0.32278	0.32330	0.31910	0.28495	0.33402	0.33402
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00057	0.00054	0.00065	0.00061	0.00058	0.00062	0.00061	0.00105	0.00075	0.00066

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME: Freshwater
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
A CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:
Exceeds CCME Guideline
QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at HL3-T during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2164009-1 HL3-T 11/09/2018 18:45	L2198094-5 HL3-T 15/11/2018 14:40	L2211082-5 HL3-T 13/12/2018 13:45	L2222349-1 HL3-T 17/01/2019 12:20	L2235602-1 HL3-T 20/02/2019 10:45	L2241668-1 HL3-T 06/03/2019 11:35	L2263589-16 HL3-T 25/04/2019 11:20	L2291429-12 HL3-T 11/06/2019 11:30	L2308450-15 HL3-T 09/07/2019 09:00	L2328273-5 HL3-T 12/08/2019 10:00
Physical Tests														
Temperature (in-situ)	°C	-	-	-	7.4	2.3	3.9	0.5	0.4	0.9	0.1	17.2	20.8	14.7
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	10.76	10.63	3.68	8.74	8.28	8.53	9.15	8.39	7.66	8.50
Specific Conductivity (in-situ)	µS/cm	-	-	-	543.0	670.0	738.0	723.4	730.5	732.8	314.7	381.1	544.0	666.0
pH (in-situ)	pH	6.5 - 9.0	-	-	7.63	7.50	7.12	7.44	7.31	7.46	7.92	7.30	7.93	7.74
Oxidation - Redox Potential (in-situ)	mV	-	-	-	147.1	-	-146.0	-115.7	-347.8	140.8	184.5	237.6	305.2	305.7
Turbidity (in-situ)	NTU	-	-	-	10.62	0.91	0.99	1.00	0.97	1.19	1.41	3.43	0.43	1.60
Conductivity	µS/cm	-	-	2	539	676	678	711	732	741	258	379	520	698
Hardness (as CaCO3)	mg/L	-	-	0.5	276.0	366.0	396.0	412.0	424.0	450.0	139.0	199.0	298.0	365.0
pH (lab)	pH	6.5 - 9.0	-	0.1	8.08	7.92	7.92	7.93	7.99	7.91	7.79	8.07	8.23	8.35
Total Suspended Solids	mg/L	-	-	2	5.8	<2.0	<2.0	2.6	<2.0	<2.0	<2.0	2.3	<2.0	<2.0
Anions and Nutrients														
Ammonia, Total (as N) ^A	mg/L	Temp,pH-Dep	-	0.0050	0.0082	0.0202	0.0195	0.0062	0.0102	0.0076	0.0147	0.0142	0.0140	0.0100
(Temperature and pH adjusted Guideline)	mg/L	Temp,pH-Dep	-	-	3.9804	6.0200	12.5827	6.0200	6.0200	6.0200	1.9162	1.8257	0.4104	1.8257
Bromide (Br)	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.25	<0.25	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	120	-	0.50	<0.50	0.51	0.59	<2.5	<2.5	0.59	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	mg/L	0.12	-	0.020	0.102	0.116	0.114	<0.10	0.130	0.123	0.048	0.087	0.112	0.123
Nitrate (as N)	mg/L	13	-	0.0050	0.2650	0.2240	0.2170	0.2450	0.2610	0.2570	0.0426	0.0758	0.0158	0.0680
Nitrite (as N)	mg/L	0.06	-	0.0010	0.0030	0.0069	0.0131	<0.0050	<0.0050	<0.0010	0.0012	0.0013	0.0013	0.0018
Phosphorus (P)-Total	mg/L	-	-	0.0020	0.0152	0.0067	0.0069	0.0081	0.0063	0.0071	0.0399	0.0147	0.0071	0.0104
Sulfate (SO4)	mg/L	-	-	0.30	179.00	228.00	232.00	247.00	263.00	260.00	79.40	116.00	182.00	232.00
Sulphide (as S)	mg/L	-	-	0.0180	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	0.02	<0.018
Sulphide (as H2S)	mg/L	-	-	0.0190	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	0.021	<0.019
Organic / Inorganic Carbon														
Dissolved Organic Carbon	mg/L	-	-	0.5	19.1	17.1	16.3	15.9	15.8	16.2	12.8	22.6	20.0	15.3
Aggregate Organics														
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	<2.0	<2.0	6.1	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Asbestos														
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-	-	-
Total Metals														
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.0030	0.1440	0.0261	0.0240	0.0212	0.0183	0.0203	0.0469	0.1080	0.0422	0.0272
(Aluminium (Al)-Total (pH Adjusted Guideline))	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Total	mg/L	-	-	0.00010	0.00034	0.00033	0.00034	0.00033	0.00034	0.00033	0.00012	0.00027	0.00030	0.00033
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.00103	0.00072	0.00073	0.00066	0.00063	0.00064	0.00036	0.00081	0.00081	0.00074
Barium (Ba)-Total	mg/L	-	-	0.000050	0.062400	0.058300	0.058100	0.059800	0.056400	0.061000	0.028000	0.050500	0.052400	0.053800
Beryllium (Be)-Total	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000025	<0.000020	<0.000020
Bismuth (Bi)-Total	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	1.5	-	0.010	<0.010	0.010	0.011	0.011	0.010	0.011	<0.010	<0.010	0.010	0.012
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.0000050	0.0000580	0.0000513	0.0000463	0.0000550	0.0000566	0.0000647	0.0000848	0.0000608	0.0000341	0.0000349
(Cadmium (Cd)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.0003681	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0002083	0.0002806	0.0003700	0.0003700
Calcium (Ca)-Total	mg/L	-	-	0.50	59.500	81.800	79.600	73.500	80.700	83.000	27.200	42.800	60.600	71.000
Chromium (Cr)-Total	mg/L	-	-	0.00010	0.00095	0.00061	0.00046	0.00047	0.00048	0.00062	0.00046	0.00091	0.00067	0.00037
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	-
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)-Total	mg/L	-	-	0.00010	0.00058	0.00030	0.00030	0.00030	0.00024	0.00025	0.00022	0.00053	0.00034	0.00029
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00351	<0.0030	0.00276	0.00261	0.00225	0.00260	0.00126	0.00382	0.00304	0.00249
(Copper (Cu)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00313	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	0.010	0.539	0.123	0.118	0.111	0.098	0.128	0.138	0.393	0.164	0.102
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.000050	0.000289	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000141	<0.000050	0.000243
(Lead (Pb)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.004838	0.007000	0.007000	0.007000
Lithium (Li)-Total	mg/L	-	-	0.0010	0.0030	0.0037	0.0038	0.0038	0.0040	0.0043	0.0016	0.0024	0.0037	0.0042
Magnesium (Mg)-Total	mg/L	-	-	0.10	33.80	46.10	44.50	49.50	40.30	49.90	14.80	23.00	38.30	47.50
Manganese (Mn)-Total	mg/L	-	-	0.00010	0.017100	0.014200	0.014400	0.015900	0.015300	0.017200	0.00970	0.013100	0.009300	0.010700
Mercury (Hg)-Total	mg/L	0.000026	-	0.0000050	0.0000097	<0.0000050	<0.0000050	<0.0000050	0.0000053	0.0000067	0.0000057	0.0000078	0.0000052	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	0.001220	0.001340	0.001360	0.001410	0.001440	0.001400	0.000337	0.001060	0.001180	0.001480
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00442	0.00466	0.00473	0.00479	0.00444	0.00502	0.00239	0.00467	0.00431	0.00422
(Nickel (Ni)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.12276	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Total	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.070	<0.050	<0.050	<0.050
Potassium (K)-Total	mg/L	-	-	0.10	0.56	0.69	0.66	0.68	0.68	0.76	0.87	0.65	0.70	0.86
Selenium (Se)-Total	mg/L	0.001	-	0.000050	0.001560	0.001770	0.001980	0.001860	0.001820	0.001760	0.000603	0.001150	0.001240	0.001120
Silicon (Si)-Total	mg/L	-	-	0.10	4.71	4.94	5.01	4.80	4.87	5.20	2.32	3.40	3.92	4.45
Silver (Ag)-Total	mg/L	0.00025	-	0.000010	<0.000020	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Total	mg/L	-	-	0.050	2.970	3.570	3.480	3.850	3.440	3.990	1.470	2.030	3.090	3.680
Strontium (Sr)-Total	mg/L	-	-	0.00020	0.28900	0.39000	0.37200	0.38800	0.36800	0.43400	0.13600	0.20000	0.29200	0.37300
Sulfur (S)-Total	mg/L	-	-	0.50	62.80	80.60	81.30	84.80	89.90	93.70	28.40	40.30	68.20	83.40
Thallium (Tl)-Total	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Total	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Total	mg/L	-	-	0.00030	0.00522	<0.00090	0.00053	<0.00060	<0.00060	0.00090	0.00090	0.00370	0.00060	0.00054
Uranium (U)-Total	mg/L	0.015	-	0.000010	0.0002070	0.0002770	0.0002700	0.0002900	0.0003200	0.0003260	0.000860	0.000140	0.0002360	0.0003140
Vanadium (V)-Total	mg/L	-	-	0.00050	0.00092	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00063	0.00065	<0.00050	<0.00050
Zinc (Zn)-Total	mg/L	-	-	0.0030	<0.0030	<0.0030	<0.0030	0.0056	<0.0030	0.0367	0.0177	<0.0030	<0.0030	<0.0030
Zirconium (Zr)-Total	mg/L	-	-	0.00030	0.000104	0.00089	0.00081	0.00082	0.00082	0.00086	0.00031	0.00099	0.00077	0.00064

Water quality results collected at HL3-T during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2164009-1 HL3-T 11/09/2018 18:45	L2198094-5 HL3-T 15/11/2018 14:40	L2211082-5 HL3-T 13/12/2018 13:45	L2222349-1 HL3-T 17/01/2019 12:20	L2235602-1 HL3-T 20/02/2019 10:45	L2241668-1 HL3-T 06/03/2019 11:35	L2263589-16 HL3-T 25/04/2019 11:20	L2291429-12 HL3-T 11/06/2019 11:30	L2308450-15 HL3-T 09/07/2019 09:00	L2328273-5 HL3-T 12/08/2019 10:00
Dissolved Metals														
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0380	0.0217	0.0224	0.0192	0.0185	0.0184	0.0321	0.0661	0.0363	0.0201
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00033	0.00034	0.00032	0.00034	0.00032	0.00033	0.00010	0.00025	0.00030	0.00030
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00075	0.00064	0.00065	0.00072	0.00066	0.00064	0.00029	0.00071	0.00075	0.00074
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.053000	0.054900	0.062900	0.062900	0.059500	0.062000	0.029700	0.046000	0.052400	0.056000
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	<0.010	<0.010	<0.010	0.011	0.013	0.012	<0.010	<0.010	<0.010	0.011
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	0.0000404	0.0000510	0.0000541	0.0000528	0.0000511	0.0000534	0.0000712	0.0000512	0.0000267	0.0000330
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003681	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0002083	0.0002806	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	58.000	74.800	81.800	85.200	89.200	91.100	30.500	40.300	61.300	70.600
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00054	0.00046	0.00040	0.00043	0.00046	0.00047	0.00033	0.00067	0.00064	0.00031
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00035	0.00027	0.00028	0.00026	0.00021	0.00019	0.00022	0.00043	0.00037	0.00022
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00304	0.00263	0.00312	0.00279	0.00258	0.00258	0.00116	0.00350	0.00296	0.00249
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00313	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.177	0.101	0.105	0.090	0.086	0.076	0.095	0.258	0.144	0.048
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	0.000054	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000061	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.004838	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0029	0.0040	0.0040	0.0042	0.0043	0.0046	0.0016	0.0022	0.0033	0.0041
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	31.80	43.50	46.50	48.30	48.90	54.10	15.20	23.80	35.30	45.80
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	0.10400	0.12500	0.14000	0.15300	0.14600	0.15800	0.09570	0.10700	0.08720	0.05230
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	0.0000057	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000087	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.001170	0.001330	0.001350	0.001480	0.001380	0.001420	0.000302	0.001070	0.001210	0.001280
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.00388	0.00434	0.00507	0.00504	0.00483	0.00496	0.00224	0.00433	0.00438	0.00431
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.12276	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	0.53	0.65	0.70	0.76	0.74	0.78	0.89	0.62	0.65	0.72
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.001560	0.002010	0.001850	0.001970	0.001940	0.001820	0.000625	0.001160	0.001170	0.001360
Silicon (Si)-Dissolved	mg/L	-	-	0.050	4.310	4.750	4.770	5.060	4.830	5.370	2.030	3.200	3.800	4.350
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	2.800	3.440	3.930	4.080	3.820	4.110	1.440	2.070	2.940	3.440
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.28400	0.38600	0.41800	0.44900	0.41000	0.42900	0.13100	0.22500	0.29200	0.37900
Sulfur (S)-Dissolved	mg/L	-	-	0.50	57.50	80.60	75.80	82.30	83.30	88.00	26.40	41.40	62.10	81.50
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	0.00130	<0.00060	<0.00060	<0.00060	<0.00060	0.00036	0.00045	0.00159	<0.00060	<0.00030
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.002020	0.002720	0.002810	0.002870	0.002680	0.003350	0.000879	0.001420	0.002320	0.002950
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	<0.0010	0.0014	0.0022	<0.0050	0.0027	0.0308	0.0125	0.0010	<0.0010	<0.0010
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.33402	0.33309	0.32928	0.32733	0.32683	0.32880	0.19024	0.27575	0.33402	0.32432
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00106	0.00085	0.00081	0.00083	0.00079	0.00082	<0.00030	0.00103	0.00078	0.00062

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME: Freshwater
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
A CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at HL3-M during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989169-2 HL3-M 07/09/2017 17:35	L2002383-18 HL3-M 03/10/2017 14:45	L2032623-3 HL3-M 06/12/2017 14:50	L2046710-2 HL3-M 17/01/2018 12:00	L2056317-6 HL3-M 12/02/2018 14:40	L2068058-2 HL3-M 13/03/2018 13:20	L2078978-4 HL3-M 10/04/2018 13:15	L2110842-13 HL3-M 11/06/2018 10:20	L2127254-13 HL3-M 09/07/2018 09:45	L2147306-26 HL3-M 12/08/2018 11:45
Physical Tests														
Temperature (in-situ)	°C	-	-	-	1.9	3.7	1.6	1.2	1.6	1.5	1.7	1.7	3.3	4.3
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	0.67	1.46	0.36	0.23	0.13	0.11	0.12	0.79	1.86	0.62
Specific Conductivity (in-situ)	µS/cm	-	-	-	1075.0	865.0	1132.0	1241.0	1152.0	1164.0	1132.0	1121.0	929.0	524.1
pH (in-situ)	pH	6.5 - 9.0	-	-	7.16	7.16	7.07	7.08	7.10	7.16	7.09	7.06	7.14	7.18
Oxidation - Redox Potential (in-situ)	mV	-	-	-	-87.8	43.5	-2.6	50.0	-67.0	24.1	-5.3	95.2	104.0	230.1
Turbidity (in-situ)	NTU	-	-	-	1.38	-	2.83	8.97	1.92	6.66	0.77	5.16	1.48	1.52
Conductivity	µS/cm	-	-	2	979	825	1050	1070	1100	1060	1040	1060	826	859
Hardness (as CaCO3)	mg/L	-	-	0.5	556.0	486.0	616.0	644.0	614.0	627.0	643.0	701.0	465.0	502.0
pH (lab)	pH	6.5 - 9.0	-	0.1	7.87	8.12	7.80	7.87	7.57	7.84	7.91	8.37	8.30	8.04
Total Suspended Solids	mg/L	-	-	2	3.5	3.3	9.2	2	<2.0	3.6	9.4	6.8	4.4	3.4
Anions and Nutrients														
Ammonia, Total (as N) ^A	mg/L	Temp,pH-Dep	-	0.0050	0.8870	0.0920	1.3100	1.3300	1.2300	1.1300	1.2500	0.9650	0.0195	0.0056
Temperature and pH adjusted Guideline	mg/L	Temp,pH-Dep	-	-	18.9974	12.58	19.00	19.00	19.00	19.00	19.00	19.00	12.58	12.58
Bromide (Br)	mg/L	-	-	0.050	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.050	<0.25
Chloride (Cl)	mg/L	120	-	0.50	<2.5	1.06	<2.5	2.50	<2.5	<2.5	<2.5	<2.5	0.89	<2.5
Fluoride (F)	mg/L	0.12	-	0.020	0.140	0.147	0.150	0.160	0.140	0.160	0.150	0.150	0.121	0.140
Nitrate (as N)	mg/L	13	-	0.0050	<0.025	0.0498	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.1630	0.1890
Nitrite (as N)	mg/L	0.06	-	0.0010	0.0079	0.0248	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0105	0.0028	<0.0050
Phosphorus (P)-Total	mg/L	-	-	0.0020	0.0057	0.0033	0.0161	0.0265	0.0132	0.0175	0.0301	0.0152	0.0081	0.0093
Sulfate (SO4)	mg/L	-	-	0.30	312.00	280.00	321.00	330.00	326.00	325.00	315.00	277.00	293.00	293.00
Sulphide (as S)	mg/L	-	-	0.0180	0.056	<0.018	0.052	0.025	0.036	0.048	0.099	<0.018	<0.018	<0.018
Sulphide (as H2S)	mg/L	-	-	0.0190	0.06	<0.019	-	0.027	0.038	0.051	0.105	<0.019	<0.019	<0.019
Organic / Inorganic Carbon														
Dissolved Organic Carbon	mg/L	-	-	0.5	18.9	14.0	19.7	19.8	20.4	19.7	20.1	20.0	15.6	14.7
Aggregate Organics														
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.2	<2.0	<2.0	<2.0
Asbestos														
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-	-	-
Total Metals														
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.0030	0.1010	0.0196	0.0929	0.0817	0.0697	0.0743	0.0701	0.0932	0.0330	0.0252
Aluminium (Al)-Total (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000
Antimony (Sb)-Total	mg/L	-	-	0.00010	0.00024	0.00024	0.00018	0.00017	0.00017	0.00018	0.00016	0.00021	0.00029	0.00025
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.00481	0.00074	0.00458	0.00463	0.00436	0.00437	0.00432	0.00392	0.00058	0.00055
Barium (Ba)-Total	mg/L	-	-	0.000050	0.137000	0.084100	0.143000	0.138000	0.132000	0.136000	0.131000	0.130000	0.063400	0.065300
Beryllium (Be)-Total	mg/L	-	-	0.000020	0.000031	<0.000020	0.000029	0.000037	<0.000020	<0.000020	0.000024	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Total	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	1.5	-	0.010	0.013	0.013	0.013	0.014	0.013	0.013	0.013	0.013	0.012	0.012
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.000050	0.0000677	0.0000639	0.0000463	0.0000399	0.0000386	0.0000420	0.0000423	0.0000361	0.0000587	0.0000492
Cadmium (Cd)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Total	mg/L	-	-	0.050	125.000	103.000	136.000	139.000	127.000	126.000	127.000	126.000	92.500	97.200
Chromium (Cr)-Total	mg/L	-	-	0.00010	0.00140	0.00046	0.00134	0.00138	0.00123	0.00131	0.00137	0.00121	-	-
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	-	-	0.00134	0.00138	0.00123	0.00131	0.00137	0.00121	-	-
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.00050	-	-
Cobalt (Co)-Total	mg/L	-	-	0.00010	0.00289	0.00067	0.00219	0.00217	0.00208	0.00229	0.00206	0.00249	0.00024	0.00023
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00091	0.00162	0.00060	0.00063	0.00052	0.00073	0.00067	0.00072	0.00022	0.00228
Copper (Cu)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	0.010	6.170	0.291	6.820	7.130	6.630	6.570	6.860	5.290	0.120	0.110
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.000050	0.000493	<0.000050	0.000265	0.000230	0.000214	0.000216	0.000222	0.000231	<0.000050	<0.000050
Lead (Pb)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Total	mg/L	-	-	0.0010	0.0101	0.0069	0.0095	0.0135	0.0120	0.0107	0.0103	0.0097	0.0060	0.0060
Magnesium (Mg)-Total	mg/L	-	-	0.10	70.60	58.70	71.60	78.90	66.40	69.00	71.00	75.20	53.00	58.50
Manganese (Mn)-Total	mg/L	-	-	0.00010	3.48000	1.06000	3.45000	3.73000	3.30000	3.27000	3.22000	3.32000	0.30600	0.32400
Mercury (Hg)-Total	mg/L	0.000026	-	0.000050	0.0000140	<0.000050	0.0000070	0.0000061	0.0000096	0.0000089	<0.000050	0.0000078	<0.000050	<0.000050
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	0.000938	0.001380	0.000825	0.000801	0.000779	0.000835	0.000689	0.000949	0.001260	0.001240
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00580	0.00513	0.00403	0.00428	0.00388	0.00487	0.00390	0.00484	0.00476	0.00470
Nickel (Ni)-Total (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Total	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total	mg/L	-	-	0.10	1.26	1.01	1.21	1.41	1.24	1.34	1.22	1.30	0.92	0.93
Selenium (Se)-Total	mg/L	0.001	-	0.000050	0.001240	0.001240	0.001700	0.001560	0.001470	0.001450	0.001360	0.001430	0.001160	0.001130
Silicon (Si)-Total	mg/L	-	-	0.10	6.84	6.02	6.67	7.02	6.75	6.93	6.48	6.73	5.30	5.10
Silver (Ag)-Total	mg/L	0.00025	-	0.000010	0.000012	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Total	mg/L	-	-	0.050	5.920	4.710	6.000	6.430	5.870	5.810	6.020	6.100	4.440	4.410
Strontium (Sr)-Total	mg/L	-	-	0.00020	0.68200	0.54900	0.74000	0.75600	0.69800	0.70600	0.66400	0.70800	0.49100	0.50700
Sulfur (S)-Total	mg/L	-	-	0.50	116.00	105.00	115.00	125.00	111.00	124.00	112.00	122.00	102.00	104.00
Thallium (Tl)-Total	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Total	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Total	mg/L	-	-	0.00030	0.00439	0.00062	0.00406	0.00362	0.00362	0.00355	0.00355	0.00426	<0.00060	0.00050
Uranium (U)-Total	mg/L	0.015	-	0.000010	0.003530	0.004000	0.003430	0.003430	0.003430	0.003520	0.003520	0.003710	0.003620	0.003860
Vanadium (V)-Total	mg/L	-	-	0.00050	0.00409	<0.00050	0.00357	0.00368	0.00348	0.00346	0.00337	0.00314	<0.00050	<0.00050
Zinc (Zn)-Total	mg/L	-	-	0.0030	0.0042	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium (Zr)-Total	mg/L	-	-	0.00030	0.00235	0.00085	0.00241	0.00241	0.00247	0.00227	0.00229	0.00212	0.00069	0.00069

Water quality results collected at HL3-M during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989169-2 HL3-M 07/09/2017 17:35	L2002383-18 HL3-M 03/10/2017 14:45	L2032623-3 HL3-M 06/12/2017 14:50	L2046710-2 HL3-M 17/01/2018 12:00	L2056317-6 HL3-M 12/02/2018 14:40	L2068058-2 HL3-M 13/03/2018 13:20	L2078978-4 HL3-M 10/04/2018 13:15	L2110842-13 HL3-M 11/06/2018 10:20	L2127254-13 HL3-M 09/07/2018 09:45	L2147306-26 HL3-M 12/08/2018 11:45
Dissolved Metals														
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0698	0.0142	0.0735	0.0596	0.0694	0.0649	0.0753	0.0636	0.0250	0.0181
<i>Aluminium (Al)-Dissolved (pH Adjusted Guideline)</i>	mg/L	<i>pH-Dep</i>	-	-	<i>0.1000</i>	<i>0.10000</i>	<i>0.10000</i>	<i>0.10000</i>	<i>0.10000</i>	<i>0.10000</i>	<i>0.10000</i>	<i>0.10000</i>	<i>0.10000</i>	<i>0.10000</i>
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00013	0.00022	0.00010	0.00012	0.00012	0.00014	0.00012	0.00013	0.00023	0.00024
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00455	0.00061	0.00449	0.00433	0.00447	0.00410	0.00460	0.00371	0.00051	0.00049
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.124000	0.084500	0.140000	0.135000	0.140000	0.150000	0.145000	0.145000	0.070500	0.064800
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	0.000026	<0.000020	0.000025	0.000027	0.000027	0.000026	0.000023	0.000024	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.012	0.012	0.012	0.012	0.013	0.015	0.012	0.013	0.012	0.012
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	0.0000116	0.0000599	0.0000079	0.0000108	0.0000062	0.0000098	<0.000050	0.0000145	0.0000482	0.0000425
<i>Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)</i>	mg/L	<i>HD</i>	-	-	<i>0.0003700</i>	<i>0.0003700</i>	<i>0.0003700</i>	<i>0.0003700</i>	<i>0.0003700</i>	<i>0.0003700</i>	<i>0.0003700</i>	<i>0.0003700</i>	<i>0.0003700</i>	<i>0.0003700</i>
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	118.000	98.800	128.000	139.000	129.000	135.000	144.000	93.800	99.500	
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00119	0.00037	0.00120	0.00095	0.00123	0.00110	0.00128	0.00085	0.00040	0.00042
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	0.00119	-	0.00120	-	0.00123	0.00110	0.00128	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	<0.0010	-	<0.0010	-	<0.0010	<0.0010	<0.0010	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00269	0.00063	0.00219	0.00215	0.00215	0.00234	0.00225	0.00269	0.00017	0.00017
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00025	0.00153	<0.00020	<0.00020	0.00024	0.00024	<0.00020	0.00037	0.00217	0.00172
<i>Copper (Cu)-Diss. (Hardness Adjusted Guideline)</i>	mg/L	<i>HD</i>	-	-	<i>0.00400</i>	<i>0.00400</i>	<i>0.00400</i>	<i>0.00400</i>	<i>0.00400</i>	<i>0.00400</i>	<i>0.00400</i>	<i>0.00400</i>	<i>0.00400</i>	<i>0.00400</i>
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	0.186	6.890	5.650	6.490	6.270	7.350	5.750	0.082	0.070	
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	0.000085	<0.000050	0.000068	0.000084	0.000096	0.000093	<0.000050	0.000052	<0.000050	<0.000050
<i>Lead (Pb)-Diss. (Hardness Adjusted Guideline)</i>	mg/L	<i>HD</i>	-	-	<i>0.007000</i>	<i>0.007000</i>	<i>0.007000</i>	<i>0.007000</i>	<i>0.007000</i>	<i>0.007000</i>	<i>0.007000</i>	<i>0.007000</i>	<i>0.007000</i>	<i>0.007000</i>
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0098	0.0066	0.0103	0.0094	0.0110	0.0099	0.0097	0.0109	0.0060	0.0064
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	63.30	58.00	71.80	73.30	65.10	74.20	74.10	82.80	56.10	61.60
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	3.27000	1.03000	3.15000	3.46000	3.35000	3.56000	3.65000	3.60000	0.28200	0.31900
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.000743	0.001200	0.000605	0.000696	0.000663	0.000713	0.000582	0.000840	0.001240	0.001240
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.00457	0.00498	0.00401	0.00403	0.00385	0.00420	0.00381	0.00499	0.00498	0.00479
<i>Nickel (Ni)-Diss. (Hardness Adjusted Guideline)</i>	mg/L	<i>HD</i>	-	-	<i>0.15000</i>	<i>0.15000</i>	<i>0.15000</i>	<i>0.15000</i>	<i>0.15000</i>	<i>0.15000</i>	<i>0.15000</i>	<i>0.15000</i>	<i>0.15000</i>	<i>0.15000</i>
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	1.26	1.02	1.41	1.34	1.34	1.33	1.41	1.42	0.97	1.00
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.001490	0.001310	0.001440	0.001400	0.001380	0.001180	0.001450	0.001290	0.001180	0.001020
Silicon (Si)-Dissolved	mg/L	-	-	0.050	6.200	5.810	6.540	6.440	6.670	6.630	6.640	6.690	5.000	4.750
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	5.700	4.690	6.500	6.370	6.140	6.340	6.410	6.580	4.740	4.670
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.63300	0.52400	0.70400	0.78100	0.72500	0.73900	0.71900	0.76500	0.49100	0.51200
Sulfur (S)-Dissolved	mg/L	-	-	0.50	105.00	101.00	107.00	117.00	111.00	110.00	111.00	112.00	94.70	91.30
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	0.00332	<0.00030	0.00398	<0.0030	0.00371	0.00310	0.00381	0.00332	0.00034	<0.00030
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.003380	0.003770	0.003460	0.003500	0.003360	0.003540	0.003350	0.003830	0.003840	0.004030
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	0.00366	<0.00050	0.00355	0.00271	0.00344	0.00301	0.00360	0.00305	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	0.0017	0.0023	<0.0010	0.0014	<0.0010	<0.0010	0.0010	0.0022	0.0020	0.0017
<i>Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)</i>	mg/L	<i>HD & DOC-Dep</i>	-	-	<i>0.33402</i>	<i>0.31748</i>	<i>0.33402</i>	<i>0.33402</i>	<i>0.33402</i>	<i>0.33402</i>	<i>0.33402</i>	<i>0.33402</i>	<i>0.32583</i>	<i>0.32122</i>
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00218	0.00075	0.00238	0.00219	0.00229	0.00213	0.00235	0.00200	0.00068	0.00066

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME: Freshwater
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
A CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at HL3-M during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2164009-2 HL3-M 11/09/2018 19:45	L2198094-6 HL3-M 15/11/2018 14:50	L2211082-6 HL3-M 13/12/2018 13:50	L2222349-2 HL3-M 17/01/2019 12:25	L2235602-2 HL3-M 20/02/2019 10:55	L2241668-2 HL3-M 06/03/2019 11:45	L2263589-17 HL3-M 25/04/2019 11:40	L2291429-13 HL3-M 11/06/2019 11:40	L2308450-16 HL3-M 09/07/2019 09:30	L2328273-6 HL3-M 12/08/2019 10:25
Physical Tests														
Temperature (in-situ)	°C	-	-	-	1.8	1.9	1.6	1.6	1.6	3.3	1.8	1.8	2.8	4.5
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	0.36	0.32	0.35	0.23	0.44	0.55	0.36	0.35	1.70	0.96
Specific Conductivity (in-situ)	µS/cm	-	-	-	1093.0	670.0	1142.0	1173.0	1153.0	955.0	1129.0	1121.0	927.0	902.0
pH (in-situ)	pH	6.5 - 9.0	-	-	7.13	7.50	7.04	7.08	6.88	7.17	7.03	7.10	7.23	7.20
Oxidation - Redox Potential (in-situ)	mV	-	-	-	-34.6	-	-190.5	-171.8	-398.8	163.3	207.1	207.0	287.6	289.5
Turbidity (in-situ)	NTU	-	-	-	6.34	2.70	2.28	1.33	8.10	0.83	1.31	4.23	0.78	2.21
Conductivity	µS/cm	-	-	2	1060	1080	1050	944	1120	928	1040	1050	715	805
Hardness (as CaCO3)	mg/L	-	-	0.5	556.0	604.0	664.0	563.0	648.0	577.0	667.0	611.0	419.0	436.0
pH (lab)	pH	6.5 - 9.0	-	0.1	7.73	7.41	7.66	7.69	7.77	8.03	8.03	8.18	8.25	8.29
Total Suspended Solids	mg/L	-	-	2	11	11	8.8	2.3	<2.0	<2.0	9.6	9.1	2.1	<2.0
Anions and Nutrients														
Ammonia, Total (as N) ^A	mg/L	Temp,pH-Dep	-	0.0050	0.6210	1.0700	0.9320	0.3170	1.0600	0.0904	0.8810	0.9120	0.0181	0.0078
(Temperature and pH adjusted Guideline)	mg/L	Temp,pH-Dep	-	-	19.00	6.02	19.00	19.00	19.00	12.58	19.00	19.00	12.58	12.58
Bromide (Br)	mg/L	-	-	0.050	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.050
Chloride (Cl)	mg/L	120	-	0.50	<2.5	<2.5	<2.5	<2.5	2.50	<2.5	<2.5	<2.5	<2.5	0.72
Fluoride (F)	mg/L	0.12	-	0.020	0.150	0.160	0.160	0.120	0.170	0.150	0.170	0.150	0.110	0.133
Nitrate (as N)	mg/L	13	-	0.0050	<0.025	<0.025	<0.025	0.1220	<0.025	<0.025	<0.025	<0.025	0.1310	0.1770
Nitrite (as N)	mg/L	0.06	-	0.0010	0.0083	0.0073	0.0053	0.0062	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0014
Phosphorus (P)-Total	mg/L	-	-	0.0020	0.0128	0.0132	0.0118	0.0078	0.0187	0.0066	0.0078	0.0139	0.0070	0.0100
Sulfate (SO4)	mg/L	-	-	0.30	342.00	336.00	333.00	304.00	348.00	307.00	321.00	325.00	262.00	271.00
Sulphide (as S)	mg/L	-	-	0.0180	<0.018	0.028	0.038	<0.018	0.025	<0.018	0.071	0.033	<0.018	<0.018
Sulphide (as H2S)	mg/L	-	-	0.0190	<0.019	0.03	0.04	<0.019	0.027	<0.019	0.075	0.035	<0.019	<0.019
Organic / Inorganic Carbon														
Dissolved Organic Carbon	mg/L	-	-	0.5	16.5	19.8	19.0	15.6	18.7	14.3	19.5	18.7	16.7	14.9
Aggregate Organics														
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	2.6	<2.0	<2.0	<2.0	<2.0	<2.0	-	<2.0	<2.0	<2.0
Asbestos														
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-	-	-
Total Metals														
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.0030	0.1200	0.0903	0.0774	0.0362	0.0721	0.0251	0.0718	0.1560	0.0377	0.0375
(Aluminium (Al)-Total (pH Adjusted Guideline))	mg/L	pH-Dep	-	-	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000
Antimony (Sb)-Total	mg/L	-	-	0.00010	0.00017	0.00016	0.00016	0.00020	0.00014	0.00021	0.00016	0.00017	0.00030	0.00026
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.00279	0.00440	0.00419	0.00158	0.00411	0.00062	0.00386	0.00371	0.00062	0.00057
Barium (Ba)-Total	mg/L	-	-	0.000050	0.129000	0.129000	0.141000	0.094000	0.129000	0.081700	0.128000	0.133000	0.063500	0.063700
Beryllium (Be)-Total	mg/L	-	-	0.000020	0.000021	0.000026	0.000022	<0.000020	0.000021	<0.000020	0.000025	0.000021	<0.000020	<0.000020
Bismuth (Bi)-Total	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	1.5	-	0.010	0.014	0.013	0.014	0.012	0.013	0.013	0.014	0.013	0.012	0.012
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.000050	0.0000921	0.0000417	0.0000467	0.0000711	0.0000352	0.0000741	0.0000424	0.0000566	0.0000547	0.0000654
(Cadmium (Cd)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Total	mg/L	-	-	0.050	120.000	129.000	130.000	104.000	115.000	103.000	130.000	132.000	81.600	85.400
Chromium (Cr)-Total	mg/L	-	-	0.00010	0.00111	0.00148	0.00128	0.00078	0.00119	0.00049	0.00122	0.00147	0.00066	0.00044
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	0.00111	0.00148	0.00128	-	0.00119	-	0.00122	0.00147	-	-
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	<0.00050	<0.00050	<0.00050	-	<0.00050	-	<0.00050	<0.00050	-	-
Cobalt (Co)-Total	mg/L	-	-	0.00010	0.00331	0.00255	0.00270	0.00139	0.00224	0.00099	0.00252	0.00272	0.00031	0.00028
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00134	<0.0010	0.00097	0.00159	0.00056	0.00138	0.00095	0.00096	0.00271	0.00228
(Copper (Cu)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	0.010	2.830	6.220	6.070	1.650	6.140	0.188	5.750	5.350	0.137	0.157
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.000050	0.000314	<0.00045	0.000444	0.000140	0.000302	0.000054	0.000327	0.000412	<0.000050	<0.000050
(Lead (Pb)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Total	mg/L	-	-	0.0010	0.0087	0.0095	0.0095	0.0066	0.0100	0.0069	0.0112	0.0104	0.0054	0.0057
Magnesium (Mg)-Total	mg/L	-	-	0.10	72.80	78.40	73.20	65.30	64.60	65.10	77.10	74.10	53.50	57.90
Manganese (Mn)-Total	mg/L	-	-	0.00010	3.29000	3.43000	3.53000	1.58000	2.96000	1.17000	3.37000	3.51000	0.24400	0.27300
Mercury (Hg)-Total	mg/L	0.000026	-	0.0000050	0.0000086	0.0000120	<0.000050	<0.000050	<0.000050	0.0000054	0.0000083	0.0000092	0.0000052	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	0.001040	0.000797	0.000864	0.001140	0.000739	0.001390	0.000865	0.000987	0.001250	0.001290
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00547	0.00461	0.00476	0.00498	0.00414	0.00508	0.00473	0.00514	0.00484	0.00450
(Nickel (Ni)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Total	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total	mg/L	-	-	0.10	1.15	1.28	1.25	0.99	1.26	1.08	1.23	1.28	0.88	0.91
Selenium (Se)-Total	mg/L	0.001	-	0.000050	0.001330	0.001230	0.001230	0.001140	0.001020	0.000848	0.001220	0.001200	0.001240	0.001230
Silicon (Si)-Total	mg/L	-	-	0.10	6.19	6.67	6.56	5.56	6.41	5.71	7.13	6.90	4.69	5.17
Silver (Ag)-Total	mg/L	0.00025	-	0.000010	<0.000020	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	<0.000010	<0.000010
Sodium (Na)-Total	mg/L	-	-	0.050	5.880	6.190	5.650	5.110	5.610	5.070	6.120	6.060	4.050	4.250
Strontium (Sr)-Total	mg/L	-	-	0.00020	0.62700	0.69700	0.68200	0.53400	0.63200	0.58300	0.69400	0.40600	0.45800	0.45800
Sulfur (S)-Total	mg/L	-	-	0.50	118.00	116.00	115.00	108.00	120.00	118.00	132.00	117.00	92.90	97.80
Thallium (Tl)-Total	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Total	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Total	mg/L	-	-	0.00030	0.00449	0.00442	0.00413	0.00131	<0.0036	0.00079	<0.0036	<0.0036	0.00090	0.00099
Uranium (U)-Total	mg/L	0.015	-	0.000010	0.003890	0.003600	0.003730	0.003690	0.003690	0.004130	0.003770	0.003770	0.003490	0.003830
Vanadium (V)-Total	mg/L	-	-	0.00050	0.00245	0.00340	0.00348	0.00121	0.00314	<0.00050	0.00325	0.00324	0.00053	0.00054
Zinc (Zn)-Total	mg/L	-	-	0.0030	0.0031	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0963	<0.0030
Zirconium (Zr)-Total	mg/L	-	-	0.00030	0.00152	0.00218	0.00216	0.00115	0.00224	0.00083	0.00210	0.00224	0.00073	0.00071

Water quality results collected at HL3-M during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2164009-2 HL3-M 11/09/2018 19:45	L2198094-6 HL3-M 15/11/2018 14:50	L2211082-6 HL3-M 13/12/2018 13:50	L2222349-2 HL3-M 17/01/2019 12:25	L2235602-2 HL3-M 20/02/2019 10:55	L2241668-2 HL3-M 06/03/2019 11:45	L2263589-17 HL3-M 25/04/2019 11:40	L2291429-13 HL3-M 11/06/2019 11:40	L2308450-16 HL3-M 09/07/2019 09:30	L2328273-6 HL3-M 12/08/2019 10:25
Dissolved Metals														
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0506	0.0632	0.0750	0.0335	0.0572	0.0182	0.0671	0.0566	0.0261	0.0200
<i>Aluminium (Al)-Dissolved (pH Adjusted Guideline)</i>	mg/L	pH-Dep	-	-	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00013	0.00013	0.00012	0.00020	0.00012	0.00021	0.00013	0.00014	0.00028	0.00025
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00314	0.00413	0.00437	0.00155	0.00414	0.00060	0.00416	0.00362	0.00057	0.00055
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.114000	0.132000	0.153000	0.100000	0.127000	0.084500	0.140000	0.123000	0.061300	0.069000
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	0.000026	<0.000020	0.000024	<0.000020	0.000022	0.000027	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.012	0.012	0.012	0.013	0.017	0.014	0.014	0.013	0.012	0.011
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	0.0000367	0.0000140	0.0000124	0.0000515	0.0000085	0.0000650	0.0000171	0.0000136	0.0000473	0.0000533
<i>Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)</i>	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	106.000	122.000	132.000	114.000	138.000	113.000	137.000	121.000	83.200	83.700
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00093	0.00106	0.00124	0.00061	0.00108	0.00051	0.00109	0.00107	0.00055	0.00039
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	0.00106	0.00124	-	0.00108	-	0.00109	0.00107	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	<0.0010	<0.00050	-	<0.00050	-	<0.00050	<0.00050	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00284	0.00243	0.00297	0.00129	0.00234	0.00096	0.00259	0.00264	0.00027	0.00014
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	0.00051	0.00031	0.00030	0.00144	0.00022	0.00110	0.00044	0.00034	0.00262	0.00226
<i>Copper (Cu)-Diss. (Hardness Adjusted Guideline)</i>	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	3.780	5.760	6.490	1.510	5.370	0.151	5.940	5.140	0.108	0.087
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	0.000117	0.000175	0.000174	0.000079	0.00013	<0.000050	0.000141	0.000153	<0.000050	<0.000050
<i>Lead (Pb)-Diss. (Hardness Adjusted Guideline)</i>	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0084	0.0099	0.0103	0.0074	0.0101	0.0074	0.0110	0.0096	0.0049	0.0054
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	70.80	72.80	81.60	67.70	74.00	71.90	78.70	74.90	51.20	55.20
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	3.08000	3.42000	3.84000	1.56000	3.34000	1.27000	3.52000	3.35000	0.22400	0.20200
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	0.0000063	<0.0000050	0.0000057	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000077	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.000871	0.000745	0.000815	0.001320	0.000742	0.001350	0.000783	0.000950	0.001260	0.001230
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.00494	0.00429	0.00531	0.00520	0.00400	0.00512	0.00463	0.00468	0.00478	0.00476
<i>Nickel (Ni)-Diss. (Hardness Adjusted Guideline)</i>	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	1.15	1.25	1.35	1.16	1.29	1.10	1.41	1.23	0.82	0.86
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.001370	0.001320	0.001170	0.001140	0.001260	0.000861	0.001170	0.001130	0.001200	0.001640
Silicon (Si)-Dissolved	mg/L	-	-	0.050	6.030	6.300	6.710	5.630	6.410	5.970	6.320	6.580	4.570	4.980
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	5.590	5.830	6.980	5.370	5.970	5.260	6.350	5.960	3.940	4.120
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.60500	0.68900	0.76600	0.63400	0.69100	0.58000	0.69800	0.75600	0.42700	0.46600
Sulfur (S)-Dissolved	mg/L	-	-	0.50	111.00	114.00	115.00	97.80	116.00	113.00	115.00	120.00	85.60	93.70
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	0.00199	0.00310	0.00347	<0.0012	0.00278	0.00055	0.00318	0.00290	<0.00060	0.00032
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.003580	0.003410	0.003710	0.003710	0.003140	0.004400	0.003870	0.003810	0.003330	0.003700
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	0.00257	0.00304	0.00351	0.00105	0.00270	<0.00050	0.00312	0.00275	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	0.0020	0.0010	0.0010	<0.0020	<0.0010	0.0021	<0.0010	0.0012	<0.0030	0.0016
<i>Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)</i>	mg/L	HD & DOC-Dep	-	-	0.33025	0.33402	0.33402	0.32583	0.33402	0.31910	0.33402	0.33402	0.33121	0.32226
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00165	0.00218	0.00221	0.00121	0.00217	0.00082	0.00205	0.00220	0.00075	0.00073

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME: Freshwater
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
A The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at HL3-B during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample WQ Site ID Date Sampled Detection Limit	L1989169-3 HL3-B 07/09/2017 16:35	L2002383-19 HL3-B 03/10/2017 15:10	L2032623-4 HL3-B 06/12/2017 15:00	L2046710-3 HL3-B 17/01/2018 12:15	L2056317-7 HL3-B 12/02/2018 14:45	L2068058-3 HL3-B 13/03/2018 13:35	L2078978-5 HL3-B 10/04/2018 13:30	L2110842-14 HL3-B 11/06/2018 10:40	L2127254-14 HL3-B 09/07/2018 10:05	L2147306-27 HL3-B 12/08/2018 12:10
Physical Tests														
Temperature (in-situ)	°C	-	-	-	0.5	0.2	0.3	0.2	0.5	0.2	0.3	0.7	1.5	1.1
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	0.16	0.17	0.43	0.32	0.56	0.19	0.29	0.70	0.19	0.04
Specific Conductivity (in-situ)	µS/cm	-	-	-	2098.0	2209.0	2281.0	2439.0	2436.0	2414.0	2336.0	1783.0	1198.0	797.0
pH (in-situ)	µS/cm	6.5 - 9.0	-	-	7.08	7.02	6.98	6.98	6.99	7.07	6.99	7.04	6.93	6.95
Oxidation - Redox Potential (in-situ)	mV	-	-	-	-140.1	-90.2	7.6	96.2	-6.7	88.9	30.3	71.6	105.1	177.0
Turbidity (in-situ)	NTU	-	-	-	1.16	-	29.60	144.00	69.40	92.70	0.60	1.44	2.50	1.27
Conductivity	µS/cm	-	-	2	1120	2160	1830	2200	1820	2180	2150	2070	1120	1310
Hardness (as CaCO3)	mg/L	-	-	0.5	653.0	1590.0	1210.0	1550.0	1200.0	1360.0	1400.0	1390.0	624.0	826.0
pH (lab)	pH	6.5 - 9.0	-	0.1	7.80	8.01	7.78	7.71	7.52	8.08	8.24	8.16	8.20	8.01
Total Suspended Solids	mg/L	-	-	2	3.4	150	44	73	56	89	59	57	24	33
Anions and Nutrients														
Ammonia, Total (as N) ^A	mg/L	Temp,pH-Dep	-	0.0050	1.4200	4.7600	4.2800	5.1500	3.5800	4.5600	4.6600	4.2400	1.4200	1.8300
(Temperature and pH adjusted Guideline)	mg/L	Temp,pH-Dep	-	-	18.9974	18.9974	18.9974	18.9974	18.9974	18.9974	18.9974	18.9974	18.9974	18.9974
Bromide (Br)	mg/L	-	-	0.050	<0.25	-	<0.50	<1.0	<0.50	<0.50	<0.50	<0.25	<0.25	<0.25
Chloride (Cl)	mg/L	120	-	0.50	2.80	3.30	<5.0	<10	<5.0	<5.0	<5.0	2.90	2.60	3.10
Fluoride (F)	mg/L	0.12	-	0.020	0.160	0.230	0.210	<0.40	<0.20	0.240	0.230	0.220	0.160	0.180
Nitrate (as N)	mg/L	13	-	0.0050	<0.025	0.0850	<0.050	<0.10	<0.050	<0.050	<0.050	<0.025	<0.025	<0.025
Nitrite (as N)	mg/L	0.06	-	0.0010	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.0050	<0.0050	<0.0050
Phosphorus (P)-Total	mg/L	-	-	0.0020	0.0629	0.9980	0.5960	0.9580	0.6750	0.9300	0.9030	0.7490	0.0463	0.1790
Sulfate (SO4)	mg/L	-	-	0.30	362.00	983.00	706.00	906.00	881.00	849.00	799.00	799.00	343.00	407.00
Sulphide (as S)	mg/L	-	-	0.0180	0.062	0.078	0.043	0.033	0.035	0.048	0.08	0.097	<0.018	0.077
Sulphide (as H2S)	mg/L	-	-	0.0190	0.066	0.083	-	0.035	0.037	0.051	0.085	0.103	<0.019	0.082
Organic / Inorganic Carbon														
Dissolved Organic Carbon	mg/L	-	-	0.5	20.8	30.4	25.3	25.5	24.6	26.6	30.5	28.2	19.8	23.0
Aggregate Organics														
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	<2.0	<2.0	3.2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Asbestos														
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-	-	-
Total Metals														
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.0030	0.0935	0.1480	0.1220	0.1790	0.0916	0.2670	0.0832	0.1090	0.0810	0.0997
(Aluminium (Al)-Total (pH Adjusted Guideline))	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Total	mg/L	-	-	0.00010	0.00025	<0.00020	0.00016	0.00018	0.00015	0.00021	<0.00020	<0.00020	0.00017	0.00016
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.00511	0.01240	0.00956	0.01140	0.00945	0.01130	0.01020	0.00999	0.00449	0.00551
Barium (Ba)-Total	mg/L	-	-	0.000050	0.150000	0.243000	0.224000	0.235000	0.205000	0.231000	0.208000	0.215000	0.134000	0.162000
Beryllium (Be)-Total	mg/L	-	-	0.000020	0.000030	<0.000040	0.000037	0.000035	0.000038	<0.000040	<0.000040	<0.000040	0.000030	0.000034
Bismuth (Bi)-Total	mg/L	-	-	0.000050	<0.000050	<0.00010	<0.000050	<0.000050	<0.000050	<0.00010	<0.00010	<0.00010	<0.000050	<0.000050
Boron (B)-Total	mg/L	1.5	-	0.010	0.015	<0.020	0.023	0.017	0.025	<0.020	<0.020	0.028	0.014	0.016
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.0000050	0.0000390	0.0000210	0.0000184	0.0000200	0.0000151	0.0000290	0.0000150	0.0000120	0.0000367	0.0000202
(Cadmium (Cd)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Total	mg/L	-	-	0.050	143.000	363.000	276.000	337.000	275.000	328.000	283.000	283.000	168.000	168.000
Chromium (Cr)-Total	mg/L	-	-	0.00010	0.00160	0.00251	0.00219	0.00253	0.00208	0.00287	0.00199	0.00225	0.00131	0.00182
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	-	0.00251	0.00219	0.00253	0.00208	0.00287	0.00199	0.00225	0.00131	0.00182
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.00050	<0.00050	<0.00050
Cobalt (Co)-Total	mg/L	-	-	0.00010	0.00195	0.00092	0.00102	0.00072	0.00093	0.00088	0.00064	0.00080	0.00217	0.00130
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00051	<0.0010	<0.00050	<0.00050	<0.00050	<0.0010	<0.0010	<0.0010	0.00115	0.00081
(Copper (Cu)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	0.010	8.770	24.800	17.200	21.900	17.400	22.200	20.100	19.900	7.460	10.600
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.000050	0.000249	0.000150	0.000130	0.000198	0.000081	0.000360	0.000170	<0.00010	0.000182	0.000140
(Lead (Pb)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Total	mg/L	-	-	0.0010	0.0120	0.0133	0.0126	0.0131	0.0172	0.0130	0.0121	0.0135	0.0117	0.0139
Magnesium (Mg)-Total	mg/L	-	-	0.10	79.80	183.00	138.00	161.00	130.00	159.00	157.00	167.00	74.50	91.10
Manganese (Mn)-Total	mg/L	-	-	0.00010	3.82000	8.92000	6.42000	8.16000	6.10000	7.99000	7.23000	7.21000	3.56000	4.34000
Mercury (Hg)-Total	mg/L	0.000026	-	0.0000050	0.0000081	<0.0000050	<0.0000050	<0.0000050	0.0000060	<0.000025	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	0.000835	0.000630	0.000711	0.000548	0.000617	0.000620	0.000540	0.000770	0.000712	0.000621
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00457	0.00220	0.00217	0.00197	0.00196	0.00250	0.00170	0.00170	0.00406	0.00299
(Nickel (Ni)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Total	mg/L	-	-	0.050	0.134	1.000	0.672	0.987	0.662	1.000	0.840	0.900	0.057	0.227
Potassium (K)-Total	mg/L	-	-	0.10	1.45	2.89	2.36	2.74	2.44	2.81	2.39	2.64	1.36	1.67
Selenium (Se)-Total	mg/L	0.001	-	0.000050	0.001560	0.000820	0.000902	0.000879	0.000813	0.000730	0.000730	0.000780	0.001490	0.001060
Silicon (Si)-Total	mg/L	-	-	0.10	7.26	9.91	9.04	10.50	9.49	10.60	9.29	9.75	7.07	7.63
Silver (Ag)-Total	mg/L	0.00025	-	0.000010	0.000013	<0.000020	0.000013	0.000016	0.000013	<0.000020	<0.000020	<0.000020	<0.000010	0.000015
Sodium (Na)-Total	mg/L	-	-	0.050	6.870	11.200	8.970	10.700	8.770	9.930	9.980	9.900	6.640	7.410
Strontium (Sr)-Total	mg/L	-	-	0.00020	0.79900	2.04000	1.53000	1.84000	1.39000	1.88000	1.69000	1.62000	0.75800	0.92000
Sulfur (S)-Total	mg/L	-	-	0.50	130.00	356.00	254.00	329.00	255.00	343.00	298.00	294.00	123.00	148.00
Thallium (Tl)-Total	mg/L	0.0008	-	0.000010	<0.000010	<0.000020	<0.000010	<0.000010	<0.000010	<0.000020	<0.000020	<0.000020	<0.000010	<0.000010
Tin (Sn)-Total	mg/L	-	-	0.00010	<0.00010	<0.00020	<0.00010	<0.00010	<0.00010	<0.00020	<0.00020	<0.00020	<0.00010	<0.00010
Titanium (Ti)-Total	mg/L	-	-	0.00030	0.00449	0.00981	0.00779	0.00981	0.00626	0.01200	0.00658	<0.0069	0.00350	0.00660
Uranium (U)-Total	mg/L	0.015	-	0.000010	0.003590	0.005500	0.005750	0.005650	0.005700	0.005720	0.005950	0.006880	0.003430	0.003640
Vanadium (V)-Total	mg/L	-	-	0.00050	0.00412	0.00550	0.00525	0.00526	0.00529	0.00570	0.00480	0.00358	0.00358	0.00414
Zinc (Zn)-Total	mg/L	-	-	0.0030	<0.0030	<0.0060	<0.0030	<0.0030	<0.0030	<0.0060	<0.0060	<0.0060	<0.0030	<0.0030
Zirconium (Zr)-Total	mg/L	-	-	0.00030	0.00292	0.00385	0.00447	0.00384	0.00455	0.00372	0.00382	0.00475	0.00246	0.00320

Water quality results collected at HL3-B during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989169-3 HL3-B 07/09/2017 16:35	L2002383-19 HL3-B 03/10/2017 15:10	L2032623-4 HL3-B 06/12/2017 15:00	L2046710-3 HL3-B 17/01/2018 12:15	L2056317-7 HL3-B 12/02/2018 14:45	L2068058-3 HL3-B 13/03/2018 13:35	L2078978-5 HL3-B 10/04/2018 13:30	L2110842-14 HL3-B 11/06/2018 10:40	L2127254-14 HL3-B 09/07/2018 10:05	L2147306-27 HL3-B 12/08/2018 12:10
Dissolved Metals														
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0752	0.0905	0.0712	0.0370	0.0533	0.0444	0.0901	0.0887	0.0670	0.0828
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	0.00012	<0.00020	0.00011	<0.00020	0.00012	<0.00020	<0.00020	0.00013	<0.00020	0.00012
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00503	0.01190	0.00948	0.00780	0.00851	0.00905	0.01090	0.01100	0.00439	0.00595
Barium (Ba)-Dissolved	mg/L	-	-	0.00050	0.139000	0.234000	0.197000	0.176000	0.172000	0.179000	0.224000	0.213000	0.132000	0.163000
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	0.000029	<0.000040	0.000029	<0.000040	0.000026	<0.000040	<0.000040	0.000033	<0.000040	0.000029
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.00010	<0.000050	<0.00010	<0.000050	<0.00010	<0.00010	<0.000050	<0.00010	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.013	<0.020	0.021	<0.020	0.022	<0.020	<0.020	0.029	<0.020	0.016
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	0.0000062	<0.000010	<0.000050	<0.000010	<0.000050	<0.000010	<0.000010	0.0000055	<0.000010	<0.000050
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	140.000	345.000	254.000	353.000	276.000	290.000	301.000	297.000	130.000	166.000
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00130	0.00199	0.00175	0.00116	0.00159	0.00147	0.00210	0.00206	0.00103	0.00143
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	0.00130	0.00199	0.00175	0.00116	0.00159	0.00147	0.00210	0.00206	0.00103	0.00143
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00180	0.00071	0.00098	0.00063	0.00094	0.00059	0.00071	0.00078	0.00202	0.00118
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	<0.00020	<0.00040	<0.00020	<0.00040	0.00117	<0.00040	<0.00040	<0.00020	<0.00040	<0.00020
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	8.460	24.200	16.100	12.700	12.900	16.000	21.000	19.300	7.200	10.300
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.00010	<0.000050	<0.00010	0.000063	<0.00010	<0.00010	<0.000050	<0.00010	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0121	0.0128	0.0136	0.0120	0.0148	0.0105	0.0111	0.0139	0.0112	0.0145
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	73.80	178.00	140.00	163.00	124.00	154.00	158.00	157.00	72.40	99.90
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	3.65000	8.73000	5.93000	8.35000	6.04000	7.54000	7.66000	7.11000	3.35000	4.59000
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.000625	0.000400	0.000462	0.000480	0.000456	0.000430	0.000480	0.000663	0.000650	0.000530
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.00371	0.00150	0.00177	0.00140	0.00187	0.00140	0.00160	0.00169	0.00390	0.00269
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	0.109	0.970	0.257	<0.10	0.062	<0.10	0.930	0.913	<0.10	0.261
Potassium (K)-Dissolved	mg/L	-	-	0.10	1.48	2.86	2.65	2.67	2.47	2.35	2.59	2.73	1.24	1.76
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.001510	0.000730	0.000823	0.000720	0.000878	0.000490	0.000800	0.001110	0.001080	0.000899
Silicon (Si)-Dissolved	mg/L	-	-	0.050	6.690	10.600	9.050	9.550	9.000	9.650	9.340	9.370	6.810	6.580
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000020	<0.000010	<0.000020	<0.000010	<0.000020	<0.000020	0.000011	<0.000020	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	6.650	10.900	9.450	10.700	9.010	9.620	9.930	9.700	6.650	7.990
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	0.74200	1.99000	1.41000	1.90000	1.42000	1.69000	1.69000	1.63000	0.68000	0.91200
Sulfur (S)-Dissolved	mg/L	-	-	0.50	122.00	339.00	239.00	325.00	243.00	319.00	304.00	281.00	123.00	129.00
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000020	<0.000010	<0.000020	<0.000010	<0.000020	<0.000020	<0.000010	<0.000020	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00020	<0.00010	<0.00020	<0.00010	<0.00020	<0.00020	<0.00010	<0.00020	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.0045	0.00664	0.00527	<0.0030	0.00350	<0.0033	0.00600	0.00635	<0.0033	0.00511
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.003490	0.005330	0.005610	0.005190	0.005070	0.004870	0.005750	0.007120	0.003400	0.003750
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	0.00383	0.00510	0.00463	0.00180	0.00298	0.00270	0.00510	0.00517	0.00310	0.00419
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	0.0010	<0.0020	<0.0010	<0.0020	0.0010	<0.0020	<0.0020	0.0012	<0.0020	<0.0010
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.33402	0.33402	0.33402	0.33402	0.33402	0.33402	0.33402	0.33402	0.33402	0.33402
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00279	0.00387	0.00392	0.00255	0.00307	0.00273	0.00417	0.00498	0.00216	0.00320

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:

HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.

A The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Water quality results collected at HL3-B during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2164009-3 HL3-B 11/09/2018 20:10	L2198094-7 HL3-B 15/11/2018 15:00	L2211082-7 HL3-B 13/12/2018 13:55	L2222349-3 HL3-B 17/01/2019 12:25	L2235602-3 HL3-B 20/02/2019 11:00	L2241668-3 HL3-B 06/03/2019 11:50	L2263589-18 HL3-B 25/04/2019 11:50	L2291429-14 HL3-B 11/06/2019 11:50	L2308450-17 HL3-B 09/07/2019 10:00	L2328273-7 HL3-B 12/08/2019 10:35
Physical Tests														
Temperature (in-situ)	°C	-	-	-	0.4	0.8	0.6	0.8	0.9	0.5	0.8	0.9	0.6	0.7
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	0.72	0.18	0.53	0.30	0.30	0.10	0.21	0.23	0.14	0.17
Specific Conductivity (in-situ)	µS/cm	-	-	-	2088.0	1910.0	1998.0	1471.0	1471.0	2078.0	1596.0	1468.0	1927.0	1880.0
pH (in-situ)	µH	6.5 - 9.0	-	-	7.00	6.98	6.96	7.02	6.96	7.06	7.02	7.09	6.99	7.02
Oxidation - Redox Potential (in-situ)	mV	-	-	-	-89.0	-	-161.2	-174.2	-310.2	64.5	140.7	164.7	178.0	186.0
Turbidity (in-situ)	NTU	-	-	-	12.14	30.30	58.10	83.60	65.60	19.47	1.54	16.95	4.28	1.24
Conductivity	µS/cm	-	-	2	2000	1450	1720	1500	1470	1230	1480	1510	1410	1470
Hardness (as CaCO3)	mg/L	-	-	0.5	1230.0	897.0	1160.0	944.0	871.0	776.0	963.0	893.0	848.0	855.0
pH (lab)	pH	6.5 - 9.0	-	0.1	7.47	7.39	7.48	7.44	7.71	7.63	7.62	8.03	8.09	8.20
Total Suspended Solids	mg/L	-	-	2	40	21	32	40	8	19	43	45	44	13
Anions and Nutrients														
Ammonia, Total (as N) ^A	mg/L	Temp,pH-Dep	-	0.0050	3.6800	2.6100	3.1900	2.4700	2.3800	1.8600	2.4000	2.7900	2.2400	2.1700
(Temperature and pH adjusted Guideline)	mg/L	Temp,pH-Dep	-	-	18.9974	18.9974	18.9974	18.9974	18.9974	18.9974	18.9974	18.9974	18.9974	18.9974
Bromide (Br)	mg/L	-	-	0.050	<0.25	<0.25	<0.50	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Chloride (Cl)	mg/L	120	-	0.50	3.10	3.60	<5.0	3.70	3.80	2.90	3.10	3.20	3.50	3.80
Fluoride (F)	mg/L	0.12	-	0.020	0.220	0.190	0.230	0.150	0.210	0.190	0.210	0.200	0.180	0.200
Nitrate (as N)	mg/L	13	-	0.0050	<0.025	<0.025	<0.050	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Nitrite (as N)	mg/L	0.06	-	0.0010	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Phosphorus (P)-Total	mg/L	-	-	0.0020	0.6500	0.3210	0.5510	0.3130	0.3030	0.1560	0.3410	0.3680	0.3060	0.2840
Sulfate (SO4)	mg/L	-	-	0.30	749.00	487.00	644.00	499.00	490.00	355.00	482.00	507.00	501.00	454.00
Sulphide (as S)	mg/L	-	-	0.0180	0.077	0.037	0.038	0.026	0.031	0.03	0.059	0.038	0.072	0.059
Sulphide (as H2S)	mg/L	-	-	0.0190	0.082	0.039	0.04	0.028	0.033	0.032	0.063	0.04	0.077	0.063
Organic / Inorganic Carbon														
Dissolved Organic Carbon	mg/L	-	-	0.5	27.5	23.8	23.8	19.9	20.3	20.3	26.0	25.6	25.3	23.4
Aggregate Organics														
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	<2.0	<2.0	20.1	<2.0	<2.0	<2.0	-	<2.0	<2.0	<2.0
Asbestos														
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-	-	-
Total Metals														
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.0030	0.1930	0.0939	0.0975	0.0844	0.0789	0.0817	0.0898	0.1380	0.2040	0.0997
(Aluminium (Al)-Total (pH Adjusted Guideline))	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Total	mg/L	-	-	0.00010	0.00016	0.00015	0.00014	<0.00020	0.00013	0.00016	0.00015	0.00016	0.00015	<0.00020
Arsenic (As)-Total	mg/L	0.005	-	0.00010	0.01000	0.00666	0.00901	0.00655	0.00578	0.00530	0.00642	0.00711	0.00697	0.00635
Barium (Ba)-Total	mg/L	-	-	0.00050	0.236000	0.192000	0.215000	0.181000	0.138000	0.147000	0.179000	0.201000	0.179000	0.168000
Beryllium (Be)-Total	mg/L	-	-	0.000020	0.000031	0.000032	0.000030	<0.00040	0.000030	0.000026	0.000028	0.000036	0.000026	<0.00040
Bismuth (Bi)-Total	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.00010	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.00010
Boron (B)-Total	mg/L	1.5	-	0.010	0.024	0.017	0.021	<0.020	0.016	0.016	0.018	0.018	0.020	<0.020
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.0000050	0.0000168	<0.000025	0.0000133	0.0000190	0.0000141	0.0000243	0.0000189	0.0000132	0.0000220	0.0000190
(Cadmium (Cd)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Total	mg/L	-	-	0.050	256.000	193.000	234.000	192.000	159.000	150.000	203.000	188.000	177.000	177.000
Chromium (Cr)-Total	mg/L	-	-	0.00010	0.00245	0.00191	0.00220	0.00182	0.00169	0.00160	0.00186	0.00218	0.00238	0.00181
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	0.00245	0.00191	0.00220	0.00182	0.00169	0.00160	0.00186	0.00218	0.00238	0.00181
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt (Co)-Total	mg/L	-	-	0.00010	0.00107	0.00111	0.00099	0.00108	0.00100	0.00156	0.00101	0.00102	0.00130	0.00125
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00077	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	0.00063	0.00051	<0.00050	<0.0010
(Copper (Cu)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Total	mg/L	0.3	-	0.010	18.400	13.300	16.900	13.600	11.600	9.920	13.400	14.100	13.300	12.600
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.000050	0.000227	<0.00015	0.000081	0.000130	0.000087	0.000162	0.000103	0.000136	0.000206	0.000110
(Lead (Pb)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Total	mg/L	-	-	0.0010	0.0134	0.0141	0.0135	0.0154	0.0144	0.0125	0.0174	0.0164	0.0169	0.0165
Magnesium (Mg)-Total	mg/L	-	-	0.10	145.00	111.00	131.00	107.00	84.00	84.10	106.00	108.00	113.00	112.00
Manganese (Mn)-Total	mg/L	-	-	0.00010	6.75000	5.18000	6.12000	5.21000	4.10000	4.02000	5.28000	5.46000	5.40000	5.31000
Mercury (Hg)-Total	mg/L	0.000026	-	0.0000050	0.0000062	<0.000050	<0.000050	<0.000050	<0.000050	0.0000076	0.0000060	0.0000065	0.0000071	<0.000050
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	0.000635	0.000536	0.000481	0.000560	0.000534	0.000589	0.000562	0.000569	0.000674	0.000670
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.00050	0.00244	0.00250	0.00227	0.00270	0.00217	0.00304	0.00244	0.00256	0.00304	0.00200
(Nickel (Ni)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Total	mg/L	-	-	0.050	0.677	0.347	0.563	0.390	0.283	0.142	0.367	0.363	0.375	0.290
Potassium (K)-Total	mg/L	-	-	0.10	2.29	1.87	2.23	1.75	1.73	1.54	1.81	1.95	2.00	1.96
Selenium (Se)-Total	mg/L	0.001	-	0.000050	0.000970	0.000899	0.000921	0.000850	0.000737	0.001160	0.000920	0.000729	0.000905	0.000960
Silicon (Si)-Total	mg/L	-	-	0.10	9.18	8.24	8.61	7.95	7.46	7.52	8.70	8.77	8.52	8.84
Silver (Ag)-Total	mg/L	0.00025	-	0.000010	<0.000020	0.000012	0.000011	<0.000020	0.000011	<0.000010	0.000012	0.000011	0.000012	<0.000020
Sodium (Na)-Total	mg/L	-	-	0.050	9.040	8.270	8.360	8.120	7.580	7.350	8.380	8.660	8.800	8.960
Strontium (Sr)-Total	mg/L	-	-	0.00020	1.40000	1.06000	1.25000	1.04000	0.88000	0.83400	1.08000	1.11000	1.01000	1.00000
Sulfur (S)-Total	mg/L	-	-	0.50	281.00	170.00	219.00	174.00	165.00	140.00	193.00	180.00	187.00	170.00
Thallium (Tl)-Total	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000020	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000020
Tin (Sn)-Total	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00020	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020
Titanium (Ti)-Total	mg/L	-	-	0.00030	0.00996	<0.0060	0.00709	0.00528	0.00512	0.00492	0.00549	0.00752	0.00917	0.00570
Uranium (U)-Total	mg/L	0.015	-	0.000010	0.005600	0.003980	0.004850	0.004130	0.003950	0.003410	0.004130	0.004150	0.004350	0.004260
Vanadium (V)-Total	mg/L	-	-	0.00050	0.00547	0.00480	0.00563	0.00460	0.00415	0.00420	0.00468	0.00505	0.00505	0.00480
Zinc (Zn)-Total	mg/L	-	-	0.0030	<0.0030	<0.0030	<0.0030	<0.0060	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0060
Zirconium (Zr)-Total	mg/L	-	-	0.00030	0.00417	0.00375	0.00432	0.00362	0.00358	0.00317	0.00382	0.00401	0.00358	0.00342

Water quality results collected at HL3-B during monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2164009-3 HL3-B 11/09/2018 20:10	L2198094-7 HL3-B 15/11/2018 15:00	L2211082-7 HL3-B 13/12/2018 13:55	L2222349-3 HL3-B 17/01/2019 12:25	L2235602-3 HL3-B 20/02/2019 11:00	L2241668-3 HL3-B 06/03/2019 11:50	L2263589-18 HL3-B 25/04/2019 11:50	L2291429-14 HL3-B 11/06/2019 11:50	L2308450-17 HL3-B 09/07/2019 10:00	L2328273-7 HL3-B 12/08/2019 10:35
Dissolved Metals														
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	0.0902	0.0594	0.0597	0.0377	0.0380	0.0556	0.0863	0.0696	0.0781	0.0828
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	<0.00020	0.00012	0.00011	<0.00020	0.00010	0.00011	0.00012	<0.00020	0.00013	0.00012
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	0.00949	0.00628	0.00835	0.00401	0.00437	0.00470	0.00758	0.00642	0.00596	0.00715
Barium (Ba)-Dissolved	mg/L	-	-	0.00050	0.211000	0.177000	0.202000	0.152000	0.143000	0.151000	0.195000	0.169000	0.171000	0.177000
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000040	0.000022	0.000025	<0.000040	<0.000020	0.000024	0.000033	<0.000040	0.000025	0.000032
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000100	<0.000050	<0.000050	<0.00010	<0.000050	<0.000050	<0.000050	<0.00010	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	0.024	0.016	0.019	<0.020	0.022	0.016	0.018	<0.020	0.019	0.017
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	<0.000010	<0.0000050	<0.0000050	<0.000010	<0.0000050	<0.0000050	<0.0000050	<0.000010	<0.0000050	0.0000072
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700	0.0003700
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	249.000	185.000	240.000	195.000	182.000	156.000	208.000	184.000	177.000	174.000
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	0.00203	0.00144	0.00165	0.00120	0.00123	0.00134	0.00191	0.00163	0.00175	0.00171
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	0.00203	0.00144	0.00165	0.00120	0.00123	0.00134	0.00191	0.00163	0.00175	0.00171
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	<0.0010	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	0.00090	0.00102	0.00102	0.00105	0.00099	0.00151	0.00100	0.00095	0.00139	0.00122
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	<0.00040	<0.00020	<0.00020	<0.00040	<0.00020	<0.00020	0.00021	<0.00040	0.00053	0.00022
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	18.200	8.030	13.800	5.610	5.990	7.210	13.900	12.700	11.500	12.500
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.00010	<0.000050	<0.000050	<0.00010	<0.000050	<0.000050	<0.000050	<0.00010	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000	0.007000
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	0.0135	0.0150	0.0150	0.0164	0.0145	0.0128	0.0188	0.0148	0.0149	0.0161
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	147.00	106.00	137.00	111.00	101.00	94.10	107.00	105.00	98.40	102.00
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	6.34000	5.31000	6.58000	5.35000	4.81000	4.29000	5.47000	5.22000	4.91000	4.97000
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000051	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	0.000540	0.000457	0.000383	0.000510	0.000438	0.000557	0.000439	0.000560	0.000591	0.000583
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	0.00200	0.00213	0.00202	0.00230	0.00203	0.00281	0.00233	0.00230	0.00298	0.00273
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	0.620	0.076	0.053	<0.10	<0.050	<0.050	0.406	0.220	0.275	0.322
Potassium (K)-Dissolved	mg/L	-	-	0.10	2.29	1.87	2.29	1.96	1.81	1.60	2.00	1.82	1.72	1.88
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	0.000850	0.000591	0.000742	0.000630	0.000816	0.001020	0.001110	0.000690	0.000850	0.001130
Silicon (Si)-Dissolved	mg/L	-	-	0.050	9.130	5.780	8.740	8.170	7.510	7.720	7.890	8.470	7.680	8.430
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000020	<0.000010	<0.000010	<0.000020	<0.000010	<0.000010	0.000011	<0.000020	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	8.890	8.190	9.750	8.950	8.250	7.420	8.670	8.220	8.290	8.600
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	1.43000	1.04000	1.35000	1.11000	0.98500	0.80700	1.01000	1.17000	0.97100	1.01000
Sulfur (S)-Dissolved	mg/L	-	-	0.50	251.00	124.00	214.00	180.00	162.00	133.00	179.00	187.00	157.00	165.00
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000020	<0.000010	<0.000010	0.000026	<0.000010	<0.000010	<0.000010	<0.000020	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00020	<0.00010	<0.00010	<0.00020	<0.00010	<0.00010	<0.00010	<0.00020	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	0.00640	0.00407	0.00425	<0.0024	0.00230	0.00313	0.00613	0.00538	0.00511	0.00497
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	0.006000	0.003710	0.004700	0.003670	0.003000	0.003290	0.003950	0.004190	0.003770	0.003930
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	0.00500	0.00326	0.00356	0.00150	0.00174	0.00249	0.00466	0.00400	0.00418	0.00443
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	<0.0020	<0.0010	<0.0010	<0.0020	<0.0010	<0.0010	<0.0010	<0.0020	<0.0020	0.0019
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	0.33402	0.33402	0.33402	0.33402	0.33402	0.33402	0.33402	0.33402	0.33402	0.33402
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	0.00433	0.00319	0.00325	0.00233	0.00250	0.00261	0.00371	0.00380	0.00359	0.00369

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
A The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:

Exceeds CCME Guideline

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

[illegible]

Field blank water quality results from monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989173-14 FIELD BLANK 09/09/2017 10:15	L2003229-6 FIELD BLANK 04/10/2017 11:10	L2020913-2 FIELD BLANK 08/11/2017 15:05	L2032255-6 FIELD BLANK 05/12/2017 13:25	L2046710-4 FIELD BLANK 16/01/2018 11:30	L2056317-2 FIELD BLANK 12/02/2018 12:30	L2067395-10 FIELD BLANK 12/03/2018 15:45	L2078526-3 FIELD BLANK 09/04/2018 14:15	L2096824-2 FIELD BLANK 16/05/2018 14:50	L2110842-15 FIELD BLANK 11/06/2018 13:45	L2127254-4 FIELD BLANK 09/07/2018 10:25
Dissolved Metals															
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	0.000102	<0.000050	0.000072	<0.000050	<0.000050	<0.000050	<0.000050	<0.00010	<0.00010	<0.00010	0.000130
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.10	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00015	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	0.074	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Sulfur (S)-Dissolved	mg/L	-	-	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	0.00032	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	-	-	-	-	-	-	-	-	-	-	-
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
A The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:
Exceeds CCME Guideline
QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Sample ID				L2164007-2	L2183280-10	L218094-3	L211082-4	L222349-6	L2235602-4	L2241668-4	L2263589-14	L2275161-9	L2291429-10	L2308450-6	L2329874-18
Field Sampled				12/09/2018 10:00	16/10/2018 17:45	15/11/2018 13:00	13/12/2018 12:00	17/01/2019 12:35	20/02/2019 11:05	06/03/2019 12:05	25/04/2019 11:25	15/05/2019 12:45	11/06/2019 14:30	10/07/2019 10:40	14/08/2019 12:20
Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	WQ Site ID											
Physical Tests															
Temperature (in-situ)	°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductivity (in-situ)	µS/cm	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH (in-situ)	pH	6.5 - 9.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxidation - Redox Potential (in-situ)	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (in-situ)	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity	µS/cm	-	-	2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hardness (as CaCO3)	mg/L	-	-	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
pH (lab)	pH	6.5 - 9.0	-	0.1	5.40	5.83	5.78	5.52	5.35	5.80	5.67	5.77	5.99	5.68	5.74
Total Suspended Solids	mg/L	-	-	2	<3.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Anions and Nutrients															
Ammonia, Total (as N) ^a	mg/L	Temp,pH-Dep	-	0.0050	<0.0050	<0.0050	<0.0050	0.0152	0.0130	0.0087	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
(Temperature and pH adjusted Guideline)															
Bromide (Br)	mg/L	Temp,pH-Dep	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	-	-	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	mg/L	0.12	-	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrate (as N)	mg/L	13	-	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0071	<0.0050	<0.0050
Nitrite (as N)	mg/L	0.06	-	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total	mg/L	-	-	0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Sulfate (SO4)	mg/L	-	-	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Sulphide (as S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon															
Dissolved Organic Carbon	mg/L	-	-	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Aggregate Organics															
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-
Asbestos															
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0165	<0.0030	<0.0030	<0.0030
(Aluminium (Al)-Total (pH Adjusted Guideline))															
Antimony (Sb)-Total	mg/L	pH-Dep	-	0.00010	<0.00010	<0.00010	<0.0001								

Field blank water quality results from monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2164007-2 FIELD BLANK 12/09/2018 10:00	L2183280-10 FIELD BLANK 16/10/2018 17:45	L2198094-3 FIELD BLANK 15/11/2018 13:00	L2211082-4 FIELD BLANK 13/12/2018 12:00	L2222349-6 FIELD BLANK 17/01/2019 12:35	L2235602-4 FIELD BLANK 20/02/2019 11:05	L2241668-4 FIELD BLANK 06/03/2019 12:05	L2263589-14 FIELD BLANK 25/04/2019 11:25	L2275161-9 FIELD BLANK 15/05/2019 12:45	L2291429-10 FIELD BLANK 11/06/2019 14:30	L2308450-6 FIELD BLANK 10/07/2019 10:40	L2329874-18 FIELD BLANK 14/08/2019 12:20
Dissolved Metals																
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium (Ba)-Dissolved	mg/L	-	-	0.000050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	1.5	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00026	<0.00010
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.078	<0.050	<0.050
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Sulfur (S)-Dissolved	mg/L	-	-	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME:
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
A The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:
Exceeds CCME Guideline
QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

			CCEC		L1989173-5 TRAVEL BLANK 09/09/2017 00:00	L2003229-7 TRAVEL BLANK 04/10/2017 00:00	L2020913-5 TRAVEL BLANK 08/11/2017 00:00	L2036233-6 TRAVEL BLANK 06/12/2017 00:00	L2046710-5 TRAVEL BLANK 17/01/2018 00:00	L2056317-4 TRAVEL BLANK 12/02/2018 00:00	L2068058-5 TRAVEL BLANK 13/03/2018 00:00	L2079561-1 TRAVEL BLANK 11/04/2018 00:00	L2096824-4 TRAVEL BLANK 17/05/2018 00:00	L2116299-10 TRAVEL BLANK 12/06/2018 00:00	L2128251-12 TRAVEL BLANK 11/07/2018 12:00	L2147306-20 TRAVEL BLANK 14/08/2018 00:00
Analyte	Units	Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit												
Physical Tests																
Temperature (In-situ)	°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductivity (in-situ)	µS/cm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH (in-situ)	pH	6.5 - 9.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxidation - Redox Potential (in-situ)	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (In-situ)	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity	µS/cm	-	2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hardness (as CaCO ₃)	mg/L	-	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
pH (lab)	pH	6.5 - 9.0	-	0.1	5.62	5.55	5.78	5.80	5.41	6.04	5.79	6.57	5.74	6.17	5.65	5.65
Total Suspended Solids	mg/L	-	2	<3.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Anions and Nutrients																
Ammonia, Total (as N) ^	mg/L	Temp,pH-Dep	-	0.0050	-	-	<0.013	0.0158	<0.018	0.0177	<0.011	<0.0085	<0.015	0.0160	0.0107	0.0107
(Temperature and pH adjusted Guideline)	mg/L	Temp,pH-Dep	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromide (Br)	mg/L	-	-	0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	120	-	0.50	<0.10	<0.50	<0.10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	mg/L	0.12	-	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrate (as N)	mg/L	13	-	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite (as N)	mg/L	0.06	-	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total	mg/L	-	-	0.0020	<0.010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Sulfate (SO ₄)	mg/L	-	-	0.30	<5.0	<0.30	<5.0	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Sulphide (as S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H ₂ S)	mg/L	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon																
Dissolved Organic Carbon	mg/L	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Aggregate Organics																
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos																
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.												

Travel blank water quality results from monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L1989173-5 TRAVEL BLANK 09/09/2017 00:00	L2003229-7 TRAVEL BLANK 04/10/2017 00:00	L2020913-5 TRAVEL BLANK 08/11/2017 00:00	L2032623-6 TRAVEL BLANK 06/12/2017 00:00	L2046710-5 TRAVEL BLANK 17/01/2018 00:00	L2056317-4 TRAVEL BLANK 12/02/2018 00:00	L2068058-5 TRAVEL BLANK 13/03/2018 00:00	L2079561-1 TRAVEL BLANK 11/04/2018 00:00	L2096824-4 TRAVEL BLANK 17/05/2018 00:00	L2112699-10 TRAVEL BLANK 12/06/2018 00:00	L2128251-12 TRAVEL BLANK 11/07/2018 12:00	L2147306-20 TRAVEL BLANK 14/08/2018 00:00
Dissolved Metals																
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	-	-	-	-	-	-	-	-	-	-	-	-
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Barium (Ba)-Dissolved	mg/L	-	-	0.00050	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)-Dissolved	mg/L	-	-	0.000020	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)-Dissolved	mg/L	-	-	0.000050	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)-Dissolved	mg/L	1.5	-	0.010	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	-	-	-	-	-	-	-	-	-	-	-	-
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	-	-	-	-	-	-	-	-	-	-	-	-
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	-	-	-	-	-	-	-	-	-	-	-	-
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	-	-	-	-	-	-	-	-	-	-	-	-
Potassium (K)-Dissolved	mg/L	-	-	0.10	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)-Dissolved	mg/L	-	-	0.050	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)-Dissolved	mg/L	-	-	0.050	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	-	-	-	-	-	-	-	-	-	-	-	-
Sulfur (S)-Dissolved	mg/L	-	-	0.50	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	-	-	-	-	-	-	-	-	-	-	-	-

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME: Freshwater
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
A The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:
Exceeds CCME Guideline
QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Travel blank water quality results from monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2164007-1 TRAVEL BLANK 12/09/2018 00:00	L2183280-11 TRAVEL BLANK 16/10/2018 00:00	L2198094-4 TRAVEL BLANK 16/11/2018 00:00	L2211082-3 TRAVEL BLANK 13/12/2018 00:00	L2222349-7 TRAVEL BLANK 17/01/2019 00:00	L2235602-5 TRAVEL BLANK 20/02/2019 00:00	L2241668-5 TRAVEL BLANK 06/03/2019 00:00	L2263589-15 TRAVEL BLANK 25/04/2019 00:00	L2275161-10 TRAVEL BLANK 15/05/2019 00:00	L2291429-11 TRAVEL BLANK 12/06/2019 00:00	L2308450-14 TRAVEL BLANK 09/07/2019 00:00	L2329874-14 TRAVEL BLANK 14/08/2019 00:00
Physical Tests																
Temperature (in-situ)	°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (in-situ)	mg/L	9.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific Conductivity (in-situ)	µS/cm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH (in-situ)	pH	6.5 - 9.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxidation - Redox Potential (in-situ)	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (in-situ)	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity	µS/cm	-	-	2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hardness (as CaCO3)	mg/L	-	-	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
pH (lab)	pH	6.5 - 9.0	-	0.1	5.40	5.78	5.58	5.70	5.36	5.66	5.53	5.59	5.84	5.56	5.70	6.08
Total Suspended Solids	mg/L	-	-	2	<3.0	<2.0	<2.0	<2.0	<2.0	-	<2.0	<2.0	<2.0	<2.0	<2.0	-
Anions and Nutrients																
Ammonia, Total (as N) ^Δ	mg/L	Temp,pH-Dep	-	0.0050	0.0128	<0.010	<0.015	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0130	<0.0050
(Temperature and pH adjusted Guideline)	mg/L	Temp,pH-Dep	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromide (Br)	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	120	-	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	mg/L	0.12	-	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrate (as N)	mg/L	13	-	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite (as N)	mg/L	0.06	-	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total	mg/L	-	-	0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Sulfate (SO4)	mg/L	-	-	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Sulphide (as S)	mg/L	-	-	0.0180	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	mg/L	-	-	0.0190	-	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon																
Dissolved Organic Carbon	mg/L	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-
Aggregate Organics																
Biological Oxygen Demand (BOD)	mg/L	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos																
Total Asbestos concentration	MFL	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																
Aluminium (Al)-Total	mg/L	pH-Dep	-	0.0030	<0.0030	<0.0030	<0.0030	<0.0030	-	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
(Aluminium (Al)-Total (pH Adjusted Guideline))	mg/L	pH-Dep	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)-Total	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)-Total	mg/L	0.005	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium (Ba)-Total	mg/L	-	-	0.000050	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Beryllium (Be)-Total	mg/L	-	-	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Total	mg/L	-	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	1.5	-	0.010	<0.010	<0.010	<0.010	<0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Total (Lab Result)	mg/L	HD	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
(Cadmium (Cd)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)-Total	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chromium (Cr)-Total	mg/L	-	-	0.00010	<0.00010	<0.00010	0.00032	0.00012	-	0.00056	<0.00010	<0.00010	<0.00010	<0.00010	0.00034	<0.00010
Trivalent Chromium (Cr III)-Total	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Hexavalent Chromium (Cr VI)-Total	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)-Total	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)-Total (Lab Result)	mg/L	HD	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
(Copper (Cu)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron (Fe)-Total	mg/L	0.3	-	0.010	<0.010	<0.010	<0.010	<0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead (Pb)-Total (Lab Result)	mg/L	HD	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
(Lead (Pb)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithium (Li)-Total	mg/L	-	-	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)-Total	mg/L	-	-	0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Manganese (Mn)-Total	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Mercury (Hg)-Total	mg/L	0.000026	-	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.073	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel (Ni)-Total (Lab Result)	mg/L	HD	-	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
(Nickel (Ni)-Total (Hardness Adjusted Guideline))	mg/L	HD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus (P)-Total	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total	mg/L	-	-	0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Selenium (Se)-Total	mg/L	0.001	-	0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)-Total	mg/L	-	-	0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Silver (Ag)-Total	mg/L	0.00025	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Total	mg/L	-	-	0.050	<0.050	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Strontium (Sr)-Total	mg/L	-	-	0.00020	<0.00020	<0.00020	<0.00020	<0.00020	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Sulfur (S)-Total	mg/L	-	-	0.50	<0.50	<0.50	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Thallium (Tl)-Total	mg/L	0.0008	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Total	mg/L	-	-	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Total	mg/L	-	-	0.00030	<0.00030	<0.00030	<0.00030	<0.00030	-	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Uranium (U)-Total	mg/L	0.015	-	0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000010	<0.000010					

Travel blank water quality results from monthly surface water monitoring

Analyte	Units	CCME-Aquatic Life (AL)	Other Standards	Sample ID WQ Site ID Date Sampled Detection Limit	L2164007-1 TRAVEL BLANK 12/09/2018 00:00	L2183280-11 TRAVEL BLANK 16/10/2018 00:00	L2198094-4 TRAVEL BLANK 16/11/2018 00:00	L2211082-3 TRAVEL BLANK 13/12/2018 00:00	L2222349-7 TRAVEL BLANK 17/01/2019 00:00	L2235602-5 TRAVEL BLANK 20/02/2019 00:00	L2241668-5 TRAVEL BLANK 06/03/2019 00:00	L2263589-15 TRAVEL BLANK 25/04/2019 00:00	L2275161-10 TRAVEL BLANK 15/05/2019 00:00	L2291429-11 TRAVEL BLANK 12/06/2019 00:00	L2308450-14 TRAVEL BLANK 09/07/2019 00:00	L2329874-14 TRAVEL BLANK 14/08/2019 00:00
Dissolved Metals																
Aluminium (Al)-Dissolved	mg/L	pH-Dep	-	0.0010	-	-	-	-	-	-	-	-	-	-	-	-
Aluminium (Al)-Dissolved (pH Adjusted Guideline)	mg/L	pH-Dep	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)-Dissolved	mg/L	-	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)-Dissolved	mg/L	0.005	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Barium (Ba)-Dissolved	mg/L	-	-	0.00050	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)-Dissolved	mg/L	-	-	0.00020	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)-Dissolved	mg/L	-	-	0.00050	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)-Dissolved	mg/L	1.5	-	0.010	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)-Dissolved (Lab Result)	mg/L	HD	-	0.0000050	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)-Dissolved	mg/L	-	-	0.050	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)-Dissolved	mg/L	-	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Trivalent Chromium (Cr III)-Dissolved	mg/L	0.0089	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Hexavalent Chromium (Cr VI)-Dissolved	mg/L	0.001	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Copper (Cu)-Dissolved (Lab Result)	mg/L	HD	-	0.00020	-	-	-	-	-	-	-	-	-	-	-	-
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron (Fe)-Dissolved	mg/L	0.3	-	0.010	-	-	-	-	-	-	-	-	-	-	-	-
Lead (Pb)-Dissolved (Lab Result)	mg/L	HD	-	0.000050	-	-	-	-	-	-	-	-	-	-	-	-
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithium (Li)-Dissolved	mg/L	-	-	0.0010	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)-Dissolved	mg/L	-	-	0.10	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)-Dissolved	mg/L	-	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.0000050	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.000050	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (Ni)-Dissolved (Lab Result)	mg/L	HD	-	0.00050	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	HD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus (P)-Dissolved	mg/L	-	-	0.050	-	-	-	-	-	-	-	-	-	-	-	-
Potassium (K)-Dissolved	mg/L	-	-	0.10	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)-Dissolved	mg/L	0.001	-	0.000050	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)-Dissolved	mg/L	-	-	0.050	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)-Dissolved	mg/L	0.00025	-	0.000010	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)-Dissolved	mg/L	-	-	0.050	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)-Dissolved	mg/L	-	-	0.00020	-	-	-	-	-	-	-	-	-	-	-	-
Sulfur (S)-Dissolved	mg/L	-	-	0.50	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.000010	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)-Dissolved	mg/L	-	-	0.00010	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)-Dissolved	mg/L	-	-	0.00030	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)-Dissolved	mg/L	0.015	-	0.000010	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)-Dissolved	mg/L	-	-	0.00050	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)-Dissolved	mg/L	HD & DOC-Dep	-	0.0010	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)-Diss. (DOC & Hardness Adjusted Guideline)	mg/L	HD & DOC-Dep	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zirconium (Zr)-Dissolved	mg/L	-	-	0.00030	-	-	-	-	-	-	-	-	-	-	-	-

Applied Guidelines: Federal CCME Canadian Environmental Quality Guidelines February 2015), CCME: Freshwater
HD = Hardness Dependent guideline for CCME-AL dependent guidelines: HD = Hardness Dependent,
DOC-Dep = Dissolved Organic Carbon Dependent, pH-Dep = pH Dependent.
A The CCME WATER-AL guideline for total ammonia-N is temperature and pH dependent

Asbestos abbreviations: MFL = million fibers per litre, AS = analytical sensitivity

COLOUR KEY:
Exceeds CCME Guideline
QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.



Appendix E. Time Series Water Quality Figures

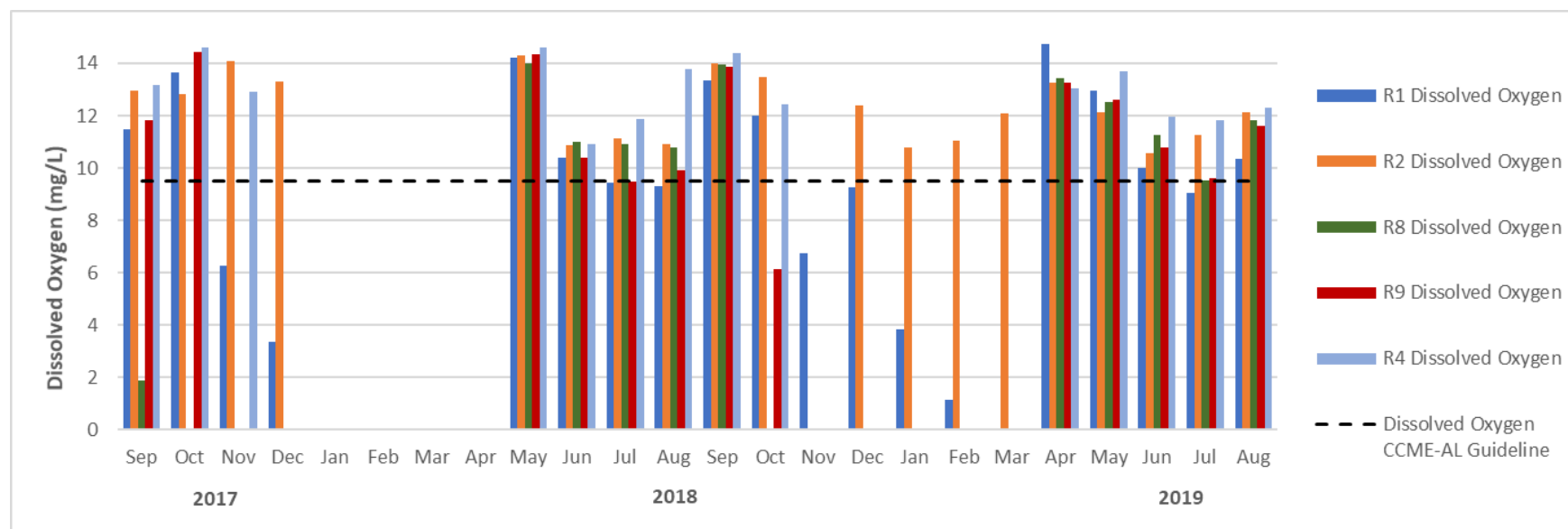


Figure E-1. Dissolved oxygen concentrations at reference sites R1, R2, R8, R9, and R4 between September 2017 and August 2019.

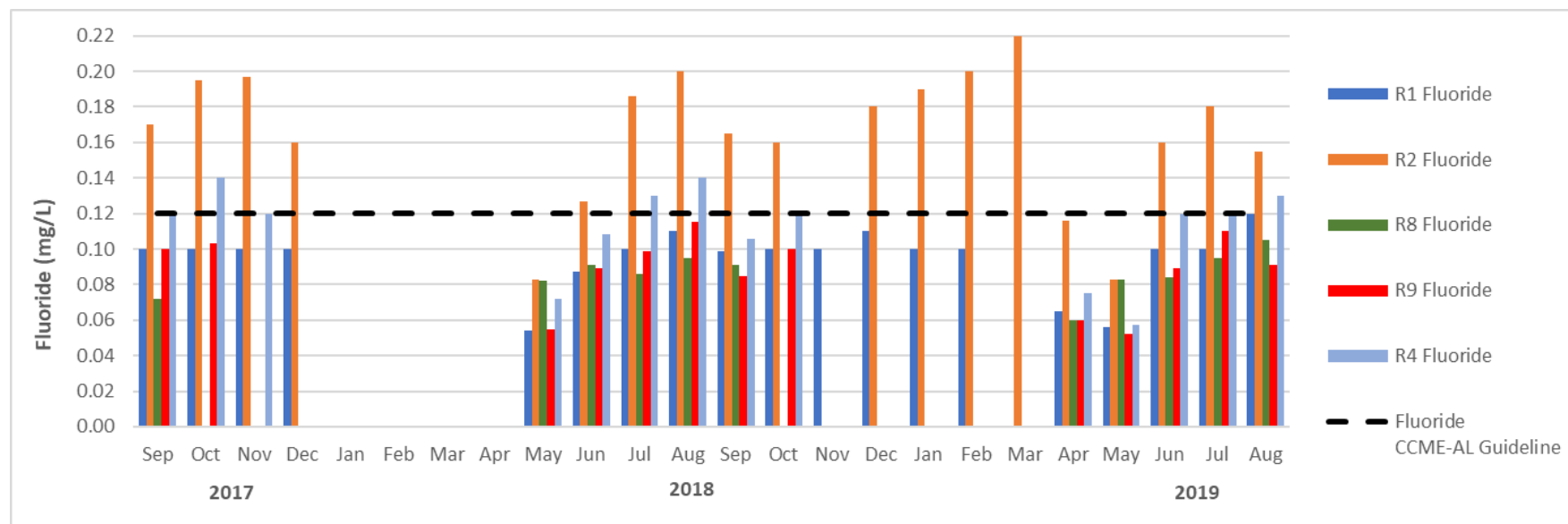


Figure E-2. Fluoride concentrations at reference sites R1, R2, R8, R9, and R4 between September 2017 and August 2019.

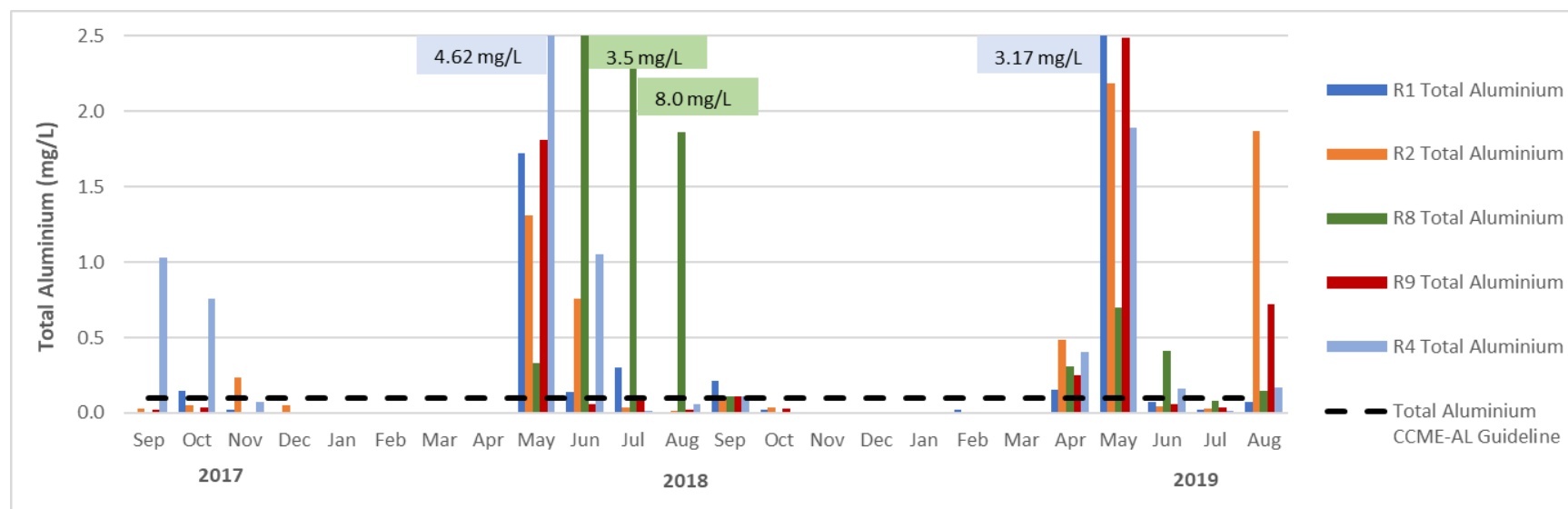


Figure E-3. Total aluminium concentrations at reference sites R1, R2, R8, R9, and R4 between September 2017 and August 2019.

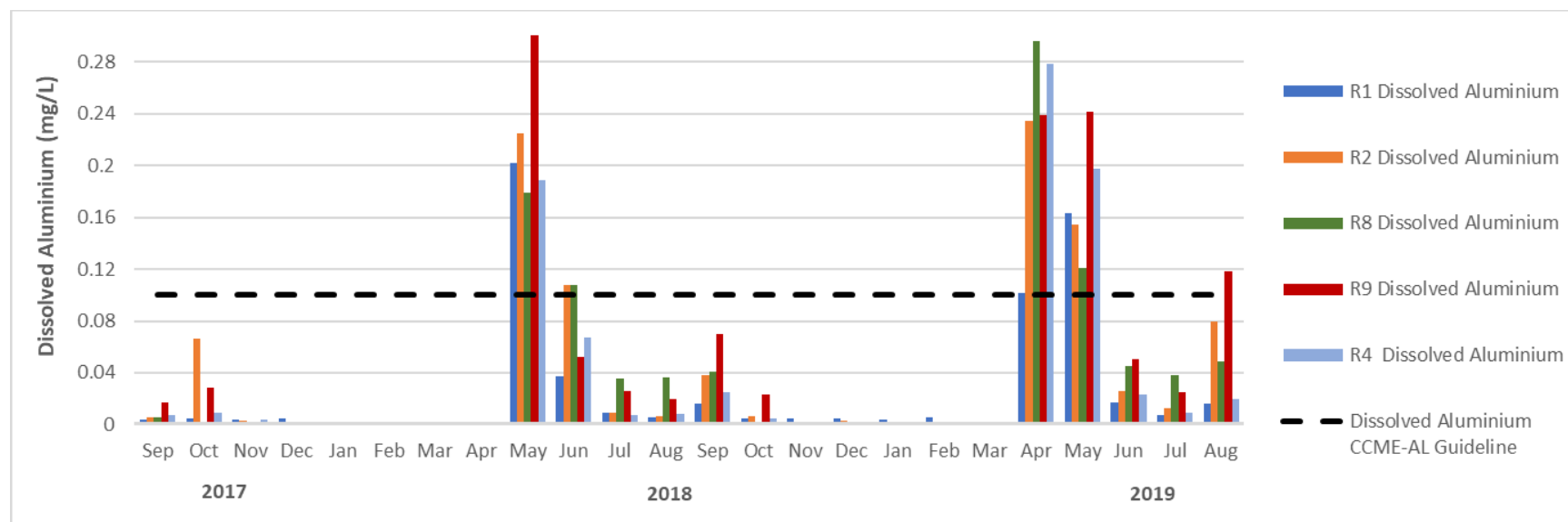


Figure E-4. Dissolved aluminium concentrations at reference sites R1, R2, R8, R9, and R4 between September 2017 and August 2019.

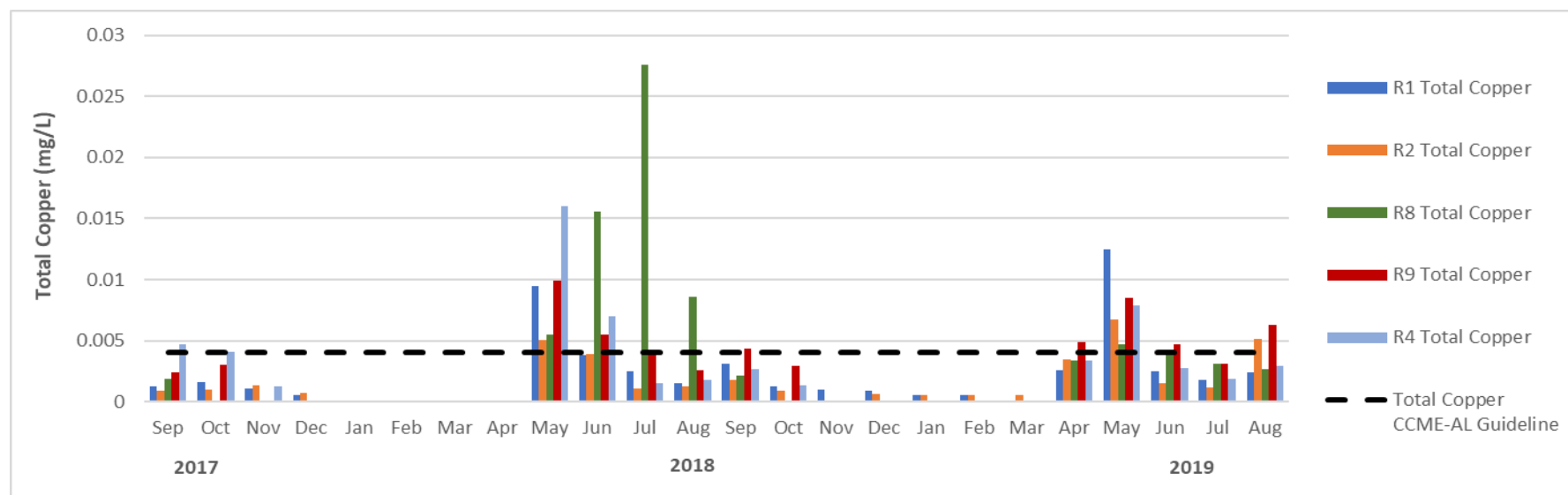


Figure E-5. Total copper concentrations at reference sites R1, R2, R8, R9, and R4 between September 2017 and August 2019.

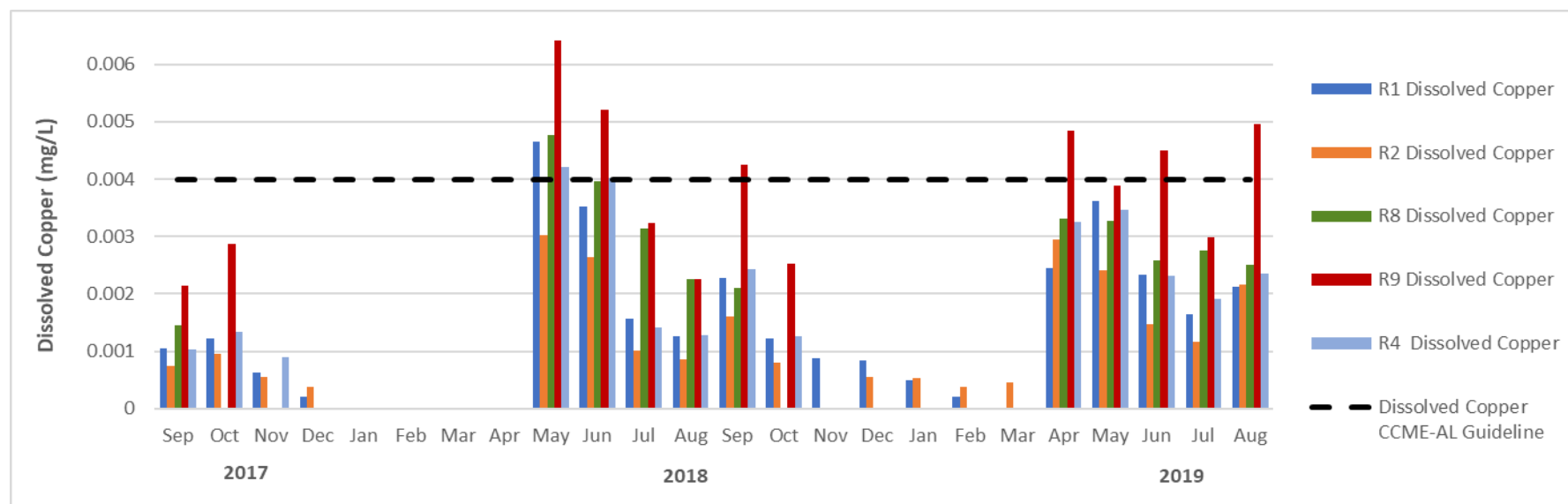


Figure E-6. Dissolved copper concentrations at reference sites R1, R2, R8, R9, and R4 between September 2017 and August 2019.

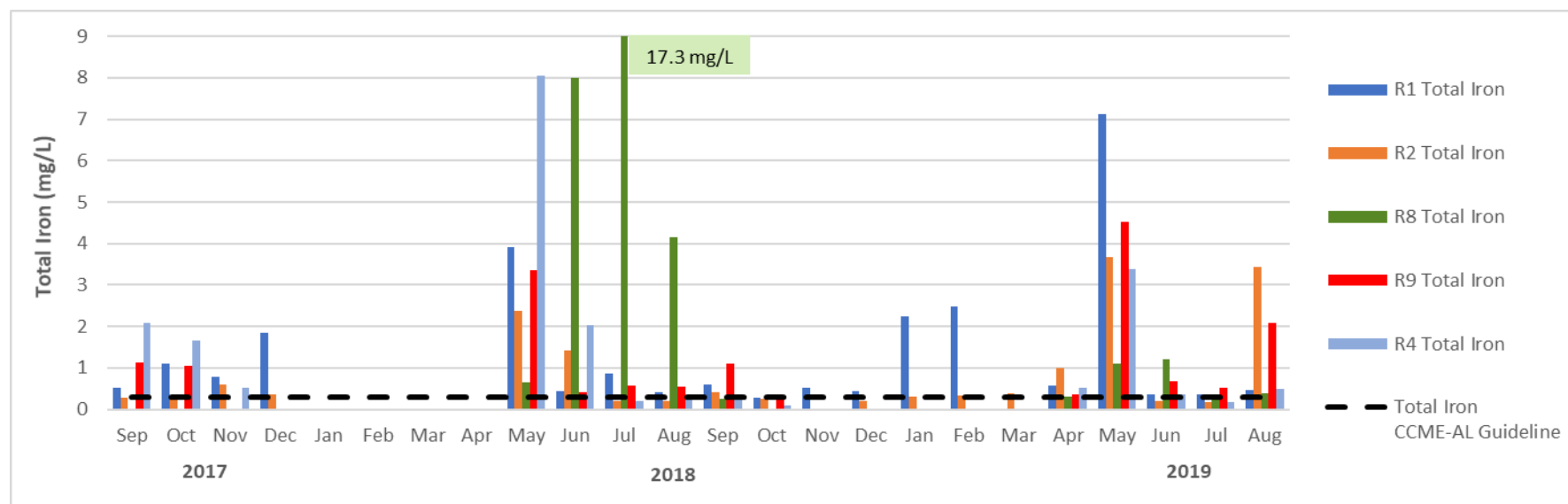


Figure E-7. Total iron concentrations at reference sites R1, R2, R8, R9, and R4 between September 2017 and August 2019.

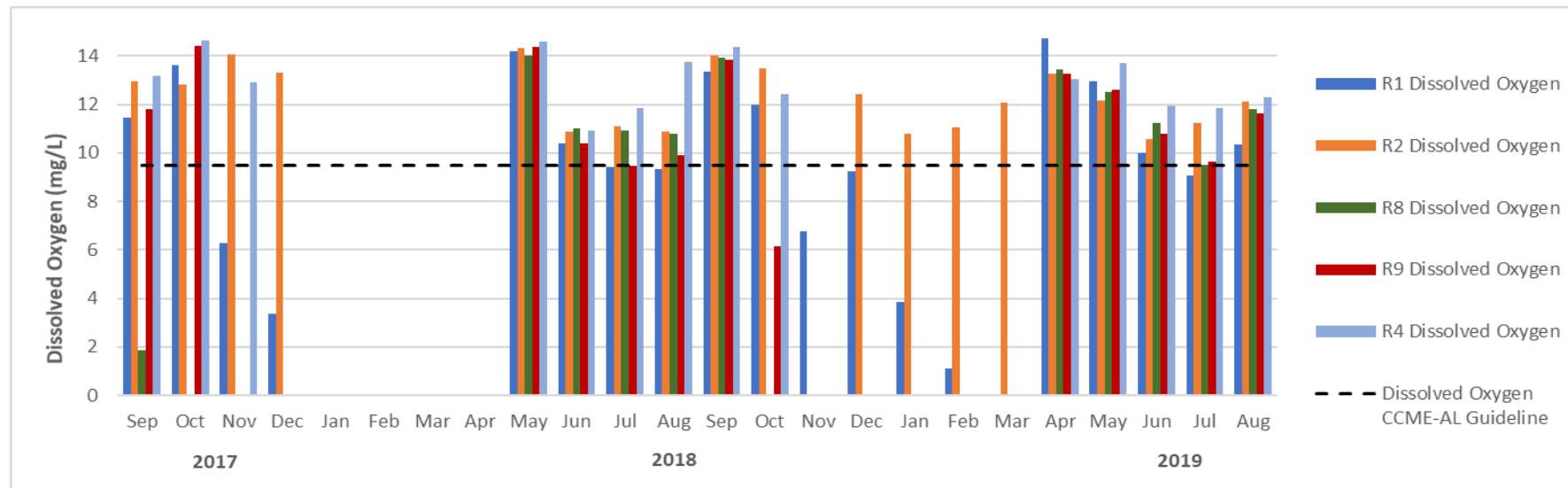


Figure E-8. Dissolved iron concentrations at reference sites R1, R2, R8, R9, and R4 between September 2017 and August 2019.

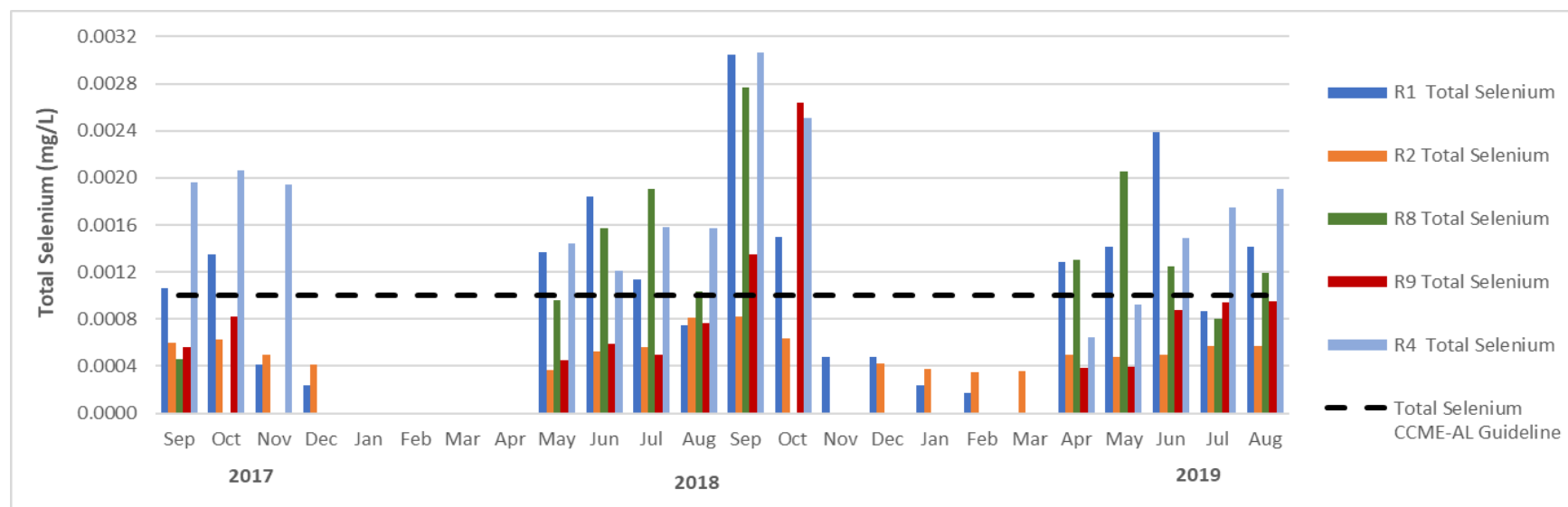


Figure E-9. Total seleniun concentrations at reference sites R1, R2, R8, R9, and R4 between September 2017 and August 2019.

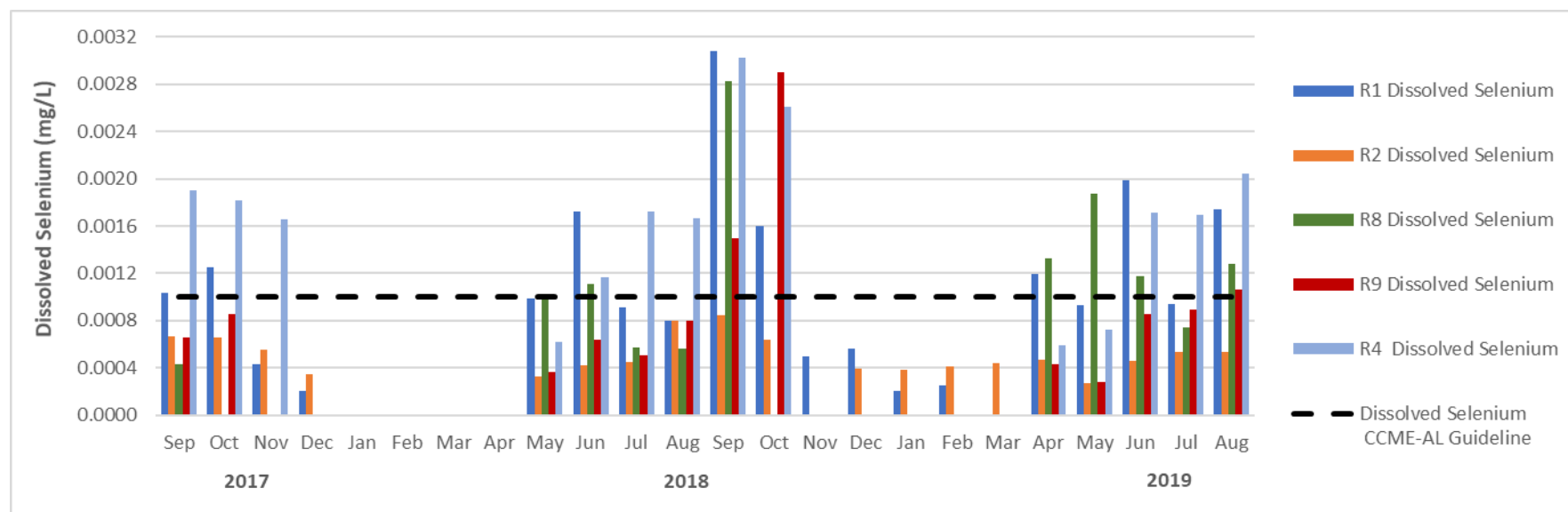


Figure E-10. Dissolved seleniun concentrations at reference sites R1, R2, R8, R9, and R4 between September 2017 and August 2019.

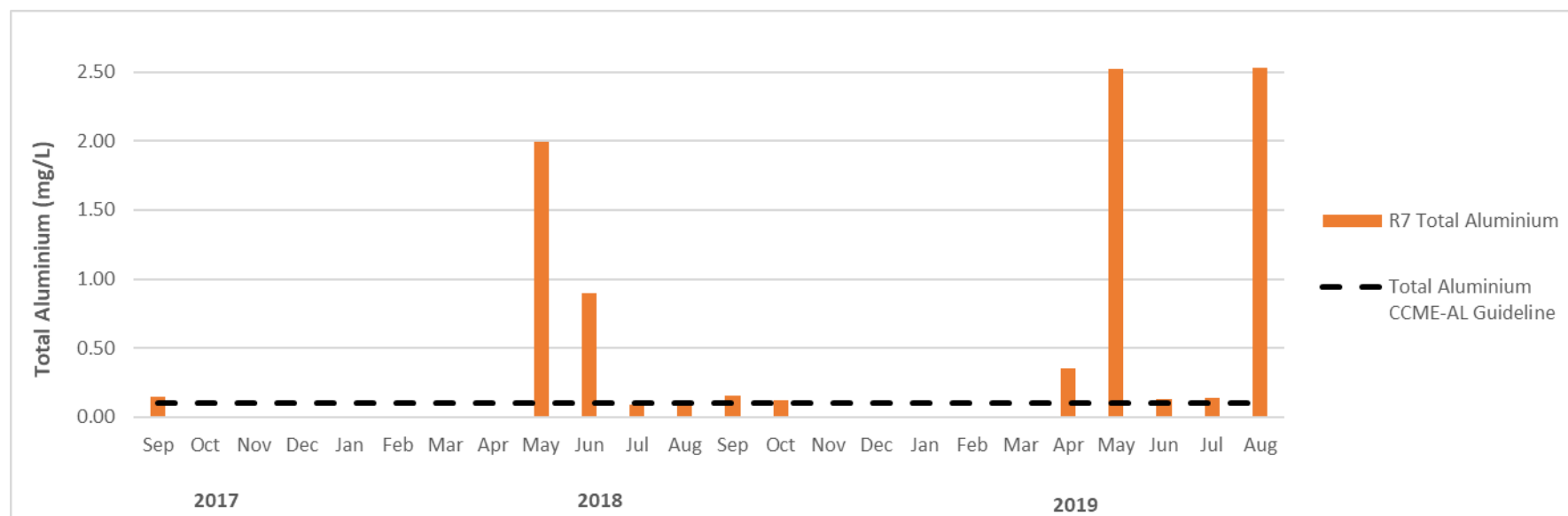


Figure E-11. Total aluminium concentrations at reference site R7 between September 2017 and August 2019.

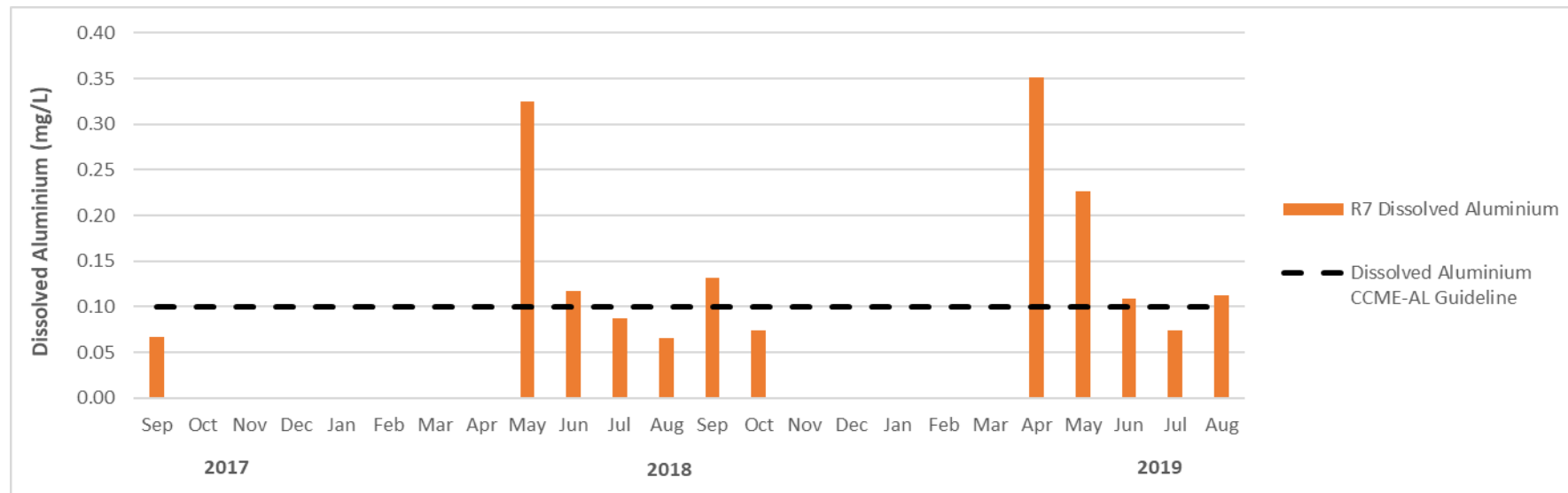


Figure E-12. Dissolved aluminium concentrations at reference site R7 between September 2017 and August 2019.

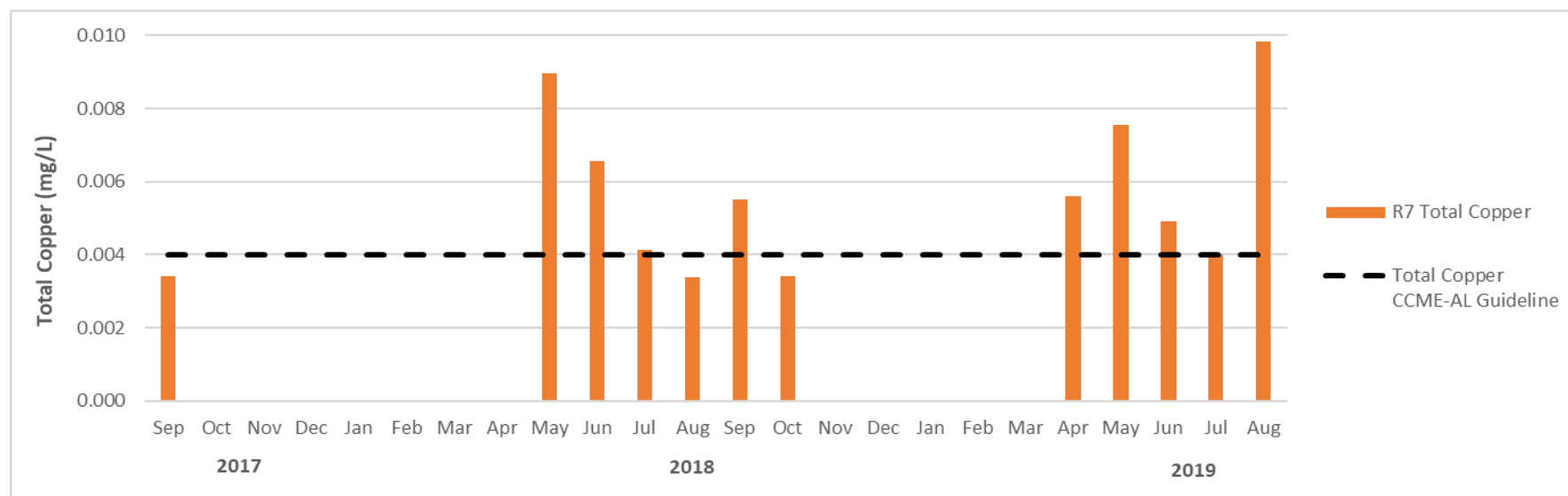


Figure E-13. Total copper concentrations at reference site R7 between September 2017 and August 2019.

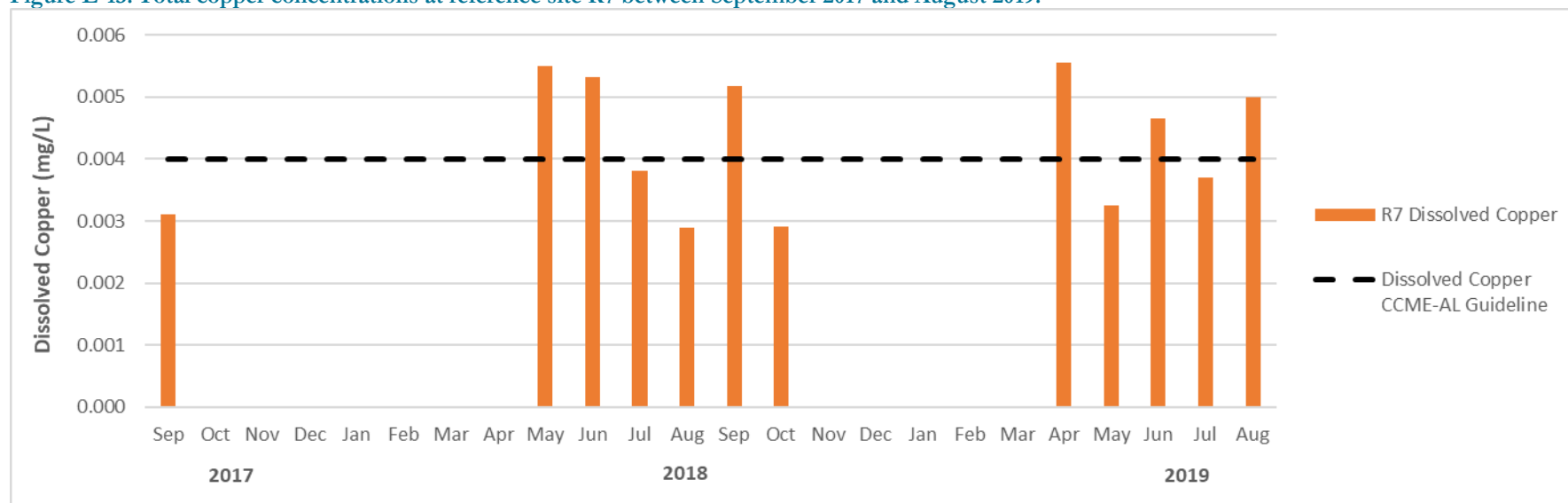


Figure E-14. Dissolved copper concentrations at reference site R7 between September 2017 and August 2019.

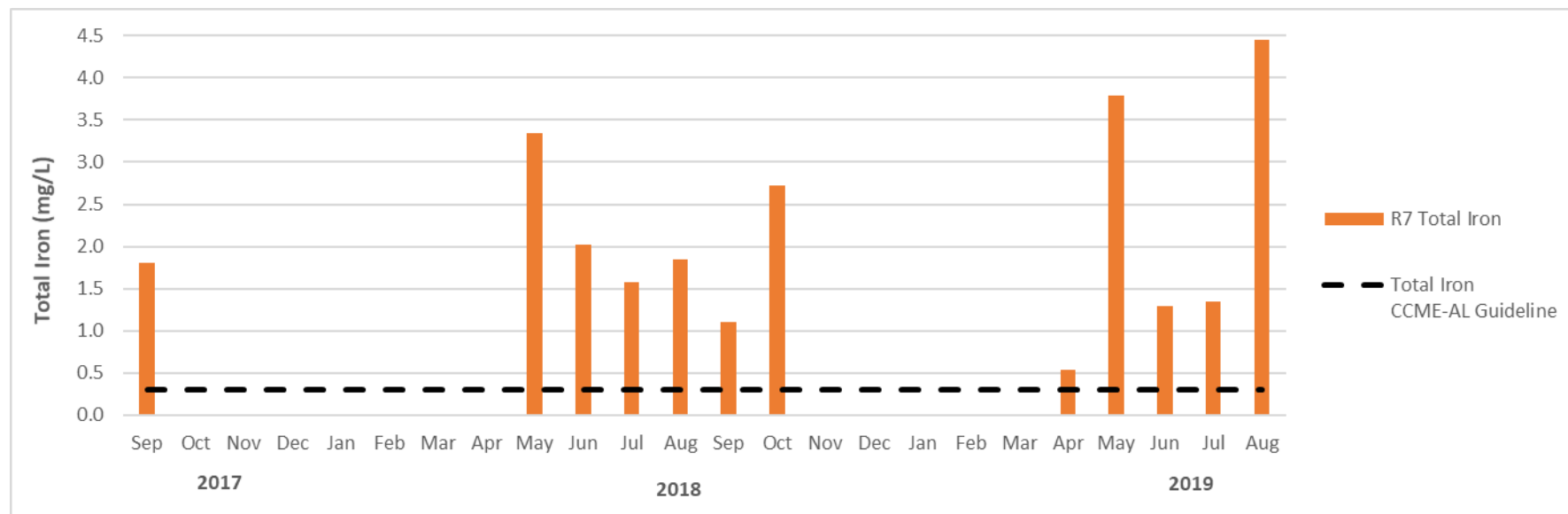


Figure E-15. Total iron concentrations at reference site R7 between September 2017 and August 2019.

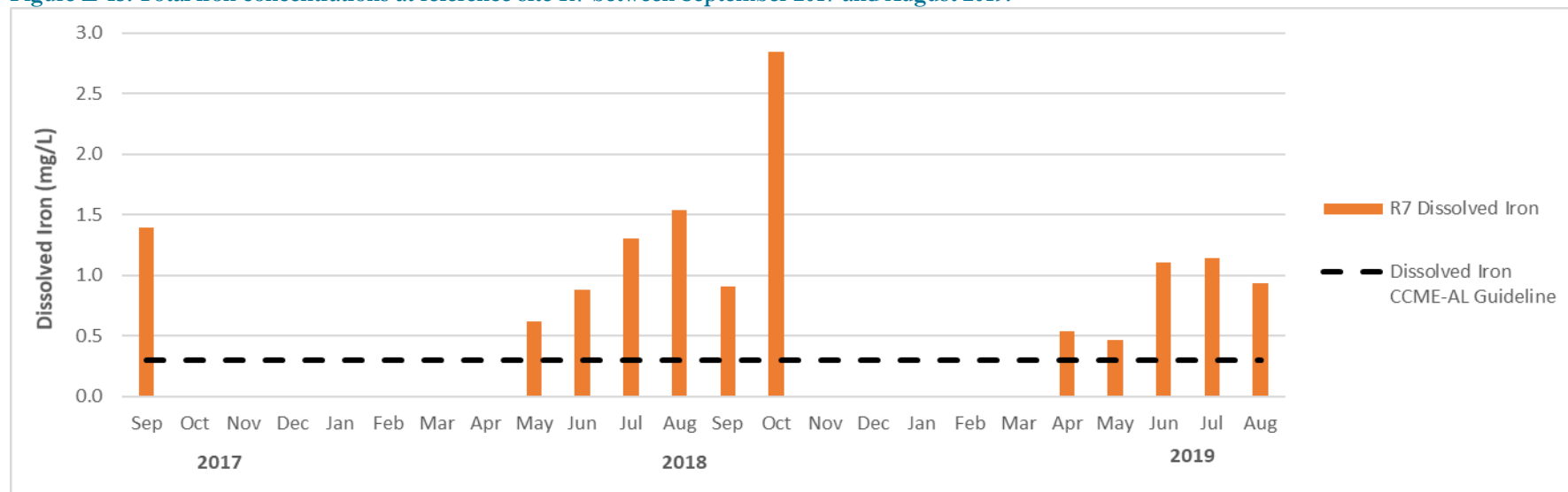


Figure E-16. Dissolved iron concentrations at reference site R7 between September 2017 and August 2019.

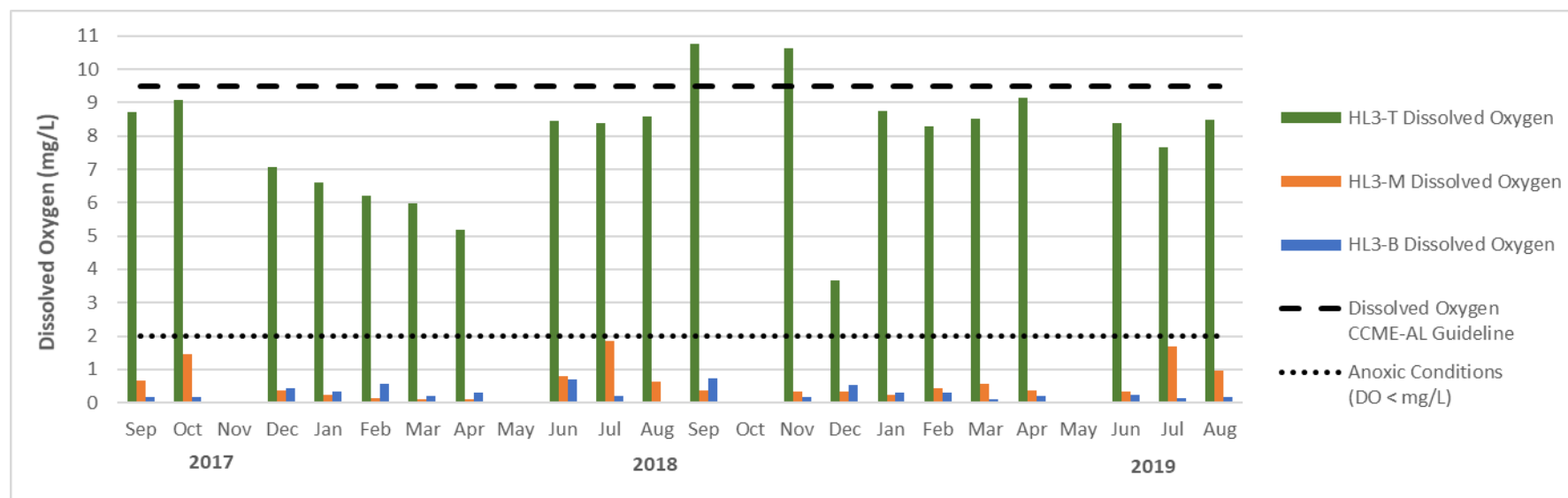


Figure E-17. Dissolved oxygen concentrations in the top, middle and bottom of the water column at HL3 between September 2017 and August 2019.

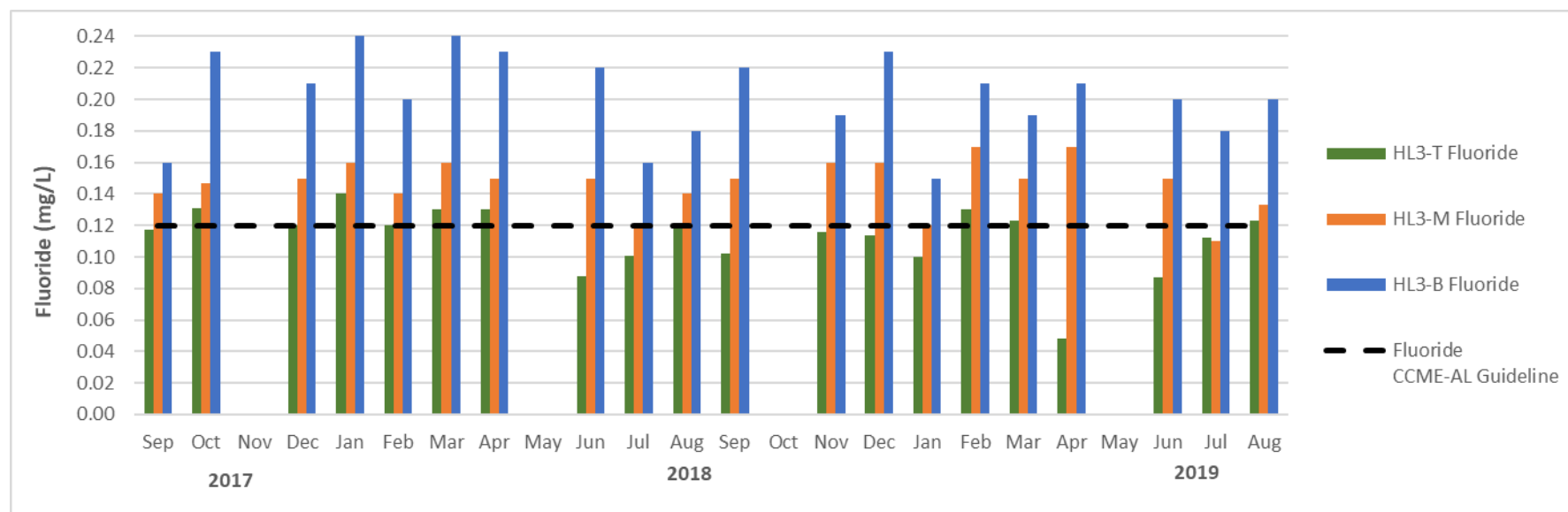


Figure E-18. Fluoride concentrations in the top, middle and bottom of the water column at HL3 between September 2017 and August 2019.

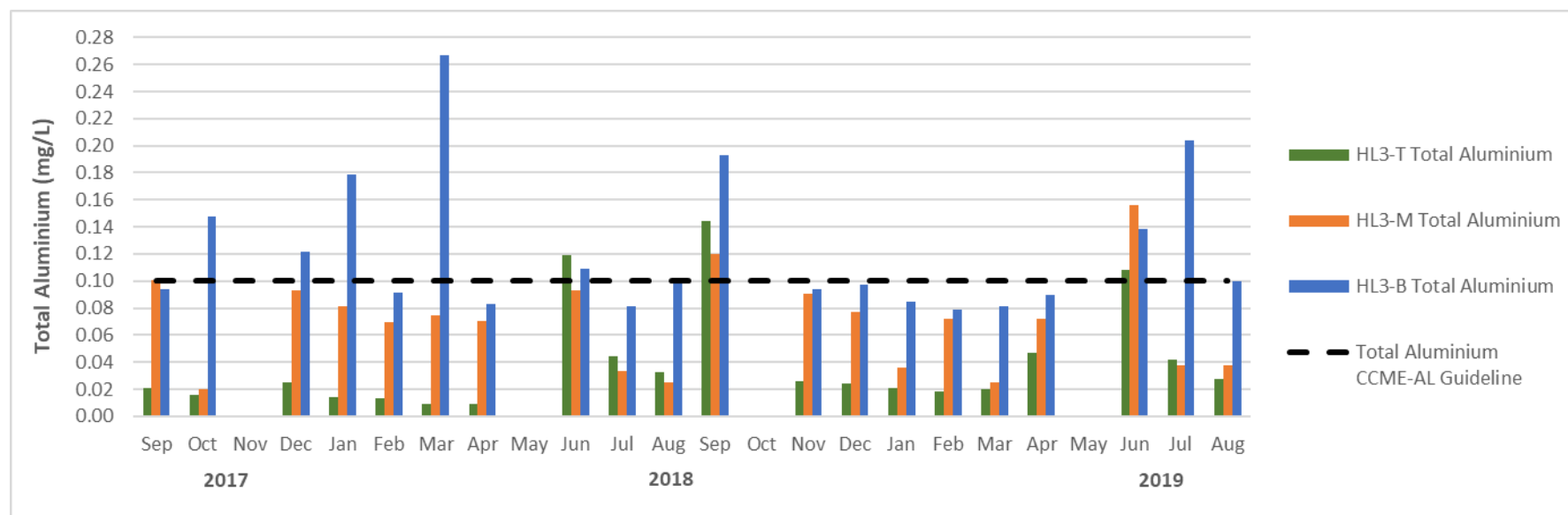


Figure E-19. Total aluminium concentrations in the top, middle and bottom of the water column at HL3 between September 2017 and August 2019.

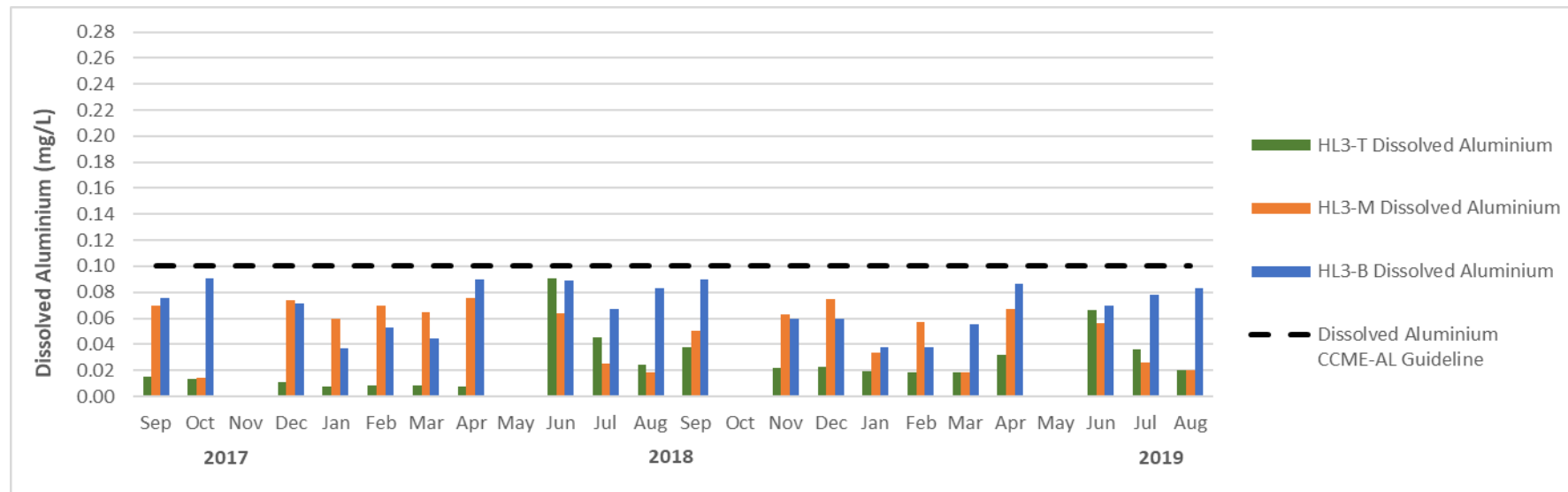


Figure E-20. Dissolved aluminium concentrations in the top, middle and bottom of the water column at HL3 between September 2017 and August 2019.

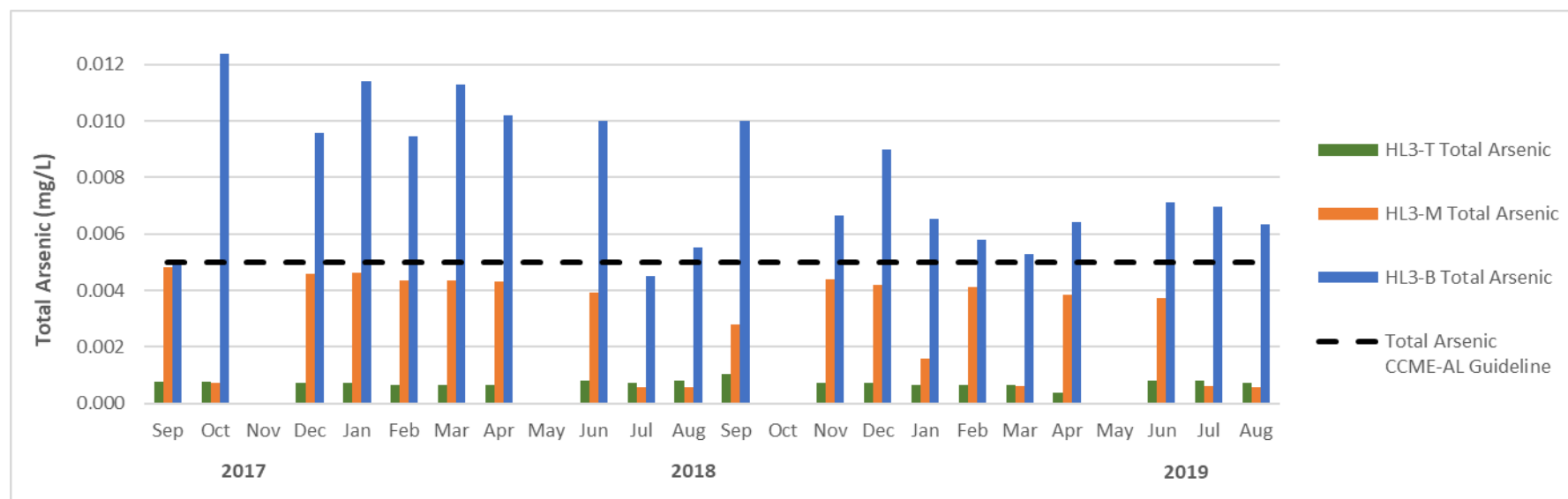


Figure E-21. Total arsenic concentrations in the top, middle and bottom of the water column at HL3 between September 2017 and August 2019.

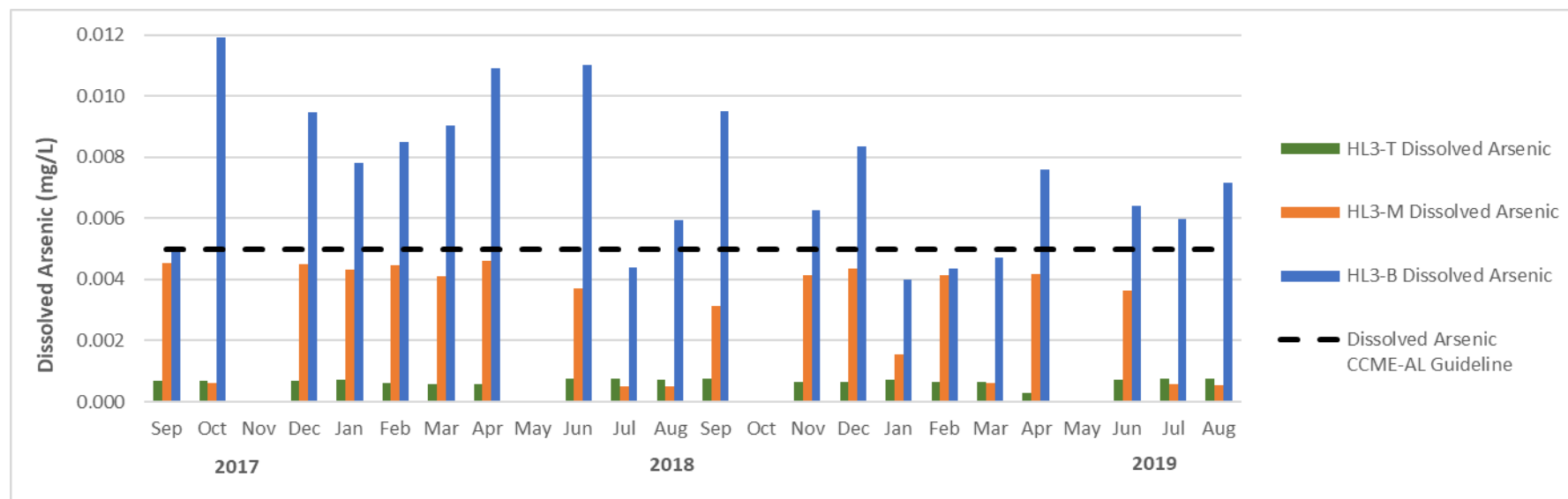


Figure E-22. Dissolved arsenic concentrations in the top, middle and bottom of the water column at HL3 between September 2017 and August 2019.

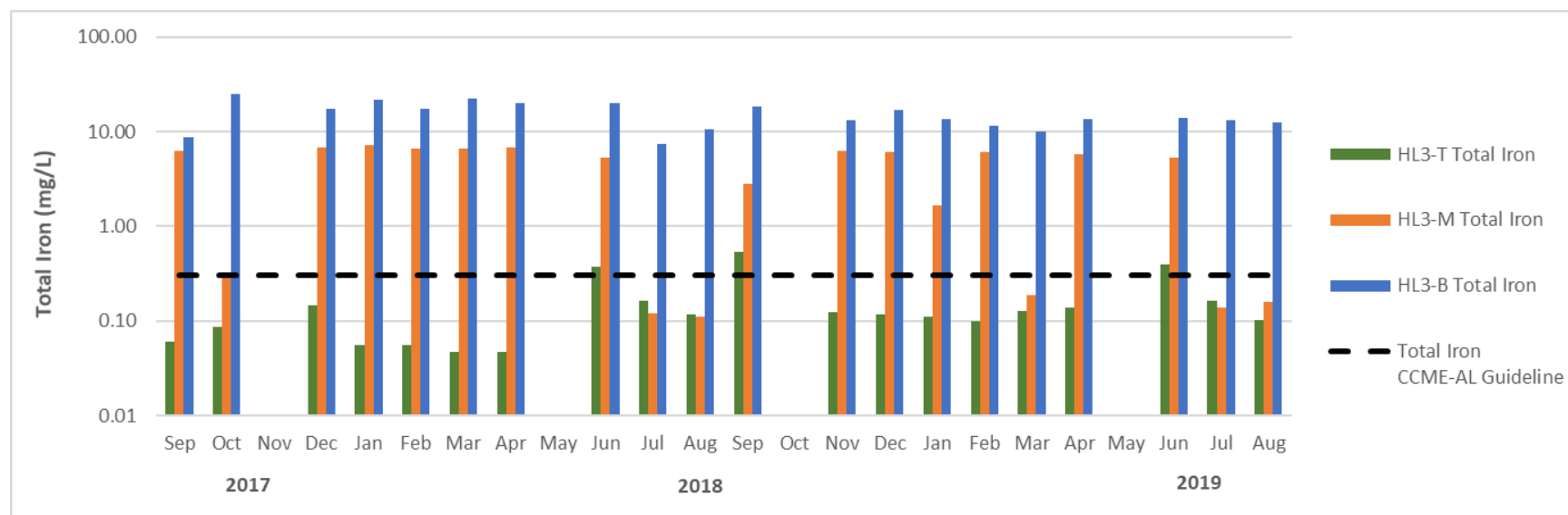


Figure E-23. Total iron concentrations in the top, middle and bottom of the water column at HL3 between September 2017 and August 2019. The Y-axis has been transformed to a logarithmic scale (base 10) to show large variations in the data.

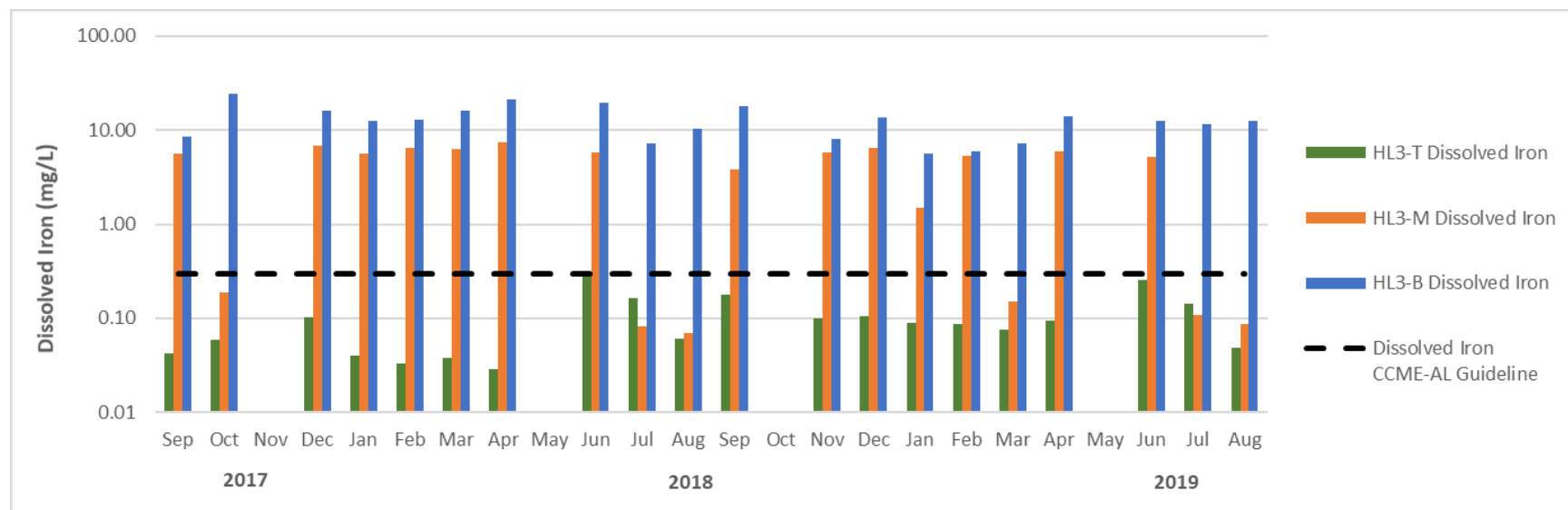


Figure E-24. Dissolved iron concentrations in the top, middle and bottom of the water column at HL3 between September 2017 and August 2019. The Y-axis has been transformed to a logarithmic scale (base 10) to show large variations in the data.

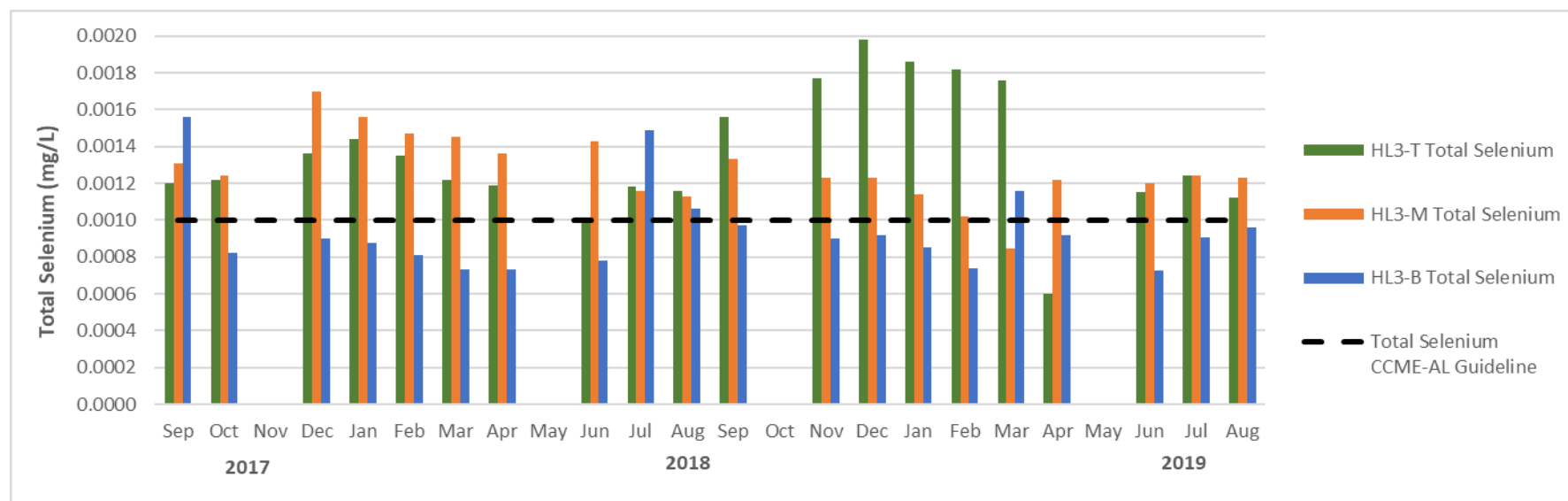


Figure E-25. Total selenium concentrations in the top, middle and bottom of the water column at HL3 between September 2017 and August 2019.

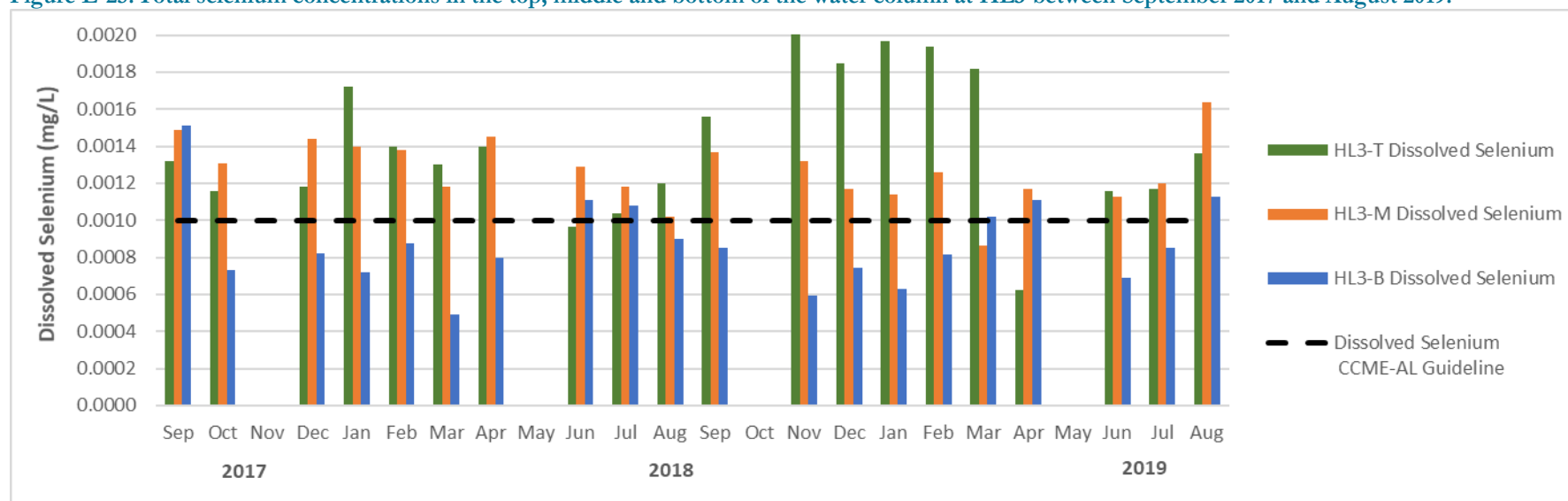


Figure E-26. Dissolved selenium concentrations in the top, middle and bottom of the water column at HL3 between September 2017 and August 2019.

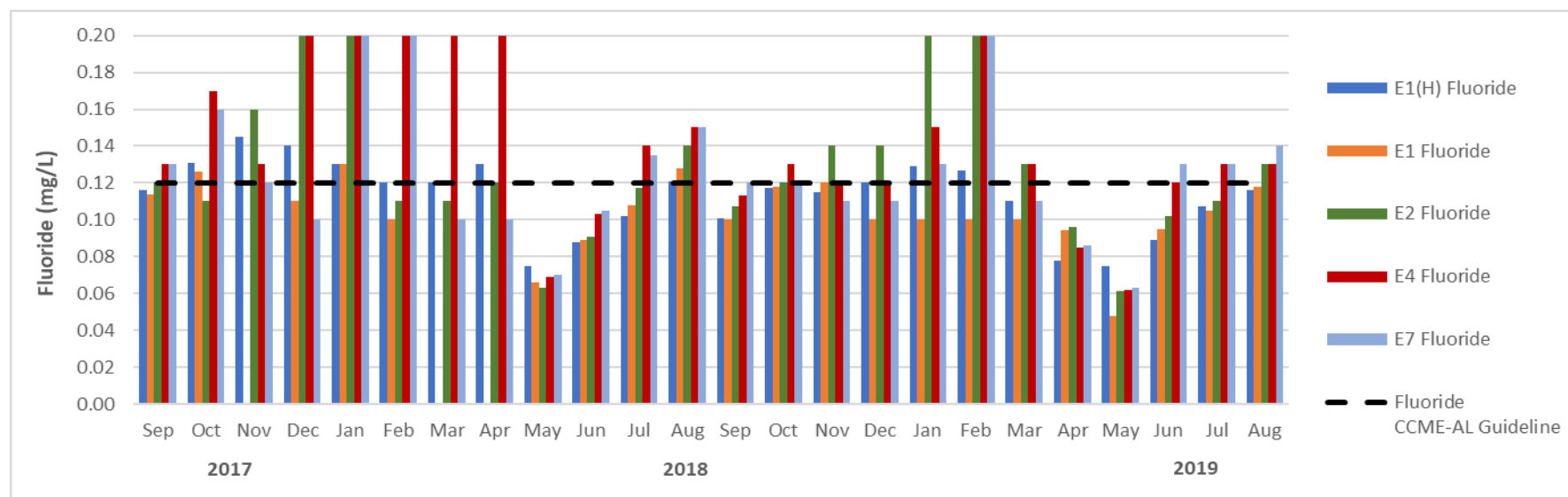


Figure E-27. Fluoride concentrations at exposed sites E1(H), E1, E2, E4, and E7 on Clinton Creek between September 2017 and August 2019.

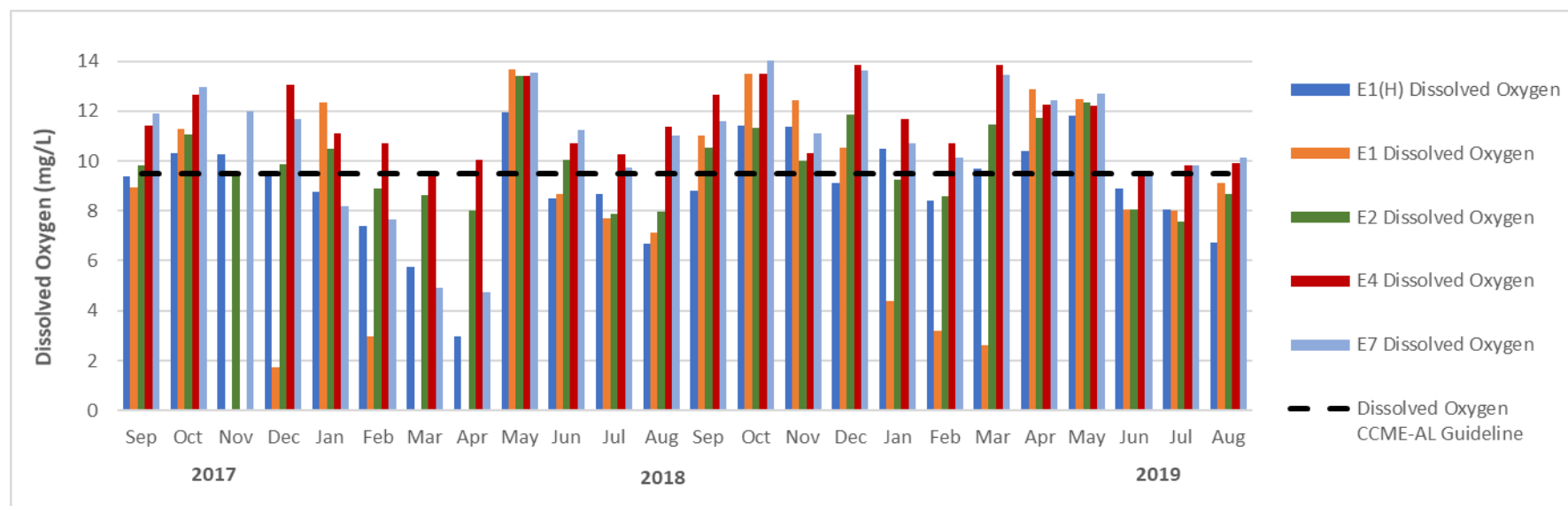


Figure E-28. Dissolved oxygen concentrations at exposed sites E1(H), E1, E2, E4, and E7 on Clinton Creek between September 2017 and August 2019.

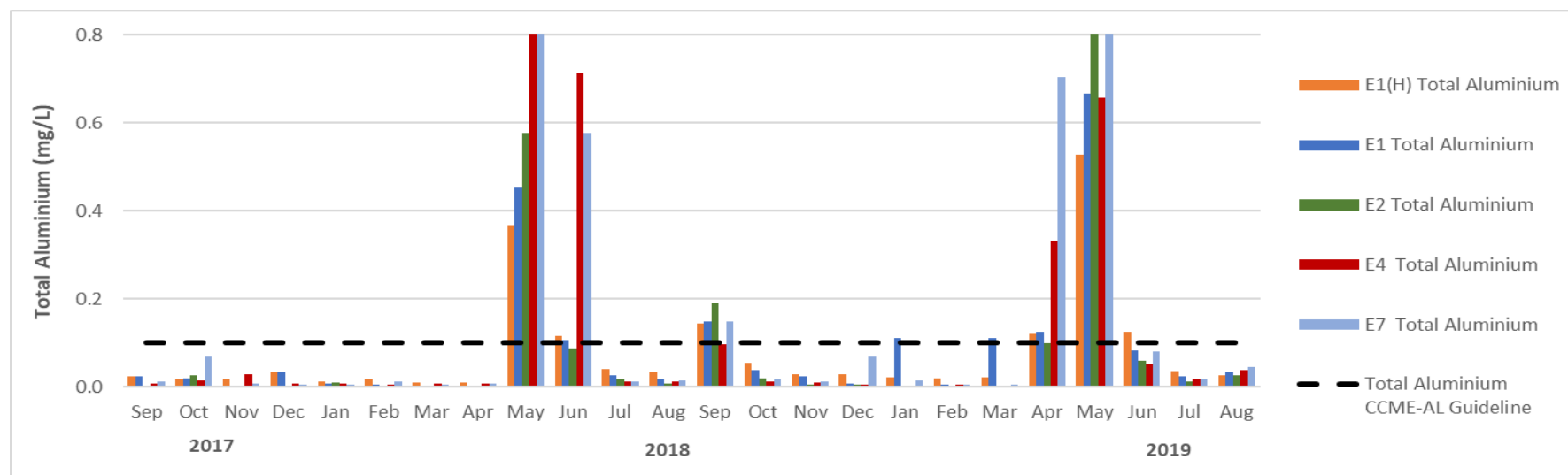


Figure E-29. Total aluminium concentrations at exposed sites E1(H), E1, E2, E4, and E7 on Clinton Creek between September 2017 and August 2019.

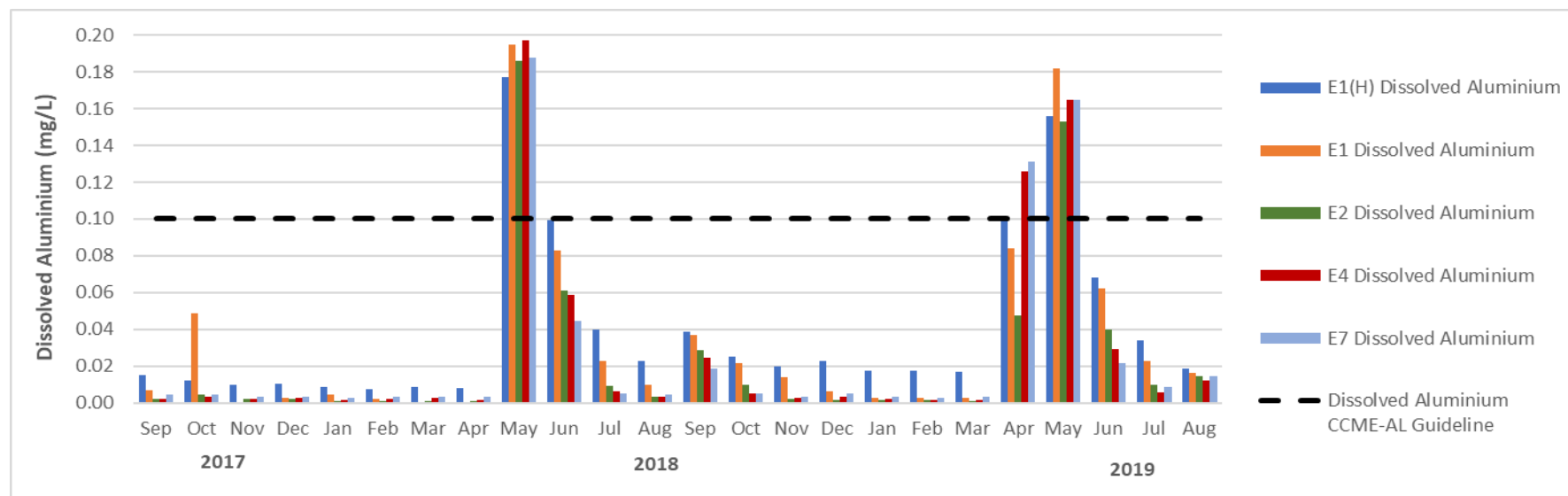


Figure E-30. Dissolved aluminium concentrations at exposed sites E1(H), E1, E2, E4, and E7 on Clinton Creek between September 2017 and August 2019.

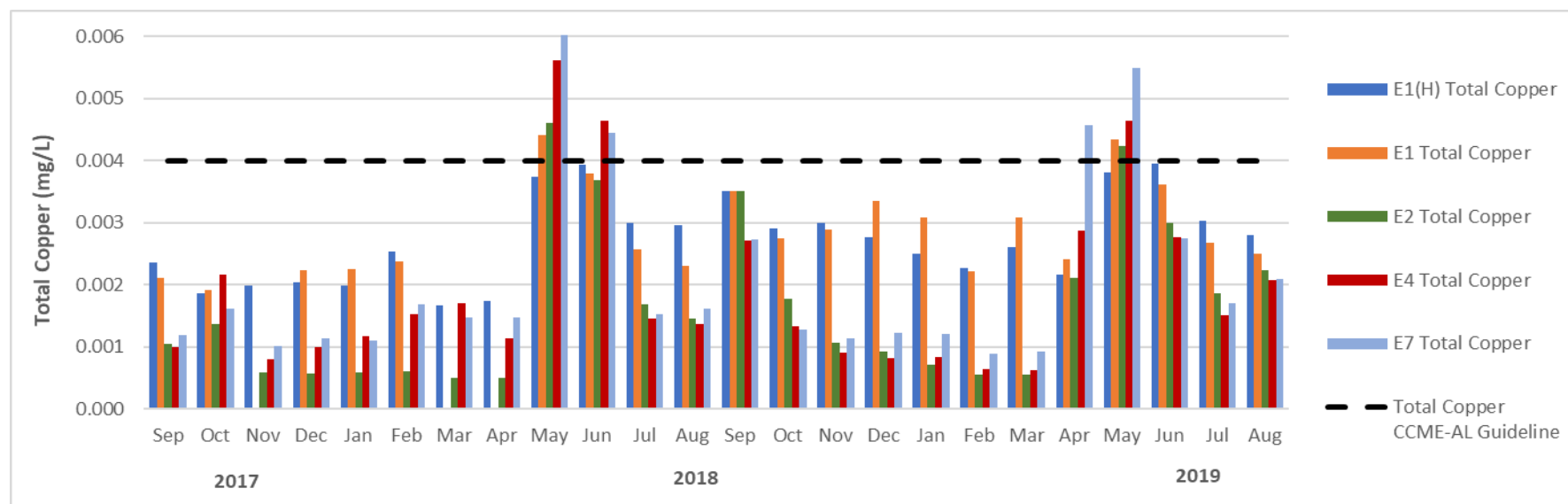


Figure E-31. Total copper concentrations at exposed sites E1(H), E1, E2, E4, and E7 on Clinton Creek between September 2017 and August 2019.

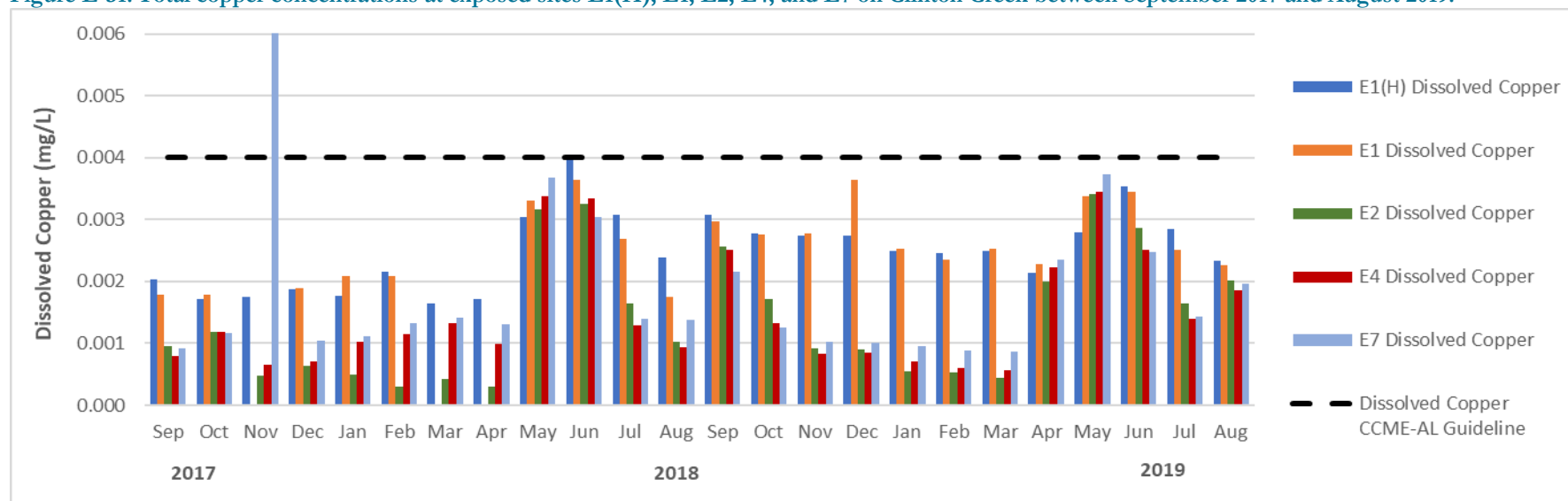


Figure E-32. Dissolved copper concentrations at exposed sites E1(H), E1, E2, E4, and E7 on Clinton Creek between September 2017 and August 2019.

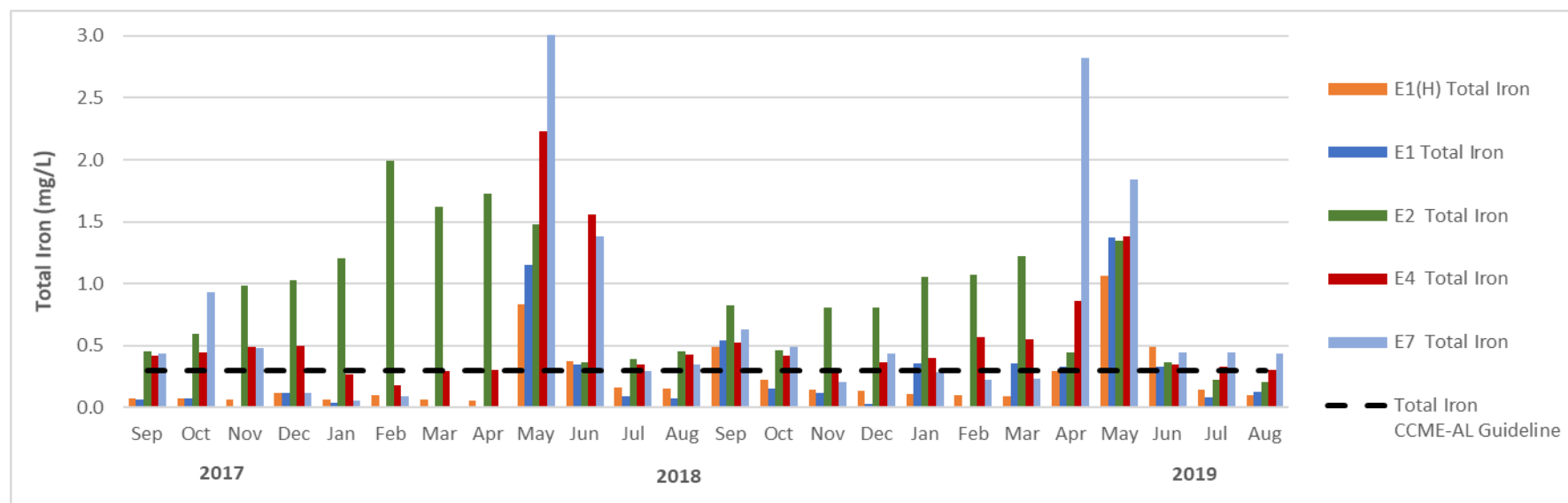


Figure E-33. Total iron concentrations at exposed sites E1(H), E1, E2, E4, and E7 on Clinton Creek between September 2017 and August 2019.

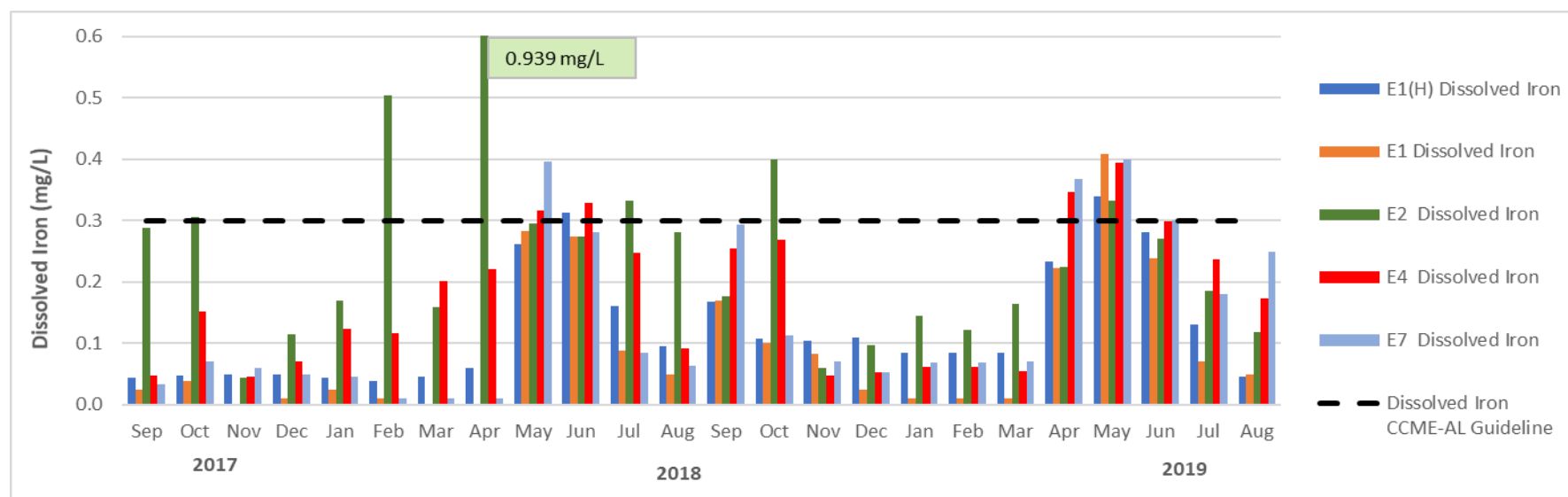


Figure E-34. Dissolved iron concentrations at exposed sites E1(H), E1, E2, E4, and E7 on Clinton Creek between September 2017 and August 2019.

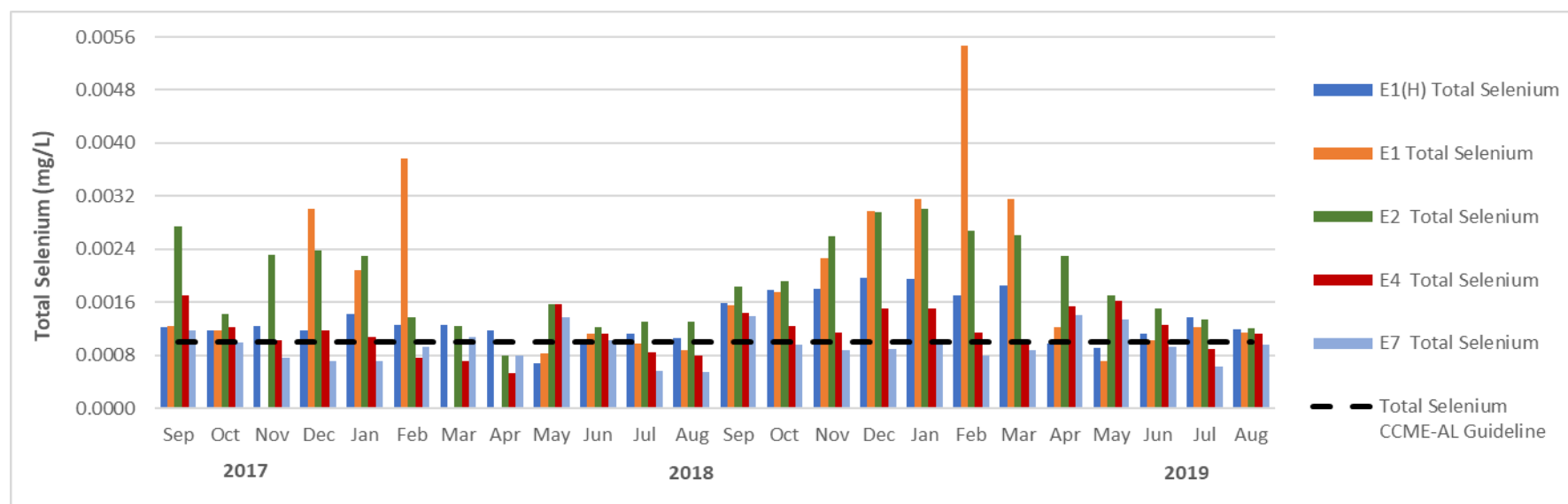


Figure E-35. Total selenium concentrations at exposed sites E1(H), E1, E2, E4, and E7 on Clinton Creek between September 2017 and August 2019.

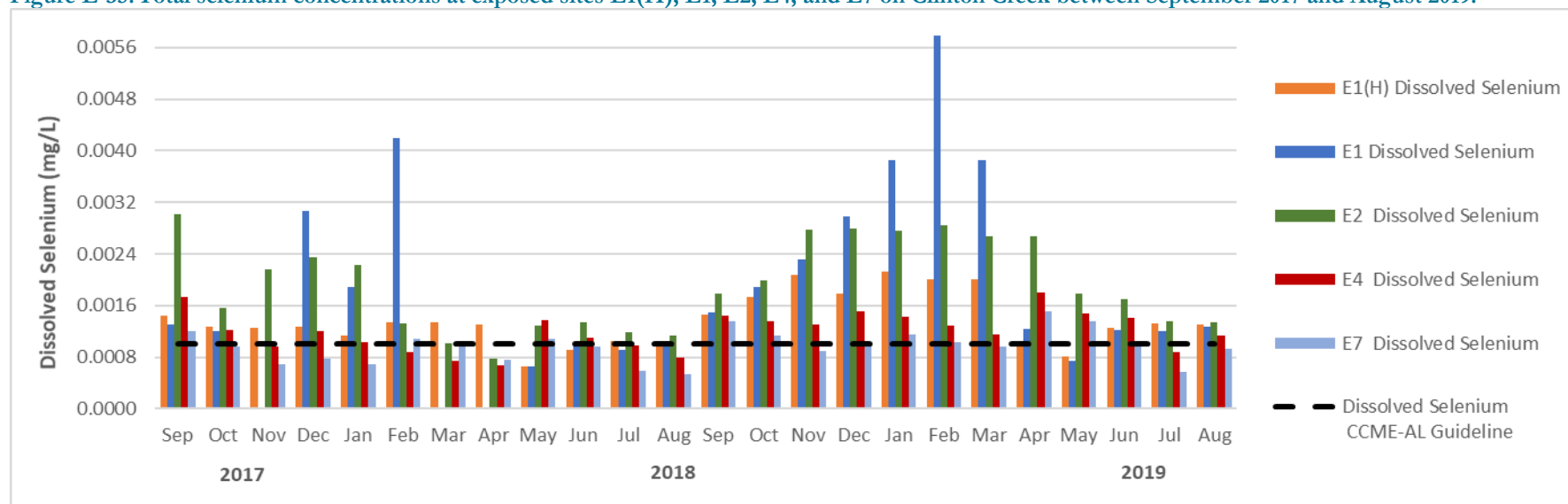


Figure E-36. Dissolved selenium concentrations at exposed sites E1(H), E1, E2, E4, and E7 on Clinton Creek between September 2017 and August 2019.

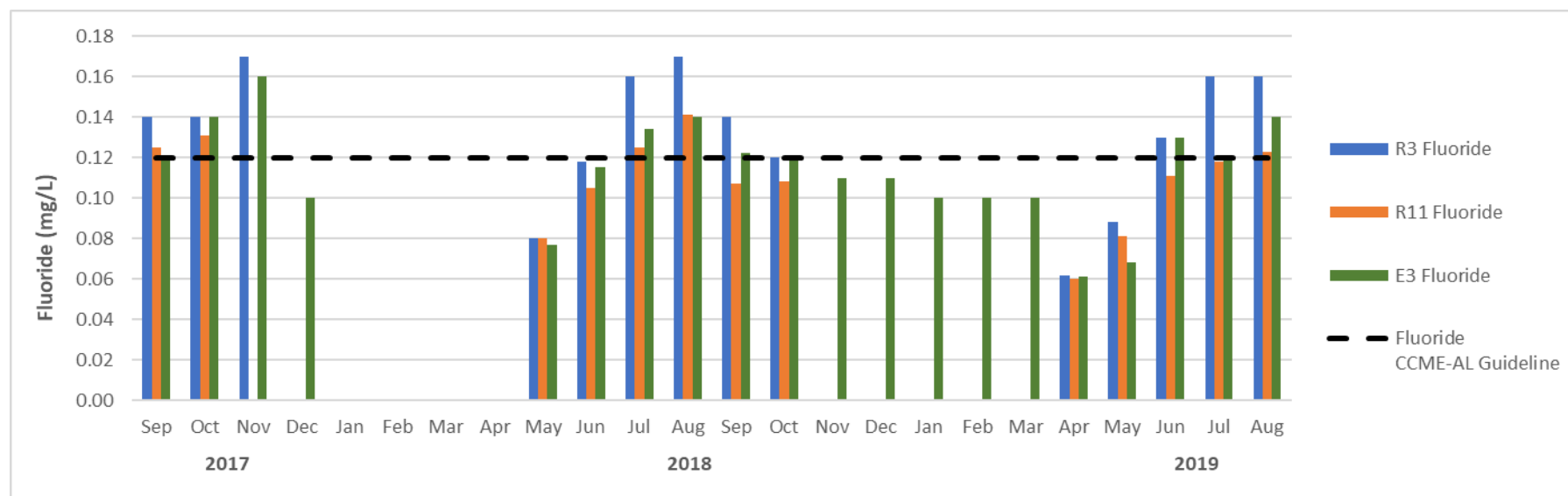


Figure E-37. Fluoride concentrations at sites R3, R11, and E3 in the Wolverine Creek drainage between September 2017 and August 2019.

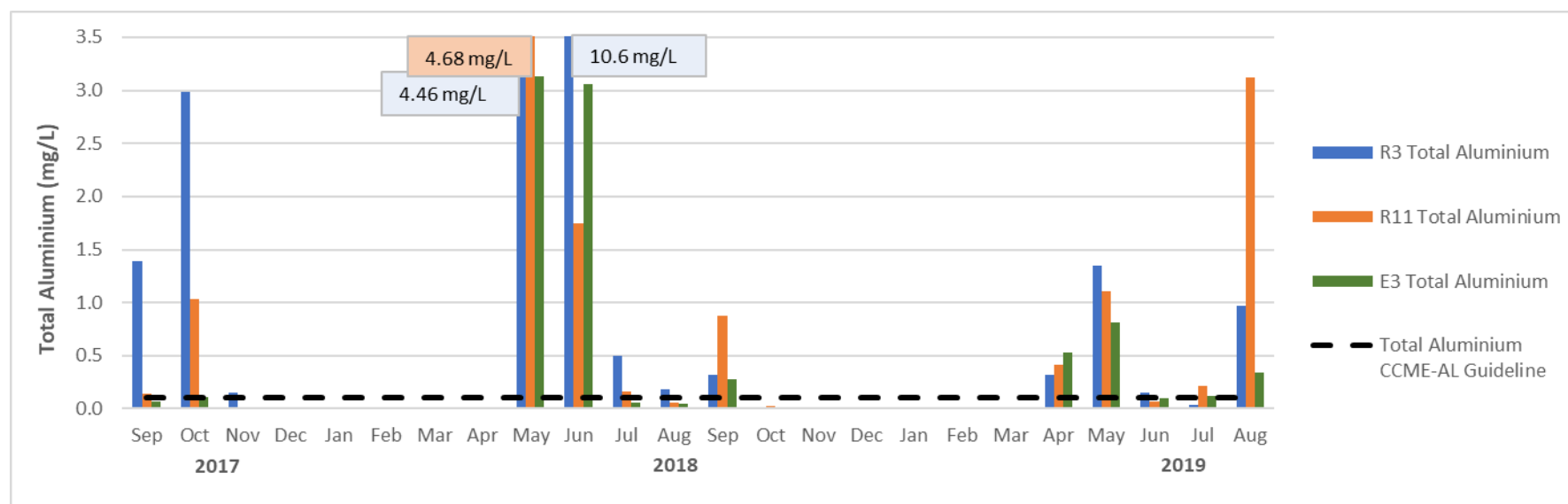


Figure E-38. Total aluminium concentrations at sites R3, R11, and E3 in the Wolverine Creek drainage between September 2017 and August 2019.

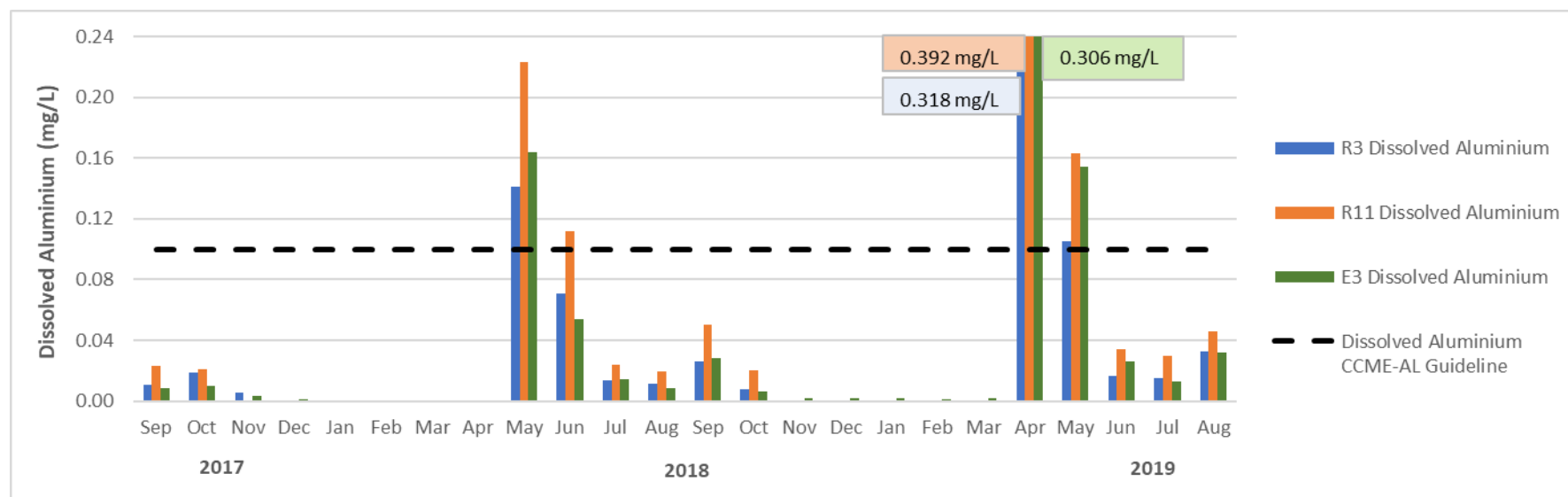


Figure E-39. Dissolved aluminium concentrations at sites R3, R11, and E3 in the Wolverine Creek drainage between September 2017 and August 2019.

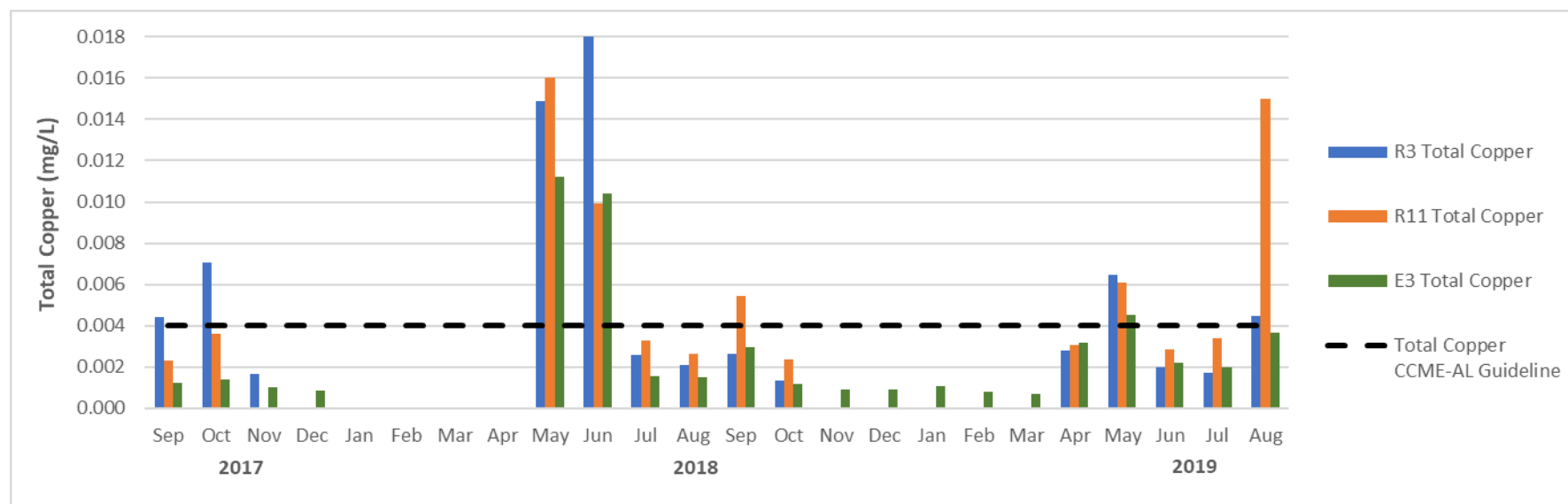


Figure E-40. Total copper concentrations at sites R3, R11, and E3 in the Wolverine Creek drainage between September 2017 and August 2019.

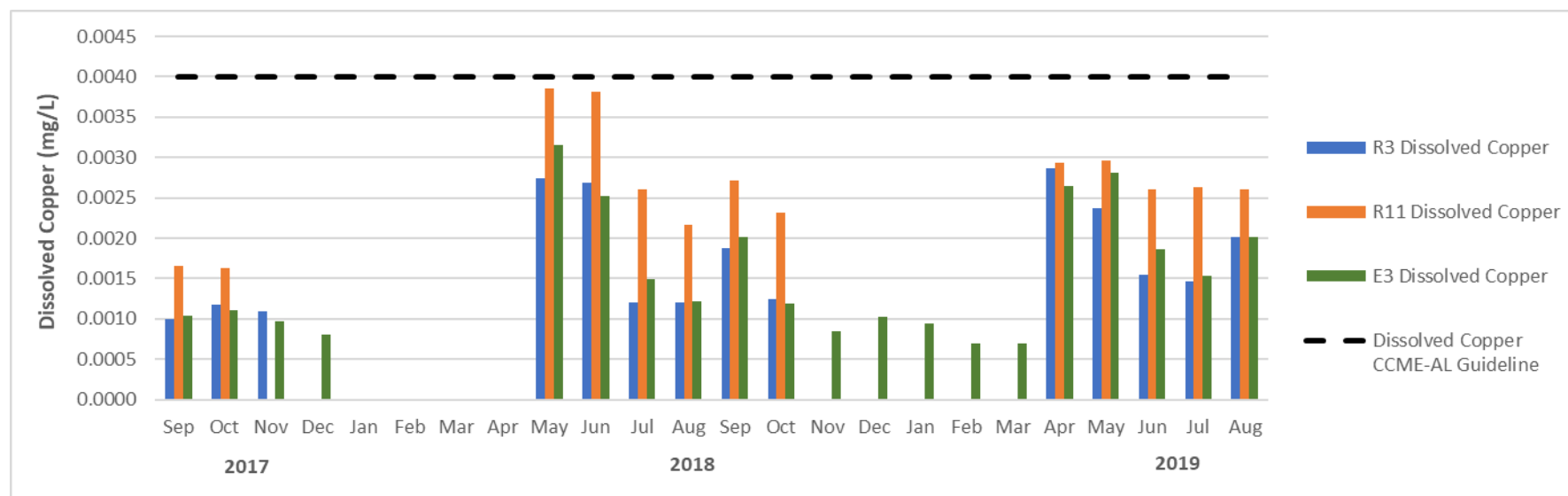


Figure E-41. Dissolved copper concentrations at sites R3, R11, and E3 in the Wolverine Creek drainage between September 2017 and August 2019.

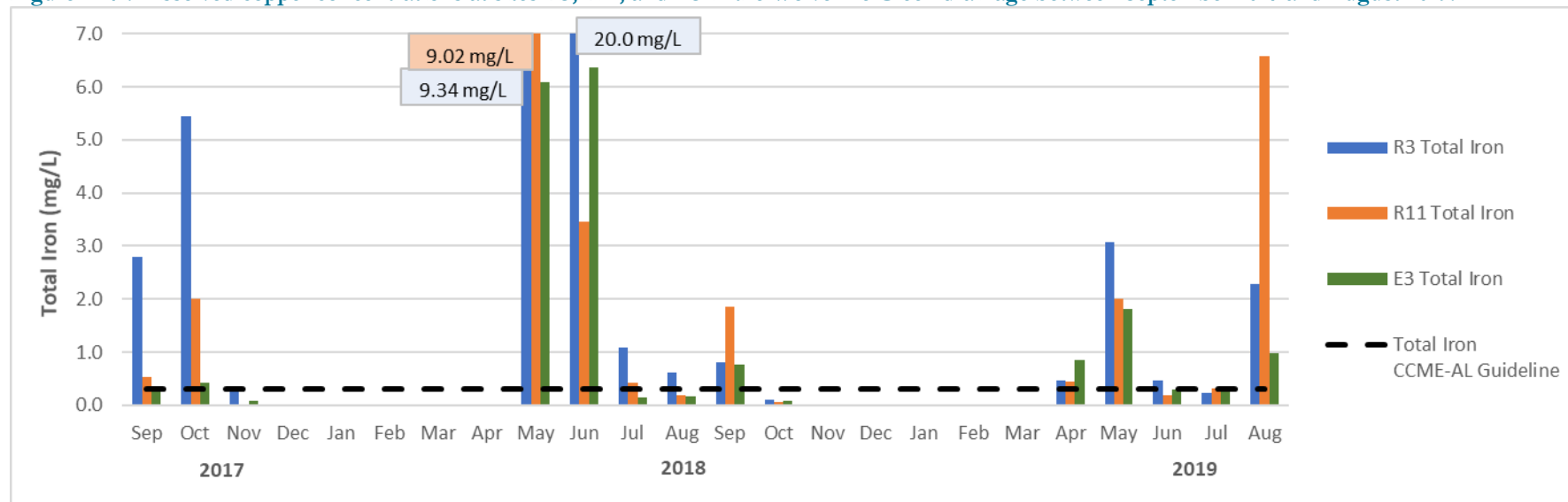


Figure E-42. Total iron concentrations at sites R3, R11, and E3 in the Wolverine Creek drainage between September 2017 and August 2019.

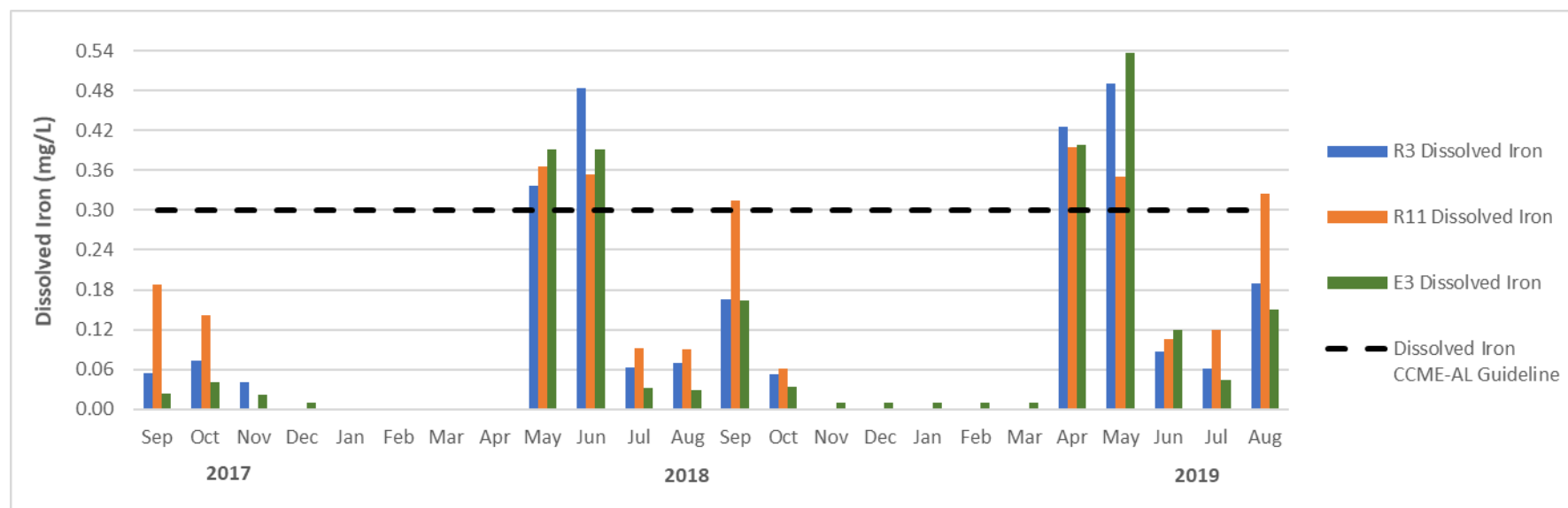


Figure E-43. Dissolved iron concentrations at sites R3, R11, and E3 in the Wolverine Creek drainage between September 2017 and August 2019.

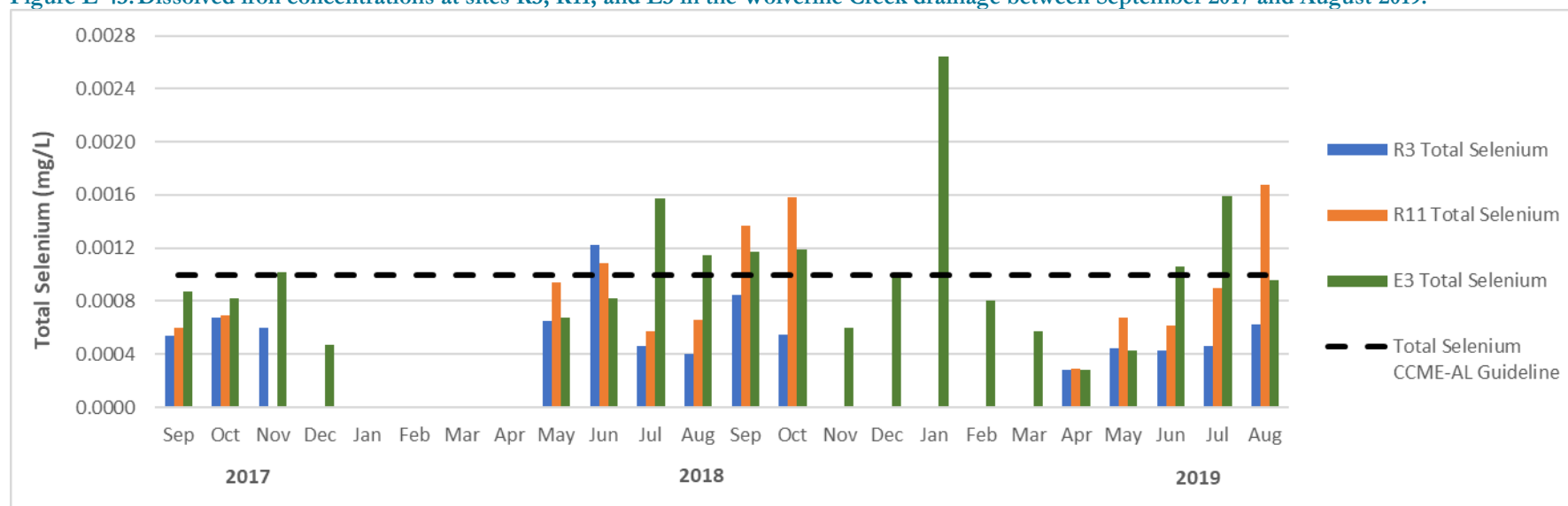


Figure E-44. Total selenium concentrations at sites R3, R11, and E3 in the Wolverine Creek drainage between September 2017 and August 2019.

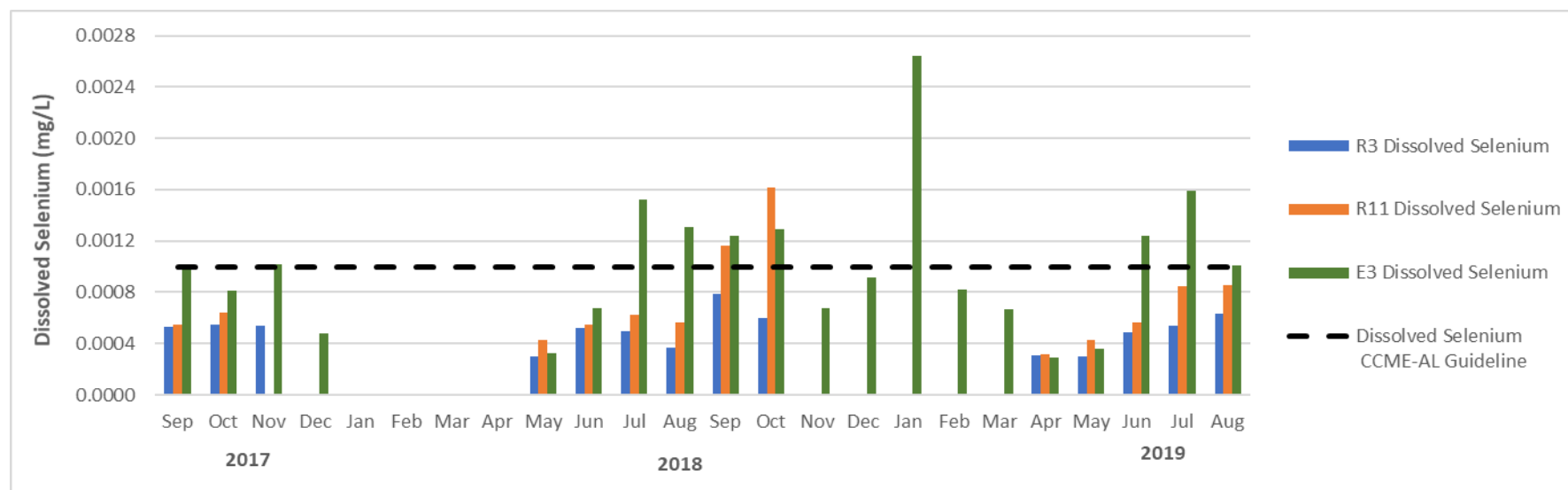


Figure E-45. Dissolved selenium concentrations at sites R3, R11, and E3 in the Wolverine Creek drainage between September 2017 and August 2019.

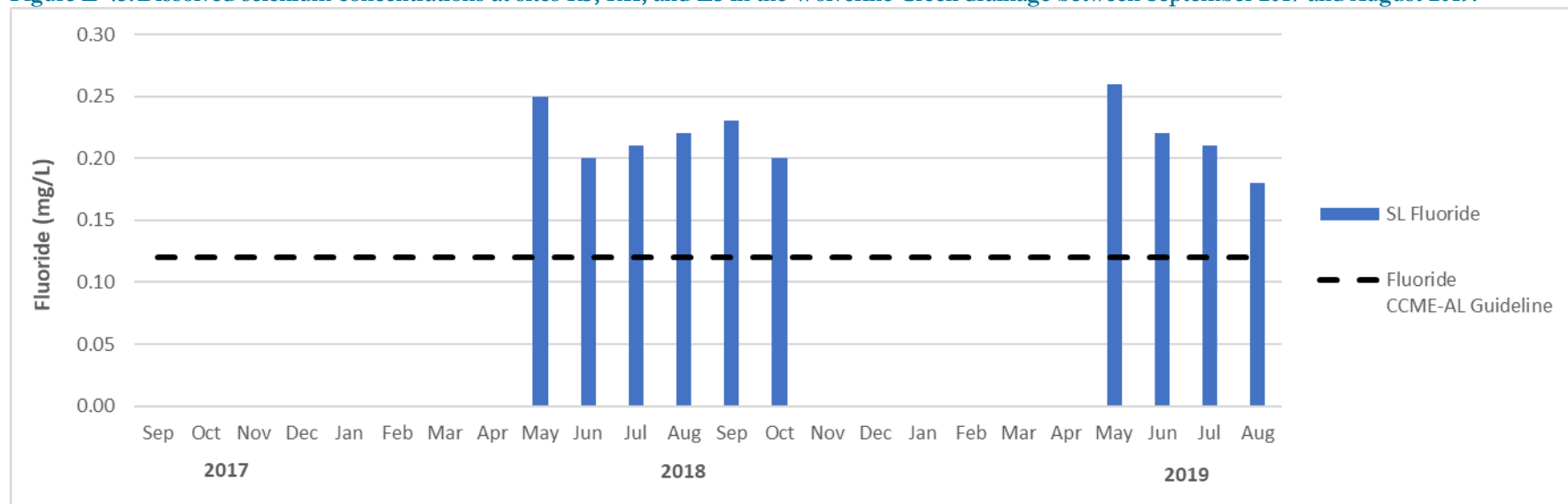


Figure E-46. Fluoride concentrations at Snowshoe Pit Lake (SL) between September 2017 and August 2019.

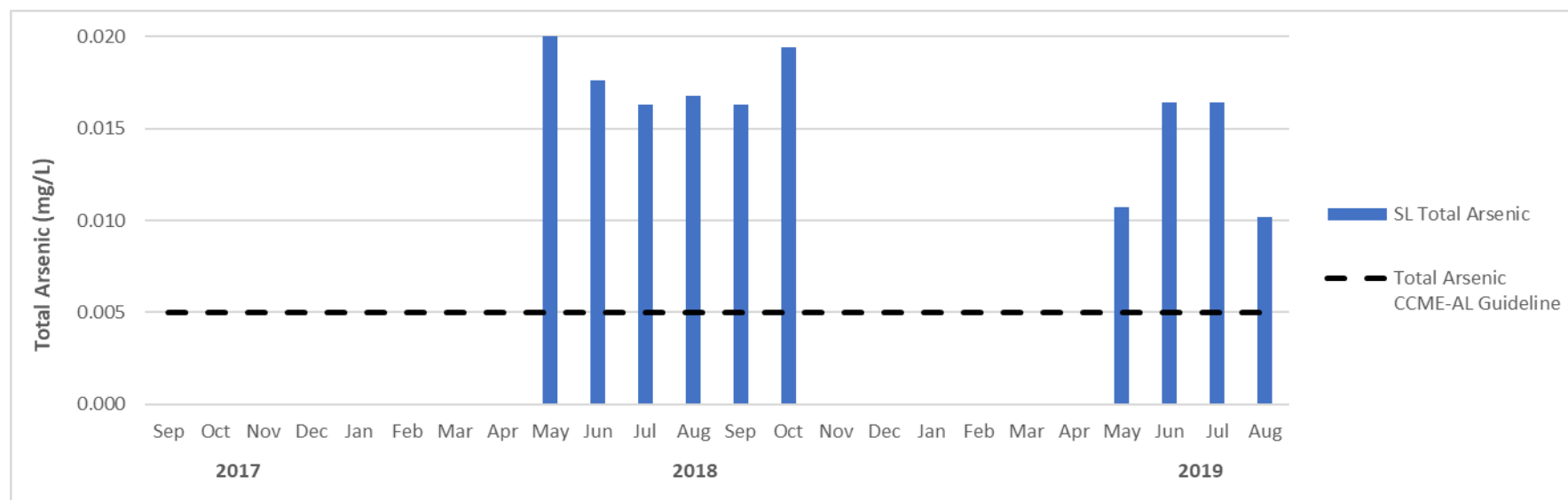


Figure E-47. Total arsenic concentrations at Snowshoe Pit Lake (SL) between September 2017 and August 2019.

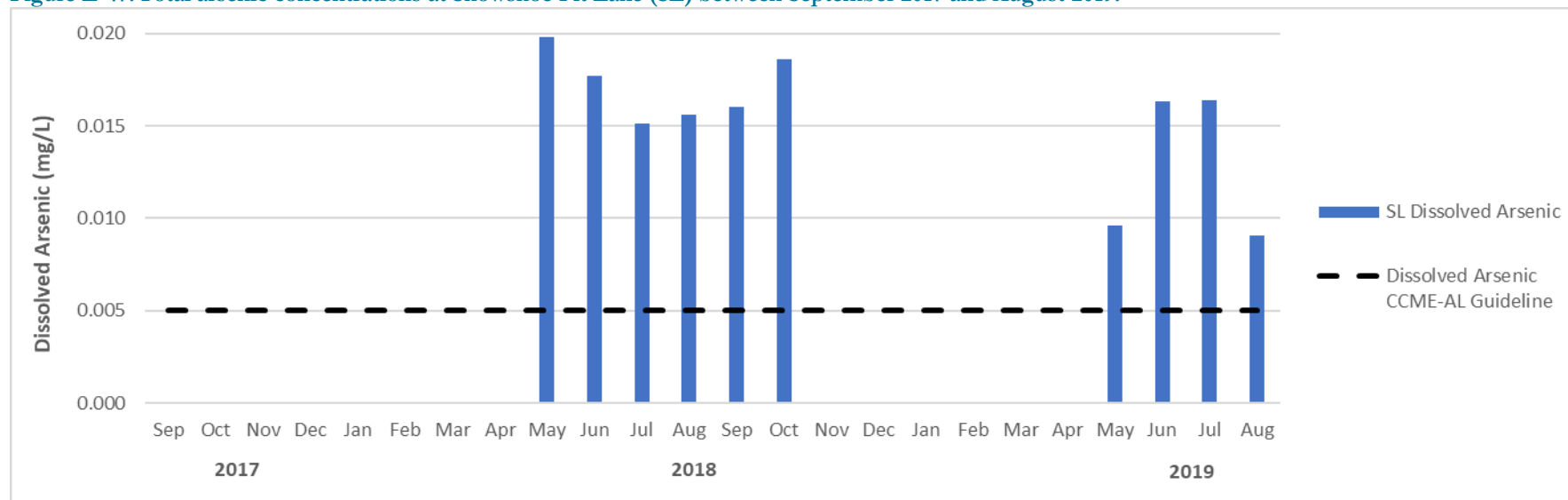


Figure E-48. Dissolved arsenic concentrations at Snowshoe Pit Lake (SL) between September 2017 and August 2019.

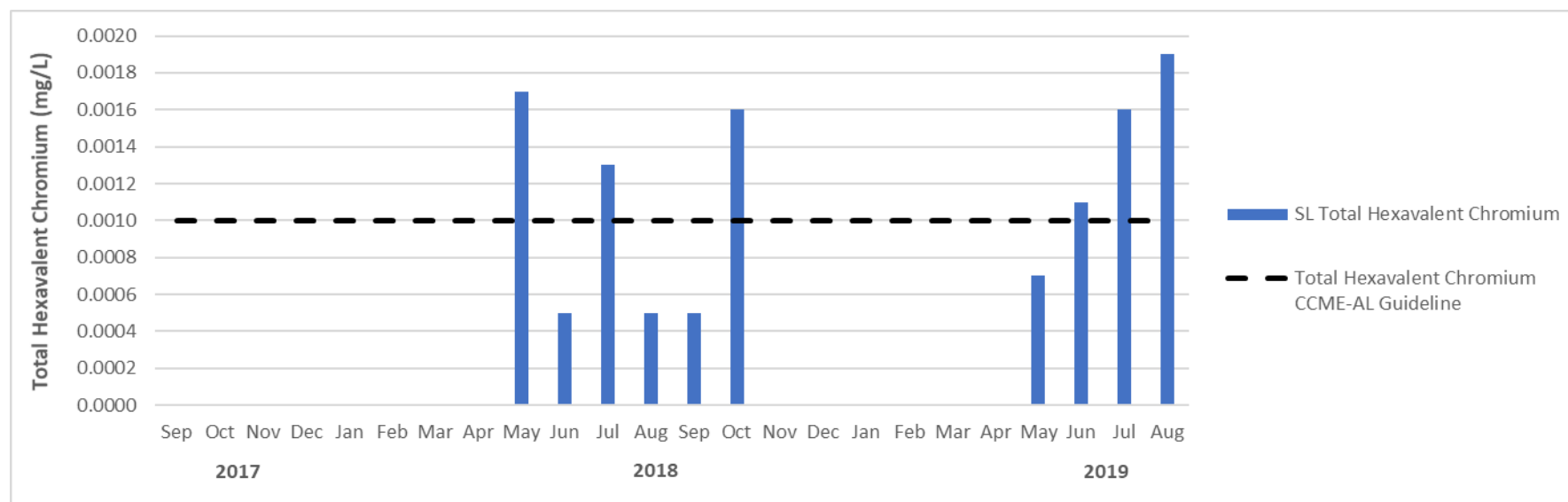


Figure E-49. Total hexavalent chromium concentrations at Snowshoe Pit Lake (SL) between September 2017 and August 2019.

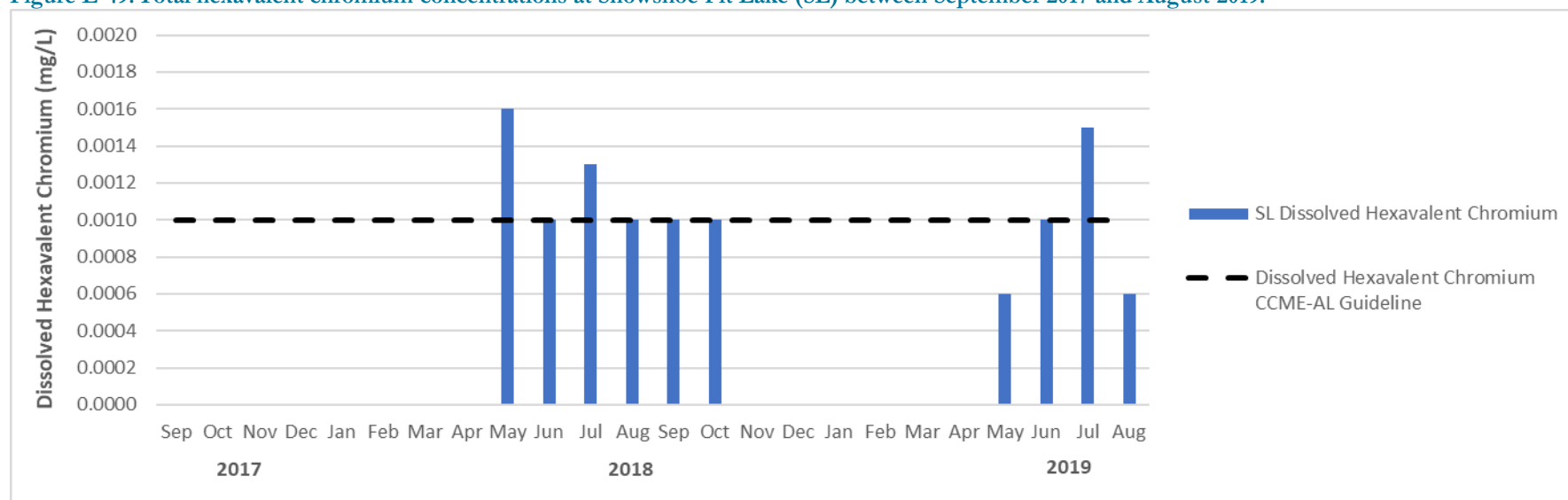


Figure E-50. Dissolved hexavalent chromium concentrations at Snowshoe Pit Lake (SL) between September 2017 and August 2019.

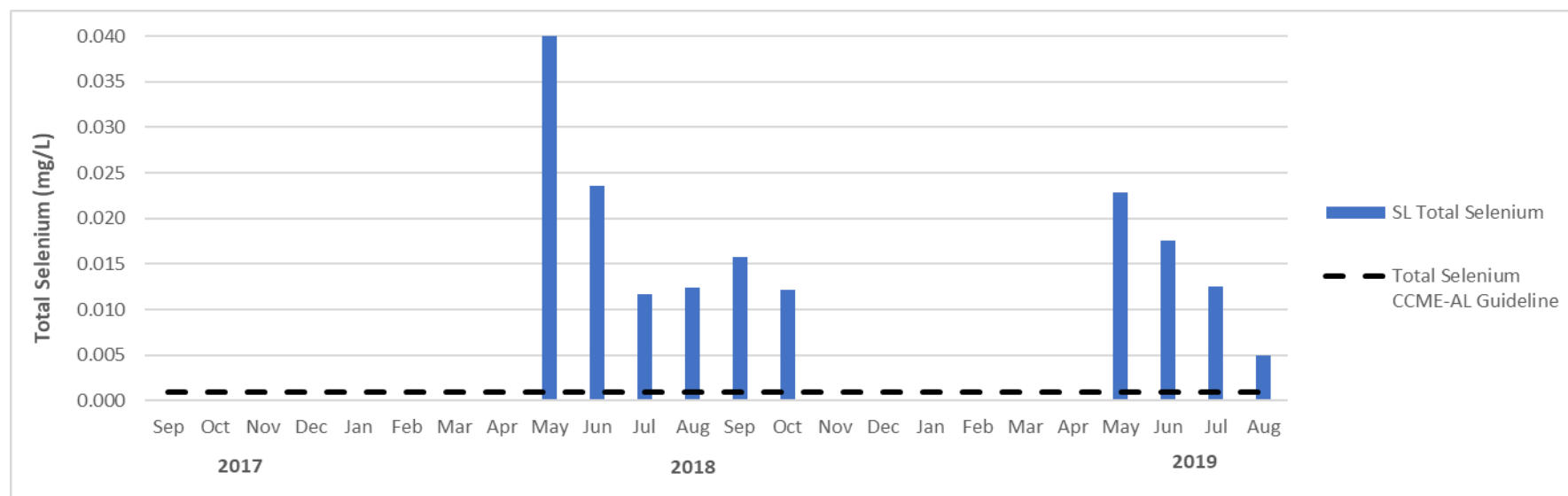


Figure E-51. Total seleniun concentrations at Snowshoe Pit Lake (SL) between September 2017 and August 2019.

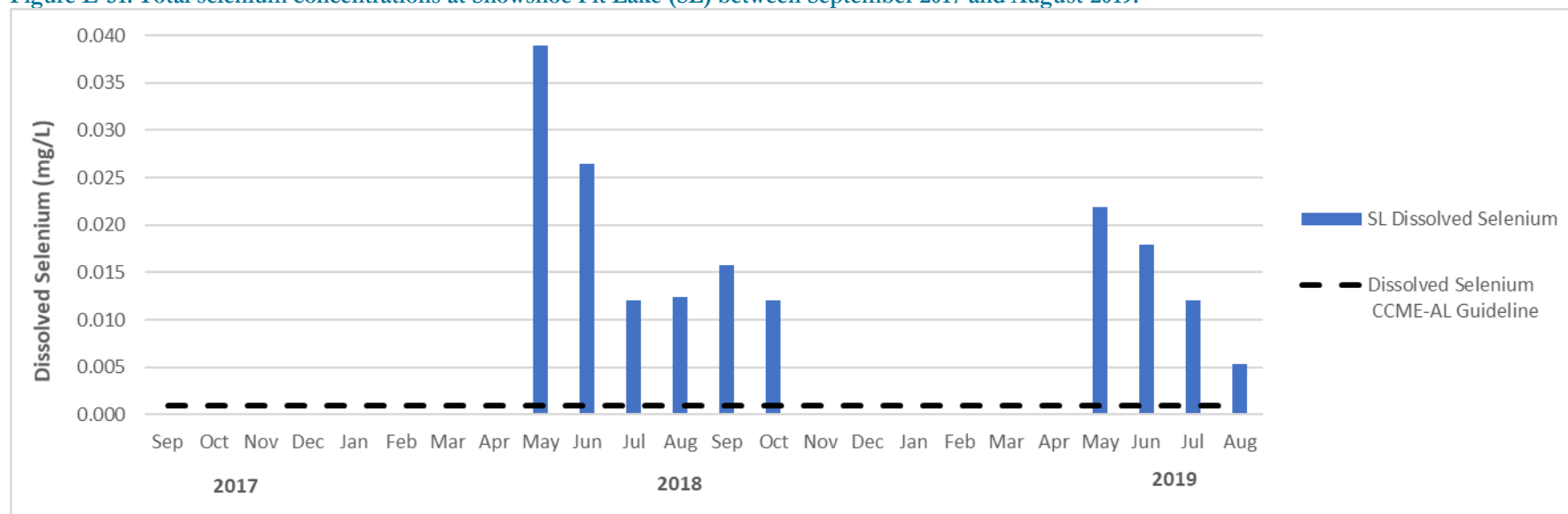


Figure E-52. Dissolved seleniun concentrations at Snowshoe Pit Lake (SL) between September 2017 and August 2019.

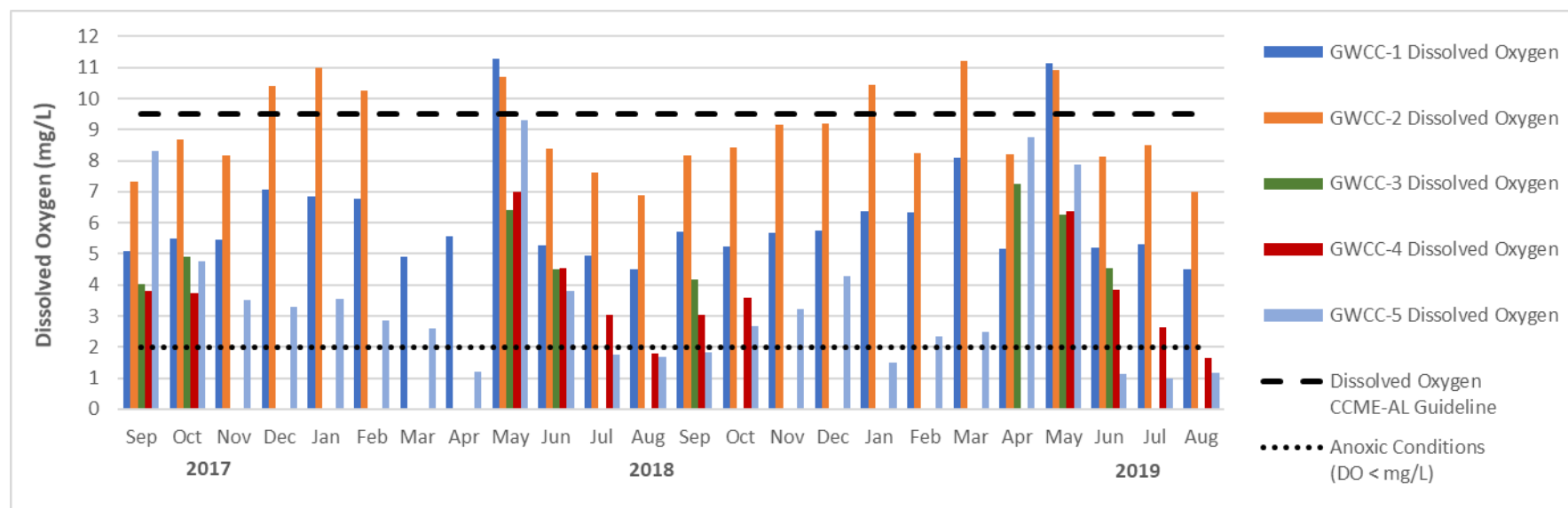


Figure E-53. Dissolved oxygen concentrations at sites GWCC-1, GWCC-2, GWCC-3, GWCC-4, and GWCC-5 between September 2017 and August 2019.

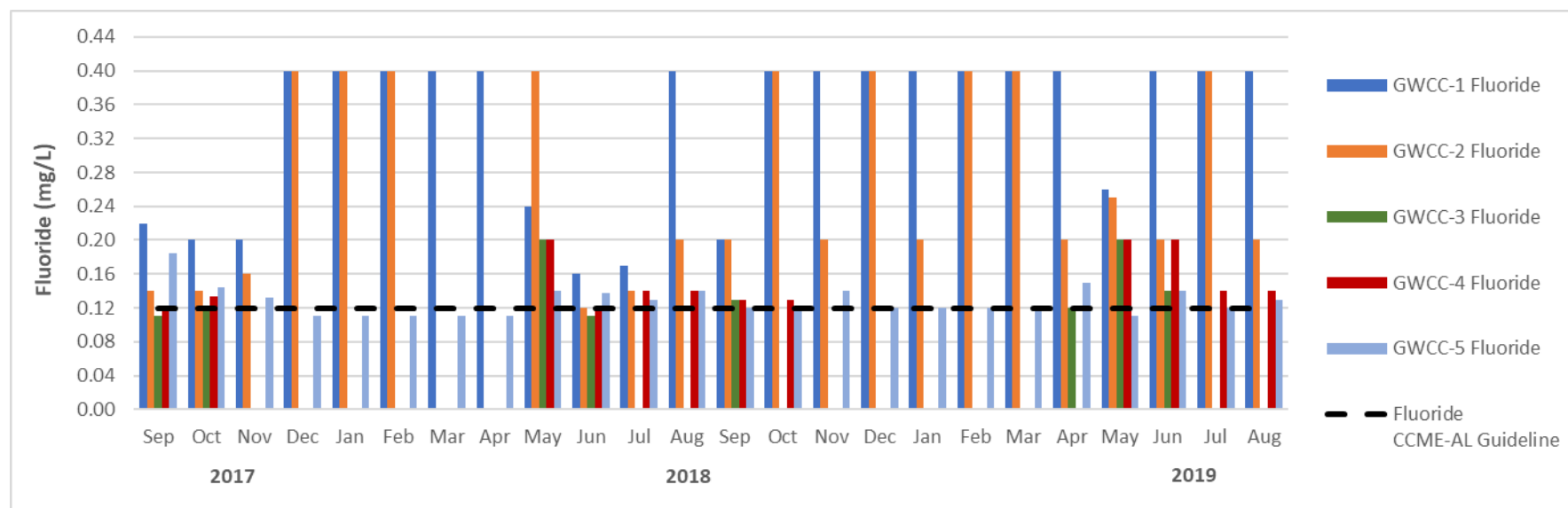


Figure E-54. Fluoride concentrations at sites GWCC-1, GWCC-2, GWCC-3, GWCC-4, and GWCC-5 between September 2017 and August 2019.

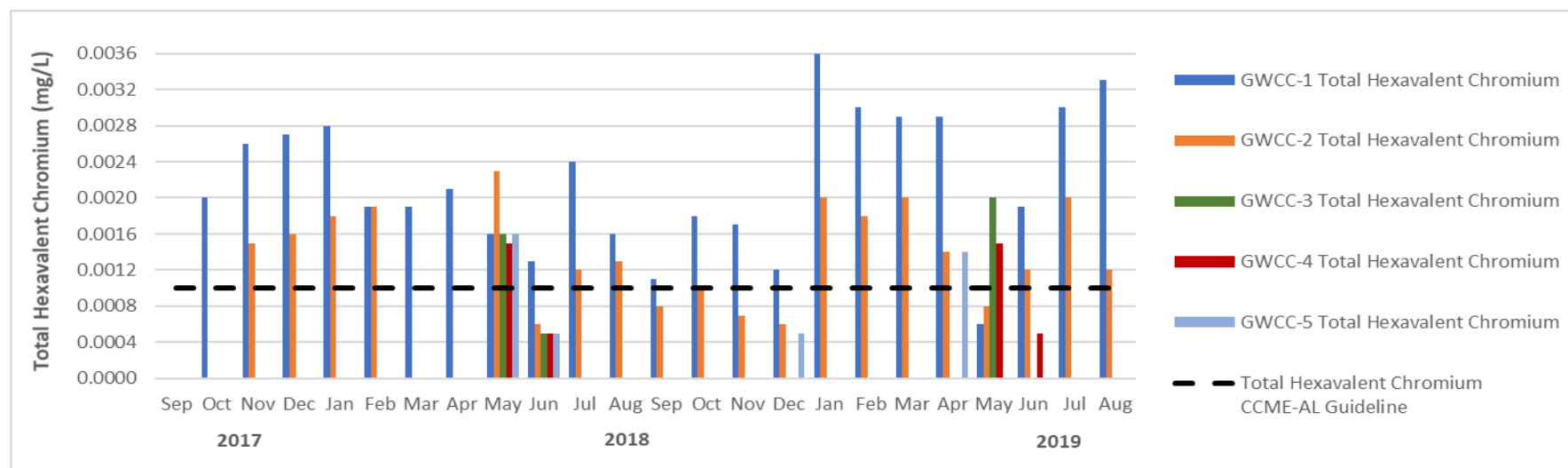


Figure E-55. Total hexavalent chromium concentrations at sites GWCC-1, GWCC-2, GWCC-3, GWCC-4, and GWCC-5 between September 2017 and August 2019. Note: hexavalent chromium is only tested when chromium exceeds 0.001 mg/L.

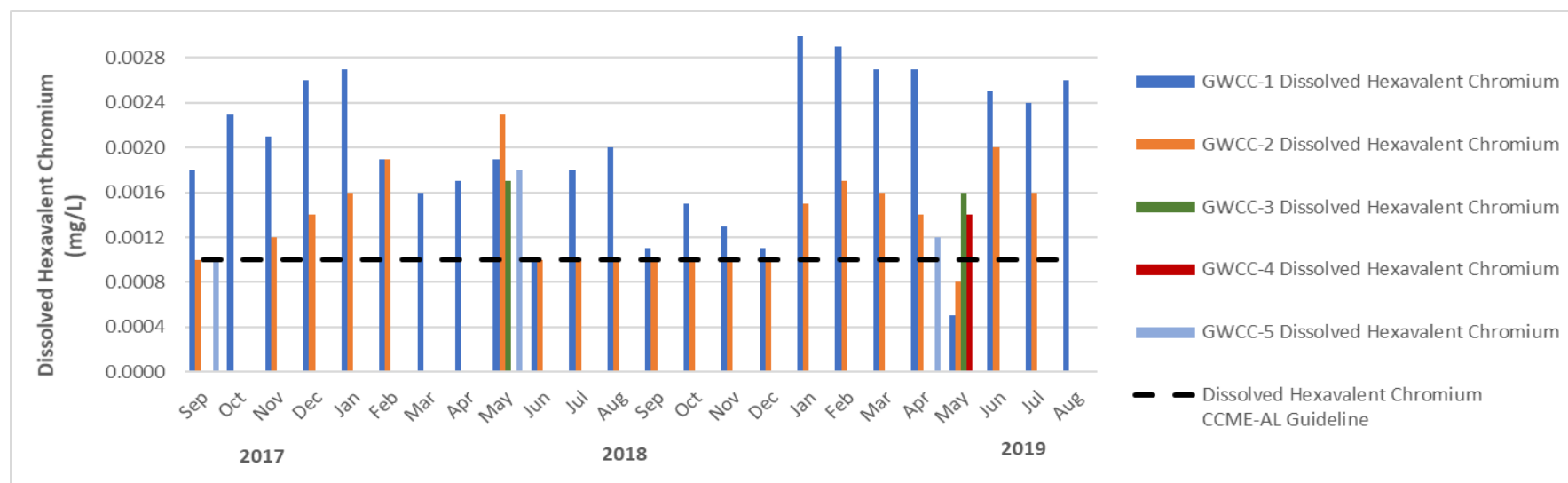


Figure E-56. Dissolved hexavalent chromium concentrations at sites GWCC-1, GWCC-2, GWCC-3, GWCC-4, and GWCC-5 between September 2017 and August 2019. Note: hexavalent chromium is only tested when chromium exceeds 0.001 mg/L.

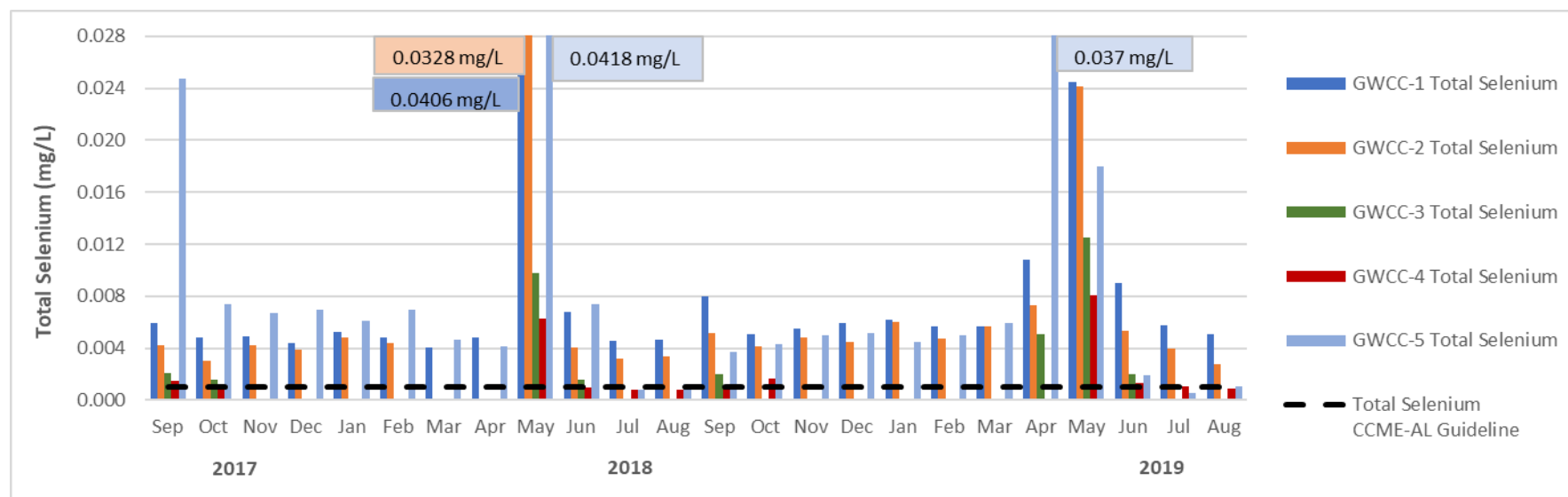


Figure E-57. Total selenium concentrations at sites GWCC-1, GWCC-2, GWCC-3, GWCC-4, and GWCC-5 between September 2017 and August 2019.

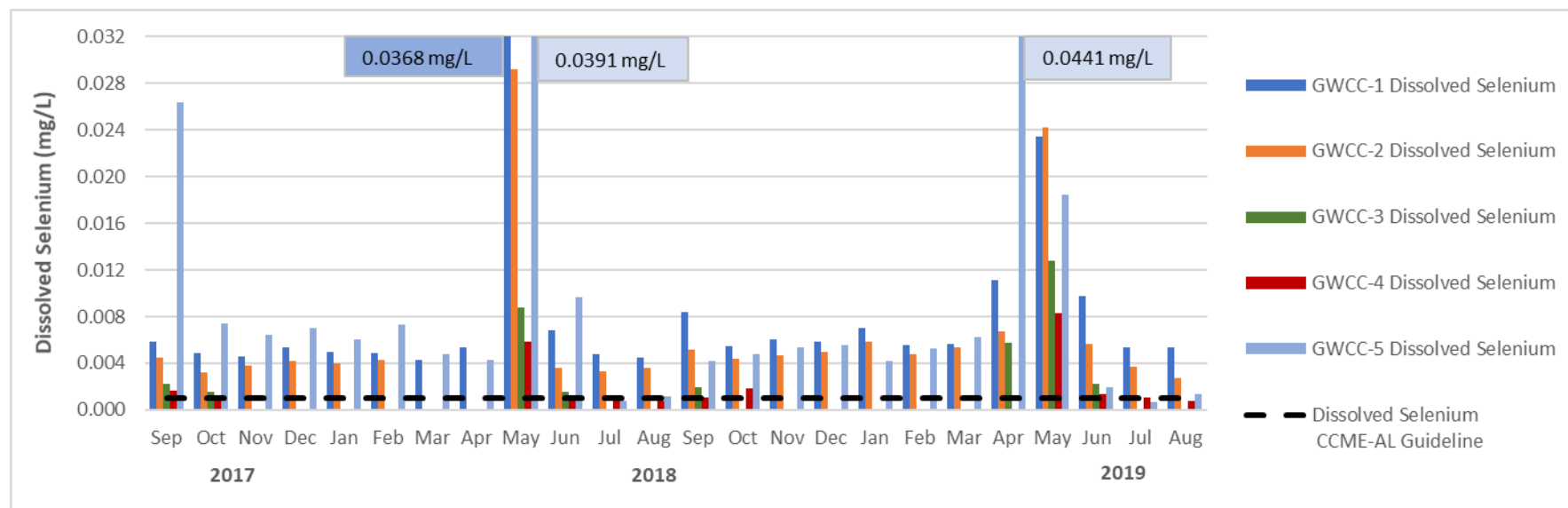


Figure E-58. Dissolved selenium concentrations at sites GWCC-1, GWCC-2, GWCC-3, GWCC-4, and GWCC-5 between September 2017 and August 2019.

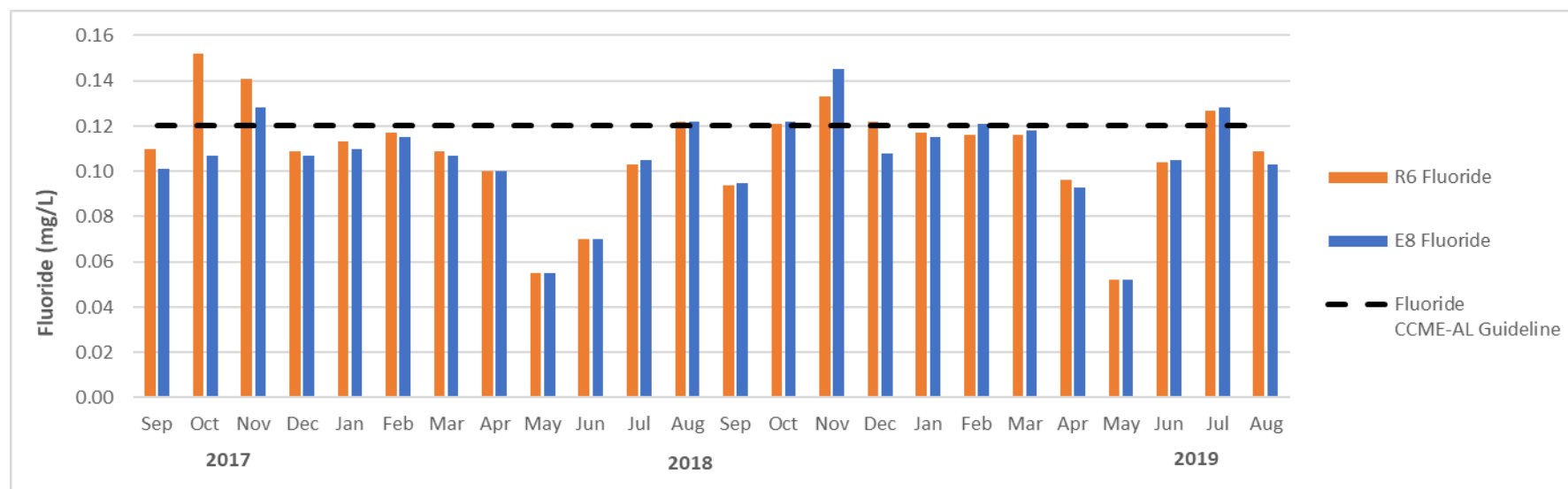


Figure E-59. Fluoride concentrations at sites R6 and E8 on the Forty Mile River between September 2017 and August 2019.

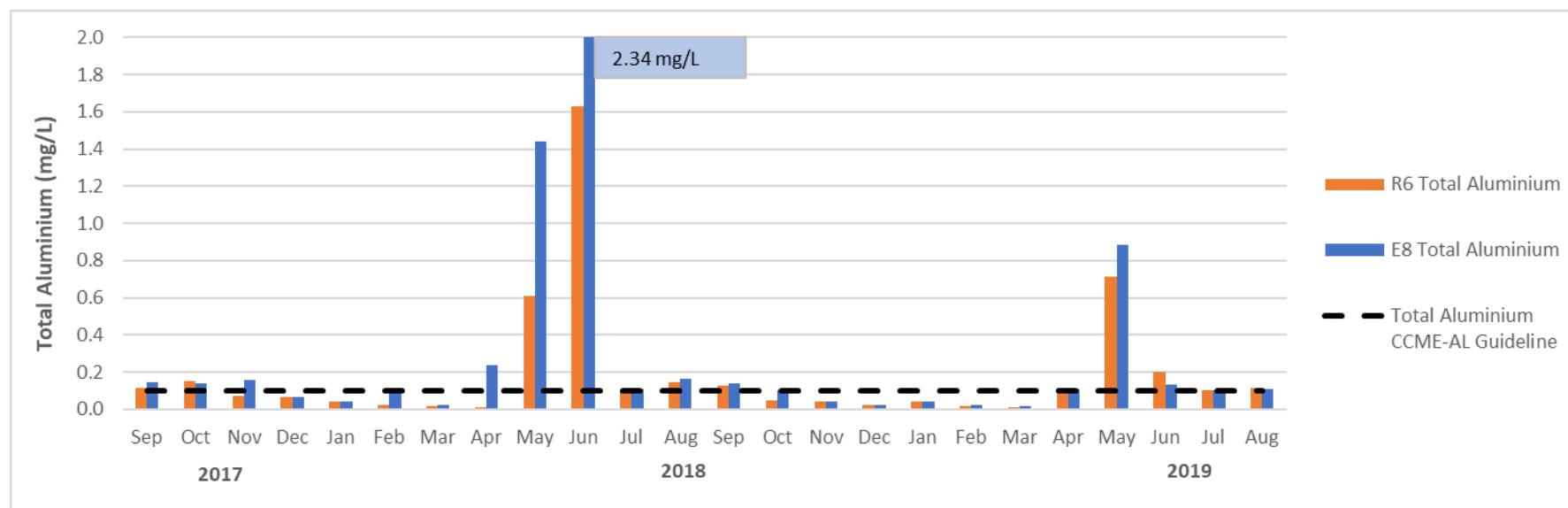


Figure E-60. Total aluminium concentrations at sites R6 and E8 on the Forty Mile River between September 2017 and August 2019.

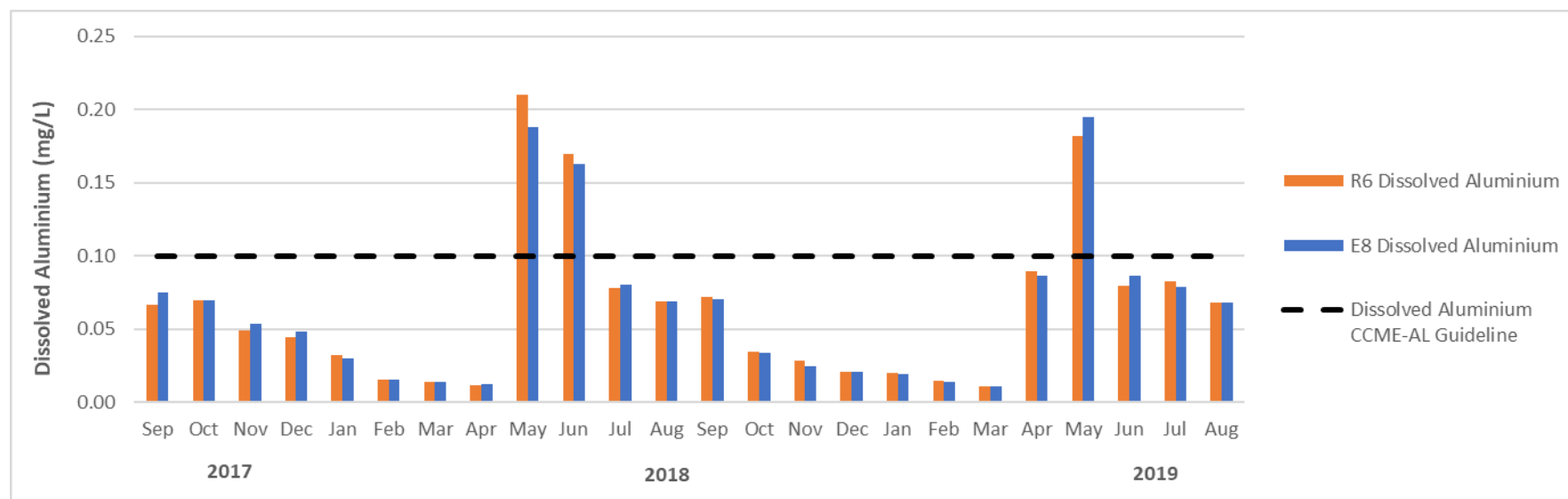


Figure E-61. Dissolved aluminium concentrations at sites R6 and E8 on the Forty Mile River between September 2017 and August 2019.

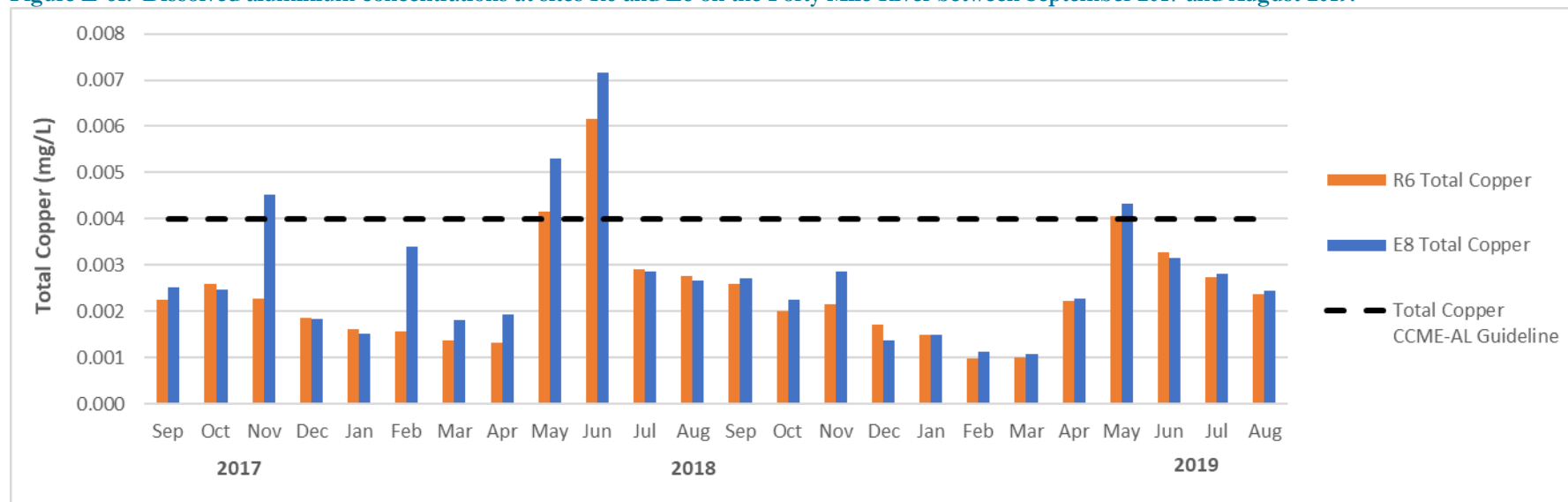


Figure E-62. Total copper concentrations at sites R6 and E8 on the Forty Mile River between September 2017 and August 2019.

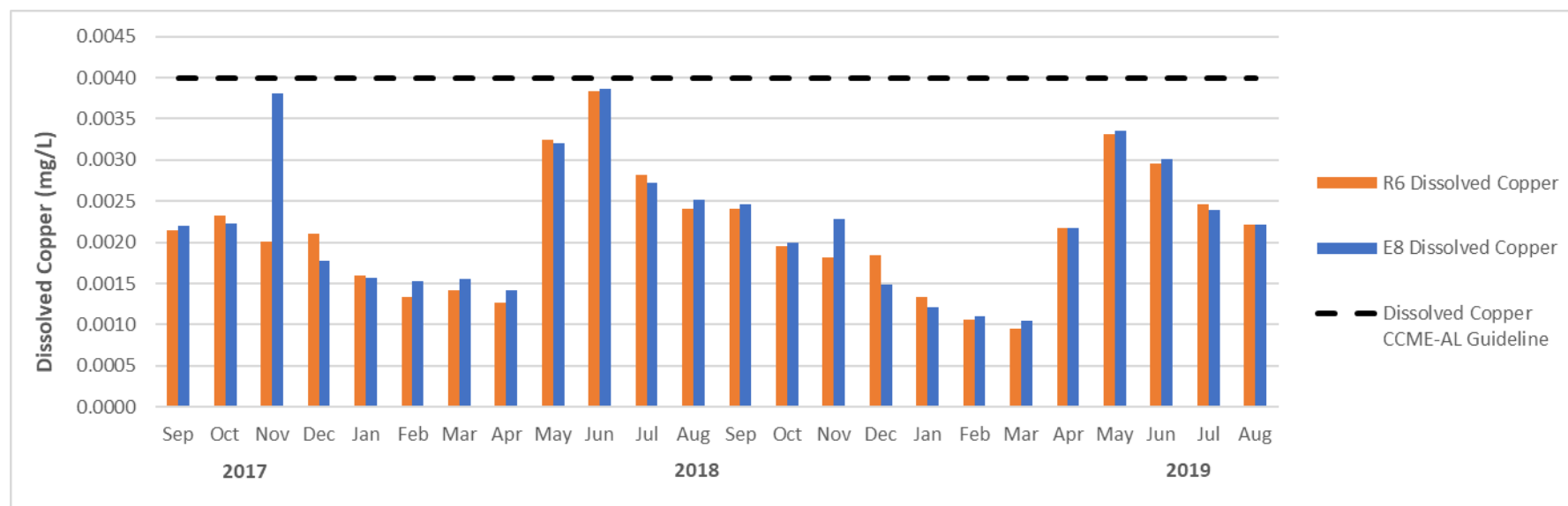


Figure E-63. Dissolved copper concentrations at sites R6 and E8 on the Forty Mile River between September 2017 and August 2019.

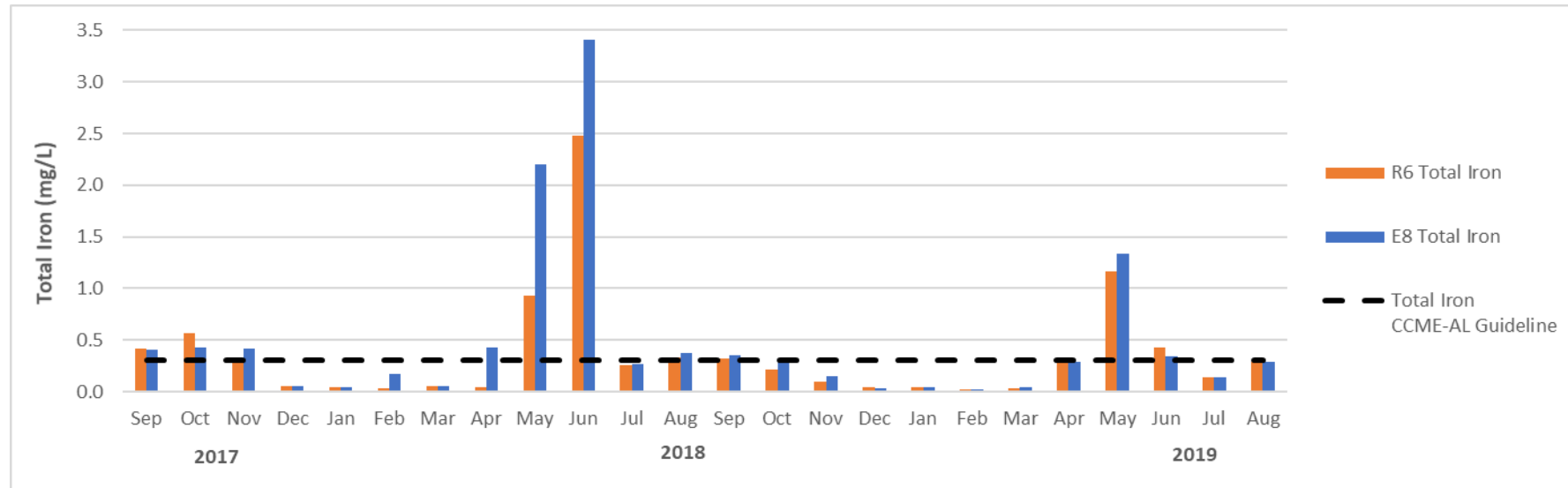


Figure E-64. Total iron concentrations at sites R6 and E8 on the Forty Mile River between September 2017 and August 2019.

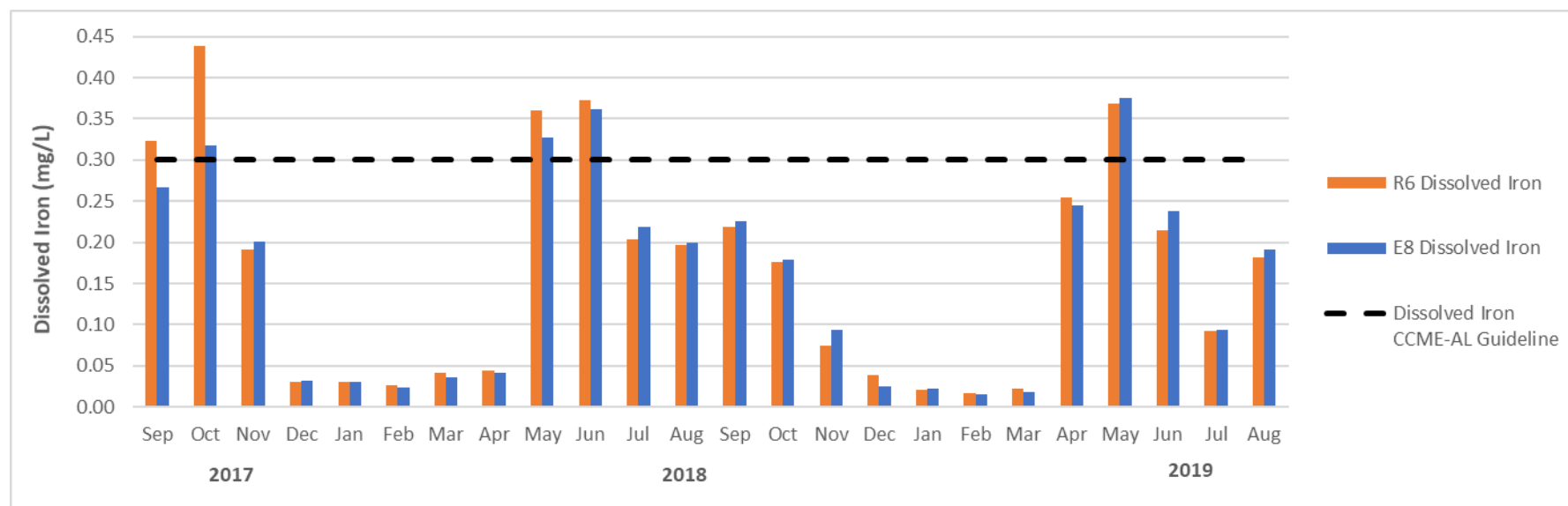


Figure E-65. Dissolved iron concentrations at sites R6 and E8 on the Forty Mile River between September 2017 and August 2019.

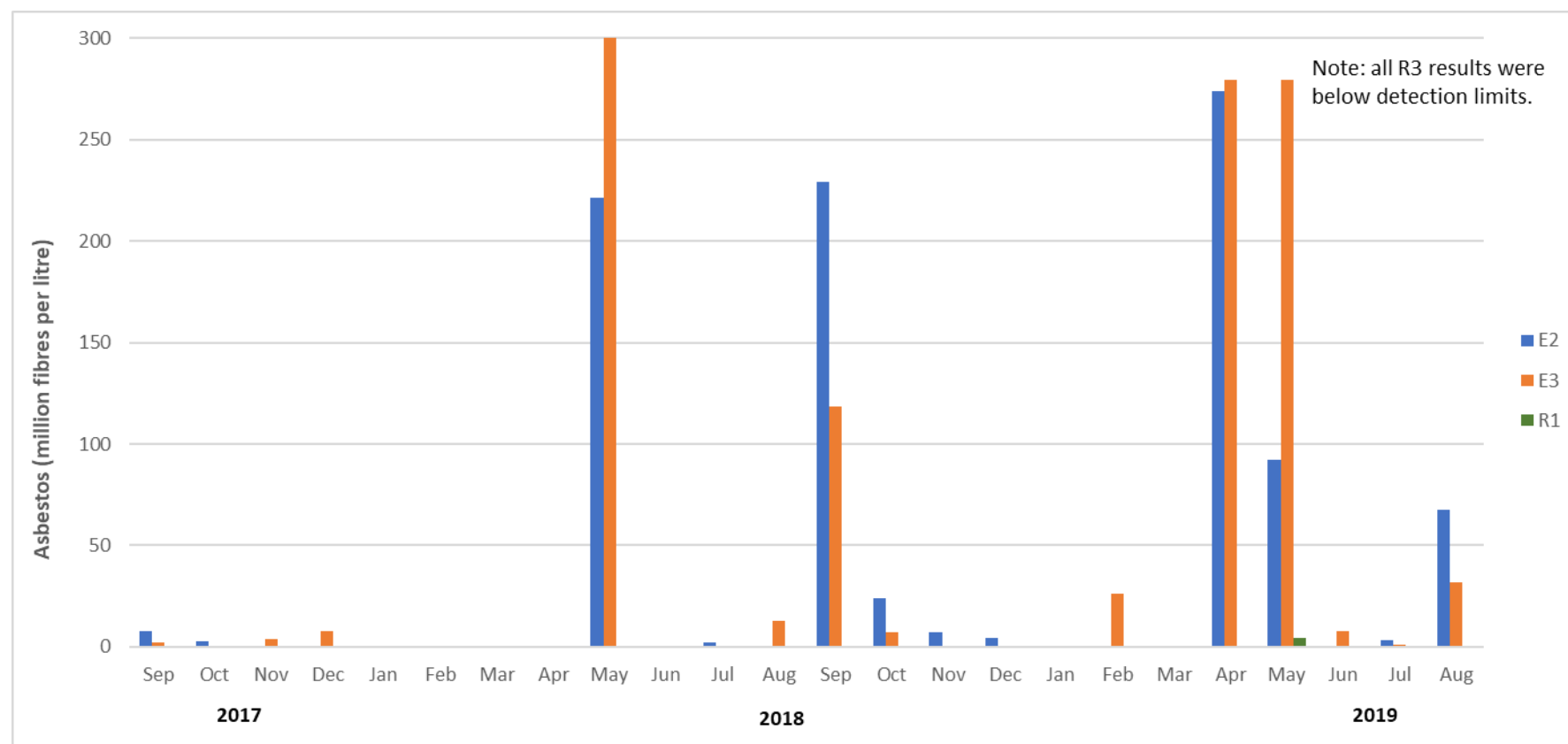


Figure E-66. Asbestos concentrations at sites R1, R3, E2, and E3 between September 2017 and August 2019.



Appendix F. Hudgeon Lake Depth Profile Data

Hudson Lake In-Situ Water Quality Data Tables
Site HL1

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL1	1	07/09/2017	12.1	8.58	711	7.97	101.4
HL1	2	07/09/2017	12.0	8.54	712	7.96	116.1
HL1	3	07/09/2017	11.7	8.50	714	7.96	127.0
HL1	4	07/09/2017	11.6	8.31	719	7.91	123.7
HL1	5	07/09/2017	10.9	8.30	816	7.82	124.1
HL1	6	07/09/2017	5.9	3.88	835	7.44	114.8
HL1	7	07/09/2017	4.9	6.01	851	7.56	148.6
HL1	8	07/09/2017	3.2	2.11	898	7.27	131.9
HL1	9	07/09/2017	2.9	1.45	934	7.22	124.1
HL1	10	07/09/2017	2.7	1.09	978	7.19	57.0
HL1	11	07/09/2017	2.2	0.79	1074	7.18	-81.2
HL1	1	03/10/2017	6.6	9.43	758	7.15	6.6
HL1	2	03/10/2017	6.6	9.31	757.9	7.47	5.6
HL1	3	03/10/2017	6.6	9.29	758.1	7.49	3.3
HL1	4	03/10/2017	6.6	9.27	759	7.50	2.4
HL1	5	03/10/2017	5.6	6.68	831	7.18	3.9
HL1	6	03/10/2017	4.2	2.00	856	6.97	1.2
HL1	7	03/10/2017	3.7	1.27	861	6.96	-4.9
HL1	8	03/10/2017	3.7	0.96	861	6.99	-7.1
HL1	9	03/10/2017	3.6	0.76	862	7.01	-7.8
HL1	10	03/10/2017	3.6	0.68	865	7.03	-10
HL1	11	03/10/2017	3.5	0.64	864	7.03	-12.1
HL1	12	03/10/2017	3.5	0.60	866	7.04	-12.7

Hudgeon Lake In-Situ Water Quality Data Tables
Site HL1

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL1	1	11/06/2018	11.6	5.89	403.1	7.57	75.8
HL1	2	11/06/2018	9.1	6.14	457.5	7.52	79.1
HL1	3	11/06/2018	7.5	5.96	495.2	7.44	82.6
HL1	4	11/06/2018	4.9	4.4	720	7.28	90.3
HL1	5	11/06/2018	3	2.71	890	7.21	96.6
HL1	6	11/06/2018	2.8	2.25	907	7.18	98.5
HL1	7	11/06/2018	2.5	1.88	954	7.16	99.8
HL1	8	11/06/2018	2.1	1.51	981	7.14	100.3
HL1	9	11/06/2018	1.9	1.07	1011	7.11	103.6
HL1	10	11/06/2018	2	0.96	1011	7.12	102.3
HL1	11	11/06/2018	1.8	0.82	1078	7.05	106.1
HL1	12	11/06/2018	1.7	0.78	1103	7.05	108.8

Hudgeon Lake In-Situ Water Quality Data Tables
Site HL2

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL2	1	07/09/2017	12.1	8.77	710	7.99	5.1
HL2	2	07/09/2017	11.9	8.67	709	7.98	19.8
HL2	3	07/09/2017	11.6	8.48	718	7.92	15.1
HL2	4	07/09/2017	10.1	7.27	771	7.72	9.5
HL2	5	07/09/2017	6.1	5.00	816	7.52	14.1
HL2	6	07/09/2017	3.5	3.39	870	7.40	21.2
HL2	7	07/09/2017	2.8	2.44	889	7.31	26.2
HL2	8	07/09/2017	2.5	1.85	919	7.26	28.3
HL2	9	07/09/2017	2.0	1.33	1035	7.17	13.6
HL2	10	07/09/2017	1.8	1.12	1079	7.16	-74.8
HL2	11	07/09/2017	1.8	0.95	1092	7.17	-97.1
HL2	12	07/09/2017	1.7	0.78	1121	7.17	-105.5
HL2	13	07/09/2017	1.6	0.70	1138	7.17	-105.2
HL2	14	07/09/2017	1.5	0.63	1180	7.16	-114.3
HL2	15	07/09/2017	1.3	0.57	1239	7.15	-110.1
HL2	16	07/09/2017	1.1	0.53	1293	7.15	-109.2
HL2	17	07/09/2017	1.1	0.50	1297	7.15	-114.0
HL2	18	07/09/2017	1.0	0.45	1329	7.15	-117.4
HL2	19	07/09/2017	1.0	0.43	1333	7.16	-123.3

Hudgeon Lake In-Situ Water Quality Data Tables
Site HL2

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL2	1	03/10/2017	6.7	9.12	759.1	7.28	-7.4
HL2	2	03/10/2017	6.7	9.06	759	7.79	-7.6
HL2	3	03/10/2017	6.7	9.02	759.6	7.79	-7.8
HL2	4	03/10/2017	6.7	8.99	759.8	7.79	-7.1
HL2	5	03/10/2017	6.6	7.42	825	7.6	-4.2
HL2	6	03/10/2017	4.2	4.13	865	7.36	-0.9
HL2	7	03/10/2017	3.5	1.85	878	7.23	1.0
HL2	8	03/10/2017	2.7	1.01	894	7.17	1.8
HL2	9	03/10/2017	2.5	0.66	925	7.11	3.6
HL2	10	03/10/2017	2.1	0.55	1008	7.06	-46.2
HL2	11	03/10/2017	1.9	0.45	1046	7.08	-77.0
HL2	12	03/10/2017	1.8	0.38	1094	7.09	-89.9
HL2	13	03/10/2017	1.6	0.32	1115	7.09	-98.7
HL2	14	03/10/2017	1.5	0.30	1156	7.09	-102.0
HL2	15	03/10/2017	1.4	0.27	1233	7.1	-106.7
HL2	16	03/10/2017	1.2	0.24	1261	7.04	-108.7
HL2	17	03/10/2017	1.1	0.22	1262	7.1	-109.5
HL2	18	03/10/2017	1.1	0.21	1263	7.11	-112.4
HL2	19	03/10/2017	1.1	0.19	1293	7.11	-115.5

Hudgeon Lake In-Situ Water Quality Data Tables
Site HL2

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL2	1	11/06/2018	12.4	6.31	398	7.55	76.7
HL2	2	11/06/2018	12.3	5.95	397.8	7.55	77.3
HL2	3	11/06/2018	7.4	6.05	505	7.45	84.2
HL2	4	11/06/2018	4.2	4.12	802	7.29	93.7
HL2	5	11/06/2018	2.7	3.16	897	7.25	96.2
HL2	6	11/06/2018	2.3	2.53	918	7.22	97.9
HL2	7	11/06/2018	2.1	1.93	969	7.18	99.7
HL2	8	11/06/2018	1.9	2.78	1002	7.22	97.2
HL2	9	11/06/2018	1.9	1.32	1015	7.15	102.4
HL2	10	11/06/2018	1.8	1.41	1061	7.11	105.7
HL2	11	11/06/2018	1.7	1	1093	7.05	108.5
HL2	12	11/06/2018	1.7	0.81	1118	7.05	107.8
HL2	13	11/06/2018	1.6	0.75	1140	7.05	94.4
HL2	14	11/06/2018	1.4	0.68	1175	7.06	79.8
HL2	15	11/06/2018	1.3	0.68	1213	7.07	72.1
HL2	16	11/06/2018	1.1	0.64	1272	7.07	61.8
HL2	17	11/06/2018	1.1	0.65	1294	7.07	61
HL2	18	11/06/2018	1.1	0.64	1300	7.07	57.2
HL2	19	11/06/2018	1.1	0.6	1302	7.08	59.9

Hudgeon Lake In-Situ Water Quality Data Tables
Site HL3

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL3	1	07/09/2017	11.8	8.64	709	7.99	52.7
HL3	2	07/09/2017	11.7	8.57	709	7.98	61.0
HL3	3	07/09/2017	11.6	8.52	710	7.97	60.1
HL3	4	07/09/2017	9.7	7.98	763	7.78	64.3
HL3	5	07/09/2017	8.6	5.55	775	7.50	69.2
HL3	6	07/09/2017	5.0	3.59	840	7.37	68.5
HL3	7	07/09/2017	2.9	2.11	880	7.27	69.1
HL3	8	07/09/2017	2.5	1.43	907	7.23	77.2
HL3	9	07/09/2017	2.1	1.07	949	7.19	81.1
HL3	10	07/09/2017	1.9	0.84	1047	7.12	-48.6
HL3	11	07/09/2017	1.9	0.67	1075	7.16	-87.8
HL3	12	07/09/2017	1.8	0.44	1088	7.17	-108.7
HL3	13	07/09/2017	1.7	0.42	1104	7.16	-114.0
HL3	14	07/09/2017	1.7	0.37	1117	7.15	-116.0
HL3	15	07/09/2017	1.6	0.30	1176	7.14	-115.1
HL3	16	07/09/2017	1.4	0.29	1213	7.14	-125.0
HL3	17	07/09/2017	1.2	0.28	1271	7.14	-118.8
HL3	18	07/09/2017	1.2	0.27	1291	7.14	-126.3
HL3	19	07/09/2017	1.0	0.26	1468	7.12	-123.0
HL3	20	07/09/2017	1.0	0.19	1467	7.12	-137.1
HL3	21	07/09/2017	0.8	0.18	1861	7.08	-133.3
HL3	22	07/09/2017	0.6	0.17	1955	7.08	-138.4
HL3	23	07/09/2017	0.5	0.16	2098	7.08	-140.1
HL3	24	07/09/2017	0.3	0.15	2288	7.06	-131.6
HL3	25	07/09/2017	0.1	0.15	2364	7.06	-141.8

Hudson Lake In-Situ Water Quality Data Tables
Site HL3

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL3	1	03/10/2017	6.7	9.08	758.9	7.75	36
HL3	2	03/10/2017	6.7	9	758.7	7.75	36.1
HL3	3	03/10/2017	6.7	8.96	759.9	7.75	36.5
HL3	4	03/10/2017	6.8	8.94	768	7.7	36.2
HL3	5	03/10/2017	6.1	8.8	833	7.44	41.6
HL3	6	03/10/2017	4.6	3.25	849	7.26	42
HL3	7	03/10/2017	3.7	1.46	865	7.16	43.5
HL3	8	03/10/2017	2.6	0.68	899	7.14	44.1
HL3	9	03/10/2017	2.3	0.48	927	7.12	46.7
HL3	10	03/10/2017	2	0.39	1016	7.06	-29
HL3	11	03/10/2017	1.9	0.34	1052	7.09	-56
HL3	12	03/10/2017	1.8	0.32	1065	7.1	-70.8
HL3	13	03/10/2017	1.7	0.29	1085	7.1	-74.6
HL3	14	03/10/2017	1.6	0.27	1102	7.09	-79
HL3	15	03/10/2017	1.5	0.25	1148	7.09	-81.4
HL3	16	03/10/2017	1.3	0.23	1205	7.09	-82
HL3	17	03/10/2017	1.1	0.22	1262	7.09	-84.1
HL3	18	03/10/2017	1.1	0.21	1265	7.1	-85.6
HL3	19	03/10/2017	1.1	0.2	1265	7.1	-86.1
HL3	20	03/10/2017	0.9	0.19	1464	7.08	-89.1
HL3	21	03/10/2017	0.9	0.18	1608	7.07	-87.1
HL3	22	03/10/2017	0.6	0.18	1928	7.04	-88.4
HL3	23	03/10/2017	0.6	0.18	2091	7.03	-89.1
HL3	24	03/10/2017	0.2	0.17	2209	7.02	-90.2

Hudgeon Lake In-Situ Water Quality Data Tables
Site HL3

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL3	1	06/12/2017	1.7	6.79	865	7.51	-9.4
HL3	2	06/12/2017	2.1	5.91	862	7.45	-12.2
HL3	3	06/12/2017	2.5	4.73	867	7.34	-11.3
HL3	4	06/12/2017	3.1	2.88	869	7.22	-13.2
HL3	5	06/12/2017	3.3	0.92	884	7.14	-12.3
HL3	6	06/12/2017	3.3	0.44	897	7.12	-14.3
HL3	7	06/12/2017	3.1	0.32	908	7.12	-13.3
HL3	8	06/12/2017	2.9	0.32	923	7.13	-13.8
HL3	9	06/12/2017	2.5	0.32	1002	7.1	-12.1
HL3	10	06/12/2017	2.1	0.33	1075	7.08	-11.8
HL3	11	06/12/2017	1.8	0.34	1095	7.08	-8.6
HL3	12	06/12/2017	1.7	0.34	1113	7.07	-5.3
HL3	13	06/12/2017	1.6	0.36	1129	7.08	-1
HL3	14	06/12/2017	1.5	0.37	1168	7.08	6.1
HL3	15	06/12/2017	1.3	0.38	1205	7.08	7.4
HL3	16	06/12/2017	1.1	0.39	1280	7.07	11.1
HL3	17	06/12/2017	1.1	0.4	1291	7.07	15.5
HL3	18	06/12/2017	1.1	0.42	1294	7.07	17.5
HL3	19	06/12/2017	1	0.44	1477	7.04	23.8
HL3	20	06/12/2017	0.9	0.5	1579	7.03	32.5
HL3	21	06/12/2017	0.8	0.54	1756	7.01	36.3
HL3	22	06/12/2017	0.6	0.59	1998	6.99	41.4
HL3	23	06/12/2017	0.5	0.67	2083	6.98	49.2
HL3	24	06/12/2017	0.6	0.71	2086	6.97	50.4
HL3	25	06/12/2017	0.6	0.73	2080	6.97	51.2
HL3	26	06/12/2017	0.5	0.77	2078	6.96	51.4

Hudgeon Lake In-Situ Water Quality Data Tables
Site HL3

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL3	1	17/01/2018	1.5	6.47	893	7.43	67.3
HL3	2	17/01/2018	2.1	6.35	888	7.40	64.5
HL3	3	17/01/2018	2.4	5.91	889	7.34	60.3
HL3	4	17/01/2018	3.0	2.85	893	7.20	52.5
HL3	5	17/01/2018	3.1	0.65	901	7.13	42.9
HL3	6	17/01/2018	3.1	0.27	909	7.13	39.6
HL3	7	17/01/2018	3.0	0.22	925	7.13	38.4
HL3	8	17/01/2018	2.6	0.23	968	7.13	37.2
HL3	9	17/01/2018	2.3	0.23	1049	7.10	35.8
HL3	10	17/01/2018	2.0	0.20	1090	7.09	37.6
HL3	11	17/01/2018	1.8	0.20	1109	7.08	38.8
HL3	12	17/01/2018	1.7	0.21	1134	7.08	41.4
HL3	13	17/01/2018	1.6	0.21	1149	7.08	42.7
HL3	14	17/01/2018	1.4	0.22	1203	7.08	46.4
HL3	15	17/01/2018	1.3	0.23	1241	7.08	50.6
HL3	16	17/01/2018	1.1	0.23	1285	7.08	57.0
HL3	17	17/01/2018	1.0	0.23	1310	7.09	57.6
HL3	18	17/01/2018	1.0	0.24	1372	7.09	61.8
HL3	19	17/01/2018	0.9	0.25	1537	7.07	65.8
HL3	20	17/01/2018	0.8	0.26	1684	7.06	71.6
HL3	21	17/01/2018	0.7	0.27	1888	7.04	76.8
HL3	22	17/01/2018	0.5	0.28	2108	7.01	82.6
HL3	23	17/01/2018	0.4	0.29	2234	7.00	87.4
HL3	24	17/01/2018	0.2	0.31	2376	6.99	92.9
HL3	25	17/01/2018	0.2	0.32	2439	6.98	97.0
HL3	26	17/01/2018	0.4	0.33	2422	6.98	98.6

Hudgeon Lake In-Situ Water Quality Data Tables
Site HL3

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL3	1	12/02/2018	0.8	6.2	914	7.48	-27.8
HL3	2	12/02/2018	1.7	6.08	906	7.47	-33.4
HL3	3	12/02/2018	2.3	5.79	902	7.43	-40.7
HL3	4	12/02/2018	2.7	4.9	902	7.34	-49.1
HL3	5	12/02/2018	2.8	1.5	911	7.19	-53.8
HL3	6	12/02/2018	2.9	0.27	916	7.15	-55.9
HL3	7	12/02/2018	2.9	0.13	928	7.13	-58.5
HL3	8	12/02/2018	2.7	0.12	970	7.13	-64.3
HL3	9	12/02/2018	2.4	0.13	1034	7.13	-68.1
HL3	10	12/02/2018	2	0.13	1095	7.12	-69
HL3	11	12/02/2018	1.8	0.12	1115	7.11	-68.6
HL3	12	12/02/2018	1.7	0.13	1136	7.1	-66.9
HL3	13	12/02/2018	1.6	0.13	1152	7.1	-68
HL3	14	12/02/2018	1.4	0.14	1185	7.1	-64.9
HL3	15	12/02/2018	1.3	0.14	1229	7.11	-63.4
HL3	16	12/02/2018	1.1	0.16	1294	7.1	-59.9
HL3	17	12/02/2018	1	0.16	1308	7.1	-58.4
HL3	18	12/02/2018	1	0.17	1331	7.11	-57.3
HL3	19	12/02/2018	0.9	0.19	1538	7.09	-51.8
HL3	20	12/02/2018	0.8	0.19	1653	7.08	-48.7
HL3	21	12/02/2018	0.7	0.22	1835	7.06	-44
HL3	22	12/02/2018	0.5	0.25	2110	7.03	-36.8
HL3	23	12/02/2018	0.4	0.27	2235	7.02	-30.9
HL3	24	12/02/2018	0.3	0.33	2371	7	-20.1
HL3	25	12/02/2018	0.5	0.57	2435	6.99	-7.2

Hudson Lake In-Situ Water Quality Data Tables
Site HL3

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL3	1	13/03/2018	1.0	5.49	915	7.44	41.6
HL3	2	13/03/2018	1.8	5.47	906	7.42	37.8
HL3	3	13/03/2018	2.3	5.34	902	7.4	35.6
HL3	4	13/03/2018	2.2	5.17	903	7.38	34
HL3	5	14/03/2018	2.7	1.64	910	7.24	28.3
HL3	6	13/03/2018	2.6	1.05	925	7.22	24.4
HL3	7	13/03/2018	2.4	1.2	952	7.22	21.6
HL3	8	13/03/2018	2.4	0.4	1005	7.2	11.8
HL3	9	13/03/2018	2.2	0.11	1054	7.18	13.7
HL3	10	13/03/2018	2	0.1	1084	7.17	14.7
HL3	11	13/03/2018	1.8	0.11	1108	7.16	17.6
HL3	12	13/03/2018	1.6	0.1	1136	7.16	20.4
HL3	13	13/03/2018	1.5	0.11	1163	7.16	24.4
HL3	14	13/03/2018	1.4	0.1	1200	7.17	28.2
HL3	15	13/03/2018	1.2	0.1	1249	7.17	33.4
HL3	16	13/03/2018	1.1	0.1	1292	7.16	35.6
HL3	17	13/03/2018	1	0.11	1304	7.17	39.6
HL3	18	13/03/2018	1	0.11	1392	7.16	45.5
HL3	19	13/03/2018	0.9	0.11	1530	7.14	50.2
HL3	20	13/03/2018	0.8	0.12	1715	7.13	57.5
HL3	21	13/03/2018	0.6	0.12	1926	7.11	64
HL3	22	13/03/2018	0.4	0.12	2155	7.09	69.7
HL3	23	13/03/2018	0.3	0.13	2253	7.08	74.9
HL3	24	13/03/2018	0.2	0.14	2373	7.07	84.2
HL3	25	13/03/2018	0.2	0.2	2415	7.07	89.6
HL3	26	13/03/2018	0.3	0.3	2381	7.06	93.7

Hudgeon Lake In-Situ Water Quality Data Tables
Site HL3

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL3	1	10/04/2018	1.2	5.13	911	7.34	3.2
HL3	2	10/04/2018	1.7	4.78	914	7.31	-0.4
HL3	3	10/04/2018	2.2	4.36	911	7.28	-1.7
HL3	4	10/04/2018	2.5	3.6	909	7.24	-4.1
HL3	5	10/04/2018	2.5	2.44	910	7.2	-6.4
HL3	6	10/04/2018	2.6	0.82	915	7.16	-6.1
HL3	7	10/04/2018	2.6	0.29	929	7.15	-8.2
HL3	8	10/04/2018	2.6	0.18	962	7.14	-7.5
HL3	9	10/04/2018	2.5	0.12	992	7.13	-8.9
HL3	10	10/04/2018	2.3	0.12	1039	7.12	-8.2
HL3	11	10/04/2018	2	0.12	1085	7.1	-7.4
HL3	12	10/04/2018	1.8	0.12	1108	7.09	-6.6
HL3	13	10/04/2018	1.7	0.12	1133	7.09	-4.5
HL3	14	10/04/2018	1.5	0.13	1157	7.09	-1.1
HL3	15	10/04/2018	1.4	0.13	1190	7.09	2.9
HL3	16	10/04/2018	1.3	0.14	1244	7.09	3.2
HL3	17	10/04/2018	1.1	0.14	1295	7.09	7.7
HL3	18	10/04/2018	1	0.16	1346	7.09	9.8
HL3	19	10/04/2018	0.9	0.17	1538	7.07	17.3
HL3	20	10/04/2018	0.8	0.18	1652	7.06	16.8
HL3	21	10/04/2018	0.7	0.2	1868	7.04	21.2
HL3	22	10/04/2018	0.5	0.22	2082	7.01	23.3
HL3	23	10/04/2018	0.4	0.25	2237	7	26.9
HL3	24	10/04/2018	0.3	0.31	2337	6.99	31.6

Hudgeon Lake In-Situ Water Quality Data Tables
Site HL3

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL3	1	11/06/2018	12.3	5.7	395.7	7.59	68.2
HL3	2	11/06/2018	12.3	5.57	395.6	7.58	68.9
HL3	3	11/06/2018	9.2	5.82	446.4	7.5	69.8
HL3	4	11/06/2018	4.9	4.49	741	7.32	79.8
HL3	5	11/06/2018	2.8	3.25	895	7.24	85.9
HL3	6	11/06/2018	2.4	2.25	921	7.21	87.4
HL3	7	11/06/2018	2.1	2	975	7.19	87.5
HL3	8	11/06/2018	2	1.21	1011	7.14	89.1
HL3	9	11/06/2018	1.9	0.99	1047	7.11	93.4
HL3	10	11/06/2018	1.9	0.86	1077	7	96
HL3	11	11/06/2018	1.8	0.91	1105	7.06	97.2
HL3	12	11/06/2018	1.7	0.79	1121	7.06	95.2
HL3	13	11/06/2018	1.6	0.72	1141	7.06	86.8
HL3	14	11/06/2018	1.5	0.72	1167	7.06	87.7
HL3	15	11/06/2018	1.4	0.74	1190	7.06	84.5
HL3	16	11/06/2018	1.3	0.71	1231	7.06	84.9
HL3	17	11/06/2018	1.2	0.7	1279	7.06	81.1
HL3	18	11/06/2018	1.1	0.71	1297	7.06	79.1
HL3	19	11/06/2018	1	0.71	1438	7.05	78.5
HL3	20	11/06/2018	0.9	0.7	1497	7.05	75.1
HL3	21	11/06/2018	0.8	0.7	1642	7.03	74.6
HL3	22	11/06/2018	0.7	0.68	1783	7.02	74.7
HL3	23	11/06/2018	0.7	0.7	1764	7.03	75.3
HL3	24	11/06/2018	0.7	0.7	1783	7.04	71.6
HL3	25	11/06/2018	0.7	0.67	1805	7.04	72.7
HL3	26	11/06/2018	0.7	0.65	1808	7.05	71.4

Hudgeon Lake In-Situ Water Quality Data Tables
Site HL3

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL3	1	09/07/2018	17.6	8.39	548.5	7.65	-37.5
HL3	2	09/07/2018	16.8	8.1	572.4	-	-52.7
HL3	3	09/07/2018	13.2	7.11	595.5	-	-53.6
HL3	4	09/07/2018	6.5	3.86	741.6	-	-32.5
HL3	5	09/07/2018	3.3	1.86	929	7.14	-29.9
HL3	6	09/07/2018	2.7	1.09	953	-	-29.8
HL3	7	09/07/2018	2.5	0.58	977	-	-29.1
HL3	8	09/07/2018	2.3	0.41	1003	-	-28.1
HL3	9	09/07/2018	2.2	0.36	1025	-	-27.4
HL3	10	09/07/2018	2.1	0.32	1059	-	-22.3
HL3	11	09/07/2018	2	0.3	1092	-	-10.6
HL3	12	09/07/2018	1.8	0.24	1121	-	-16.3
HL3	13	09/07/2018	1.8	0.22	1131	-	-18.5
HL3	14	09/07/2018	1.7	0.21	1152	-	-19.1
HL3	15	09/07/2018	1.5	0.19	1198	6.93	-20.4
HL3	16	09/07/2018	1.4	0.18	1246	-	-20.2
HL3	17	09/07/2018	1.3	0.18	1280	-	-19.2
HL3	18	09/07/2018	1.3	0.17	1283	-	-21.1
HL3	19	09/07/2018	1.2	0.16	1293	-	-21.6
HL3	20	09/07/2018	1.1	0.16	1487	-	-20.6
HL3	21	09/07/2018	1	0.15	1622	-	-20
HL3	22	09/07/2018	0.8	0.14	1888	-	-19
HL3	23	09/07/2018	0.6	0.13	2166	-	-19
HL3	24	09/07/2018	0.5	0.13	2259	-	-18.8
HL3	25	09/07/2018	0.4	0.12	2412	-	0.81

Hudgeon Lake In-Situ Water Quality Data Tables
Site HL3

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL3	1	12/08/2018	14.7	8.54	430	7.77	217
HL3	2	12/08/2018	14.4	8.4	430.7	7.74	219.5
HL3	3	12/08/2018	13.2	7.73	444.4	7.61	222
HL3	4	12/08/2018	7.5	2.4	615.8	7.13	228.5
HL3	5	12/08/2018	4.3	0.62	596.2	7	236.6
HL3	6	12/08/2018	3	0.2	609.4	6.99	237.2
HL3	7	12/08/2018	2.5	0.14	624.9	6.99	237.9
HL3	8	12/08/2018	2.4	0.1	637.9	6.99	237.8
HL3	9	12/08/2018	2.2	0.08	652.5	6.96	238.4
HL3	10	12/08/2018	2.1	0.07	673.7	6.95	193
HL3	11	12/08/2018	2	0.15	-	-	-
HL3	12	12/08/2018	1.8	0.12	-	-	-
HL3	13	12/08/2018	1.7	0.1	-	-	-
HL3	14	12/08/2018	1.6	0.08	-	-	-
HL3	15	12/08/2018	1.4	0.07	-	-	-
HL3	16	12/08/2018	1.3	0.06	-	-	-
HL3	17	12/08/2018	1.2	0.06	-	-	-
HL3	18	12/08/2018	1.2	0.05	-	-	-
HL3	19	12/08/2018	1.2	0.04	-	-	-
HL3	20	12/08/2018	1.1	0.04	-	-	-
HL3	21	12/08/2018	1	0.04	-	-	-
HL3	22	12/08/2018	0.8	0.03	-	-	-
HL3	23	12/08/2018	0.6	0.03	-	-	-
HL3	24	12/08/2018	0.4	0.02	-	-	-

Hudgeon Lake In-Situ Water Quality Data Tables
Site HL3

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL3	1	11/09/2018	7.1	9.63	542.2	7.64	152.7
HL3	2	11/09/2018	6.1	9.22	542.6	7.63	153.8
HL3	3	11/09/2018	5.4	9.36	569.9	7.57	156
HL3	4	11/09/2018	5.5	2.78	777.6	7.29	157.8
HL3	5	11/09/2018	4.7	0.37	-	-	-
HL3	6	11/09/2018	3.7	0.35	909	7.43	165.4
HL3	7	11/09/2018	3.2	0.36	-	-	-
HL3	8	11/09/2018	2.6	0.36	966	7.33	164.9
HL3	9	11/09/2018	2.1	0.36	-	-	-
HL3	10	11/09/2018	1.8	0.36	1093	7.13	-34.6
HL3	11	11/09/2018	1.8	0.37	-	-	-
HL3	12	11/09/2018	1.6	0.38	1109	7.37	-64.4
HL3	13	11/09/2018	1.5	0.39	-	-	-
HL3	14	11/09/2018	1.3	0.41	1149	7.18	-84.4
HL3	15	11/09/2018	1.2	0.42	-	-	-
HL3	16	11/09/2018	1.2	0.43	-	-	-
HL3	17	11/09/2018	1.3	0.46	-	-	-
HL3	18	11/09/2018	1.2	0.49	-	-	-
HL3	19	11/09/2018	1.1	0.52	-	-	-
HL3	20	11/09/2018	1	0.55	-	-	-
HL3	21	11/09/2018	0.8	0.58	-	-	-
HL3	22	11/09/2018	0.8	0.66	-	-	-
HL3	23	11/09/2018	0.4	0.72	2088	7	-89

Hudgeon Lake In-Situ Water Quality Data Tables
Site HL3

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL3	1	15/11/2018	2.1	10.57	-	-	-
HL3	2	15/11/2018	2.6	10.44	-	-	-
HL3	3	15/11/2018	3.4	9.67	-	-	-
HL3	4	15/11/2018	4	6.45	-	-	-
HL3	5	15/11/2018	4.1	2.02	-	-	-
HL3	6	15/11/2018	4	0.89	-	-	-
HL3	7	15/11/2018	4	0.82	-	-	-
HL3	8	15/11/2018	3.1	0.49	-	-	-
HL3	9	15/11/2018	2.8	0.43	-	-	-
HL3	10	15/11/2018	2.4	0.38	-	-	-
HL3	11	15/11/2018	2.1	0.36	-	-	-
HL3	12	15/11/2018	1.9	0.32	-	-	-
HL3	13	15/11/2018	1.8	0.31	-	-	-
HL3	14	15/11/2018	1.6	0.28	-	-	-
HL3	15	15/11/2018	1.5	0.27	-	-	-
HL3	16	15/11/2018	1.4	0.25	-	-	-
HL3	17	15/11/2018	1.3	0.23	-	-	-
HL3	18	15/11/2018	1.3	0.22	-	-	-
HL3	19	15/11/2018	1.2	0.21	-	-	-
HL3	20	15/11/2018	1.1	0.19	-	-	-
HL3	21	15/11/2018	1	0.19	-	-	-
HL3	22	15/11/2018	0.8	0.18	-	-	-
HL3	23	15/11/2018	0.7	0.17	-	-	-
HL3	24	15/11/2018	0.5	0.16	-	-	-

Hudgeon Lake In-Situ Water Quality Data Tables
Site HL3

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL3	1	13/12/2018	3.3	4.89	694	7.21	-124.7
HL3	2	13/12/2018	3.9	1.54	738	7.12	-152.1
HL3	3	13/12/2018	4	0.54	787	7.09	-167.9
HL3	4	13/12/2018	3.9	0.33	900	7.07	-175.7
HL3	5	13/12/2018	3.6	0.33	941	7.07	-176.3
HL3	6	13/12/2018	3.1	0.33	965	7.07	-177.2
HL3	7	13/12/2018	3.1	0.34	965	7.08	-179.1
HL3	8	13/12/2018	2.7	0.34	992	7.08	-181
HL3	9	13/12/2018	2.4	0.34	1032	7.07	-184.8
HL3	10	13/12/2018	1.9	0.34	1095	7.05	-190.5
HL3	11	13/12/2018	1.8	0.35	1118	7.05	-192.7
HL3	12	13/12/2018	1.6	0.35	1142	7.04	-190.5
HL3	13	13/12/2018	1.4	0.36	1166	7.04	-188
HL3	14	13/12/2018	1.3	0.37	1192	7.04	-186.8
HL3	15	13/12/2018	1.2	0.38	1249	7.03	-184.2
HL3	16	13/12/2018	1.1	0.4	1269	7.03	-182.1
HL3	17	13/12/2018	1.1	0.41	1274	7.04	-180.2
HL3	18	13/12/2018	1.1	0.43	1294	7.04	-178.7
HL3	19	13/12/2018	0.9	0.45	1458	7.02	-174.8
HL3	20	13/12/2018	0.9	0.47	1545	7.01	-172.1
HL3	21	13/12/2018	0.8	0.51	1750	6.99	-168.1
HL3	22	13/12/2018	0.6	0.55	1997	6.96	-161.4
HL3	23	13/12/2018	0.5	0.62	2199	6.95	-154.6
HL3	24	13/12/2018	0.4	0.86	2252	6.94	-128.3

Hudgeon Lake In-Situ Water Quality Data Tables
Site HL3

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL3	1	17/01/2019	1.8	5.86	726	7.29	-117.4
HL3	2	17/01/2019	3.3	3.44	741	7.21	-122
HL3	3	17/01/2019	3.8	1.89	765	7.17	-130.4
HL3	4	17/01/2019	3.9	0.35	842	7.14	-141.5
HL3	5	17/01/2019	3.8	0.23	921	7.12	-144.6
HL3	6	17/01/2019	3.4	0.23	966	7.12	-147.8
HL3	7	17/01/2019	3	0.22	988	7.12	-150.3
HL3	8	17/01/2019	2.7	0.22	1014	7.12	-153.1
HL3	9	17/01/2019	2.3	0.22	1063	7.11	-157.8
HL3	10	17/01/2019	2	0.22	1112	7.09	-164.5
HL3	11	17/01/2019	1.7	0.23	1145	7.08	-167.3
HL3	12	17/01/2019	1.6	0.23	1173	7.08	-172.7
HL3	13	17/01/2019	1.5	0.24	1191	7.08	-177.6
HL3	14	17/01/2019	1.4	0.24	1227	7.08	-178.3
HL3	15	17/01/2019	1.2	0.25	1275	7.07	-177.6
HL3	16	17/01/2019	1.1	0.26	1292	7.07	-177.9
HL3	17	17/01/2019	1.1	0.26	1297	7.07	-177.9
HL3	18	17/01/2019	1	0.27	1333	7.08	-177.4
HL3	19	17/01/2019	0.9	0.28	1499	7.05	-171.3
HL3	20	17/01/2019	0.9	0.29	1578	7.04	-173.8
HL3	21	17/01/2019	0.8	0.31	1795	7.02	-172.4
HL3	22	17/01/2019	0.6	0.33	2005	6.98	-179.5
HL3	23	17/01/2019	0.4	0.38	2211	6.95	-184.5
HL3	24	17/01/2019	0.3	0.55	2257	6.94	-197.9

Hudgeon Lake In-Situ Water Quality Data Tables
Site HL3

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL3	1	20/02/2019	0.8	8.43	723	7.29	-370.3
HL3	2	20/02/2019	1.9	8.19	721	7.27	-386.2
HL3	3	20/02/2019	2.5	7.92	738	7.27	-386.3
HL3	4	20/02/2019	3.2	5.86	773	7.21	-388.5
HL3	5	20/02/2019	3.6	3.07	842	7.09	-296.1
HL3	6	20/02/2019	3.6	1.61	888	7.02	-320.2
HL3	7	20/02/2019	3.3	1.09	957	6.96	-332.5
HL3	8	20/02/2019	3	0.81	980	6.93	-343.9
HL3	9	20/02/2019	2.6	0.67	1014	6.88	-350.8
HL3	10	20/02/2019	2.2	0.58	1066	6.85	-357.4
HL3	11	20/02/2019	2	0.52	1106	6.86	-363.6
HL3	12	20/02/2019	1.8	0.48	1129	6.88	-370.1
HL3	13	20/02/2019	1.6	0.45	1153	6.88	-397.8
HL3	14	20/02/2019	1.5	0.41	1178	6.91	-388
HL3	15	20/02/2019	1.3	0.38	1202	6.92	-391.9
HL3	16	20/02/2019	1.2	0.36	1255	6.94	-348.2
HL3	17	20/02/2019	1.1	0.34	1269	6.96	-339.4
HL3	18	20/02/2019	1.1	0.33	1272	6.97	-331.6
HL3	19	20/02/2019	1	0.32	1376	6.96	-324.5
HL3	20	20/02/2019	0.9	0.3	1471	6.96	-311.1
HL3	21	20/02/2019	0.8	0.29	1596	6.96	-296.5
HL3	22	20/02/2019	0.7	0.28	1858	6.93	-289.9
HL3	23	20/02/2019	0.5	0.27	2094	6.91	-285.7
HL3	24	20/02/2019	0.3	0.26	2222	6.9	-284.5

Hudgeon Lake In-Situ Water Quality Data Tables
Site HL3

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL3	1	06/03/2019	0.9	8.58	730	7.45	138.4
HL3	2	06/03/2019	1.8	8.59	728	7.47	143.4
HL3	3	06/03/2019	2.4	7.97	749	7.45	146.4
HL3	4	06/03/2019	3.2	7.11	790	7.39	149
HL3	5	06/03/2019	3.6	4.56	840	7.31	153.6
HL3	6	06/03/2019	3.6	1.93	884	7.22	157.1
HL3	7	06/03/2019	3.4	0.84	927	7.17	160.5
HL3	8	06/03/2019	3	0.55	955	7.16	163.5
HL3	9	06/03/2019	2.6	0.4	991	7.15	166.9
HL3	10	06/03/2019	2.2	0.32	1046	7.14	170.4
HL3	11	06/03/2019	1.9	0.29	1083	7.14	167.2
HL3	12	06/03/2019	1.8	0.25	1104	7.14	153
HL3	13	06/03/2019	1.6	0.23	1130	7.14	139.7
HL3	14	06/03/2019	1.5	0.2	1153	7.14	124.1
HL3	15	06/03/2019	1.3	0.18	1190	7.14	107.6
HL3	16	06/03/2019	1.2	0.17	1227	7.14	97.9
HL3	17	06/03/2019	1.1	0.15	1244	7.14	91.7
HL3	18	06/03/2019	1.1	0.14	1247	7.15	84.6
HL3	19	06/03/2019	1	0.13	1361	7.14	80.6
HL3	20	06/03/2019	0.9	0.13	1448	7.12	77.4
HL3	21	06/03/2019	0.8	0.12	1579	7.11	75.2
HL3	22	06/03/2019	0.7	0.11	1818	7.08	70.3
HL3	23	06/03/2019	0.5	0.1	2082	7.06	66.7
HL3	24	06/03/2019	0.5	0.1	2079	7.06	63.1

Hudgeon Lake In-Situ Water Quality Data Tables
Site HL3

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL3	1	11/06/2019	15.1	8.51	378.1	7.47	249.4
HL3	2	11/06/2019	8.6	8.78	425.3	7.47	253.3
HL3	3	11/06/2019	5.3	8.06	559	7.37	256.5
HL3	4	11/06/2019	3	6.09	866	7.24	260.3
HL3	5	11/06/2019	2.4	2.59	914	7.19	258
HL3	6	11/06/2019	2.5	1.02	940	7.16	257.8
HL3	7	11/06/2019	2.6	0.73	953	7.16	256.6
HL3	8	11/06/2019	2.5	0.58	976	7.13	252.2
HL3	9	11/06/2019	2.5	0.51	1002	7.11	248.2
HL3	10	11/06/2019	2.2	0.41	1056	7.09	242.1
HL3	11	11/06/2019	2	0.38	1096	7.09	234.8
HL3	12	11/06/2019	1.8	0.36	1119	7.09	218.8
HL3	13	11/06/2019	1.7	0.33	1145	7.11	196
HL3	14	11/06/2019	1.6	0.31	1161	7.11	189.6
HL3	15	11/06/2019	1.4	0.29	1189	7.1	183
HL3	16	11/06/2019	1.2	0.28	1237	7.1	180.4
HL3	17	11/06/2019	1.2	0.27	1257	7.11	176.4
HL3	18	11/06/2019	1.2	0.26	1263	7.11	170.7
HL3	19	11/06/2019	1	0.25	1423	7.09	169.9
HL3	20	11/06/2019	0.9	0.24	1466	7.09	168.1
HL3	21	11/06/2019	0.9	0.23	1471	7.09	165
HL3	22	11/06/2019	1	0.23	1426	7.1	160.4
HL3	23	11/06/2019	1	0.23	1425	7.1	159.7
HL3	24	11/06/2019	1	0.22	1412	7.09	156.7

Hudgeon Lake In-Situ Water Quality Data Tables
Site HL3

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL3	1	09/07/2019	20.8	7.7	544	7.93	306.3
HL3	2	09/07/2019	20.3	7.21	542	7.94	303.4
HL3	3	09/07/2019	9.1	6.71	555	7.51	289
HL3	4	09/07/2019	4.3	3.83	849	7.31	288.9
HL3	5	09/07/2019	2.8	1.7	927	7.23	287.6
HL3	6	09/07/2019	2.6	0.7	946	7.17	287.3
HL3	7	09/07/2019	2.5	0.46	964	7.15	287
HL3	8	09/07/2019	2.4	0.34	986	7.04	282.4
HL3	9	09/07/2019	2.3	0.29	1036	7	273.1
HL3	10	09/07/2019	2.1	0.26	1079	7.02	261.3
HL3	11	09/07/2019	1.9	0.24	1121	7.02	240.3
HL3	12	09/07/2019	1.7	0.23	1146	7.03	227.7
HL3	13	09/07/2019	1.6	0.22	1166	7.04	221.1
HL3	14	09/07/2019	1.5	0.21	1190	7.04	217.2
HL3	15	09/07/2019	1.4	0.2	1215	7.04	209.6
HL3	16	09/07/2019	1.2	0.19	1249	7.05	195.9
HL3	17	09/07/2019	1.2	0.18	1268	7.05	191.1
HL3	18	09/07/2019	1.2	0.17	1273	7.06	183.3
HL3	19	09/07/2019	1	0.16	1379	7.04	180.8
HL3	20	09/07/2019	0.9	0.16	1469	7.04	178.1
HL3	21	09/07/2019	0.8	0.15	1596	7.02	176
HL3	22	09/07/2019	0.6	0.14	1922	6.99	177.9
HL3	23	09/07/2019	0.4	0.13	2123	6.98	177.4
HL3	24	09/07/2019	0.2	0.13	2275	6.98	175.4

Hudgeon Lake In-Situ Water Quality Data Tables
Site HL3

Site	Depth (m)	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (uS/cm)	pH	ORP (mV)
HL3	1	12/08/2019	14.6	8.47	667	7.94	304.9
HL3	2	12/08/2019	14.3	8.44	664	7.93	304.2
HL3	3	12/08/2019	11.5	7.18	714	7.75	302.5
HL3	4	12/08/2019	7.6	2.85	776	7.3	295.1
HL3	5	12/08/2019	4.2	1.02	905	7.19	289.5
HL3	6	12/08/2019	3.2	0.58	936	7.18	287.9
HL3	7	12/08/2019	2.7	0.4	956	7.16	286.3
HL3	8	12/08/2019	2.5	0.34	973	7.07	283.5
HL3	9	12/08/2019	2.4	0.31	1009	6.97	281.1
HL3	10	12/08/2019	2.1	0.28	1078	6.95	275.1
HL3	11	12/08/2019	1.9	0.26	1121	7.01	258.2
HL3	12	12/08/2019	1.7	0.25	1147	7.03	246.6
HL3	13	12/08/2019	1.6	0.24	1171	7.05	236.2
HL3	14	12/08/2019	1.4	0.23	1195	7.06	222.8
HL3	15	12/08/2019	1.3	0.22	1224	7.07	211.4
HL3	16	12/08/2019	1.2	0.21	1244	7.08	203.7
HL3	17	12/08/2019	1.2	0.2	1263	7.08	200.2
HL3	18	12/08/2019	1.2	0.2	1265	7.09	196
HL3	19	12/08/2019	1.1	0.19	1364	7.08	192.7
HL3	20	12/08/2019	0.9	0.18	1460	7.07	189.9
HL3	21	12/08/2019	0.8	0.18	1595	7.05	189
HL3	22	12/08/2019	0.6	0.18	1880	7.03	186.8
HL3	23	12/08/2019	0.4	0.17	2127	7.01	180
HL3	24	12/08/2019	0.3	0.16	2245	7.01	175.8
HL3	25	12/08/2019	0.2	0.15	2395	7	172.5