Parks
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Appendix D

San Gold Corporation

Notice of Alteration

- **Waste Rock and Ore Acid-base Accounting Test Results; 2009 – 2011.**

Table D1: Rice Lake Deposit ABA Results; 2009 - 2011.

Date		23/12/2009	23/12/2008	2010 Annual Composite Sample		2011 Annual Composite Sample	
Sample Type		Ore	Waste rock	Ore	Waste Rock	Ore	Waste Rock
Analysis	**Units**						
Paste pH	units	8.17	8.36	8.40	8.55	8.47	8.58
Fizz Rate	---	4	4	3	3	4	4
Sample	weight(g)	1.97	2.02	1.98	2.03	1.97	2.02
HCl added	mL	93.10	89.20	103.00	53.70	124.20	87.30
HCl	Normality	0.1	0.1	0.1	0.1	0.1	0.1
NaOH	Normality	0.1	0.1	0.1	0.1	0.1	0.1
NaOH to	pH=8.3 mL	29.85	30.71	45.70	24.82	45.74	37.69
Final pH	units	1.87	1.76	1.72	1.73	1.99	1.67
NP	t CaCO3/1000t	160.0	145.0	145.0	71.1	199.0	123.0
AP	t CaCO3/1000 t	24.4	8.3	16.1	2.4	1.9	0.3
Net NP	t CaCO3/1000 t	136.0	136.0	129.0	68.7	197.0	122.0
NP/AP	ratio	6.6	17.3	9.0	29.8	107.0	396.0
Total Sulphur	%	0.933	0.382	0.676	0.144	0.118	0.011
Acid Leachable SO4-S	%	0.10	<0.10	0.16	0.07	0.06	<0.010
Sulphide-S	%	0.78	0.27	0.52	0.08	0.06	<0.010
Total Carbon	%	2.290	2.000	2.250	0.916	2.960	1.710
Carbonate (CO3)	%	8.45	8.07	9.44	3.76	13.10	7.43
Assessment		NAG	NAG	NAG	NAG	NAG	NAG

Acid Generation Assessment Criteria

Net NP >20 - not acid-producing
Net NP between -20 and 20 - uncertain acid-producing potential
Net NP <-20 - potentially acid-producing

NP/AP >3 - not acid-producing
NP/AP between 1 and 3 - uncertain acid-producing potential
NP/AP <1 - potentially acid-producing

If sulphide, the main contributor to acid production, is not detected (<0.01%) and carbonate, the main contributor to neutralization potential, is present, rock is considered not acid-producing.

Table D2: Hinge Zone Deposit ABA Results; 2009 - 2011.

Date		29/12/2008	29/12/2008	23/12/2009	23/12/2009	23/12/2009	2010 Annual Composite Sample		2011 Annual Composite Sample	
Sample Type		Ore	Waste rock	High Grade ore	Low Grade Ore	Waste Rock	Ore	Waste Rock	Ore	Waste Rock
Analysis	**Units**									
Paste pH	units	8.56	9.41	8.33	10.60	8.97	9.12	8.95	8.91	9.58
Fizz Rate	---	3	3	3	3	3	4	3	3	4
Sample	weight(g)	2.00	1.97	1.95	2.01	2.00	2.00	2.04	2.01	2.01
HCl added	mL	68.9	30.8	42.5	57.9	20.0	103.3	39.4	80.7	40.0
HCl	Normality	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH	Normality	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH to	pH=8.3 mL	26.50	15.10	14.90	23.00	10.52	51.80	18.92	34.58	19.98
Final pH	units	1.68	1.83	1.70	1.63	1.51	1.52	1.58	1.73	1.70
NP	t CaCO3/1000t	106.0	39.8	70.8	86.8	23.7	129.0	50.2	115.0	50.0
AP	t CaCO3/1000 t	7.20	0.31	10.70	5.75	0.38	2.27	0.31	2.16	0.31
Net NP	t CaCO3/1000 t	98.8	39.5	60.1	81.0	23.3	127.0	49.9	113.0	49.5
NP/AP	ratio	14.7	128.0	6.6	15.1	63.2	56.7	162.0	53.2	161.0
Total Sulphur	%	0.359	0.042	0.421	0.247	0.015	0.164	0.013	0.204	0.005
Acid Leachable SO4-S	%	<0.10	<0.10	<0.10	<0.10	<0.10	0.09	0.01	0.13	<0.01
Sulphide-S	%	0.23	<0.01	0.34	0.18	0.01	0.07	<0.01	0.07	<0.01
Total Carbon	%	1.510	0.513	0.968	1.150	0.213	1.890	0.582	1.690	0.541
Carbonate (CO3)	%	6.330	2.150	3.790	4.690	0.916	8.480	2.600	6.980	2.340
Assessment		NAG	NAG	NAG	NAG	NAG	NAG	NAG	NAG	NAG

Acid Generation Assessment Criteria

Net NP >20 - not acid-producing
Net NP between -20 and 20 - uncertain acid-producing potential
Net NP <-20 - potentially acid-producing

NP/AP >3 - not acid-producing
NP/AP between 1 and 3 - uncertain acid-producing potential
NP/AP <1 - potentially acid-producing

If sulphide, the main contributor to acid production, is not detected (<0.01%) and carbonate, the main contributor to neutralization potential, is present, rock is considered not acid-producing.

Table D3: 007 Zone ABA Results; 2009 - 2011.

Date		2010 Annual Composite Sample		2011 Annual Composite Sample		
Sample Type		Ore	Waste Rock	High Grade Ore	Low Grade Ore	Waste Rock
Analysis	**Units**					
Paste pH	units	8.92	8.88	8.94	8.68	9.43
Fizz Rate	---	3	3	4	4	4
Sample	weight(g)	2.04	2	2.02	1.98	1.98
HCl added	mL	118.3	32.3	83.6	138.1	40
HCl	Normality	0.1	0.1	0.1	0.1	0.1
NaOH	Normality	0.1	0.1	0.1	0.1	0.1
NaOH to	pH=8.3 mL	51.10	11.26	36.13	64.19	24.49
Final pH	units	1.68	1.87	1.70	1.63	1.53
NP	t CaCO3/1000t	165.0	52.6	118.0	187.0	39.0
AP	t CaCO3/1000 t	3.08	0.31	0.68	11.30	0.31
Net NP	t CaCO3/1000 t	162.0	52.3	117.0	175.0	38.9
NP/AP	ratio	53.5	170.0	173.0	16.6	126.0
Total Sulphur	%	0.190	0.005	0.083	0.659	0.006
Acid Leachable SO4-S	%	0.09	<0.01	0.06	0.30	<0.01
Sulphide-S	%	0.10	<0.01	0.02	0.36	<0.01
Total Carbon	%	2.430	0.617	1.580	2.660	0.364
Carbonate (CO3)	%	11.20	2.73	6.94	11.50	1.48
Assessment		NAG	NAG	NAG	NAG	NAG

Acid Generation Assessment Criteria

Net NP >20 - not acid-producing
Net NP between -20 and 20 - uncertain acid-producing potential
Net NP <-20 - potentially acid-producing

NP/AP >3 - not acid-producing
NP/AP between 1 and 3 - uncertain acid-producing potential
NP/AP <1 - potentially acid-producing

If sulphide, the main contributor to acid production, is not detected (<0.01%) and carbonate, the main contributor to neutralization potential, is present, rock is considered not acid-producing.

Parks
Environmental
Inc.

San Gold Corporation

Tailings Management Area Expansion Notice of Alteration - Five Year Water Quality Summary Report (2007-2011)

Prepared by:

Parks Environmental Inc.
18 Werstine Terrace. Cambridge, Ontario, N3C 4G7
T 519.222.6463   www.parksenvironmental.com

Date:

February 10, 2012

February 10, 2012

Project Number: 10-02

Ms. Jennifer Winsor
Manitoba Conservation, Environmental Assessment and Licensing Branch
Suite 160 - 123 Main St.
Winnipeg, MB
R3C 1A5

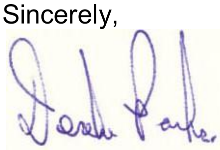
Dear Ms. Winsor:

Re: San Gold Corporation - Five Year Water Quality Review (2007 - 2011)

On behalf of San Gold Corporation's Bissett, Manitoba operations, Parks Environmental Inc. (PEI) is pleased to provide a five year summary of the water quality monitoring program implemented at San Gold Corporation. We hope that the information contained within this report addresses any concerns that the Province of Manitoba has related to the effect that effluent discharge has had on the receiving environment over the period from 2007 to 2011. We also hope that this report alleviates any concerns that the Province of Manitoba has with the proposed expansion of the Tailings Management Area at the Project.

If you have any questions, or require further information on the report, please do not hesitate to contact us.

Sincerely,



Derek Parks, B.Sc. M.Sc.
Director and Senior Aquatic Specialist
derek.parks@parksenvironmental.com

DJP:djp

Encl.
cc: Mr. John Hutchison , San Gold Corporation

Executive Summary

This report reviews the results of the water quality monitoring program over the last five years at San Gold Corporation (herein referred to as the “Mill”, “Mine” or “Property”) located in Bissett, Manitoba in support of the Mine’s Notice of Alteration request to the Government of Manitoba. The NOA is in respect to the Mine’s plan to increase the capacity of the Tailings Management Area to accommodate a production increase to 2,500 tonnes per day in 2012 (AECOM 2012). The monitoring activities conducted over the five year period included in this report followed the protocols outlined in the Mine’s *Environment Act* License (#2628R).

The analysis of the data from the past five years indicated that quality of the effluent discharged into the receiving environment met Federal Metal Mining Effluent Regulations ((MMER); Schedule 4; Government of Canada 2012) and Manitoba Drinking Water Quality Standards as required by the Mine’s *Environmental Act* License with the exception of nitrate concentrations in the occasional sample and a copper exceedance in the monthly average for November 2010.

It was also found that the water quality in No Name Creek Vanson Road (NNC-VR) typically was well below Tier II MWQSOG for ammonia, dissolved copper and dissolved cadmium. Free cyanide concentrations were marginally exceeded at this site on a couple of occasions (less than twice the MWQSOG) but no exceedances were observed at the next monitoring site downstream on No Name Creek. Concentrations of iron and aluminum were within Tier III guidelines in the effluent discharge; however, occasional exceedances of these two parameters were observed in samples collected at No Name Creek. The concentration of iron and aluminum consistently exceeded guidelines at Wanipigow River stations which suggested that these exceedances were the result of local geologic conditions. Nitrate was still elevated along No Name Creek on some occasions; however, nitrate values drop below MWQSOG in samples collected at the Wanipigow River downstream station and pose no threat to downstream water users even under the low flow conditions observed in 2011.

2011 provided an excellent opportunity to assess the effect that changes to Mine operations would have on receiving water quality as the Mine increased production for a trial that coincided with extreme low flow conditions in the Wanipigow River. Even under these low probability conditions, dissolved copper concentrations were well below MWQSOG at the NNC-VR station which illustrated the creek’s ability to sequester and retain copper within its sediments. This interpretation is further supported by the anomalously high copper concentrations found in sediment samples collected along No Name Creek. Interestingly, elevated copper concentrations in sediments have had no adverse effect on benthic invertebrates as no difference was detected between the benthic invertebrate community sampled in No Name Creek and a reference area which was not exposed to Mine effluent.

Review of acute and sublethal bioassay results indicated that a total copper concentration greater than 0.35 mg/L results in a dose response by rainbow trout and the invertebrates tested. It is therefore recommended that an upper threshold total copper concentration for discharged effluent be less than 0.35 mg/L to protect aquatic invertebrates which are most sensitive to copper toxicity.

The evidence provided from the review of water quality data over the past five years clearly indicates that the watercourse can safely and effectively assimilate copper at rates/concentrations that have been typically observed over the last five years. This includes the period in which mining production was increased during a trial period in 2011. The ability of the watercourse to assimilate copper has also been demonstrated over a wide range of environmental conditions as copper concentrations remained within MWQSOG in No Name Creek even during periods that Wanipigow River discharges approximated $7Q_{10}$ flows.

Given the evidence from other parameters (MMER Biological Monitoring Programs, Acute Lethality Testing) of the high water quality provided for aquatic life at the first monitoring site on No Name Creek (NNC-VR), significant environmental impacts are not anticipated from the proposed tailings expansion on ecological form and function. Continued biological monitoring (EEM Biological Monitoring Program), particularly of benthic organisms can confirm and clarify these environmental projections.

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1. Introduction

This report reviews the water quality data collected from 2007 to 2011 as part of San Gold Corporation's annual provincial environmental reporting requirements for their gold mine located in Bissett, Manitoba (Figure 1). This report organizes the information collected over this time period into a standard format to allow for comparison of water quality data among years and among sites in attempt to identify any potential areas of concern arising from effluent discharge from the Mine on the receiving environment. This report also attempts to foreshadow any potential effect that an increase in production capacity to 2,500 tonnes per day at the Mine in 2012 may have on the receiving environment.

2. Study Area and Methods

2.1 Study Area

Sampling station identifiers and locations for surface water and sediment sampling follow those outlined in Appendix "E" of San Gold Corporation's *Environmental Act* License (Figure 2). During each effluent discharge, water samples were collected at exposure stations in No-Name Creek designated as Vanson Road (NNC-VR) and Gun Range (NNC-GR). Stations NNC-VR and NNC-GR are approximately 1500 m and 2370 m downstream of the final discharge point, respectively. No Name Creek eventually drains into the Wanipigow River approximately 1150 m downstream from Station NNC-GR. Sampling stations on the Wanipigow River consist of a Reference Area (WR-US) 3.5 km upstream of the confluence with No Name Creek, and an Exposure Area (WR-DS) 10.5 km downstream of the confluence with No Name Creek (Figure 2).

2.2 Field Methods

Mine effluent discharge rates and volumes were measured during each effluent discharge from 2007 to 2011 as required by the Mine's Provincial *Environmental Act* Licence (Section 37; Government of Manitoba 2004) and the *Metal Mining Effluent Regulations* ((MMER); Section 19; Government of Canada 2012). During each effluent discharge, mine effluent was collected weekly from a spigot inserted into a section along the polishing pond effluent pipe (at a station designated as the End of Pipe (EOP)) prior to the final effluent discharge point into the receiving environment as required by the MMER (Section 12; Government of Canada 2012) and the Provincial *Environmental Act* License (Section 37; Government of Manitoba 2004). Effluent samples were analyzed for the parameters outlined in Appendix D of the *Environmental Act* License at ALS Laboratories (Winnipeg) and compared to MMER guidelines (Schedule 4; Government of Canada). The weekly effluent samples were tested for acute lethality at ALS Laboratories (Winnipeg) in accordance with MMER guidelines. Effluent samples were also collected at least once per year from 2007 to 2011 for sublethal toxicity testing at HydroQual Laboratories (Calgary) as required under Schedule 5, Section 6 of the MMER.

Field personnel collected single surface water grab samples each week at each station during the discharge campaigns from 2007 to 2011. Laboratory-supplied polyethylene sampling bottles were filled by submerging them to a depth of about 0.1 m below the surface, at arm's length, facing upstream into any water current. Field personnel wore nitrile gloves throughout the sample collection process and gloves were changed between samples. Samples were preserved (as applicable) and refrigerated or kept on ice between the time of collection and delivery to the analytical laboratory. All samples were delivered to ALS Group (Winnipeg, MB), a CALA accredited analytical laboratory, at the end of each sampling day. Water samples were filtered at the analytical laboratory prior to the dissolved metals analysis.

2.3 Numerical Methods

Water Quality Data from the five Provincial Annual Environmental Reports were arranged into standardized tables to allow for comparison of water quality parameters among sites and years.

Effluent characterization data for samples collected at Station EOP were compared to MWQSOG Tier III Drinking Water Quality Guidelines and the MMER (Schedule 4; Government of Canada 2012) requirements for effluent quality.

Data for the surface water sampling locations (NNC-VR, NNC-GR, NNC-DP, WR-US, and WR-DS) were compared to the Manitoba Water Quality Standards, Objectives and Guidelines (MWQSOG; Government of Manitoba 2012) for the protection of aquatic life and for drinking water (whichever value was more conservative). Canadian Council of Ministers of the Environment ((CCME); CCME 2012) guidelines for the protection of aquatic life were also included in the water quality tables in Appendix A for informative purposes.

Temperature and pH were used to calculate the range of acceptable ammonia concentrations for each year. Average monthly temperature data used in the calculations were obtained for the English River from the Ears Falls Water Treatment Plant and Distribution Facility from 2007 to 2011. Sample specific ammonia criteria were calculated for any samples that exceeded the minimum range. Hardness was used to calculate the range of acceptable dissolved cadmium, copper, lead, nickel and zinc concentrations as required under Tier II MWQSOG and the range of total cadmium, copper, lead and nickel concentrations as required under CCME guidelines for each year. Sample metal specific guidelines were calculated for any samples that exceeded the minimum range in any year.

After identifying parameters that regularly exceeded the previously mentioned criteria, boxplots were constructed to allow for a better comparison of the trends in the data between years and between sampling stations. Aluminum, cadmium, copper (total and dissolved), iron, free cyanide, ammonia and nitrate were further investigated after reviewing exceedances in the tables, the results from previous Annual Reports and the boxplots previously generated.

Provisional hydrometric data was obtained for the Manigotagan River from Duane Kelln, Hydraulic Engineer, Manitoba Water Stewardship on February 1, 2012. The monitoring station is located ~40 km west of Bissett, MB. This station was selected for the analysis because it was the closest station to Bissett, MB that had a continuous hydrometric record for river discharge and level as well as being located in the Canadian Shield with similar geological characteristics as the Wanipigow River basin. Discharge data for the WR-DS station was estimated by first calculating the average daily discharge for the Manigotagan River station in m^3/ km^2 and then multiplying this value by the respective watershed size of the Wanipigow River at the downstream sampling station.

SAN GOLD

FIGURE 2-1:
SAN GOLD CORPORATION
LOCATION

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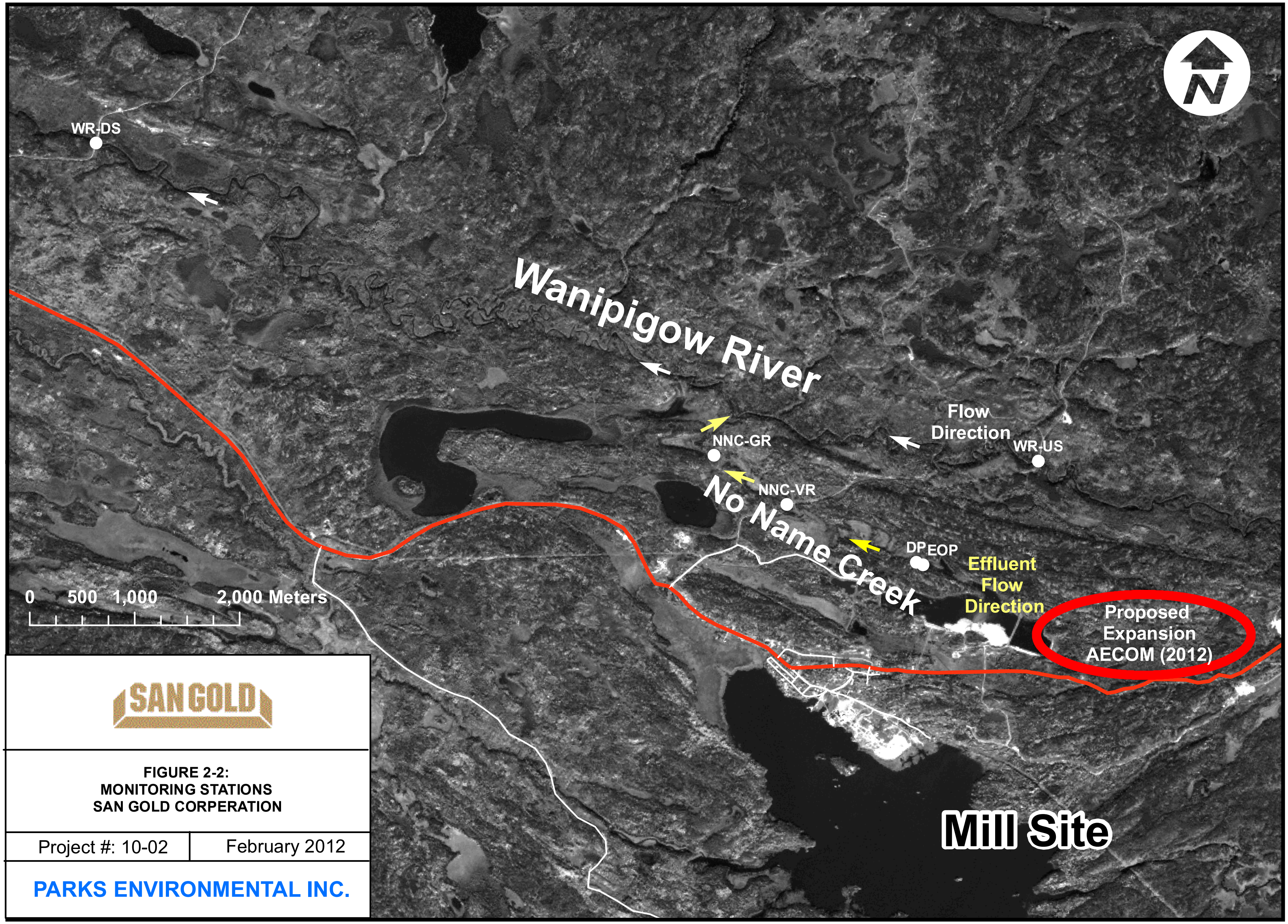


SAN GOLD

FIGURE 2-2:
MONITORING STATIONS
SAN GOLD CORPERATION

Project #: 10-02	February 2012

PARKS ENVIRONMENTAL INC.

3. Results

The 2011 data represents the conditions observed during a trial period of enhanced mining production (up to 2000 tons per day) as discussed at the meeting January 24, 2012 in Winnipeg with Manitoba Regulatory staff. The tonnage processed during the trial was close to the value expected in the requested expansion (2500 tons) and in effect gives a preview/insight of the water quality in the receiver that may be expected upon approval of the expansion request. The fall discharge of 2011 coincided with drought conditions and approximated $7Q_{10}$ values beginning in mid-September through until the end of November's discharge period (flow estimates provided by Duane Kelln, Hydraulic Engineer, Manitoba Water Stewardship February 1, 2012, using provisional data for the Manigotagan River – Figure 3-1 for prorated flows at the WR-DS site). In Manitoba, $7Q_{10}$ flows are used to establish effluent discharge limits to receivers. Consequently, environmental data collected during this period can be used to confirm and clarify the impact that effluent discharge is having under extreme environmental conditions and in this instance, also provide insight into the effect that increased production will have on the receiver as mining production was elevated at the same time.

A review of San Gold Corporation's water quality data from 2007-2011 indicated that Tier II MWQSOG are essentially met at the first monitoring site (NNC-VR) on the intermittent creek 1500 m downstream of the mining discharge during both routine and emergency discharge campaigns (Table 3-1; Figure 3-2). The concentration of iron at the NNC-VR station rarely exceeded Tier III MWQSOG (<0.3 mg/L); however, occasionally iron concentrations were elevated above MWQSOG and in the worst case by a factor of 3. The receiving waters (WR-US and WR-DS stations) had noticeably higher iron concentrations than those observed at the two sampling stations along the intermittent creek which suggests that effluent discharge is not having an adverse effect on the receiver; it may in fact be "improving" water quality. An even stronger case can be made for aluminum, where end of pipe discharges met the Tier III MWQSOG of 0.1 mg/L at all sampling times over the last five years. However, concentrations of aluminum in No Name Creek occasionally exceeded the guideline, while concentrations in the Wanipigow River always exceeded the guideline, sometimes by more than an order of magnitude.

Free cyanide concentrations were marginally exceeded (less than twice the MWQSOG) at No Name Creek - Vanson Road on a couple of occasions but no exceedances were observed at the next monitoring site downstream on No Name Creek ((NNC-GR); Figure 3-3).

Although nitrate concentrations were elevated in EOP and No Name Creek samples in 2011, water quality in the Wanipigow River (WR-DS) consistently met MWQSOG Tier III drinking water standards for nitrates (Figure 3-4). Thus, downstream users of Wanipigow River waters for drinking purposes were not even at risk during these very low probability events. The high nitrate concentrations were due not only to the unusually low flows observed during drought conditions but also to unusually high nitrate levels in the mining discharges. Nitrate concentrations are anticipated to decline further as San Gold improves their capacity to minimize ammonia losses, by improved handling procedures underground, which are suspected to be the source of the elevated nitrate concentrations.

Dissolved copper concentrations at Vanson Road on No Name Creek over the 5 yr period averaged 0.0023 mg/L which is only 4 % of the soluble copper discharged at the end of pipe (0.061, n=37). At Vanson Road, dissolved copper concentrations consistently met Tier II MWQSOG values (Fig 3-5). Soils/sediments in the intervening reach of the intermittent creek between the EOP discharge point and the NNC-VR are retaining copper as total concentrations of copper at NNC-VR are only ~3.4% of end of pipe values. Because there is no relationship between copper concentrations at the EOP and the first monitoring station on No Name Creek (NNC-VR; Fig 3-4), the aforementioned results indicate that the intervening creek reach very effectively sequesters copper at the maximum concentrations that are anticipated to be discharged (<0.35 mg/l) and thus prevents the downstream movement of potentially environmentally limiting concentrations of copper. It was also determined that copper levels at NNC-GR are strongly correlated with values observed upstream at NNC-VR, but the concentrations only represent 60 % of the values observed at the NNC-VR station (Figure 3-5 and 3-6).

Concentrations of dissolved copper at NNC-VR are typically well below (~20%) Tier II MWQSOG values, which provides a substantial buffer for unintended or accidental discharges of waters with potentially toxic copper concentrations. Furthermore it should be noted that the Tier II MWQSOG values for copper are based on hardness and designed to be protective of Manitoba's most sensitive waters. The guideline is based on cupric ion activity which does not take into account the ameliorative effects of organic material (mostly dissolved) that can substantially moderate copper toxicity. The United States Environmental Protection Agency (US EPA 1985) document, upon which the Manitoba Guideline is based, explicitly discusses the potential importance of dissolved organic matter on copper toxicity. The US EPA recognizes that dissolved organic matter can be as important as hardness, in modifying toxicity, although this capacity is not incorporated into the guideline criteria. Dissolved organic carbon concentrations have been determined to be strongly correlated with colour values (Malot and Dillon 1997) and very high colour values (> 100 TCU) were reported for the Wanipigow River in the baseline study report (Harmony Gold 2001). This suggests that waters in the Wanipigow River system will not be nearly as sensitive to copper toxicity as other less coloured Manitoba waters and that there is a very real and significant additional environmental safety buffer above and beyond the Tier II MWQSOG due to dissolved organic carbon.

The permitted discharge from the mining operation (200 L/s) dominates the hydrology of No Name Creek. Mine effluent discharge flow is at least an order of magnitude higher than the mean annual discharge for the intermittent creek from natural runoff alone and over two orders of magnitude greater than expected $7Q_{10}$ flows for the No Name Creek watershed. Thus the ability of the No Name Creek watercourse to retain copper (Figure 3.5) is essentially independent of hydrologic events (typically low flows) that has been observed to modify/limit the assimilative capacity of many other watercourses.

The capacity of No Name Creek to retain copper at the point of discharge (NNC-DP) is reflected in elevated copper concentrations in soils/sediments at this location which exceed Canadian Interim Freshwater Sediment Guidelines (PEI 2012a). Although copper concentrations are elevated at this No Name Creek station, it is noted that there was essentially no difference between the benthic invertebrate community in No Name Creek exposed to mine discharges and those of a nearby reference area (PEI 2011). As benthic invertebrates are typically the community most affected by mining related operations, this "lack of impact" suggests that environmental affect from mine effluent discharge is extremely localized near the final discharge point, which can be seasonally dry.

An examination of the acute and sub lethal bioassay results over the past five years suggests that copper is the major contributor to bioassay toxicity. Bioassays that showed the greatest stress on fish and invertebrates had copper values in excess of 0.3 ppm. For example, the effluent that was characterized with the highest total copper concentration (0.373 mg/L), on November 4, 2010, had 10% mortality for the 96 hr rainbow trout test and 90% immobility for the 48 hr *Daphnia magna* test. Sublethal effects were noted at the same time with 50% mortality of the invertebrate, *Ceriodaphnia dubia that* were exposed to 60% effluent concentration. The bioassay with the second highest copper concentration of 0.351 mg/L had 70% immobility of *Daphnia magna*. Invertebrates are known to be particularly susceptible to elevated levels of copper in water. Metal Mining Effluent Regulations ((MMER), Section 4, subsection 1c; Government of Canada 2012) requires that effluent discharge must pass acute bioassay tests. As both acute invertebrate bioassays failed at copper concentrations of approximately 0.35 mg/L, the data suggests that an upper threshold total copper concentration for discharge effluent be less than 0.35 mg/L. The solid – solution partitioning of copper in the discharged effluent indicated that about 50% of the copper was in the soluble (most toxic; US EPA 1985) state (Figure 3-7).

The evidence provided from the review of water quality data over the past five years clearly indicates that the watercourse can safely and effectively assimilate copper at rates/concentrations that have been typically observed over the last five years. This includes the period in which mining production was increased during a trial period in 2011. The ability of the watercourse to assimilate copper has also been demonstrated over a wide range of environmental conditions as copper concentrations remained within MWQSOG in No Name Creek even during periods in which Wanipigow River discharges approximated $7Q_{10}$ flows.

The surface run-off from waste rock stock piles will continue to be monitored as outlined in the *Environmental Act* License to assure that the waste rock stock pile is non-acid-generating and does not pose a risk to receiving environment. All waste rock and waste ore sampling conducted at the San Gold Corporation to date has been determined not acid-generating and the environmental effects associated with current operations and the changes outlined in the Notice of Alteration (NOA) currently under review are anticipated to be minor in nature (PEI 2012b, AECOM 2010).

Given the evidence from other parameters (MMER Biological Monitoring Programs, Acute Lethality Testing) of the high water quality provided for aquatic life by the first monitoring site on No Name Creek (NNV-VR), significant environmental impacts are not anticipated from the proposed mine expansion on ecological form and function. Continued biological monitoring (EEM Biological Monitoring Program), particularly of benthic organisms can confirm and clarify these environmental projections.

Table 3-1 **Five year summary of the concentrations of ammonia, free cyanide, dissolved copper and dissolved cadmium measured at station NNC-VR; 2007 - 2011.**

Date Sampled	Ammonia (mg/L)	MWQSOG Tier II (mg/L)	Free Cyanide (mg/L)	MWQSOG Tier II (mg/L)	Dissolved Copper (mg/L)	MWQSOG Tier II (mg/L)	Dissolved Cadmium (mg/L)	MWQSOG Tier II (mg/L)
September 21, 2007	0.07	***2.475***	0.002	***0.0052***	0.0040	***0.0132***	<0.00001	***0.00034***
September 27, 2007	<0.05	***5.187***	0.001	***0.0052***	<0.001	***0.0105***	<0.00001	***0.00028***
October 4, 2007	<0.05	***4.094***	0.001	***0.0052***	0.0020	***0.0114***	<0.00001	***0.00030***
October 11, 2007	<0.05	***3.419***	0.001	***0.0052***	0.0010	***0.0117***	<0.00001	***0.00031***
October 18, 2007	<0.05	***4.402***	0.003	***0.0052***	0.0010	***0.0119***	<0.00001	***0.00031***
November 12, 2007	0.035	***4.326***			<0.0004		<0.0002	
November 19, 2007	0.019	***5.533***			0.0018		<0.0002	
November 26, 2007	0.032	***5.174***			0.0046	***0.0131***	<0.0002	***0.00033***
December 4, 2007	0.059	***5.587***			0.0034	***0.0149***	<0.0002	***0.00037***
September 5, 2008	0.028	***4.419***			0.0033	***0.0082***	0.00005	***0.00023***
September 11, 2008	0.031	***4.279***	<0.0050	***0.0052***	0.0011	***0.0090***	<0.00001	***0.00025***
September 16, 2008	0.055	***2.389***	<0.0050	***0.0052***	0.0009	***0.0127***	<0.00001	***0.00033***
September 23, 2008	0.025	***3.629***	<0.0050	***0.0052***	<0.0004	***0.0136***	0.00003	***0.00035***
September 30, 2008	0.016	***3.090***	<0.0050	***0.0052***	0.0018	***0.0140***	0.00001	***0.00035***
October 7, 2008	0.018	***2.835***	<0.0050	***0.0052***	0.0023	***0.0144***	<0.00001	***0.00036***
October 14, 2008	0.018	***2.364***	<0.0050	***0.0052***	0.0049	***0.0167***	0.00002	***0.00041***
October 21, 2008	0.018	***2.723***	<0.0050	***0.0052***	0.0023	***0.0143***	<0.00001	***0.00036***
October 28, 2008	0.01	***3.380***	<0.0050	***0.0052***	0.0033	***0.0151***	0.00001	***0.00038***
November 4, 2008	0.01	***3.104***	***0.0076***	***0.0052***	0.0039	***0.0150***	0.00003	***0.00037***
November 13, 2008	0.009	***5.330***	<0.0050	***0.0052***	0.0010	***0.0139***	<0.00001	***0.00035***
November 18, 2008	0.012	***1.549***	<0.0050	***0.0052***	0.0006	***0.0147***	0.00005	***0.00037***
August 25, 2009	0.0104	***2.962***	<0.0050	***0.0052***	0.0009	***0.0088***	0.000011	***0.00024***
September 1, 2009	0.011	***3.471***	<0.0050	***0.0052***	0.0008	***0.0116***	0.000013	***0.00030***
September 8, 2009	0.036	***2.226***	<0.0050	***0.0052***	0.0012	***0.0137***	<0.000010	***0.00035***
September 15, 2009	<0.0030	***1.770***	<0.0050	***0.0052***	0.0008	***0.0131***	0.000018	***0.00033***
September 22, 2009	<0.0030	***1.745***	<0.0050	***0.0052***	0.0007	***0.0138***	0.000014	***0.00035***
September 29, 2009	0.022	***3.102***	<0.0050	***0.0052***	0.0008	***0.0139***	0.000014	***0.00035***
October 6, 2009	0.0109	***3.459***	<0.0050	***0.0052***	0.0008	***0.0124***	<0.000010	***0.00032***
October 13, 2009	0.054	***3.698***	<0.0050	***0.0052***	0.0006	***0.0144***	<0.000010	***0.00036***

Table 3-1 (cont'd) Five year summary of the concentrations of ammonia, free cyanide, dissolved copper and dissolved cadmium measured at station NNC-VR; 2007 - 2011.

Date Sampled	Ammonia (mg/L)	MWQSOG Tier II (mg/L)	Free Cyanide (mg/L)	MWQSOG Tier II (mg/L)	Dissolved Copper (mg/L)	MWQSOG Tier II (mg/L)	Dissolved Cadmium (mg/L)	MWQSOG Tier II (mg/L)
August 8, 2010	<0.050	3.519	<0.0050	***0.0052***	0.0006	***0.0121***	<0.000010	***0.00031***
September 9, 2010	<0.050	3.862	<0.0050	***0.0052***	0.0004	***0.0102***	<0.000010	***0.00027***
September 16, 2010	<0.050	3.721	<0.0050	***0.0052***	0.0018	***0.0114***	0.000011	***0.00030***
September 23, 2010	<0.050	2.716	<0.0050	***0.0052***	0.0025	***0.0122***	0.000015	***0.00032***
September 30, 2010	<0.050	3.578	<0.0050	***0.0052***	0.0028	***0.0141***	<0.000010	***0.00036***
October 7, 2010	<0.050	2.540	<0.0050	***0.0052***	0.0032	***0.0148***	0.000026	***0.00037***
October 14, 2010	<0.050	2.469	<0.0050	***0.0052***	0.0035	***0.0158***	0.000026	***0.00039***
October 21, 2010	<0.050	2.911	<0.0050	***0.0052***	0.0024	***0.0154***	0.00002	***0.00038***
October 28, 2010	<0.050	2.504	<0.0050	***0.0052***	0.0044	***0.0149***	0.000033	***0.00037***
November 4, 2010	<0.050	2.162	<0.0050	***0.0052***	0.0047	***0.0147***	0.00003	***0.00037***
November 10, 2010	<0.050	4.054	<0.0050	***0.0052***	0.0048	***0.0140***	0.000029	***0.00035***
July 19, 2011	<0.050	2.996	<0.0050	***0.0052***	0.0007	***0.0152***	<0.000010	***0.00038***
July 22, 2011	0.197	2.679	<0.0050	***0.0052***	0.0005	***0.0140***	<0.000010	***0.00035***
July 27, 2011	0.107	2.273	**0.0073**	***0.0052***	0.0013	***0.0165***	<0.000010	***0.00040***
August 3, 2011	0.121	1.865	<0.0050	***0.0052***	0.0015	***0.0162***	0.00002	***0.00040***
August 10, 2011	0.059	1.229	<0.0050	***0.0052***	0.0008	***0.0149***	0.000015	***0.00037***
October 17, 2011	0.253	3.658	<0.0050	***0.0052***	0.0014	***0.0177***	0.000016	***0.00043***
October 24, 2011	0.232	3.897	<0.0050	***0.0052***	0.0023	***0.0186***	0.000028	***0.00045***
October 31, 2011	0.18	3.499	<0.0050	***0.0052***	0.0032	***0.0186***	0.000052	***0.00045***
November 7, 2011	0.08	3.419	<0.0050	***0.0052***	0.0039	***0.0190***	0.000067	***0.00045***
November 13, 2011	0.091	1.226	<0.0050	***0.0052***	0.0034	***0.0202***	0.000057	***0.00048***
November 20, 2011	0.138	3.897	<0.0050	***0.0052***	0.0027	***0.0210***	0.000047	***0.00049***

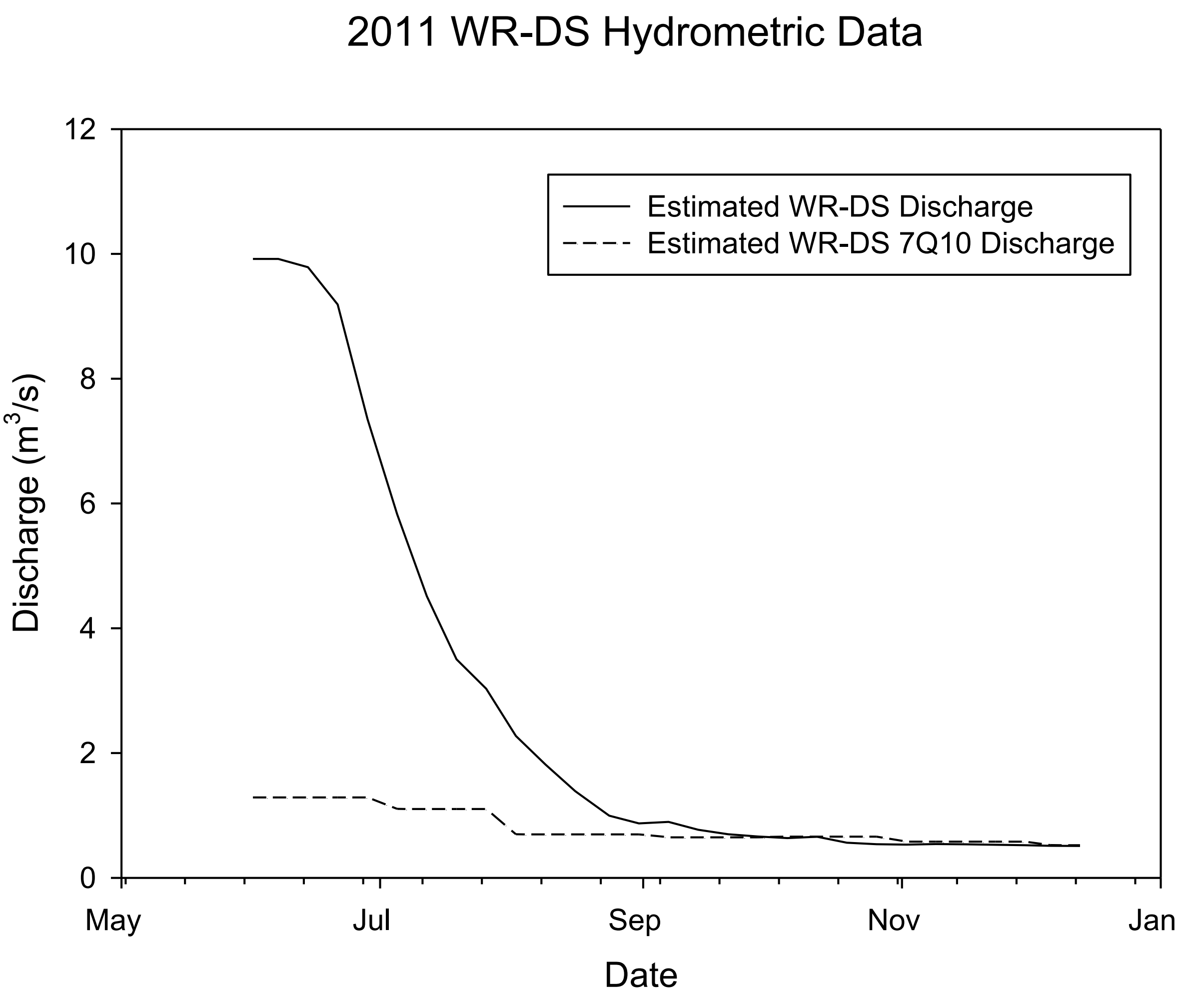


Figure 3-1 **Estimated WR-DS $7Q_{10}$ and discharge data; June – December, 2011.**

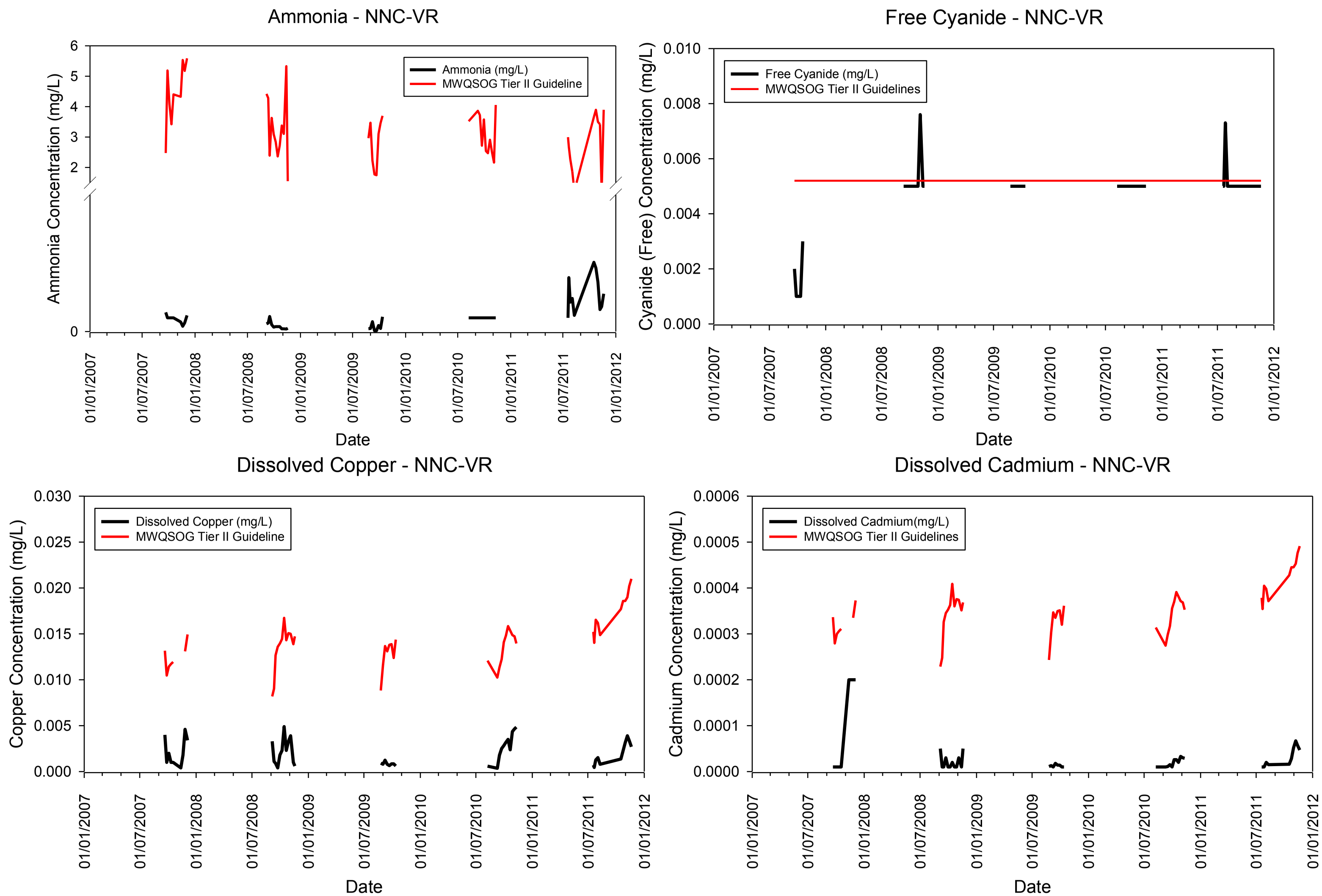
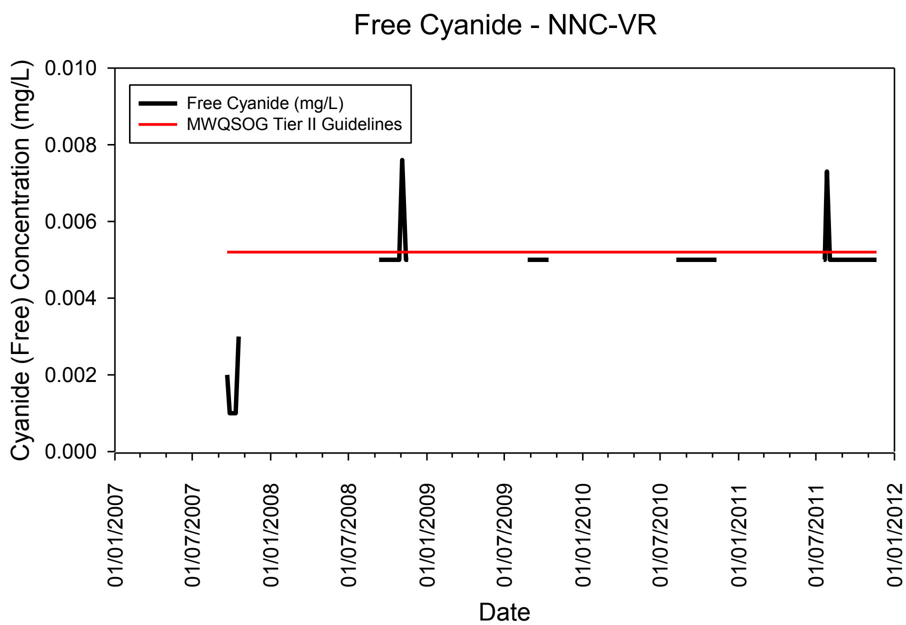


Figure 3-2 Five year summary of the concentrations of ammonia, free cyanide, dissolved copper and dissolved cadmium measured at station NNC-VR; 2007 - 2011.



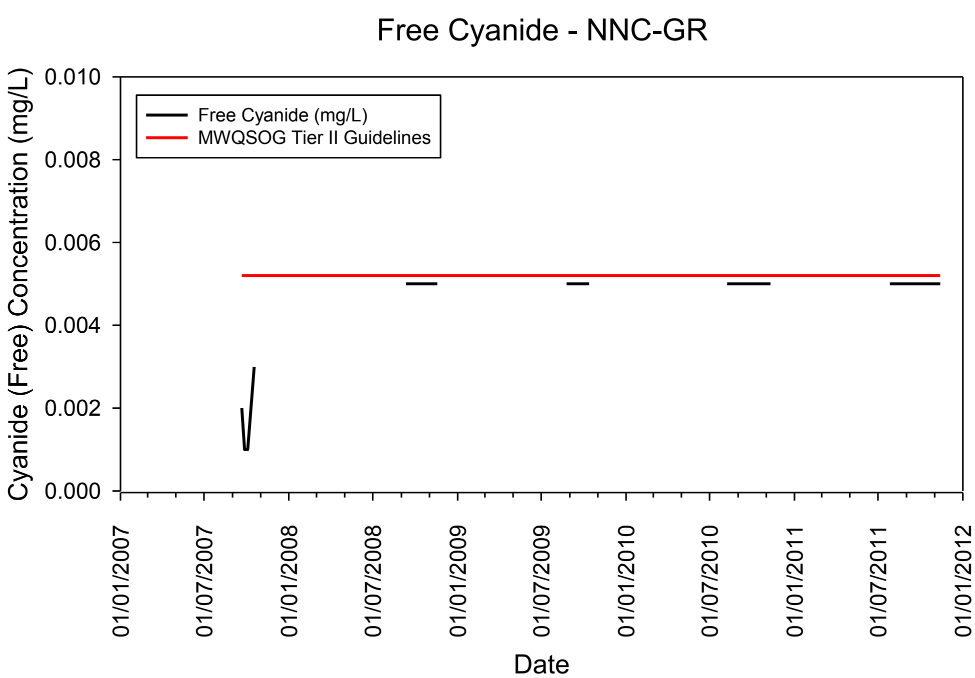


Figure 3-3 Five year summary of the concentration of free cyanide measured at stations NNC-VR and NNC-GR; 2007 - 2011.

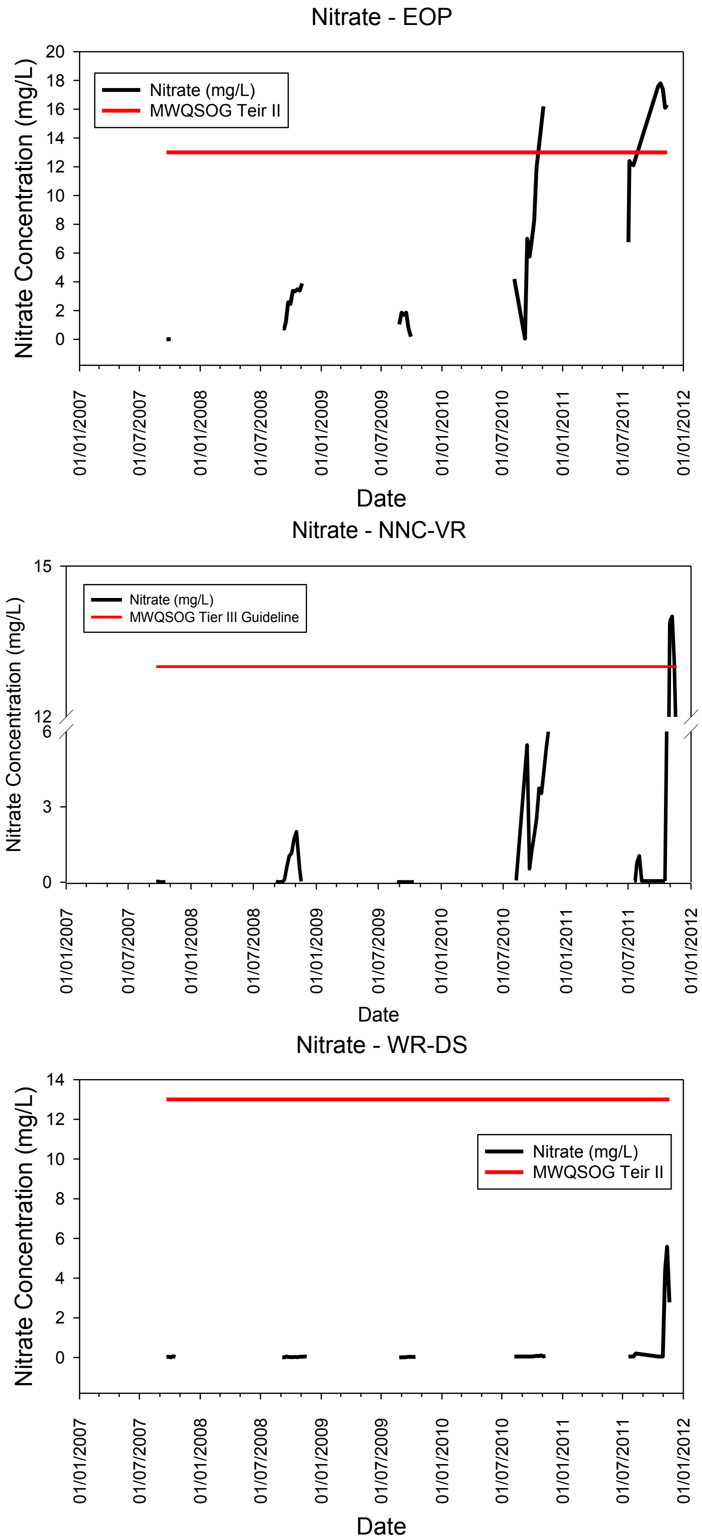


Figure 3-4 Five year summary of the concentration of nitrate measured at stations EOP, NNC-VR and WR-DS; 2007 - 2011.

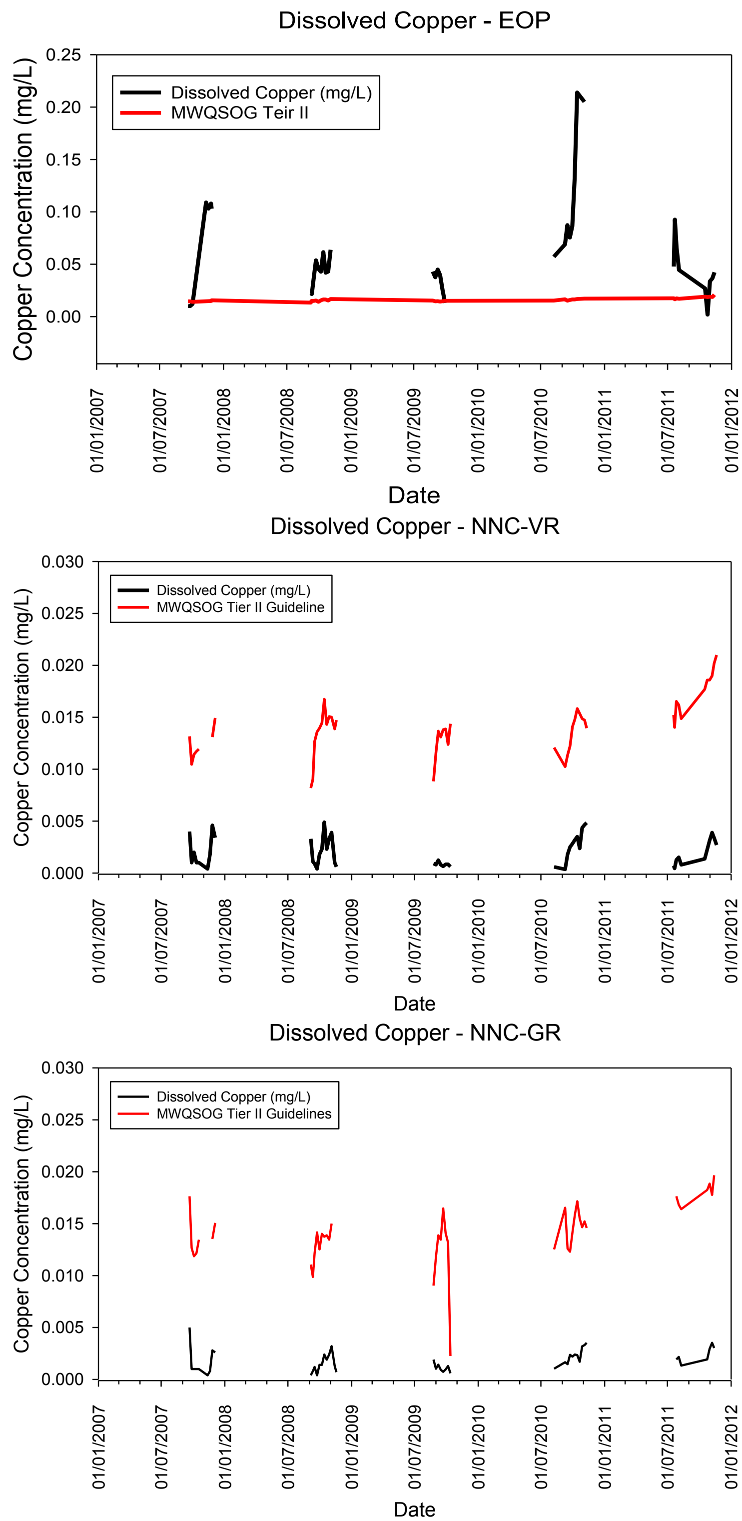


Figure 3-5 Five year summary of the concentration of dissolved copper measured at stations EOP, NNC-VR and NNC-GR; 2007 - 2011.

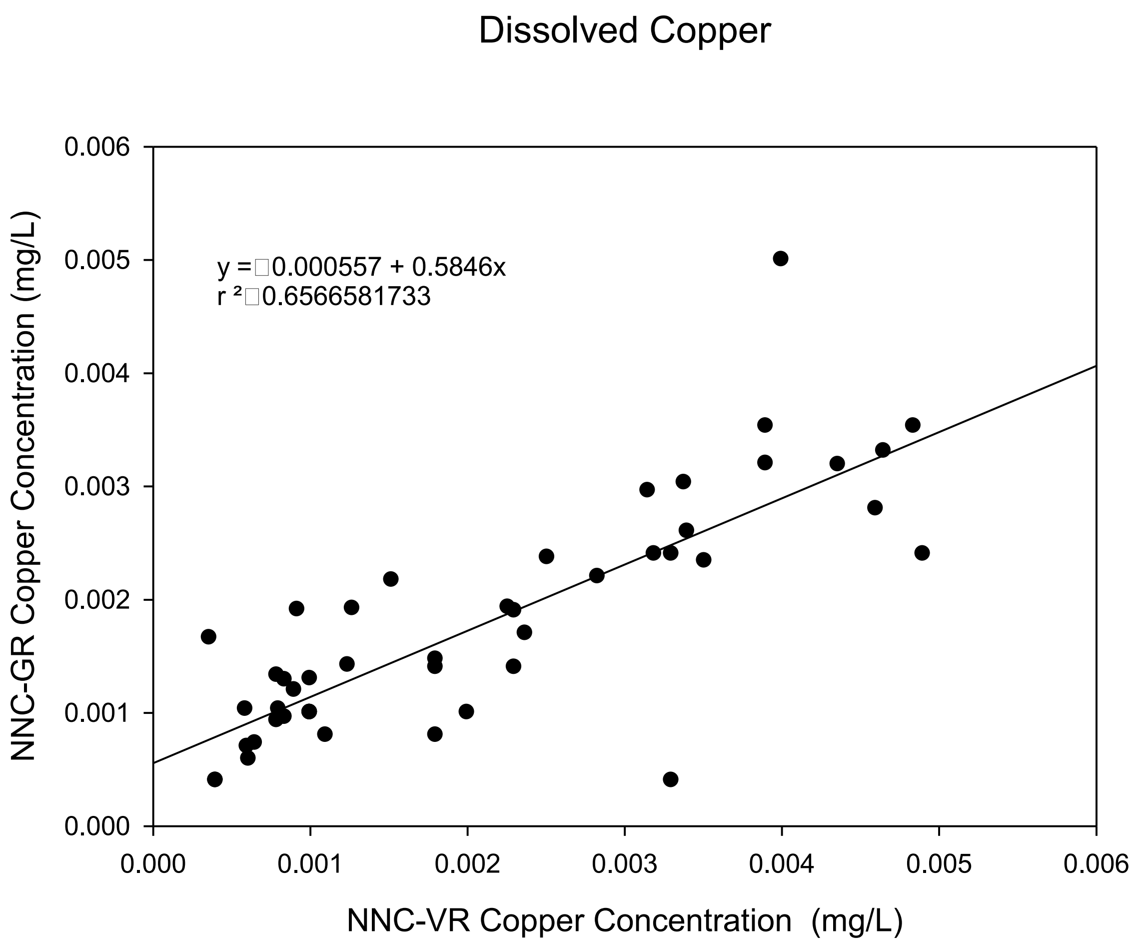


Figure 3-6 Relationship between dissolved copper concentrations at NNC-VR and NNC-GR stations; 2007 – 2011.

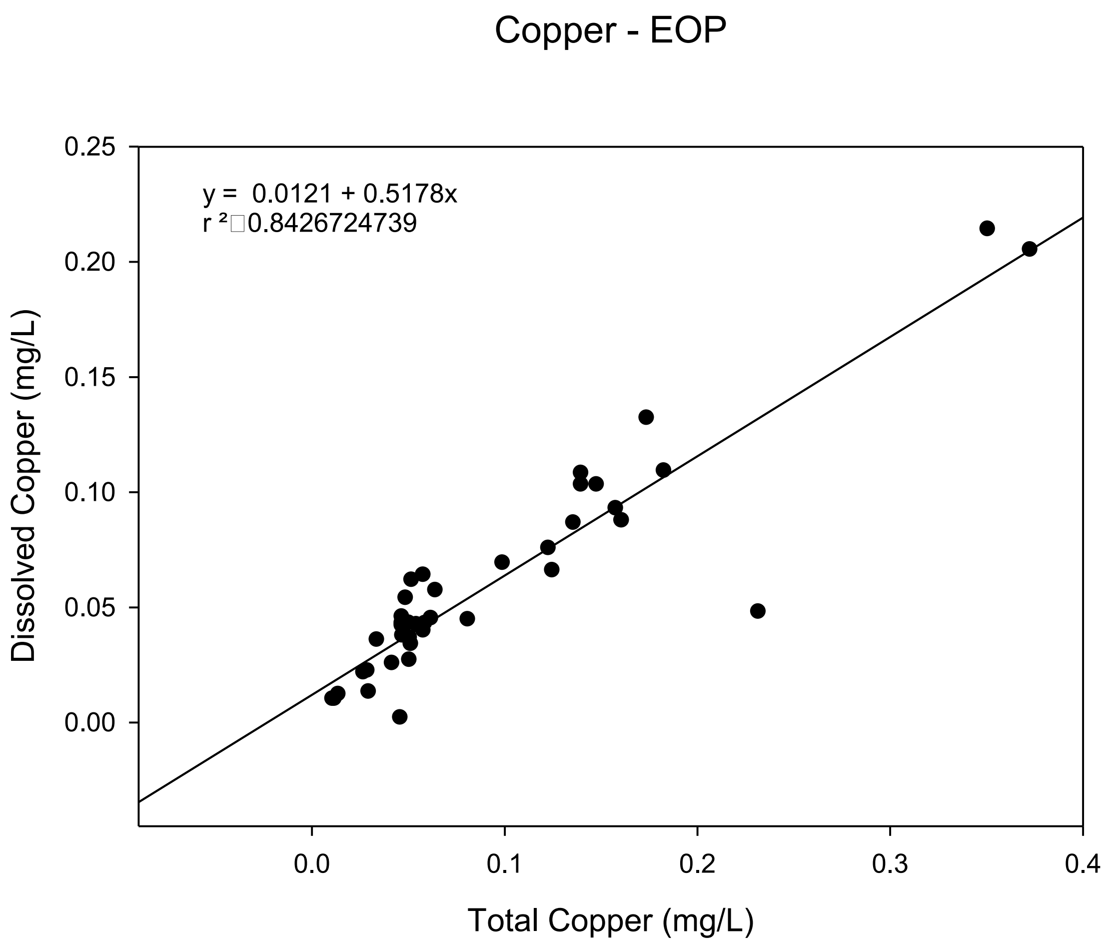


Figure 3-7 Relationship between total and dissolved copper concentrations at the EOP station; 2007 – 2011.

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Parks
Environmental
Inc.

Appendix A

San Gold Corporation

Tailings Management Area Expansion Notice of Alteration – Five Year Water Quality Summary Report (2007 – 2011)

- **Water Quality Tables**

2007 Water Quality Data

Date Sampled	EOP 21-Sep	EOP 27-Sep	EOP 04-Oct	EOP 12-Nov	EOP 19-Nov	EOP 26-Nov	EOP 28-Nov	MWQSOG* Max. Acceptable	Aesthetic	MMER Grab Samples
Physiochemical										
pH (pH units)	8.24	8	8.13	8.44	8.4	8.36	8.29		> 6.5 - < 9.0	
Hydroxide (OH^-)	<5	<5	<5	<0.4	<0.4	<0.4	<0.4			
Specific Conductance (µS/cm@25°C)	679	697	700	788	795	812	817			
Total Dissolved Solids (Calculated)	403	405	402						≤ 500.0	
Hardness, total	177	176	170			181	191			
Alkalinity (Total as $CaCO_3$)	216	219	219	185	185	189	190			
Bicarbonate (HCO_3)	263	267	267	217	218	225	232			
Carbonate (CO_3)	<6	<6	<6	4	3.5	2.7	<0.6			
Total Suspended Solids	6	4	6	9	8	4	6			
Turbidity (NTU)								0.1		
Major Ions										
Potassium, dissolved (K^+)	10.9	11.3	11	11.4	11.6	11.6	11.8			
Sodium, dissolved (Na^+)	84.6	86	86.2	85.9	91.7	87.4	90.3		≤ 200.0	
Calcium, dissolved (Ca^{2+})	38.8	38.9	36.8	40.3	42.7	40.6	42.4			
Magnesium, dissolved (Mg^{2+})	19.5	19.3	19.1	20	20.7	20.7	21.2			
Chloride, dissolved (Cl^-)	89	86.8	87.1	97	98	103	103		≤ 250.0	
Cyanide (CN), Weak Acid Diss	0.002	0.002	0.004							
Cyanide (CN), Free	0.004	0.003	0.004							
Cyanide (CN), Total	0.003	0.005	0.006	0.023	0.032	0.018	0.016	0.200		2.00
Fluoride, dissolved (F)				0.2	0.4	0.2	0.3	1.5		
Sulphate, dissolved (SO_4)	31.1	31.4	30.3	59	59	63	60		≤ 500.0	
Nutrients										
Nitrate-N	<0.01	<0.01	<0.01					10.00		
Nitrite-N	<0.005	<0.005	<0.005					3.20		
Nitrate_Nitrite-N	<0.02	<0.02	<0.02	1.95	2.05	1.97	4.9	10		
Ammonia, total-N	<0.05	<0.05	0.16	0.158	0.14	0.131	0.197			
Phosphorus, total	0.08	0.1	0.06	0.049	0.051	0.037	0.018			
Radiochemical										
Radium - 226 (Bq/L)				<0.005	<0.005	<0.005	0.01	0.5		1.11

Date Sampled	NNC-VR 21-Sep	NNC-VR 27-Sep	NNC-VR 04-Oct	NNC-VR 11-Oct	NNC-VR 18-Oct	NNC-VR 11-Dec	NNC-VR 19-Nov	NNC-VR 26-Nov	NNC-VR 04-Dec	NNC-GR 21-Sep	NNC-GR 27-Sep	NNC-GR 04-Oct	NNC-GR 11-Oct	NNC-GR 18-Oct	NNC-GR 11-Dec	NNC-GR 19-Nov	NNC-GR 26-Nov	NNC-GR 04-Dec
pH (pH units)	7.95	7.17	7.57	7.74	7.49	7.51	7.15	7.27	7.13	7.93	7.74	7.93	7.91	7.72	7.92	7.63	7.43	7.31
Hydroxide (OH^-)	<5	<5	<5	<5	<5	<0.4	<0.4	<0.4	<0.4	<5	<5	<5	<5	<5	<0.4	<0.4	<0.4	<0.4
Specific Conductance (µS/cm@25°C)	284	305	481	509	484	389	546	675	734	388	309	470	478	491	431	524	668	732
Total Dissolved Solids (Calculated)	180	172	260	280	270					245	174	260	265	273				
Hardness, total	157	120	133	137	140			156	182	221	150	139	143	161			162	184
Alkalinity (Total as $CaCO_3$)	177	124	144	150	146	132	140	162	177	227	151	150	152	168	163	142	165	181
Bicarbonate (HCO_3)	216	151	176	183	177	161	171	198	216	277	184	183	186	205	198	173	201	221
Carbonate (CO_3)	<6	<6	<6	<6	<6	<0.6	<0.6	<0.6	<0.6	<6	<6	<6	<6	<6	<0.6	<0.6	<0.6	<0.6
Total Suspended Solids	8	3	<5	<5	<5	2	<2	<2	<2	5	4	35	<5	35	<2	<2	<2	<2
Turbidity (NTU)																		
Major Ions																		
Potassium, dissolved (K^+)	1.8	3.1	5.5	6.6	6.2	4.61	6.19	8.52	8.98	7.1	3.4	5	5.6	5.2	4.01	5.54	7.77	8.5
Sodium, dissolved (Na^+)	12.9	21.3	50	55.1	52.6	33.6	55.9	69.6	78.8	11.3	12.7	47	47.7	46.4	32.4	49.9	67.6	75
Calcium, dissolved (Ca^{2+})	35.5	28	29.7	30.8	31.4	25.1	30.6	36.8	40.4	48	33.7	31.1	32.3	36.1	32.9	31.1	36.8	41.2
Magnesium, dissolved (Mg^{2+})	16.5	12.2	14.2	14.6	15	12.9	16	20	21.4	24.6	16	14.9	15.3	17.2	17.6	16.2	19.9	21.5
Chloride, dissolved (Cl^-)	5.1	23.8	54.9	61.4	58.4	37	61	83	90	10.9	11.2	52.7	53.4	50.3	33	55	83	89
Cyanide (CN), Weak Acid Diss	<0.002	<0.002	0.002	0.002	<0.002					<0.002	0.002	0.002	0.002	<0.002				
Cyanide (CN), Free	0.002	0.001	0.001	0.001	0.003					0.002	0.001	0.001	0.002	0.003				
Cyanide (CN), Total	0.001	0.001	0.002	0.002	0.001	<0.002	<0.002	0.006	0.005	0.001	0.001	0.002	0.002	0.001	<0.002	<0.002	0.003	<0.002
Fluoride, dissolved (F)						0.2	0.3	0.3	0.2						0.2	0.2	0.2	0.2
Sulphate, dissolved (SO_4)	1	10	19	22	19	8	31	47	50	7	6.9	19	19	17	9	29	46	49
Nutrients																		
Nitrate-N	0.02	0.03	<0.01	<0.01	<0.01					<0.01	0.03	<0.01	0.01	<0.01				
Nitrite-N	<0.005	<0.005	<0.005	<0.005	<0.005					<0.005	<0.005	<0.005	<0.005	<0.005				
Nitrate_Nitrite-N	<0.02	0.03	<0.02	<0.02	<0.02	0.006	0.428	0.687	0.513	<0.02	0.03	<0.02	<0.02	<0.02	<0.005	0.329	0.609	0.499
Ammonia, total-N	0.07	<0.05	<0.05	<0.05	<0.05	0.035	0.019	0.032	0.059	<0.05	<0.05	<0.05	0.36	<0.05	0.022	0.057	0.012	0.038
Phosphorus, total	0.05	0.06	<0.05	0.08	0.12	0.017	0.017	0.015	0.01	0.21	0.09	0.06	0.06	0.07	0.023	0.021	0.016	0.011
Radiochemical																		
Radium - 226 (Bq/L)																		

Date Sampled	WR-US 21-Sep	WR-US 27-Sep	WR-US 04-Oct	WR-US 11-Oct	WR-US 18-Oct	WR-US 11-Dec	WR-US 19-Nov	WR-US 26-Nov	WR-DS 21-Sep	WR-DS 27-Sep	WR-DS 04-Oct	WR-DS 11-Oct	WR-DS 18-Oct	WR-DS 12-Nov	WR-DS 19-Nov	WR-DS 26-Nov	MWQSOG** Chronic	MWQSOG** Acute	CCME
pH (pH units)	7.48	7.24	7.06	7.1	6.97	7.24	7.08	7.08	7.67	7.38	7.21	7.19	7.09	7.38	7.24	7.29		<6.5/ >9.0	<6.5 / >9.0
Hydroxide (OH^-)	<5	<5	<5	<5	<5	<0.4	<0.4		<5	<5	<5	<5	<5	<0.4	<0.4	<0.4			
Specific Conductance (µS/cm@25°C)	60	49	40	43	37	40.2	42.3	43.9	87	59	50	56	49	53.8	55.2	64.9			
Total Dissolved Solids (Calculated)	32	27	20	25	20				50	36	29	31	27						
Hardness, total	32	26	22	25	21			22.3	48	33	26	31	28			28.9			
Alkalinity (Total as $CaCO_3$)	28	21	19	18	16	16	16		47	31	24	23	22	21	22	24			
Bicarbonate (HCO_3)	34	26	23	22	20	19	20		58	38	29	28	26	25	26	29			
Carbonate (CO_3)	<6	<6	<6	<6	<6	<0.6	<0.6		<6	<6	<6	<6	<6	<0.6	<0.6	<0.6			
Total Suspended Solids	2	7	7	<5	7	<2	3	<2	5	4	13	<5	5	5	38	3			
Turbidity (NTU)																			
Major Ions																			
Potassium, dissolved (K^+)	0.7	0.7	0.6	0.7	0.5	0.48	0.46	0.52	0.7	0.8	0.6	0.9	0.7	0.52	0.59	0.63			
Sodium, dissolved (Na^+)	1.1	1.1	1	1	0.9	0.81	0.82	0.9	1.5	1.3	1.6	1.7	1.1	0.95	1.54	2.14			
Calcium, dissolved (Ca^{2+})	8.2	6.6	5.4	6.2	5.4	5.19	5.05	5.61	11.6	8.3	6.3	7.6	6.8	6.49	6.65	6.61			
Magnesium, dissolved (Mg^{2+})	2.9	2.4	2	2.2	1.9	1.82	1.78	1.91	4.7	3	2.6	3	2.6	2.55	2.53	2.58			
Chloride, dissolved (Cl^-)	<0.4	1.5	0.5	2.5	0.5	<9	<9	1.5	0.4	1.5	1.8	1.7	0.7	<9	<9	3.3			
Cyanide (CN), Weak Acid Diss	0.002	0.002	0.002	0.002	<0.002				0.002	0.002	0.002	0.002	<0.002						
Cyanide (CN), Free	0.002	0.001	0.001	0.001	0.002				0.001	0.001	0.001	0.002	0.003				0.0052	0.022	0.005
Cyanide (CN), Total	0.001	0.001	0.002	0.001	0.001	<0.002	<0.002	<0.002	0.001	0.001	0.002	0.001	0.001	<0.002	<0.002	<0.002			
Fluoride, dissolved (F)						<0.1	0.2	<0.1						0.1	0.2	0.1			
Sulphate, dissolved (SO_4)	2	2	2	2	2	<2	<2	<2	2	2	2	2	2	<2	<2	2			
Nutrients																			
Nitrate-N	0.02	0.05	0.02	0.03	0.02				0.02	0.04	0.01	0.06	0.03					13	2.935
Nitrite-N	<0.005	<0.005	0.006	<0.005	<0.005				0.005	<0.005	<0.005	<0.005	<0.005					0.06	0.06
Nitrate_Nitrite-N	<0.02	0.05	0.02	0.03	0.02	0.033	0.055	0.068	0.03	0.04	<0.02	0.06	0.03	0.028	0.094	0.069			
Ammonia, total-N	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	0.027	0.031	<0.05	<0.05	<0.05	<0.05	<0.05	0.025	0.085	0.025	>1.24 – 5.91 [a]	>3.10 - 14.77 [a]	>0.31 –18.99 [a]
Phosphorus, total	<0.05	0.07	<0.05	<0.05	0.33	0.022	0.02	0.019	0.07	0.06	<0.05	0.1	0.18	0.014	0.09	0.022	0.5		
Radiochemical																			
Radium - 226 (Bq/L)						<0.005								<0.005				0.5	

[a] pH and temperature dependent
* Drinking water quality guideline (Government of Manitoba 2011).
** Protection of aquatic life guideline

Date Sampled	EOP 21-Sep	EOP 27-Sep	EOP 04-Oct	EOP 12-Nov	EOP 19-Nov	EOP 26-Nov	EOP 28-Nov	MWQSOG* Max. Acceptable	Aesthetic	MMER Grab Samples
Total Metals										
Aluminum (Al)	0.221	0.056	0.125	0.08	0.11	0.08	0.08			
Antimony (Sb)	<0.0002	<0.0002	<0.0002	0.001	<0.001	<0.001	<0.001	0.006		
Arsenic (As)	0.0014	0.0013	0.0016	0.0012	0.0011	0.0011	0.0011	0.01		1.00
Barium (Ba)	0.024	0.028	0.029	0.0197	0.0183	0.0205	0.0202	1.0		
Beryllium (Be)	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001			
Bismuth (Bi)	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002			
Boron (B)	0.053	0.055	0.057	0.07	0.07	0.12	0.08	5.0		
Cadmium (Cd)	<0.00001	<0.00001	<0.00001	<0.0002	<0.0002	<0.0002	<0.0002	0.005		
Calcium (Ca)	36.7	34.9	36.2	42.8	40.5	40.1	42			
Cesium (Cs)				<0.0001	<0.0001	<0.0001	0.0002			
Chromium (Cr)	0.0011	0.0008	0.0016	<0.001	<0.001	<0.001	<0.001	0.050		
Cobalt (Co)	0.0009	0.0007	0.0008	0.0034	0.003	0.0031	0.003			
Copper (Cu)	0.011	0.012	0.014	0.183	0.148	0.14	0.14		≤ 1.0	0.60
Iron (Fe)	0.2	<0.1	0.2	0.19	0.18	0.2	0.17		≤ 0.300	
Lead (Pb)	0.0007	0.0004	0.0004	0.0012	<0.0005	0.0007	0.0015	0.010		0.40
Lithium (Li)	0.002	0.003	0.003							
Magnesium (Mg)	18.3	18.1	18.4	21.1	21	19.7	21			
Manganese (Mn)	0.099	0.234	0.154	0.0838	0.0691	0.0641	0.063		≤ 0.050	
Mercury (Hg)	<0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	0.001		
Molybdenum (Mo)	0.004	0.004	0.005	0.0147	0.0139	0.0142	0.0134			
Nickel (Ni)	0.0027	0.0019	0.0023	0.005	0.005	0.005	0.005			1.00
Potassium (K)	10.8	11	10.9	11.9	11	11.6	11.8			
Rubidium (Rb)				0.0071	0.0067	0.0068	0.0061			
Selenium (Se)	<0.0002	0.0003	0.0003	0.002	0.003	0.003	0.008	0.010		
Silicon (Si)	1.56	1.23	1.56							
Silver (Ag)	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001			
Sodium (Na)	82.6	82.7	82.3	90.5	89.7	81.8	86.7			
Strontium (Sr)	0.225	0.243	0.249	0.302	0.294	0.295	0.276			
Sulphur (S)	10.4	9.8	9.8							
Tellurium (Te)				<0.001	<0.001	<0.001	<0.001			
Thallium (Tl)	<0.00005	<0.00005	<0.00005	0.0004	0.0002	0.0003	0.0007			
Thorium (Th)										
Tin (Sn)	<0.001	<0.001	<0.001	<0.0006	<0.0006	<0.0006	<0.0006			
Titanium (Ti)	0.013	0.0033	0.0058	0.0021	0.005	0.0034	0.0037			
Tungsten (W)				0.0004	0.0003	<0.0002	0.0003			
Uranium (U)	<0.0005	<0.0005	<0.0005	0.0001	0.0001	0.0001	0.0001	0.02		
Vanadium (V)	0.0011	0.0005	0.0008	<0.001	<0.001	<0.001	<0.001			
Zinc (Zn)	0.004	0.006	0.011	0.03	<0.01	0.01	0.02		≤ 5.0	1.00
Zirconium (Zr)	<0.001	<0.001	<0.001	<0.0004	0.0004	<0.0004	<0.0004			

Date Sampled	NNC-VR 21-Sep	NNC-VR 27-Sep	NNC-VR 04-Oct	NNC-VR 11-Oct	NNC-VR 18-Oct	NNC-VR 11-Dec	NNC-VR 19-Nov	NNC-VR 26-Nov	NNC-VR 04-Dec	NNC-GR 21-Sep	NNC-GR 27-Sep	NNC-GR 04-Oct	NNC-GR 11-Oct	NNC-GR 18-Oct	NNC-GR 11-Dec	NNC-GR 19-Nov	NNC-GR 26-Nov	NNC-GR 04-Dec
Total Metals																		
Aluminum (Al)	0.585	0.178	0.1	0.037	0.17	0.1	0.03	0.04	0.02	0.044	0.137	0.698	0.093	0.13	0.04	0.04	0.02	0.05
Antimony (Sb)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001
Arsenic (As)	0.0012	0.0008	0.0011	0.001	0.0008	0.0007	0.0007	0.0006	0.0008	0.0013	0.0009	0.0014	0.001	0.0009	0.0007	0.0006	0.0007	0.0007
Barium (Ba)	0.027	0.026	0.025	0.022	0.025	0.0211	0.0211	0.0265	0.0292	0.035	0.026	0.036	0.023	0.03	0.0211	0.0199	0.0266	0.0294
Beryllium (Be)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001
Bismuth (Bi)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002
Boron (B)	0.014	0.018	0.018	0.016	0.015	<0.03	<0.03	<0.03	0.05	0.04	0.024	0.019	0.015	0.03	<0.03	<0.03	<0.03	0.03
Cadmium (Cd)	0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.0002	<0.0002	<0.0002	<0.0002	<0.00001	0.00002	0.00002	0.00001	0.00003	<0.0002	<0.0002	<0.0002	<0.0002
Calcium (Ca)	33.5	25.2	29.4	29.9	29.7	26.3	29.9	33.7	39	45	29.8	31.4	30.5	34.9	33.5	29.7	34.8	39.5
Cesium (Cs)						<0.0001	<0.0001	<0.0001	<0.0001						<0.0001	<0.0001	<0.0001	<0.0001
Chromium (Cr)	0.0012	0.0011	0.0008	0.0008	0.001	<0.001	<0.001	<0.001	<0.001	0.0016	0.0012	0.0023	0.0008	0.0013	<0.001	<0.001	<0.001	0.003
Cobalt (Co)	0.0005	0.0005	0.0006	0.0003	0.0005	0.0006	0.0014	0.0022	0.0021	0.0003	0.0002	0.001	0.0002	0.0004	0.0004	0.0013	0.0021	0.002
Copper (Cu)	0.004	0.002	0.002	0.001	<0.001	<0.001	0.004	0.006	0.005	0.005	0.002	0.002	0.002	<0.001	0.001	0.003	0.005	0.005
Iron (Fe)	0.2	0.6	0.4	0.2	0.4	0.49	0.17	0.16	0.19	0.1	0.2	0.8	0.2	0.8	0.21	0.13	0.1	0.13
Lead (Pb)	0.0006	0.0003	0.0003	0.0002	0.0002	0.0007	<0.0005	0.0007	0.0013	0.0004	0.0003	0.0007	0.0002	0.0002	0.0006	0.0016	<0.0005	0.0014
Lithium (Li)	0.006	0.004	0.004	0.003	0.004					0.011	0.007	0.005	0.004	0.005				
Magnesium (Mg)	15.3	11.5	13.7	14.2	13.8	13.3	16.2	17.5	20.6	23.6	14.8	14.6	14.5	16.3	17.5	16	18.3	20.9
Manganese (Mn)	0.093	0.143	0.067	0.034	0.082	0.15	0.0409	0.0388	0.0935	0.038	0.011	0.198	0.025	0.066	0.074	0.0141	0.0149	0.0507
Mercury (Hg)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum (Mo)	<0.001	<0.001	<0.001	<0.001	<0.001	0.0004	0.0026	0.004	0.0035	<0.001	<0.001	<0.001	<0.001	<0.001	0.0005	0.0019	0.0032	0.003
Nickel (Ni)	0.0027	0.0015	0.0014	0.0012	0.0015	<0.002	<0.002	<0.002	<0.002	0.0026	0.0019	0.0026	0.0012	0.0019	<0.002	<0.002	<0.002	<0.002
Potassium (K)	1.9	3	5.6	6.4	5.6	4.5	5.9	7.8	8.7	9.1	3.2	5.4	5.3	5	3.9	5.1	7.4	8.3
Rubidium (Rb)						0.0021	0.0029	0.0039	0.0042						0.0016	0.0023	0.0033	0.0038
Selenium (Se)	0.0002	0.0002	<0.0002	0.0004	<0.0002	0.001	0.002	0.002	0.004	0.0003	0.0002	0.0004	0.0007	0.0002	0.002	0.002	0.002	0.003
Silicon (Si)	3.09	3.42	2.71	2.45	2.91					2.21	4.48	4.19	2.96	2.85				
Silver (Ag)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001
Sodium (Na)	12.4	20.6	48.2	53.8	48.2	35	55.3	64.4	73.1	11	12	46.3	45.3	44	32.3	48.5	62.7	70.4
Strontium (Sr)	0.077	0.067	0.082	0.079	0.074	0.0643	0.0903	0.115	0.136	0.111	0.079	0.085	0.076	0.083	0.0741	0.0781	0.107	0.134
Sulphur (S)	0.4	3.2	6.4	6.9	6.2					2.7	2.1	6.2	6.1	5.7				
Tellurium (Te)						<0.001	<0.001	<0.001	<0.001						<0.001	<0.001	<0.001	<0.001
Thallium (Tl)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.0002	<0.0001	0.0003	0.0003	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.0002	<0.0001	0.0002	0.0003
Thorium (Th)																		
Tin (Sn)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0006	0.0015	<0.0006	<0.0006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0006	<0.0006	<0.0006	<0.0006
Titanium (Ti)	0.0281	0.007	0.0011	0.0026	0.0065	0.0037	0.0011	0.0019	0.0009	0.0025	0.0064	0.017	0.004	0.0018	0.0089	0.0019	0.0069	0.0033
Tungsten (W)						<0.0002	<0.0002	<0.0002	<0.0002						<0.0002	<0.0002	<0.0002	<0.0002
Uranium (U)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	<0.0001	0.0001	0.0001	0.0005	0.0005	0.0005	<0.0005	<0.0005	0.0004	0.0001	0.0002	0.0002
Vanadium (V)	0.0022	0.0009	0.0006	0.0003	0.0008	<0.001	<0.001	<0.001	<0.001	0.0009	0.0011	0.0023	0.0005	0.0008	<0.001	<0.001	<0.001	0.001
Zinc (Zn)	0.004	0.004	0.006	0.001	0.004	0.01	<0.01	0.02	<0.01	0.006	0.006	0.011	0.002	0.003	0.04	0.02	<0.01	<0.01
Zirconium (Zr)	<0.001	<0.001	<0.001	<0.001	<0.001	0.0004	<0.0004	<0.0004	<0.0004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0004	<0.0004	<0.0004	<0.0004

Date Sampled	WR-US 21-Sep	WR-US 27-Sep	WR-US 04-Oct	WR-US 11-Oct	WR-US 18-Oct	WR-US 11-Dec	WR-US 19-Nov	WR-US 26-Nov	WR-DS 21-Sep	WR-DS 27-Sep	WR-DS 04-Oct	WR-DS 11-Oct	WR-DS 18-Oct	WR-DS 12-Nov	WR-DS 19-Nov	WR-DS 26-Nov	MWQSOG** Chronic	MWQSOG** Acute	CCME
Total Metals																			
Aluminum (Al)	0.208	0.375	0.337	0.408	0.327	0.28	0.2	0.2	0.522	0.706	0.514	0.304	0.474	0.24	0.93	0.29		0.100 [b]	0.100 [b]
Antimony (Sb)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001		0.006*	
Arsenic (As)	0.0005	0.0008	0.001	0.0008	0.0008	0.0007	<0.0005	0.0006	0.0008	0.0008	0.0011	0.0007	0.0008	0.0007	0.0008	0.0006		0.010*	0.005
Barium (Ba)	0.01	0.011	0.01	0.01	0.01	0.0089	0.0065	0.0089	0.013	0.015	0.012	0.01	0.011	0.0083	0.0131	0.0098		1.000*	
Beryllium (Be)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001			
Bismuth (Bi)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002			
Boron (B)	0.008	0.01	0.007	0.007	0.007	<0.03	<0.03	<0.03	0.009	0.01	0.01	0.006	0.006	<0.03	<0.03	<0.03	1.5	29	1.5
Cadmium (Cd)	<0.00001	<0.00001	0.00002	<0.00001	0.00003	<0.0002	<0.0002	<0.0002	0.00001	0.00004	0.00001	0.00001	0.00002	<0.0002	<0.0002	<0.0002			>0.000009 – 0.000065 [c]
Calcium (Ca)	7.7	6.1	5.3	5.7	5.2	5.4	5.3	5.6	11.1	7.4	6.3	7	6.5	6.4	9.6	6.9			
Cesium (Cs)						<0.0001	<0.0001	<0.0001						<0.0001	0.0001	<0.0001			
Chromium (Cr)	0.0008	0.0011	0.0014	0.0012	0.0009	<0.001	0.001	0.001	0.0013	0.0053	0.0025	0.0021	0.0043	<0.001	0.002	<0.001			0.001 [d]
Cobalt (Co)	0.0002	0.0004	0.0003	0.0003	0.0003	0.0004	0.0003	0.0004	0.0004	0.0005	0.0004	0.0003	0.0003	0.0004	0.0009	0.0005			
Copper (Cu)	0.001	0.002	0.002	0.001	0.002	0.001	<0.001	0.001	0.003	0.002	0.002	0.002	0.001	0.005	0.003	0.002			>0.00200 – 0.00466 [c]
Iron (Fe)	0.5	0.8	0.9	0.8	0.8	0.75	0.55	0.65	0.9	1.1	1	1.3	0.9	0.69	1.54	0.74		0.3	0.3
Lead (Pb)	0.0002	0.0006	0.0006	0.0004	0.0004	0.0007	<0.0005	0.0007	0.0007	0.0006	0.0006	0.0005	0.0013	0.0009	0.0306	<0.0005			>0.00100 – 0.00873 [c]
Lithium (Li)	0.002	0.002	0.002	0.002	0.002				0.003	0.003	0.002	0.002	0.002						
Magnesium (Mg)	2.7	2.3	2	2.1	1.8	1.99	2.06	2	4.3	3	2.6	2.8	2.5	2.57	3.1	2.82			
Manganese (Mn)	0.033	0.041	0.03	0.033	0.022	0.0244	0.015	0.0158	0.06	0.044	0.029	0.04	0.014	0.0292	0.0757	0.0214			
Mercury (Hg)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		0.001*	0.000026 [c]
Molybdenum (Mo)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0002	<0.0002	0.0003		0.073	0.073
Nickel (Ni)	0.0008	0.0013	0.0014	0.001	0.0018	<0.002	<0.002	<0.002	0.0013	0.0018	0.0016	0.001	0.0018	<0.002	<0.002	<0.002			>0.02919 – 0.17460 [c]
Potassium (K)	0.8	0.7	0.6	0.7	0.5	0.5	0.5	0.6	0.9	0.9	0.7	1	0.7	0.6	0.8	0.7			
Rubidium (Rb)						0.0018	0.0015	0.0015						0.0018	0.0035	0.0017			
Selenium (Se)	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.001	0.001	<0.001		0.001	0.001
Silicon (Si)	1.8	2.38	2.19	2.86	2.64				2.81	3.52	2.78	4.39	3.14						
Silver (Ag)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001		0.0001	0.0001
Sodium (Na)	1.1	1	1	1	0.9	0.92	0.93	1.06	1.3	1.2	1.5	1.7	1.1	1	1.71	2.31			
Strontium (Sr)	0.021	0.02	0.018	0.017	0.016	0.0144	0.0148	0.0158	0.028	0.024	0.021	0.017	0.018	0.0161	0.0193	0.0182			
Sulphur (S)	0.7	1	0.5	0.7	0.7				0.7	0.8	0.6	0.8	0.8						
Tellurium (Te)						<0.001	<0.001	<0.001						<0.001	<0.001	<0.001			
Thallium (Tl)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.0001	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.0001	<0.0001		0.0008	0.0008
Thorium (Th)																			
Tin (Sn)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0006	<0.0006	0.0018	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0006	<0.0006	0.0026			
Titanium (Ti)	0.0078	0.0104	0.01	0.0106	0.0077	0.0089	0.0069	0.0031	0.0225	0.0283	0.0178	0.0071	0.0191	0.0081	0.032	0.0073			
Tungsten (W)						<0.0002	<0.0002	<0.0002						<0.0002	<0.0002	0.0003			
Uranium (U)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	0.0001	0.0001	0.015	0.033	0.015
Vanadium (V)	0.0012	0.0016	0.0013	0.0012	0.0014	<0.001	<0.001	<0.001	0.0019	0.0023	0.0018	0.001	0.0014	<0.001	0.003	<0.001			
Zinc (Zn)	0.122	0.005	0.01	0.004	0.016	0.01	0.01	0.02	0.03	0.004	0.007	0.006	0.005	0.04	0.17	0.01			0.03
Zirconium (Zr)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0004	0.0006	<0.0004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0004	0.0006	0.0008			

[b] pH dependent
[c] Calculated based on hardness
[d] Guideline value applies if all chromium is assumed to be in the Cr(VI) principal surface water form (CCME 2012).
* Drinking water quality guideline (Government of Manitoba 2011).
** Protection of aquatic life guideline

Date Sampled	EOP 21-Sep	EOP 27-Sep	EOP 04-Oct	EOP 12-Nov	EOP 19-Nov	EOP 26-Nov	EOP 28-Nov	MWQSOG* Max. Acceptable	Aesthetic	MMER Grab Samples
Dissolved Metals										
Aluminum (Al)	<0.005	<0.005	<0.005	<0.02	<0.02	<0.02	<0.02			
Antimony (Sb)	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001			
Arsenic (As)	0.0018	0.0021	0.0021	0.0008	0.0009	0.0008	0.0009			
Barium (Ba)	0.022	0.026	0.026	0.019	0.0197	0.02	0.0203			
Beryllium (Be)	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001			
Bismuth (Bi)	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0003	<0.0003			
Boron (B)	0.055	0.054	0.05	0.07	0.07	0.07	0.06			
Cadmium (Cd)	<0.00001	<0.00001	<0.00001	<0.0002	<0.0002	<0.0002	<0.0002			
Cesium (Cs)				<0.0001	<0.0001	<0.0001	<0.0001			
Chromium (Cr)	0.0009	0.0008	0.0011	<0.001	<0.001	<0.001	<0.001			
Cobalt (Co)	0.0006	0.0006	0.0006	0.0027	0.0028	0.0027	0.0028			
Copper (Cu)	0.01	0.01	0.012	0.109	0.103	0.108	0.103			
Iron (Fe)	0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.03			
Lead (Pb)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Lithium (Li)	0.002	0.002	0.002							
Manganese (Mn)	<0.005	<0.005	<0.005	0.0497	0.0543	0.0504	0.0556			
Mercury (Hg)	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002			
Molybdenum (Mo)	0.003	0.004	0.004	0.0142	0.0141	0.0147	0.0148			
Nickel (Ni)	0.0011	0.0008	0.0017	0.0037	0.0038	0.0036	0.004			
Rubidium (Rb)				0.0062	0.0061	0.0064	0.0066			
Selenium (Se)	<0.0002	0.0002	<0.0002	0.0005	0.001	<0.001	<0.001			
Silicon (Si)	1.06	1.1	1.18	1.2	1.3	1.3	1.4			
Silver (Ag)	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0002			
Strontium (Sr)	0.235	0.239	0.229	0.279	0.27	0.292	0.292			
Sulphur (S)	10.4	10.5	10.1							
Tellurium (Te)				<0.0005	<0.0005	<0.0005	<0.0005			
Thallium (Tl)	<0.00005	<0.00005	<0.00005	<0.0001	<0.0001	<0.0001	<0.0001			
Thorium (Th)										
Tin (Sn)	<0.001	<0.001	<0.001	0.0015	<0.0003	<0.0003	<0.0003			
Titanium (Ti)	0.0009	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			
Tungsten (W)				<0.0002	<0.0002	0.0003	<0.0002			
Uranium (U)	<0.0005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001			
Vanadium (V)	0.0038	0.0014	0.0007	<0.001	<0.001	<0.001	<0.001			
Zinc (Zn)	0.001	0.002	0.004	0.006	<0.005	<0.005	<0.005			
Zirconium (Zr)				<0.0004	<0.0004	<0.0004	<0.0004			

Date Sampled	NNC-VR 21-Sep	NNC-VR 27-Sep	NNC-VR 04-Oct	NNC-VR 11-Oct	NNC-VR 18-Oct	NNC-VR 11-Dec	NNC-VR 19-Nov	NNC-VR 26-Nov	NNC-VR 04-Dec	NNC-GR 21-Sep	NNC-GR 27-Sep	NNC-GR 04-Oct	NNC-GR 11-Oct	NNC-GR 18-Oct	NNC-GR 11-Dec	NNC-GR 19-Nov	NNC-GR 26-Nov	NNC-GR 04-Dec
Dissolved Metals																		
Aluminum (Al)	0.016	0.012	0.01	0.009	0.007	<0.02	<0.02	<0.02	<0.02	<0.005	0.012	0.008	0.018	0.006	<0.02	<0.02	<0.02	<0.02
Antimony (Sb)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001
Arsenic (As)	0.0012	0.0011	0.0013	0.0013	0.0013	<0.0005	0.0005	0.0005	0.0006	0.0013	0.0011	0.0014	0.0015	0.0014	<0.0005	0.0005	0.0006	0.0006
Barium (Ba)	0.023	0.024	0.025	0.023	0.024	0.0183	0.0231	0.0271	0.0282	0.031	0.024	0.025	0.023	0.027	0.0205	0.0221	0.0273	0.0299
Beryllium (Be)	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001
Bismuth (Bi)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0003	<0.0003
Boron (B)	0.013	0.016	0.016	0.016	0.015	<0.02	<0.02	0.02	0.02	0.033	0.021	0.016	0.016	0.016	<0.02	<0.02	0.02	0.02
Cadmium (Cd)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.0002	<0.0002	<0.0002	<0.0002	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.0002	<0.0002	<0.0002	<0.0002
Cesium (Cs)						<0.0001	<0.0001	<0.0001	<0.0001						<0.0001	<0.0001	<0.0001	<0.0001
Chromium (Cr)	0.001	0.0008	<0.0005	0.0012	0.001	<0.001	<0.001	<0.001	<0.001	0.0014	0.0006	0.001	0.0007	0.0012	<0.001	<0.001	<0.001	<0.001
Cobalt (Co)	0.0001	0.0002	0.0004	0.0003	0.0003	<0.0002	0.0011	0.0019	0.002	<0.0001	0.0001	0.001	0.0003	0.0003	<0.0002	0.001	0.0018	0.0019
Copper (Cu)	0.004	<0.001	0.002	0.001	0.001	<0.0004	0.0018	0.0046	0.0034	0.005	0.001	0.001	0.001	0.001	<0.0004	0.0008	0.0028	0.0026
Iron (Fe)	0.11	0.26	0.19	0.16	0.16	0.16	0.06	0.05	0.07	<0.01	0.11	0.1	0.1	0.08	0.08	0.05	0.05	0.05
Lead (Pb)	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Lithium (Li)	0.006	0.004	0.004	0.004	0.003					0.01	0.006	0.003	0.004	0.005				
Manganese (Mn)	0.044	0.033	0.03	0.021	0.022	0.001	0.0015	0.0007	0.006	<0.005	<0.005	<0.005	0.011	0.022	0.0022	0.0003	0.0057	0.0037
Mercury (Hg)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum (Mo)	<0.001	<0.001	<0.001	<0.001	<0.001	0.0003	0.0027	0.0043	0.0034	<0.001	<0.001	<0.001	<0.001	<0.001	0.0003	0.0019	0.0035	0.0031
Nickel (Ni)	0.0014	0.0008	0.001	0.0008	0.0013	0.0006	0.0004	0.0005	0.0008	0.0014	0.0008	0.0013	0.001	0.0017	0.0007	0.0006	0.0004	0.0022
Rubidium (Rb)						0.0017	0.0029	0.0041	0.0041						0.0013	0.0023	0.0034	0.0038
Selenium (Se)	<0.0002	<0.0002	<0.0002	0.0005	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001
Silicon (Si)	1.79	3.27	2.58	2.48	2.71	2.8	2.3	2.2	2.4	2.81	4.26	2.83	2.92	2.82	2.9	2.2	2.3	2.5
Silver (Ag)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005
Strontium (Sr)	0.078	0.064	0.079	0.081	0.081	0.0637	0.088	0.124	0.125	0.114	0.076	0.075	0.075	0.084	0.0727	0.0767	0.111	0.123
Sulphur (S)	0.4	3.3	6.4	7.4	6.4					2.3	2.3	6.2	6.5	5.7				
Tellurium (Te)						<0.0005	<0.0005	<0.0005	<0.0005						<0.0005	<0.0005	<0.0005	<0.0005
Thallium (Tl)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.0001	<0.0001	<0.0001
Thorium (Th)																		
Tin (Sn)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0003	0.0006	<0.0003	<0.0003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0003	<0.0003	<0.0003	<0.0003
Titanium (Ti)	0.002	0.0006	0.0009	0.0012	0.0009	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	0.0008	0.001	0.0016	0.001	<0.0005	<0.0005	<0.0005	<0.0005
Tungsten (W)						<0.0002	<0.0002	<0.0002	<0.0002						<0.0002	<0.0002	<0.0002	<0.0002
Uranium (U)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	0.0002	<0.0001	<0.0001	<0.0001
Vanadium (V)	0.0028	0.001	0.0004	0.0006	0.0009	<0.001	<0.001	<0.001	<0.001	0.004	0.0011	0.0009	0.0006	0.0013	<0.001	<0.001	<0.001	<0.001
Zinc (Zn)	0.002	0.003	0.005	<0.001	0.001	0.007	<0.005	<0.005	<0.005	0.002	0.004	0.003	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005
Zirconium (Zr)						<0.0004	<0.0004	<0.0004	<0.0004						<0.0004	<0.0004	<0.0004	<0.0004

Date Sampled	WR-US 21-Sep	WR-US 27-Sep	WR-US 04-Oct	WR-US 11-Oct	WR-US 18-Oct	WR-US 11-Dec	WR-US 19-Nov	WR-US 26-Nov	WR-DS 21-Sep	WR-DS 27-Sep	WR-DS 04-Oct	WR-DS 11-Oct	WR-DS 18-Oct	WR-DS 12-Nov	WR-DS 19-Nov	WR-DS 26-Nov	MWQSOG** Chronic	MWQSOG** Acute	CCME
Dissolved Metals																			
Aluminum (Al)	0.04	0.082	0.124	0.16	0.136	0.1	0.11	0.12	0.054	0.109	0.141	0.173	0.143	0.1	0.1	0.11			
Antimony (Sb)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001			
Arsenic (As)	0.0006	0.0007	0.0008	0.0008	0.0008	<0.0005	<0.0005	<0.0005	0.0007	0.0008	0.0009	0.0009	0.0009	<0.0005	<0.0005	<0.0005			
Barium (Ba)	0.008	0.008	0.009	0.009	0.009	0.0072	0.0069	0.0073	0.009	0.01	0.009	0.01	0.009	0.0072	0.0073	0.0083			
Beryllium (Be)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001			
Bismuth (Bi)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0003			
Boron (B)	0.007	0.006	0.006	0.007	0.006	<0.02	<0.02	<0.02	0.008	0.007	0.008	0.007	0.006	<0.02	<0.02	<0.02			
Cadmium (Cd)	<0.00001	<0.00001	<0.00001	0.00001	0.00001	<0.0002	<0.0002	<0.0002	<0.00001	0.00001	<0.00001	0.00001	0.00002	<0.0002	<0.0002	<0.0002	>0.00008 – 0.00043 [c]	>0.00042 – 0.00433 [c]	
Cesium (Cs)						<0.0001	<0.0001	<0.0001						<0.0001	<0.0001	<0.0001			
Chromium (Cr)	0.0005	0.0005	0.0005	0.0006	0.0007	<0.001	<0.001	<0.001	0.0008	0.0007	0.001	0.0005	0.001	<0.001	<0.001	<0.001	0.011 [e]	0.016 [e]	
Cobalt (Co)	<0.0001	0.0001	0.0001	0.0001	0.0001	<0.0002	<0.0002	<0.0002	<0.0001	0.0001	0.0001	0.0002	0.0001	<0.0002	<0.0002	<0.0002			
Copper (Cu)	0.002	0.001	0.001	<0.001	0.001	<0.0004	<0.0004	<0.0004	<0.001	0.002	0.001	0.001	0.001	<0.0004	<0.0004	<0.0004	>0.0023- 0.0176 [c]	>0.0030 - 0.0283 [c]	
Iron (Fe)	0.31	0.34	0.55	0.47	0.5	0.37	0.36	0.43	0.42	0.43	0.55	0.51	0.5	0.35	0.41	0.4			
Lead (Pb)	<0.0001	<0.0001	0.0002	0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0002	0.0002	0.0002	0.0001	0.002	0.0005	0.0042a	0.0001	>0.00042 - 0.0058 [c]	>0.0108 - 0.1506 [c]	
Lithium (Li)	0.001	0.001	0.001	0.001	0.001				0.002	0.002	0.002	0.002	0.001						
Manganese (Mn)	0.021	0.006	0.005	0.009	0.007	0.0018	0.001	0.0023	0.045	0.013	0.008	0.014	0.011	0.0014	0.0012	0.0018			
Mercury (Hg)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0002	<0.0002	<0.0002			
Molybdenum (Mo)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.0001			
Nickel (Ni)	0.0008	0.0006	0.0008	0.0008	0.0008	0.0002	<0.0002	0.0003	0.0007	0.0008	0.0009	0.0009	0.0012	0.0003	0.0004	0.0004	>0.0133 - 0.1013 [c]	>0.1200 – 0.9123 [c]	
Rubidium (Rb)						0.0013	0.0012	0.0013						0.0013	0.0012	0.0012			
Selenium (Se)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001			
Silicon (Si)	1.54	1.75	1.72	2.52	2.41	2.1	2.1	2.5	1.9	2.42	1.92	2.81	2.54	2.2	2.3	2.3			
Silver (Ag)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005			
Strontium (Sr)	0.021	0.018	0.017	0.017	0.016	0.0145	0.0139	0.0151	0.029	0.022	0.019	0.018	0.018	0.0168	0.0157	0.0172			
Sulphur (S)	0.6	0.6	0.5	0.6	0.6				0.8	0.7	0.6	0.8	0.6						
Tellurium (Te)						<0.0005	<0.0005	<0.0005						<0.0005	<0.0005	<0.0005			
Thallium (Tl)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.0001	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.0001	<0.0001			
Thorium (Th)																			
Tin (Sn)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0003	<0.0003	<0.0003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0003	<0.0003	<0.0003			
Titanium (Ti)	0.0019	0.0016	0.0015	0.0018	0.0019	0.0007	0.0009	0.0009	0.0028	0.0026	0.0027	0.0023	0.0023	0.0009	0.0013	0.0011			
Tungsten (W)						<0.0002	<0.0002	<0.0002						<0.0002	<0.0002	<0.0002			
Uranium (U)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0001			
Vanadium (V)	0.0007	0.0006	0.0006	0.0005	0.0007	<0.001	<0.001	<0.001	0.001	0.0007	0.0007	0.0007	0.0007	<0.001	<0.001	<0.001			
Zinc (Zn)	0.005	0.003	0.006	0.002	0.002	<0.005	<0.005	<0.005	0.001	0.003	0.006	0.004	0.003	<0.005	<0.005	<0.005	>0.0302 - 0.2304 [c]	>0.0300 - 0.2286 [c]	
Zirconium (Zr)						<0.0004	<0.0004	<0.0004						<0.0004	<0.0004	<0.0004			

[c] Calculated based on hardness
e Guideline value applies if all chromium is assumed to be in the Cr(VI) principal surface water form (Government of Manitoba 2012).
** Protection of aquatic life guideline

2008 Water Quality Data

	EOP										MWQSOG*		MMER	NNC-VR												NNC-GR												WR-US													WR-DS													MWQSOG**		CCME
Date Sampled	08-Sep	11-Sep	16-Sep	23-Sep	30-Sep	07-Oct	14-Oct	21-Oct	28-Oct	04-Nov	Max. Acceptable	Aesthetic	Grab Samples	05-Sep	11-Sep	16-Sep	23-Sep	30-Sep	07-Oct	14-Oct	21-Oct	28-Oct	04-Nov	13-Nov	18-Nov	05-Sep	11-Sep	16-Sep	23-Sep	30-Sep	07-Oct	14-Oct	21-Oct	28-Oct	04-Nov	13-Nov	18-Nov	05-Sep	11-Sep	16-Sep	18-Sep	23-Sep	30-Sep	07-Oct	14-Oct	21-Oct	28-Oct	04-Nov	13-Nov	18-Nov	05-Sep	11-Sep	16-Sep	18-Sep	23-Sep	30-Sep	07-Oct	14-Oct	21-Oct	28-Oct	04-Nov	13-Nov	18-Nov	Chronic	Acute	
Physiochemical
pH (pH units)	8.26	8.22	8.26	8.02	8.00	8.24	8.39	8.41	8.31	8.36		> 6.5 - < 9.0		7.27	7.32	7.90	7.53	7.69	7.89	8.02	7.92	7.75	7.82	7.22	8.29	7.25	7.76	8.14	7.72	7.98	8.09	8.20	8.13	7.98	8.08	7.60	8.29	7.25	7.21	7.38		7.27	7.40	7.44	7.57	7.33	7.34	7.38	7.24	7.18	7.44	7.32	7.46		7.37	7.51	7.57	7.64	7.45	7.47	7.55	7.34	7.33		<6.5 / >9.0	<6.5 / >9.0
Hydroxide (OH⁻)	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4				<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4			
Specific Conductance (µS/cm@25°C)	736	716	767	782	823	831	844	854	849	871				264	327	595	625	701	725	724	728	751	779	702	755	314	289	554	602	689	707	670	720	745	770	715	759	49.2	39.9	42.5		45.7	49.7	47.7	57.6	42.2	43.1	42.8	46	48.2	56.5	49.5	55.6		73.4	78.5	85.5	80.6	60	64.9	69.9	71	65			
Total Dissolved Solids (Calculated)	389	-	415	449	457	461	493	478	469	485		≤ 500.0		140	172	317	349	366	399	423	403	415	425	371	410	163	175	289	342	341	372	365	393	389	428	-	393	40	47	52		38	41	41	47	32	34	21	35	35	46	52	60		50	59	50	58	39	40	35	48	42			
Hardness, total	160	184	182	188	171	190	203	202	188	209				90	101	150	163	168	175	208	173	184	183	167	179	128	112	143	171	148	169	165	167	161	183	-	209	25.8	19.9	20.1		24.6	24.4	27.7	31.3	18.8	20.6	21.9	20	22.3	28.2	24.4	24.9		34.5	43	38.5	31.4	24.8	27.1	30.6	26.8	28.6			
Alkalinity (Total as $CaCO_3$)	178	179	180	181	186	181	180	179	181	183				107	107	145	154	170	170	162	166	166	169	161	162	140	139	143	155	171	173	160	168	168	171	167	181	22	18	18		20	22	22	27	18	19	19	20	20	26	23	24		31	33	36	36	23	25	30	32	27			
Bicarbonate (HCO_3)	217	218	219	220	227	221	212	210	217	217				130	130	177	188	207	207	198	202	202	207	196	198	171	170	174	189	208	211	196	205	205	208	204	221	27	22	22		25	27	26	32	21	23	23	24	25	32	28	30		38	40	44	44	28	31	37	39	33			
Carbonate (CO_3)	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6				<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6		<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6		<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6			
Total Suspended Solids	5		3	<2	2	3	6	7	3	5				<5		<2	<2	<2	<2	<2	<2	<2	<2	<2	<5	<5		0.8	2	<2	<2	<2	<2	<2	<2	<2	<5	<5		11		<2	4	4	16	4	3	2	3	10	9		10		7	6	4	14	11	4	4	5	12			
Turbidity (NTU)	4	3.6	3.9	170	1.6	3	4.3	5.9	3.6	2.9	0.1			1.4	2.2	0.65	0.75	0.5	0.8	0.8	1.1	0.45	0.45	1.1	2.3	0.9	1.2		0.9	0.4	0.5	0.65	1.2	0.55	0.8	2	8.2	2.7	3.4	3.5		3.6	3.3	4.2	7.5	3.9	3.9	3.6	5.2	6	6.2	5.6	6.4		5	4.6	4.5	9.5	6.7	4.6	4.2	5.5	10			
Major Ions
Potassium, dissolved (K^+)	9.86	11.4	11.2	11.8	14.5	12.2	13.1	12.7	11.5	12.7				1.72	2.87	6.7	8.57	9.42	10	10.5	9.82	10.4	10.2	7.55	8.47	1.59	1.84	5.17	7.7	7.62	9.06	8.84	8.72	8.76	9.84	7.62	7.59	0.41	0.3	0.37		0.51	0.54	0.5	0.73	0.4	0.43	0.48	0.38	0.45	0.46	0.35	0.39		0.63	0.93	1.1	0.81	0.56	0.65	0.73	0.69	0.57			
Sodium, dissolved (Na^+)	72.8	81.6	81.3	86.9	96.3	85.7	91.9	90.4	85.2	90.2		≤ 200.0		13.9	22	56.4	66.2	67.7	74.9	74.8	71.1	77.5	77.6	61.9	83	11	15.1	46	62.3	56.3	66.5	63.7	65	64.4	73.6	61.2	63.9	0.98	0.73	0.86		1.07	0.99	0.91	1.04	0.71	0.88	0.87	0.71	0.69	0.95	0.77	1.24		2.7	3.51	5.42	2.52	1.7	2.2	2.86	2.39	1.34			
Calcium, dissolved (Ca^{2+})	34.6	39.1	39.4	40.5	51.8	42.3	44.9	45	41.8	47.2				21.5	22.6	33.3	35.5	37.7	38.3	39.2	38.9	40	40.5	34.1	40.5	30.3	25.2	31.9	37.5	33	37.1	36.1	37.1	35	40.5	35.4	41.9	6.63	4.96	4.96		6	5.86	6.78	7.64	4.73	5.03	5.47	5.07	5.64	7.19	5.9	6.01		8.13	9.85	8.85	7.35	6.01	6.49	7.36	6.34	6.88			
Magnesium, dissolved (Mg^{2+})	17.8	20.9	20.3	21.1	18.4	20.5	22.2	21.8	20.4	22				8.85	10.9	16.2	18	18	19.4	19.4	18.5	20.4	20	17.4	19	12.6	12.9	15.3	18.9	15.8	18.4	18.2	18.1	17.8	19.9	17.9	25.4	2.24	1.84	1.86		2.33	2.39	2.63	2.96	1.7	1.96	2	1.79	2	2.5	2.36	2.4		3.45	4.46	3.97	3.17	2.37	2.65	2.98	2.68	2.76			
Chloride, dissolved (Cl^-)	86	85	86	93	94	103	102	97	100	98		≤ 250.0		15	29	67	73	79	92	83	87	85	91	79	93	12	18	59	71	76	85	77	90	85	90	67	84	<9	<9	<9		<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9		<9	<9	9	<9	<9	<9	<9	<9	<9			
Cyanide (CN), Weak Acid Diss	0.013	<0.002	<0.002	0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	<0.002	0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	0.006	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.002		<0.002	<0.002	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002			
Cyanide (CN), Free	0.0096	<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	<0.0050	<0.0050	<0.0050	0.0076	<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	<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	<0.0050	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0052	0.022	0.005
Cyanide (CN), Total	0.014	<0.002	<0.002	0.006	0.004	<0.002	<0.002	0.004	0.004	<0.002	0.200		2.00	<0.002	<0.002	0.002	0.003	<0.002	<0.002	0.003	<0.002	<0.002	0.006	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	0.002	0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		<0.002	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	0.005	<0.002	0.003	<0.002		<0.002	<0.002	<0.002	-	0.002	<0.002	<0.002	0.002	0.003			
Fluoride, dissolved (F^-)	0.3	0.3	0.2	0.2	0.1	0.3	0.3	0.3	0.3	0.2	1.5			0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.2	0.2	0.2	0.2	0.2	0.1	0.3	0.1	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.1		0.2	0.1	0.1	0.4	0.3	0.2	0.1	<0.1	0.2	0.1	0.1	0.1		0.2	0.1	0.3	0.4	0.2	0.2	0.1	0.1	0.1			0.12
Sulphate, dissolved (SO_4^{2-})	58	65	63	75	72	74	83	88	86			≤ 500.0		15	21	50	55	52	59	69	73	75		64	69	12	20	45	51	49	52	62	69	71		68	61	16	28	33		16	18	18	17						19	29	35		17	20	<9	18	-	-						
Nutrients
Nitrate-N	0.78	0.74	1.22	2.58	2.47	3.37	3.34	3.48	3.39	3.89	10.00			0.03	<0.01	0.01	<0.01	0.1	0.62	1.04	1.16	1.72	2.01	0.57	0.03	<0.01	<0.01	0.01	<0.01	0.02	0.2	0.63	0.96	1.38	1.82	0.76	0.19	0.02	0.01	0.02		0.02	0.02	0.02	0.02	0.09	0.16	0.02	0.03	0.02	0.01	<0.01	0.05		0.03	0.02	0.02	0.03	0.02	0.04	0.04	0.05	0.04		13	2.935
Nitrite-N	0.01	0.02	0.01	0.08	0.1	0.12	0.07	0.04	0.01	0.01	3.20			<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	0.02	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	0.02	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		0.06	0.06
Nitrate_Nitrite-N	0.797	0.755	1.23	2.66	2.57	3.49	3.42	3.52	3.4	3.9	10			0.035	0.009	0.013	0.009	0.103	0.637	1.06	1.18	1.72	2.01	0.58	0.025	0.008	0.007	0.01	0.007	0.016	0.198	0.627	0.955	1.38	1.82	0.758	0.189	0.019	0.012	0.019		0.021	0.02	0.015	0.019	0.092	0.163	0.022	0.026	0.019	0.013	0.009	0.048		0.025	0.019	0.018	0.032	0.019	0.035	0.039	0.054	0.038			
Ammonia, total-N	0.013	0.011	0.031	0.028	0.016	0.023	0.018	0.023	0.042	0.03				0.028	0.031	0.055	0.025	0.016	0.018	0.018	0.018	0.01	0.01	0.009	0.012	0.02	0.026	0.027	0.02	0.013	0.118	0.024	0.013	0.021	0.018	0.015	0.035	0.163	0.197	0.172		0.165	0.183	0.199	0.181	0.2	0.157	0.161	0.156	0.183	0.229	0.265	0.234		0.166	0.244	0.195	0.254	0.219	0.189	0.176	0.194	0.206	>0.79 – 5.39 [a]	>1.94 - 13.47 [a]	>0.291 – -12.583 [a]
Phosphorus, total	0.041	0.037	0.035	0.04	0.056	0.057	0.049	0.039	0.04	0.033				0.028	0.022	0.02	0.017	0.013	0.012	0.013	0.012	0.011	0.015	-	0.014	0.04	0.04	0.028	0.031	0.02	0.017	0.019	0.013	0.014	0.012	-	0.05	0.031	0.031	0.029		0.029	0.03	0.029	0.032	0.036	0.027	0.026	-	0.03	0.035	0.035	0.032		0.034	0.032	0.03	0.037	0.03	0.027	0.028	0.024	0.034	0.5		
Radiochemical
Radium - 226 (Bq/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	0.5		1.11		-	-	-	-	-	-	-	-	-				-	-	-	-	-	-	-	-	-	22			-	-	<0.005	<0.005	<0.005	0.009	0.005	-	<0.005	<0.005				-	-	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	<0.005				0.5	

[a] pH and temperature dependent

* Drinking water quality guideline (Government of Manitoba 2011).

** Protection of aquatic life guideline

	EOP										MWQSOG*		MMER	NNC-VR												NNC-GR												WR-US													WR-DS													MWQSOG**		CCME
Date Sampled	08-Sep	11-Sep	16-Sep	23-Sep	30-Sep	07-Oct	14-Oct	21-Oct	28-Oct	04-Nov	Max. Acceptable	Aesthetic	Grab Samples	05-Sep	11-Sep	16-Sep	23-Sep	30-Sep	07-Oct	14-Oct	21-Oct	28-Oct	04-Nov	13-Nov	18-Nov	05-Sep	11-Sep	16-Sep	23-Sep	30-Sep	07-Oct	14-Oct	21-Oct	28-Oct	04-Nov	13-Nov	18-Nov	05-Sep	11-Sep	16-Sep	18-Sep	23-Sep	30-Sep	07-Oct	14-Oct	21-Oct	28-Oct	04-Nov	13-Nov	18-Nov	05-Sep	11-Sep	16-Sep	18-Sep	23-Sep	30-Sep	07-Oct	14-Oct	21-Oct	28-Oct	04-Nov	13-Nov	18-Nov	Chronic	Acute	
Total Metals
Aluminum (Al)	0.013	0.011	0.031	0.028	0.016	0.023	0.018	0.023	0.042	0.03				0.028	0.031	0.055	0.025	0.016	0.018	0.018	0.018	0.01	0.01	0.009	0.012	0.02	0.026	0.027	0.02	0.013	0.118	0.024	0.013	0.021	0.018	0.015	0.035	0.163	0.197	0.172		0.165	0.183	0.199	0.181	0.2	0.157	0.161	0.156	0.183	0.229	0.265	0.234		0.166	0.244	0.195	0.254	0.219	0.189	0.176	0.194	0.206		0.100 [b]	0.100 [b]
Antimony (Sb)	<0.001	<0.001	<0.001	<0.001	<0.001	0.0008	0.0012	0.0007	0.0006	<0.0005	0.006			<0.001	<0.001	<0.001	<0.001	<0.001	0.0006	0.0007	0.0007	0.0006	0.0007	0.0012	0.0006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	0.0006	0.0006	<0.0005	0.0007	0.0007	0.0006	<0.001	<0.001	<0.001		<0.001	<0.001	<0.0005	0.0013	0.0007	0.0006	0.0006	0.0012	0.0009	<0.001	<0.001	<0.001		<0.001	<0.001	<0.0005	0.0013	0.0006	0.0007	<0.0005	0.0011	<0.0005		0.006*	
Arsenic (As)	0.0012	0.001	0.0009	0.0011	0.0012	0.0012	0.001	0.0009	0.0008	0.0009	0.01		1.00	0.0007	0.0007	0.0007	0.0007	0.0008	0.0007	0.0007	0.0007	0.0006	0.0006	0.0006	<0.0005	0.001	0.0011	0.0008	0.001	0.0009	0.0008	0.0006	0.0007	0.0006	0.0006	<0.0005	<0.0005	0.0007	0.0008	0.0006		0.0008	0.0007	0.0007	0.0007	0.0007	0.0006	0.0006	0.0007	<0.0005	0.0007	0.0008	0.0007		0.0009	0.0008	0.0007	0.0007	0.0007	0.0007	0.0006	0.0006	<0.0005		0.010*	0.005
Barium (Ba)	0.0203	0.0198	0.0202	0.022	0.0225	0.0225	0.0227	0.0203	0.0198	0.0191	1.0			0.0145	0.0213	0.0256	0.0322	0.0323	0.0327	0.0357	0.0346	0.0302	0.0292	0.0275	0.0283	0.0148	0.0142	0.0214	0.0316	0.0282	0.0325	0.0266	0.0283	0.0269	0.0292	0.0198	0.0315	0.0079	0.0077	0.007		0.0094	0.0086	0.0085	0.0102	0.0081	0.007	0.0083	0.0071	0.0072	0.009	0.0082	0.009		0.0106	0.0109	0.0106	0.0112	0.0084	0.0079	0.0085	0.0082	0.0072		1.000*	
Beryllium (Be)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
Bismuth (Bi)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002				<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002			
Boron (B)	0.06	0.07	0.05	0.09	0.08	0.11	0.1	0.07	0.08	0.08	5.0			<0.03	0.03	<0.03	0.05	0.04	0.06	0.06	0.05	0.05	0.05	0.05	<0.03	<0.03	<0.03	<0.03	0.03	0.05	0.04	0.05	0.05	0.04	0.05	0.03	<0.03	<0.03	<0.03	<0.03		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	1.5	29	1.5
Cadmium (Cd)	0.00001	<0.00001	<0.00001	0.00003	0.00003	0.00003	0.00002	<0.00001	0.00002	0.00002	0.005			0.00003	<0.00001	<0.00001	<0.00001	0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	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	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001		<0.00001	<0.00001	<0.00001	0.00003	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001			>0.000008 – 0.000062 [c]
Calcium (Ca)	36.7	36.9	38.8	43.5	44.2	48.4	48.8	43.8	43.9	43.6				21.9	23.6	30.9	36.9	40	43	45.6	46.9	42.2	38.7	36.7	38.6	30.3	27	32.3	39.7	40	42.1	36.6	39.8	40.6	40.5	38	44.3	6.4	5.3	5		6.2	6.7	6.5	8.7	5.6	5.5	5.8	5.8	5.2	6.8	6.3	6.3		8.8	8.9	9.8	9.9	7	7	7.2	7.3	6.5			
Cesium (Cs)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001				<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Chromium (Cr)	0.001	0.001	<0.001	0.002	0.002	0.001	<0.001	0.002	0.001	<0.001	0.050			<0.001	<0.001	<0.001	0.002	0.002	<0.001	<0.001	0.001	<0.001	<0.001	0.002	<0.001	<0.001	0.001	<0.001	0.002	0.002	0.003	<0.001	<0.001	<0.001	0.01	0.002	<0.001	<0.001	0.001	<0.001		0.002	0.002	<0.001	<0.001	<0.001	0.001	0.01	0.003	<0.001	<0.001	<0.001	<0.001		0.001	0.002	<0.001	<0.001	<0.001	<0.001	0.01	0.002	<0.001			0.001 [d]
Cobalt (Co)	0.003	0.0025	0.003	0.0047	0.004	0.0047	0.0049	0.0043	0.0042	0.005				0.0003	0.0007	0.0039	0.0023	0.002	0.0026	0.0035	0.0034	0.0032	0.0033	0.0023	0.0019	0.0003	0.0003	0.0013	0.0021	0.0019	0.0023	0.0025	0.0027	0.0028	0.003	0.0016	0.0018	0.0003	<0.0002	0.0003		0.0008	0.0002	0.0002	0.0003	<0.0002	<0.0002	0.0003	0.0003	<0.0002	0.0004	0.0002	0.0003		0.0008	0.0003	0.0003	0.0004	0.0002	<0.0002	0.0003	0.0003	<0.0002			
Copper (Cu)	0.029	0.027	0.034	0.049	0.047	0.059	0.052	0.047	0.047	0.058		≤ 1.0	0.60	0.002	0.001	0.003	0.001	0.002	0.002	0.005	0.009	0.005	0.004	<0.001	<0.001	<0.001	<0.001	0.002	0.001	0.001	0.002	0.002	0.002	0.002	0.003	<0.001	<0.001	<0.001	0.001	0.001		0.001	0.001	0.001	0.001	<0.001	<0.001	0.002	<0.001	<0.001	0.008	<0.001	0.002		0.001	0.001	<0.001	0.002	0.001	<0.001	<0.001	<0.001	0.003			>0.00200 – 0.00444 [c]
Iron (Fe)	0.18	0.04	0.07	0.05	0.08	0.04	0.09	0.12	0.14	0.12		≤ 0.300		0.4	0.22	0.39	0.14	0.17	0.09	0.07	0.15	0.07	0.07	0.07	0.1	0.19	0.17	0.15	0.11	0.13	0.16	0.09	0.07	0.07	0.06	0.04	0.11	0.7	0.72	0.76		0.74	0.83	0.77	0.63	0.68	0.61	0.64	0.6	0.64	1.28	0.81	0.91		0.73	0.95	0.81	0.75	0.67	0.65	0.65	0.64	0.68		0.3	0.3
Lead (Pb)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.010		0.40	0.0008	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	0.0006	<0.0005	<0.0005	0.0005		0.0006	<0.0005	0.0015	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006		<0.0005	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	0.0008	<0.0005	<0.0005			>0.00100 – 0.00813 [c]
Lithium (Li)	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02		<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
Magnesium (Mg)	18.9	19.4	19.8	21.9	21.5	25	23.7	20.6	20	20.7				10.6	11.4	15.3	18.2	19.7	22.7	22.8	23.5	20.3	19.2	18.4	20.6	14.6	12.9	15.8	19.5	19.7	22.5	18.7	19.9	19.8	20.4	19.5	23.6	2.4	2.06	1.94		2.48	2.54	2.51	3.34	2.1	2.02	2.17	2.09	1.88	2.71	2.63	2.75		3.76	3.84	4.48	4.27	2.89	2.84	3.01	3.02	2.53			
Manganese (Mn)	0.194	0.141	0.214	0.185	0.22	0.145	0.0694	0.0639	0.0715	0.0864		≤ 0.050		0.0276	0.0225	0.0146	0.0314	0.0134	0.0132	0.0132	0.0146	0.0106	0.0116	0.0398	0.102	0.0581	0.0274	0.0254	0.0546	0.02	0.0257	0.0023	0.0246	0.0433	0.0128	0.0194	0.416	0.029	0.0201	0.0261		0.0375	0.0328	0.034	0.0218	0.0172	0.0173	0.0224	0.0165	0.0175	0.0384	0.0246	0.0346		0.0441	0.0397	0.0416	0.0209	0.0184	0.0192	0.0258	0.0229	0.023			
Mercury (Hg)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.001			<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		0.001*	0.000026
Molybdenum (Mo)	0.0091	0.0091	0.0098	0.0137	0.0136	0.0162	0.0175	0.0163	0.016	0.0173				0.0004	0.0011	0.002	0.0031	0.0036	0.0053	0.007	0.0078	0.0079	0.0083	0.0046	0.0032	0.0006	0.0005	0.0013	0.0022	0.0027	0.0036	0.0041	0.0054	0.0056	0.0074	0.003	0.0031	0.0003	<0.0002	<0.0002		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002		0.073	0.073
Nickel (Ni)	0.004	0.003	0.003	0.004	0.004	0.004	0.021	0.003	0.004	0.005			1.00	<0.002	<0.002	0.078	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	0.002	<0.002	<0.002	0.002	<0.002	0.008	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002		<0.002	<0.002	<0.002	0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			>0.02684 – 0.16736 [c]
Potassium (K)	10.6	10.7	10.8	12.2	12.4	14.2	13.6	12.3	12	12				1.9	3.1	6	8.5	10.1	11.6	12.4	12.3	10.7	9.8	8.3	8.9	1.8	1.9	5	7.9	9.5	10.4	8.9	10.1	9.5	9.8	8.4	8.3	0.4	0.4	0.3		0.5	0.6	0.6	0.8	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4		0.7	0.8	1	1	0.7	0.8	0.7	0.7	0.5			
Rubidium (Rb)	0.006	0.0058	0.0059	0.0073	0.0074	0.0081	0.0084	0.0073	0.0073	0.007				0.0011	0.0015	0.0026	0.0039	0.0049	0.0052	0.0061	0.0062	0.0055	0.005	0.0044	0.0043	0.001	0.0009	0.002	0.0033	0.0039	0.0045	0.0041	0.0047	0.0043	0.0048	0.0039	0.0035	0.0014	0.001	0.0011		0.0016	0.0018	0.0016	0.002	0.0015	0.0013	0.0013	0.0012	0.0011	0.0014	0.001	0.0012		0.0015	0.0019	0.0018	0.0022	0.0016	0.0015	0.0014	0.0013	0.0011			
Selenium (Se)	0.006	0.003	<0.001	<0.001	0.003	0.001	0.005	0.002	0.004	0.006	0.010			<0.001	0.002	0.001	<0.001	0.003	0.001	0.005	0.002	0.004	0.008	<0.001	<0.001	<0.001	0.001	0.002	<0.001	0.003	0.002	0.004	0.002	0.003	0.005	0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001		<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		0.001	0.001
Silicon (Si)														2										-	1.8	3.5											2.1	2.4												2.5	2.7												2.7			
Silver (Ag)	<0.0001	0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001				<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		0.0001	0.0001
Sodium (Na)	76	76.6	81.6	88	89.4	106	98.6	88.5	84.6	84.5				16.1	23.4	53.9	65.2	73.1	89	87.8	90.5	79.5	74.4	65.6	78	12.6	16.4	48.2	62.4	70.9	80.3	63.9	72.2	71.7	76.5	66.7	71.4	0.88	0.79	0.73		1.05	0.96	1.02	1.13	0.85	0.86	0.94	0.87	0.76	0.95	0.91	1.15		2.86	3.13	4.61	3.27	2.14	2.58	2.77	2.24	1.34			
Strontium (Sr)	0.259	0.26	0.26	0.305	0.325	0.359	0.368	0.324	0.326	0.335				0.0554	0.069	0.0987	0.131	0.164	0.187	0.214	0.225	0.21	0.201	0.169	0.155	0.0677	0.0648	0.087	0.117	0.14	0.154	0.15	0.17	0.172	0.193	0.167	0.167	0.0164	0.0155	0.014		0.0175	0.0179	0.017	0.0217	0.0152	0.0147	0.016	0.0153	0.0141	0.0169	0.017	0.0163		0.0227	0.0234	0.0258	0.0261	0.0185	0.0188	0.0203	0.0195	0.017			
Sulphur (S)	20	20	23	34	29	34	28	33	29	33				<10	<10	16	24	23	29	23	23	25	24	21	25	<10	<10	15	22	21	27	20	23	25	24	-	22	<10	<10	<1		1	1	1	<1	<1	<1	<1	<1	<1	<10	<10	<1		1	2	2	1	<1	1	1	<1	<1			
Tellurium (Te)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
Thallium (Tl)	<0.0001	0.0003	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0004	0.0005	<0.0001				<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0004	0.0004	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0004	0.0001	0.0004	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		0.0008	0.0008
Thorium (Th)
Tin (Sn)	<0.0006	<0.0006	<0.0006	<0.0006	0.002	<0.0006	<0.0006	<0.0006	<0.0006	0.0011				<0.0006	<0.0006	<0.0006	<0.0006	0.0022	<0.0006	<0.0006	<0.0006	<0.0006	0.0017	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	0.0024	<0.0006	0.0021	<0.0006	<0.0006	0.0017	<0.0006	<0.0006	0.0013	<0.0006	<0.0006		<0.0006	0.0023	<0.0006	<0.0006	<0.0006	<0.0006	0.0019	0.0007	<0.0006	<0.0006	<0.0006	<0.0006		<0.0006	0.0023	<0.0006	<0.0006	<0.0006	<0.0006	0.0016	<0.0006	<0.0006			
Titanium (Ti)	<0.0009	<0.0009	0.0018	0.143	0.0018	<0.0009	<0.0009	0.001	0.0018	<0.0009				0.001	<0.0009	0.0021	<0.0009	<0.0009	0.0017	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	0.0019	<0.0009	0.0018	<0.0009	<0.0009	0.0119	<0.0009	<0.0009	<0.0009	0.0013	<0.0009	<0.0009	0.0048	0.004	0.0037		0.0032	0.004	0.004	0.0046	0.0037	0.0032	0.0029	0.0031	0.0036	0.0063	0.005	0.0058		0.0026	0.008	0.004	0.0075	0.005	0.0046	0.004	0.0046	0.0041			
Tungsten (W)	<0.0002	0.0003	<0.0002	0.0003	0.0002	0.0003	0.0004	0.0006	<0.0002	<0.0002				<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	0.0003	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.0002		<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	0.0003	0.0002	<0.0002	0.0002	<0.0002	<0.0002		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002			
Uranium (U)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	0.02			<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0002	0.0001	0.0001	0.0002	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	<0.0001	0.0002	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.015	0.033	0.015
Vanadium (V)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	<0.001				<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	0.001	<0.001		<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001			
Zinc (Zn)	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01		≤ 5.0	1.00	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			0.03
Zirconium (Zr)	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004				<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.0006	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.0006	<0.0004	0.0009	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.0005	<0.0004	<0.0004		<0.0004	<0.0004	<0.0004	<0.0004	0.0005	<0.0004	<0.0004	0.001	0.0005	0.0005	<0.0004	<0.0004		<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.0005	<0.0004			

[b] pH dependent

[c] Calculated based on hardness

[d] Guideline value applies if all chromium is assumed to be in the Cr(VI) principal surface water form (CCME 2012).

* Drinking water quality guideline (Government of Manitoba 2011).

** Protection of aquatic life guideline

	EOP										MWQSOG*		MMER	NNC-VR												NNC-GR												WR-US													WR-DS													MWQSOG**		CCME
Date Sampled	08-Sep	11-Sep	16-Sep	23-Sep	30-Sep	07-Oct	14-Oct	21-Oct	28-Oct	04-Nov	Max. Acceptable	Aesthetic	Grab Samples	05-Sep	11-Sep	16-Sep	23-Sep	30-Sep	07-Oct	14-Oct	21-Oct	28-Oct	04-Nov	13-Nov	18-Nov	05-Sep	11-Sep	16-Sep	23-Sep	30-Sep	07-Oct	14-Oct	21-Oct	28-Oct	04-Nov	13-Nov	18-Nov	05-Sep	11-Sep	16-Sep	18-Sep	23-Sep	30-Sep	07-Oct	14-Oct	21-Oct	28-Oct	04-Nov	13-Nov	18-Nov	05-Sep	11-Sep	16-Sep	18-Sep	23-Sep	30-Sep	07-Oct	14-Oct	21-Oct	28-Oct	04-Nov	13-Nov	18-Nov	Chronic	Acute	
Dissolved Metals
Aluminum (Al)	0.006	<0.002	<0.002	0.017	0.005	0.003	0.027	0.012	0.047	0.011				0.032	0.024	<0.002	0.016	<0.002	<0.002	0.014	0.007	0.009	0.009	0.003	0.009	0.02	0.006	0.007	0.013	<0.002	<0.002	0.021	0.006	0.004	0.012	0.004	0.028	0.155	0.131	0.171		0.12	0.064	0.071	0.139	0.171	0.104	0.136	0.085	0.165	0.211	0.159	0.115		0.136	0.068	0.082	0.201	0.189	0.124	0.154	0.085	0.184			
Antimony (Sb)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001				0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001			
Arsenic (As)	0.0011	0.001	0.001	0.0011	0.0014	0.0016	0.0011	0.001	0.0009	0.001				0.0014	0.0007	0.0008	0.0008	0.0008	0.0008	0.0007	0.0006	0.0006	0.0007	0.0006	<0.0005	0.0013	0.0011	0.001	0.0012	0.001	0.0009	0.0008	0.0005	0.0007	0.0006	0.0005	0.0006	0.001	0.0007	0.0007		0.0008	0.0008	0.0007	0.0007	0.0006	0.0014	0.0006	0.0006	<0.0005	0.001	0.0007	0.0007		0.0008	0.001	0.0008	0.0006	0.0007	0.0015	0.0006	0.0006	<0.0005			
Barium (Ba)	0.0175	0.0201	0.015	0.0212	0.0276	0.0227	0.021	0.0192	0.0183	0.0199				0.0177	0.0225	0.025	0.0326	0.032	0.0292	0.0289	0.0293	0.0279	0.0297	0.0231	0.0294	0.0169	0.0165	0.0232	0.0316	0.0251	0.0332	0.0201	0.0273	0.0241	0.0291	0.0222	0.031	0.0103	0.0072	0.0067		0.0092	0.0074	0.0077	0.009	0.0075	0.0054	0.0073	0.0055	0.0073	0.0116	0.0089	0.0072		0.01	0.0109	0.0101	0.0085	0.008	0.0066	0.0087	0.0065	0.0085			
Beryllium (Be)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
Bismuth (Bi)	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003				<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003		<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003		<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003			
Boron (B)	0.08	0.07	0.08	0.09	0.1	0.11	0.1	0.1	0.07	0.09				0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.02	0.03	0.03	0.05	0.05	0.04	0.05	0.05	0.04	0.05	0.03	0.04	0.03	<0.02	<0.02		0.03	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02		0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02			
Cadmium (Cd)	0.00002	<0.00001	<0.00001	0.00005	0.00002	0.00008	0.00003	<0.00001	0.00003	0.00004				0.00005	<0.00001	<0.00001	0.00003	0.00001	<0.00001	0.00002	<0.00001	0.00001	0.00003	<0.00001	0.00005	<0.00001	<0.00001	<0.00001	0.00002	<0.00001	0.00003	0.00001	<0.00001	<0.00001	0.00003	<0.00001	0.00004	0.00003	<0.00001	<0.00001		0.00003	<0.00001	0.00003	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00002	<0.00001	<0.00001		0.00003	<0.00001	0.00002	0.00003	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	>0.00008 – 0.00041 [c]	>0.00042 – 0.00504 [c]	
Cesium (Cs)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001				<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Chromium (Cr)	<0.001	0.002	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001				<0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	0.011 [e]	0.016 [e]	
Cobalt (Co)	0.0026	0.0025	0.0035	0.0041	0.0048	0.0041	0.0044	0.0039	0.004	0.0048				0.0003	0.0007	0.0022	0.002	0.0019	0.0022	0.0026	0.0027	0.0032	0.0031	0.0018	0.0018	0.0003	0.0003	0.0012	0.0018	0.0014	0.002	0.0024	0.0024	0.0025	0.0029	0.0018	0.0018	<0.0002	<0.0002	0.0002		0.0005	<0.0002	0.0002	0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	0.0005	<0.0002	0.0003		0.0005	<0.0002	0.0002	0.0002	<0.0002	0.0002	<0.0002	0.0002	<0.0002			
Copper (Cu)	0.0222	0.0215	0.0356	0.0538	0.0456	0.0428	0.0616	0.0418	0.0429	0.0638				0.0033	0.0011	0.0009	<0.0004	0.0018	0.0023	0.0049	0.0023	0.0033	0.0039	0.001	0.0006	<0.0004	0.0008	0.0012	<0.0004	0.0014	0.0014	0.0024	0.0019	0.0024	0.0032	0.0013	0.0007	<0.0004	0.0007	0.0011		<0.0004	0.0011	0.0008	0.001	0.0005	0.0012	0.0016	0.0012	0.0009	0.0056	0.0007	0.0019		<0.0004	0.0013	0.0008	0.0019	0.001	0.0011	0.001	0.0011	0.0023	>0.0018 - 0.0169 [c]	>0.00225 - 0.0270 [c]	
Iron (Fe)	0.005	0.013	<0.002	0.028	0.034	0.005	0.034	<0.002	0.052	0.054				0.407	0.162	0.389	0.168	0.065	0.043	0.09	0.029	0.057	0.02	0.05	0.067	0.192	0.121	0.072	0.088	0.052	0.03	0.083	0.024	0.044	0.025	0.03	0.078	0.688	0.475	0.498		0.616	0.435	0.394	0.49	0.558	0.436	0.525	0.389	0.519	0.849	0.489	0.507		0.653	0.452	0.436	0.561	0.553	0.424	0.542	0.375	0.579			
Lead (Pb)	0.0002	<0.0001	0.0002	0.0003	<0.0001	0.0004	0.0002	0.0001	0.0002	<0.0001				0.0008	<0.0001	0.0002	0.0005	0.0001	0.0004	0.0003	<0.0001	<0.0001	0.0008	<0.0001	0.0002	0.0001	<0.0001	0.0001	0.0003	<0.0001	0.0004	0.0002	<0.0001	<0.0001	0.0008	0.0001	<0.0001	0.0004	0.0002	0.0001		0.0008	<0.0001	0.0002	0.0003	0.0003	0.0001	0.0003	0.0003	<0.0001	0.0005	0.0001	0.0002		0.0004	<0.0001	0.0001	0.0003	0.0002	0.0001	0.0002	0.0001	0.0002	>0.00030 - 0.00559 [c]	>0.0078 - 0.1434 [c]	
Lithium (Li)	<0.005	0.006	<0.005	<0.005	<0.005	0.016	0.006	<0.005	<0.005	<0.005				<0.005	<0.005	<0.005	<0.005	<0.005	0.015	<0.005	<0.005	<0.005	<0.005	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005		<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005		<0.005	<0.005	0.013	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
Manganese (Mn)	0.006	0.0026	0.0814	0.182	0.25	0.0799	0.0752	0.0331	0.0342	0.0815				0.0307	0.0132	0.0186	0.0316	0.0087	0.0053	0.0032	0.0112	0.0108	0.0112	0.0362	0.0993	0.0647	0.0144	0.0158	0.0562	0.0157	0.0117	0.0016	0.0229	0.0242	0.0112	0.026	0.411	0.0313	0.0092	0.0178		0.0374	0.0202	0.0206	0.0201	0.0171	0.0173	0.0183	0.0143	0.0191	0.0419	0.0121	0.021		0.0437	0.0314	0.0258	0.0177	0.0171	0.021	0.0224	0.0192	0.0248			
Mercury (Hg)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005				<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005			
Molybdenum (Mo)	0.0089	0.0086	0.0091	0.0129	0.0164	0.0155	0.016	0.0164	0.0163	0.019				0.0003	0.001	0.0021	0.0027	0.0035	0.0049	0.0054	0.0064	0.0074	0.009	0.0024	0.0032	0.0006	0.0004	0.0016	0.002	0.0023	0.0034	0.0034	0.0047	0.0051	0.0076	0.0032	0.0033	0.0002	<0.0001	<0.0001		0.0001	0.0002	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001		0.0001	0.0001	0.0002	0.0001	<0.0001	0.0002	0.0002	<0.0001	<0.0001			
Nickel (Ni)	0.0019	0.0027	0.0032	0.0059	0.0047	0.004	0.0027	0.0035	0.0033	0.0057				0.0017	0.0013	0.002	0.0017	0.0017	0.0022	0.0007	0.0014	0.0008	0.0021	<0.0002	0.0003	0.002	0.0018	0.0016	0.0022	0.0018	0.0018	0.0009	0.0015	0.001	0.0019	<0.0002	0.0007	0.0011	0.001	0.0009		0.0013	0.0008	0.0013	0.0007	<0.0002	0.0007	0.0009	0.0013	0.0005	0.0023	0.0011	0.0009		0.0014	0.0034	0.0007	0.0007	0.0004	0.0009	0.0023	<0.0002	0.0006	>0.0105 - 0.0974 [c]	>0.0941 – 0.8771 [c]	
Rubidium (Rb)	0.0056	0.0055	0.0059	0.0071	0.0092	0.0076	0.0075	0.0071	0.0068	0.0077				0.0015	0.0014	0.0028	0.0039	0.0047	0.0048	0.0047	0.005	0.0051	0.0053	0.0038	0.0044	0.0013	0.001	0.0024	0.0032	0.0034	0.0041	0.0034	0.004	0.0039	0.0049	0.0035	0.0035	0.0018	0.001	0.0011		0.0015	0.0015	0.0016	0.0018	0.0013	0.0011	0.0014	0.001	0.0012	0.0002	0.0009	0.0011		0.0015	0.0017	0.0016	0.0015	0.0014	0.0011	0.0015	0.0011	0.0012			
Selenium (Se)	0.001	0.003	0.001	0.002	0.003	<0.001	<0.001	0.002	0.002	0.003				<0.001	0.001	<0.001	0.001	0.002	0.001	0.002	0.002	0.002	0.002	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.002	<0.001	0.003	0.002	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
Silicon (Si)	1	1.1	1.2	1.3	1.7	1.5	1.5	1.5	1.5	1.5				1.7	2.6	1.9	1.9	1.7	1.2	1.3	1.2	1.1	0.8	1.3	2	3.1	2.8	2.3	2.3	1.6	1.4	1.7	1.3	1	0.7	1.2	2.4	2.6	2.1	1.9		2.1	2	2.1	3.1	2.4	2.4	2.4	2.2	2.7	2.7	2.3	2		2.2	2.5	2.4	2.7	2.7	2.5	2.6	2.3	2.9			
Silver (Ag)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001				<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Strontium (Sr)	0.236	0.246	0.238	0.313	0.384	0.332	0.338	0.318	0.319	0.362				0.0678	0.067	0.0963	0.131	0.161	0.173	0.162	0.188	0.196	0.216	0.15	0.155	0.0802	0.0623	0.0931	0.115	0.125	0.148	0.116	0.159	0.157	0.2	0.151	0.162	0.0206	0.0144	0.0146		0.0172	0.0188	0.0215	0.0186	0.0131	0.0136	0.0158	0.0136	0.0151	0.0213	0.0162	0.017		0.0212	0.0299	0.027	0.0189	0.0175	0.0171	0.0211	0.0204	0.0185			
Sulphur (S)	20	<10	21	33	29	34	29	32	29	33				<10	<10	16	24	23	28	23	23	25	26	22	25	<10	<10	14	22	22	26	21	22	24	26	23	22	<10	<10	<1		1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<10	<1		1	2	1	1	<1	1	1	<1	<1			
Tellerium (Te)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			
Thallium (Tl)	0.0001	<0.0001	0.0001	0.0002	0.0002	0.0002	0.0001	0.0004	0.0002	<0.0001				<0.0001	<0.0001	0.0001	0.0002	0.0002	0.0001	<0.0001	0.0004	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0002	0.0002	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0003	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Thorium (Th)
Tin (Sn)	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0004	0.0003	<0.0003				<0.0003	<0.0003	0.0005	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0006	<0.0003	<0.0003	0.0005	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0003		<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003		<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003			
Titanium (Ti)	0.0005	<0.0005	<0.0005	0.0006	0.0008	<0.0005	0.0008	<0.0005	0.0008	0.0011				<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0011	<0.0005	0.0007	<0.0005	<0.0005	<0.0005	0.0012	<0.0005	<0.0005	0.0013	<0.0005	<0.0005	0.0014	0.0006	0.0017	0.0008	0.0015	0.002		0.0018	0.0017	0.0016	0.004	0.0033	0.0017	0.0041	0.0013	0.0047	0.005	0.0018	0.0018		0.0029	0.0018	0.0014	0.005	0.0045	0.0018	0.0028	0.0022	0.0034			
Tungsten (W)	<0.0002	<0.0002	0.0003	0.0004	<0.0002	0.0004	0.0003	0.0006	0.0004	0.0003				<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002		<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002			
Uranium (U)	<0.0001	<0.0001	0.0001	<0.0001	0.0001	0.0001	0.0002	0.0003	0.0001	0.0001				<0.0001	<0.0001	0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	<0.0001	<0.0001	0.0002	<0.0001	0.0001	0.0001	0.0002	0.0001	0.0002	0.0001	0.0002	0.0002	<0.0001	0.0002	<0.0001	<0.0001	<0.0001		<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Vanadium (V)	<0.001	<0.001	0.001	<0.001	0.001	<0.001	0.002	0.003	0.002	0.001				<0.001	<0.001	<0.001	<0.001	0.001	0.002	0.002	0.002	<0.001	0.001	0.001	0.002	<0.001	0.001	0.001	<0.001	0.001	0.002	0.002	<0.001	<0.001	0.001	<0.001	0.003	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001			
Zinc (Zn)	<0.005	0.013	<0.005	0.005	0.015	0.017	0.014	<0.005	<0.005	0.006				0.02	0.009	<0.005	0.007	0.008	0.01	0.016	<0.005	0.006	0.005	0.009	<0.005	0.016	0.006	0.017	0.012	0.013	0.011	0.007	<0.005	<0.005	<0.005	0.007	<0.005	0.02	0.009	0.017		0.009	0.009	0.011	0.011	<0.005	0.007	<0.005	0.009	0.013	<0.005	0.008	0.017		0.008	0.009	0.006	0.007	<0.005	0.008	0.005	0.005	<0.005	>0.0237 - 0.2215 [c]	>0.0235 - 0.2200 [c]	
Zirconium (Zr)	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.0005	0.0004	<0.0004	<0.0004				<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.0005	<0.0004	<0.0004		0.0004	<0.0004	<0.0004	0.0007	<0.0004	<0.0004	<0.0004	0.0006	<0.0004	0.0008	<0.0004	<0.0004		<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004			

[c] Calculated based on hardness

[e] Guideline value applies if all chromium is assumed to be in the Cr(VI) principal surface water form (Government of Manitoba 2012).

* Drinking water quality guideline (Government of Manitoba 2011).

** Protection of aquatic life guideline

2009 Water Quality Data

Date Sampled	EOP 25-Aug	EOP 01-Sep	EOP 08-Sep	EOP 15-Sep	EOP 22-Sep	EOP 29-Sep	MWQSOG* Max. Acceptable	Aesthetic	MMER Grab Samples	NNC-VR 25-Aug	NNC-VR 01-Sep	NNC-VR 08-Sep	NNC-VR 15-Sep	NNC-VR 22-Sep	NNC-VR 29-Sep	NNC-VR 06-Oct	NNC-VR 13-Oct	NNC-GR 25-Aug	NNC-GR 01-Sep	NNC-GR 08-Sep	NNC-GR 15-Sep	NNC-GR 22-Sep	NNC-GR 29-Sep	NNC-GR 06-Oct	NNC-GR 13-Oct	WR-US 25-Aug	WR-US 01-Sep	WR-US 08-Sep	WR-US 15-Sep	WR-US 22-Sep	WR-US 29-Sep	WR-US 06-Oct	WR-US 13-Oct	WR-DS 25-Aug	WR-DS 01-Sep	WR-DS 08-Sep	WR-DS 15-Sep	WR-DS 22-Sep	WR-DS 29-Sep	WR-DS 06-Oct	WR-DS 13-Oct	MWQSOG** Chronic	MWQSOG** Acute	CCME
Physiochemical																																												
pH (pH units)	8.31	8.5	8.61	8.63	8.28	7.53		> 6.5 - < 9.0		7.65	7.37	7.82	7.99	8	7.51	7.73	7.67	7.88	7.64	8.03	8.2	8.21	7.73	7.91	7.87	7.43	7.16	7.34	7.39	7.42	7.3	7.35	7.44	7.49	7.18	7.45	7.49	7.53	7.34	7.43	7.51		<6.5/ >9.0	<6.5 / >9.0
Hydroxide (OH)	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40				<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40			
Specific Conductance (µS/cm@25°C)	719	742	759	768	801	848				209	477	641	676	729	753	716	675	202	467	630	672	713	748	727	682	51.2	36.7	40.3	43.2	46	48.5	51	53.2	59.7	46	52.9	58.6	62.9	76	70.1	72.4			
Total Dissolved Solids (Calculated)	418	300	438	419	422	397		≤ 500.0		133	276	366	368	353	362	375	347	124	265	359	365	354	367	374	230	42.8	48.8	47.5	34.7	40.2	40	39.8	33.1	50	54	54.3	42.6	48.5	51.1	47.7	38.8			
Hardness, total	187	177	179	173	178	184				98.4	135	164	156	166	167	146	174	101	138	167	161	204	170	157	19.9	29.9	20.3	21.7	21.9	22.3	24	22.6	2.78	35.1	25.3	27.1	28.2	29.7	33.2	29.5	3.59			
Alkalinity (Total as $CaCO_3$)	147	152	155	156	174	205				102	109	140	146	162	168	161	156	102	113	142	150	203	171	173	172	23.8	16.1	18.4	19.3	20.5	21.6	22.8	24.6	28.5	20.6	24	25.4	27.8	30.7	31.4	33.1			
Bicarbonate (HCO_3)	177	179	179	176	213	250				124	132	170	178	197	205	196	190	124	137	173	183	247	208	211	209	29	19.7	22.5	23.6	25	26.4	27.8	30	34.7	25.1	29.2	30.9	34	37.5	38.3	40.4			
Carbonate (CO_3)	1.24	3.04	5.01	7.39	<0.60	<0.60				<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60			
Total Suspended Solids	<5.0	7	<5.0	<5.0	10	15				<5.0	<5.0	<5.0	<5.0	10	<5.0	<5.0	<5.0	11	32	19	<5.0	<5.0	<5.0	18	<5.0	16	<5.0	<5.0	<5.0	<5.0	9	<5.0	<5.0	64	13	10	11	7	14	<5.0	<5.0			
Turbidity (NTU)	***4.7***	***3.5***	***4.4***	***4.2***	***9.8***	***6.9***	0.1			3.1	1.1	1.2	1.1	0.9	1.5	0.95	1.5	4	5.7	10	1.3	1.7	1.2	10	2.9	8	2.9	4	3.6	3.3	3.2	4	4.3	25	8.1	11	8.7	7.6	9.1	6.2	5.3			
Major Ions																																												
Potassium, dissolved (K^+)	11	10.3	10.9	10.5	10.5	10.5				2.41	4.42	7.34	7.96	8.38	8.65	7.09	7.94	1.62	4.02	6.64	7.58	6.17	8.08	6.51	6.47	0.535	0.324	0.404	0.438	0.408	0.477	0.426	0.059	0.558	0.36	0.436	0.513	0.534	0.673	0.475	0.695			
Sodium, dissolved (Na^+)	80.4	79.4	86.5	76	84	82.9		≤ 200.0		10.5	44.8	67.3	70.3	73.4	75.7	73.6	66.9	7.34	41.2	65.3	67.3	60.3	74.2	69.6	63	0.764	0.69	0.74	0.83	0.745	0.811	0.829	0.095	1.01	0.914	1	1.5	1.68	2.5	1.31	1.46			
Calcium, dissolved (Ca^{2+})	43	39.2	42	42.6	40.7	42.6				22.1	30.7	38.2	38.4	37.6	37.8	33	38.4	22.6	31.3	38.8	39.5	44.2	38.1	35.4	43.2	7.53	5.21	5.67	5.7	5.72	6.2	5.68	0.727	8.44	6.27	6.81	7.03	7.33	8.17	7.17	9.46			
Magnesium, dissolved (Mg^{2+})	19.4	19.2	18	16.1	18.5	18.8				10.5	14.1	16.6	14.6	17.6	17.6	15.5	18.9	11	14.5	17	15.2	22.8	18.1	16.7	21.3	2.69	1.77	1.83	1.85	1.95	2.07	2.04	0.235	3.4	2.34	2.44	2.59	2.77	3.11	2.81	3.6			
Chloride, dissolved (Cl^-)	80.8	94.1	90.3	86	85.9	96		≤ 250.0		10.2	52.3	76.4	76.6	84.3	87.8	83	70	<9.0	48.3	72.7	75.5	69.5	88.3	80.5	66.2	<9.0	<9.0	<9.0	<9.0	<9.0	<9.0	<9.0	<9.0	<9.0	<9.0	<9.0	<9.0	<9.0	<9.0	<9.0	<9.0			
Cyanide (CN^-), Weak Acid Diss	0.002	<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	<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	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020			
Cyanide (CN^-), Free	<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	<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	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0052	0.022	0.005
Cyanide (CN^-), Total	0.004	<0.0020	0.0084	0.0055	0.0123	0.0256	0.200		2.00	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0041	0.0036	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0032	<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	<0.0020			
Fluoride, dissolved (F^-)	0.21	0.3	0.24	0.15	0.22	0.31	1.5			0.27	0.44	0.26	0.25	0.21	0.3	0.5	0.4	0.19	0.32	0.27	0.34	0.25	0.32	0.57	0.34	0.26	0.29	0.22	<0.10	0.17	0.21	0.39	0.27	0.16	<0.10	0.27	0.15	0.19	0.25	0.45	0.28			0.12
Sulphate, dissolved (SO_4^-)	89.8	90.2	89	85.2	74.2	22.5		≤ 500.0		15.8	58.2	76.4	72.8	35.2	34.3	66.6	51.3	17.8	51.3	73.8	70.3	29	38.2	61.7	47.3	16.8	30.4	27.7	13.9	18.9	17.3	17.1	17	18	30.6	29.4	15.7	19.3	18.1	17	17.4			
Nutrients																																												
Nitrate-N	1.04	1.86	1.7	1.86	0.761	0.19	10.00			<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.012	<0.010	<0.010	<0.010	<0.010	0.016	<0.010	<0.010	0.017	<0.010	0.01	0.018	0.087	0.037	0.039	0.029	0.037	<0.010	<0.010	0.017	0.019	0.038	0.036	0.027	0.037		10*	2.935
Nitrite-N	0.03	0.024	0.032	0.018	0.019	0.029	3.20			<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	<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		0.06	0.06
Nitrate_Nitrite-N	1.07	1.89	1.73	1.88	0.78	0.219	10			<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.012	<0.0050	0.007	<0.0050	<0.0050	0.016	<0.0050	0.007	0.017	<0.0050	0.01	0.018	0.0866	0.037	0.039	0.029	0.037	<0.0050	0.009	0.017	0.0186	0.038	0.036	0.027	0.037			
Ammonia, total-N	0.0894	0.029	0.103	0.022	0.69	1.71				0.0104	0.011	0.036	<0.0030	<0.0030	0.022	0.0109	0.054	0.0214	0.035	0.048	<0.0030	0.0069	0.01	0.0059	0.028	0.0204	0.018	0.047	0.025	0.028	0.021	0.0329	0.037	0.0334	0.018	0.054	0.01	0.021	0.024	0.0129	0.032	>0.78 – 5.67 [a]	>1.94 - 14.17 [a]	>0.103 – 6.020 [a]
Phosphorus, total	0.0265	0.038	0.0354	0.0296	0.0706	0.203				0.0295	0.0121	0.0156	0.011	0.0139	0.0133	0.021	0.0141	0.141	0.0622	0.0376	0.0222	0.0301	0.0193	0.0315	0.0241	0.0491	0.0269	0.03	0.0272	0.0295	0.0288	0.0282	0.0264	0.0803	0.0332	0.0375	0.0359	0.0348	0.0342	0.0316	0.0294	0.5		
Radiochemical																																												
Radium - 226 (Bq/L)	<0.005	0.005	0.01	<0.005	<0.005	<0.005	0.5		1.11	-	-	-			-	-		-	-	-				-		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.5*		

[a] pH and temperature dependent
* Drinking water quality guideline (Government of Manitoba 2011).
** Protection of aquatic life guideline

Date Sampled	EOP 25-Aug	EOP 01-Sep	EOP 08-Sep	EOP 15-Sep	EOP 22-Sep	EOP 29-Sep	MWQSOG* Max. Acceptable	Aesthetic	MMER Grab Samples	NNC-VR 25-Aug	NNC-VR 01-Sep	NNC-VR 08-Sep	NNC-VR 15-Sep	NNC-VR 22-Sep	NNC-VR 29-Sep	NNC-VR 06-Oct	NNC-VR 13-Oct	NNC-GR 25-Aug	NNC-GR 01-Sep	NNC-GR 08-Sep	NNC-GR 15-Sep	NNC-GR 22-Sep	NNC-GR 29-Sep	NNC-GR 06-Oct	NNC-GR 13-Oct	WR-US 25-Aug	WR-US 01-Sep	WR-US 08-Sep	WR-US 15-Sep	WR-US 22-Sep	WR-US 29-Sep	WR-US 06-Oct	WR-US 13-Oct	WR-DS 25-Aug	WR-DS 01-Sep	WR-DS 08-Sep	WR-DS 15-Sep	WR-DS 22-Sep	WR-DS 29-Sep	WR-DS 06-Oct	WR-DS 13-Oct	MWQSOG** Chronic	MWQSOG** Acute	CCME
Total Metals																																												
Aluminum (Al)	0.0388	0.0227	0.0364	0.0284	0.0224	0.0204				***0.12***	0.0582	0.0386	0.0584	0.0288	0.0499	***0.124***	0.045	***0.22***	***0.145***	***0.297***	0.0472	0.0137	0.0386	***0.321***	0.0612	***0.333***	***0.223***	***0.379***	***0.186***	***0.118***	***0.148***	***0.162***	***0.113***	***1.04***	***0.364***	***0.224***	***0.376***	***0.207***	***0.293***	***0.216***	***0.185***		0.100 [b]	0.100 [b]
Antimony (Sb)	<0.00050	0.00067	0.00071	0.00093	<0.00050	0.00067	0.006			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00054	<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	0.00057	<0.00050	<0.00050	<0.00050	0.00052	<0.00050	<0.00050	<0.00050	<0.00050	0.00052	<0.00050		0.006*	
Arsenic (As)	0.001	0.0011	0.00104	0.00128	0.0009	0.00145	0.01		1.00	0.00085	0.00076	0.0009	0.00105	0.0007	0.00103	0.00065	0.00061	0.00101	0.00095	0.0012	0.00129	0.00087	0.00111	0.00087	0.00079	0.00107	0.00093	0.00116	0.00104	0.0008	0.00083	0.00068	0.00053	0.00132	0.00115	0.00091	0.00099	0.0009	0.00096	0.00068	0.00058		0.010*	0.005
Barium (Ba)	0.0208	0.0192	0.019	0.0197	0.0139	0.0374	1.0			0.0207	0.0311	0.0338	0.0366	0.033	0.0343	0.0346	0.0291	0.0202	0.0308	0.033	0.0346	0.0408	0.0311	0.0424	0.0303	0.0123	0.00977	0.0116	0.0104	0.00907	0.00945	0.00982	0.00773	0.0194	0.0117	0.00987	0.013	0.0115	0.0124	0.0114	0.00957		1.000*	
Beryllium (Be)	<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	<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	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010			
Bismuth (Bi)	<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	<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	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Boron (B)	0.061	0.066	0.074	0.079	0.077	0.076	5.0			<0.030	0.031	0.048	0.041	0.042	0.039	0.037	<0.030	<0.030	0.031	0.04	0.039	<0.030	0.037	0.042	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	1.5	29	1.5
Cadmium (Cd)	0.00002	0.000038	0.00003	<0.000010	0.000012	<0.000010	0.005			<0.000010	<0.000010	0.000021	0.000162	<0.000010	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.00003	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000017	<0.000010	0.00007	0.000021	<0.000010	<0.000010	<0.000010	<0.000010			>0.000002 – 0.000061 [c]
Calcium (Ca)	42.9	46.2	40.9	44.9	44.5	48.6				21.8	33.8	36.5	41.4	40.9	42.5	41.8	35.2	23.3	34.7	38.2	42.6	48.4	43	51	41	7.38	5.61	7.07	6.38	6.55	6.49	7.86	6.14	8.9	6.82	5.76	8.17	8.71	8.79	9.59	8.13			
Cesium (Cs)	<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	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.050			<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	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0021	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010			0.001 [d]
Cobalt (Co)	0.00391	0.00411	0.00413	0.0039	0.00362	0.00341				0.00028	0.00149	0.00191	0.00159	0.00133	0.00137	0.00097	0.00046	0.00031	0.00147	0.00177	0.0015	0.0011	0.00123	0.00114	0.00048	0.00037	0.00029	0.00076	0.00027	0.00024	0.00026	0.00036	<0.00020	0.00075	0.00042	0.00064	0.0004	0.00036	0.00037	0.00038	0.00023			
Copper (Cu)	0.0505	0.0473	0.0621	0.0581	0.0419	0.0297		≤ 1.0	0.60	0.0012	0.0011	<0.0010	0.002	<0.0010	0.0013	0.001	<0.0010	0.0033	0.0015	0.0013	0.0011	0.001	0.0011	0.0011	<0.0010	0.0012	0.0012	0.0013	0.001	<0.0010	0.0037	0.0011	0.001	0.0024	0.0015	0.0024	0.0013	0.0017	0.0012	0.0011	<0.0010			>0.00200 – 0.00435 [c]
Iron (Fe)	0.05	0.045	0.075	0.038	0.119	0.17		≤ 0.300		***0.344***	0.151	0.131	0.084	0.11	0.095	0.182	0.096	***0.418***	***0.307***	***0.402***	0.095	0.075	0.054	***0.411***	0.129	***0.858***	***0.741***	***1.01***	***0.845***	***0.776***	***0.795***	***0.871***	***0.584***	***1.58***	***0.959***	***0.839***	***1.15***	***0.969***	***1.07***	***0.961***	***0.768***	0.3		0.3
Lead (Pb)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.010		0.40	<0.00050	<0.00050	<0.00050	0.00066	<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	0.00082	<0.00050	<0.00050	0.00063	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050			>0.00100 – 0.00789 [c]
Lithium (Li)	<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	<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	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010			
Magnesium (Mg)	19.7	22.1	19.2	21.2	18.3	20.7				10.5	15.2	17.2	19.1	17.2	19.3	20.1	15.5	11.5	15.8	19	20.5	22.6	19.7	24.4	22.5	2.81	1.96	3.06	2.17	2.19	2.24	2.76	2.12	3.84	2.69	2.1	3.18	3.28	3.5	3.76	3.15			
Manganese (Mn)	***0.0966***	***0.0796***	***0.0912***	***0.0983***	***0.844***	***1.19***		≤ 0.050		0.0414	0.018	0.0236	0.0139	0.0235	0.0162	0.051	0.0383	0.0445	0.0748	0.048	0.03	0.0772	0.0118	0.241	0.186	0.0368	0.0282	0.0535	0.0408	0.0417	0.0405	0.0467	0.0338	0.0652	0.0412	0.0463	0.0549	0.0587	0.06	0.0627	0.0476			
Mercury (Hg)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.001			<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	<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		0.001*	0.000026
Molybdenum (Mo)	0.0123	0.013	0.0138	0.0136	0.00968	0.00816				0.00101	0.00234	0.00315	0.0034	0.00337	0.00328	0.00217	0.00171	0.00078	0.0022	0.00282	0.00303	0.00184	0.00267	0.00206	0.00135	<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	<0.00020	<0.00020	<0.00020		0.073	0.073
Nickel (Ni)	0.0029	0.0032	0.0028	0.0036	0.003	0.0032			1.00	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.002	<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	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020			>0.02500 – 0.16431 [c]
Potassium (K)	10.9	11.9	10.8	11.7	11.4	11.6				2.31	5.03	6.98	9.26	9.12	9.35	8.61	6.71	1.65	4.6	6.5	8.72	6.9	8.7	8.82	5.54	0.53	0.38	0.48	0.45	0.49	0.5	0.56	0.42	0.73	0.47	0.41	0.63	0.66	0.72	0.64	0.51			
Rubidium (Rb)	0.0068	0.00687	0.00668	0.00704	0.00671	0.00762				0.00144	0.00268	0.00364	0.00455	0.00428	0.00459	0.00425	0.00312	0.00165	0.00254	0.00362	0.00378	0.00295	0.00344	0.00394	0.00194	0.00215	0.00149	0.00201	0.00169	0.00167	0.00175	0.00174	0.00125	0.00365	0.00186	0.00169	0.00222	0.00197	0.00219	0.0018	0.00149			
Selenium (Se)	0.0027	0.0017	0.0014	0.0021	0.001	0.0011	0.010			<0.0010	<0.0010	0.0011	0.0018	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.001	0.0017	<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	<0.0010	<0.0010	<0.0010	<0.0010		0.001	0.001
Silicon (Si)	0.63	0.31	0.47	0.58	1.15	2.36				2.83	2.27	1.82	1.77	1.91	1.65	2.04	1.68	3.39	2.75	2.27	1.94	0.43	0.51	2.47	3.03	2.5	2.27	2.31	2.15	2.27	2.13	2.56	2	3.81	2.75	2.21	2.48	2.47	2.59	2.74	2.44			
Silver (Ag)	<0.00010	<0.00010	0.00021	<0.00010	0.00011	<0.00010				<0.00010	<0.00010	0.00411	<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	<0.00010	<0.00010	0.00016	<0.00010	<0.00010	0.00025	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		0.0001	0.0001
Sodium (Na)	81.2	82.7	87.1	77.7	84.2	83.7				10.9	46.5	69.5	65.8	74.4	72.8	77.5	67.3	8.01	42.2	66.6	71.4	64.5	75.2	71.4	57.3	1.06	0.778	1.7	0.906	0.847	0.814	1.01	0.768	1.43	1.06	0.818	1.81	2.01	2.78	1.72	1.46			
Strontium (Sr)	0.311	0.307	0.315	0.318	0.3	0.334				0.0767	0.131	0.159	0.164	0.175	0.199	0.187	0.141	0.068	0.126	0.144	0.161	0.136	0.18	0.198	0.131	0.0205	0.0165	0.0192	0.0174	0.0173	0.0189	0.0209	0.015	0.0236	0.0191	0.017	0.0215	0.0223	0.0258	0.0252	0.0221			
Sulphur (S)	29.7	32.5	37.4	33.2	29.9	26.7				<1.0	17.5	28.7	26.8	23.6	23.6	22.8	22	<1.0	16.6	28.2	24.6	17.8	22.1	22.3	22	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.1			
Tellurium (Te)	<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	<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	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010			
Thallium (Tl)	0.00027	0.00013	<0.00010	<0.00010	<0.00010	<0.00010				<0.00010	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	0.00024	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00016	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00044	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		0.0008	0.0008
Thorium (Th)																																												
Tin (Sn)	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060				<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060			
Titanium (Ti)	<0.00090	<0.00090	0.00102	<0.00090	<0.00090	0.00137				0.00369	0.00211	0.00126	0.0317	<0.00090	0.00189	0.00487	0.00151	0.00668	0.00529	0.0129	0.00277	<0.00090	0.00198	0.0124	0.00253	0.01	0.00468	0.0131	0.00466	0.00251	0.00359	0.00446	0.00304	0.038	0.0111	0.00617	0.0119	0.00738	0.011	0.0071	0.00582			
Tungsten (W)	<0.00020	0.00047	0.00079	0.00079	0.00063	0.00062				<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	<0.00020	<0.00020	0.00032	<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	<0.00020	<0.00020	<0.00020			
Uranium (U)	<0.00010	0.0001	0.0001	<0.00010	<0.00010	<0.00010	0.02			<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	<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	0.00011	<0.00010	0.00011	0.0001	0.00011	0.00013	0.00015	0.00016	0.015	0.033	0.015
Vanadium (V)	<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	0.0011	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	0.0015	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0027	0.0012	<0.0010	<0.0010	0.0013	0.001	0.0012	<0.0010			
Zinc (Zn)	0.029	<0.010	<0.010	<0.010	<0.010	<0.010		≤ 5.0	1.00	<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	0.014	<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			0.03
Zirconium (Zr)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040				<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00064	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.0004	0.00052	0.00055	<0.00040	<0.00040	<0.00040	<0.00040	0.0009	0.0006	<0.00040	0.00053	0.00049	0.00047	0.00043	<0.00040			

[b] pH dependent
[c] Calculated based on hardness
[d] Guideline value applies if all chromium is assumed to be in the Cr(VI) principal surface water form (CCME 2012).
* Drinking water quality guideline (Government of Manitoba 2011).
** Protection of aquatic life guideline

Date Sampled	EOP 25-Aug	EOP 01-Sep	EOP 08-Sep	EOP 15-Sep	EOP 22-Sep	EOP 29-Sep	MWQSOG* Max. Acceptable	Aesthetic	MMER Grab Samples	NNC-VR 25-Aug	NNC-VR 01-Sep	NNC-VR 08-Sep	NNC-VR 15-Sep	NNC-VR 22-Sep	NNC-VR 29-Sep	NNC-VR 06-Oct	NNC-VR 13-Oct	NNC-GR 25-Aug	NNC-GR 01-Sep	NNC-GR 08-Sep	NNC-GR 15-Sep	NNC-GR 22-Sep	NNC-GR 29-Sep	NNC-GR 06-Oct	NNC-GR 13-Oct	WR-US 25-Aug	WR-US 01-Sep	WR-US 08-Sep	WR-US 15-Sep	WR-US 22-Sep	WR-US 29-Sep	WR-US 06-Oct	WR-US 13-Oct	WR-DS 25-Aug	WR-DS 01-Sep	WR-DS 08-Sep	WR-DS 15-Sep	WR-DS 22-Sep	WR-DS 29-Sep	WR-DS 06-Oct	WR-DS 13-Oct	MWQSOG** Chronic	MWQSOG** Acute	CCME
Dissolved Metals																																												
Aluminum (Al)	0.0079	0.0034	0.0083	0.0056	0.0046	0.0024				0.0224	0.0084	0.0046	0.0043	0.0049	0.0023	0.003	0.0062	0.0519	0.0085	0.0053	0.0044	0.0026	0.0024	0.0028	0.0022	0.107	0.109	0.0875	0.0826	0.0716	0.0667	0.0607	0.0589	0.0947	0.104	0.0844	0.0899	0.0689	0.0616	0.055	0.0579			
Antimony (Sb)	<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	<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	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010			
Arsenic (As)	0.00111	0.00116	0.00104	0.00113	0.00126	0.0013				0.00112	0.00082	0.00093	0.00095	0.00097	0.00083	0.00077	0.00072	0.00084	0.00096	0.0011	0.00113	0.00107	0.00115	0.00095	0.0009	0.0012	0.00084	0.00092	0.00107	0.00082	0.00083	0.00082	<0.00050	0.00161	0.00088	0.00094	0.00095	0.00089	0.00086	0.00077	0.00074			
Barium (Ba)	0.02	0.0179	0.017	0.0155	0.0123	0.0238				0.0198	0.0265	0.0328	0.0317	0.0345	0.0301	0.0278	0.03	0.0217	0.0247	0.0292	0.03	0.0392	0.0272	0.0286	0.0291	0.00908	0.00942	0.00812	0.0067	0.00798	0.00698	0.00644	0.00064	0.00924	0.0122	0.00906	0.00842	0.00843	0.00816	0.00706	0.00828			
Beryllium (Be)	<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	<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	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010			
Bismuth (Bi)	<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	<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	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030			
Boron (B)	0.064	0.069	0.071	0.072	0.071	0.072				0.03	0.03	0.037	0.035	0.038	0.037	0.026	0.036	0.025	0.028	0.034	0.034	0.025	0.034	0.026	0.041	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.033	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020			
Cadmium (Cd)	0.000034	0.000044	0.000032	0.000036	0.000028	0.000025				0.000011	0.000013	<0.000010	0.000018	0.000014	0.000014	<0.000010	<0.000010	0.000019	0.00001	0.000012	0.00005	0.000025	0.00003	0.00002	<0.000010	<0.000010	<0.000010	0.000042	***0.000093***	0.000013	0.000012	0.00002	<0.000010	0.000023	<0.000010	0.00001	0.0001	0.00001	0.000022	0.000021	<0.000010	>0.00003 – 0.00040 [c]	>0.00021 – 0.00395 [c]	
Cesium (Cs)	<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	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00016	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Chromium (Cr)	<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	<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	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	0.011 [e]	0.016 [e]	
Cobalt (Co)	0.00384	0.00351	0.00345	0.00357	0.00333	0.00272				<0.00020	0.00116	0.00134	0.0014	0.00126	0.00113	0.00073	0.00041	<0.00020	0.00106	0.00122	0.0013	0.00099	0.00099	0.00065	0.00035	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00023	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Copper (Cu)	***0.043***	***0.0375***	***0.045***	***0.0396***	***0.0255***	0.0131				0.00092	0.0008	0.00124	0.00079	0.00065	0.00084	0.00084	0.00061	0.00191	0.00103	0.00142	0.00093	0.00073	0.00096	0.00129	0.00059	0.00178	0.00081	0.00182	0.00118	0.0008	0.00059	0.00081	<0.00040	0.00211	0.00266	0.00105	0.00146	0.00103	0.00067	0.00051	***0.00075***	>0.00069 - 0.01650 [c]	>0.00080 - 0.02643 [c]	
Iron (Fe)	0.0323	0.0092	0.0176	0.0065	0.0293	0.067				0.185	0.0761	0.0494	0.035	0.0467	0.0337	0.0483	0.052	0.197	0.0725	0.0542	0.0413	0.0053	0.0192	0.038	0.0404	0.416	0.384	0.406	0.422	0.453	0.459	0.399	0.4	0.338	0.339	0.437	0.447	0.444	0.442	0.403	0.414			
Lead (Pb)	<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	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00013	0.00018	<0.00010	<0.00010	0.00011	0.0001	<0.00010	0.00024	<0.00010	0.0001	<0.00010	0.0001	<0.00010	0.00011	<0.00010	>0.00009 - 0.00545 [c]	>0.00221 - 0.1398 [c]	
Lithium (Li)	<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	0.0068	<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	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050			
Manganese (Mn)	0.00257	0.00253	0.0227	0.00353	0.615	0.95				0.0049	0.00881	0.00747	0.00582	0.0187	0.0121	0.0294	0.00054	0.00708	0.00361	0.00978	0.013	0.0128	0.00601	0.0985	0.0102	0.00577	0.00906	0.0107	0.0112	0.0228	0.0236	0.0252	0.00319	0.00411	0.0151	0.0204	0.0166	0.0278	0.0313	0.0379	0.00236			
Mercury (Hg)	<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	<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	<0.000050	<0.000050			
Molybdenum (Mo)	0.0124	0.0121	0.0128	0.0125	0.00989	0.00705				0.0011	0.0019	0.00292	0.00291	0.00326	0.00295	0.00181	0.00206	0.0008	0.00181	0.00265	0.00261	0.00171	0.00237	0.00165	0.00135	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00074	<0.00010	0.0001	<0.00010	<0.00010	0.00012	<0.00010	0.00019			
Nickel (Ni)	0.00276	0.00255	0.00232	0.00294	0.00262	0.00209				0.00127	0.00053	0.00049	0.0011	0.0005	<0.00020	0.00076	0.0015	0.0019	0.00073	0.00069	0.0013	0.00085	0.00026	0.00105	0.00133	0.00104	0.00065	0.00061	0.00075	0.00054	0.0004	0.00046	<0.00020	0.00122	0.00087	0.00061	0.00087	0.00065	0.00048	0.00076	***0.00517***	>0.0041 - 0.0955 [c]	>0.0371 – 0.8594 [c]	
Rubidium (Rb)	0.00674	0.00666	0.00627	0.00601	0.00669	0.00674				0.00123	0.00229	0.00349	0.00374	0.00422	0.004	0.00344	0.00363	0.00121	0.00195	0.00288	0.00322	0.00283	0.003	0.00253	0.00207	0.00159	0.00109	0.00134	0.00135	0.00145	0.00145	0.00121	<0.00020	0.0016	0.00111	0.00131	0.00133	0.00145	0.00146	0.00115	0.0014			
Selenium (Se)	<0.0010	<0.0010	<0.0010	0.002	<0.0010	<0.0010				<0.0010	<0.0010	<0.0010	0.0015	<0.0010	<0.0010	<0.0010	0.0012	<0.0010	<0.0010	<0.0010	0.0015	<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	<0.0010	<0.0010	<0.0010	<0.0010			
Silicon (Si)	0.57	<0.20	0.36	0.6	1	2.57				2.65	1.92	1.63	1.57	1.68	1.82	1.52	2.26	2.98	2.24	1.87	1.8	0.37	0.82	1.74	2.9	2.1	1.91	1.93	1.91	1.86	1.88	1.89	0.24	2.14	2.1	2.04	2.11	2.03	2.06	2.03	2.68			
Silver (Ag)	<0.00010	<0.00010	0.00012	<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	<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			
Strontium (Sr)	0.309	0.305	0.332	0.322	0.309	0.289				0.0784	0.124	0.169	0.171	0.182	0.175	0.147	0.168	0.067	0.119	0.16	0.163	0.136	0.157	0.143	0.154	0.0196	0.0153	0.0186	0.0159	0.0173	0.0176	0.0154	0.00176 *	0.0218	0.0167	0.0184	0.0203	0.021	0.0233	0.0201	0.0233			
Sulphur (S)	29.9	31.6	35.5	33.6	28.6	26.6				<1.0	18	28.1	26.6	23.6	24	22.6	20.9	<1.0	16.8	25	24.6	17.9	22.9	21.8	20.1	<1.0	<1.0	<1.0	1	<1.0	<1.0	<1.0	1.8	<1.0	<1.0	<1.0	1.1	<1.0	<1.0	1.2	1.2			
Tellerium (Te)	<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	<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	<0.00050	<0.00050			
Thallium (Tl)	0.00021	<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	<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	0.0002			
Thorium (Th)																																												
Tin (Sn)	<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	<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	0.00035	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030			
Titanium (Ti)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00079				0.00074	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00262	0.00053	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00123	0.00122	0.001	0.00105	0.00093	0.00125	0.00096	<0.00050	0.00124	0.00109	0.00145	0.00139	0.00116	0.00137	0.00094	0.00112			
Tungsten (W)	<0.00020	0.00038	0.00066	0.00075	0.0007	0.00055				<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	<0.00020	<0.00020	<0.00020	<0.00020 *	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00045 *	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00031			
Uranium (U)	<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	0.0001	<0.00010	<0.00010	0.00011	0.00021	0.00012	0.00019	0.00018	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00023	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	0.00012			
Vanadium (V)	<0.0010	<0.0010	<0.0010	0.0014	<0.0010	0.0029				<0.0010	<0.0010	<0.0010	0.001	<0.0010	0.0023	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0013	<0.0010	0.0023	<0.0010	0.0014	<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			
Zinc (Zn)	0.0125	0.0058	0.0194	<0.0050	<0.0050	<0.0050				<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0196	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0066	<0.0050	<0.0050	<0.0050	<0.0050	0.0053	0.0055	<0.0050	0.0077	0.0061	<0.0050	<0.0050	***0.0207***	>0.0093 - 0.2170 [c]	>0.0093 - 0.2153 [c]	
Zirconium (Zr)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040				<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00049	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00043	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00072	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040			

[c] Calculated based on hardness
[e] Guideline value applies if all chromium is assumed to be in the Cr(VI) principal surface water form (Government of Manitoba 2012).
* Drinking water quality guideline (Government of Manitoba 2011).
** Protection of aquatic life guideline

2010 Water Quality Data

Date Sampled	EOP 08-Aug	EOP 09-Sep	EOP 16-Sep	EOP 23-Sep	EOP 30-Sep	EOP 07-Oct	EOP 14-Oct	EOP 04-Nov	MWQSOG* Max. Acceptable	Aesthetic	MMER Grab Samples
Total Metals											
Aluminum (Al)	0.0158	0.111	0.297	0.121	0.126	0.125	0.153	0.356			
Antimony (Sb)	0.00093	0.00116	0.00059	0.00123	0.00136	0.00065	0.00076	0.00084	0.006		
Arsenic (As)	0.00128	0.00128	0.00134	0.0012	0.00126	0.00139	0.00153	0.00126	0.01		1.00
Barium (Ba)	0.0208	0.0194	0.0177	0.0182	0.0189	0.0188	0.0183	0.0198	1.0		
Beryllium (Be)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Bismuth (Bi)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Boron (B)	0.103	0.122	0.135	0.128	0.123	0.123	0.16	0.167	5.0		
Cadmium (Cd)	0.00005	0.00005	0.000058	0.000048	0.000066	0.000059	0.000061	0.000088	0.005		
Calcium (Ca)	42	48.5	46.4	53.9	46.9	46.7	46.8	51.1			
Cesium (Cs)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.050		
Cobalt (Co)	0.00327	0.0035	0.00395	0.00359	0.00361	0.00368	0.00452	0.00504			
Copper (Cu)	0.0644	0.0992	0.161	0.123	0.136	0.174	0.351	0.373		≤ 1.0	0.60
Iron (Fe)	<0.020	0.094	0.112	0.067	0.099	0.281	0.155	0.23		≤ 0.300	
Lead (Pb)	0.000173	0.000161	0.000312	0.00018	0.000172	0.000197	0.000407	0.000562	0.010		0.40
Lithium (Li)	<0.0020	0.0032	<0.0020	0.0033	0.0032	0.0021	0.0038	0.002			
Magnesium (Mg)	19.9	20.4	21	23.5	22.4	21.2	22.3	22.8			
Manganese (Mn)	0.0473	0.22	0.218	0.162	0.131	0.153	0.242	0.223		≤ 0.050	
Mercury (Hg)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.001		
Molybdenum (Mo)	0.0233	0.0247	0.0269	0.027	0.0279	0.0316	0.0364	0.0394			
Nickel (Ni)	0.0033	0.0054	0.0077	0.0064	0.0069	0.008	0.011	0.0136			1.00
Potassium (K)	15.8	16.2	16.9	17.2	18.1	18.2	19.5	20.1			
Rubidium (Rb)	0.00765	0.00833	0.0085	0.00838	0.00858	0.00837	0.00918	0.00884			
Selenium (Se)	0.0027	<0.0010	0.002	0.0017	0.0014	0.001	<0.0010	0.0025	0.010		
Silicon (Si)	1.62	1.11	1.65	1.2	0.698	0.468	0.835	1.39			
Silver (Ag)	0.00039	0.00041	0.00065	0.00044	0.00062	0.00076	0.00139	0.00158			
Sodium (Na)	105	107	112	115	113	123	130	128			
Strontium (Sr)	0.337	0.397	0.403	0.429	0.432	0.464	0.496	0.498			
Sulphur (S)	42.4	39.5	46.3	41.2	45.6	258	45.4	53			
Tellurium (Te)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Thallium (Tl)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Thorium (Th)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Tin (Sn)	<0.00020	<0.00020	<0.00020	0.00101	<0.00020	<0.00020	<0.00020	<0.00020			
Titanium (Ti)	0.00087	0.00152	0.00195	0.00159	0.00221	0.00202	0.00283	0.00411			
Tungsten (W)	0.0012	0.0014	0.0017	0.0013	0.0013	0.0015	0.0019	0.0019			
Uranium (U)	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	0.0001	0.0001	0.02		
Vanadium (V)	0.0006	0.0004	0.0009	0.0006	0.00042	0.00027	0.00043	0.0005			
Zinc (Zn)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050		≤ 5.0	1.00
Zirconium (Zr)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040			

Date Sampled	NNC-VR 08-Aug	09-Sep	16-Sep	23-Sep	30-Sep	07-Oct	14-Oct	21-Oct	28-Oct	04-Nov	10-Nov
Total Metals											
Aluminum (Al)	0.0733	0.0616	0.0246	0.216	1.6	0.0651	0.0679	0.683	0.0901	0.0921	0.0547
Antimony (Sb)	0.00072	0.00064	<0.00020	0.00022	0.00182	0.00029	0.00034	0.00027	0.00028	0.00032	0.00033
Arsenic (As)	0.00141	0.00125	0.00092	0.00084	0.00121	0.00089	0.00104	0.00082	0.00066	0.00069	0.00074
Barium (Ba)	0.031	0.0242	0.0276	0.0306	0.0464	0.0331	0.0345	0.0421	0.0282	0.0308	0.0282
Beryllium (Be)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Bismuth (Bi)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron (B)	0.033	0.032	0.047	0.065	0.074	0.07	0.098	0.078	0.079	0.083	0.093
Cadmium (Cd)	<0.000010	<0.000010	<0.000010	0.000023	0.000064	0.000021	0.00002	0.000023	0.000028	0.000027	0.000022
Calcium (Ca)	32.9	28.4	33.3	42.2	41.3	40.7	43.7	43.7	39.7	41.2	42.2
Cesium (Cs)	<0.00010	<0.00010	<0.00010	<0.00010	0.00017	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	0.003	<0.0010	<0.0010	0.001	<0.0010	<0.0010	<0.0010
Cobalt (Co)	0.0008	0.00057	0.00148	0.00212	0.00314	0.00226	0.0026	0.00293	0.00234	0.00239	0.00241
Copper (Cu)	0.00051	0.00064	0.00196	0.00328	0.0066	0.0035	0.00355	0.00326	0.0052	0.00446	0.00518
Iron (Fe)	0.864	0.684	0.225	0.316	2.01	0.129	0.126	0.746	0.106	0.15	0.097
Lead (Pb)	0.000109	0.000133	<0.000090	0.000149	0.00129	0.000146	<0.000090	0.000312	<0.000090	<0.000090	<0.000090
Lithium (Li)	0.0029	0.0022	0.004	0.0033	0.0049	0.0023	0.004	<0.0020	0.0028	0.0028	0.0026
Magnesium (Mg)	14.6	11.2	14.5	18.3	20	18.9	20.8	22.4	18.7	19.4	21
Manganese (Mn)	0.319	0.22	0.04	0.0303	0.196	0.0172	0.0155	0.0493	0.0119	0.0171	0.0165
Mercury (Hg)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum (Mo)	0.00026	0.00026	0.00435	0.00859	0.00994	0.011	0.013	0.00985	0.0106	0.0112	0.0115
Nickel (Ni)	<0.0020	<0.0020	<0.0020	<0.0020	0.0026	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Potassium (K)	4.55	5.23	8.91	11	13.9	13.8	17	15.5	14.6	13.5	12.8
Rubidium (Rb)	0.00197	0.00204	0.00365	0.00562	0.0092	0.0056	0.00618	0.00661	0.00512	0.0051	0.00462
Selenium (Se)	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	0.003	0.0014	0.0012	0.002
Silicon (Si)	5.4	4.6	2.39	3.1	4.35	1.41	0.458	1.85	0.976	1.12	1.26
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	21	32	60.3	87	89.1	100	102	106	91.9	93.2	85.7
Strontium (Sr)	0.104	0.0971	0.133	0.193	0.221	0.229	0.262	0.226	0.219	0.227	0.216
Sulphur (S)	<5.0	<5.0	26.5	32.9	41.9	223	44.4	40.8	33.1	36.5	30.2
Tellurium (Te)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium (Tl)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Thorium (Th)	<0.00010	<0.00010	<0.00010	<0.00010	0.00034	<0.00010	<0.00010	0.00018	<0.00010	<0.00010	<0.00010
Tin (Sn)	<0.00020	<0.00020	<0.00020	0.00101	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium (Ti)	0.00417	0.00238	0.00272	0.00912	0.0596	0.00372	0.00372	0.0261	0.00344	0.00379	0.00263
Tungsten (W)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	0.00015	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	<0.00010
Vanadium (V)	0.00101	0.00037	0.00033	0.0009	0.00401	0.00027	<0.00020	0.00179	0.00029	0.0003	0.0005
Zinc (Zn)	<0.0050	<0.0050	<0.0050	<0.0050	0.0117	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Zirconium (Zr)	<0.00040	<0.00040	<0.00040	<0.00040	0.00054	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040

Date Sampled	NNC-GR 08-Aug	09-Sep	16-Sep	23-Sep	30-Sep	07-Oct	14-Oct	21-Oct	28-Oct	04-Nov	10-Nov
Total Metals											
Aluminum (Al)	0.0773	0.315	0.31	0.0401	0.131	0.0644	0.92	0.0278	0.0914	0.245	0.0368
Antimony (Sb)	0.00088	0.00086	<0.00020	0.00023	0.00138	<0.00020	0.00021	0.00025	0.00024	0.00037	0.00026
Arsenic (As)	0.00155	0.00087	0.0008	0.00078	0.00085	0.00077	0.00135	0.00073	0.00062	0.00061	0.00069
Barium (Ba)	0.0278	0.0314	0.0281	0.0285	0.0359	0.0399	0.0551	0.0362	0.0271	0.034	0.0297
Beryllium (Be)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Bismuth (Bi)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron (B)	0.032	0.025	0.036	0.057	0.065	0.052	0.069	0.071	0.065	0.073	0.09
Cadmium (Cd)	0.000015	0.000011	0.000011	0.000015	0.000023	0.000013	0.000058	0.00001	0.000024	0.000026	0.000017
Calcium (Ca)	34.3	49.3	34.8	41.9	40.1	43.8	48.2	45.1	40.9	41.7	43.6
Cesium (Cs)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	0.00045	0.00035	0.00117	0.00186	0.00206	0.00191	0.00317	0.00239	0.00197	0.00236	0.0022
Copper (Cu)	0.00187	0.00216	0.00192	0.00281	0.00333	0.00208	0.00379	0.00213	0.00374	0.00339	0.00389
Iron (Fe)	0.56	0.347	0.419	0.104	0.242	0.098	1.19	0.081	0.104	0.46	0.17
Lead (Pb)	0.000563	0.000288	0.000177	0.000098	0.000351	0.000119	0.000754	<0.000090	0.000092	0.000212	<0.000090
Lithium (Li)	0.0049	0.0074	0.0037	0.0034	0.0036	0.0041	0.0052	<0.0020	0.0029	0.0037	0.003
Magnesium (Mg)	15.1	20	15.5	18.3	19.5	19.7	22.6	22.9	19	20	21.1
Manganese (Mn)	0.193	0.128	0.0434	0.0146	0.0454	0.0634	0.421	0.0645	0.0145	0.11	0.0318
Mercury (Hg)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum (Mo)	0.00103	0.00071	0.00189	0.0062	0.00711	0.00587	0.00709	0.00751	0.00821	0.00811	0.00983
Nickel (Ni)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0021	<0.0020	<0.0020	<0.0020	<0.0020
Potassium (K)	4.78	3.65	4.78	10.3	12.2	10.5	13.4	14.4	12.3	12.2	12.1
Rubidium (Rb)	0.00209	0.00187	0.00236	0.00424	0.00466	0.00306	0.00553	0.00456	0.00428	0.00455	0.00432
Selenium (Se)	<0.0010	<0.0010	<0.0010	0.001	<0.0010	<0.0010	<0.0010	0.0035	0.0011	<0.0010	0.002
Silicon (Si)	5.73	1.6	3.67	1.73	1.53	1.05	2.58	0.755	1.2	1.15	2.32
Silver (Ag)	0.00036	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	19.2	17.6	45.1	80.8	83.3	89.9	94.7	101	79.3	84.8	82.5
Strontium (Sr)	0.11	0.113	0.105	0.164	0.185	0.178	0.205	0.215	0.188	0.192	0.207
Sulphur (S)	<5.0	<5.0	18.5	31.3	31	180	32.4	41.8	29.5	35.9	31
Tellurium (Te)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium (Tl)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Thorium (Th)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00019	<0.00010	<0.00010	<0.00010	<0.00010
Tin (Sn)	<0.00020	<0.00020	<0.00020	0.00098	0.00025	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium (Ti)	0.00327	0.0126	0.0121	0.00253	0.00575	0.00335	0.034	0.00201	0.00298	0.00665	0.00176
Tungsten (W)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium (U)	0.00023	0.00038	0.00011	<0.00010	0.00015	0.00017	0.00024	0.0002	0.00013	0.00016	0.00012
Vanadium (V)	0.00087	0.00145	0.00147	0.0006	0.0006	0.00067	0.00308	0.00025	0.00037	0.0003	0.00068
Zinc (Zn)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0065	<0.0050	<0.0050	<0.0050	<0.0050
Zirconium (Zr)	<0.00040	0.00042	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040

Date Sampled	WR-US 08-Aug	09-Sep	16-Sep	23-Sep	30-Sep	07-Oct	14-Oct	21-Oct	28-Oct	04-Nov	10-Nov
Total Metals											
Aluminum (Al)	0.178	0.218	0.217	0.246	0.212	0.512	0.126	0.178	0.376	0.419	0.17
Antimony (Sb)	0.00058	0.00078	<0.00020	0.00046	0.00083	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic (As)	0.00092	0.00078	0.00096	0.00069	0.00099	0.0008	0.00067	0.0006	0.00059	0.00065	0.00061
Barium (Ba)	0.00873	0.00777	0.00749	0.00768	0.0088	0.0119	0.00715	0.00762	0.00869	0.00982	0.00689
Beryllium (Be)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Bismuth (Bi)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron (B)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	<0.000010	0.000015	<0.000010	<0.000010	0.000011	<0.000010	<0.000010	<0.000010	<0.000010	0.000028	<0.000010
Calcium (Ca)	5.77	5.42	5.02	5.43	5.41	6.01	5.66	5.66	8	5.84	5.43
Cesium (Cs)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Chromium (Cr)	<0.0010	<0.0010	<0.0010	<0.0010	0.0025	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	0.00023	<0.00020	<0.00020	0.00022	0.00025	0.0005	<0.00020	<0.00020	0.00027	0.00045	<0.00020
Copper (Cu)	0.00125	0.00116	0.00099	0.00135	0.0026	0.00145	0.00078	0.00085	0.00098	0.00139	0.00105
Iron (Fe)	0.734	0.712	0.744	0.747	0.732	1.15	0.598	0.674	0.735	0.98	0.57
Lead (Pb)	0.000284	0.00214	0.000181	0.000316	0.000464	0.000435	0.000153	0.000237	0.000222	0.000491	0.000244
Lithium (Li)	<0.0020	<0.0020	<0.0020	<0.0020	0.0028	<0.0020	0.002	<0.0020	<0.0020	<0.0020	<0.0020
Magnesium (Mg)	1.99	1.68	1.7	1.77	1.91	2.15	1.96	2.02	2.98	2.23	2.15
Manganese (Mn)	0.0327	0.021	0.0178	0.0205	0.0277	0.0408	0.0265	0.0295	0.0278	0.0257	0.0188
Mercury (Hg)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	0.00022	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Potassium (K)	0.444	0.506	0.467	0.5	0.512	0.559	0.464	0.472	0.751	0.497	0.463
Rubidium (Rb)	0.00182	0.00167	0.00167	0.00158	0.00161	0.00212	0.00144	0.00128	0.0018	0.00177	0.00115
Selenium (Se)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Silicon (Si)	2.75	3.18	2.62	4.94	2.88	3	2.39	2.38	3.14	2.93	3.49
Silver (Ag)	0.00013	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00041
Sodium (Na)	0.765	0.681	0.712	0.781	0.876	0.778	0.605	0.821	0.928	2.28	0.9
Strontium (Sr)	0.0185	0.0139	0.0136	0.0141	0.0151	0.016	0.0155	0.014	0.0163	0.0142	0.013
Sulphur (S)	<5.0	<5.0	<5.0	<5.0	<5.0	5.9	<5.0	<5.0	<5.0	<5.0	<5.0
Tellurium (Te)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium (Tl)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Thorium (Th)	0.00011	<0.00010	<0.00010	0.0001	<0.00010	0.0002	<0.00010	<0.00010	0.00012	<0.00010	<0.00010
Tin (Sn)	<0.00020	<0.00020	<0.00020	0.00096	0.00021	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium (Ti)	0.00505	0.00556	0.00559	0.00795	0.0049	0.0206	0.00247	0.00414	0.0148	0.00844	0.00278
Tungsten (W)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium (U)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0001	<0.00010	<0.00010	<0.00010	0.00013	<0.00010
Vanadium (V)	0.00079	0.00073	0.00071	0.00079	0.00076	0.00141	0.00055	0.00067	0.00108	0.0011	0.00053
Zinc (Zn)	<0.0050	<0.0050	<0.0050	<0.0050	0.0057	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Zirconium (Zr)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00042	<0.00040	<0.00040

Date Sampled	WR-DS 08-Aug	09-Sep	16-Sep	23-Sep	30-Sep	07-Oct	14-Oct	21-Oct	28-Oct	04-Nov	10-Nov	MWQSOG** Chronic	MWQSOG** Acute	CCME
Total Metals														
Aluminum (Al)	0.297	0.365	0.504	0.61	0.486	0.249	0.227	0.329	0.6	0.206	0.254		0.100 [b]	0.100 [b]
Antimony (Sb)	0.00067	0.00095	<0.00020	0.00088	0.00143	0.00023	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020		0.006*	
Arsenic (As)	0.00102	0.00089	0.00094	0.00077	0.00104	0.00069	0.0007	0.00065	0.00066	0.00057	0.00128		0.010*	0.005
Barium (Ba)	0.0106	0.00916	0.0106	0.0107	0.0113	0.00962	0.00923	0.00961	0.0121	0.00761	0.00791		1.000*	
Beryllium (Be)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Bismuth (Bi)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Boron (B)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	1.5	29	1.5
Cadmium (Cd)	0.00001	<0.000010	0.000012	<0.000010	0.000021	<0.000010	<0.000010	<0.000010	0.000011	<0.000010	<0.000010			>0.000007 – 0.000064 [c]
Calcium (Ca)	6.87	5.86	6.01	6.81	6.58	6.99	7.52	7.3	13.7	6.72	6.9			
Cesium (Cs)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Chromium (Cr)	<0.0010	<0.0010	0.0013	0.0015	0.0018	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0015			0.001 [d]
Cobalt (Co)	0.00032	0.00025	0.00033	0.00039	0.00042	0.00024	0.00028	0.00026	0.00044	0.00022	<0.00020			
Copper (Cu)	0.0013	0.00134	0.00177	0.0097	0.00518	0.00111	0.00112	0.00124	0.0023	0.00165	0.0022			>0.00200 – 0.00453 [c]
Iron (Fe)	0.954	0.852	1.12	1.13	1.06	0.739	0.703	0.895	1.03	0.65	0.63		0.3	0.3
Lead (Pb)	0.000316	0.000333	0.000911	0.000473	0.00127	0.000303	0.000208	0.000305	0.00031	0.000243	0.000411			>0.00100 – 0.00838 [c]
Lithium (Li)	<0.0020	<0.0020	0.002	0.0023	0.0024	0.0024	0.0022	<0.0020	0.0022	<0.0020	<0.0020			
Magnesium (Mg)	2.53	2.08	2.31	2.52	2.67	2.71	3.02	2.96	4.82	2.77	3.09			
Manganese (Mn)	0.0436	0.0248	0.0248	0.0301	0.0379	0.0304	0.0351	0.0461	0.0442	0.0223	0.0244			
Mercury (Hg)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050		0.001*	0.000026
Molybdenum (Mo)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00024	<0.00020	0.00027	<0.00020	<0.00020		0.073	0.073
Nickel (Ni)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020			>0.02563 – 0.17400 [c]
Potassium (K)	0.487	0.538	0.611	0.688	0.684	0.847	0.812	0.616	1.27	0.584	0.622			
Rubidium (Rb)	0.00204	0.00194	0.00233	0.00237	0.00211	0.00171	0.00176	0.00172	0.00248	0.00133	0.00132			
Selenium (Se)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		0.001	0.001
Silicon (Si)	3.04	3.48	3.32	6.47	3.53	2.62	2.51	2.86	4.03	2.97	3.82			
Silver (Ag)	0.00014	<0.00010	<0.00010	<0.00010	0.00036	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	0.00018		0.0001	0.0001
Sodium (Na)	0.828	0.751	1.1	1.52	1.75	2.44	3.09	1.59	3.67	1.38	1.89			
Strontium (Sr)	0.0199	0.015	0.0159	0.0168	0.0186	0.0191	0.0213	0.0186	0.0265	0.0159	0.0168			
Sulphur (S)	<5.0	<5.0	<5.0	<5.0	<5.0	7.6	<5.0	<5.0	<5.0	<5.0	<5.0			
Tellurium (Te)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Thallium (Tl)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		0.0008	0.0008
Thorium (Th)	0.00015	0.00014	0.0002	0.00024	0.00017	0.00011	0.0001	0.00011	0.00024	<0.00010	<0.00010			
Tin (Sn)	<0.00020	<0.00020	<0.00020	0.00085	0.00025	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Titanium (Ti)	0.00992	0.0124	0.0172	0.0245	0.0158	0.00786	0.00702	0.011	0.0273	0.00363	0.00586			
Tungsten (W)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010			
Uranium (U)	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00012	<0.00010	<0.00010	0.015	0.033	0.015
Vanadium (V)	0.00124	0.0011	0.00142	0.00164	0.00144	0.00089	0.00081	0.0011	0.00163	0.00065	0.00073			
Zinc (Zn)	<0.0050	<0.0050	<0.0050	0.0085	0.0085	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050			0.03
Zirconium (Zr)	0.00043	0.00043	0.00045	0.00048	0.00045	<0.00040	<0.00040	<0.00040	0.0125	<0.00040	<0.00040			

[b] pH dependent

[c] Calculated based on hardness

[d] Guideline value applies if all chromium is assumed to be in the Cr(VI) principal surface water form (CCME 2012).

* Drinking water quality guideline (Government of Manitoba 2011).

** Protection of aquatic life guideline (Government of Manitoba 2011).

2011 Water Quality Data

Parameter	EOP 19-Jul	EOP 22-Jul	EOP 27-Jul	EOP 03-Aug	EOP 17-Oct	EOP 24-Oct	EOP 31-Oct	EOP 07-Nov	EOP 13-Nov	MWQSOG* Max. Acceptable	Aesthetic	MMER Grab Samples
Physicochemical												
pH (pH units)	7.54	8.04	8.31	8.59	8.23	8.23	8.19	8.12	8.49		> 6.5 - < 9.0	
Hydroxide (OH)	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40			
Specific Conductance (µS/cm@25°C)	1020	1030	1020	1020	1290	1300	1290	1250	1320			
Total Dissolved Solids (Calculated)	***638***	***592***	***649***	***652***	***902***	***874***	***860***	***843***	***895***		≤ 500.0	
Hardness, total	219	205	218	212	241	236	241	237	269			
Alkalinity (Total as $CaCO_3$)	198	150	151	153	187	188	188	189	191			
Bicarbonate (HCO_3)	241	184	180	170	228	229	230	231	216			
Carbonate (CO_3)	<0.60	<0.60	0.85	6.87	<0.60	<0.60	<0.60	<0.60	6.35			
Total Suspended Solids	10	9	12	7	16	11	20	14	9			
Turbidity (NTU)	***6.31***	***3.56***	***5.9***	***4.62***	***10.7***	***6.6***	***12.9***	***5***	***3.5***	0.1		
Major Ions												
Potassium, dissolved (K^+)	8.49	21.4	21.8	21.6	30	19.8	29.2	29.2	27.9			
Sodium, dissolved (Na^+)	130	115	136	133	184	145	181	177	177		≤ 200.0	
Calcium, dissolved (Ca^{2+})	50.9	48.4	47.3	50.1	54.8	50.7	54.7	52.9	56.4			
Magnesium, dissolved (Mg^{2+})	22.3	20.4	24.2	21.2	25.3	26.7	25.4	25.6	31.2			
Chloride, dissolved (Cl)	130	131	131	134	199	180	179	177	197		≤ 250.0	
Cyanide (CN), Weak Acid Diss	0.0033	0.0032	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020			
Cyanide (CN), Free	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050			
Cyanide (CN), Total	0.113	0.0208	0.0165	0.0102	0.0101	0.0072	0.0062	0.0058	0.0065	0.200		2.00
Fluoride, dissolved (F)	0.1	0.1	<0.10	0.1	0.14	<0.50	<0.50	<0.50	<0.50	1.5		
Sulphate, dissolved (SO4)	134	144	143	147	218	202	201	197	216		≤ 500.0	
Nutrients												
Nitrate-N	6.76	***12.4***	***12.2***	***12.1***	***17.6***	***17.8***	***17.4***	***16.1***	***16.3***	10.00		
Nitrite-N	<0.050	0.134	0.102	0.067	0.146	<0.25	<0.25	<0.25	<0.25	3.20		
Nitrate_Nitrite-N	6.76	***12.5***	***12.3***	***12.2***	***17.8***	***17.8***	***17.4***	***16.1***	***16.3***	10		
Ammonia, total-N	2.52	1.21	0.82	0.353	3.16	2.42	1.83	1.24	1.03			
Phosphorus, total	0.071	0.028	0.025	0.024	0.039	0.038	0.058	0.034	0.027			
Radiochemical												
Radium - 226 (Bq/L)	0.06			<0.005			<0.005	<0.005	<0.005	0.5		1.11

Parameter	NNC-VR 19-Jul	22-Jul	27-Jul	03-Aug	10-Aug	17-Oct	24-Oct	31-Oct	07-Nov	13-Nov	20-Nov
Physicochemical											
pH (pH units)	7.49	7.61	7.76	7.56	7.92	7.68	7.62	7.72	7.74	8.43	7.62
Hydroxide (OH)	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Specific Conductance (µS/cm@25°C)	504	459	624	852	869	791	1120	1210	1200	1230	1190
Total Dissolved Solids (Calculated)	285	264	378	525	521	468	718	775	789	808	791
Hardness, total	186	169	205	200	181	222	235	235	241	259	271
Alkalinity (Total as $CaCO_3$)	221	191	163	165	181	225	192	171	169	173	183
Bicarbonate (HCO_3)	270	233	199	201	221	275	234	209	206	199	223
Carbonate (CO_3)	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	4.32	<0.60
Total Suspended Solids	197	12	<5.0	<5.0	<5.0	7	<5.0	<5.0	<5.0	5	8
Turbidity (NTU)	61.9	7.97	1.15	1.04	1.65	6.6	1.65	0.85	1.5	1.55	3.5
Major Ions											
Potassium, dissolved (K^+)	5.26	5.66	9.29	14.9	11.7	7.82	19.1	23.2	26.2	22.7	25.4
Sodium, dissolved (Na^+)	36.6	30.3	66.8	111	95.9	81	144	158	168	161	178
Calcium, dissolved (Ca^{2+})	40.9	39.5	46.8	47.8	40.1	49.4	50.8	52.7	53.9	53.2	57.2
Magnesium, dissolved (Mg^{2+})	20.4	17.2	21.5	19.6	19.6	24.1	26.3	25.1	25.7	30.6	31.2
Chloride, dissolved (Cl)	38.1	33.2	68.1	111	115	115	158	168	167	180	169
Cyanide (CN), Weak Acid Diss	0.0023	<0.0020	0.0096	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Cyanide (CN), Free	<0.0050	<0.0050	**0.0073**	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cyanide (CN), Total	0.0062	<0.0020	0.0139	<0.0020	<0.0020	<0.0020	0.0025	<0.0020	<0.0020	0.0027	<0.0020
Fluoride, dissolved (F)	0.1	0.12	<0.10	<0.10	<0.10	0.11	<0.10	<0.10	<0.10	0.1	<0.10
Sulphate, dissolved (SO4)	3.86	7.34	63.4	117	107	51	145	182	184	197	184
Nutrients											
Nitrate-N	<0.050	<0.050	0.78	1.05	<0.050	<0.050	8.66	**13.9**	**14**	**13.1**	11.2
Nitrite-N	<0.050	<0.050	**0.104**	<0.050	<0.050	<0.050	**0.399**	**0.235**	**0.097**	<0.050	0.054
Nitrate_Nitrite-N	<0.071	<0.071	0.884	1.05	<0.071	<0.071	9.06	14.2	14.1	13.1	11.3
Ammonia, total-N	<0.050	0.197	0.107	0.121	0.059	0.253	0.232	0.18	0.08	0.091	0.138
Phosphorus, total	0.552	0.186	0.032	0.018	0.034	0.13	0.026	0.017	0.013	0.015	0.212
Radiochemical											
Radium - 226 (Bq/L)											

Parameter	NNC-GR 19-Jul	22-Jul	27-Jul	03-Aug	10-Aug	17-Oct	24-Oct	31-Oct	07-Nov	13-Nov	20-Nov
Physicochemical											
pH (pH units)			8.13	7.83	7.86		8.02	8.03	8.02	8.47	
Hydroxide (OH)			<0.40	<0.40	<0.40		<0.40	<0.40	<0.40	<0.40	
Specific Conductance (µS/cm@25°C)			655	852	903		1070	1200	1180	1240	
Total Dissolved Solids (Calculated)			400	534	555		680	765	761	807	
Hardness, total			221	209	203		230	239	223	251	
Alkalinity (Total as $CaCO_3$)			162	171	203		205	173	169	173	
Bicarbonate (HCO_3)			197	209	247		250	211	206	197	
Carbonate (CO_3)			<0.60	<0.60	<0.60		<0.60	<0.60	<0.60	5.63	
Total Suspended Solids			<5.0	13	69		7	20	17	<5.0	
Turbidity (NTU)			2.4	2.84	21.5		2.1	2.9	4.5	1.31	
Major Ions											
Potassium, dissolved (K^+)			9.27	15.4	11.6		16.6	22.9	22.4	21.4	
Sodium, dissolved (Na^+)			70.3	117	101		131	158	155	157	
Calcium, dissolved (Ca^{2+})			50.1	49.6	44.6		50.7	51.1	49.5	52.5	
Magnesium, dissolved (Mg^{2+})			23.3	20.7	22.2		25.2	27.1	24.1	29	
Chloride, dissolved (Cl)			73.6	111	112		152	165	166	179	
Cyanide (CN), Weak Acid Diss			0.0026	<0.0020	<0.00200		<0.0020	<0.0020	<0.0020	<0.0020	
Cyanide (CN), Free			<0.0050	<0.0050	<0.0050		<0.0050	<0.0050	<0.0050	<0.0050	
Cyanide (CN), Total			0.0052	<0.0020	0.0022		0.0025	0.0029	<0.0020	0.0025	
Fluoride, dissolved (F)			<0.10	<0.10	0.11		<0.10	<0.10	<0.10	0.1	
Sulphate, dissolved (SO4)			72.5	116	106		129	178	183	195	
Nutrients											
Nitrate-N			0.879	0.613	<0.050		6.57	**13.1**	**13.5**	12.7	
Nitrite-N			<0.050	<0.050	<0.050		**0.248**	**0.164**	0.06	<0.050	
Nitrate_Nitrite-N			0.879	0.613	<0.071		6.81	13.3	13.6	-	
Ammonia, total-N			<0.050	<0.050	0.07		0.061	0.068	<0.050	<0.050	
Phosphorus, total			0.032	0.04	0.189		0.087	0.021	0.027	0.013	
Radiochemical											
Radium - 226 (Bq/L)											

Parameter	WR-US 19-Jul	22-Jul	27-Jul	03-Aug	10-Aug	17-Oct	24-Oct	31-Oct	07-Nov	13-Nov	20-Nov
Physicochemical											
pH (pH units)	7.49	7.56	7.75	8.55	7.79	7.87	7.96	8	7.94	8.23	7.83
Hydroxide (OH)	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Specific Conductance (µS/cm@25°C)	67.3	68.5	72.6	94.4	112	177	173	174	166	158	136
Total Dissolved Solids (Calculated)	34.4	35.7	38.1	50.8	62.3	99	97.8	94.8	91.9	87.7	75.7
Hardness, total	34.1	36.1	41.1	44.7	56.9	93.1	89.2	91.7	90	97.4	77.2
Alkalinity (Total as $CaCO_3$)	32.9	31.8	34.4	48.2	56.1	94.2	93.5	94.8	91	81.4	70.6
Bicarbonate (HCO_3)	40.2	38.8	42	53.9	68.4	115	114	116	111	99.3	86.1
Carbonate (CO_3)	<0.60	<0.60	<0.60	2.09	<0.06	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60
Total Suspended Solids	<5.0	16	17	5	<5.0	16	15	6	9	6	[illegible]
Turbidity (NTU)	3.53	9.04	5.9	3.87	2.71	3.33	7.4	5.9	4.8	7.3	6.8
Major Ions											
Potassium, dissolved (K^+)	0.474	0.602	0.656	0.535	0.721	1.07	1.55	1.61	1.51	1.58	1.62
Sodium, dissolved (Na^+)	0.93	1.1	1.18	4.38	1.47	2.14	2.04	1.97	1.94	2.55	2.6
Calcium, dissolved (Ca^{2+})	8.56	9.1	10.1	11.1	14.2	22.2	21.8	22.6	21.7	22.9	18.7
Magnesium, dissolved (Mg^{2+})	3.09	3.24	3.83	4.13	5.2	9.15	8.45	8.56	8.7	9.75	7.44
Chloride, dissolved (Cl)	<0.50	0.64	0.62	0.6	0.92	1.63	1.84	1.48	1.4	1.65	1.6
Cyanide (CN), Weak Acid Diss	<0.0020	0.0039	<0.0020	<0.0020	<0.0020	<0.0020	0.012	0.0077	0.0028	<0.0020	<0.0020
Cyanide (CN), Free	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	**0.0087**	**0.0095**	<0.0050	<0.0050	<0.0050
Cyanide (CN), Total	<0.0020	0.0053	<0.0020	<0.0020	0.0034	<0.0020	0.0132	0.0145	0.0037	<0.0020	<0.0020
Fluoride, dissolved (F)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Sulphate, dissolved (SO4)	0.85	0.9	1.05	1.13	1.13	1.89	1.85	1.71	1.75	1.76	1.77
Nutrients											
Nitrate-N	<0.050	0.117	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.082	0.104	0.066
Nitrite-N	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Nitrate_Nitrite-N	<0.071	0.117	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	0.082	0.104	0.071
Ammonia, total-N	<0.050	<0.050	0.051	<0.050	<0.050	<0.050	0.053	0.118	<0.050	<0.050	0.035
Phosphorus, total	0.042	0.038	0.034	0.028	0.002	0.019	0.032	0.041	0.033	0.029	0.035
Radiochemical											
Radium - 226 (Bq/L)											

Parameter	WR-DS 19-Jul	22-Jul	27-Jul	03-Aug	10-Aug	17-Oct	24-Oct	31-Oct	07-Nov	13-Nov	20-Nov	MWQSOG** Chronic	MWQSOG** Acute	CCME
Physicochemical														
pH (pH units)	7.47		7.62	7.81	7.91	7.86	8	8.01	8.04	8.39	7.93	<6.5/>9.0		6.5 / 9.0
Hydroxide (OH)	<0.40		<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40			
Specific Conductance (µS/cm@25°C)	92.7		98.8	203	285	218	226	212	672	692	447			
Total Dissolved Solids (Calculated)	48.4		52.7	113	168	123	142	121	406	423	266			
Hardness, total	48.2		57.6	82	99.6	110	124	120	183	210	147			
Alkalinity (Total as $CaCO_3$)	46.8		48.7	73.8	92.3	118	127	118	145	131	116			
Bicarbonate (HCO_3)	57.1		59.5	90	113	144	155	144	177	152	141			
Carbonate (CO_3)	<0.60		<0.60	<0.60	<0.06	<0.60	<0.60	<0.60	<0.60	2.88	<0.60			
Total Suspended Solids	6		6	21	7	12	49	42	6	22	14			
Turbidity (NTU)	8.63		10.5	12.3	8.9	7.58	16.9	15.1	6.8	10.2	13.5			
Major Ions														
Potassium, dissolved (K^+)	0.595		0.805	1.87	2.65	1.32	1.5	1.27	9.75	8.84	7.13			
Sodium, dissolved (Na^+)	1.19		1.55	12.1	20	3.58	3.22	3.25	71.5	71	41.2			
Calcium, dissolved (Ca^{2+})	11.7		13.5	19.4	24.2	25.7	29.7	28.8	41.3	46.9	33.5			
Magnesium, dissolved (Mg^{2+})	4.59		5.83	8.16	9.53	11.1	12.2	11.7	19.3	22.6	15.4			
Chloride, dissolved (Cl)	0.61		0.8	13.6	22.9	3.54	2.83	2.94	77.6	82.9	40.7			
Cyanide (CN), Weak Acid Diss	0.0073		<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0043	<0.0020	<0.0020			
Cyanide (CN), Free	<0.0050		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	**0.0055**	<0.0050	<0.0050	0.0052	0.022	0.005
Cyanide (CN), Total	0.0078		<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0044	0.004	<0.0020			
Fluoride, dissolved (F)	<0.10		<0.10	<0.10	<0.10	0.11	<0.10	<0.10	<0.10	<0.10	<0.10			0.12
Sulphate, dissolved (SO4)	0.95		0.95	13.4	22.4	2.78	2.5	2.42	79.4	89.3	44.3			
Nutrients														
Nitrate-N	<0.050		<0.050	<0.050	0.205	<0.050	<0.050	<0.050	4.39	5.58	2.78	10*		2.935
Nitrite-N	<0.050		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.073	<0.050	<0.050	0.06		0.06
Nitrate_Nitrite-N	<0.071		<0.071	<0.071	0.205	<0.071	<0.071	<0.071	4.47	5.58	2.78			
Ammonia, total-N	<0.050		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.08	0.02	>0.55 – 4.36	>1.39 - 10.91[a]	>0.103 – 6.020[a]
Phosphorus, total	0.053		0.049	0.038	0.036	0.026	0.033	0.037	0.029	0.029	0.093	0.5		
Radiochemical														
Radium - 226 (Bq/L)												0.5*		

[a] pH and temperature dependent
* Drinking water quality guideline (Government of Manitoba 2011).
** Protection of aquatic life guideline (Government of Manitoba 2011).

Parameter	EOP 19-Jul	EOP 22-Jul	EOP 27-Jul	EOP 03-Aug	EOP 17-Oct	EOP 24-Oct	EOP 31-Oct	EOP 07-Nov	EOP 13-Nov	MWQSOG* Max. Acceptable	Aesthetic	MMER Grab Samples
Total Metals												
Aluminum (Al)	0.0422	0.0544	0.0463	0.0691	0.29	0.155	0.082	0.0486	0.0452			
Antimony (Sb)	0.00078	0.0008	0.00084	0.00085	0.00104	0.00103	0.00105	0.00086	0.00096	0.006		
Arsenic (As)	0.00121	0.00128	0.00118	0.00128	0.00156	0.00162	0.00147	0.00143	0.0016	0.01		1.00
Barium (Ba)	0.0282	0.0228	0.0242	0.0234	0.0319	0.0348	0.033	0.0319	0.034	1.0		
Beryllium (Be)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Bismuth (Bi)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Boron (B)	0.156	0.161	0.186	0.18	0.208	0.23	0.192	0.191	0.202	5.0		
Cadmium (Cd)	0.000093	0.000114	0.000089	0.000083	0.000136	0.000087	0.000113	0.000116	0.000122	0.005		
Calcium (Ca)	50.5	49.8	51.6	54.1	54.9	55.3	55.6	55.7	55.9			
Cesium (Cs)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Chromium (Cr)	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.050		
Cobalt (Co)	0.00426	0.00471	0.00445	0.00426	0.00709	0.00655	0.00665	0.00608	0.00569			
Copper (Cu)	0.232	0.158	0.125	0.0812	0.0508	0.0462	0.0516	0.051	0.0545		≤ 1.0	0.60
Iron (Fe)	***0.37***	0.16	0.15	0.12	***0.34***	0.16	***0.93***	0.11	0.13		≤ 0.300	
Lead (Pb)	0.000332	<0.000090	<0.000090	<0.000090	0.000468	0.000221	0.000176	0.000132	0.000097	0.010		0.40
Lithium (Li)	<0.0020	0.0027	0.0041	0.0023	0.0048	0.0035	0.0025	0.0025	0.0051			
Magnesium (Mg)	21.3	24.5	27.9	23.7	27.6	37.1	33.2	27.2	31.8			
Manganese (Mn)	***0.896***	***0.295***	***0.214***	***0.116***	***0.0912***	***0.101***	***0.117***	***0.119***	***0.155***		≤ 0.050	
Mercury (Hg)	<0.000050	<0.000020	<0.000020	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.001		
Molybdenum (Mo)	0.034	0.0417	0.0417	0.0414	0.0567	0.0524	0.049	0.0466	0.0478			
Nickel (Ni)	0.0115	0.0112	0.0085	0.0064	0.0036	0.0045	0.0047	0.0041	0.0039			1.00
Potassium (K)	20.6	23.2	22.5	22.8	30.4	29.1	29.5	31	28.2			
Rubidium (Rb)	0.0104	0.0103	0.00972	0.0103	0.0132	0.0127	0.0121	0.0104	0.0111			
Selenium (Se)	0.0033	0.0069	0.0025	0.0024	0.0026	0.0035	0.005	0.0041	0.0032	0.010		
Silicon (Si)	1.85	1.41	0.97	1.11	2.28	2.37	2.35	2.42	2.36			
Silver (Ag)	0.00048	0.00037	0.00027	0.00016	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Sodium (Na)	133	129	141	151	181	179	176	181	180			
Strontium (Sr)	0.527	0.512	0.497	0.506	0.611	0.627	0.531	0.554	0.614			
Sulphur (S)	37.5	47.2	49.3	46.1	76.4	57.4	76.2	79.5	64.9			
Tellurium (Te)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Thallium (Tl)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Thorium (Th)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Tin (Sn)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Titanium (Ti)	0.00142	0.00208	0.00075	0.00287	0.0582	0.00415	0.00339	0.00293	0.00298			
Tungsten (W)	0.0018	0.0016	0.0014	0.0015	0.002	0.0017	0.0013	0.0011	<0.0010			
Uranium (U)	0.00012	0.00012	<0.00010	0.00012	0.00016	0.00012	0.00014	0.00016	0.00014	0.02		
Vanadium (V)	0.002	0.00023	0.00096	0.00042	0.0014	0.0017	0.00032	0.00027	<0.00020			
Zinc (Zn)	0.0491	0.0065	0.0055	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050		≤ 5.0	1.00
Zirconium (Zr)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040			

Parameter	NNC-VR 19-Jul	22-Jul	27-Jul	03-Aug	10-Aug	17-Oct	24-Oct	31-Oct	07-Nov	13-Nov	20-Nov
Total Metals											
Aluminum (Al)	**0.9**	**0.336**	0.0275	0.0233	**0.621**	**0.204**	0.0447	0.0586	0.0173	0.0614	**0.217**
Antimony (Sb)	0.00027	<0.00020	<0.00020	0.00027	<0.00020	<0.00020	0.00032	0.00066	0.00067	0.00066	0.00058
Arsenic (As)	0.00388	0.00326	0.00124	0.00118	0.00208	0.0028	0.00131	0.00114	0.00105	0.00135	0.00149
Barium (Ba)	0.0477	0.0426	0.0417	0.0478	0.065	0.0329	0.047	0.0441	0.0398	0.0412	0.0439
Beryllium (Be)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Bismuth (Bi)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron (B)	0.047	0.042	0.09	0.12	0.1	0.034	0.086	0.126	0.146	0.143	0.14
Cadmium (Cd)	0.000027	0.000012	<0.000010	0.000028	0.000071	0.000029	<0.000010	0.000048	0.00007	0.000068	0.000047
Calcium (Ca)	45.5	40.6	49.9	51.2	67.8	50.9	54.3	58.9	52.5	54.5	53.6
Cesium (Cs)	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Chromium (Cr)	0.0019	<0.0010	0.0014	<0.0010	0.0013	0.0016	<0.0010	<0.0010	<0.0010	<0.0010	0.0011
Cobalt (Co)	0.00179	0.00127	0.00197	0.00246	0.00238	0.00101	0.00349	0.0056	0.00531	0.00498	0.00483
Copper (Cu)	0.00221	0.00079	0.00161	0.0019	0.00569	0.0021	0.00255	0.00427	0.00454	0.00447	0.00376
Iron (Fe)	**3.04**	**1.97**	**0.35**	0.23	**0.95**	**2.15**	0.23	0.22	0.04	0.18	**0.36**
Lead (Pb)	0.000919	0.000193	<0.000090	<0.000090	0.000662	0.000216	<0.000090	<0.000090	<0.000090	0.000057	0.000134
Lithium (Li)	0.0067	0.0056	0.0046	0.003	0.0038	0.0071	0.0043	<0.0020	0.0026	0.0047	0.0144
Magnesium (Mg)	20.6	20.9	24.1	21.6	26	25.9	35.9	34.9	28.5	30.5	32.2
Manganese (Mn)	1.19	0.907	0.216	0.0697	0.697	0.741	0.141	0.0332	0.0136	0.0234	0.054
Mercury (Hg)	<0.000050	<0.000020	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-	-
Molybdenum (Mo)	0.00136	0.0014	0.00437	0.013	0.00732	0.00057	0.0127	0.0257	0.029	0.0272	0.0225
Nickel (Ni)	0.0042	0.004	<0.0020	<0.0020	0.0027	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Potassium (K)	5.81	6.58	10.6	15.4	14.6	8.51	20	26.4	28.4	24.4	22.2
Rubidium (Rb)	0.00482	0.00273	0.00316	0.00632	0.00572	0.00207	0.00666	0.00676	0.00825	0.00864	0.0082
Selenium (Se)	**0.0011**	**0.0022**	0.001	**0.0019**	**0.0033**	**0.0014**	**0.0027**	**0.0047**	**0.004**	**0.0027**	**0.0014**
Silicon (Si)	8.14	6.6	3.57	2.72	2.6	5.75	4.07	2.77	2.47	2.05	2.74
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	38.3	40.6	75.3	120	107	81.4	150	173	173	160	170
Strontium (Sr)	0.163	0.129	0.196	0.273	0.246	0.174	0.308	0.32	0.382	0.406	0.402
Sulphur (S)	<5.0	<5.0	21.5	39.3	40.9	14.7	44.2	69.2	76.3	61.7	62
Tellurium (Te)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium (Tl)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Thorium (Th)	0.00033	<0.00010	<0.00010	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin (Sn)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium (Ti)	0.0356	0.0127	0.00141	0.0016	0.00126	0.00925	0.00206	0.00393	0.00262	0.0039	0.00652
Tungsten (W)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium (U)	0.00027	0.00013	<0.00010	<0.00010	<0.00010	0.0001	<0.00010	0.0002	0.00025	0.00021	0.00019
Vanadium (V)	0.00365	0.00182	0.00069	0.00033	0.00048	0.0014	0.0014	0.0004	<0.00020	<0.00020	0.0011
Zinc (Zn)	0.0064	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0053
Zirconium (Zr)	0.0011	0.00071	<0.00040	<0.00040	<0.00040	0.00055	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040

Parameter	NNC-GR 19-Jul	22-Jul	27-Jul	03-Aug	10-Aug	17-Oct	24-Oct	31-Oct	07-Nov	13-Nov	20-Nov
Total Metals											
Aluminum (Al)			0.0993	0.0919	0.0322		0.0742	**0.261**	0.0615	0.0462	
Antimony (Sb)			<0.00020	0.00025	<0.00020		<0.00020	0.00053	0.00054	0.00061	
Arsenic (As)			0.00111	0.00116	0.00152		0.00129	0.00117	0.00102	0.00135	
Barium (Ba)			0.0393	0.0462	0.0436		0.0387	0.0475	0.0408	0.0433	
Beryllium (Be)			<0.00020	<0.00020	<0.00020		<0.00020	<0.00020	<0.00020	<0.00020	
Bismuth (Bi)			<0.00020	<0.00020	<0.00020		<0.00020	<0.00020	<0.00020	<0.00020	
Boron (B)			0.096	0.116	0.096		0.074	0.117	0.132	0.145	
Cadmium (Cd)			<0.000010	0.000033	0.000023		<0.000010	0.00005	0.000067	0.000062	
Calcium (Ca)			53.2	52.4	49.3		55.6	288	51.9	53.9	
Cesium (Cs)			<0.00010	<0.00010	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	
Chromium (Cr)			0.0018	<0.0010	<0.0010		<0.0010	<0.0010	<0.0010	<0.0010	
Cobalt (Co)			0.00172	0.00228	0.00221		0.00272	0.00543	0.00519	0.00501	
Copper (Cu)			0.00211	0.00273	0.00098		0.0024	0.00397	0.00419	0.00358	
Iron (Fe)			0.24	0.21	**0.58**		0.19	**0.47**	0.14	0.13	
Lead (Pb)			<0.000090	0.000147	<0.000090		0.000258	0.000222	<0.000090	<0.000090	
Lithium (Li)			0.0065	0.0033	0.0024		0.0047	<0.0020	0.0029	0.0053	
Magnesium (Mg)			25.8	22.3	23		35.3	34.4	28	32	
Manganese (Mn)			0.0235	0.0327	0.245		0.0545	0.0673	0.0121	0.0105	
Mercury (Hg)			<0.000050	<0.000050	<0.000050		<0.000050	<0.000050	<0.000050	-	
Molybdenum (Mo)			0.00452	0.0111	0.00737		0.00758	0.0211	0.0252	0.0248	
Nickel (Ni)			<0.0020	<0.0020	<0.0020		<0.0020	<0.0020	<0.0020	<0.0020	
Potassium (K)			9.78	14.6	14.4		17.8	109	26.6	24.1	
Rubidium (Rb)			0.00281	0.00537	0.00497		0.0053	0.00819	0.00729	0.00788	
Selenium (Se)			**0.0012**	**0.0015**	**0.0032**		**0.0027**	**0.0042**	**0.004**	**0.003**	
Silicon (Si)			4.48	3.37	3.6		4.66	2.43	2.43	2.15	
Silver (Ag)			<0.00010	<0.00010	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	
Sodium (Na)			75.6	108	105		137	2980	165	162	
Strontium (Sr)			0.197	0.27	0.252		0.265	0.293	0.338	0.383	
Sulphur (S)			21.4	36.9	39		38	72.1	69.8	57.4	
Tellurium (Te)			<0.00020	<0.00020	<0.00020		<0.00020	<0.00020	<0.00020	<0.00020	
Thallium (Tl)			<0.00010	<0.00010	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	
Thorium (Th)			<0.00010	<0.00010	0.00016		<0.00010	<0.00010	<0.00010	<0.00010	
Tin (Sn)			<0.00020	<0.00020	<0.00020		<0.00020	<0.00020	<0.00020	<0.00020	
Titanium (Ti)			0.00339	0.00448	0.00228		0.00342	0.0115	0.00502	0.0043	
Tungsten (W)			<0.0010	<0.0010	<0.0010		<0.0010	<0.0010	<0.0010	<0.0010	
Uranium (U)			0.00013	0.00014	0.00028		0.00027	0.00025	0.00029	0.00025	
Vanadium (V)			0.00121	0.00063	0.00231		0.0015	0.00088	0.00031	<0.00020	
Zinc (Zn)			<0.0050	<0.0050	0.0118		<0.0050	<0.0050	<0.0050	<0.0050	
Zirconium (Zr)			<0.00040	<0.00040	0.00048		<0.00040	<0.00040	<0.00040	<0.00040	

Parameter	WR-US 19-Jul	22-Jul	27-Jul	03-Aug	10-Aug	17-Oct	24-Oct	31-Oct	07-Nov	13-Nov	20-Nov
Total Metals											
Aluminum (Al)	**0.117**	**0.664**	**0.213**	**0.114**	**0.147**	**0.182**	**0.118**	**0.146**	**0.103**	**0.198**	**0.242**
Antimony (Sb)	0.00021	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic (As)	0.00097	0.0015	0.00114	0.00127	0.0014	0.00079	0.00074	0.00087	0.00063	0.00089	0.00082
Barium (Ba)	0.00895	0.0128	0.00985	0.00914	0.00997	0.016	0.0167	0.02	0.016	0.016	0.0132
Beryllium (Be)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Bismuth (Bi)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron (B)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.010
Cadmium (Cd)	<0.000010	0.000093	<0.000010	<0.000010	<0.000010	0.000019	<0.000010	<0.000010	<0.000010	0.000027	0.000018
Calcium (Ca)	8.57	9.37	11.1	12.9	17.5	25.1	23.7	23.4	22.4	21.8	18.2
Cesium (Cs)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Chromium (Cr)	<0.0010	0.0031	<0.0010	<0.0010	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)	0.00025	0.00057	0.00029	0.00031	0.00033	0.00028	0.00023	0.00036	0.00026	0.00029	0.0003
Copper (Cu)	0.00102	0.00615	0.00408	0.00343	0.00588	0.00292	0.00381	0.00253	0.00113	0.00294	0.0024
Iron (Fe)	**0.71**	**1.6**	**0.74**	**0.65**	**0.76**	**0.45**	**0.59**	**0.76**	**0.62**	**0.73**	**0.77**
Lead (Pb)	0.000329	0.0029	0.000132	0.000139	0.000615	0.000367	0.000344	0.000251	0.000166	0.000174	0.000636
Lithium (Li)	<0.0020	0.0034	0.0034	0.0029	0.0024	0.0059	0.0033	0.0024	0.0027	0.0039	0.0023
Magnesium (Mg)	3.13	3.84	4.44	4.95	6.69	10.4	10.2	10.9	9.7	9.04	7.63
Manganese (Mn)	0.102	0.104	0.0846	0.156	0.218	0.138	0.127	0.106	0.0777	0.0611	0.0438
Mercury (Hg)	<0.000050	<0.000020	<0.000020	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum (Mo)	<0.00020	0.00024	<0.00020	0.00024	0.00032	0.00033	0.0003	0.00026	0.00026	0.00025	0.00021
Nickel (Ni)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Potassium (K)	0.499	0.723	0.739	0.684	0.767	1.18	1.66	1.64	1.63	1.67	1.56
Rubidium (Rb)	0.00209	0.00286	0.00175	0.00196	0.002	0.00204	0.00276	0.00367	0.00251	0.00259	0.00237
Selenium (Se)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Silicon (Si)	1.63	2.86	2.07	2.03	2.79	2.54	2.53	2.63	2.78	2.32	2.43
Silver (Ag)	<0.00010	**0.00021**	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	1.62	1.18	1.35	5.27	1.59	2.29	2.44	2.49	2.17	2.42	2.31
Strontium (Sr)	0.0259	0.0257	0.0232	0.0305	0.0385	0.0504	0.0468	0.0533	0.044	0.0447	0.0366
Sulphur (S)	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Tellurium (Te)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium (Tl)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Thorium (Th)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin (Sn)	<0.00020	0.00057	0.00029	<0.00020	<0.00020	0.00022	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium (Ti)	0.00406	0.0221	0.00748	0.00361	0.0046	0.00629	0.00486	0.00474	0.00368	0.00615	0.00765
Tungsten (W)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium (U)	0.00011	0.0001	<0.00010	0.00011	0.00015	0.00025	0.00023	0.00025	0.00028	0.00025	0.00014
Vanadium (V)	0.00103	0.00249	0.00111	0.00097	0.00108	0.00083	0.00073	0.00099	0.00073	0.00087	0.00098
Zinc (Zn)	<0.0050	0.0122	0.0067	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0069	0.0065
Zirconium (Zr)	<0.00040	0.00046	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040

Parameter	WR-DS 19-Jul	22-Jul	27-Jul	03-Aug	10-Aug	17-Oct	24-Oct	31-Oct	07-Nov	13-Nov	20-Nov	MWQSOG** Chronic	MWQSOG** Acute	CCME
Total Metals														
Aluminum (Al)	**0.678**		**0.626**	**0.266**	**0.394**	**0.36**	**0.359**	**0.376**	**0.163**	**0.272**	**0.573**	0.100[b]		0.100[b]
Antimony (Sb)	0.0004		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00022	<0.00020	0.006*		
Arsenic (As)	0.002		0.00234	0.00183	0.00233	0.00254	0.00189	0.00123	0.00089	0.00168	0.00157	0.010*		0.005
Barium (Ba)	0.0164		0.015	0.0153	0.0193	0.0215	0.0216	0.0199	0.0308	0.0316	0.026	1.000*		
Beryllium (Be)	<0.00020		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Bismuth (Bi)	<0.00020		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Boron (B)	<0.010		0.01	0.019	0.026	0.011	0.015	0.013	0.044	0.063	0.038	1.5	29	1.5
Cadmium (Cd)	0.00002		0.000045	0.00003	0.00003	0.000131	0.000228	0.000017	0.000018	0.000081	0.000024			>0.000013 – 0.000078[c]
Calcium (Ca)	11.9		15.2	21.3	28.6	28.9	36.7	29.1	42.3	43.6	35.7			
Cesium (Cs)	0.0001		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Chromium (Cr)	0.0026		0.0034	0.001	0.0023	0.0032	0.0019	0.0017	<0.0010	0.0015	0.0023			0.001[d]
Cobalt (Co)	0.00052		0.00054	0.00061	0.00084	0.00032	0.00035	0.00034	0.00202	0.00243	0.00153			
Copper (Cu)	0.00236		0.00953	0.00622	0.00537	0.00682	0.0121	0.0039	0.00209	0.00691	0.00365			>0.002 – 0.00554[c]
Iron (Fe)	**1.68**		**1.46**	**0.87**	**1.13**	**0.68**	**0.69**	**0.87**	**0.5**	**0.71**	**1.17**		0.3	0.3
Lead (Pb)	0.000535		0.000872	0.000184	0.0008	0.000167	0.00285	0.000376	0.000169	0.000798	0.00182			>0.0010 – 0.01132[c]
Lithium (Li)	0.0027		0.005	0.0033	0.0029	0.0059	0.0047	0.0034	0.004	0.0052	0.0043			
Magnesium (Mg)	4.75		6.85	9.12	11.7	12.3	17.1	14.1	20.9	20	15.7			
Manganese (Mn)	0.135		0.132	0.183	0.338	0.101	0.0869	0.0907	0.0667	0.0573	0.0586			
Mercury (Hg)	<0.000050		<0.000020	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	0.001*		0.000026
Molybdenum (Mo)	0.00034		0.00025	0.00089	0.00173	0.00042	0.00041	0.00035	0.00545	0.00865	0.00494	0.073		0.073
Nickel (Ni)	<0.0020		0.0021	<0.0020	<0.0020	<0.0020	0.0024	<0.0020	<0.0020	<0.0020	<0.0020			>0.04219 – 0.20390[c]
Potassium (K)	0.779		1.17	2.25	3.35	1.44	1.95	1.66	10.2	11	7.5			
Rubidium (Rb)	0.0038		0.00268	0.00303	0.00329	0.00229	0.00227	0.00211	0.00344	0.00442	0.00387			
Selenium (Se)	<0.0010		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0014	0.0013	<0.0010	0.001		0.001
Silicon (Si)	3.32		3.63	3.19	3.73	2.32	2.08	3.03	3.07	2.67	3.72			
Silver (Ag)	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0001		0.0001
Sodium (Na)	1.27		2.02	12	22.8	3.84	4.66	4.48	71.8	72.9	40.7			
Strontium (Sr)	0.0341		0.0315	0.0609	0.0739	0.0626	0.0748	0.0652	0.138	0.16	0.119			
Sulphur (S)	<5.0		<5.0	<5.0	8.5	<5.0	<5.0	<5.0	30.4	31.1	13.1			
Tellurium (Te)	<0.00020		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Thallium (Tl)	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0008		0.0008
Thorium (Th)	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Tin (Sn)	<0.00020		0.00024	<0.00020	<0.00020	<0.00020	0.00027	<0.00020	<0.00020	<0.00020	<0.00020			
Titanium (Ti)	0.0263		0.018	0.00893	0.0134	0.012	0.00991	0.0134	0.00885	0.00987	0.0461			
Tungsten (W)	<0.0010		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010			
Uranium (U)	0.00018		0.00015	0.0002	0.00029	0.00047	0.00055	0.00044	0.00055	0.0004	0.00039	0.015	0.033	0.015
Vanadium (V)	0.00298		0.00212	0.00168	0.00215	0.00125	0.00117	0.00146	0.00085	0.00102	0.00196			
Zinc (Zn)	0.0057		0.0198	0.0078	0.0078	0.0064	0.0187	<0.0050	<0.0050	0.0109	0.0086			0.03
Zirconium (Zr)	0.00059		0.00052	0.00048	0.00055	0.00043	0.0004	0.00043	<0.00040	<0.00040	0.00053			

[b] pH dependent
[c] Calculated based on hardness
[d] Guideline value applies if all chromium is assumed to be in the Cr(VI) principal surface water form (CCME 2012).
* Drinking water quality guideline (Government of Manitoba 2011).
** Protection of aquatic life guideline (Government of Manitoba 2011).

Parameter	EOP 19-Jul	EOP 22-Jul	EOP 27-Jul	EOP 03-Aug	EOP 17-Oct	EOP 24-Oct	EOP 31-Oct	EOP 07-Nov	EOP 13-Nov	MWQSOG* Max. Acceptable	Aesthetic	MMER Grab Samples
Dissolved Metals												
Aluminum (Al)	0.0256	0.0263	0.0272	0.0239	0.0084	0.0023	0.0067	0.0062	0.0048			
Antimony (Sb)	0.0009	0.00081	0.00081	0.00079	0.00113	0.0003	0.00105	0.00093	0.001			
Arsenic (As)	0.00113	0.00142	0.00123	0.00113	0.00183	0.00146	0.0016	0.00137	0.00163			
Barium (Ba)	0.0217	0.0211	0.0203	0.0204	0.0318	0.0332	0.0316	0.031	0.034			
Beryllium (Be)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Bismuth (Bi)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Boron (B)	0.143	0.164	0.172	0.167	0.221	0.091	0.214	0.179	0.236			
Cadmium (Cd)	0.000087	0.000077	0.000027	0.000067	0.000125	0.000027	0.0001	0.000098	0.000105			
Cesium (Cs)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Chromium (Cr)	0.0036	0.0021	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0049			
Cobalt (Co)	0.00391	0.00395	0.00404	0.00377	0.00664	0.00344	0.00602	0.00568	0.00558			
Copper (Cu)	0.0478	0.0927	0.0658	0.0445	0.0269	0.00183	0.0338	0.0365	0.0423			
Iron (Fe)	0.048	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010			
Lead (Pb)	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090			
Lithium (Li)	<0.0020	<0.0020	<0.0020	<0.0020	0.0024	0.0056	0.0023	0.0025	0.0036			
Manganese (Mn)	0.798	0.218	0.0788	0.0009	0.0364	0.0254	0.0521	0.0845	0.131			
Mercury (Hg)	<0.000050	<0.000020	<0.000020	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010			
Molybdenum (Mo)	0.0288	0.0384	0.0385	0.0377	0.0535	0.0125	0.048	0.0456	0.0502			
Nickel (Ni)	0.0093	0.0082	0.0072	0.0041	0.0035	<0.0010	0.0038	0.0036	0.0044			
Rubidium (Rb)	0.00874	0.00876	0.00905	0.009	0.013	0.00674	0.0108	0.0109	0.0108			
Selenium (Se)	0.0025	0.0013	0.0021	0.0019	0.0013	0.0028	0.0033	0.0034	0.0031			
Silicon (Si)	2.06	0.965	1.06	0.796	2.07	2.3	1.94	2.27	2.1			
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Strontium (Sr)	0.44	0.481	0.481	0.463	0.605	0.301	0.527	0.521	0.593			
Sulphur (S)	46.9	49.9	43.2	55.6	75.9	54.7	67.8	75.4	72.7			
Tellurium (Te)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Thallium (Tl)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Thorium (Th)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Tin (Sn)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Titanium (Ti)	<0.00020	<0.00020	0.00043	0.00084	0.00148	0.00045	0.00109	0.00191	0.00098			
Tungsten (W)	0.00172	0.00144	0.00131	0.00127	0.00182	<0.00020	0.00126	0.00094	0.00099			
Uranium (U)	0.00012	0.0001	<0.00010	0.00011	0.00014	0.00012	0.00013	0.00014	0.00015			
Vanadium (V)	0.0008	0.00058	0.00032	0.00028	0.001	0.0015	<0.00020	0.00051	<0.00020			
Zinc (Zn)	0.0271	0.0056	0.0025	<0.0020	0.0039	<0.0020	<0.0020	<0.0020	0.0079			
Zirconium (Zr)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040			

Parameter	NNC-VR 19-Jul	22-Jul	27-Jul	03-Aug	10-Aug	17-Oct	24-Oct	31-Oct	07-Nov	13-Nov	20-Nov
Dissolved Metals											
Aluminum (Al)	0.0042	0.0059	0.0048	0.0033	0.0034	0.0041	0.0031	<0.0020	0.0023	<0.0020	<0.0020
Antimony (Sb)	0.00037	<0.00020	<0.00020	0.00025	<0.00020	<0.00020	0.00033	0.00065	0.00068	0.00066	0.00062
Arsenic (As)	0.00314	0.003	0.00133	0.00107	0.00139	0.00218	0.00142	0.00122	0.00105	0.00137	0.0012
Barium (Ba)	0.0268	0.0315	0.0391	0.0428	0.0417	0.0286	0.0451	0.0405	0.0392	0.0402	0.0446
Beryllium (Be)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Bismuth (Bi)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron (B)	0.042	0.046	0.085	0.116	0.09	0.038	0.088	0.14	0.134	0.155	0.156
Cadmium (Cd)	<0.000010	<0.000010	<0.000010	0.00002	0.000015	0.000016	0.000028	0.000052	0.000067	0.000057	0.000047
Cesium (Cs)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Chromium (Cr)	0.004	0.0027	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0034	0.003
Cobalt (Co)	0.00066	0.00086	0.00158	0.00232	0.00202	0.00085	0.00345	0.00504	0.00508	0.00471	0.00481
Copper (Cu)	0.0007	0.00045	0.00127	0.00152	0.00079	0.00137	0.00226	0.00315	0.0039	0.00338	0.0027
Iron (Fe)	0.57	0.67	0.19	0.07	0.29	0.74	0.022	0.014	0.011	0.043	0.077
Lead (Pb)	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090	0.00015	0.000171	<0.000090	<0.000090	<0.000090	0.000241
Lithium (Li)	0.0048	0.005	0.0051	0.0033	0.0028	0.004	0.0054	0.0035	0.0026	0.0032	0.0163
Manganese (Mn)	0.332	0.613	0.128	0.0571	0.158	0.663	0.133	0.0223	0.0122	0.0188	0.0521
Mercury (Hg)	<0.000050	<0.000020	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-	-
Molybdenum (Mo)	0.00117	0.00129	0.00364	0.0112	0.00672	0.00053	0.0124	0.0237	0.0271	0.0274	0.0224
Nickel (Ni)	0.0025	0.0021	<0.0010	<0.0010	<0.0010	0.0015	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Rubidium (Rb)	0.00178	0.00183	0.00295	0.0054	0.00455	0.00159	0.00651	0.00724	0.0084	0.00796	0.00773
Selenium (Se)	<0.0010	<0.0010	<0.0010	0.0012	0.0017	<0.0010	0.0033	0.0035	0.0031	0.0021	0.0013
Silicon (Si)	6.06	5.32	3.59	2.46	2.08	5.67	4.16	2.38	2.3	1.97	2.57
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Strontium (Sr)	0.131	0.123	0.18	0.241	0.201	0.17	0.294	0.299	0.385	0.375	0.353
Sulphur (S)	<5.0	<5.0	16.9	43.4	36.6	17.2	51.1	62.2	68.8	69.6	67.4
Tellurium (Te)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium (Tl)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Thorium (Th)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin (Sn)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium (Ti)	0.00047	0.0006	0.0007	0.0006	0.00041	0.00069	0.00052	0.00091	0.00201	0.00098	0.00025
Tungsten (W)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Uranium (U)	0.0002	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	0.00012	0.00019	0.00021	0.00021	0.00021
Vanadium (V)	0.00162	0.00136	0.0007	0.00032	0.00042	0.0007	0.0013	0.00022	0.00045	<0.00020	0.0009
Zinc (Zn)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0021	<0.0020	<0.0020	<0.0020	<0.0020	0.0069
Zirconium (Zr)	0.00044	0.00045	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040

Parameter	NNC-GR 19-Jul	22-Jul	27-Jul	03-Aug	10-Aug	17-Oct	24-Oct	31-Oct	07-Nov	13-Nov	20-Nov
Dissolved Metals											
Aluminum (Al)			0.0047	0.0027	<0.0020		0.0021	<0.0020	0.0024	<0.0020	
Antimony (Sb)			<0.00020	0.00021	<0.00020		<0.00020	0.00053	0.0006	0.00061	
Arsenic (As)			0.00114	0.00111	0.00158		0.00143	0.00116	0.00104	0.00132	
Barium (Ba)			0.0364	0.045	0.0529		0.0352	0.0438	0.038	0.0417	
Beryllium (Be)			<0.00020	<0.00020	<0.00020		<0.00020	<0.00020	<0.00020	<0.00020	
Bismuth (Bi)			<0.00020	<0.00020	<0.00020		<0.00020	<0.00020	<0.00020	<0.00020	
Boron (B)			0.091	0.111	0.092		0.069	0.134	0.125	0.149	
Cadmium (Cd)			<0.000010	0.000023	0.000013		0.000024	0.000044	0.000057	0.000046	
Cesium (Cs)			<0.00010	<0.00010	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	
Chromium (Cr)			<0.0020	<0.0020	<0.0020		<0.0020	<0.0020	<0.0020	<0.0020	
Cobalt (Co)			0.00162	0.00222	0.00164		0.00278	0.00474	0.00528	0.00465	
Copper (Cu)			0.00192	0.00217	0.00133		0.00193	0.00296	0.00353	0.00303	
Iron (Fe)			0.07	0.03	0.06		0.024	0.042	0.018	0.023	
Lead (Pb)			<0.000090	<0.000090	<0.000090		<0.000090	<0.000090	<0.000090	<0.000090	
Lithium (Li)			0.0036	0.0032	0.0041		0.0052	0.0041	0.0025	0.0034	
Manganese (Mn)			0.016	0.00222	0.0106		0.029	0.00598	0.00479	0.00647	
Mercury (Hg)			<0.000050	<0.000050	<0.000050		<0.000050	<0.000050	<0.000050	-	
Molybdenum (Mo)			0.00432	0.0101	0.00647		0.00749	0.0201	0.0247	0.0249	
Nickel (Ni)			0.0011	<0.0010	0.0011		<0.0010	0.001	<0.0010	<0.0010	
Rubidium (Rb)			0.00262	0.00478	0.00384		0.00468	0.00683	0.00674	0.00707	
Selenium (Se)			<0.0010	0.0013	0.002		0.0031	0.0035	0.003	0.0021	
Silicon (Si)			3.92	3.06	2.47		4.68	2.37	2.41	1.89	
Silver (Ag)			<0.00010	<0.00010	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	
Strontium (Sr)			0.193	0.225	0.198		0.243	0.282	0.325	0.351	
Sulphur (S)			20.5	46.1	40.8		44.9	64	69.6	69.4	
Tellurium (Te)			<0.00020	<0.00020	<0.00020		<0.00020	<0.00020	<0.00020	<0.00020	
Thallium (Tl)			<0.00010	<0.00010	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	
Thorium (Th)			<0.00010	<0.00010	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	
Tin (Sn)			<0.00020	<0.00020	<0.00020		<0.00020	<0.00020	<0.00020	<0.00020	
Titanium (Ti)			0.00118	0.00056	0.00036		0.0004	0.00073	0.0021	0.00107	
Tungsten (W)			<0.00020	<0.00020	<0.00020		<0.00020	<0.00020	<0.00020	<0.00020	
Uranium (U)			0.00012	0.00013	0.0002		0.0003	0.00024	0.00026	0.00025	
Vanadium (V)			0.00092	0.00044	0.0007		0.0013	0.00024	0.00039	<0.00020	
Zinc (Zn)			<0.0020	0.0022	<0.0020		<0.0020	<0.0020	<0.0020	<0.0020	
Zirconium (Zr)			<0.00040	<0.00040	<0.00040		<0.00040	<0.00040	<0.00040	<0.00040	

Parameter	WR-US 19-Jul	22-Jul	27-Jul	03-Aug	10-Aug	17-Oct	24-Oct	31-Oct	07-Nov	13-Nov	20-Nov
Dissolved Metals											
Aluminum (Al)	0.0385	0.0304	0.0441	0.039	0.0277	0.0123	0.0171	0.016	0.0209	0.0165	0.0199
Antimony (Sb)	0.00037	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic (As)	0.00096	0.00101	0.00089	0.00102	0.00101	0.00071	0.00065	0.00067	0.00061	0.00058	0.00058
Barium (Ba)	0.00607	0.00736	0.00691	0.00764	0.00858	0.0141	0.0157	0.0165	0.0152	0.013	0.0128
Beryllium (Be)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Bismuth (Bi)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron (B)	<0.010	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	0.012	<0.010	0.01	<0.010
Cadmium (Cd)	<0.000010	0.000044	<0.000010	<0.000010	0.00002	<0.000010	<0.000010	<0.000010	<0.000010	0.000013	0.000031
Cesium (Cs)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Chromium (Cr)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Cobalt (Co)	<0.00020	<0.00020	<0.00020	0.00022	<0.00020	<0.00020	<0.00020	0.00023	0.00021	<0.00020	<0.00020
Copper (Cu)	0.00104	0.00332	0.00196	0.00223	0.00396	0.00231	0.00401	0.00142	0.00096	0.00208	0.00251
Iron (Fe)	0.47	0.32	0.48	0.45	0.45	0.3	0.31	0.33	0.36	0.21	0.25
Lead (Pb)	0.000151	0.000271	0.000235	0.000528	0.00064	0.000534	0.00145	0.000406	0.00009	0.000117	0.000238
Lithium (Li)	<0.0020	<0.0020	<0.0020	0.0021	<0.0020	0.0027	0.0034	0.0042	0.0027	0.0032	0.0044
Manganese (Mn)	0.0594	0.06	0.0539	0.125	0.139	0.111	0.114	0.0868	0.0647	0.051	0.039
Mercury (Hg)	<0.000050	<0.000020	<0.000020	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010
Molybdenum (Mo)	0.00016	0.00017	0.00014	0.00021	0.00025	0.00027	0.00036	0.00029	0.00026	0.00023	0.0002
Nickel (Ni)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Rubidium (Rb)	0.00154	0.00169	0.00142	0.00149	0.00166	0.00176	0.00255	0.00277	0.00244	0.00213	0.00212
Selenium (Se)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Silicon (Si)	1.87	1.61	1.66	1.93	1.83	2.26	2.35	2.19	2.27	1.99	2.4
Silver (Ag)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Strontium (Sr)	0.0224	0.0218	0.0212	0.0252	0.0337	0.0478	0.0469	0.043	0.0457	0.0427	0.0369
Sulphur (S)	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	14.3
Tellurium (Te)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium (Tl)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Thorium (Th)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin (Sn)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium (Ti)	0.00124	0.00114	0.00172	0.00117	0.00111	0.0006	0.00099	0.00103	0.0013	0.00082	0.00093
Tungsten (W)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Uranium (U)	<0.00010	<0.00010	<0.00010	0.00011	0.00013	0.00023	0.00026	0.00024	0.00025	0.00018	0.00015
Vanadium (V)	0.00072	0.00068	0.00066	0.00065	0.00058	0.00097	0.00111	0.00082	0.00058	0.00066	0.00121
Zinc (Zn)	<0.0020	0.0051	0.0025	0.0023	0.0046	0.0022	0.0084	<0.0020	<0.0020	0.0032	0.0067
Zirconium (Zr)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040

Parameter	WR-DS 19-Jul	22-Jul	27-Jul	03-Aug	10-Aug	17-Oct	24-Oct	31-Oct	07-Nov	13-Nov	20-Nov	MWQSOG** Chronic	MWQSOG** Acute	CCME
Dissolved Metals														
Aluminum (Al)	0.0351		0.0668	0.042	0.0247	0.0193	0.0078	0.0107	0.0116	0.0244	0.0127			
Antimony (Sb)	0.00029		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Arsenic (As)	0.00106		0.00118	0.00121	0.00138	0.00089	0.00071	0.00069	0.00085	0.00101	0.00077			
Barium (Ba)	0.0107		0.0106	0.0129	0.015	0.0184	0.0184	0.0162	0.0297	0.0287	0.0231			
Beryllium (Be)	<0.00020		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Bismuth (Bi)	<0.00020		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Boron (B)	<0.010		0.01	0.019	0.023	0.011	0.012	0.013	0.042	0.07	0.04			
Cadmium (Cd)	<0.000010		<0.000010	0.000022	0.000022	0.000139	0.000117	0.000013	0.00003	0.000056	0.000015	>0.00012 – 0.00049[c]	>0.00072 – 0.00528[c]	
Cesium (Cs)	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Chromium (Cr)	<0.0020		<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0022	<0.0020	0.011[e]	0.016[e]	
Cobalt (Co)	<0.00020		<0.00020	0.00041	0.00047	<0.00020	<0.00020	<0.00020	0.00198	0.00222	0.00122			
Copper (Cu)	0.00125		0.00299	0.00471	0.0039	0.00528	0.00569	0.00211	0.00174	0.00406	0.00212	>0.0037 - 0.0209[c]	>0.00500 - 0.0343[c]	
Iron (Fe)	0.41		0.62	0.47	0.38	0.18	0.1	0.23	0.21	0.14	0.16			
Lead (Pb)	0.000132		0.000228	0.000601	0.000234	0.000433	0.00057	0.000333	<0.000090	0.000129	0.000223	>0.00079 - 0.00728[c]	>0.0203 - 0.1868[c]	
Lithium (Li)	<0.0020		0.0026	0.0028	0.003	0.0034	0.0047	0.0058	0.0036	0.0046	0.0066			
Manganese (Mn)	0.0709		0.0845	0.122	0.132	0.0521	0.0401	0.0506	0.0569	0.0429	0.0434			
Mercury (Hg)	<0.000050		<0.000020	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010			
Molybdenum (Mo)	0.0002		0.00023	0.00084	0.00154	0.0004	0.00043	0.00038	0.00528	0.00912	0.00471			
Nickel (Ni)	<0.0010		0.0011	0.0012	0.0011	0.0011	0.0012	<0.0010	<0.0010	0.0011	<0.0010	>0.0214 - 0.1205[c]	>0.1930 – 1.0849[c]	
Rubidium (Rb)	0.00176		0.0016	0.00229	0.00249	0.00165	0.00167	0.0014	0.00335	0.00411	0.00273			
Selenium (Se)	<0.0010		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0018	0.0014	<0.0010			
Silicon (Si)	2.09		3.82	2.65	2.51	1.58	1.68	2.16	2.79	2.13	2.47			
Silver (Ag)	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Strontium (Sr)	0.0296		0.0287	0.0526	0.0593	0.0627	0.0666	0.058	0.141	0.154	0.102			
Sulphur (S)	<5.0		<5.0	<5.0	7.2	<5.0	<5.0	<5.0	28.3	30.2	<5.0			
Tellurium (Te)	<0.00020		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Thallium (Tl)	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Thorium (Th)	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Tin (Sn)	<0.00020		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Titanium (Ti)	0.00183		0.00311	0.00246	0.00162	0.00092	0.00047	0.00087	0.00155	0.00144	0.00086			
Tungsten (W)	<0.00020		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Uranium (U)	0.00014		0.00012	0.00019	0.00025	0.00043	0.00052	0.00042	0.0005	0.00039	0.0004			
Vanadium (V)	0.00101		0.00104	0.00099	0.00092	0.00117	0.00148	0.00099	0.00069	0.00103	0.00192			
Zinc (Zn)	<0.0020		0.0046	0.0061	0.0046	0.0049	0.0089	<0.0020	<0.0020	0.0071	0.0033	>0.0485 - 0.2741[c]	>0.0481 - 0.2719[c]	
Zirconium (Zr)	<0.00040		<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040			

[c] Calculated based on hardness
[e] Guideline value applies if all chromium is assumed to be in the Cr(VI) principal surface water form (Government of Manitoba 2012).
* Drinking water quality guideline (Government of Manitoba 2011).
** Protection of aquatic life guideline (Government of Manitoba 2011).

Parks
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Appendix B

San Gold Corporation

Tailings Management Area Expansion Notice of Alteration – Five Year Water Quality Summary Report (2007 – 2011)

- **Effluent Characterization and Toxicity Test Results**

Table B1: Five year summary of effluent characteristics and acute and sublethal bioassay tests

Date Sampled	2007 21-Sep	2007 27-Sep	2007 04-Oct	2007 12-Nov	2007 19-Nov	2007 26-Nov	2007 28-Nov	2008 08-Sep	2008 11-Sep	2008 16-Sep	2008 23-Sep	2008 30-Sep	2008 07-Oct	2008 14-Oct	2008 21-Oct	2008 28-Oct	2008 04-Nov	2009 25-Aug	2009 01-Sep	2009 08-Sep	2009 15-Sep	2009 22-Sep	2009 29-Sep	2010 08-Aug	2010 09-Sep	2010 16-Sep	2010 23-Sep	2010 30-Sep	2010 07-Oct	2010 14-Oct	2010 04-Nov	2011 19-Jul	2011 22-Jul	2011 27-Jul	2011 03-Aug	2011 17-Oct	2011 24-Oct	2011 31-Oct	2011 07-Nov	2011 13-Nov	MWQSOG* Max. Acceptable	Aesthetic	MMER Grab Samples
Physiochemical																																											
pH (pH units)	8.24	8	8.13	8.44	8.4	8.36	8.29	8.26	8.22	8.26	8.02	8.00	8.24	8.39	8.41	8.31	8.36	8.31	8.5	8.61	8.63	8.28	7.53	8.43	8.27	8.32	8.38	8.16	8.32	8.31	8.22	7.54	8.04	8.31	8.59	8.23	8.23	8.19	8.12	8.49		**> 6.5 - < 9.0**	**> 6.5 - < 9.0**
Hydroxide (OH^-)	<5	<5	<5	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40			
Specific Conductance (μS/cm@25°C)	679	697	700	788	795	812	817	736	716	767	782	823	831	844	854	849	871	719	742	759	768	801	848	877	901	961	935	951	990	1070	1100	1020	1030	1020	1020	1290	1300	1290	1250	1320			
Total Dissolved Solids (Calculated)	403	405	402					389	-	415	449	457	461	493	478	469	485	418	300	438	419	422	397	***511***	***509***	***550***	***534***	***553***	***564***	***622***	***654***	***638***	***592***	***649***	***652***	***902***	***874***	***860***	***843***	***895***		***≤ 500.0***	
Hardness, total	177	176	170			181	191	160	184	182	188	171	190	203	202	188	209	187	177	179	173	178	184	187	205	186	195	203	203	209	214	219	205	218	212	241	236	241	237	269			
Alkalinity (Total as $CaCO_3$)	216	219	219	185	185	189	190	178	179	180	181	186	181	180	179	181	183	147	152	155	156	174	205	152	152	151	154	152	152	149	140	198	150	151	153	187	188	188	189	191			
Bicarbonate (HCO_3)	263	267	267	217	218	225	232	217	218	219	220	227	221	212	210	217	217	177	179	179	176	213	250	178	185	182	183	185	182	180	170	241	184	180	170	228	229	230	231	216			
Carbonate (CO_3)	<6	<6	<6	4	3.5	2.7	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	3.5	4	1.9	3	1.24	3.04	5.01	7.39	<0.60	<0.60	3.54	<0.60	1.05	2.62	<0.60	1.37	0.85	<0.60	<0.60	<0.60	0.85	6.87	<0.60	<0.60	<0.60	<0.60	6.35			
Total Suspended Solids	6	4	6	9	8	4	6	5		3	<2	2	3	6	7	3	5	<5.0	7	<5.0	<5.0	10	15	8	5	16	8	9	7	9	13	10	9	12	7	16	11	20	14	9			
Turbidity (NTU)								***4***	***3.6***	***3.9***	***170***	***1.6***	***3***	***4.3***	***5.9***	***3.6***	***2.9***	***4.7***	***3.5***	***4.4***	***4.2***	***9.8***	***6.9***	***1.77***	***3.2***	***5.5***	***3.58***	***4.15***	***3.81***	***4.88***	***7.78***	***6.31***	***3.56***	***5.9***	***4.62***	***10.7***	***6.6***	***12.9***	***5***	***3.5***	***0.1*****		
Major Ions																																											
Potassium, dissolved (K^+)	10.9	11.3	11	11.4	11.6	11.6	11.8	9.86	11.4	11.2	11.8	14.5	12.2	13.1	12.7	11.5	12.7	11	10.3	10.9	10.5	10.5	10.5	13.8	17.3	17.7	16.3	17.3	18.4	18.6	22.1	8.49	21.4	21.8	21.6	30	19.8	29.2	29.2	27.9			
Sodium, dissolved (Na^+)	84.6	86	86.2	85.9	91.7	87.4	90.3	72.8	81.6	81.3	86.9	96.3	85.7	91.9	90.4	85.2	90.2	80.4	79.4	86.5	76	84	82.9	105	108	114	108	112	107	131	137	130	115	136	133	184	145	181	177	177		***≤ 200.0***	
Calcium, dissolved (Ca^{2+})	38.8	38.9	36.8	40.3	42.7	40.6	42.4	34.6	39.1	39.4	40.5	51.8	42.3	44.9	45	41.8	47.2	43	39.2	42	42.6	40.7	42.6	42.5	42.3	41.9	42.9	45.2	44.9	47.3	47.2	50.9	48.4	47.3	50.1	54.8	50.7	54.7	52.9	56.4			
Magnesium, dissolved (Mg^{2+})	19.5	19.3	19.1	20	20.7	20.7	21.2	17.8	20.9	20.3	21.1	18.4	20.5	22.2	21.8	20.4	22	19.4	19.2	18	16.1	18.5	18.8	22.5	19.5	19.9	21.4	21.8	22	24.3	23.5	22.3	20.4	24.2	21.2	25.3	26.7	25.4	25.6	31.2			
Chloride, dissolved (Cl^-)	89	86.8	87.1	97	98	103	103	86	85	86	93	94	103	102	97	100	98	80.8	94.1	90.3	86	85.9	96	108	112	116	113	116	120	127	132	130	131	131	134	199	180	179	177	197		***≤ 250.0***	
Cyanide (CN^-), Weak Acid Diss	0.002	0.002	0.004					0.013	<0.002	<0.002	0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0032	0.0023	<0.0020	<0.0020	0.0028	0.0024	0.003	0.0028	0.0033	0.0032	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020			
Cyanide (CN^-), Free	0.004	0.003	0.004					0.0096	<0.0050	<0.0050	<0.0050	0.0079	<0.0050	0.0056	<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	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050			
Cyanide (CN^-), Total	0.003	0.005	0.006	0.023	0.032	0.018	0.016	0.014	<0.002	<0.002	0.006	0.004	<0.002	<0.002	0.004	0.004	<0.002	0.004	<0.0020	0.0084	0.0055	0.0123	0.0256	0.0093	0.0115	0.0165	0.019	0.0154	0.0235	0.0466	0.0696	0.113	0.0208	0.0165	0.0102	0.0101	0.0072	0.0062	0.0058	0.0065	***0.200***		2.00
Fluoride, dissolved (F^-)				0.2	0.4	0.2	0.3	0.3	0.3	0.2	0.2	0.1	0.3	0.3	0.3	0.3	0.2	0.21	0.3	0.24	0.15	0.22	0.31	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.1	0.1	<0.10	0.1	0.14	<0.50	<0.50	<0.50	<0.50	***1.5***		
Sulphate, dissolved (SO_4^-)	31.1	31.4	30.3	59	59	63	60	58	65	63	75	72	74	83	88	86		89.8	90.2	89	85.2	74.2	22.5	110	114	119	114	118	124	134	144	134	144	143	147	218	202	201	197	216		***≤ 500.0***	
Nutrients																																											
Nitrate-N	<0.01	<0.01	<0.01					0.78	0.74	1.22	2.58	2.47	3.37	3.34	3.48	3.39	3.89	1.04	1.86	1.7	1.86	0.761	0.19	4.2	<0.050	7	5.76	6.96	8.22	***11.9***	***16.2***	6.76	***12.4***	***12.2***	***12.1***	***17.6***	***17.8***	***17.4***	***16.1***	***16.3***	***10.00***		
Nitrite-N	<0.005	<0.005	<0.005					0.01	0.02	0.01	0.08	0.1	0.12	0.07	0.04	0.01	0.01	0.03	0.024	0.032	0.018	0.019	0.029	0.148	<0.050	0.307	0.135	0.123	0.104	0.19	0.101	<0.050	0.134	0.102	0.067	0.146	<0.25	<0.25	<0.25	<0.25	***3.20***		
Nitrate_Nitrite-N	<0.02	<0.02	<0.02	1.95	2.05	1.97	4.9	0.797	0.755	1.23	2.66	2.57	3.49	3.42	3.52	3.4	3.9	1.07	1.89	1.73	1.88	0.78	0.219	4.35	<0.071	7.31	5.9	7.08	8.33	***12.1***	***16.3***	6.76	***12.5***	***12.3***	***12.2***	***17.8***	***17.8***	***17.4***	***16.1***	***16.3***	***10***		
Ammonia, total-N	<0.05	<0.05	0.16	0.158	0.14	0.131	0.197	0.013	0.011	0.031	0.028	0.016	0.023	0.018	0.023	0.042	0.03	0.0894	0.029	0.103	0.022	0.69	1.71	0.12	0.378	0.745	0.334	0.262	0.37	0.838	1.11	2.52	1.21	0.82	0.353	3.16	2.42	1.83	1.24	1.03			
Phosphorus, total	0.08	0.1	0.06	0.049	0.051	0.037	0.018	0.041	0.037	0.035	0.04	0.056	0.057	0.049	0.039	0.04	0.033	0.0265	0.038	0.0354	0.0296	0.0706	0.203	0.0154	0.0242	0.0535	0.0402	0.0395	0.0399	0.0559	0.0563	0.071	0.028	0.025	0.024	0.039	0.038	0.058	0.034	0.027			
Radiochemical																																											
Radium - 226 (Bq/L)				<0.005	<0.005	<0.005	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	0.005	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.03	<0.005	<0.005	<0.005	0.06			<0.005			<0.005	<0.005	<0.005	***0.5***		1.11

[a] pH and temperature dependent
* Drinking water quality guideline (Government of Manitoba 2011).
** For treated water

Date Sampled	2007 21-Sep	2007 27-Sep	2007 04-Oct	2007 12-Nov	2007 19-Nov	2007 26-Nov	2007 28-Nov	2008 08-Sep	2008 11-Sep	2008 16-Sep	2008 23-Sep	2008 30-Sep	2008 07-Oct	2008 14-Oct	2008 21-Oct	2008 28-Oct	2008 04-Nov	2009 25-Aug	2009 01-Sep	2009 08-Sep	2009 15-Sep	2009 22-Sep	2009 29-Sep	2010 08-Aug	2010 09-Sep	2010 16-Sep	2010 23-Sep	2010 30-Sep	2010 07-Oct	2010 14-Oct	2010 04-Nov	2011 19-Jul	2011 22-Jul	2011 27-Jul	2011 03-Aug	2011 17-Oct	2011 24-Oct	2011 31-Oct	2011 07-Nov	2011 13-Nov	MWQSOG* Max. Acceptable	Aesthetic	MMER Grab Samples
Total Metals																																											
Aluminum (Al)	0.221	0.056	0.125	0.08	0.11	0.08	0.08	0.013	0.011	0.031	0.028	0.016	0.023	0.018	0.023	0.042	0.03	0.0388	0.0227	0.0364	0.0284	0.0224	0.0204	0.0158	0.111	0.297	0.121	0.126	0.125	0.153	0.356	0.0422	0.0544	0.0463	0.0691	0.29	0.155	0.082	0.0486	0.0452			
Antimony (Sb)	<0.0002	<0.0002	<0.0002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0008	0.0012	0.0007	0.0006	<0.0005	<0.00050	0.00067	0.00071	0.00093	<0.00050	0.00067	0.00093	0.00116	0.00059	0.00123	0.00136	0.00065	0.00076	0.00084	0.00078	0.0008	0.00084	0.00085	0.00104	0.00103	0.00105	0.00086	0.00096	***0.006***		
Arsenic (As)	0.0014	0.0013	0.0016	0.0012	0.0011	0.0011	0.0011	0.0012	0.001	0.0009	0.0011	0.0012	0.0012	0.001	0.0009	0.0008	0.0009	0.001	0.0011	0.00104	0.00128	0.0009	0.00145	0.00128	0.00128	0.00134	0.0012	0.00126	0.00139	0.00153	0.00126	0.00121	0.00128	0.00118	0.00128	0.00156	0.00162	0.00147	0.00143	0.0016	***0.01***		1.00
Barium (Ba)	0.024	0.028	0.029	0.0197	0.0183	0.0205	0.0202	0.0203	0.0198	0.0202	0.022	0.0225	0.0225	0.0227	0.0203	0.0198	0.0191	0.0208	0.0192	0.019	0.0197	0.0139	0.0374	0.0208	0.0194	0.0177	0.0182	0.0189	0.0188	0.0183	0.0198	0.0282	0.0228	0.0242	0.0234	0.0319	0.0348	0.033	0.0319	0.034	***1.0***		
Beryllium (Be)	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<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	<0.00020	<0.00020	<0.00020	<0.00020			
Bismuth (Bi)	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			
Boron (B)	0.053	0.055	0.057	0.07	0.07	0.12	0.08	0.06	0.07	0.05	0.09	0.08	0.11	0.1	0.07	0.08	0.08	0.061	0.066	0.074	0.079	0.077	0.076	0.103	0.122	0.135	0.128	0.123	0.123	0.16	0.167	0.156	0.161	0.186	0.18	0.208	0.23	0.192	0.191	0.202	***5.0***		
Cadmium (Cd)	<0.00001	<0.00001	<0.00001	<0.0002	<0.0002	<0.0002	<0.0002	0.00001	<0.00001	0.00002	0.00003	0.00003	0.00003	0.00002	<0.00001	0.00002	0.00002	0.00002	0.000038	0.00003	<0.000010	0.000012	<0.000010	0.00005	0.00005	0.000058	0.000048	0.000066	0.000059	0.000061	0.000088	0.000093	0.000114	0.000089	0.000083	0.000136	0.000087	0.000113	0.000116	0.000122	***0.005***		
Calcium (Ca)	36.7	34.9	36.2	42.8	40.5	40.1	42	36.7	36.9	38.8	43.5	44.2	48.4	48.8	43.8	43.9	43.6	42.9	46.2	40.9	44.9	44.5	48.6	42	48.5	46.4	53.9	46.9	46.7	46.8	51.1	50.5	49.8	51.6	54.1	54.9	55.3	55.6	55.7	55.9			
Cesium (Cs)				<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<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	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Chromium (Cr)	0.0011	0.0008	0.0016	<0.001	<0.001	<0.001	<0.001	0.001	0.001	<0.001	0.002	0.002	0.001	<0.001	0.002	0.001	<0.001	<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	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	***0.050***		
Cobalt (Co)	0.0009	0.0007	0.0008	0.0034	0.003	0.0031	0.003	0.003	0.0025	0.003	0.0047	0.004	0.0047	0.0049	0.0043	0.0042	0.005	0.00391	0.00411	0.00413	0.0039	0.00362	0.00341	0.00327	0.0035	0.00395	0.00359	0.00361	0.00368	0.00452	0.00504	0.00426	0.00471	0.00445	0.00426	0.00709	0.00655	0.00665	0.00608	0.00569			
Copper (Cu)	0.011	0.012	0.014	0.183	0.148	0.14	0.14	0.029	0.027	0.034	0.049	0.047	0.059	0.052	0.047	0.047	0.058	0.0505	0.0473	0.0621	0.0581	0.0419	0.0297	0.0644	0.0992	0.161	0.123	0.136	0.174	0.351	0.373	0.232	0.158	0.125	0.0812	0.0508	0.0462	0.0516	0.051	0.0545		***≤ 1.0***	0.60
Iron (Fe)	0.2	<0.1	0.2	0.19	0.18	0.2	0.17	0.18	0.04	0.07	0.05	0.08	0.04	0.09	0.12	0.14	0.12	0.05	0.045	0.075	0.038	0.119	0.17	<0.020	0.094	0.112	0.067	0.099	0.281	0.155	0.23	***0.37***	0.16	0.15	0.12	***0.34***	0.16	***0.93***	0.11	0.13		***≤ 0.300***	
Lead (Pb)	0.0007	0.0004	0.0004	0.0012	<0.0005	0.0007	0.015	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000173	0.000161	0.000312	0.00018	0.000172	0.000197	0.000407	0.000562	0.000332	<0.000090	0.000447	<0.000090	0.000468	0.000221	0.000176	0.000132	0.000097	***0.010***		0.40
Lithium (Li)	0.002	0.003	0.003					<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0020	0.0032	<0.0020	0.0033	0.0032	0.0021	0.0038	0.002	<0.0020	0.0027	0.0041	0.0023	0.0048	0.0035	<0.0020	0.0025	0.0051			
Magnesium (Mg)	18.3	18.1	18.4	21.1	21	19.7	21	18.9	19.4	19.8	21.9	21.5	25	23.7	20.6	20	20.7	19.7	22.1	19.2	21.2	18.3	20.7	19.9	20.4	21	23.5	22.4	21.2	22.3	22.8	21.3	24.5	27.9	23.7	27.6	37.1	33.2	27.2	31.8			
Manganese (Mn)	***0.099***	***0.234***	***0.154***	***0.0838***	***0.0691***	***0.0641***	***0.063***	***0.194***	***0.141***	***0.214***	***0.185***	***0.22***	***0.145***	***0.0694***	***0.0639***	***0.0715***	***0.0864***	***0.0966***	***0.0796***	***0.0912***	***0.0983***	***0.844***	***1.19***	0.0473	***0.22***	***0.218***	***0.162***	***0.131***	***0.153***	***0.242***	***0.223***	***0.896***	***0.295***	***0.214***	***0.116***	***0.0912***	***0.101***	***0.117***	***0.119***	***0.155***		***≤ 0.050***	
Mercury (Hg)	<0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000020	<0.000020	<0.000050	<0.000010	<0.000050	<0.000010	<0.000010	<0.000010	***0.001***		
Molybdenum (Mo)	0.004	0.004	0.005	0.0147	0.0139	0.0142	0.0134	0.0091	0.0091	0.0098	0.0137	0.0136	0.0162	0.0175	0.0163	0.016	0.0173	0.0123	0.013	0.0138	0.0136	0.00968	0.00816	0.0233	0.0247	0.0269	0.027	0.0279	0.0316	0.0364	0.0394	0.034	0.0417	0.0417	0.0414	0.0567	0.0524	0.049	0.0466	0.0478			
Nickel (Ni)	0.0027	0.0019	0.0023	0.005	0.005	0.005	0.005	0.004	0.003	0.003	0.004	0.004	0.004	0.021	0.003	0.004	0.005	0.0029	0.0032	0.0028	0.0036	0.003	0.0032	0.0033	0.0054	0.0077	0.0064	0.0069	0.008	0.011	0.0136	0.0115	0.0112	0.0085	0.0064	0.0036	0.0045	0.0047	0.0041	0.0039			1.00
Potassium (K)	10.8	11	10.9	11.9	11	11.6	11.8	10.6	10.7	10.8	12.2	12.4	14.2	13.6	12.3	12	12	10.9	11.9	10.8	11.7	11.4	11.6	15.8	16.2	16.9	17.2	18.1	18.2	19.5	20.1	20.6	23.2	22.5	22.8	30.4	29.1	29.5	31	28.2			
Rubidium (Rb)				0.0071	0.0067	0.0068	0.0061	0.006	0.0058	0.0059	0.0073	0.0074	0.0081	0.0084	0.0073	0.0073	0.007	0.0068	0.00687	0.00668	0.00704	0.00671	0.00762	0.00765	0.00833	0.0085	0.00838	0.00858	0.00837	0.00918	0.00884	0.0104	0.0103	0.00972	0.0103	0.0132	0.0127	0.0121	0.0104	0.0111			
Selenium (Se)	<0.0002	0.0003	0.0003	0.002	0.003	0.003	0.008	0.006	0.003	<0.001	<0.001	0.003	0.001	0.005	0.002	0.004	0.006	0.0027	0.0017	0.0014	0.0021	0.001	0.0011	0.0027	<0.0010	0.002	0.0017	0.0014	0.001	<0.0010	0.0025	0.0033	0.0069	0.0025	0.0024	0.0026	0.0035	0.005	0.0041	0.0032	***0.010***		
Silicon (Si)	1.56	1.23	1.56															0.63	0.31	0.47	0.58	1.15	2.36	1.62	1.11	1.65	1.2	0.698	0.468	0.835	1.39	1.85	1.41	0.97	1.11	2.28	2.37	2.35	2.42	2.36			
Silver (Ag)	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.0001	0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.00010	0.00021	<0.00010	0.00011	<0.00010	0.00039	0.00041	0.00065	0.00044	0.00062	0.00076	0.00139	0.00158	0.00048	0.00037	0.00027	0.00016	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Sodium (Na)	82.6	82.7	82.3	90.5	89.7	81.8	86.7	76	76.6	81.6	88	89.4	106	98.6	88.5	84.6	84.5	81.2	82.7	87.1	77.7	84.2	83.7	105	107	112	115	113	123	130	128	133	129	141	151	181	179	176	181	180			
Strontium (Sr)	0.225	0.243	0.249	0.302	0.294	0.295	0.276	0.259	0.26	0.26	0.305	0.325	0.359	0.368	0.324	0.326	0.335	0.311	0.307	0.315	0.318	0.3	0.334	0.337	0.397	0.403	0.429	0.432	0.464	0.496	0.498	0.527	0.512	0.497	0.506	0.611	0.627	0.531	0.554	0.614			
Sulphur (S)	10.4	9.8	9.8					20	20	23	34	29	34	28	33	29	33	29.7	32.5	37.4	33.2	29.9	26.7	42.4	39.5	46.3	41.2	45.6	258	45.4	53	37.5	47.2	49.3	46.1	76.4	57.4	76.2	79.5	64.9			
Tellurium (Te)				<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<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	<0.00020	<0.00020	<0.00020	<0.00020			
Thallium (Tl)	<0.00005	<0.00005	<0.00005	0.0004	0.0002	0.0003	0.0007	<0.0001	0.0003	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0004	0.0005	<0.0001	0.00027	0.00013	<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	<0.00010	<0.00010	<0.00010			
Thorium (Th)																								<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			
Tin (Sn)	<0.001	<0.001	<0.001	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	0.002	<0.0006	<0.0006	<0.0006	<0.0006	0.0011	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00020	<0.00020	<0.00020	0.00101	<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			
Titanium (Ti)	0.013	0.0033	0.0058	0.0021	0.005	0.0034	0.0037	<0.0009	<0.0009	0.0018	0.143	0.0018	<0.0009	<0.0009	0.001	0.0018	<0.0009	<0.00090	<0.00090	0.00102	<0.00090	<0.00090	0.00137	0.00087	0.00152	0.00195	0.00159	0.00221	0.00202	0.00283	0.00411	0.00142	0.00208	0.00075	0.00287	0.00582	0.00415	0.00339	0.00293	0.00298			
Tungsten (W)				0.0004	0.0003	<0.0002	0.0003	<0.0002	0.0003	<0.0002	0.0003	0.0002	0.0003	0.0004	0.0006	<0.0002	<0.0002	<0.00020	0.00047	0.00079	0.00079	0.00063	0.00062	0.0012	0.0014	0.0017	0.0013	0.0013	0.0015	0.0019	0.0019	0.0018	0.0016	0.0014	0.0015	0.002	0.0017	0.0013	0.0011	<0.0010			
Uranium (U)	<0.0005	<0.0005	<0.0005	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	<0.00010	0.0001	0.0001	<0.00010	<0.00010	<0.00010	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	0.0001	0.0001	0.00012	0.00012	<0.00010	0.00012	0.00016	0.00012	0.00014	0.00016	0.00014	***0.02***		
Vanadium (V)	0.0011	0.0005	0.0008	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.003	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0006	0.0004	0.0009	0.0006	0.00042	0.00027	0.00043	0.0005	0.002	0.00023	0.00096	0.00042	0.0014	0.0017	0.00032	0.00027	<0.00020			
Zinc (Zn)	0.004	0.006	0.011	0.03	<0.01	0.01	0.02	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.029	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0491	0.0065	0.0055	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050		***≤ 5.0***	1.00
Zirconium (Zr)	<0.001	<0.001	<0.001	<0.0004	0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040			

[b] pH dependent
[c] Calculated based on hardness
* Drinking water quality guideline (Government of Manitoba 2011).

Date Sampled	2007 21-Sep	2007 27-Sep	2007 04-Oct	2007 12-Nov	2007 19-Nov	2007 26-Nov	2007 28-Nov	2008 08-Sep	2008 11-Sep	2008 16-Sep	2008 23-Sep	2008 30-Sep	2008 07-Oct	2008 14-Oct	2008 21-Oct	2008 28-Oct	2008 04-Nov	2009 25-Aug	2009 01-Sep	2009 08-Sep	2009 15-Sep	2009 22-Sep	2009 29-Sep	2010 08-Aug	2010 09-Sep	2010 16-Sep	2010 23-Sep	2010 30-Sep	2010 07-Oct	2010 14-Oct	2010 04-Nov	2011 19-Jul	2011 22-Jul	2011 27-Jul	2011 03-Aug	2011 17-Oct	2011 24-Oct	2011 31-Oct	2011 07-Nov	2011 13-Nov	MWQSOG* Max. Acceptable	Aesthetic	MMER Grab Samples
Dissolved Metals																																											
Aluminum (Al)	<0.005	<0.005	<0.005	<0.02	<0.02	<0.02	<0.02	0.006	<0.002	<0.002	0.017	0.005	0.003	0.027	0.012	0.047	0.011	0.0079	0.0034	0.0083	0.0056	0.0046	0.0024	0.0028	0.0555	0.144	0.0539	0.0527	0.07	0.0626	0.0973	0.0256	0.0263	0.0272	0.0239	0.0084	0.0023	0.0067	0.0062	0.0048			
Antimony (Sb)	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0005	0.00104	0.00081	0.00074	0.00061	0.00068	0.00079	0.00101	0.0009	0.00081	0.00081	0.00079	0.00113	0.0003	0.00105	0.00093	0.001			
Arsenic (As)	0.0018	0.0021	0.0021	0.0008	0.0009	0.0008	0.0009	0.0011	0.001	0.001	0.0011	0.0014	0.0016	0.0011	0.001	0.0009	0.001	0.00111	0.00116	0.00104	0.00113	0.00126	0.0013	0.00119	0.00145	0.00155	0.00123	0.00132	0.00133	0.00139	0.00122	0.00113	0.00142	0.00123	0.00113	0.00183	0.00146	0.0016	0.00137	0.00163			
Barium (Ba)	0.022	0.026	0.026	0.019	0.0197	0.02	0.0203	0.0175	0.0201	0.015	0.0212	0.0276	0.0227	0.021	0.0192	0.0183	0.0199	0.02	0.0179	0.017	0.0155	0.0123	0.0238	0.0188	0.0185	0.0181	0.0183	0.018	0.0179	0.0186	0.0195	0.0217	0.0211	0.0203	0.0204	0.0318	0.0332	0.0316	0.031	0.034			
Beryllium (Be)	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<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	<0.00020	<0.00020	<0.00020	<0.00020			
Bismuth (Bi)	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00020	0.0002	<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	<0.00020	<0.00020			
Boron (B)	0.055	0.054	0.05	0.07	0.07	0.07	0.06	0.08	0.07	0.08	0.09	0.1	0.11	0.1	0.1	0.07	0.09	0.064	0.069	0.071	0.072	0.071	0.072	0.105	0.124	0.135	0.126	0.136	0.135	0.172	0.172	0.143	0.164	0.172	0.167	0.221	0.091	0.214	0.179	0.236			
Cadmium (Cd)	<0.00001	<0.00001	<0.00001	<0.0002	<0.0002	<0.0002	<0.0002	0.00002	<0.00001	<0.00001	0.00005	0.00002	0.00008	0.00003	<0.00001	0.00003	0.00004	0.000034	0.000044	0.000032	0.000036	0.000028	0.000025	0.000051	0.000055	0.000061	0.000062	0.000045	0.000076	0.000071	0.000097	0.000087	0.000077	0.000027	0.000067	0.000125	0.000027	0.0001	0.000098	0.000105			
Cesium (Cs)				<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<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	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010			
Chromium (Cr)	0.0009	0.0008	0.0011	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00101	0.00041	<0.00020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0036	0.0021	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0049			
Cobalt (Co)	0.0006	0.0006	0.0006	0.0027	0.0028	0.0027	0.0028	0.0026	0.0025	0.0035	0.0041	0.0048	0.0041	0.0044	0.0039	0.004	0.0048	0.00384	0.00351	0.00345	0.00357	0.00333	0.00272	0.00324	0.00331	0.0038	0.00332	0.00328	0.00376	0.00491	0.00489	0.00391	0.00395	0.00404	0.00377	0.00664	0.00344	0.00602	0.00568	0.00558			
Copper (Cu)	0.01	0.01	0.012	0.109	0.103	0.108	0.103	0.0222	0.0215	0.0356	0.0538	0.0456	0.0428	0.0616	0.0418	0.0429	0.0638	0.043	0.0375	0.045	0.0396	0.0255	0.0131	0.0571	0.069	0.0874	0.0754	0.0864	0.132	0.214	0.205	0.0478	0.0927	0.0658	0.0445	0.0269	0.00183	0.0338	0.0365	0.0423			
Iron (Fe)	0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.03	0.005	0.013	<0.002	0.028	0.034	0.005	0.034	<0.002	0.052	0.054	0.0323	0.0092	0.0176	0.0065	0.0293	0.067	<0.010	0.042	<0.010	<0.010	0.044	0.012	<0.010	<0.010 *	0.048	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010			
Lead (Pb)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	0.0002	0.0003	<0.0001	0.0004	0.0002	0.0001	0.0002	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000090	0.000116	0.000098	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090			
Lithium (Li)	0.002	0.002	0.002					<0.005	0.006	<0.005	<0.005	<0.005	0.016	0.006	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0036	0.0032	0.0029	0.0034	0.003	0.0023	0.0022	0.0023	<0.0020	<0.0020	<0.0020	<0.0020	0.0024	0.0056	0.0023	0.0025	0.0036			
Manganese (Mn)	<0.005	<0.005	<0.005	0.0497	0.0543	0.0504	0.0556	0.006	0.0026	0.0814	0.182	0.25	0.0799	0.0752	0.0331	0.0342	0.0815	0.00257	0.00253	0.0227	0.00353	0.615	0.95	0.0176	0.112	0.162	0.0544	0.0867	0.134	0.238	0.21	0.798	0.218	0.0788	0.0009	0.0364	0.0254	0.0521	0.0845	0.131			
Mercury (Hg)	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<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	<0.000020	<0.000020	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010			
Molybdenum (Mo)	0.003	0.004	0.004	0.0142	0.0141	0.0147	0.0148	0.0089	0.0086	0.0091	0.0129	0.0164	0.0155	0.016	0.0164	0.0163	0.019	0.0124	0.0121	0.0128	0.0125	0.00989	0.00705	0.0225	0.0241	0.026	0.0258	0.0264	0.0285	0.0351	0.0387	0.0288	0.0384	0.0385	0.0377	0.0535	0.0125	0.048	0.0456	0.0502			
Nickel (Ni)	0.0011	0.0008	0.0017	0.0037	0.0038	0.0036	0.004	0.0019	0.0027	0.0032	0.0059	0.0047	0.004	0.0027	0.0035	0.0033	0.0057	0.00276	0.00255	0.00232	0.00294	0.00262	0.00209	0.00603	0.00477	0.00666	0.0061	0.0062	0.0083	**0.0117**	**0.0124**	0.0093	0.0082	0.0072	0.0041	0.0035	<0.0010	0.0038	0.0036	0.0044			
Rubidium (Rb)				0.0062	0.0061	0.0064	0.0066	0.0056	0.0055	0.0059	0.0071	0.0092	0.0076	0.0075	0.0071	0.0068	0.0077	0.00674	0.00666	0.00627	0.00601	0.00669	0.00674	0.0068	0.00804	0.00839	0.00836	0.00838	0.00836	0.00882	0.00887	0.00874	0.00876	0.00905	0.009	0.013	0.00674	0.0108	0.0109	0.0108			
Selenium (Se)	<0.0002	0.0002	<0.0002	0.0005	0.001	<0.001	<0.001	0.001	0.003	0.001	0.002	0.003	<0.001	<0.001	0.002	0.002	0.003	<0.0010	<0.0010	<0.0010	0.002	<0.0010	<0.0010	0.0025	<0.0010	<0.0010	0.0016	0.0013	0.0027	0.001	0.0034	0.0025	0.0013	0.0021	0.0019	0.0013	0.0028	0.0033	0.0034	0.0031			
Silicon (Si)	1.06	1.1	1.18	1.2	1.3	1.3	1.4	1	1.1	1.2	1.3	1.7	1.5	1.5	1.5	1.5	1.5	0.57	<0.20	0.36	0.6	1	2.57	1.11	1.02	1.25	0.534	0.448	0.354	0.981	1.37	2.06	0.965	1.06	0.796	2.07	2.3	1.94	2.27	2.1			
Silver (Ag)	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.00010	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	0.0002	<0.00010	0.00013	<0.00010	0.00015	0.00018	0.00017	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Strontium (Sr)	0.235	0.239	0.229	0.279	0.27	0.292	0.292	0.236	0.246	0.238	0.313	0.384	0.332	0.338	0.318	0.319	0.362	0.309	0.305	0.332	0.322	0.309	0.289	0.365	0.362	0.366	0.378	0.411	0.431	0.435	0.503	0.44	0.481	0.481	0.463	0.605	0.301	0.527	0.521	0.593			
Sulphur (S)	10.4	10.5	10.1					20	<10	21	33	29	34	29	32	29	33	29.9	31.6	35.5	33.6	28.6	26.6	37.6 *	45.9 *	46.1	41.5 *	47.9 *	43.0 *	43.3 *	58.8	46.9	49.9	43.2	55.6	75.9	54.7	67.8	75.4	72.7			
Tellerium (Te)				<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<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	<0.00020	<0.00020	<0.00020	<0.00020			
Thallium (Tl)	<0.00005	<0.00005	<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0001	0.0002	0.0002	0.0002	0.0001	0.0004	0.0002	<0.0001	0.00021	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0002	0.00017	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
Thorium (Th)																								<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			
Tin (Sn)	<0.001	<0.001	<0.001	0.0015	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0004	0.0003	<0.0003	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<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	<0.00020	<0.00020	<0.00020	<0.00020			
Titanium (Ti)	0.0009	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	0.0006	0.0008	<0.0005	0.0008	<0.0005	0.0008	0.0011	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00079	0.00069	0.00162	0.00088	0.00043	0.00113	0.00089	0.00094	0.00223	<0.00020	<0.00020	0.00043	0.00084	0.00148	0.00045	0.00109	0.00191	0.00098			
Tungsten (W)				<0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	0.0003	0.0004	<0.0002	0.0004	0.0003	0.0006	0.0004	0.0003	<0.00020	0.00038	0.00066	0.00075	0.0007	0.00055	0.0011	0.0014	0.0016	0.00122	0.00123	0.00136	0.00196	0.0019	0.00172	0.00144	0.00131	0.00127	0.00182	<0.00020	0.00126	0.00094	0.00099			
Uranium (U)	<0.0005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0001	0.0001	0.0002	0.0003	0.0001	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0003	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	0.00011	<0.00010	0.00012	0.0001	<0.00010	0.00011	0.00014	0.00012	0.00013	0.00014	0.00015			
Vanadium (V)	0.0038	0.0014	0.0007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.001	<0.001	0.002	0.003	0.002	0.001	<0.0010	<0.0010	<0.0010	0.0014	<0.0010	0.0029	0.00026	0.00062	0.0007	0.0005	0.00036	<0.00020	0.00045	0.0005	0.0008	0.00058	0.00032	0.00028	0.001	0.0015	<0.00020	0.00051	<0.00020			
Zinc (Zn)	0.001	0.002	0.004	0.006	<0.005	<0.005	<0.005	<0.005	0.013	<0.005	0.005	0.015	0.017	0.014	<0.005	<0.005	0.006	0.0125	0.0058	0.0194	<0.0050	<0.0050	<0.0050	<0.0020	0.0022	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0036	0.0271	0.0056	0.0025	<0.0020	0.0039	<0.0020	<0.0020	<0.0020	0.0079			
Zirconium (Zr)				<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.0005	0.0004	<0.0004	<0.0004	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040			

[c] Calculated based on hardness
[d] Guideline value applies if all chromium is assumed to be in the Cr(VI) principal surface water form (Government of Manitoba 2011).

	Date Sampled	2007 21-Sep	2007 27-Sep	2007 04-Oct	2007 12-Nov	2007 19-Nov	2007 26-Nov	2007 28-Nov	2008 08-Sep	2008 11-Sep	2008 16-Sep	2008 23-Sep	2008 30-Sep	2008 07-Oct	2008 14-Oct	2008 21-Oct	2008 28-Oct	2008 04-Nov	2009 25-Aug	2009 01-Sep	2009 08-Sep	2009 15-Sep	2009 22-Sep	2009 29-Sep	2010 08-Aug	2010 09-Sep	2010 16-Sep	2010 23-Sep	2010 30-Sep	2010 07-Oct	2010 14-Oct	2010 04-Nov	2011 19-Jul	2011 22-Jul	2011 27-Jul	2011 03-Aug	2011 17-Oct	2011 24-Oct	2011 31-Oct	2011 07-Nov	2011 13-Nov
Acute Lethality Tests																																									
rainbow trout	Pass/ Fail			pass	pass					pass				pass	pass	pass	pass	pass	pass	pass	pass	pass	pass		pass		pass				pass	pass	pass	pass	pass	pass	pass	pass	pass	pass	pass
	Mortality (%)			0	0					0				0	0	0	0	0	0	0	0	0	0		0		0				0	10	0	0	0	0	0	0	0	0	0
Daphnia magna	Pass/ Fail			pass	pass					pass				pass	pass	pass	pass	pass	pass	pass	pass	pass	pass		pass		pass				Fail	Fail	pass	pass	pass	pass	pass	pass	pass	pass	pass
	Mortality (%)			0	0					0				0	0	0	0	0	0	0	0	0	0		0		0				70	90	0	3.3	0	0	0	0	0	0	0
Sublethal																																									
Fathead minnow1	LC50 (%)						>100				>100						35 (5->100%)			>100		>100					>100					>100									>100
	IC25 (%)						>100				>100						>100			>100		>100					>100					>100									>100
Invertebrate2	LC50 (%)						>100				>100						>100			>100		>100					>100					60 (40-83)									>100
	IC25 (%)						>100				>100						2(1.6-8.0)			>100		>100					>100					24 (13-31)									71
Plant3	Frond Number IC25 (%)						4.0 (3.0-6.0)				44 (27-67)						11 (9-14)			>97		>97					4.3(1.7-24)					1.7(1.5-2.9)									15
Plant3	Dry Weight IC25 (%)						>97				>97						>97			>97		>97					>97					>97									>97
Algae4	IC25 (%)						15(14-17)				>91						>91			>91		>91					>91					13 (12-14)									>91