

DE BEERS GROUP

DE BEERS CANADA INC. VICTOR MINE

MERCURY PERFORMANCE MONITORING 2023 ANNUAL REPORT PER ENVIRONMENTAL COMPLIANCE APPROVAL #3960-7Q4K2G CONDITIONS 7(5) AND 7(6)

Prepared for:

Ministry of the Environment, Conservation and Parks

**June 2024
CA-EI-TC190502**

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June 28, 2024

TC190502

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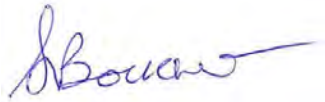
Dear Mr. Ault / Chief Koostachin-Metatawabin:

Re: Mercury Performance Monitoring 2023 Annual Report, Environmental Compliance Approval #3960-7Q4K2G, Conditions 7(5) and 7(6)

Please find enclosed the Annual Mercury Performance Monitoring Report for the De Beers Canada Inc. Victor Mine, for the 2023 reporting period. The report addresses Conditions 7(5) and 7(6) of Environmental Compliance Approval #3960-7Q4K2G, and summarizes monitoring data relating to peat pore water, surface water systems, groundwater (well field) discharge and fish.

Should you have any questions or concerns, please feel free to contact me by phone at 905-242-4359 or by email at Sebastien.Boucher@debeersgroup.com.

Sincerely,
De Beers Canada Inc.



Sebastien Boucher
Environmental Superintendent
De Beers Canada Inc.

cc: Pauline Tookate, Noel Tookate – Attawapiskat FN
Todd Copeland - MECP
Sarah McLean– De Beers Canada

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LIST OF ABBREVIATIONS

ANCOVA	Analysis of Covariance
ANOVA	Analysis of Variance
ATT	Attawapiskat River
BACI	Before-After-Control-Impact
CEQG	Canadian Environmental Quality Guidelines
COM	Community
CONF	Confluence
CPUE	Catch Per Unit Effort
DS	Downstream
DSNAY	Downstream Nayshkootayaow
EEM	Environmental Effects Monitoring
F-Value	Analysis of Variance from Sample Statistics
FF	Far Field
GAM	Generalized Additive Model
Hg	Mercury
HgCON	Mercury Control Station / Northwest Control
LS	Least Mean
MC	Monument Channel
MDL	Method Detection Limit
MeHg	Methyl Mercury
NAY or NAYSH	Nayshkootayaow River
NAY-MOUTH	Mouth of Nayshkootayaow
NEF/F	Northeast Fen Final
NGC	North Granny Creek
ng/L	Nanograms Per Litre
NF	Near Field
PKC	Processed Kimberlite Containment
PPM	Parts Per Million
P-Value	Tabled Probability Threshold
SEF/F	Southeast Fen Final
RPD	Relative Percent Difference
SGC	South Granny Creek
SRB	Sulphate Reducing Bacteria
ST	Station
SWF/F	Southwest Fen Final
T	Tributary
µg/g	Micrograms Per Gram
THg	Total Mercury
US	Upstream
YOY	Young of Year

1.0 INTRODUCTION

This annual report was prepared by WSP Canada Inc. (WSP)¹ on behalf of De Beers Canada Inc. (De Beers), pursuant to the requirements of Conditions 7(5) and 7(6) of Environmental Compliance Approval (ECA) #3960-7Q4K2G. This report is the sixteenth in a series of annual mercury monitoring reports that have been prepared for the Victor Mine to date (AMEC Environment & Infrastructure 2009, 2010, 2011, 2012a, 2013a and 2014a; Amec Foster Wheeler 2015, 2016 and 2017; Wood 2018, 2019, 2020a and 2021, WSP 2022 and 2023). This annual report summarizes Victor Mine site mercury monitoring data collected for the 2023 calendar year related to this permit and provides summaries of earlier data and trends where appropriate. For consistency and readability from year to year, this report maintains the same general format and much of the same wording as previous annual reports, with updates in data presentation and interpretation where warranted.

A broad-based, rigorous mercury monitoring program was established for the De Beers Victor Mine because of concerns raised during the Ministry of the Environment, Conservation and Parks (MECP) provincial permitting process, regarding the possible influences of mine dewatering activities on muskeg system hydrodynamics and associated mercury chemo-dynamics. Concerns were expressed that should mine dewatering lead to extensive drying out of the local muskeg ecosystem, resultant decomposition of the desiccated peat could lead to increased mercury release to area receiving waters above levels that occur naturally. Mercury is present in area peatlands in the baseline condition because of the long-range aerial transport of emissions from natural and anthropogenic sources unrelated to Victor Mine activities. Volcanic activity is the primary natural source for the long-range transport of mercury. Coal-fired power plants in the United States and elsewhere are the primary anthropogenic sources for long-range mercury transport.

During the Effects Assessment (EA), evidence was presented showing that mine dewatering activities were unlikely to significantly increase mercury release into nearby waters. However, if such an increase were to occur, mitigation measures would be put in place to prevent or minimize the impact on the environment. The Victor Mine mercury monitoring program is designed to test the assumption that mine dewatering is not likely to substantively increase mercury release rates to area receiving waters.

In 2019, the Victor Mine ceased operations and began the decommissioning phase of the Project. Mining operations were terminated on 06 March 2019 followed by the termination of processing operations on 28 May 2019. Open pit dewatering progressively ceased between 18 February and 25 April 2019 and the pit has been filled since that date.

Data collected up to the end of 2023 continue to support the opinion that mine dewatering is unlikely to cause significant increases in mercury release into nearby surface water. Localized increases in methyl mercury concentrations have, however, been noted in some years in downstream Granny

¹formerly Wood Environment & Infrastructure Solutions, a Division of Wood Canada Limited and formerly Amec Foster Wheeler Environment & Infrastructure, a Division of Amec Foster Wheeler Americas Limited

Creek waters. This increase has been attributed to sulphate releases to the local muskeg environment from mine rock and ore material drainage and is considered to be unrelated to mine dewatering effects on the muskeg environment.

In anoxic (zero oxygen) environments, such as wetlands, sulphate can act as an electron acceptor for sulphate reducing bacteria (SRB). SRB are the primary promoters of mercury methylation in anoxic (e.g., wetland) environments, and the stimulation of SRB growth leads to increased rates of methyl mercury production from mercury which is already present in the environment. This effect was first observed during the Victor Mine construction phase in 2006 and 2007, in connection with Central Quarry discharges to the Southwest Fen (AMEC 2009a). It continues to be observed in association with other localized muskeg drainages around the Victor Mine site, where sulphate concentrations are elevated above the background condition.

Laboratory services for the mercury water sampling program were provided by:

- Flett Research Ltd. in Winnipeg (to approximately the end of April 2009);
- Dr. Brian Branfireun's laboratory at the University of Toronto (from approximately May 2009 to September 2010); and
- Subsequently by the Biotron Analytical Services laboratory at the University of Western Ontario. Dr. Branfireun helped establish the Biotron Analytical Services laboratory, which is a CALA-accredited facility, using ISO 17025.

Fish tissue analyses were similarly conducted at Dr. Branfireun's laboratory at the University of Toronto, and subsequently at the Biotron Analytical Services laboratory since 2008. The above laboratories are recognized for their specialty of ultra-trace analyses for mercury.

Method detection limits (MDLs) for water quality analysis have changed over time according to the laboratory conducting the analysis and because of changes in detection limit methodology. In some instances, changes to the MDL over time has led to erroneous interpretation of water quality with respect to mercury concentrations. The Flett Research Ltd. Laboratory, used for mercury analysis in the earlier years of sampling and analysis, reported mercury concentration values that were below the subsequently used Biotron Analytical Services laboratory MDLs. To address changes to the MDLs over time and remove any false trends in the data, all historic water quality data presented in the annual mercury reports were adjusted for uniformity to reference detection limits of 0.02 ng/L for methyl mercury and 0.1 ng/L that had been used by the Biotron. However, in 2018 Biotron laboratory changed their methodology for calculating the MDL to comply with the definition and procedure for the *Determination of the Method Detection Limit, Revision 2* published by the United States Environmental Protection Agency (US EPA 2016). This changed the MDL for total mercury and methyl mercury to 0.215 ng/L and 0.023 ng/L. The MDL for total mercury was further changed in 2020 to 0.168 ng/L and changed for methyl mercury in 2023 to 0.029 ng/L. These MDL values have been included in all subsequent annual reports due to the small changes to the MDLs not resulting in erroneous trends. In 2023 the MDLs for methyl mercury ranged from < 0.034 to <0.04 ng/L.

For readers unfamiliar with these units of measurement:

ng/L represents nanograms per litre of water, which can also be expressed as parts per trillion (ppt) or 1 part of material in 1,000,000,000,000 parts of water.

ug/g represents micrograms per gram of solids (e.g., fish flesh), which can also be expressed as parts per million (ppm) or 1 part of material in 1,000,000 parts of solids.

Water quality results provided in this report are compared with the more stringent Canadian Environmental Quality Guidelines (CEQG) for the protection of aquatic life: set at 26 ng/L for total mercury and 4 ng/L for methyl mercury, both as unfiltered samples. Filtered samples are compared to CEQG in this report for information purposes only. The Provincial Water Quality Objective (PWQO) for the protection of aquatic life is 200 ng/L for total mercury. There is no PWQO for methyl mercury.

In the case of filtered methyl mercury concentrations in receiving waters, comparisons are also made with the bioaccumulation threshold of 0.05 ng/L, applicable to filtered samples, cited by the United States Environmental Protection Agency (US EPA 1997) for the protection of fish-eating wildlife species such as Bald Eagle (*Haliaeetus leucocephalus*) and River Otter (*Lontra canadensis*). This comparison is made for illustrative purposes only at the request of MECP in their comments on the 2016 Annual Mercury Report, as the US EPA value has no official standing in Ontario. The comment specifically asked that De Beers compare methyl mercury concentrations at the site with the US EPA “Mercury Study Report to Congress” (1997), but that the determination of significant impacts is to be defined statistically based upon the trigger values agreed upon by MECP and De Beers in 2007 (AMEC 2008). Fish tissue mercury concentrations for small-bodied fish are also compared with the CEQG tissue residual guideline for methyl mercury of 0.033 mg/kg.

For completeness and in response to comments received from various stakeholders on the 2013 and 2014 annual reports (including from the Ministry of the Environment and Climate Change, Environment and Climate Change Canada, Neegan Naynowan Stantec LP on behalf of the Attawapiskat First Nation, and the Wildlands League), this report follows the format and information content of the 2015, 2016, 2017, 2018, 2019, 2020, 2021 and 2022 annual reports by:

- Providing more inclusive data sets on both unfiltered and filtered mercury samples for all sample locations, and particularly those of the Granny Creek system;
- Providing long-term summary statistics for peat pore water samples, as well as for samples collected from the Nayshkootayaow and Attawapiskat Rivers;
- Providing a correlation analysis of other factors such as pH, dissolved organic carbon, and iron that can also potentially affect mercury methylation (in ribbed fen systems);
- Determining the effects of flow supplementation from the Attawapiskat River on Granny Creek methyl mercury concentrations; and
- Providing updated information on the analysis of sulphate effects on localized mercury methylation, and measures being considered / developed to better control sulphate releases to the local muskeg environment.

Flow supplementation for the Granny Creek system was not required in 2023 and an analysis of flow supplementation effects was therefore not performed.

Several peer-reviewed scientific papers were published between 2012 and 2019, with respect to the operation and dewatering effects at the Victor Mine site. Papers published prior to issuance of the 2023 Annual Report are listed in earlier reports and are not repeated here. With the end of mine operations in early 2019 and the Victor Mine entering the decommissioning phase, research at the site has slowed and there were no additional publications in 2023.

2.0 REQUIREMENTS

Condition 7(5) of ECA #3960-7Q4K2G states the following:

The Owner shall report the results from the previous calendar year for the mercury monitoring program described [in] Condition 6(8), to the District Manager and the Chief of the Attawapiskat First Nation by June 30 of each year.

The referenced Condition 6(8) states:

The Owner shall carryout a mercury monitoring program that includes, but [is] not necessarily limited to the following:

- (a) A onetime assessment of peat solids to determine mercury content (completed in 2007);*
- (b) An analysis of peat, mineral soil, and bedrock pore water on an ongoing annual basis at the locations identified in Table 2;*
- (c) Monitoring of surface water systems on a monthly or quarterly basis depending on station at the locations identified in Table 3;*
- (d) Monitoring of the well field discharge on a monthly basis and quarterly basis and quarterly sampling of individual wells;*
- (e) Sampling of sportfish at three year intervals and small fish sampling on an annual basis at locations identified in Table 4.*

Condition 7(6) states the following:

The Owner shall report the results from the previous calendar year for the mercury assessments described [in] Condition 6(9), to the District Manager and the Chief of the Attawapiskat First Nation by June 30 of each year.

The referenced Condition 6(9) states:

In conjunction with the mercury management and monitoring program required in Section 6(8), the Owner shall also carryout data analyses, enhanced sampling programs, modelling, risk assessments, and implement effective mitigation measures, as and when required, all in accordance with the March 31, 2008 Report prepared by AMEC and submitted to the District Manager, entitled Trigger Values for Mercury Concentrations and/or Body Burdens in Fish, Condition 6(10) of Environmental Compliance Approval #8700-783LPK, De Beers Canada Inc., Victor Mine. This program may be amended from time to time when approved in writing by the District Manager. As well, water quality data collected as part of the groundwater well field recovery system shall be analyzed statistically to determine the variability and trending over time. Should significant variation occur over time within individual wells or group of wells then a potential concern will be deemed to exist, requiring further investigation.

3.0 REPORTING – CONDITION 6(8) DATA

3.1 Condition 6(8) (a) – One Time Assessment of Peat Solids

Requirements of this condition were fulfilled in Section 3.1 of the first annual mercury report (2008 Annual Report) and are not repeated here.

3.2 Condition 6(8) (b) – Annual Analysis of Peat, Mineral Soil and Bedrock Pore Water

The reader is referred to earlier annual reports (most recently AMEC (2014b)), for a discussion of early phase sampling program nuances related to Condition 6(8)(b) of ECA ISW #3960-7Q4K2G, and its predecessors. The ECA ISW #3960-7Q4K2G provides for the annual collection of peat pore water samples from muskeg monitoring program stations (listed in Table 2 of the ECA), as well as from associated mineral soil and bedrock monitoring wells / piezometers. Samples are to be analysed for total and methyl mercury on filtered samples, as per standard groundwater sampling protocols.

All the observed values for total mercury and methyl mercury have thus far been below their respective CEQG criteria of 26 ng/L for total mercury and 4 ng/L for methyl mercury (Tables 1a and 1b, Tables 2a to 2f). In making this comparison, it is important to stress that the CEQG criteria apply to unfiltered samples for surface water and not to filtered samples from peat, mineral soil and bedrock pore water, which are collectively regarded as groundwater samples. It is standard practice to filter groundwater samples to exclude influences of sediment loading on analytical results, on the premise that sediment particles are not mobile during in-situ groundwater movement. Comparisons to the CEQG, in this case, are therefore for information purposes only.

In their review of the 2014 annual report, Malroz Engineering Incorporated (on behalf of Mushkegowuk Environmental Research Centre) questioned the appropriateness of filtered samples for analysing groundwater samples for mercury (comments from Malroz were received by De Beers in 2016). As per the above, peat pore water and other groundwater samples are groundwater samples and are sampled accordingly. The samples (total mercury and methyl mercury) are forwarded to the Biotron Analytical Services laboratory for specialist ultra-trace analyses for mercury. This laboratory was set up under the direction of Dr. Brian Branfireun, a specialist in peatland mercury dynamics. Dr. Branfireun recommends sample filtration as a standard protocol because the physical installation and unusual hydraulic pressures in the field when sampling always mobilizes particles and colloids that would not move under natural hydraulic conditions. This is particularly true with peat, where it is impossible to get a clean sample from a peat well or piezometer that does not have some degree of particulate material, no matter how the well is developed. Results from unfiltered samples under such conditions would be highly variable since the peat particles would have relatively high solid phase total and methyl mercury relative to water, given the partition coefficients. Dr. Branfireun has routinely filtered mercury samples collected from peat piezometers, as reported in several peer-reviewed papers, and continues to recommend that filtered samples be collected for all such studies (Branfireun, personal communication April 3, 2017).

Also, most muskeg drainage reports to area creek and river systems through ribbed fen systems. Surface flow through ribbed fens associated with the muskeg system (MS station monitoring clusters) is analyzed for both unfiltered and filtered total mercury and methyl mercury. The annual reports provide these additional data; because surface flow through the ribbed fens is surface water, it is appropriate to analyze filtered and unfiltered data for these stations.

Results for total mercury and methyl mercury (filtered samples) are provided in Tables 1a and 1b for bedrock and clay substrates, respectively, and in Tables 2a and 2b for peat substrates. Data are provided for the entire period of record from 2007 to 2023. Muskeg sampling station locations are shown in Figure 1.

Total and methyl mercury concentrations for clay and bedrock in 2023 were similar to levels seen in previous years at all stations and are well below the CEQG for protection of aquatic life (Table 1a, Table 1b). The highest total mercury concentration was observed in bedrock in cluster location MS-8 (13.82 ng/L). This is still well below the CEQG limit of 26 ng/L and represents a slight decrease relative to previous years.

Tables 2c to 2f show graphs of mercury data for peat and muskeg pore water samples collected from 2007 through 2023. This includes results for domed bog, flat bog, horizontal fen, and ribbed fen monitoring locations/substrates. Since the 2016 annual report, the axes on the graphs have been reversed to make it easier for the reader to view overall temporal trends. This was a recommendation made by Malroz in their review of the 2014 annual report. Sometimes, it might seem like not all the table data is shown in the graphs. This happens because some lines overlap when data from different stations is identical. Also note that the vertical scales on the graphs change based on the range of results. The statistical analysis of the 2023 data is in Section 4.

Total and methyl mercury concentrations observed in 2023 were generally within the range of values observed in previous years for all stations. An exception is noted for methyl mercury observed at cluster location M-2 in 2023, with a value of 0.22 ng/L, which is higher than previous observations for M-2 (range 0.02 ng/L to 0.14 ng/L). However, there are no temporal patterns demonstrated by the data, and methyl mercury values remain well under the CEQG for protection of aquatic life. Another observation is that a general decrease in methyl mercury concentrations for MS-8 ribbed fen monitoring locations, from 2019 through 2022 (Table 2f).

For wells (piezometers) developed in the peat (muskeg) horizon there were no evident trends evidenced by the data.

3.3 Condition 6(8) (c) – Analysis of Surface Water Systems

Surface water systems considered in this section include the following:

- Passive fen treatment systems;
- Ribbed fen systems;

- Granny Creek; and the
- Nayshkootayaow and Attawapiskat Rivers.

3.3.1 Passive Fen Treatment Systems

The Southwest Fen (SWF) was used as a passive wetland treatment system for the removal of residual total suspended solids and nutrients from the Central Quarry wastewater discharge during the early phase of mine development in 2006.

The Northeast Fen (NEF) currently provides, or previously provided, a similar function for effluents derived from the following sources:

- Plant site excavation area (completed 2006);
- Crusher excavation area (completed 2006 and 2007);
- Attawapiskat River intake excavation and construction (completed 2007).
- Open pit mine Phase 1 Mine Water Settling Pond (started 2007 and ceased in 2019 with the end of mine dewatering);
- Dry waste landfill runoff and leachate (started autumn of 2008 and ongoing);
- Fully treated sewage treatment plant effluent (started 2006 and completed August 2011); and
- Mine rock stockpile runoff (started in 2010 and continuing).

The Southeast Fen (SEF) and the Northwest Control Fen (HgCON) were set up as control fens (reference points) for the SWF and the NEF (Figure 2). The SEF previously received minor discharges from the shallow South Quarry during extremely brief periods in 2004 and 2005, but was not materially affected by these discharges. Station SEF is therefore regarded as non-impacted by mine site discharges or runoff. The HgCON fen has never received effluent discharge from any source.

Sampling from the SWF was discontinued in June 2009 as the approval prescribing this fen treatment system (C. of A. # 3374-6G7J2Y) was revoked on March 3, 2009. Much of the SWF has since been overlaid by stockpiles of mine waste (low grade kimberlite ore and processed kimberlite). There are consequently no data for the SWF beyond May 2009.

The Phase 1 Mine Water Settling Pond discharged surface runoff collected from the pit perimeter area to the NEF from 2008 to 2019, during non-frozen months of the year. The Phase 1 Mine Water Settling Pond also intermittently received well development water. The practice of discharging well development water to the Phase 1 Mine Water Settling Pond was discontinued in 2014.

Total mercury data (unfiltered and filtered) for the passive treatment and control fen systems are presented in Tables 3 and 4 for the entire period of record (2006 through 2023). Methyl mercury data (unfiltered and filtered) for these same systems are presented in Tables 5 and 6. All results are less than CEQG (and PWQO) for protection of except for:

- unfiltered methyl mercury samples taken from the NEF in April / May 2009, January 2012, April / May 2013, April 2018, January / April 2019, April 2020 and January / April 2023,
- unfiltered methyl mercury samples from the SWF in January and April of 2008.

Filtered methyl mercury values have been below the CEQG except for NEF samples in January 2012, April 2018, and January 2023. Winter samples collected from under the ice can show concentrated ion strength due to ice crystallization effects. In very shallow stagnant water as the water freezes, ions tend to be extruded from the ice crystal matrix and concentrated in the remaining water below the ice. In extreme cases where the water freezes to near bottom, severe parameter concentration distortions can occur. All the January, April and May anomalies referenced above are winter samples.

Total mercury concentrations in the three fen systems (NEF, SEF and the HgCON) have been highly variable over the period of record, with the exception of a slight increase observed from 2017 to 2022 in the NEF. Total mercury values at the control site (HgCON) also showed an increase from 2018 to 2021, but values have decreased slightly in the past two years (Table 3 and Table 4). In 2023, HgCON and NEF had similar concentrations of total mercury (Tables 3 and 4) and lower concentrations of methyl mercury (Table 5 and Table 6). The overall difference in mercury concentrations between the fen systems of the entire available period of record was statistically significant (Table 7).

Results for methyl mercury in 2023 were similar to those of previous years (Tables 5 and 6). While continuing to meet the federal and provincial guidelines and objectives for the protection of aquatic life (except for under-ice methyl mercury samples collected noted above), concentrations of methyl mercury, for both unfiltered and filtered samples, continued to be higher in the NEF compared with the two control fens.

Methyl mercury concentrations in the NEF are postulated to be elevated as a result of increased sulphate levels, as described in previous annual reports. Sulphate reducing bacteria utilize sulphate as an electron acceptor, and hence higher sulphate levels tend to promote increased rates of conversion from pre-existing total mercury within the peat to methyl mercury (Ullrich et al. 2001; Jeremiason et al. 2006). Sulphate concentrations in the NEF final discharge point during 2023 averaged 92.2 mg/L. This value compares with average sulphate concentrations of 47.9, 32.2, 30.5, 60.0, 84.5, 74.5, 60.2, 72.6, 84.9, 71.9, 73.5, 70.3, 71.3, 99.9 and 89.5 mg/L were noted in the NEF final discharge point for the years 2008 to 2022, respectively. The optimal sulphate range for mercury methylation is reported to be in the range of 20 to 50 mg/L (Ullrich et al. 2001).

Sulphate concentrations observed for the NEF from 2008 to 2023 indicate that sulphate containing waters are still draining to the NEF, primarily from the mine rock stockpile.

Samples from control fen sites typically contain less than 1 mg/L of sulphate. The increased mercury methylation rate observed for the NEF is therefore a localized phenomenon and is not related to mine dewatering effects. As per Sections 5 and 7 of this report, De Beers has conducted further investigation into methods to better control the release of sulphates to localized muskeg environments including to the NEF. As part of the decommissioning phase of the Project, the mine rock stockpile has been covered with a low permeability cover of overburden and muskeg to reduce the rate of infiltration into the stockpile and reduce sulphate loading into the surrounding environment. The ditch that runs along the southern and eastern borders of the mine rock stockpile will also be redirected away from the NEF to the pit lake as part of closure, which will reduce the sulphate loadings to the NEF. This is anticipated to reduce the methylation of mercury in the NEF.

In the 2014 annual report, it was speculated that a decline in filtered methyl mercury concentrations in the NEF could be a function of one or both of:

- The small stores of inorganic mercury originally present in the upper fen peat layer becoming depleted; or
- The continuous activity of sulphate reducing bacteria has progressed to a point where the associated build-up of sulphide (as opposed to sulphate) has reached a level that is beginning to inhibit mercury methylation.

Both of the above processes can occur simultaneously.

The average filtered methyl mercury concentrations at NEF in 2018 and 2019 were notably higher than the average concentration for all years (1.50 ng/L and 1.23 ng/L, respectively). The 2020, 2021, 2022 and 2023 concentrations (0.99, 0.55, 0.85 and 0.79 ng/L respectively) represent a decrease in filtered methyl mercury concentrations as compared to 2018 and 2019 data, but are still elevated relative to earlier years (2014 through 2017), and the previously observed trend to lower filtered methyl mercury values in the NEF from 2012 to 2017 is no longer apparent.

However, it seems that total mercury levels in the Northeast Fen (NEF) are being partially depleted. Table 7 shows a statistically significant decrease in total mercury concentrations in filtered samples from the NEF compared to the two control fens from 2013 to 2023.

To assist with interpretations of mercury behaviour within the NEF, the MECP (formally the MOECC) in its review of the 2013 annual report, requested that De Beers provide an estimate of flushing rates for this fen. In the 2015 annual report it was estimated that substantial flushing of the NEF would be expected to occur within a period of one calendar year, but in the 2016 annual report the estimated flushing time was more broadly defined as potentially extending from one to three calendar years. Additional details are provided in the earlier annual reports.

3.3.2 Ribbed Fen Systems

The water quality of general site area drainage is monitored on a quarterly basis at four ribbed fen stations located on or near to the Victor Mine site (Stations MS-V1-R, MS-V2-R, MS-V3-R and MS-

8-R), as well as at several more remote sites beyond the zone of potential mine dewatering effects (Figures 1 and 3). Ribbed fen sites were selected for surface water quarterly monitoring because ribbed fens, more than other muskeg types, tend to collect water from surrounding drainages and therefore provide the most representative data on overall site drainage.

Total and methyl mercury sample results for the ribbed fen stations, for the period of 2007 through 2023, are shown in Tables 8a to 8d. The data show concentrations of total and methyl mercury that were all well within applicable federal (and provincial) guidelines (objectives) for the protection of aquatic life, with no obvious increasing or decreasing trends. The elevated concentration observed is attributed to the elevated total suspended solids collected in the sample. As shown in Table 8b, all filtered mercury results were well below the CEQG collected on the same date confirming that the elevated value in the unfiltered sample is not representative of the mercury within the ribbed fen stations.

Overall, no appreciable differences were noted between stations that are located within the mine dewatering 2 m drawdown contour (under drained sites) and those stations that are located outside of this contour (remote sites). For example, total mercury values for 2023, for unfiltered and filtered samples, averaged 3.2 and 2.0 ng/L, respectively, for under drained stations, and 2.7 and 2.0 ng/L for remote stations. Corresponding 2023 average values for methyl mercury were 0.07 and 0.06 ng/L for under drained stations, and 0.07 and 0.06 ng/L for remote stations. Some samples collected from under the ice showed relatively higher concentrations, such as for methyl mercury in January 2012 at the MS-8-R and MS-13-R stations. These results should be viewed with caution, as per discussions above regarding ice crystallization concentration effects (Section 3.3.1).

To assist with mercury data interpretation, De Beers also collects samples from these same ribbed fen stations for the analysis of chloride, conductivity, nitrate, dissolved organic carbon (DOC), pH, sulphate, total phosphorus, calcium, iron, magnesium and sodium (Table 9). Previous versions of this table in earlier annual reports included a mix of ribbed fen surface water and peat pore water samples due to confusion over sample labels. The 2017 version of this table, and all subsequent versions, have been amended to include only surface water samples, and has helped to improve data interpretations. This change resulted in the removal of data from 2007 and 2008, and substantial changes to data from the years of 2013 through 2016. As a result of this change, most of the previously identified higher values for chloride, sulphate and sodium, which turned out to be associated with peat pore water samples and not peat surface water samples, have been removed.

Of all the ribbed fen surface water systems assessed, the MS-8-R station exhibits the highest overall values for chloride and sodium (1.8 mg/L and 2.89 mg/L, respectively), but to a lesser extent than previously observed in past years with maximum values of chloride and sodium observed in 2012 (8.9 mg/L and 11.4 mg/L, respectively).

The MECP previously requested that De Beers should consider the potential relationships between key general chemistry parameters and methyl mercury concentrations for the ribbed fen systems, to determine if some of these general chemistry parameters were affecting methyl mercury concentrations. The key parameters of notable interest are pH, DOC, sulphate and iron. Regression analyses were performed on the data presented in Table 9, for the years 2010 through 2023,

comparing these key parameters with average filtered methyl mercury concentrations. In performing this analysis, two abnormally elevated methyl mercury concentration values were excluded as outliers, namely the 0.28 ng/L MS-8R value for 2012 and the 0.29 ng/L MS-V(2)-R value in 2019.

The data set relationship of methyl mercury as a function of DOC continued, where a positive r^2 value of 0.18 was calculated, indicating that 18% of the variability in filtered methyl mercury concentrations could be explained by DOC concentrations (Figure 4a). There is support for this relationship in the literature, but the relationships are complicated and at times contradictory (Ullrich et al. 2001). A negative relationship was observed between filtered methyl mercury concentrations and pH (r^2 value of 0.12), where methyl mercury concentrations tended to increase with decreasing pH (Figure 4b). Negative correlations between methyl mercury and pH have been reported in the literature, where methyl mercury solubility has generally been observed to increase with decreasing pH (Ullrich et al. 2001). Decreasing pH would also increase the solubility of inorganic mercury, thereby increasing the supply of mercury available to microorganisms for methylation.

Analysis of potential relationships between filtered methyl mercury concentrations and iron and sulphate showed no relationship, with r^2 values of 0.0142 and 0.0027, respectively (figures not shown). The lack of a relationship between sulphate and methyl mercury may appear somewhat surprising given the known effects of sulphate on methyl mercury concentrations. The reason for this condition is likely a function of the generally low sulphate values observed for the monitored ribbed fen systems, wherein most sulphate values were <1 mg/L. These sulphate concentrations are generally below levels where enhanced mercury methylation would be expected to occur.

Other parameters were also assessed from Table 9, and of these, only calcium showed any relationship with calcium was slightly positive showing an r^2 value of 0.044. The relationship between calcium and methyl mercury was weak. All other parameters (conductivity, chloride, total phosphorus and sodium) showed no relationship to filtered methyl mercury concentrations.

3.3.3 Granny Creek System

Total and methyl mercury data for upstream and downstream stations on the Granny Creek system are provided in Tables 10 to 13. Sampling locations are shown in Figure 2.

Data are provided for the five stations on North Granny Creek, three stations on South Granny Creek, the Granny Creek Confluence station, and for the Tributary 5A control station, as per the following:

- N. Granny Creek Upstream of Supplementation (NGC station code G-0);
- N. Granny Creek Upstream (NGC/UP/NWF –G-1);
- N. Granny Creek Downstream NWF (NGC/DN/NWF – G-2);
- N. Granny Creek Downstream NEF (NGC/DN/NEF – G-3);
- N. Granny Creek Downstream (NGC/DN G-4);

- S. Granny Creek Upstream (SGC/UP/SWF – G-5);
- S. Granny Creek Downstream SWF (SGC/DS/SWF – G-6);
- S. Granny Creek Downstream (SGC/DS G-7);
- Granny Creek Confluence (G-8); and
- Tributary 5A.

North Granny Creek stations G-0, G-1, G-2, G-3 and G-4 have been positioned progressively from upstream (G-0) to furthest downstream (G-4). The G-0 station is a new station established in May of 2017 on North Granny Creek upstream of the flow supplementation point (Figure 2). This station was established at the request of the MECF. The G-0 and G-1 stations are positioned upstream of any site mine drainage influences but are necessarily still within the mine dewatering drawdown cone. The G-1 station is positioned approximately 600 m downstream of the historic North Granny Creek flow supplementation point. Station G-2 is located within the zone of drainage influence from the mine rock stockpile and is downstream of the inflow point of intermittent seasonal discharge from the Fine PKC system (i.e., mine tailings), but is upstream of drainage influences from the NEF. Station G-3 is positioned just downstream of the NEF inflow point, and Station G-4 is positioned downstream of all mine related surface drainage influences.

South Granny Creek stations G-5, G-6 and G-7 have been similarly positioned progressively from upstream (G-5) to furthest downstream (G-7). The G-5 station is positioned upstream of any site drainage influences, including being upstream of the historical South Granny Creek flow supplementation point, but is also necessarily still within the mine dewatering drawdown cone shown in Figure 3. Station G-6 is within the zone of drainage influence from the coarse processed kimberlite and low-grade kimberlite stockpiles; and within the zone of influence of drainage from the former SWF, which has been overprinted by Fine PKC system Cell 2 and by the coarse processed kimberlite and low grade kimberlite stockpiles. Station G-7 is positioned downstream of all mine related surface drainage influences.

The Granny Creek Confluence station (G-8) is positioned immediately downstream of the North and South Granny Creek confluence, and in terms of water quality, is expected to represent an average of station G-4 and G-7 effects.

The Tributary 5A station is a control station located on a separate drainage system (Tributary 5 to the Nayshkootayaow River) outside of mine dewatering drawdown cone. Tributary 5A was selected as the closest station to the Granny Creek system, which has characteristics most similar to Granny Creek in terms of terrain and watershed area, to provide information on naturally occurring reference values and annual variability of mercury concentrations in the muskeg environment. North and South Granny Creeks each have watershed areas of approximately 45 km². Tributary 5A has a watershed area of approximately 30 km².

Average total mercury concentrations for the nine Granny Creek stations for 2023 varied from 2.7 to 3.4 ng/L for unfiltered samples, and from 1.2 to 1.9 ng/L for filtered samples (Tables 10a to 10c and

11a to 11c). These values are well below the 26 ng/L federal guideline (CEQG) for the protection of aquatic life for unfiltered samples. In 2023, total mercury concentrations were similar at both upstream and downstream sampling locations in North Granny Creek and South Granny Creek, which was different from previous years. Graphs attached to Tables 10 and 11 show that total mercury concentrations can vary significantly throughout the year due to seasonal and hydrological changes. However, no long-term trends are evident in the data for either creek, whether upstream or downstream of the developed areas of the Victor Mine.

The Tributary 5A station has consistently shown lower total mercury concentrations in both unfiltered and filtered samples throughout the period of record since 2009, compared to the Granny Creek system, except for the stations G7 and G8 in 2014. These generally lower mercury concentrations in the Tributary 5A system are likely due to natural background conditions rather than the mine's impact.

Methyl mercury concentrations for unfiltered and filtered samples, from upstream and downstream South and North Granny Creek stations, are shown in Tables 12a to 12c and 13a to 13c. The values are again variable, reflecting seasonal and hydrologic influences. In 2023 there is a trend of increases in methyl-mercury concentrations at downstream sites (G-2, G-3, G-4), relative to upstream sites (G-0, G-1); this is a continuation of the trend which has been observed since 2010 (Table series 12 and 13). Similarly, methyl mercury concentrations at G-3 and G-4 show an increasing trend over time but remain well below the CEQG values. Average filtered methyl mercury concentrations in the North Granny Creek downstream stations (G3 / G4) have increased from about 0.10 ng/L in 2009 to about 0.45 ng/L in 2023, with slightly higher concentrations observed at station G-3 in 2023. Filtered methyl mercury concentrations for the South Granny Creek downstream stations have increased from about 0.05 ng/L in 2009 to about 0.37 ng/L in 2023 for station G6, and from about 0.10 ng/L to about 0.28 ng/L for station G7, with station G6 showing consistently higher values in 2023. Although the 2023 values are slightly higher from those observed in previous years, they remain well below the federal guideline (CEQG) of 4 ng/L. The highest values for methyl mercury concentrations generally occurred in the warmer months (June through September) for both North and South Granny Creek stations. Methyl mercury values typically tend to be elevated during the summer months because of increased methylating bacteria activity during these months (Ullrich et al. 2001).

In the 2015 annual report, an analysis was undertaken for the NGC/DN/NEF (G3) station that showed that methyl mercury concentrations in the peak summer period were being partially masked by flow supplementation from the Attawapiskat River; and that higher peak summer methyl mercury concentrations were also associated with higher runoff conditions. Flow supplementation to the Granny Creek system was required in accordance with the expired MECP Permit to Take Water #2360-ABRHW7 (and its predecessors) to maintain fish habitat within the creek. Flow supplementation ceased in 2021, however analysis of flow supplementation in previous years, is provided in Table 14. For further details the reader is referred to the earlier annual reports.

In 2015, data were presented that showed a noticeable decline in summer / fall (July / October) filtered methyl mercury concentrations between Granny Creek stations G-4 and G-7, and the downstream confluence station (G8). In particular, it was noted that since 2011, concentrations at

the further downstream Granny Creek confluence station (G-8) had remained stable at substantively lower concentrations compared with further upstream stations G-4 and G-7. It was speculated in the 2015 annual report that mercury demethylation may be occurring between the G-4 / G-7 stations and the G-8 station. Data collected since 2015 have not supported the earlier observed trend, such that there is presently no longer any evidence to support a demethylation trend in downstream Granny Creek.

Since 2016, total and methyl mercury concentrations downstream on Granny Creek (station G-8) have remained relatively stable. In 2023, total mercury levels ranged from 1.46 to 3.97 ng/L (unfiltered), and methyl mercury levels ranged from 0.13 to 1.18 ng/L (unfiltered), showing large seasonal variations. Except for April 2023, total mercury levels at station G-8 were, on average, 1.5 to 3.3 times higher than those in Tributary 5-A, which is unaffected by current or past mining activities. In April 2023, however, mercury levels in Tributary 5-A were higher than at station G-8. Methyl mercury levels at station G-8 were generally 1.7 to 11 times higher than in Tributary 5-A. Despite these differences, the total and methyl mercury concentrations in Granny Creek remain well below the federal guidelines (CEQG) of 26 ng/L for total mercury and 4 ng/L for methyl mercury (see Tables 12a, 12b, 13a, and 13b). Granny Creek methyl mercury appear to be related to sulphate drainages associated with the mine site area and are not considered to be linked to muskeg dewatering effects, as data shows that the peat horizons in the general mine site area continue to be saturated (Wood 2023a). Sulphate drainage effects continue to be localized.

Note that although less than CEQG criteria, methyl mercury concentrations for the Granny Creek system are consistently above the bioaccumulation threshold criterion of 0.05 ng/L for filtered methyl mercury samples put forward by the US EPA (1997) for the protection of fish-eating wildlife species such as Bald Eagle and River Otter. Most avian and mammalian predators in the region that feed on fish are larger species, such as Bald Eagles, Osprey and River Otters. These predators would tend to seek larger fish types than those that are available in the Granny Creek system and are therefore more apt to feed on fish from the Nayshkootayaow and Attawapiskat Rivers, where changes to methyl mercury have not been observed. Smaller sized predators such as the Belted Kingfisher and Mink could reasonably be expected to feed on fish present in the Granny Creek system.

3.3.4 Nayshkootayaow and Attawapiskat Rivers

Water quality results for the Nayshkootayaow and Attawapiskat Rivers are shown in Tables 16a and 16b for total mercury (unfiltered and filtered, respectively), and in Tables 17a and 17b for methyl mercury (unfiltered and filtered, respectively). Sample locations are shown in Figure 2. Graphical data are presented in Figure 5a and Figure 5b. All measured values are below the CEQG for total mercury and methyl mercury.

Filtered results for all stations on the Nayshkootayaow and Attawapiskat Rivers were generally comparable and well within the range of historical data for the respective stations. A fifth station (A-5) was added to the Attawapiskat River sampling network in 2013 at a location 500 m downstream of the well field discharge. This addition was a response to commitments made to the MECP following review of the 2012 annual mercury performance report. Data collected for the 500 m downstream

station showed total and methyl mercury values that were comparable to other Attawapiskat River stations (Tables 16a, 16b, 17a and 17b).

In May of 2017, an additional station was also added on the Nayshkootayaow River downstream of the North Granny Creek and South Granny Creek Confluence (station: Naysh DN Conf). The total mercury and methyl mercury concentrations for the Nayshkootayaow River station located downstream of the Granny Creek inflow were comparable to both the upstream and downstream locations (stations: N-2 and N-3, respectively).

Average filtered methyl mercury values for the Nayshkootayaow River ranged from 0.04 to 0.05 ng/L with the highest concentration observed in 2023 of 0.09 ng/L observed at station Naysh DN Conf. Station Naysh DN Conf is downstream of the confluence of North Granny Creek and South Granny Creek. Average unfiltered methyl mercury concentrations in the Nashkootayaow River were slightly above the US EPA bioaccumulation threshold of 0.05 ng/L in 2023. Average filtered methyl mercury values for the Attawapiskat River stations were generally at or below the bioaccumulation US EPA bioaccumulation threshold of 0.05 ng/L and ranged from 0.04 ng/L to 0.05 ng/L. The exception to this was the control station (Monument Channel), which had an average filtered methyl mercury concentration of 0.06 ng/L, slightly above the bioaccumulation US EPA bioaccumulation threshold of 0.05 ng/L.

For the Nayshkootayaow River, it is important to consider observed monitoring data in relation to predictions made during the permitting stage. In 2007, AMEC predicted a worst-case increase in methyl mercury concentrations during operations from a base case of 0.062 ng/L to a new value of 0.162 ng/L; and at closure after 25 years of possible peatland desiccation to as much as 0.65 ng/L. These calculations were based on very conservative assumptions, wherein it was assumed that up to 10% of the muskeg from a 75.6 km² under drained area (as a result of mine dewatering) could potentially decompose over a 25 year period and release stored mercury; and that 17% of the total mercury released would occur as methyl mercury. The 17% value was based on observations from the SWF that were later determined to have been artificially elevated because of the sulphate release to the SWF associated with dewatering of the Central Quarry in 2006.

The 2007 calculations were updated in the 2008 amended permit application, following a further iteration of the hydrogeological model, during which the area of potential muskeg desiccation was substantively reduced, and the percent of total mercury occurring as methyl mercury was reduced to 2.2%. The predicted changes in methyl mercury concentration in the Nayshkootayaow River were expected to increase from 0.062 ng/L to a range of 0.064 to 0.096 ng/L, depending on the extent of muskeg drying. Such a small change was considered difficult to distinguish from natural background levels. No predictions were made in 2008 regarding the mine closure phase.

Monitoring data has thus far shown that no meaningful desiccation of muskeg has occurred (or is expected to occur) within the area of the mine dewatering drawdown cone, and that methyl mercury concentrations in the Nayshkootayaow River have not changed appreciably from the background condition (Tables 16 and 17).

3.4 Condition 6(8) (d) – Annual Analysis of Well Field Discharge

Sampling of the Victor Mine well field discharge had been ongoing since November 2007 and ceased in April of 2019 when well dewatering ceased such that mercury loadings from the well field to the Attawapiskat River are no longer occurring (Wood 2020a). Historical data are presented in the earlier annual reports.

3.5 Condition 6(8)(e) – Sportfish and Small-bodied Fish Mercury Body Burdens

Sportfish (large-bodied species) are sampled as part of the Victor Mine monitoring program at three-year intervals, with the last sampling year being 2022. Consequently, there are no sportfish sampling results for 2023. If the mercury monitoring program is operating at three-year intervals by 2025, this will be the next sampling year for sportfish. For discussions of mercury tissue concentrations in sportfish, the reader is referred to the 2022 annual report (WSP 2023). The remaining discussions in this section are focused on small-bodied fish.

As per Condition 6(6), fish body burdens were investigated in small-bodied fish in 2023. Small-bodied fish sampling occurs annually, with the most recent previous sampling period being in 2022 (WSP 2023). Fish sampling in 2023 for small-bodied and sportfish occurred 13 to 27 August 2023 under Ministry of Natural Resources and Forestry (MNRF) Licence No. HCKA-2023-FWCA-00014. Species-specific catch data for each location are summarized in Table 18 to Table 22 for the various sampling techniques used. Small-bodied fish comparisons include surveys of average body burden mercury analysis, comparing experimental locations with control locations.

3.5.1 Methods: Small-bodied Fish Mercury Body Burdens

Small-bodied fish were collected in 2023 from the following sampling locations (Figure 6):

- North Granny Creek at a reference location upstream of the flow supplementation discharge point on this creek (NGC-REF) and at a downstream location consistently sampled since 2008 within reaches of potential mine related influence (NGC-EXP);
- South Granny Creek at a reference location upstream of the flow supplementation discharge point on this creek (SGC-REF) and at a downstream location consistently sampled since 2008 within reaches of potential mine related influence (SGC-EXP);
- Tributary 5A (ST-5A), a reference location within a creek that discharges into the Nayshkootayaow River upstream of the Granny Creek confluence;
- Nayshkootayaow River downstream of the Granny Creek confluence (NAY-DS6) and upstream of Tributary 3 (NAY-US3); and from
- Four locations on the Attawapiskat River including; upstream of the mine site (ATT-US); approximately 500 m downstream of the well field discharge (ATT-NF); approximately 2 km downstream of the well field discharge point (ATT-FF); and the north shore of the river, parallel to the discharge location (ATT REF2).

The downstream North Granny Creek and South Granny Creek sampling locations are experimental locations, potentially influenced by the Victor Mine. The North Granny Creek and South Granny

Creek reference sampling locations are situated upstream of expected mine influence and the flow supplementation. These two reference sampling locations were added in 2017 to provide a more direct habitat comparison to the Granny Creek exposure areas. Tributary 5A is a small creek similar in overall habitat to the Granny Creek system, which is located outside of the influence of mine related activities and has consistently served as a control site (reference location) for the Granny Creek system during all previous sampling years for the mercury monitoring program.

The Nayshkootayaow River downstream location (NAY-DS6) is situated directly downstream of the confluence with the Granny Creek system and the Nayshkootayaow River and is therefore considered to be within the zone of potential mine influence. The control location for this watercourse is located upstream of Tributary 3 (NAY-US3), which is outside the zone of influence of the mine and is also upstream of any potential confounding effects of the flow supplementation. Statistical comparisons involving Northern Pearl Dace (*Margariscus nachtriebi*) between these locations was not possible in 2023 due to insufficient catch numbers. Sampling efforts in 2015 provided sufficient sample sizes; however, sampling in 2014 and 2016 through 2022 were also unsuccessful at collecting adequate numbers of Northern Pearl Dace for statistical analyses. The availability of Northern Pearl Dace in the Nayshkootayaow River has fluctuated between years, and thus Trout Perch (*Percopsis omiscomaycus*) have been sampled consistently across years as a substitute sentinel species within this system. Trout Perch were captured in abundance at each of the Nayshkootayaow River sampling locations in 2023 and allowed for statistical comparisons to data collected in 2012 and 2016 through 2022 (years where Trout Perch were collected in sufficient numbers for statistical analyses). Mottled Sculpin (*Cottus bairdii*) were not captured in sufficient numbers in 2023 to allow for statistical comparisons within the Nayshkootayaow River.

Sampling in the Attawapiskat River originally included three sampling locations (ATT-US, ATT-NF and ATT-FF), until 2014 when a secondary control location (ATT-REF2) was added. This location was added as part of the 2014 Attawapiskat River Environmental Effects Monitoring (EEM) program to provide further indication of the natural variability inherent in the system (Amec Foster Wheeler 2015b). The ATT-REF2 sampling location is separated from the well field discharge location by an approximate 1,000 meters (m) cross-channel section of river and a chain of mid-channel islands, and is not influenced by the well field discharge (Figure 6). Mottled Sculpin (*Cottus bairdii*) were captured at two of the four Attawapiskat River sampling locations in 2023 (ATT-NF and ATT-FF) but in numbers too low to allow for statistical comparisons.

The availability of Mottled Sculpin in sufficient sample sizes within the Attawapiskat River has fluctuated but proven to be consistently low. Statistical analyses were successfully completed on this species in 2015 and 2019 with less than the target sample size; however, statistical power was very low. This species was only captured at the Attawapiskat River exposure areas in 2023 and in low numbers (n=9 at ATT-FF and n=1 at ATT-NF).

Small-bodied fish were collected from the above locations using boat electrofishing, minnow trapping, minnow fyke nets, seine nets and dip netting (where applicable; Tables 18 to 22). It was the intention to only use a single capture technique as applicable within each waterbody/creek system. This was possible for sampling in the Attawapiskat River system (electrofishing). However, the capture of Northern Pearl Dace has consistently shown variable gear-specific catch results within

the Granny Creek and Tributary 5A sampling locations. As such, multiple gear types are often needed in the creek systems to target both young-of-the-year (YOY) and older fish and to achieve higher capture success.

Small-bodied fish were analyzed at the Biotron Experimental Climate Change Research Centre laboratory (University of Western Ontario, London Ontario), a Canadian Association for Laboratory Accreditation (CALA) accredited facility. Fish tissue samples were analyzed by Flett Research Ltd. in Winnipeg prior to 2009. A comparative lab method study was conducted in 2013 between these laboratories and the Ministry of the Environment, Conservation and Parks (MECP) contaminants branch laboratory. Results of this inter-laboratory comparison indicated that most samples were analyzed as having similar (within 20%) concentrations for total mercury (AMEC 2014a); therefore, results from the time series were deemed adequate for comparative purposes.

Individual samples were thawed and sub sampled for dorsal muscle on which total mercury analysis was completed. A small sample mass was retained for oven-drying, and a minimum of two wet samples (<0.5 grams (g) wet weight each) was used for analyses. Remaining tissue, if any, was kept frozen for replicate analyses if required. Samples were analyzed and reported as wet weight, as per standard methods. Analysis was completed by thermal decomposition and atomic absorption detection using a Milestone DMA 80, as per the requirements of US EPA Method 7473. Calibration and instrument performance were verified through the analysis of fish tissue reference materials.

Statistical Analyses

Statistical analyses were performed using R statistical software version 4.2.3 (R Core Team, 2024). Prior to all analyses, each dataset was assessed for normality and homogeneity of variances using the Shapiro-Wilk and Bartlett tests, respectively, at an alpha equal to 0.05. Data that did not follow a normal distribution was transformed to meet the assumptions of the statistical test.

Length-frequency distributions for the sampling locations were compared using a two-sample Kolmogorov-Smirnov test. Fish descriptors (total length, weight and age) were investigated with separate one-way analysis of variance (ANOVA) tests using the sample locations as independent factors, or a Kruskal Wallis (WA) test if ANOVA test assumptions were violated after transformation. The ANOVA and Kruskal Wallis tests were followed by post-hoc between group tests (Tukey HSD or Dunn Test) to evaluate differences between the sampling locations.

Two-way ANOVA with replication was used to assess the interaction between sampling locations and age-class (YOY or age 1+). Age-class was determined from otolith aging structures. Two-way ANOVA is used when there is one measurement variable (total mercury) and two nominal variables (location and age-class); and there is interest in the interaction between the two nominal variables (the effect of one variable may depend on the value of the other). If the interaction term was found to be statistically significant, separate one-way ANOVA tests for each age-class were used to determine differences in total mercury levels between sampling locations.

Analysis of covariance (ANCOVA) was used to test for differences in fish body burden mercury concentrations between sampling locations, while correcting for age and total length. Generalized

linear models were used and included a response variable and an interaction term between the sampling locations, and either total length or age. The inclusion of a covariate accounts for greater variability in the model. If assumptions of ANCOVA test were not met (homogeneity of data and regression slopes), a non-parametric ANCOVA was used.

To compare total mercury body burden levels between site and year, a before-after-control-impact (BACI) design was used with an ANCOVA, incorporating total length as the covariate. Interactions between year and location were analysed for significance to determine if an effect was evident. The 2008 data was not suitable as a baseline period for the BACI design as sample sizes were too small for SGC and NGC. Therefore, the sampling year of 2009 was used as a baseline and compared to the 2023 dataset to assess potential impacts of the Victor Mine on fish mercury concentrations. For the Nayshkootayaow River, 2012 was used to represent baseline conditions, as Trout Perch were consistently captured in sufficient abundance from 2012 to present. It should be noted that, for BACI analyses, all small-body datasets were not distributed normally and did not have parallel slopes due to the inclusion of multiple years of data from both control and impact sites, and therefore did not meet all assumptions of ANCOVA.

Body burden mercury values from 2008 to 2023 were plotted to observe any trends between locations over time. A line graph of average ($\pm$ standard error (SE)) total mercury values was developed for Northern Pearl Dace, which included fish of all ages collected within each sampling year. Years prior to 2013 did not have known age data (otolith data were not collected). For these years, length-frequency histograms could not be generated for the historical Northern Pearl Dace data, to be able to classify fish as YOY or age 1+, because sample sizes were often too small at each sampling locations to develop a clear length cutoff between age-classes. For this reason, graphs generated for this species were inclusive of all fish captured regardless of age.

For Trout Perch from the Attawapiskat River, line graphs were developed separately for YOY and age 1+ age classes. Years 2011 and 2013 to 2023 were classified based on known ages from otolith aging structures. Fish from 2008 were classified based on the length-frequency distribution developed for this species as a part of the Attawapiskat River Environmental Effects Monitoring report (fish <45 millimetres (mm) classified as YOY) (AMEC 2009b). Fish from 2009, 2010 and 2012 were classified as YOY or age 1+ based on length frequency distributions generated in 2014 from historical total length data, as part of the 2014 Mercury Performance Monitoring Annual Report (Amec Foster Wheeler 2015a). These fish were <45 mm in 2009, <55 mm in 2010 and <50 mm in 2012.

Trends in mercury concentrations over time were assessed using a generalized additive model (GAM) for small-bodied fish to complement the above analyses. A cubic regression spline smoother (with three nodes) was applied to values of total mercury, sampling year and fish total length. A separate trend analysis was created for each species and each sampling location. Time series data are provided assuming a standardized size of fish (60 mm total length for Northern Pearl Dace, and 50 mm for Trout Perch) including 95% confidence intervals. The GAM trend lines represent mercury concentration for the standard size of fish for each species. The specific data points provided represent the raw mercury concentration distribution for a given year, uncorrected for size.

Total mercury concentrations in small-bodied fish were compared to the following guidelines or advisories (where applicable): Canadian Council of Ministers of the Environment (CCME) advisory for the protection of wildlife consumers of aquatic biota (0.033 mg/kg), and the MECP Standards Development Branch (SDB) working guideline for the protection of fish-eating wildlife (ENVIRON 2008; 0.2 mg/kg).

In sampling years 2017, 2018 and 2019, the 1+ age class in Trout Perch from the Attawapiskat River did not follow a normal distribution due to the distinct presence of two clear age cohorts (Age 1 and Age 2+), and thus did not meet the assumptions of ANOVA and ANCOVA (normality of data and homogeneity of variances; Wood 2018; 2019; 2020a). To meet assumptions of statistical tests, the age-classes assessed for Trout Perch in the Attawapiskat River from 2017 to 2019 were YOY and age 1. However, in sampling years 2020 through 2023, the data was distributed normally among the age classes to allow for standard statistical comparisons of YOY and age 1+ age classes.

3.5.2 Results: Small-bodied Fish Body Burdens (Granny Creek System)

Northern Pearl Dace

Univariate statistics for the 2023 Northern Pearl Dace data from North Granny Creek, South Granny Creek and control Tributary 5A are summarized in Appendix A, Table A-1 and results of ANOVA and Kruskal-Wallis analysis for fish community descriptors and total mercury are summarized in Appendix A, Table A 2. Results of ANCOVA for total mercury adjusted for total length and age are summarized in Table 23.

Samples sizes of YOY were not sufficient to allow for statistical analyses between all sampling locations in 2023. Young of the year Northern Pearl Dace were only captured at the exposure areas in 2023 (NGC-EXP and SGC-EXP) and thus, statistical analyses were limited to age 1+ fish.

Overall length frequency distributions for Northern Pearl Dace were significantly different between the exposed sampling locations SGC-EXP and NGC-EXP when compared to their reference sampling locations SGC-REF and NGC-REF and when compared to control Tributary ST-5A (Kolmogorov-Smirnov (KS), $p < 0.05$; Figure A-1).

Age 1+ Northern Pearl Dace from SGC-EXP were significantly larger (total length and weight) and older when compared to ST-5A (ANOVA, $p < 0.05$ and KW, $p < 0.05$) but were similar in size and age to fish from SGC-REF (ANOVA, $p > 0.05$ and KW, $p > 0.05$; Appendix A, Tables A-1 and A-2). Northern Pearl Dace from NGC-REF were longer (total length) and older than those from NGC-EXP in 2023, but wet weight was similar.

One-way ANOVA (total mercury unadjusted) on age 1+ Northern Pearl Dace indicated a significant difference in total mercury concentrations between sampling locations in 2023 (Appendix A, Tables A-1). Average total mercury was significantly greater at both exposure areas in comparison to ST-5A and was significantly greater at SGC-EXP in comparison to SGC-REF (ANOVA, $p < 0.05$). Within the North Granny Creek, average total mercury concentrations were higher at the reference location (NGC-REF) when compared to the exposure location (NGC-EXP; ANOVA, $p < 0.05$). Additionally, the

LS means adjusted for total length and age in age 1+ Northern Pearl Dace indicated similar trends, with both exposure areas having higher total mercury concentrations in comparison to ST-5A (ANCOVA, $p < 0.05$; Table 23 and Figure 8). The South Granny Creek exposure area also had significantly adjusted (total length and age) total mercury concentrations when compared to SGC-EXP.

The BACI design using ANCOVA indicated a statistically significant interaction between sampling year and exposure sampling locations for total mercury concentrations in Northern Pearl Dace from the Granny Creek System from 2009 to 2023 (baseline to present) (Table 24 and Figure 9 and 10). Total mercury concentrations in Northern Pearl Dace increased between 2009 and 2023 for fish from NGC-EXP and SGC-EXP when corrected for total length, whereas total mercury concentrations at ST-5A remained relatively constant over time (Figure 9). As well, NGC-EXP and ST-5 total mercury concentrations in fish tissue in 2009 were statistically similar.

Post-hoc pairwise comparison showed a statistically significant increase between 2009 and 2023 for NGC-EXP and SGC-EXP but no significant increase for ST-5A (ANCOVA, $p < 0.05$; Table 24 and Figure 9). Mercury concentrations in fish tissue between 2022 and 2023 showed a slight increase at SGC-EXP, yet showed a decrease at NGC-EXP (Figure 10). Mercury concentrations at all three reference locations remained relatively constant between 2022 and 2023. A comparison of average mercury concentrations at NGC-EXP, SGC-EXP and ST-5A, uncorrected for age or length, showed variability between 2008 and 2023, with increases and decreases occurring year to year (Appendix A, Figure A-2). Regardless of the variability in mercury concentrations over time, the line plot shows an overall trend of increase from 2008 to 2023 at both exposure locations, with relative stability at ST-5A. The reference locations of SGC and NGC showed variability over time from 2017 to 2023, but no overall trend of increase is apparent.

This was further verified by the GAM model (standardized for total length, 60 mm Northern Pearl Dace), which was statistically significant when including both year and total length. When smoothed for total length and year, the trend analysis indicates an overall increase in total mercury concentrations over time at SGC-EXP and NGC-EXP and relative stability in concentrations at ST 5A, SGC-REF and NGC-REF (Figure 11).

Similar to previous years, all but two total mercury concentration values for YOY and age 1+ Northern Pearl Dace from the Granny Creek system and Tributary 5A were greater than the CCME advisory for the protection of wildlife consumers of aquatic biota of 0.033 mg/kg (CCME 2003) in 2023. Both fish with total mercury concentrations less than this advisory were collected from reference locations (ST-5A and NGC-REF). Northern Pearl Dace total mercury concentrations were also compared to the MECP SDB working guideline for the protection of fish-eating wildlife of 0.2 mg/kg (ENVIRON 2008). Mean total mercury concentrations in YOY Northern Pearl Dace exceeded this guideline at NGC-EXP and SGC-EXP (Appendix A, Table A-1). Age 1+ Northern Pearl Dace mean total mercury concentrations exceeded this guideline at both exposure locations but were below the guideline at both reference locations.

The data for the Granny Creek system continue to show that mercury concentrations in fish tissue are elevated the South Granny Creek exposure location above that of the control tributary 5A and

the South Granny Creek reference area. This has also been the trend for North Granny Creek in previous years, but in 2023 total adjusted mercury concentrations were similar between NGC-EXP and NGC-REF. There is evident variability in mercury trends within sampling years and across years, yet the overall trend of increase overtime has remained the same; it should be noted that the North Granny Creek exposure area did show a steep decrease in total mercury from 2022 to 2023. Total mercury concentrations adjusted for total length during 2009 are less than those observed in 2023 at NGC EXP and SGC-EXP whereas concentrations at ST-5A have remained relatively consistent between baseline and present. Similarly, total mercury concentrations at NGC-REF and SGC-REF have been lower than NGC-EXP and SGC-EXP since sampling at these locations began in 2017.

3.5.3 Results: Small-bodied Fish Body Burdens (Attawapiskat River)

Trout Perch

Univariate statistics for the 2023 Trout Perch from the Attawapiskat River are summarized in Appendix A, Table A-3 and results of ANOVA and Kruskal-Wallis analysis for fish community descriptors are summarized in Appendix A, Table A 4. Results of ANOVA for total mercury, and ANCOVA for total mercury adjusted for total length and age are summarized in Tables 25 and 26.

Overall length-frequency distributions for Trout Perch were significantly different between ATT-NF and both reference areas (Kolmogorov-Smirnov (KS), $p < 0.05$); however, distributions between ATT-FF and both reference locations were similar (Kolmogorov-Smirnov (KS), $p < 0.05$; Appendix A, Figure A-3).

YOY Trout Perch collected from ATT-US and ATT-REF2 were larger (total length and weight), on average, than fish collected both exposure locations in 2023. Fish from ATT-FF (ANOVA, $p < 0.05$; Appendix A, Tables A-3 and A-4). Similarly in age 1+ Trout Perch, those fish collected from ATT-US were larger (total length and weight) and older than those collected from both exposure locations (ANOVA, $p < 0.05$ and KW, $p < 0.05$; Appendix A, Tables A-3 and A-4)

Two-way ANOVA indicated that there was an effect of sampling location on mercury concentrations in Trout Perch from the Attawapiskat River sampling locations (ANOVA, $p < 0.05$; Table 25). One way ANOVA indicated significantly higher total mercury concentrations for YOY Trout Perch from ATT-NF and ATT-FF when compared to ATT-US (ANOVA, $p < 0.05$; Table 25 and Figure 12; Appendix A, Table A-3). One way ANOVA for age 1+ Trout Perch indicated higher average total mercury at ATT-US when compared to ATT-FF. When adjusting for total length, YOY total mercury concentrations were significantly higher at ATT-NF when compared to ATT-US, but comparisons including ATT-FF were no longer significant. In age 1+ Trout Perch, LS means adjusted total length were similar between sampling locations, and when adjusting for age, total mercury concentrations were higher at ATT-US as compared to ATT-FF (ANCOVA, $p < 0.05$; Table 26 and Figure 13).

The BACI design indicated a statistically significant interaction between year and sampling location for mercury concentrations in Trout Perch from the Attawapiskat River system from 2009 to 2023 (Table 27). There was a significant decrease in total mercury concentration in Trout Perch from ATT-NF and ATT-FF from 2009 to 2023 (ANCOVA $p < 0.05$; Table 30 and Figure 14). Slight increases in

total mercury, adjusted for total length, were observed between sampling years 2022 and 2023 at sampling locations ATT-NF, ATT-FF and ATT-US, yet a slight decrease was observed at ATT-REF2 (Figure 15).

Total mercury concentrations in Trout Perch (uncorrected for length) from the Attawapiskat River showed variability from year to year within both age classes (Appendix A, Figure A-4); the increases and decreases in total mercury concentrations between years were typically displayed at all sampling locations in parallel among years, and thus appear to represent natural variability within the Attawapiskat River system.

Standardizing for a total length of 50 mm, the GAM model for Trout Perch from 2008 to 2023 shows relatively stable total mercury concentrations at ATT US and ATT-REF2 and a slight decrease in concentrations at ATT-NF and ATT-FF (Figure 16). ATT-REF2 was not added as a sampling location until 2014; with less sampling years and data points, the degree of change is magnified in the GAM plot.

In 2023, all but one (99%) age 1+ Trout Perch had total mercury concentrations in tissue greater than the CCME advisory for the protection of wildlife consumers of aquatic biota of 0.033 mg/kg (CCME 2003); 86% of YOY Trout Perch had tissue mercury concentrations exceeding this advisory. Fish exhibiting exceedances of the CCME advisory were captured among all four sampling locations. All fish captured in the Attawapiskat River had concentrations less than the MECP SDB working guideline for the protection of fish-eating wildlife of 0.2 mg/kg (ENVIRON 2008).

The Attawapiskat River data indicates a slight decrease in mercury bioaccumulation within the exposure locations since baseline. These results parallel those observed in 2021, where decreases in total mercury concentrations were also observed within the exposure locations. Results in 2020 indicated increased levels of mercury bioaccumulation within the exposure locations, more significantly at ATT-NF, yet results from 2019 showed all Attawapiskat River sampling locations had similar mercury concentrations. Overall, the alternating results between years demonstrate the variability of mercury concentrations within the Attawapiskat River system. As well, there was no discharge to the Attawapiskat River in 2023, and sample locations are upstream of any potential influence from Granny Creek system or Nayshkootayaow River inputs.

3.5.4 Results: Small-bodied Fish Body Burdens (Nayshkootayaow River)

Trout Perch

Univariate statistics for 2023 Trout Perch from the Nayshkootayaow River are summarized in Appendix A, Table A-3 and results of ANOVA and Kruskal-Wallis analysis for fish community descriptors and total mercury concentration are summarized in Appendix A, Table A 5. Results of ANOVA for total mercury, and ANCOVA for total mercury adjusted for total length and age are summarized in Tables 28 and 29. Overall length-frequency distributions differed between NAY-US3 and NAY-DS6 in 2023 (Kolmogorov-Smirnov (KS), $p > 0.05$; Appendix A, Figure A-5).

YOY Trout Perch were larger overall (total length and weight) from NAY-DS6 when compared to NAY-US3 in 2023 (ANOVA, $p < 0.05$, Appendix A, Tables A-3 and A-5). Age 1+ Trout Perch from the Nayshkootayaow River were similar in size and age in 2023.

Two-way ANOVA indicated that there was an effect of sampling location on mercury concentrations in Trout Perch from the Nayshkootayaow River sampling locations (ANOVA, $p < 0.05$; Table 28). Average total mercury concentration (unadjusted) was significantly greater at NAY-DS6 in comparison to NAY-US3, but there were no differences between sampling locations in age 1+ Trout Perch (Figure 17).

Similarly, the LS mean adjusted for total length in YOY was significantly greater at NAY-DS6 when compared to NAY-US3 (ANCOVA, $p < 0.05$, Table 29 and Figure 18). There were no differences in LS means adjusted for total length or age in age 1+ Trout Perch in 2023.

The BACI design indicated a statistically significant interaction between year and sampling location for body burden concentrations in Trout Perch from the Nayshkootayaow River system from 2012 to 2023 (ANCOVA, $p < 0.05$, Table 32). Post-hoc comparisons showed significant increases in mercury concentrations at both sampling locations from 2012 to 2023, with a greater trajectory of increase at NAY-DS6 (ANCOVA, $p < 0.05$, Table 30 and Figure 19). There were also increases in total mercury between sampling years 2022 and 2023, at both NAY-US3 and NAY-DS6 (Figure 20).

Average mercury concentrations (uncorrected for length) in Trout Perch at NAY-DS6 showed a decreasing trend from 2008 to 2012, followed by an overall increase from 2012 to 2023. Mercury concentrations in Trout Perch from NAY-US3 showed variability between years, yet an overall stability from baseline to present. (Appendix A, Figure A-4). Similar to the other species and sample locations in this study, there was quite a bit of variability observed from year to year.

The GAM for total mercury in Trout Perch sampled from NAY-DS6, standardizing for a total length of 50 mm, illustrates the increase in body burden levels for the species from 2012 to 2023 with levels prior to this remaining below values initially observed during baseline studies (2008 and 2009; Figure 21). The GAM for the NAY-US3, indicates relatively stable concentrations over time from 2016 to present (Figure 21).

All age 1+ Trout Perch total mercury concentrations from both Nayshkootayaow River sampling locations were greater than the CCME advisory for the protection of wildlife consumers of aquatic biota of 0.033 mg/kg (CCME 2003); 89% of YOY Trout Perch concentrations were greater than the CCME advisory in 2023. However, 97% of mercury tissue concentrations in 2023 were less than the MECP SDB working guideline for the protection of fish-eating wildlife of 0.2 mg/kg (ENVIRON 2008). The four fish with tissue concentrations greater than the guideline were age 1+ fish collected from both the upstream and downstream sampling locations.

Mercury concentrations at sampling locations of the Nayshkootayaow River have increased over time at both the upstream and downstream locations of the river, but in 2023 the increase at NAY-DS6 was steeper than that at NAY-US3. Mercury concentrations in 2023 were greater at the downstream impact area for YOY fish but not for age 1+ fish. In two successive sampling years (2016

and 2017), small-bodied fish showed a higher tissue mercury concentration at the downstream impact location compared to the upstream control location, yet in 2018 and 2019, mercury concentrations were similar between the two locations. In 2020 and 2021, total mercury concentrations were similar between sampling locations, yet in 2022, concentrations at NAY-DS6 were higher than NAY-US3. Therefore, trends of increase are apparent in both the upstream and downstream sampling locations; as well, the data shows variability among years and does not show a consistent pattern of increasing mercury concentrations in the downstream location temporally.

4.0 REPORTING – CONDITION 6(9) DATA

This section presents the annual analysis of peat pore water as described in Section 3.2. Overall results indicate that concentrations of total and methyl mercury in the 2023 peat horizon water samples were similar to monitoring data for previous years.

Statistical analyses of total and methyl mercury peat pore water concentrations are presented in Table 31, including the:

- S-1 stations (Table 31a),
- S-2 stations (Table 31b),
- S-7 stations (Table 31c),
- S-8 stations (Table 31d),
- S-9(1) stations (Table 31e),
- S-9(2) stations (Table 31f), and
- S-V stations (Table 31g).

Analysis could not be completed for the S-1, S-2 and S-V stations due to missing data. None of the remaining station clusters showed a statistically significant location effect compared with the S-13 / S-15 background control stations baseline using Two-Way Analysis of Variance at $\alpha = 0.05$.

The S-8 station is of interest because of its proximity to the mine site and because a statistically significant difference had been observed for methyl mercury for the S-8 station in 2018, where a high methyl mercury concentration was observed for the S-8 station compared with that of the S-13 / S-15 control stations. This was not the case in 2019, 2020, 2021, 2022 or 2023 with statistical analysis indicating that there was no significant difference between the two station clusters. Table 32a shows annual average methyl mercury values for the S-8 and S-13 / S-15 control stations, averaged across all muskeg types, for all years from 2008 to 2023. Considering the entire period of record, the average methyl mercury concentration for the S-8 station of 0.099 ng/L was only slightly greater than the corresponding value of 0.072 ng/L for the S-13 / S-15 control stations. The S-8 versus S-13 / S-15 comparison was not statistically significant.

As per Section 1, it had been speculated by some reviewers during the provincial permitting process that mine dewatering might cause extensive drying out of the muskeg environment surrounding the Victor Mine, and that such drying out could release additional mercury to the environment. As such, and as per follow-up monitoring measures stipulated in the Federal EA and the VDM Follow-up Program Agreement, De Beers is required to carry out periodic satellite imagery assessments at 5-year intervals to assess the effects of mine dewatering on the areal extent of muskeg ponds over time. Satellite imagery was compared for the years 2006 (predevelopment), 2012, 2017 and 2022. The imagery from 2022 indicates that there was a general reduction in pond surface area expression

between 2006, 2012, 2017 and 2022 with greater reductions occurring closer to the mine. For the near-field zone, defined as the 2012 interpolated 2 m mine dewatering drawdown contour, pond area was reduced by 37.2% from 2006 to 2022 compared to the reduction of 14.6% from 2006 to 2012. For the mid-field zone, defined as the area between the near-field zone and the predicted drawdown extent from the 2008 model, pond area was reduced by 27.2% from 2006 to 2017 compared to the reduction of 7.5% from 2006 to 2012. These results are consistent with EA predictions, wherein some localized reduction in muskeg pond expression was expected to occur as a result of mine dewatering, specifically in areas of very thin marine sediment thickness (i.e., bioherms and bedrock subcrop zones). However, localized dewatering has not had a measurable effect on the total or methyl mercury concentration in the peat pore water samples.

Groundwater level data recorded from the muskeg piezometers within the zone of well field dewatering influence shows that the muskeg environment associated with the peat piezometers has remained saturated despite depressurization of the underlying bedrock and marine sediment horizons, such for the MS-8 series of piezometers (Figure 22). However, in some years, groundwater level data for the MS-8 series of piezometers do show increased levels of seasonal variation within the four muskeg terrain types. This variation shows up as a gradual decline in water levels over the winter months followed by a rebound during the spring with water levels maintained over the remainder of the open water period. Muskeg systems are therefore still effectively saturated, and there is no evidence of muskeg drying out.

4.1 Annual Analysis of Mineral Soil Pore Water

Results for total and methyl mercury from shallow and deep clay pore water samples, as well as from bedrock samples, have consistently shown generally low levels, with no clear trends at any of the stations (Tables 1a and 1b). There have been anomalous results in methyl mercury concentrations over the life of mine, which are not considered a result of mine related activities as they were just as likely to occur outside the drawdown zone of influence.

Total and methyl mercury results from muskeg and peat horizon monitoring program are discussed in Section 3.2 and presented in Table 2a through Table 2f. Statistical analyses of muskeg and peat horizon pore waters are presented in Table 31 and Table 32. There are no defining trends for any of the stations.

Note, consistent with previous years, ANOVA statistical analyses was not performed where data was only available for two or less substrate/conditions for all stations being compared. In such instances no ANOVA results are presented in the Table 31 and Table 32.

4.2 Annual Analysis of Surface Waters

Statistical analyses of total and methyl mercury concentrations in surface water samples are presented in Table 33 and Table 34. Note, consistent with previous years, ANOVA statistical analyses was not performed where data was only available for two or less substrate/conditions for all stations being compared. In such instances no ANOVA results are presented in Tables 33 and 34.

Stations (G-0 through G-8) are included in the analysis for Granny Creek, with the analysis including data for total and methyl mercury, for unfiltered and filtered samples. The G-0 station was included in the analysis for the first time in 2018.

Consistent with earlier results, differences in total mercury concentrations were not statistically different between the stations on North and South Granny Creek at the 0.05 probability level for unfiltered and filtered samples in 2023 (Tables 33a, 33b, 33c, 33d). Also consistent with earlier results, statistically significant differences were found between stations in Granny Creek for unfiltered and filtered methyl mercury (Table 33a, 33b, 33c, 33d). This significant difference in downstream methyl mercury is attributed to the conversion of total to methyl mercury in downstream portions of the Granny Creek watershed, likely as a result of sulphate drainage.

Table 34 provides a statistical analysis of average annual Granny Creek Confluence (G-8) total mercury values with those of Tributary 5A, over the period of common record from 2009 through 2023. Statistically significant differences were noted for unfiltered and filtered total mercury values. Similar to previous years, for both filtered and unfiltered total mercury samples, G-8 has shown consistently higher concentrations (see Section 3.3.3). These differences may be inherent in the two systems as a natural condition, as the slight upward trend in the data over all years occurred at both the G-8 and Tributary 5A stations, suggesting that mine development has not resulted in an increase in total mercury concentrations in the Granny Creek system.

As per Section 3.3, it is likely that methyl mercury dynamics in peatlands around the mine site are being influenced by elevated sulphate levels, and not by mine dewatering. However, while methyl mercury values were elevated from baseline in downstream portions of the Granny Creek system, all values were well below the CEQG value of 4 mg/L.

Data for the Nayshkootayaow and Attawapiskat Rivers show no overall upstream or downstream trends with no statistically significant differences (Tables 33e through 33h).

Statistical analyses were not run for methyl mercury for the G-8 and Tributary 5A stations as concentration differences are sufficiently pronounced that statistical analyses are not needed to show that methyl mercury concentrations are materially elevated in the Granny Creek system compared with those of Tributary 5A.

4.3 Trend Analysis of Well Field Water Discharge

As per Section 3.4, wellfield dewatering ceased in the first quarter of 2019 with the end of mine operations, such that mercury loadings from the well field to the Attawapiskat River are no longer occurring. For a discussion of statistical comparisons up to 2018 the reader is referred to the 2018 annual mercury report.

4.4 Annual Analysis of Fish Mercury Body Burdens

Small-bodied Fish Species

Overall total mercury levels in Northern Pearl Dace continued to be higher in the exposure locations of North Granny Creek and South Granny Creek, when compared to the reference locations, as added in 2017, and control Tributary 5A.

Over the course of the study period (2008/09 to 2023) Northern Pearl Dace mercury body burden concentrations have fluctuated in the Granny Creek System, but concentrations in the North and South Granny Creek exposure locations have consistently been higher than that in control Tributary 5A since 2014 (Appendix A, Figures A-2) and there is a clear increasing trend in the LS means of total mercury adjusted for total length from baseline to present at the exposure locations.

In 2023, 55% of Northern Pearl Dace (YOY and age 1+) captured from NGC-EXP and 89% captured from SGC EXP had mercury tissue concentrations greater than the MECP SDB working guideline of 0.2 mg/kg (ENVIRON 2008).

Data collected thus far for Trout Perch from the Attawapiskat River when viewed in their entirety show a lack of consistent trends in results between years. Results from 2014 show body size (length and weight) was similar between all sampling locations, and mercury concentrations adjusted for total length were also relatively similar between all sampling locations, with the far-field exposure location (ATT-FF) having the lowest concentrations. Contrary to this, in 2015 fish from ATT-FF were larger (length and weight), older, and had the higher tissue mercury concentrations than the other sampling locations. Although the far field exposure location had mercury concentrations higher than that of both reference locations, concentrations in the near field exposure location remained low and at levels similar to the reference locations. In 2016 Trout Perch aged 1+ displayed no difference in mean mercury concentration between sampling locations, further indicating a lack of an observed mine-related effect. Contrary to the 2016 data, the data from 2017 and 2018 show significantly higher mercury concentrations in YOY and Age 1 Trout Perch from ATT-NF when compared all other Attawapiskat River sampling locations. In 2019, total mercury body burden concentrations for Trout Perch were generally higher at ATT-REF2 when compared to all other sampling locations and unadjusted total mercury concentrations were higher at ATT-NF than ATT-US. In 2020, the exposure locations displayed a significant increase in mercury concentrations at the exposure locations when compared to the reference locations. In 2021, mean mercury concentrations, both unadjusted and adjusted for total length were higher at ATT-NF and ATT-REF2 in YOY Trout Perch, but concentrations in age 1+ fish were similar between all sampling locations. In, 2022 mean total mercury concentrations at ATT-REF2 continued to be greater than ATT-FF in age 1+ Trout Perch, and above all other sampling locations in YOY. In 2023, age 1+ total mercury concentrations were higher at ATT-US when compared to ATT-FF, when adjusted only for age and in YOY fish total mercury concentrations were greater at ATT-NF when compared to ATT-US and also at ATT-REF2 when compared to ATT-FF.

The current trend in LS means from baseline to present shows decreasing total mercury concentrations at ATT NF and ATT-FF, yet slightly increasing total mercury at ATT-US, from 2009 to 2023; however, from 2022 to 2023 total mercury increased at ATT-US, ATT-NF and ATT-FF, yet decreased at ATT-REF2.

Overall, the Attawapiskat River data does not indicate an impact of mercury bioaccumulation within the exposure locations from baseline to present. Considering the findings of the most recent years studies, results still indicate relatively consistent mercury body burden levels in small-bodied fish in the near-field exposure location and statistical results between years have not identified a consistent trend of increase over time.

There is a lack of long-term species-specific data for the Nayshkootayaow River, as the sentinel species for this system has alternated between Trout Perch and Northern Pearl Dace based on year-to-year catchability and environmental conditions. In years prior to 2016, where Northern Pearl Dace were captured in sufficient abundance to complete statistical analyses (2009, 2010 and 2012), no differences were found in tissue mercury concentrations between the downstream and upstream sampling locations.

For Trout Perch collected in the Nayshkootayaow River in 2016 and 2017, mean tissue mercury concentrations at NAY-DS6 were significantly higher compared to NAY-US3. However, in 2018 and 2019, mercury concentrations were similar between locations. In 2020 and 2021, average tissue concentrations were greater than at NAY-DS6 in YOY, but age 1+ Trout Perch showed differing trends; In 2020, mercury concentrations in age 1+ Trout Perch were higher at NAY-US3 and in 2021, concentrations were higher at NAY-DS6. In 2022, YOY Trout Perch were not captured in sufficient abundance, but age 1+ fish results were consistent with those observed in 2021, with higher total mercury concentrations at NAY-DS6. In 2023, YOY Trout Perch showed higher mercury concentrations at NAY-DS6, but age 1+ fish did not.

Most mercury concentrations were less than the MECP SDB working guideline for the protection of fish-eating wildlife in 2023. Overall, the Nayshkootayaow River data does not indicate mine induced increases in mercury concentrations within the downstream impact location from 2012 to 2023. Although concentrations have increased over time at the exposure location, they have also simultaneously increased at the control location. In two successive sampling years (2016 and 2017) small-bodied fish showed a higher tissue mercury concentration at the downstream impact location when compared to the upstream control location, but this was not observed in 2018 or 2019. Although concentrations at the downstream impact location have continued to be higher from 2020 to 2023, this trend has not proven to be consistent across sampling years; further monitoring will verify if this trend is consistent over the next sampling cycles.

Capture success for Mottled Sculpin in the Attawapiskat and Nayshkootayaow Rivers remains inconsistent between years. Mottled Sculpin were analysed for the first time in the Nayshkootayaow River in 2022; total mercury concentrations were higher at the downstream exposure location in 2023; however, data from previous years is not available to determine trends over time for this species. Within the Attawapiskat River, total mercury concentrations were similar between ATT-NF and ATT-REF2 in 2022 and remained consistent over time from 2015 to present. Mottled Sculpin were not captured in sufficient numbers to allow for comparisons in 2023.

5.0 SULPHATE SOURCE INVESTIGATIONS AND CONTROL

Sulphate data for the period of 2010 through 2023 are provided in Table 35a with 2023 sampling details shown in Table 35b. Sampling locations are shown in Figure 24. The 2015 to 2023 data include a greater number of stations, particularly in association with the waste rock stockpile, including sampling from three wells installed within the stockpile by a drilling program conducted in mid-2015 (WR-North, WR-Centre, WR-East). One similar monitoring well (LG-South) was installed within the Low-Grade Kimberlite stockpile.

Key results are as follows:

- Sulphate concentrations associated with the NEF, as well as with Phase 1 (Mine Water Pond) Ditch and the Landfill area (LF3), have been relatively stable since about 2011, with the exception of the proximal NEF sample (NEF-M) where concentrations increased through 2015 and 2016, and have remained relatively stable since 2016.
- Sulphate concentrations for the NEF were highest in the proximal end of the fen (i.e., NEF-M where the fen borders the east side of the Attawapiskat River Road) in all years from 2011 onward, with the average annual value for 2023 being 173.1 mg/L, declining to 62.9 mg/L at the mid fen station (NEF-M2). Sulphate concentrations in 2023 are less than those measured in 2022. These data suggest that sulphate is being consumed by microorganisms within the fen, with some possible dilution effects from the surrounding landscape.
- The highest average sulphate concentrations occur in association with the mine rock stockpile with sulphate concentrations averaging in the 300 to 400 mg/L range for the majority of stations as follows:
 - Centrally locate (WR-Centre – 387 mg/L);
 - The eastern, central edge of the mine rock stockpile (WR-East – 343 mg/L); and
 - East of the eastern, central edge of the mine rock stockpile (WR-B – 178 mg/L, WR-C – 281 mg/L).
 - The 2023 concentrations are less than sulphate concentrations measured in 2022 for all mine rock stockpile monitoring stations except for WR-Centre, which is slightly greater than the 2022 concentration at this station. Mine rock stockpile monitoring stations all fall along the line of the original fen track through this area, and may therefore represent the dominant subsurface seepage flow path for the mine rock stockpile, connecting with the proximal end of the NEF.
- Average sulphate concentrations associated with the WR-North well site (54 mg/L) were the lowest observed, consistent with previous years. WR-North continues to show some potential for seepage from the northern portion of the mine rock stockpile to enter North Granny Creek along a broad front in this area.

- Sulphate concentrations associated with LG Pond 2 bordering the south side of the low grade ore stockpile averaged 106 mg/L, showing that sulphates are also draining to muskeg zones that report to South Granny Creek. Other ponds bordering the perimeter of the low grade ore stockpile that were sampled in 2014 and 2015 have been overprinted by the expanding stockpile. Note, overall, LG Pond 2 has declining sulfate trend since 2019 (Table 35a).
- The LG-South well developed within the southeast perimeter of the low grade ore stockpile (Figure 24), had shown a steady reduction in sulphate values since 2015, with the lowest value observed in 2017 of 11.6 mg/L. However, concentrations have increased since 2018, with average sulphate concentrations of 116.3 mg/L, 234.5 mg/L, 311.5 mg/L, 242.5 mg/L, and 317.1 in 2018, 2019, 2020, 2021 and 2022, respectively (Table 36a). In 2023, sulphate concentrations were 193 at LG-South, lower than previous years.

The primary source of sulphate to the NEF, and to muskeg areas bordering the north side of the mine rock stockpile that may also drain to North Granny Creek, is the mine rock stockpile. The low-grade ore stockpile / coarse PK stockpile are the primary sources of sulphate loading to muskeg zones that drain to South Granny Creek.

As part of closure planning, De Beers has undertaken investigations for the purpose of reducing and/or mitigating contaminant loadings (including sulphate) on site. As part of the investigative process, De Beers engaged Hatch (2019) and Golder (2020) to model the mine site and receiving water quality at post-closure, to inform the closure water management strategy. These water quality models looked at different scenarios of post-closure water management from the stockpiles, including the use of directing drainage to the open pit and passive drainage to the muskeg. The results of the modeling showed that the scenario assessed in the Federal Environmental Assessment of passive drainage to the muskeg is still a viable option with the implementation of low permeability covers on stockpiles to limit infiltration. In addition, De Beers will also be directing runoff from the southern and eastern portions of the mine rock stockpile to the pit lake in closure. This is expected to reduce the sulphate loading to the muskeg from this pile and reduce methyl mercury production in the NEF. As of the end of 2023, the majority of the mineral stockpile covers had been completed.

6.0 SUMMARY AND CONCLUSIONS

6.1 Peat Pore Waters

- Filtered total and methyl mercury concentrations in peat pore waters remained considerably lower than the respective CEQG values of 26 ng/L for total mercury and 4 ng/L for methyl mercury, recognizing that CEQG criteria do not apply to ground water or to filtered samples; and there are no evident trends in the data.
- Statistical analysis of peat pore waters showed no statistically significant differences for total mercury or methyl mercury between peat complexes located near to and at mid-distances from the mine site, compared with more remote control stations.

6.2 Surface Waters

- Filtered total mercury concentrations measured in proximal area fen systems (NEF, SEF and HgCON) were well below the CEQG value of 26 ng/L, consistent with previous years. An analysis of quarterly data for the past nine years for the open water period (May, July and October) has shown that filtered and unfiltered total mercury values for the NEF have been equal to or generally lower than for either of the two control fens (SEF and HgCON), and that these differences are statistically significant (Table 7). It is speculated that the small stores of total mercury in the NEF, that occur naturally, may be becoming partially depleted through the conversion to methyl mercury as a result of the action of SRB (Section 3.3.1).
- Methyl mercury concentrations in the NEF, which receives (or received) various site effluents, continued to show elevated methyl mercury concentrations in 2023 compared with the control fens. Elevated methyl mercury concentrations in the NEF are considered to be the result of sulphate-rich effluent waters which stimulate the mercury methylation process, and are not a function of well field dewatering effects. De Beers has continued to collect additional sulphate data from the general Victor Mine site, and particularly in reference to NEF drainages. Actions have been taken to reduce sulphate loadings to the NEF during closure. Previous reports have suggested that mercury methylation rates within the NEF may have peaked in 2012 attributed to the depletion of total mercury stores within the muskeg (Table 6). Although the depletion of mercury stores within the NEF is likely a factor contributing to decreasing methyl mercury in the NEF over time, the 2018, 2019, 2020, 2021, 2022 and 2023 data suggest that there are still mercury stores in the fen available for methylation.
- With the possible exception of station MS-V(2)-R, analysis of total and methyl mercury concentrations for area ribbed fen systems shows no obvious increasing or decreasing trends; and no appreciable differences between stations that are located within the mine dewatering 2 m drawdown contour (under drained sites) and those stations that are located outside of this contour (remote sites).
- Analysis of other parameters measured for ribbed fen systems (pH, DOC, sulphate, chloride, conductivity, calcium, magnesium, iron, total phosphorus and sodium) showed a positive correlation between filtered methyl mercury and DOC ($r^2 = 0.18$), and a negative correlation

between filtered methyl mercury and pH ($r^2 = 0.12$), although the strength of these correlations was less than observed in previous years. A correlation was also noted with calcium that reflects the pH function. No correlation was demonstrated for any of the other parameters including sulphate. The lack of a correlation between methyl mercury and sulphate in area fen systems is likely a function of sulphate concentrations being generally too low to trigger mercury methylation.

- Total and methyl mercury concentrations measured in area surface waters (Granny Creek, the Nayshkootayaow River and the Attawapiskat River) in 2023 were below the applicable CEQG values of 26 ng/L and 4 ng/L, respectively. Filtered methyl mercury values for the downstream Granny Creek stations are, however, above the US EPA bioaccumulation threshold criterion of 0.05 ng/L set for the protection of fish-eating wildlife species such as Bald Eagle and River Otter, but this is not a regulatory limit and does not constitute a nonconformance. There were also a few individual samples taken from both the Nayshkootayaow River and Attawapiskat River, as well as from Monument Channel as control site, that were above the US EPA bioaccumulation threshold, but there were no clear upward trends in methyl mercury concentrations in these rivers.
- Generally, the Nayshkootayaow and Attawapiskat River have continued to show essentially background concentrations for total and methyl mercury, both upstream and downstream of the Victor Mine, with no evident trends to the data.
- North and South Granny Creek continue to show trends of elevated filtered methyl mercury concentrations in downstream waters, compared with the upstream stations for these two creeks, and compared with the Tributary 5A control site, with downstream North Granny Creek showing average concentrations in 2023 of about 0.52 ng/L for the G3 station and 0.38 ng/L for the G4 station, and downstream South Granny Creek showing 2023 concentrations of about 0.37 ng/L for the G6 station, and 0.28 ng/L for the G7 station (Figure 23a and 23b). Observed downstream increases in methyl mercury for the Granny Creek system are attributed to sulphate-rich drainage waters, which stimulate the mercury methylation process within the anoxic muskeg (peat) environment, and not a function of well field dewatering effects. Filtered methyl mercury concentration differences between upstream and downstream stations were statistically significant for North and South Granny Creeks in 2023. That stated, all values in the Granny Creek system for methyl mercury were below the federal guideline (CEQG) of 4 ng/L, with the highest observed unfiltered and filtered values in 2023 being 2.53 ng/L and 1.87 ng/L, respectively.
- A comparison of filtered and unfiltered methyl mercury concentrations for the Granny Creek confluence station (G-8), with values for the furthest downstream North and South Granny Creek stations (G-4 and G-7), for the summer / fall (July / October) period, showed that elevated methyl mercury values from North and South Granny Creeks declined somewhat at the Granny Creek confluence station for the years 2011 through 2017; but this trend was not evident in 2018 through 2023, where G-8 and G-4 / G-7 values were similar.

6.3 Fish Mercury Body Burdens

- Majority of small-bodied fish from all locations (control and exposed) remained greater than the CEQG tissue residue guideline for the protection of wildlife consumers of aquatic biota (0.033mg/kg) in 2023, which is commonly observed in throughout Northern Ontario.
- Most concentrations of total mercury for small-bodied fish from the Granny Creek system (NGC and SGC) were greater than the MECP SDB guideline (0.2 mg/kg) for fish eating wildlife in 2021.
- Overall, there has been an increase in total mercury concentrations in Northern Pearl Dace within the Granny Creek system (NGC-EXP and SGC-EXP) relative to baseline conditions.
- The data collected thus far for Trout Perch from the Attawapiskat River show that there has not been a consistent effect over time on small-bodied fish mercury concentrations within the Attawapiskat River.
- Trout Perch from the downstream impact location of the Nayshkootayaow River had elevated mercury concentrations in comparison to the upstream control location in 2016 and 2017. However, in 2018 and 2019 mercury concentrations were statistically similar between the control and impact locations. In 2020 to 2023, mercury concentrations were again higher at the downstream exposure location; however, in 2023 these results were only seen in YOY fish. The upstream and downstream locations of the river show an increase in mercury concentrations from baseline to 2023, with a steeper increase at station NAY-DS6.

6.4 Consistency with the 2008 Trigger Values Document

The AMEC 2008 trigger values document stipulated the following general responses to observed increases mercury concentrations in water or in fish:

- Level 1 response: if a statistically significant difference is observed between experimental and control station results, at an alpha 0.05 level, then a potential concern will be deemed to exist, requiring further investigation, principally through increased sampling effort to confirm the result. It should be noted that the sampling program was already very extensive from the outset, and that the program was proactively increased beyond ECA requirements. Also, independent research by a consortium of local universities was proactively initiated.
- Level 2 response: if increased sampling (or further investigation) confirms that a concern continues to exist then a root cause analysis of the condition is to be undertaken, and if appropriate, following consultation with the MECP and the Attawapiskat First Nation (AttFN), predictive modelling studies are to be undertaken to determine expected longer-term performance of the system.
- Level 3 response: if increased mercury concentrations are likely to result in an Attawapiskat River mercury concentration increase of greater than 10%, or an increase in the

concentration of mercury in fish tissue by greater than 10% over background conditions, then a comprehensive risk assessment is to be undertaken.

- Level 4 response: if the risk assessment carried out as per Level 3 indicates that there is likely to be a meaningful adverse effect on aquatic life, a mitigation strategy is to be developed to reduce the level of risk.

Statistically significant differences in surface water methyl mercury concentrations, compared with control stations, have been determined for Granny Creek water quality, and for total mercury body burden levels in Granny Creek small-bodied fish. Additional sampling has been carried out in response to this condition, including the institution of additional sampling areas for small-bodied fish in each of North and South Granny Creeks since 2017. A root cause analysis has been undertaken, which has identified sulphate release to local muskeg environments as the most probable root cause of increased mercury methylation in the system. Further investigations were undertaken to better understand the mechanisms of sulphate release, and measures are being developed to better manage this release including the covering of the onsite stockpiles with a low permeability cover.

Thus far there has been no demonstrable increase in the concentrations of total or methyl mercury (unfiltered or filtered) in the Attawapiskat River, with all values remaining essentially at background. The data collected thus far for small-body fish (Trout Perch) from the Attawapiskat River have not provided a consistent confirmed effect on total mercury body burden levels from baseline to present. As such, a further response is not warranted.

The 2016 Nayshkootayaow River Trout Perch body burden mercury data, when assessed against the 2008 trigger document, indicated the need for further study of the potential sources of mercury loading to aquatic biota in this system, in accordance with Section 4.5 of the trigger document. In response, surface water mercury concentrations (total and methyl) were investigated at the downstream Nayshkootayaow River sampling location (just downstream of the Granny Creek confluence) starting in 2017, and increased efforts to collect the same sentinel species (Trout Perch) at both control and exposure stations in this river were also undertaken. The goal was to provide related information to confirm whether the observed effect, or trend, for small-bodied fish species in the Nashkootayaow River was consistent over greater than one year of study. The results of the 2016 and 2017 small-bodied fish study confirmed a trend of increased total mercury body burden in fish (Trout Perch) at the downstream Nayshkootayaow River impact area in comparison to the upstream control area. However, in 2018 and 2019 this trend was not repeated, and thus was no longer considered a level 2 response. Methyl mercury concentrations in the Nayshkootayaow River surface water from the same sample area collected in 2017, 2018 and 2019 were not demonstratively different from those collected from controls for similar periods. The basis for the observed differences in Trout Perch mercury concentrations in previous years is therefore unclear and has not been confirmed by further data collected in 2018 or 2019.

However, similar to 2016 and 2017, results from 2020 through 2023 indicate higher mercury concentrations in fish tissue in the downstream area. This result was present in YOY fish only in 2020 and 2023, in both age classes in 2021, and in age 1+ fish only in 2022 (YOY Trout Perch were not captured during this sampling year). Field studies in 2024 will include assessment of small-bodied

fish within the Nayshkootayaow River. Extensive sampling efforts will target YOY and age 1+ Trout Perch to provide sufficient sample sizes for analyses of both age classes; 2024 sampling will provide further data to define trends in Trout Perch among both age classes within this system.

Based on the factors discussed above, the MECP's review of the 2020 Mercury Performance Monitoring Report recommended that monitoring continue in the adjacent fens, Granny Creek, Nayshkootayaow River, Attawapiskat River and applicable reference locations for water, forage fish, and large-bodied fish. MECP further recommended that all other monitoring program components (i.e., effluent from well field dewatering; peat, mineral soil, and bedrock pore water; and ribbed fens) can be discontinued from 2021 onwards, with the exception of the MS-8 series of peat piezometers where monitoring of peat pore water would continue, at least during the near-term.

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Table 1a: Muskeg Monitoring Program - Annual Mercury Results for Clay and Bedrock; Total Mercury Filtered (2007-2023) (concentrations in ng/L)

Cluster Location	Substrate / Condition	Well Name	GPS Code	Sample Code	Total Mercury (Filtered)																	Average	Standard Deviation		
					2007	2008	2009	2010	2011 (Aug)	2011 (Sep / Nov)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022			2023	
MS-1	Bedrock (Bioherm)	MS-1-BR	ES1-BR	ES1BDR	1.30	-	0.27	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.24	<0.10	<0.10	0.26	<0.17	0.77	<0.17	<0.16	<0.25	<0.32	
	Clay - Deep	MS-1-CL(1)	ES1-BR	ES1CLD	1.47	-	0.18	<0.10	<0.10	<0.10	0.19	<0.10	0.10	0.12	<0.10	<0.10	<0.22	<0.17	<0.17	<0.30	<0.16	<0.22	<0.33		
	Clay - Shallow	MS-1-CL(2)	ES1-BR	ES1CLS	0.27	-	0.16	<0.10	<0.10	<0.10	0.16	<0.10	0.15	0.19	0.16	0.48	<0.10	<0.22	<0.17	0.25	<0.17	0.36	<0.19	<0.10	
MS-2	Bedrock (Bioherm)	DAS-1	EDAS-1	EDAS-1	0.23	-	0.24	0.45	<0.10	-	<0.10	<0.10	<0.10	<0.10	0.14	<0.10	<0.10	<0.22	<0.17	-	<0.17	<0.16	<0.16	<0.09	
		MS-2-BR	ES2-BR	ES2BR	0.68	-	-	0.38	<0.10	-	0.21	0.17	D	D	0.67	0.11	<0.10	<0.22	<0.17	-	<0.20	<0.16	<0.26	<0.21	
	Clay - Deep	MS-2-CL(1)	ES2-BR	ES2CLD	-	-	0.36	<0.10	<0.10	<0.10	0.18	D	0.31	<0.10	0.43	D	<0.10	0.60	0.68	-	1.50	1.21	<0.44	<0.45	
	Clay - Shallow	MS-2-CL(2)	ES2-BR	ES2CLS	0.98	-	0.17	<0.10	3.01	<0.10	<0.10	<0.10	0.95	0.32	0.47	0.23	<0.10	0.30	<0.17	0.56	0.18	0.36	<0.48	<0.71	
MS-7	BR Shallow		NS7-BR	NS7BRS	1.02	-	0.53	0.34	0.35	0.52	0.54	0.67	0.43	0.45	0.58	0.30	0.34	0.37	0.31	0.58	0.41	0.37	<0.48	<0.18	
	BR Intermediate		NS7-BR	NS7BRI	1.93	-	0.23	<0.10	<0.10	-	0.23	0.53	0.29	0.75	0.84	2.11	0.50	0.60	3.64	2.83	4.55	2.61	<1.37	<1.40	
	BR Deep		NS7-BR	NS7BRD	2.34	-	0.12	0.39	<0.10	<0.10	1.62	0.30	0.19	0.35	0.32	0.16	0.13	<0.22	<0.17	0.96	<0.17	<0.16	<0.46	<0.62	
	Clay - Deep	MS-7-CL(1)	NS7-CL	NS7-CLD	0.59	-	0.25	<0.10	<0.10	<0.10	<0.10	0.22	1.46	<0.10	0.48	<0.10	<0.10	<0.22	0.25	<0.17	<0.17	0.20	<0.28	<0.33	
	Clay - Intermediate		NS7-CL	NS7-CLI	0.41	-	0.13	<0.10	<0.10	<0.10	0.25	0.19	0.57	0.12	0.20	<0.10	<0.10	<0.22	0.27	0.27	0.22	0.18	<0.21	<0.13	
	Clay - Shallow	MS-7-CL(2)	NS7-CL	NS7-CLS	0.70	-	0.10	<0.10	0.96	<0.10	<0.10	0.18	0.29	0.11	0.34	<0.10	0.13	<0.22	<0.17	<0.17	0.77	<0.16	<0.28	<0.27	
MS-8	Bedrock (Bioherm)	MS-8-BR(1)	NS8BR1	NS8B1S	7.46	-	1.56	7.14	1.37	-	0.79	0.54	0.27	0.71	1.12	0.11	<0.10	0.63	-	2.22	2.78	3.56	<2.02	<2.36	
	Bedrock (Bioherm)	MS-8-BR(2)	NS8BR1	NS8B2S	4.36	-	-	0.33	-	0.35	0.36	0.66	0.81	1.45	1.66	3.95	1.51	6.06	6.58	18.34	16.60	13.82	<5.12	<6.17	
			NS8BR1	NS8B1D	1.83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Clay - Deep	MS-8-CL(1)	NS8CL1	NS8C1D	0.31	-	0.24	<0.10	-	-	-	D	D	D	D	D	D	D	0.30	0.43	0.87	0.42	<0.38	<0.24	
	Clay - Middle	MS-8-CL(2)	NS8CL1	NS8C1I	-	-	0.26	-	0.32	0.47	0.21	1.05	0.80	0.42	1.00	0.94	D	1.10	0.69	0.94	0.39	0.20	<0.63	<0.34	
	Clay - Shallow	MS-8-CL(3)	NS8CL1	NS8C1S	0.89	-	0.28	0.50	<0.10	<0.10	<0.10	-	1.13	D	0.32	1.62	0.40	D	0.76	0.18	0.95	0.17	<0.54	<0.46	
	Clay - Deep	MS-8-CL(4)	NS8CL2	NS8C2D	0.14	-	0.16	<0.10	<0.10	<0.10	-	<0.10	1.37	0.16	<0.10	0.11	<0.10	<0.10	<0.22	0.19	0.20	-	<0.22	<0.33	
	Clay - Middle	MS-8-CL(5)	NS8CL2	NS8C2MD	0.49	-	-	-	-	-	<0.10	0.20	<0.10	<0.10	0.18	<0.10	D	0.29	<0.17	0.25	<0.17	0.38	<0.21	<0.12	
	Clay - Shallow	MS-8-CL(6)	NS8CL2	NS8C2S	0.33	-	0.59	<0.10	<0.10	0.17	<0.10	0.17	0.13	0.38	0.99	0.20	<0.10	0.33	<0.17	0.44	0.23	0.35	<0.29	<0.23	
MS-9(1)	Bedrock (Bioherm) *	MS-9(1)-BR			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Clay - Deep	MS-9(1)-CL(1)	SS9CL1	SS9C1D	0.66	-	<0.10	0.52	<0.10	<0.10	<0.10	0.32	0.29	0.23	0.41	<0.10	<0.10	<0.22	0.21	0.49	0.20	<0.16	<0.25	<0.17	
	Clay - Shallow	MS-9(1)-CL(2)	SS9CL1	SS9C1S	1.03	-	0.10	0.43	<0.10	<0.10	0.24	0.26	4.94	<0.10	0.23	<0.10	<0.10	<0.22	0.23	0.47	<0.17	0.18	<0.53	<1.16	
MS-9(2)	Bedrock (Bioherm) *	MS-9(2)-BR			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Clay - Deep	MS-9(2)-CL(1)	SS9CL2	SS9C2D	1.09	-	0.30	0.38	<0.10	<0.10	<0.10	0.25	0.69	<0.10	0.12	<0.10	<0.10	<0.22	<0.17	<0.17	<0.17	<0.16	<0.25	<0.26	
	Clay - Shallow	MS-9(2)-CL(2)	SS9CL2	SS9C2S	0.44	-	0.13	<0.10	<0.10	<0.10	0.51	0.17	0.80	<0.10	0.17	<0.10	<0.10	<0.22	1.39	<0.17	<0.17	0.24	<0.29	<0.34	
MS-13	Bedrock (Bioherm)	MS-13-BR	WS13BR	WS13BS	2.57	-	0.72	0.87	-	-	0.56	0.92	0.75	1.29	0.63	0.71	0.76	1.10	1.17	0.91	1.11	-	<1.00	<0.50	
			WS13BR	WS13BD	1.19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Clay - Deep	MS-13-CL(1)	WS13CL	WS13CD	0.42	-	<0.10	<0.10	<0.10	<0.10	-	<0.10	0.41	<0.10	0.13	0.29	<0.10	<0.22	0.18	0.52	0.21	0.23	<0.21	<0.14	
			WS13CL	WS13CI	1.48	-	0.18	-	<0.10	<0.10	-	0.20	0.38	-	0.20	0.11	<0.10	<0.22	<0.17	0.18	0.19	<0.16	<0.27	<0.36	
	Clay - Shallow	MS-13-CL(2)	WS13CL	WS13CS	0.50	-	<0.10	0.36	<0.10	-	-	0.60	0.71	0.43	0.72	D	D	D	-	-	-	-	<0.44	<0.24	
MS-15	Bedrock (Bioherm)	MS-15-BR	WS15BR	WS15BS	2.00	-	2.34	2.74	2.46	-	2.02	0.88	12.19	2.44	1.25	2.96	0.81	2.94	2.62	1.60	3.05	2.91	<2.83	<2.60	
			WS15BR	WS15BD	0.58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Clay - Deep	MS-15-CL(1)	WS15CL	WS15CD	-	-	-	0.59	-	-	-	-	-	-	0.11	1.16	D	<0.10	0.53	0.22	-	0.53	-	<0.46	<0.37
			WS15CL	WS15CI	1.70	-	-	-	-	-	-	-	-	-	-	-	0.75	0.45	<0.22	0.24	3.21	<0.17	-	<0.96	<1.13
	Clay - Shallow	MS-15-CL(2)	WS15CL	WS15CS	0.69	-	<0.10	<0.10	0.33	<0.10	-	0.14	D	0.32	0.25	-	-	-	-	-	-	-	<0.25	<0.20	

Near-field sites: MS-2; MS-8
Mid-field sites: MS-1; MS-7; MS-9(1); MS-9(2)
Far-field sites: MS-13; MS-15
*Bedrock samples for stations MS-9(1) and MS-9(2) are collected at the overburden / bedrock interface and are reported as deep clay samples.
MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1.
Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.
Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.
D: Dry
F: Frozen
US: Unsafe to sample



Table 1b: Muskeg Monitoring Program - Annual Mercury Results for Clay and Bedrock; Meythyl Mercury Filtered (2008-2023) (concentrations in ng/L)

Cluster Location	Substrate / Condition	Well Name	GPS Code	Sample Code	Methyl Mercury (Filtered)																	Average	Standard Deviation	
					2007	2008	2009	2010	2011 (Aug)	2011 (Sep / Nov)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022			2023
MS-1	Bedrock (Bioherm)	MS-1-BR	ES1-BR	ES1BDR	<0.02	-	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03	<0.04	<0.02	<0.01
	Clay - Deep	MS-1-CL(1)	ES1-BR	ES1CLD	-	-	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.03	<0.03	<0.02	<0.00
	Clay - Shallow	MS-1-CL(2)	ES1-BR	ES1CLS	<0.02	-	0.03	0.04	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03	<0.03	<0.02	<0.01
MS-2	Bedrock (Bioherm)	DAS-1	EDAS-1	EDAS-1	<0.02	-	0.05	0.02	0.07	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.03	<0.04	<0.03	<0.01
		MS-2-BR	ES2-BR	ES2BR	<0.02	-	-	0.14	0.04	-	0.03	D	D	D	<0.02	0.04	0.03	0.07	0.05	-	0.05	<0.04	<0.05	<0.03
	Clay - Deep	MS-2-CL(1)	ES2-BR	ES2CLD	-	-	0.13	0.03	0.03	<0.02	<0.02	D	0.03	<0.02	<0.02	D	0.03	0.11	0.03	-	0.18	<0.04	<0.05	<0.05
	Clay - Shallow	MS-2-CL(2)	ES2-BR	ES2CLS	<0.02	-	0.04	<0.02	<0.02	<0.02	0.02	0.06	0.25	0.05	0.05	<0.02	0.14	0.14	0.02	0.05	<0.03	<0.03	<0.06	<0.06
MS-7	BR Shallow		NS7-BR	NS7BRS	0.09	-	0.05	0.05	0.05	0.12	0.03	<0.02	0.05	0.08	0.02	0.06	0.10	0.09	0.09	0.09	0.15	0.10	<0.07	<0.04
	BR Intermediate		NS7-BR	NS7BRI	0.04	-	<0.02	0.05	<0.02	-	<0.02	0.06	0.04	0.04	0.03	0.03	0.19	0.31	<0.02	0.31	<0.03	<0.03	<0.08	<0.10
	BR Deep		NS7-BR	NS7BRD	0.03	-	0.03	0.03	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.03	<0.03	<0.02	<0.01
	Clay - Deep	MS-7-CL(1)	NS7-CL	NS7-CLD	<0.02	-	0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.14	<0.02	<0.02	<0.03	<0.03	<0.03	<0.03
	Clay - Intermediate		NS7-CL	NS7-CLI	0.02	-	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.03	0.05	0.05	<0.02	0.04	0.06	<0.03	<0.03	<0.03	<0.01
	Clay - Shallow	MS-7-CL(2)	NS7-CL	NS7-CLS	<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	<0.03	<0.03	<0.02	<0.00
MS-8	Bedrock (Bioherm)	MS-8-BR(1)	NS8BR1	NS8B1S	0.03	-	0.03	0.13	0.04	-	0.03	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.03	<0.03	<0.03	<0.03
	Bedrock (Bioherm)	MS-8-BR(2)	NS8BR1	NS8B2S	<0.02	-	-	0.0515	-	0.165	0.176	0.42	0.032	0.213	0.11	0.12	0.21	0.21	0.16	0.32	0.26	0.16	<0.18	<0.11
			NS8BR1	NS8B1D	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Clay - Deep	MS-8-CL(1)	NS8CL1	NS8C1D	<0.02	-	<0.02	<0.02	-	-	-	D	D	D	D	D	D	D	0.03	0.03	0.04	<0.04	<0.03	<0.01
	Clay - Middle	MS-8-CL(2)	NS8CL1	NS8C1I	-	-	0.04	-	0.10	0.06	0.02	<0.02	<0.02	0.03	<0.02	0.03	D	<0.02	0.03	<0.02	0.11	0.08	<0.04	<0.03
	Clay - Shallow	MS-8-CL(3)	NS8CL1	NS8C1S	0.03	-	<0.02	0.06	0.08	0.03	-	0.63	D	0.12	0.07	0.26	D	0.07	0.02	<0.02	<0.03	<0.04	<0.11	<0.16
	Clay - Deep	MS-8-CL(4)	NS8CL2	NS8C2D	<0.02	-	<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	<0.00
	Clay - Middle	MS-8-CL(5)	NS8CL2	NS8C2MD	<0.02	-	-	-	-	-	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	D	0.03	<0.02	<0.02	-	0.07	<0.03	<0.02
	Clay - Shallow	MS-8-CL(6)	NS8CL2	NS8C2S	0.08	-	<0.02	0.03	0.04	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	0.04	0.04	<0.04	<0.03	<0.02
MS-9(1)	Bedrock (Bioherm) *	MS-9(1)-BR			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Clay - Deep	MS-9(1)-CL(1)	SS9CL1	SS9C1D	<0.02	-	<0.02	<0.02	0.029	<0.02	0.037	0.04	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.03	<0.03	<0.02	<0.01
	Clay - Shallow	MS-9(1)-CL(2)	SS9CL1	SS9C1S	<0.02	-	0.07	0.02	0.03	<0.02	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.05	0.04	<0.03	<0.02
MS-9(2)	Bedrock (Bioherm) *	MS-9(2)-BR			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Clay - Deep	MS-9(2)-CL(1)	SS9CL2	SS9C2D	<0.02	-	0.04	0.02	0.03	<0.02	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	< 0.02	< 0.02	<0.03	<0.03	<0.02	<0.01
	Clay - Shallow	MS-9(2)-CL(2)	SS9CL2	SS9C2S	<0.02	-	0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	0.022	<0.03	0.08	<0.03	<0.01
MS-13	Bedrock (Bioherm)	MS-13-BR	WS13BR	WS13BS	<0.02	-	<0.02	<0.02	-	-	<0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	< 0.02	< 0.02	<0.03	-	<0.02	<0.01
			WS13BR	WS13BD	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Clay - Deep	MS-13-CL(1)	WS13CL	WS13CD	0.03	-	<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	0.04	<0.04	<0.02	<0.01
			WS13CL	WS13CI	0.04	-	0.04	-	<0.02	<0.02	-	<0.02	0.05	-	<0.02	0.03	<0.02	<0.02	0.02	<0.02	<0.03	<0.03	<0.03	<0.01
	Clay - Shallow	MS-13-CL(2)	WS13CL	WS13CS	0.02	-	-	<0.02	<0.02	-	-	0.03	0.04	0.02	0.03	D	D	D	-	-	-	-	<0.02	<0.01
MS-15	Bedrock (Bioherm)	MS-15-BR	WS15BR	WS15BS	<0.02	-	0.37	0.03	<0.02	-	<0.02	0.61	0.04	<0.02	0.07	<0.02	<0.02	<0.02	0.03	0.03	<0.03	<0.03	<0.09	<0.16
			WS15BR	WS15BD	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Clay - Deep	MS-15-CL(1)	WS15CL	WS15CD	<0.02	-	-	0.04	-	-	-	-	-	-	0.02	D	0.09	0.13	0.10	-	0.10	-	<0.06	<0.04
			WS15CL	WS15CI	<0.02	-	-	-	-	-	-	-	-	-	-	<0.02	0.07	<0.02	0.03	<0.02	0.04	-	<0.03	<0.02
	Clay - Shallow	MS-15-CL(2)	WS15CL	WS15CS	<0.02	-	<0.02	<0.02	<0.02	<0.02	0.04	-	<0.02	D	<0.02	<0.02	-	-	-	-	-	-	<0.02	<0.01

Near-field sites: MS-2; MS-8
Mid-field sites: MS-1; MS-7; MS-9(1); MS-9(2)
Far-field sites: MS-13; MS-15
*Bedrock samples for stations MS-9(1) and MS-9(2) are collected at the overburden / bedrock interface and are reported as deep clay samples.
MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury), as per Section 1.
Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.
Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.
D: Dry
F: Frozen
US: Unsafe to sample

Table 2a: Muskeg Monitoring Program - Annual Mercury Results for Peat; Total Mercury Filtered (2009-2023) (concentrations in ng/L)

Cluster Location	Substrate / Condition	Well Name	GPS Code	Sample Code	Total Mercury (Filtered)																	Average	Standard Deviation
					2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023		
MS-1	Peat - Domed Bog	MS-1-D	ES1D	ES1D	2.22	1.93	0.40	0.79	0.37	0.72	0.28	1.03	0.82	0.75	0.33	0.57	0.52	0.69	0.64	0.54	0.32	0.76	0.54
	Peat - Flat Bog	MS-1-F	ES1F	ES1F	2.73	3.04	0.83	1.47	1.18	1.31	0.79	2.30	2.04	1.50	0.99	1.61	2.25	1.76	2.04	1.70	1.08	1.68	0.65
	Peat - Horizontal Fen	MS-1-H	ES1H	ES1H	-	1.77	0.36	0.53	0.30	0.48	0.28	1.18	0.39	0.33	0.24	<0.10	0.64	0.37	0.60	0.63	0.30	0.53	0.41
	Peat - Ribbed Fen	MS-1-R	ES1R	ES1R	1.81	2.27	0.49	1.24	0.91	1.06	<0.10	1.84	1.73	0.79	0.44	0.61	1.72	2.75	2.39	-	-	1.34	0.80
MS-2	Peat - Domed Bog	MS-2-D	ES2D	ES2D	1.98	2.15	0.51	1.25	4.69	1.02	1.21	1.82	1.40	0.94	1.54	1.34	2.79	1.39	1.12	2.27	1.98	1.73	0.95
	Peat - Flat Bog	MS-2-F	ES2F	ES2F	3.12	3.05	2.35	2.74	5.79	1.53	2.48	5.17	5.10	1.84	1.30	3.95	5.94	5.81	-	-	2.14	3.49	1.66
	Peat - Ribbed Fen	MS-2-R ¹	ES2R	ES2R	1.56	2.02	0.38	1.43	4.60	0.67	0.30	2.06	1.46	0.42	0.68	0.83	1.28	1.40	1.36	1.18	0.76	1.32	1.00
MS-7	Peat - Domed Bog	MS-7-D	NS-7D	NS-7D	0.72	1.04	0.29	0.62	0.74	0.58	0.72	0.95	0.58	0.57	0.58	0.68	0.49	0.88	1.01	0.68	1.04	0.72	0.21
	Peat - Flat Bog	MS-7-F	NS-7F	NS-7F	1.23	1.61	0.27	0.85	1.09	0.86	1.32	2.36	1.12	0.73	0.69	1.01	0.88	1.18	0.96	1.33	1.33	1.11	0.45
	Peat - Horizontal Fen	MS-7-H	NS-7H	NS-7H	1.24	2.18	0.68	1.35	0.61	0.74	1.01	2.06	3.23	0.70	1.32	1.52	1.79	1.93	3.75	2.09	1.98	1.66	0.88
MS-8	Peat - Ribbed Fen	MS-7-R	NS-7R	NS-7R	0.62	0.52	0.12	0.44	0.36	0.25	<0.10	1.94	0.11	<0.10	0.56	0.20	0.23	0.23	0.38	0.47	1.67	0.49	0.53
	Peat - Domed Bog	MS-8-D	NS8-1D	NS8-1D	1.13	1.49	0.38	1.66	1.20	1.33	1.72	4.18	1.51	1.10	0.93	1.64	1.26	1.73	2.26	1.67	1.76	1.59	0.79
	Peat - Flat Bog	MS-8-F	NS8-1F	NS8-1F	1.91	2.85	1.46	2.76	4.34	3.08	3.31	5.44	5.73	2.38	3.96	3.91	6.09	6.00	0.61	3.58	5.75	3.72	1.67
	Peat - Horizontal Fen	MS-8-H	NS8-1H	NS8-1H	0.56	0.55	0.18	<0.10	<0.10	0.14	0.44	3.28	0.29	0.37	0.26	0.57	0.28	0.37	0.43	0.29	0.25	0.50	0.73
MS-9(1)	Peat - Ribbed Fen	MS-8-R	NS8-1R	NS8-1R	1.00	0.98	0.27	1.60	1.18	0.55	0.30	1.15	1.34	1.27	0.77	1.37	1.17	2.15	1.56	1.39	1.31	1.14	0.48
	Peat - Domed Bog	MS-9(1)-D	SS9-1D	SS9-1D	0.77	0.77	0.27	0.58	<0.10	0.59	0.52	3.26	0.68	0.61	0.23	0.59	1.06	0.43	0.48	1.22	0.72	0.76	0.70
	Peat - Flat Bog	MS-9(1)-F	SS9-1F	SS9-1F	2.53	1.74	0.37	1.36	0.69	1.08	1.27	1.44	1.50	1.18	0.84	1.75	1.20	1.01	1.08	1.34	0.75	1.24	0.49
	Peat - Horizontal Fen	MS-9(1)-H	SS9-1H	SS9-1H	2.65	2.06	0.45	1.01	0.71	0.68	0.48	0.70	0.50	1.47	0.62	0.92	1.18	1.92	1.74	3.40	1.78	1.31	0.85
MS-9(2)	Peat - Ribbed Fen	MS-9(1)-R	SS9-1R	SS9-1R	0.72	1.26	0.22	0.47	0.42	0.32	0.25	0.71	0.51	0.20	0.17	0.27	0.27	0.36	0.40	0.73	0.30	0.45	0.28
	Peat - Domed Bog	MS-9(2)-D	SS9-2D	SS9-2D	1.72	1.89	0.42	1.04	0.93	0.63	1.38	1.17	1.14	1.35	0.89	1.33	1.58	1.04	1.25	1.80	0.67	1.19	0.41
	Peat - Flat Bog	MS-9(2)-F	SS9-2F	SS9-2F	1.10	1.27	0.57	1.21	0.98	1.25	1.02	2.44	1.15	1.02	1.05	1.59	1.78	2.02	2.27	2.56	1.35	1.45	0.57
	Peat - Horizontal Fen	MS-9(2)-H	SS9-2H	SS9-2H	0.80	0.59	0.30	<0.10	<0.10	0.11	1.37	1.51	<0.10	<0.10	<0.10	<0.10	<0.22	<0.17	<0.19	<0.17	<0.16	0.36	0.45
MS-13	Peat - Ribbed Fen	MS-9(2)-R	SS9-2R	SS9-2R	1.29	0.90	0.33	0.72	5.16	0.34	<0.10	1.75	0.24	0.16	0.21	<0.10	0.17	0.33	0.24	0.36	0.31	0.75	1.22
	Peat - Domed Bog	MS-13-D	WS13-D	WS13-D	2.81	2.68	1.26	1.45	7.02	1.23	1.25	1.68	2.41	1.86	1.32	1.72	1.91	3.76	4.09	3.55	2.74	2.51	1.48
	Peat - Flat Bog	MS-13-F	WS13-F	WS13-F	1.60	2.79	0.92	1.30	1.83	1.22	1.23	1.69	1.56	1.40	0.96	1.87	1.26	1.54	1.89	2.37	1.12	1.56	0.49
	Peat - Horizontal Fen	MS-13-H	WS13-H	WS13-H	-	0.57	0.35	0.42	0.31	<0.10	0.11	3.12	0.18	0.23	0.15	0.21	<0.22	<0.28	0.32	0.47	<0.16	0.45	0.72
MS-15	Peat - Ribbed Fen	MS-13-R	WS13-R	WS13-R	0.40	0.95	0.25	<0.10	<0.10	0.13	<0.10	0.26	0.11	0.24	<0.10	0.33	0.49	0.63	0.71	0.58	0.78	0.37	0.27
	Peat - Domed Bog	MS-15-D	WS15-D	WS15-D	1.35	1.89	0.93	<0.10	<0.10	0.17	0.23	0.41	0.18	0.45	0.10	0.54	0.70	0.34	0.34	0.51	<0.16	0.50	0.49
	Peat - Flat Bog	MS-15-F	WS15-F	WS15-F	2.66	2.55	0.30	0.35	1.92	<0.10	0.63	1.99	0.48	0.73	0.64	1.54	2.23	1.71	0.43	2.13	-	1.27	0.90
	Peat - Horizontal Fen	MS-15-H	WS15-H	WS15-H	0.99	0.90	0.22	<0.10	<0.10	0.10	0.13	0.37	<0.10	0.20	0.19	0.18	<0.22	<0.17	0.32	0.17	0.21	0.28	0.26
MS-V(1)	Peat - Ribbed Fen	MS-15-R	WS15-R	WS15-R	0.43	0.92	0.15	<0.10	<0.10	0.10	0.20	0.22	<0.10	0.46	<0.10	0.15	<0.22	0.18	0.17	0.27	0.29	0.24	0.21
	Peat - Domed Bog	MS-V(1)-D	NS-V(1)-D	NS-V(1)-D	1.96	0.60	0.18	0.53	0.49	0.14	0.17	0.43	0.29	0.25	0.23	0.28	<0.22	0.27	7.90	-	-	0.93	1.98
MS-V(2)	Peat - Ribbed Fen	MS-V(1)-R ¹	NS-V(1)-R	NS-V(1)-R	1.56	2.02	0.38	1.43	4.60	0.67	0.30	2.06	1.46	0.42	0.68	0.83	1.28	1.40	1.36	-	-	1.36	1.06
	Peat - Domed Bog	MS-V(2)-D	SS-V(2)-D	SS-V(2)-D	1.97	1.16	0.24	0.45	0.52	1.19	0.55	D	1.23	0.37	0.55	0.73	1.13	1.20	0.60	1.13	0.30	0.83	0.47
MS-V(3)	Peat - Ribbed Fen	MS-V(2)-R	SS-V(2)-R	SS-V(2)-R	0.59	0.60	0.13	0.85	<0.10	0.33	0.61	1.13	0.89	0.85	0.86	1.01	1.34	1.61	1.26	1.41	1.45	0.88	0.45
	Peat - Domed Bog	MS-V(3)-D	SS-V(3)-D	SS-V(3)-D	0.72	0.61	0.49	0.60	5.20	0.47	0.64	1.06	1.39	0.79	0.44	1.23	1.45	1.13	0.58	1.69	-	1.16	1.15
MS-V(3)	Peat - Ribbed Fen	MS-V(3)-R	SS-V(3)-R	SS-V(3)-R	1.08	1.69	0.47	0.76	0.89	0.64	0.76	0.61	0.58	2.22	0.35	0.90	0.80	0.99	0.57	0.73	0.57	0.86	0.46

MDLs have been adjusted for uniformity (0.1 ng/L for total mercury), as per Section 1.

¹MS-2-R and MS-V(1)-R are the same station.

Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.

Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.

D: Dry

F: Frozen

US: Unsafe to sample

Table 2b: Muskeg Monitoring Program - Annual Mercury Results for Peat; Methyl Mercury Filtered (2010-2023) (concentrations in ng/L)

Cluster Location	Substrate / Condition	Well Name	GPS Code	Sample Code	Methyl Mercury (Filtered)																	Average	Standard Deviation
					2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023		
MS-1	Peat - Domed Bog	MS-1-D	ES1D	ES1D	0.02	0.07	0.10	0.06	0.08	0.03	0.10	0.05	0.05	0.03	0.03	0.02	0.03	0.04	0.03	<0.03	<0.03	0.05	0.03
	Peat - Flat Bog	MS-1-F	ES1F	ES1F	<0.02	0.18	0.19	0.14	<0.02	0.06	0.10	0.09	0.04	0.04	0.06	0.06	0.04	0.10	0.06	0.05	<0.03	0.08	0.05
	Peat - Horizontal Fen	MS-1-H	ES1H	ES1H	-	-	0.10	0.04	<0.02	0.10	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03	0.02	< 0.02	<0.03	<0.03	0.04	0.03
	Peat - Ribbed Fen	MS-1-R	ES1R	ES1R	0.02	0.07	0.06	0.06	0.05	<0.02	0.05	0.02	0.06	<0.02	0.03	0.02	0.02	<0.06	0.06	-	-	0.04	0.02
MS-2	Peat - Domed Bog	MS-2-D	ES2D	ES2D	<0.02	0.02	0.04	0.05	<0.02	0.07	0.14	0.04	0.02	<0.02	<0.02	0.03	0.07	0.06	0.03	0.09	0.22	0.06	0.05
	Peat - Flat Bog	MS-2-F	ES2F	ES2F	<0.02	0.10	0.07	0.11	0.10	0.09	0.20	0.08	0.05	0.02	0.07	0.11	0.41	0.14	-	-	0.11	0.11	0.09
	Peat - Ribbed Fen	MS-2-R'	ES2R	ES2R	<0.02	0.04	0.09	0.08	0.06	0.29	0.11	0.10	0.06	0.03	0.07	0.05	0.04	0.03	0.04	0.06	0.09	0.07	0.06
MS-7	Peat - Domed Bog	MS-7-D	NS-7D	NS-7D	<0.02	<0.02	0.04	0.02	0.04	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.03	<0.03	0.02	0.01	
	Peat - Flat Bog	MS-7-F	NS-7F	NS-7F	<0.02	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.02	<0.02	<0.02	<0.03	<0.03	0.02	0.01	
	Peat - Horizontal Fen	MS-7-H	NS-7H	NS-7H	0.02	0.06	0.10	0.04	0.03	0.46	0.04	0.03	0.09	<0.02	0.03	0.02	0.05	0.02	0.06	0.05	<0.03	0.07	0.10
	Peat - Ribbed Fen	MS-7-R	NS-7R	NS-7R	<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	<0.03	<0.03	0.02	0.01	
MS-8	Peat - Domed Bog	MS-8-D	NS8-1D	NS8-1D	<0.02	<0.02	0.06	0.29	0.11	0.07	0.23	0.11	0.06	0.05	0.06	0.09	0.04	0.05	0.05	0.06	0.09	0.09	0.07
	Peat - Flat Bog	MS-8-F	NS8-1F	NS8-1F	<0.02	0.08	0.31	0.14	0.16	0.12	0.11	0.13	0.14	0.07	0.19	0.27	0.15	0.18	0.20	0.14	0.11	0.15	0.07
	Peat - Horizontal Fen	MS-8-H	NS8-1H	NS8-1H	<0.02	<0.02	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.03	0.05	0.07	0.09	0.05	0.05	0.08	0.05	0.04	0.02
	Peat - Ribbed Fen	MS-8-R	NS8-1R	NS8-1R	<0.02	<0.02	0.09	<0.02	0.02	<0.02	0.07	0.06	0.10	0.19	0.08	0.10	0.30	0.27	0.21	0.13	0.09	0.10	0.09
MS-9(1)	Peat - Domed Bog	MS-9(1)-D	SS9-1D	SS9-1D	<0.02	<0.02	0.17	<0.02	<0.02	0.04	<0.02	<0.02	0.05	0.04	<0.02	<0.02	<0.02	0.10	< 0.02	< 0.07	<0.03	0.04	0.04
	Peat - Flat Bog	MS-9(1)-F	SS9-1F	SS9-1F	<0.02	0.04	0.05	0.05	<0.02	0.05	<0.02	0.04	0.29	0.08	0.06	0.07	0.03	0.02	0.09	0.09	0.06	0.06	0.06
	Peat - Horizontal Fen	MS-9(1)-H	SS9-1H	SS9-1H	0.02	0.05	0.11	0.03	0.04	0.02	<0.02	<0.02	<0.02	0.02	0.02	<0.02	<0.03	< 0.02	< 0.02	< 0.03	0.04	0.03	0.02
	Peat - Ribbed Fen	MS-9(1)-R	SS9-1R	SS9-1R	0.02	0.03	0.04	<0.02	0.02	<0.02	<0.02	<0.02	0.09	<0.02	0.02	<0.02	<0.02	0.03	0.02	<0.03	<0.03	0.03	0.02
MS-9(2)	Peat - Domed Bog	MS-9(2)-D	SS9-2D	SS9-2D	<0.02	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.02	<0.02	<0.03	0.03	0.03	0.04	<0.03	0.02	0.01
	Peat - Flat Bog	MS-9(2)-F	SS9-2F	SS9-2F	<0.02	0.06	0.12	0.03	0.05	0.04	<0.02	0.07	0.04	0.04	0.04	0.07	0.09	0.06	0.06	0.06	0.05	0.02	
	Peat - Horizontal Fen	MS-9(2)-H	SS9-2H	SS9-2H	<0.02	<0.02	0.08	<0.02	<0.02	<0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	< 0.02	< 0.02	<0.03	<0.03	0.03	0.02	
	Peat - Ribbed Fen	MS-9(2)-R	SS9-2R	SS9-2R	<0.02	0.06	0.17	0.05	0.18	0.06	0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.02	0.02	< 0.02	<0.03	<0.03	0.05	0.05
MS-13	Peat - Domed Bog	MS-13-D	WS13-D	WS13-D	0.03	0.12	0.24	0.11	0.08	0.06	0.06	0.11	0.11	0.06	0.07	0.05	0.04	0.11	0.09	0.07	0.04	0.09	0.05
	Peat - Flat Bog	MS-13-F	WS13-F	WS13-F	0.07	0.24	0.45	0.15	0.19	0.28	0.18	0.29	0.12	0.10	0.12	0.15	0.12	0.14	0.07	0.08	0.07	0.17	0.10
	Peat - Horizontal Fen	MS-13-H	WS13-H	WS13-H	0.02	<0.02	0.29	<0.02	0.02	<0.02	0.04	0.02	<0.02	<0.02	0.04	0.03	0.02	0.02	< 0.02	< 0.07	<0.03	0.04	0.07
	Peat - Ribbed Fen	MS-13-R	WS13-R	WS13-R	0.13	<0.02	0.05	<0.02	0.03	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	< 0.02	< 0.02	<0.03	0.06	0.03	0.03
MS-15	Peat - Domed Bog	MS-15-D	WS15-D	WS15-D	<0.02	0.04	0.78	<0.02	0.05	<0.02	0.13	<0.02	<0.02	<0.02	<0.02	<0.02	< 0.02	< 0.02	<0.03	<0.03	0.08	0.18	
	Peat - Flat Bog	MS-15-F	WS15-F	WS15-F	<0.02	0.07	0.17	<0.02	0.16	<0.02	0.04	0.07	0.03	0.04	0.08	0.12	0.12	0.05	< 0.02	< 0.06	-	0.07	0.05
	Peat - Horizontal Fen	MS-15-H	WS15-H	WS15-H	-	<0.02	0.10	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	< 0.02	< 0.02	<0.03	<0.03	0.03	0.02
	Peat - Ribbed Fen	MS-15-R	WS15-R	WS15-R	0.02	0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.02	<0.02	<0.02	<0.02	0.03	0.02	< 0.02	< 0.02	< 0.03	0.06	0.02	0.01
MS-V(1)	Peat - Domed Bog	MS-V(1)-D		NS-V(1)-D	-	<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	0.00
	Peat - Ribbed Fen	MS-V(1)-R'		NS-V(1)-R	<0.02	0.04	0.09	0.08	0.06	0.29	0.11	0.10	0.06	0.03	0.07	0.05	0.04	0.03	0.04	-	-	0.07	0.07
MS-V(2)	Peat - Domed Bog	MS-V(2)-D		SS-V(2)-D	-	<0.02	<0.02	0.05	0.07	0.03	0.05	D	0.10	0.05	0.04	0.06	0.05	0.04	0.04	0.08	<0.03	0.05	0.02
	Peat - Ribbed Fen	MS-V(2)-R		SS-V(2)-R	-	<0.02	0.03	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.03	0.04	0.06	0.11	0.07	0.05	0.04	0.03
MS-V(3)	Peat - Domed Bog	MS-V(3)-D		SS-V(3)-D	-	0.10	0.03	<0.02	0.07	<0.02	<0.02	0.03	<0.02	0.02	<0.02	0.04	0.04	0.05	0.03	<0.03	-	0.04	0.02
	Peat - Ribbed Fen	MS-V(3)-R		SS-V(3)-R	-	0.02	0.04	<0.02	0.03	<0.02	0.05	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	0.11	< 0.02	<0.03	<0.03	0.03	0.02

MDLs have been adjusted for uniformity (0.02 ng/L for methyl mercury), as per Section 1.

¹MS-2-R and MS-V(1)-R are the same stations

Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.

Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.

D: Dry

F: Frozen

US: Unsafe to sample

Table 2c: Muskeg Pore Water - Domed Bog 2007-2023 (Filtered) (concentrations in ng/L)

Cluster Location	Total Mercury																		Methyl Mercury																	
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023		
MS-1	2.22	1.93	0.40	0.79	0.37	0.72	0.28	1.03	0.82	0.75	0.33	0.57	0.52	0.69	0.64	0.54	0.32	0.02	0.07	0.10	0.06	0.08	0.03	0.10	0.05	0.05	0.03	0.03	0.02	0.03	0.04	0.03	<0.03	<0.03		
MS-2	1.98	2.15	0.51	1.25	4.69	1.02	1.21	1.82	1.40	0.94	1.54	1.34	2.79	1.39	1.12	2.27	1.98	<0.02	0.02	0.04	0.05	<0.02	0.07	0.14	0.04	0.02	<0.02	<0.02	0.03	0.07	0.06	0.03	0.09	0.22		
MS-7	0.72	1.04	0.29	0.62	0.74	0.58	0.72	0.95	0.58	0.57	0.58	0.68	0.49	0.88	1.01	0.68	1.04	<0.02	<0.02	0.04	0.02	0.04	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03	<0.03			
MS-8	1.13	1.49	0.38	1.66	1.20	1.33	1.72	4.18	1.51	1.10	0.93	1.64	1.26	1.73	2.26	1.87	1.76	<0.02	<0.02	0.06	0.29	0.11	0.07	0.23	0.11	0.06	0.05	0.06	0.09	0.04	0.05	0.05	0.06	0.09		
MS-9(1)	0.77	0.77	0.27	0.58	<0.10	0.59	0.52	3.26	0.68	0.61	0.23	0.59	1.06	0.43	0.48	1.22	0.72	<0.02	<0.02	0.17	<0.02	<0.02	0.04	<0.02	<0.02	0.05	0.04	<0.02	<0.02	<0.02	0.10	<0.02	0.07	<0.03		
MS-9(2)	1.72	1.89	0.42	1.04	0.93	0.63	1.38	1.17	1.14	1.35	0.89	1.33	1.58	1.04	1.25	1.80	0.67	<0.02	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03	0.03	0.03	0.04	<0.03		
MS-13	2.81	2.68	1.26	1.45	7.02	1.23	1.25	1.68	2.41	1.86	1.32	1.72	1.91	3.76	4.09	3.55	2.74	0.03	0.12	0.24	0.11	0.08	0.06	0.06	0.11	0.11	0.06	0.07	0.05	0.04	0.11	0.09	0.07	0.04		
MS-15	1.35	1.89	0.93	<0.10	0.34	0.17	0.23	0.41	0.18	0.45	0.10	0.54	0.70	0.34	0.34	0.51	<0.17	<0.02	0.04	0.78	0.02	0.05	<0.02	0.13	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03	<0.03			
MS-V(1)	1.96	0.6	0.18	0.53	0.49	0.14	0.17	0.43	0.29	0.26	0.23	0.28	0.22	0.27	7.90	-	-	<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	-	-	-			
MS-V(2)	1.97	1.16	0.24	0.45	0.52	1.19	0.55	D	1.23	0.37	0.55	0.73	1.13	1.20	0.80	1.13	0.30	<0.02	<0.02	0.05	0.07	0.03	0.05	D	0.10	0.05	0.04	0.06	0.05	0.04	0.04	0.08	<0.03			
MS-V(3)	0.72	0.61	0.49	0.60	5.20	0.47	0.64	1.06	1.39	0.79	0.44	1.23	1.45	1.13	0.58	1.69	-	0.10	0.03	<0.02	0.07	<0.02	<0.02	<0.02	0.03	<0.02	0.02	<0.02	0.04	0.04	0.05	0.03	<0.03	-		

MDLs have been adjusted for uniformity (0.1 ng/L for total mercury and 0.02 ng/L for methyl mercury), as per Section 1.
Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.
Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.
D: Dry
F: Frozen
US: Unsafe to sample

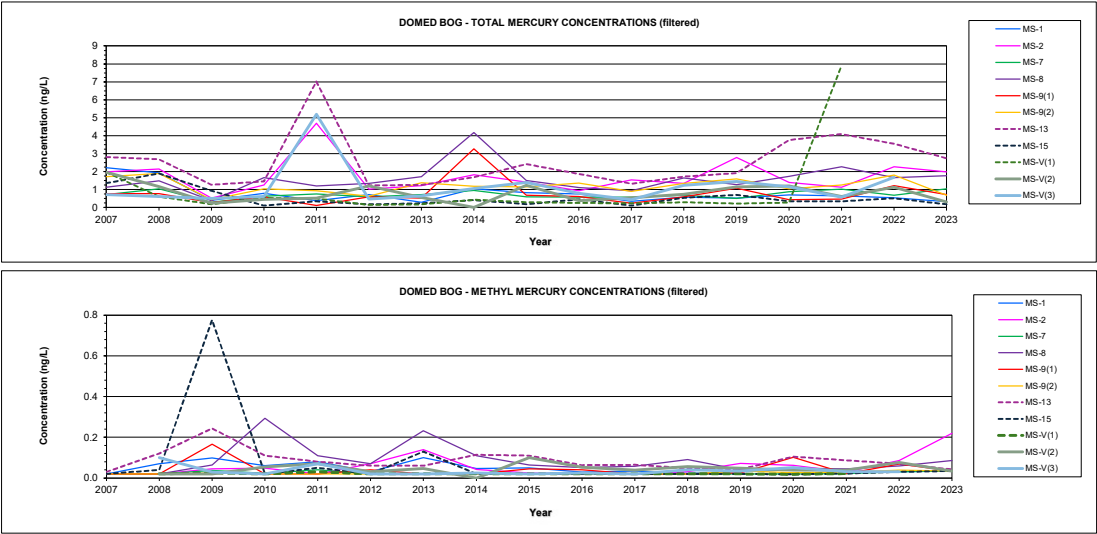


Table 2d: Muskeg Pore Water - Flat Bog 2007-2023 (Filtered) (concentrations in ng/L)

Cluster Location	Total Mercury																		Methyl Mercury																	
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023		
MS-1	2.73	3.04	0.83	1.47	1.18	1.31	0.79	2.3	2.04	1.50	0.99	1.61	2.25	1.76	2.04	1.70	1.08	<0.02	0.18	0.19	0.14	<0.02	0.06	0.10	0.09	0.04	0.04	0.06	0.06	0.04	0.10	0.06	0.05	<0.03		
MS-2	3.12	3.05	2.35	2.74	5.79	1.53	2.48	5.17	5.10	1.84	1.30	3.95	5.94	5.81	-	-	-	<0.02	0.10	0.07	0.11	0.10	0.09	0.20	0.08	0.05	0.02	0.07	0.11	0.41	0.14	-	-			
MS-7	1.23	1.61	0.27	0.85	1.09	0.86	1.32	2.36	1.12	0.73	0.69	1.01	0.88	1.18	0.96	1.33	1.33	<0.02	<0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.02	<0.02	<0.02	<0.03			
MS-8	1.91	2.85	1.46	2.76	4.34	3.08	3.31	5.44	5.73	2.38	3.96	3.91	6.09	6.00	0.61	3.58	5.75	<0.02	0.08	0.31	0.14	0.16	0.12	0.11	0.13	0.14	0.07	0.19	0.27	0.15	0.18	0.20	0.14	-		
MS-9(1)	2.53	1.74	0.37	1.36	0.69	1.08	1.27	1.44	1.50	1.18	0.84	1.75	1.20	1.01	1.08	1.34	0.75	<0.02	0.04	0.05	0.05	<0.02	0.05	<0.02	0.04	0.29	0.08	0.06	0.07	0.03	0.02	0.09	0.09	0.06		
MS-9(2)	1.10	1.27	0.57	1.21	0.98	1.25	1.02	2.44	1.15	1.02	1.05	1.59	1.78	2.02	2.27	2.56	1.35	<0.02	0.06	0.12	0.03	0.05	0.04	<0.02	0.07	0.04	0.04	0.04	0.07	0.09	0.06	0.06	0.06			
MS-13	1.60	2.79	0.92	1.30	1.83	1.22	1.23	1.69	1.56	1.40	0.96	1.87	1.26	1.54	1.89	2.37	1.12	0.07	0.24	0.45	0.15	0.19	0.28	0.18	0.29	0.12	0.10	0.12	0.15	0.12	0.14	0.07	0.08	0.07		
MS-15	2.66	2.56	0.30	0.35	1.92	<0.10	0.63	1.99	0.48	0.73	0.64	1.54	2.23	1.71	0.43	2.13	-	<0.02	0.07	0.17	<0.02	0.16	<0.02	0.04	0.07	0.03	0.04	0.08	0.12	0.12	0.05	<0.02	0.06	0.00		

MDLs have been adjusted for uniformity (0.1 ng/L for total mercury and 0.02 ng/L for methyl mercury), as per Section 1.

Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.

Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.

D: Dry

F: Frozen

US: Unsafe to sample

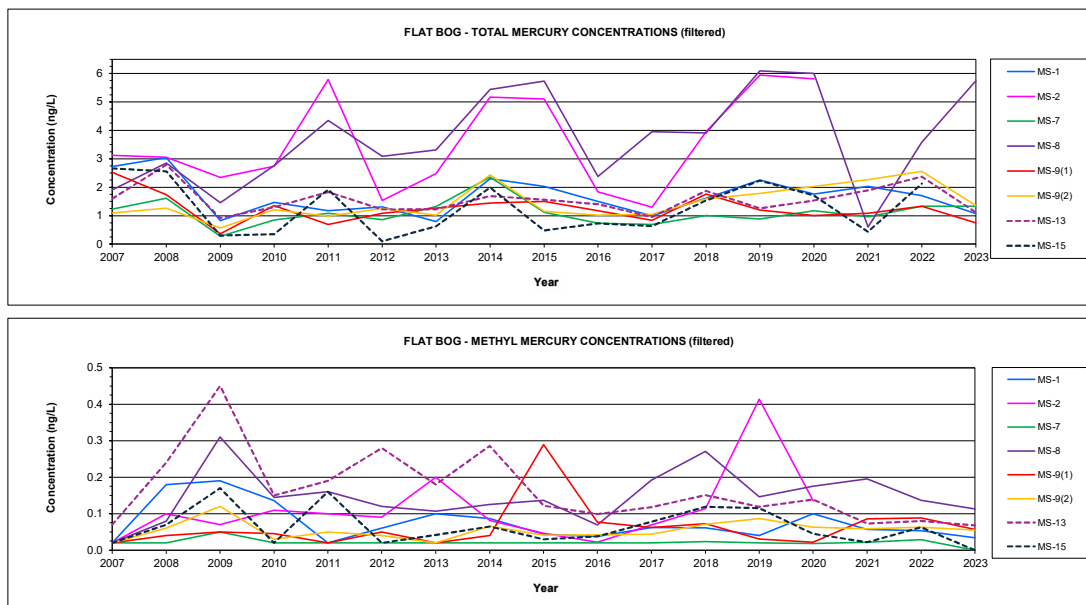


Table 2e: Muskeg Pore Water - Horizontal Fen 2007-2023 (Filtered) (concentrations in ng/L)

Cluster Location	Total Mercury																		Methyl Mercury																	
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023		
MS-1		1.77	0.36	0.53	0.3	0.48	0.28	1.18	0.39	0.33	0.24	<0.10	<0.64	0.37	0.60	0.63	0.30			0.10	0.04	<0.02	0.10	0.04	0.02	<0.02	<0.02	<0.02	<0.03	0.02	<0.02	<0.03	<0.03			
MS-7	1.24	2.18	0.68	1.35	0.61	0.74	1.01	2.06	3.23	0.70	1.32	1.52	1.79	1.93	3.75	2.09	1.98	0.02	0.06	0.10	0.04	0.03	0.46	0.04	0.03	0.09	<0.02	0.03	0.02	0.05	0.02	0.06	0.05	<0.03		
MS-8	0.56	0.55	0.18	<0.10	<0.10	0.14	0.44	3.28	0.29	0.37	0.26	0.57	0.28	0.37	0.43	0.29	0.25	<0.02	<0.02	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.03	0.05	0.07	0.09	0.05	0.08		
MS-9(1)	2.65	2.06	0.45	1.01	0.71	0.68	0.48	0.7	0.50	1.47	0.62	0.92	1.18	1.92	1.74	3.40	1.78	0.02	0.05	0.11	0.03	0.04	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03	<0.02	<0.02	<0.03	0.04			
MS-9(2)	0.80	0.59	0.30	<0.10	<0.10	0.11	1.37	1.51	<0.10	<0.10	<0.10	<0.10	<0.22	<0.17	0.19	0.17	0.00	<0.02	<0.02	0.08	0.02	<0.02	<0.02	0.06	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03			
MS-13		0.57	0.35	0.42	0.31	<0.10	0.11	3.12	0.18	0.23	0.15	0.21	<0.22	<0.28	0.32	0.47	<0.16	0.02	<0.02	0.29	<0.02	0.02	<0.02	0.04	0.02	<0.02	<0.02	0.04	0.03	0.02	0.02	<0.02	<0.07	<0.03		
MS-15	0.99	0.90	0.22	<0.10	<0.10	0.10	0.13	0.37	<0.10	0.20	0.19	0.18	<0.22	<0.17	0.32	0.17	0.21	<0.02	<0.02	0.10	<0.02	0.02	<0.02	<0.02	0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.03	<0.03			

MDLs have been adjusted for uniformity (0.1 ng/L for total mercury and 0.02 ng/L for methyl mercury), as per Section 1.
 Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.

Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.

D: Dry

F: Frozen

US: Unsafe to sample

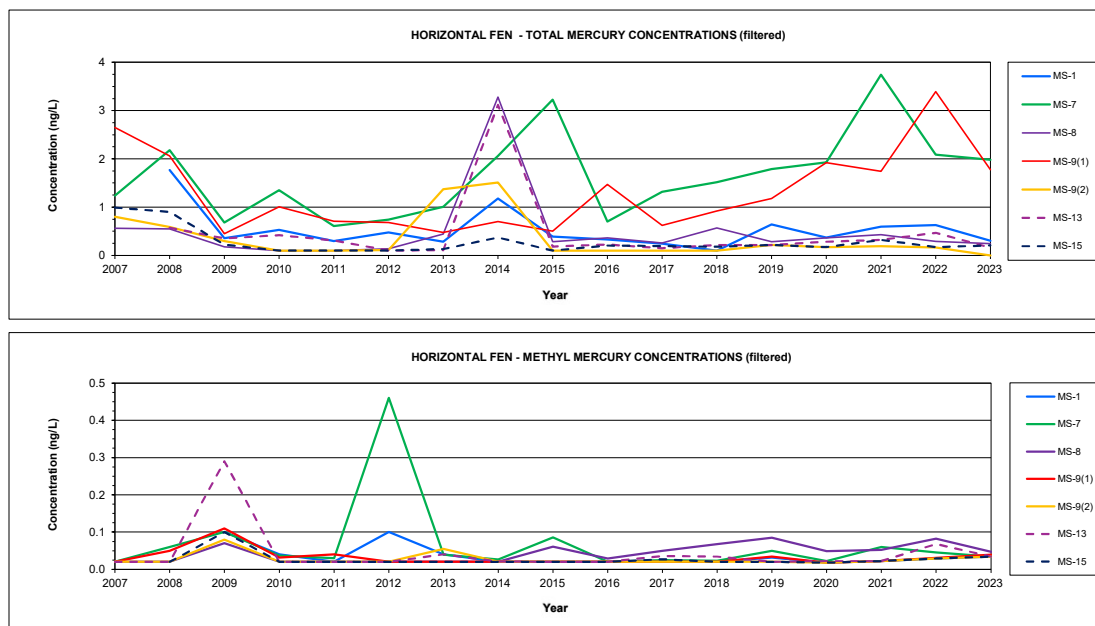


Table 2f: Muskeg Pore Water - Ribbed Fen 2007-2023 (Filtered) (concentrations in ng/L)

Cluster Location	Total Mercury																	Methyl Mercury																
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
MS-1	1.81	2.27	0.49	1.24	0.91	1.06	<0.10	1.84	1.73	0.79	0.44	0.61	1.72	2.75	2.39	-	-	0.02	0.07	0.06	0.06	0.05	<0.02	0.05	0.02	0.06	<0.02	0.03	0.02	<0.02	<0.06	0.06	-	-
MS-2 ¹	1.56	2.02	0.38	1.43	4.6	0.67	0.3	2.06	1.46	0.42	0.68	0.83	1.28	1.40	1.36	1.18	0.76	<0.02	0.04	0.09	0.08	0.06	0.29	0.11	0.10	0.06	0.03	0.07	0.05	0.04	0.03	0.04	0.06	0.09
MS-7	0.62	0.52	0.12	0.44	0.36	0.25	<0.10	1.94	0.11	<0.10	0.56	0.20	0.23	0.23	0.38	0.47	1.67	<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	<0.03	<0.03	<0.03	
MS-8	1.00	0.98	0.27	1.60	1.18	0.55	0.30	1.15	1.34	1.27	0.77	1.37	1.17	2.15	1.56	1.39	1.31	<0.02	<0.02	0.09	<0.02	0.02	<0.02	0.07	0.06	0.10	<0.02	0.08	0.10	0.30	0.27	0.21	0.13	0.09
MS-9(1)	0.72	1.26	0.22	0.47	0.42	0.32	0.25	0.71	0.51	0.20	0.17	0.27	0.27	0.36	0.40	0.73	0.30	0.02	0.03	0.04	<0.02	0.02	<0.02	<0.02	<0.02	0.09	<0.02	0.02	<0.02	<0.02	<0.03	<0.02	<0.03	<0.03
MS-9(2)	1.29	0.90	0.33	0.72	5.16	0.34	<0.10	1.75	0.24	0.16	0.21	<0.10	<0.17	0.33	0.24	0.36	0.31	<0.02	0.06	0.17	0.05	0.18	0.06	0.02	0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.03	<0.03	<0.03
MS-13	0.40	0.95	0.25	<0.10	<0.10	0.13	<0.10	0.26	0.11	0.24	<0.10	0.33	0.49	0.63	0.71	0.58	0.78	0.13	<0.02	0.06	<0.02	0.03	<0.02	0.03	0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	<0.03	<0.06	
MS-15	0.43	0.92	0.15	<0.10	<0.10	<0.10	0.20	0.22	<0.10	0.46	<0.10	0.15	0.22	0.18	0.17	0.27	0.29	-	0.02	0.02	<0.02	0.02	<0.02	<0.02	0.03	0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.03	<0.06	
MS-V(1) ¹	1.56	2.02	0.38	1.43	4.60	0.67	0.30	2.06	1.46	0.42	0.68	0.83	1.28	-	1.36	1.18	0.76	<0.02	0.04	0.09	0.08	0.06	0.29	0.11	0.10	0.06	0.03	0.07	0.05	0.04	-	0.04	0.06	0.09
MS-V(2)	0.59	0.60	0.13	0.85	<0.10	0.33	0.61	1.13	0.89	0.85	0.86	1.01	1.34	1.61	1.26	1.41	1.45	-	<0.02	0.03	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.03	0.04	0.06	0.11	0.07	0.05	
MS-V(3)	1.08	1.69	0.47	0.76	0.89	0.64	0.76	0.61	0.58	2.22	0.35	0.90	0.80	0.99	0.57	0.73	0.57	-	0.02	0.04	<0.02	<0.02	<0.02	0.05	0.02	<0.02	<0.02	0.02	<0.02	0.11	<0.02	<0.03	<0.03	

MLs have been adjusted for uncertainty (0.1 ng/L for total mercury and 0.02 ng/L for methyl mercury), as per Section 1.

¹ - MS-2 and MS-V(1) are the same station.

Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.

Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.

D: Dry

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US: Unsafe to sample

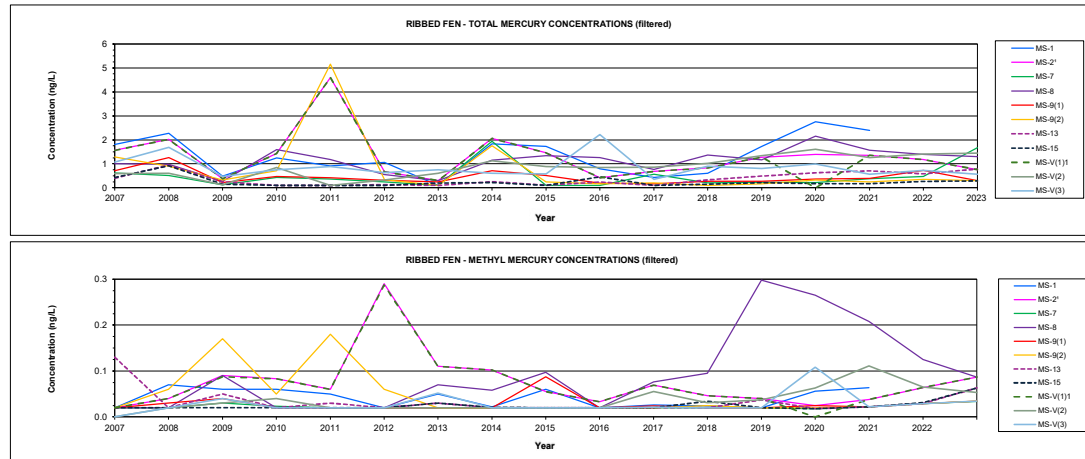


Table 3: Total Mercury - Fens (Unfiltered) (concentrations in ng/L)

Date	Southwest Fen (SWF/F) S-1	Northeast Fen (NEF/F) S-2	Southeast Fen (SEF/F) S-3	Northwest Control (HgCON) S-4
	CEQG for Protection of Aquatic Life: 26 ng/L			
May-06	0.77	0.62		
Jun-06	2.44	1.72		
Jul-06	2.49	1.26	2.51	2.64
Aug-06	1.86	0.83		
Sep-06	1.29	1.25		
Oct-06	1.59	0.53	1.09	1.70
Dec-06	4.65	1.08		
Jan-07	3.01	0.86	1.51	2.77
Feb-07	2.84	0.99		
Mar-07	F	3.14		
Apr-07	F	2.34		
May-07	2.07	1.31	1.43	1.25
Jun-07	1.96	1.21		
Jul-07	2.40	0.87	1.57	2.87
Aug-07	3.85	1.30		
Sep-07	2.28	1.32		
Oct-07	3.74	1.12	3.57	4.51
Nov-07	2.86	0.68		
Dec-07	3.42	1.41		
Jan-08	6.55	3.33	13.30	4.36
Feb-08	5.70	3.52		
Mar-08	9.79	4.64		
Apr-08	16.30	5.67	F	2.80
May-08	1.78	1.33		
Jun-08	2.37	1.11		
Jul-08	3.19	1.54	2.42	3.47
Aug-08	2.98	2.51		
Sep-08	2.76	2.22		
Oct-08	1.84	1.02	1.44	1.60
Nov-08	1.80	0.76		
Dec-08	2.19	0.92		
Jan-09	F	3.43	1.83	2.66
Feb-09	8.61	5.14		
Mar-09				
Apr-09	4.89	7.35		
May-09	1.44	2.92	2.60	2.91
Jun-09	ND	1.25		
Jul-09	ND	1.46	2.12	2.97
Aug-09	ND	1.11		
Sep-09	ND	1.42		
Oct-09	ND	1.41	0.94	1.15
Nov-09	ND	0.38		
Dec-09	ND	0.19		
Jan-10	ND	3.21	3.16	2.93
Feb-10	ND			
Mar-10	ND			
Apr-10	ND	1.03	0.55	
May-10	ND	0.70		
Jun-10	ND	0.74		
Jul-10	ND	1.34	1.21	1.21
Aug-10	ND	1.76		
Sep-10	ND	1.15		
Oct-10	ND	0.78	1.29	1.86
Nov-10	ND	0.56		
Dec-10	ND	0.98		
Jan-11	ND	1.26	1.61	1.87
Feb-11	ND	F		
Mar-11	ND	F		
Apr-11	ND	2.81	3.74	2.05
May-11	ND	1.23		
Jun-11	ND	1.05		
Jul-11	ND	3.18	1.41	1.99
Aug-11	ND	3.29		
Sep-11**	ND	-		
Oct-11	ND	1.68	2.78	3.97
Nov-11	ND	1.23		
Dec-11	ND	1.17		
Jan-12	ND	5.31	7.75	5.49
Feb-12	ND	-		
Mar-12	ND	1.88		
Apr-12	ND	2.06	3.32	0.72
May-12	ND	0.68		
Jun-12	ND	1.16		
Jul-12	ND	3.59	1.36	1.90
Aug-12	ND	4.93		
Sep-12	ND	3.79		
Oct-12	ND	0.60	1.33	1.33
Nov-12	ND	2.70		
Dec-12	ND	2.37		
Jan-13	ND	3.30	F	4.59
Feb-13	ND			
Mar-13	ND			
Apr-13	ND	7.39		
May-13	ND	0.64	2.55	3.36
Jun-13	ND	0.26		
Jul-13	ND	1.52	1.11	1.67
Aug-13	ND	2.29		
Sep-13	ND	3.06		
Oct-13	ND	1.34	4.52	1.86
Nov-13	ND			
Dec-13	ND	1.72		
Jan-14	ND	1.40	F	8.49
Feb-14	ND			
Mar-14	ND			
Apr-14	ND	3.17		
May-14	ND	2.92	6.13	3.17
Jun-14	ND	1.88		
Jul-14	ND	3.27	2.62	3.25
Aug-14	ND	4.09		
Sep-14	ND	2.28		
Oct-14	ND	1.59	1.69	3.03
Nov-14	ND	1.44		
Dec-14	ND	0.91		
Jan-15	ND	2.77	F	5.49
Feb-15	ND			
Mar-15	ND			
Apr-15	ND	4.28		
May-15	ND	0.44	1.22	2.84
Jun-15	ND	0.90		
Jul-15	ND	1.75	2.89	4.11
Aug-15	ND	2.19		
Sep-15	ND	1.92		
Oct-15	ND	1.54	2.64	5.13
Nov-15	ND	3.53		
Dec-15	ND	0.98		
Jan-16	ND	2.84	4.38	4.79
Feb-16	ND			
Mar-16	ND			
Apr-16	ND	3.93		
May-16	ND	1.77	1.50	1.53
Jun-16	ND	1.00		
Jul-16	ND	3.17	1.81	2.00
Aug-16	ND	3.81		
Sep-16	ND	5.33		
Oct-16	ND	2.93	1.52	1.96
Nov-16	ND	1.08		
Dec-16	ND	0.56		
Jan-17	ND	0.76	2.34	5.65
Feb-17	ND			
Mar-17	ND			
Apr-17	ND	5.62		
May-17	ND	0.87	2.77	1.89
Jun-17	ND	1.08		
Jul-17	ND	3.26	1.52	2.73
Aug-17	ND	2.80		
Sep-17	ND	2.46		
Oct-17	ND	0.49	0.84	1.96
Nov-17	ND	1.86		
Dec-17	ND	0.57		

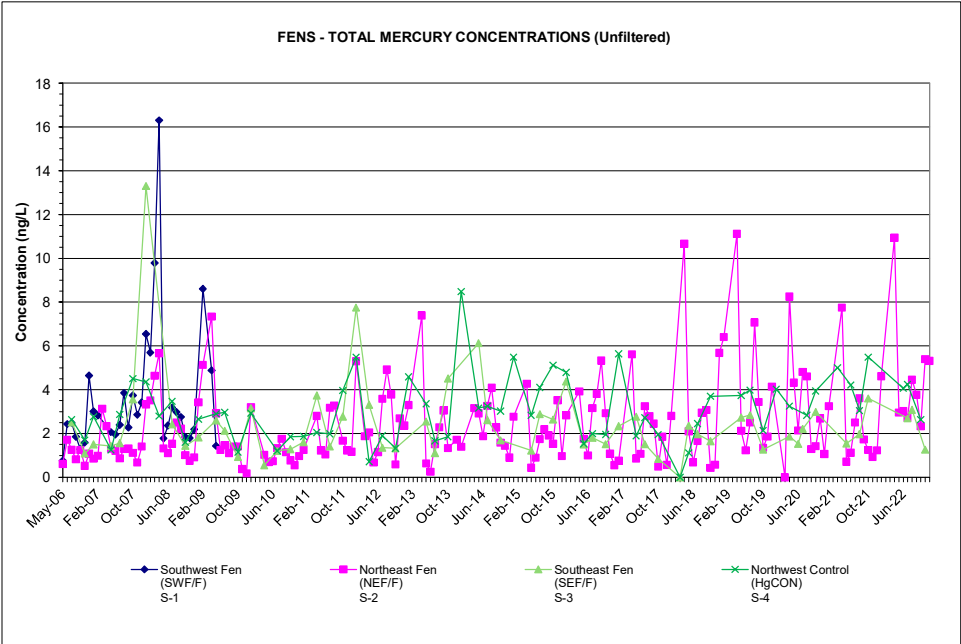


Table 3: Total Mercury - Fens (Unfiltered) (concentrations in ng/L)

Date	Southwest Fen (SWF/F) S-1	Northeast Fen (NEF/F) S-2	Southeast Fen (SEF/F) S-3	Northwest Control (HgCON) S-4
	CEQG for Protection of Aquatic Life: 26 ng/L			
Jan-18	ND	2.81		
Feb-18	ND			
Mar-18	ND		F	F
Apr-18	ND	10.67		
May-18	ND	2.11	2.36	1.12
Jun-18	ND	<0.69		
Jul-18	ND	1.66	1.98	2.46
Aug-18	ND	2.95		
Sep-18	ND	3.08		
Oct-18	ND	0.44	1.66	3.71
Nov-18	ND	0.58		
Dec-18	ND	5.69		
Jan-19	ND	6.41	US	US
Feb-19	ND			
Mar-19	ND			
Apr-19	ND	11.12		
May-19	ND	2.12	2.74	3.74
Jun-19	ND	1.24		
Jul-19	ND	2.51	2.85	3.99
Aug-19	ND	7.07		
Sep-19	ND	3.44		
Oct-19	ND	1.36	1.28	2.14
Nov-19	ND	1.86		
Dec-19	ND	4.15		
Jan-20	ND			4.03
Feb-20	ND			
Mar-20	ND			
Apr-20	ND	8.26	1.87	3.25
May-20	ND	4.33		
Jun-20	ND	2.14	1.53	
Jul-20	ND	4.82	2.21	
Aug-20	ND	4.61		2.84
Sep-20	ND	1.30		
Oct-20	ND	1.42	2.99	3.95
Nov-20	ND	2.69		
Dec-20	ND	1.07		
Jan-21	ND	3.25		
Feb-21	ND			
Mar-21	ND			5.01
Apr-21	ND	7.75		
May-21	ND	0.72	1.55	
Jun-21	ND	1.13		4.22
Jul-21	ND	2.51		
Aug-21	ND	3.62	1.98	3.05
Sep-21	ND	1.74		
Oct-21	ND	1.25	3.61	5.49
Nov-21	ND	0.94		
Dec-21	ND	1.24		
Jan-22	ND	4.62		
Feb-22	ND			
Mar-22	ND			
Apr-22	ND	10.95		
May-22	ND	2.96		
Jun-22	ND	3.04	2.70	4.07
Jul-22	ND	2.73	3.09	4.25
Aug-22	ND	4.46		
Sep-22	ND	3.77		
Oct-22	ND	2.33	1.27	2.64
Nov-22	ND	5.41		
Dec-22	ND	5.32		
Jan-23	ND	13.78	2.63	
Feb-23	ND			3.10
Mar-23	ND			
Apr-23	ND	6.24		
May-23	ND	1.84	3.93	
Jun-23	ND	1.93		3.11
Jul-23	ND	4.24	1.51	2.64
Aug-23	ND	3.18		
Sep-23	ND	3.36		
Oct-23	ND	2.09	1.03	1.80
Nov-23	ND	0.94		
Dec-23	ND	5.29		
*Average 2009	5.03	2.31	1.87	2.42
*Average 2010		1.59	1.55	2.00
*Average 2011		2.23	2.39	2.47
*Average 2012		2.89	3.44	2.36
*Average 2013		1.70	2.73	2.87
*Average 2014		2.30	3.48	4.49
*Average 2015		1.63	2.25	4.39
*Average 2016		2.68	2.30	2.57
*Average 2017		1.34	1.87	3.06
*Average 2018		1.75	2.00	2.43
*Average 2019		3.10	2.29	3.29
*Average 2020		4.76	2.15	3.52
*Average 2021		2.31	2.38	4.44
*Average 2022		2.70	2.35	3.65
*Average 2023		2.75	1.27	2.66
Average All Years	3.62	2.21	2.47	3.08

Southwest Fen - Receives effluent from central quarry (2006 only)
Northeast Fen - Receives effluent from plant site excavation, sewage treatment plant, landfill and pit sump
Southeast Fen - Control site
Northwest Control - Control site
*Annual averages are calculated using months that correspond to the Northwest Control Site (S-4) for comparative purposes
** Samples discarded due to lab miscommunication
MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1.
NEF/F not sampled in February and March as per permit amendment
Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.
Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.
D: Dry
F: Frozen
US: Unsafe to sample
ND: not determined (C. of A. #3374-6G7J2Y was revoked)

Table 4: Total Mercury - Fens (Filtered) (concentrations in ng/L)

Date	Southwest Fen (SWF/F) S-1	Northeast Fen (NEF/F) S-2	Southeast Fen (SEF/F) S-3	Northwest Control (HgCON) S-4
May-06	0.64	0.48		
Jun-06	2.32			
Jul-06	1.96	0.86	1.38	1.82
Aug-06	1.34	0.72		
Sep-06	1.11	0.61		
Oct-06	0.85	0.44	0.94	1.19
Dec-06	3.05	0.59		
Jan-07	1.86	0.47	1.01	1.73
Feb-07	1.90	0.48		
Mar-07	F	3.03		
Apr-07	F	1.69		
May-07	1.31	1.41	0.89	1.03
Jun-07	1.24	1.05		
Jul-07	1.74	0.70	1.48	1.70
Aug-07	2.45	0.98		
Sep-07	1.87	0.69		
Oct-07	2.89	1.04	3.11	3.92
Nov-07	2.66	0.60		
Dec-07	3.22	1.00		
Jan-08	4.86	2.10	2.21	3.07
Feb-08	5.40	2.32		
Mar-08	3.79	3.41		
Apr-08	6.72	2.41	F	2.41
May-08	1.22	1.01		
Jun-08	1.63	1.11		
Jul-08	2.87	1.38	2.02	2.88
Aug-08	2.55	1.81		
Sep-08	2.07	1.90		
Oct-08	1.71	1.04	1.12	1.33
Nov-08	1.77	0.66		
Dec-08	2.02	0.86		
Jan-09	F	2.86	1.61	2.00
Feb-09	7.42	3.62		
Mar-09				
Apr-09	3.89	5.09		
May-09	1.44	1.55	2.25	1.85
Jun-09	ND	1.20		
Jul-09	ND	1.12	1.49	2.09
Aug-09	ND	0.79		
Sep-09	ND	1.15		
Oct-09	ND	1.46	0.92	1.02
Nov-09	ND	0.21		
Dec-09	ND	<0.10		
Jan-10	ND	1.40	1.93	2.21
Feb-10	ND			
Mar-10	ND			
Apr-10	ND	0.65		<0.10
May-10	ND	0.50	0.76	
Jun-10	ND	0.59		
Jul-10	ND	1.00	0.80	0.95
Aug-10	ND	1.25		
Sep-10	ND	0.89		
Oct-10	ND	0.37	1.35	0.64
Nov-10	ND	0.55		
Dec-10	ND	0.45		
Jan-11	ND	0.81	0.95	1.37
Feb-11	ND	F		
Mar-11	ND	F		
Apr-11	ND	1.65	0.79	0.53
May-11	ND	0.60		
Jun-11	ND	0.91		
Jul-11	ND	2.00	1.16	1.57
Aug-11	ND	2.20		
Sep-11**	ND			
Oct-11	ND	0.96	1.59	2.89
Nov-11	ND	0.48		
Dec-11	ND	0.66		
Jan-12	ND	3.32	2.00	4.73
Feb-12	ND			
Mar-12	ND	0.69		
Apr-12	ND	0.98	2.06	0.25
May-12	ND	0.41		
Jun-12	ND	0.68		
Jul-12	ND	2.09	1.11	1.56
Aug-12	ND	3.01		
Sep-12	ND	2.86		
Oct-12	ND	0.43	0.85	0.96
Nov-12	ND	1.07		
Dec-12	ND	0.89		
Jan-13	ND	2.33	F	2.19
Feb-13	ND			
Mar-13	ND			
Apr-13	ND	3.25		
May-13	ND	0.37	1.83	2.32
Jun-13	ND	0.17		
Jul-13	ND	0.69	0.70	1.00
Aug-13	ND	1.06		
Sep-13	ND	1.83		
Oct-13	ND	0.82	1.44	1.27
Nov-13	ND			
Dec-13	ND	1.60		
Jan-14	ND	0.86	F	2.08
Feb-14	ND			
Mar-14	ND			
Apr-14	ND	1.32		
May-14	ND	0.72	4.18	1.70
Jun-14	ND	1.19		
Jul-14	ND	2.10	1.69	2.13
Aug-14	ND	2.13		
Sep-14	ND	1.36		
Oct-14	ND	<0.10	1.34	2.79
Nov-14	ND	0.91		
Dec-14	ND	0.42		
Jan-15	ND	1.72	F	2.48
Feb-15	ND			
Mar-15	ND			
Apr-15	ND	3.00		
May-15	ND	0.29	6.37	2.07
Jun-15	ND	0.68		
Jul-15	ND	1.41	1.71	2.51
Aug-15	ND	1.85		
Sep-15	ND	1.21		
Oct-15	ND	1.02	1.89	2.63
Nov-15	ND	0.79		
Dec-15	ND	0.68		
Jan-16	ND	1.18	2.56	3.18
Feb-16	ND			
Mar-16	ND			
Apr-16	ND	0.88		
May-16	ND	0.73	0.80	0.54
Jun-16	ND	0.77		
Jul-16	ND	1.44	1.70	1.96
Aug-16	ND	1.77		
Sep-16	ND	2.65		
Oct-16	ND	1.25	1.31	1.56
Nov-16	ND	0.29		
Dec-16	ND	0.25		

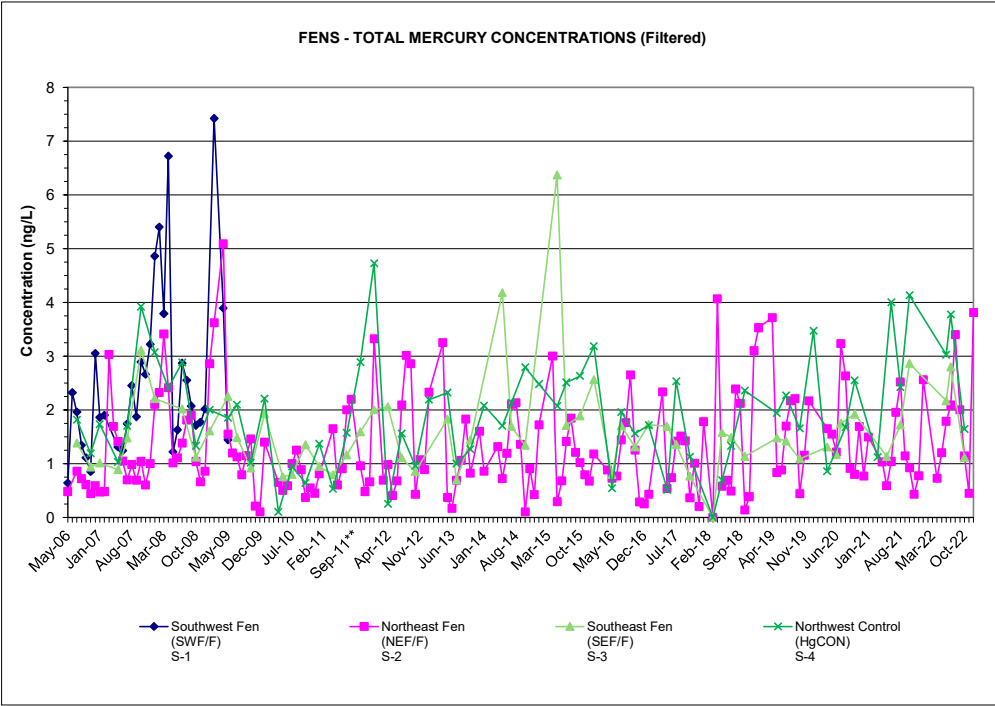


Table 4: Total Mercury - Fens (Filtered) (concentrations in ng/L)

Date	Southwest Fen (SWF/F) S-1	Northeast Fen (NEF/F) S-2	Southeast Fen (SEF/F) S-3	Northwest Control (HgCON) S-4
Jan-17	ND	0.43	1.73	1.72
Feb-17	ND			
Mar-17	ND			
Apr-17	ND	2.33		
May-17	ND	0.54	1.70	0.52
Jun-17	ND	0.74		
Jul-17	ND	1.42	1.36	2.53
Aug-17	ND	1.52		
Sep-17	ND	1.42		
Oct-17	ND	0.37	0.77	1.13
Nov-17	ND	1.01		
Dec-17	ND	0.20		
Jan-18	ND	1.78		
Feb-18	ND			
Mar-18	ND		F	F
Apr-18	ND	4.06		
May-18	ND	1.13	1.58	<0.69
Jun-18	ND	<0.69		
Jul-18	ND	1.06	1.49	1.33
Aug-18	ND	2.39		
Sep-18	ND	2.12		
Oct-18	ND	<0.40	1.14	2.36
Nov-18	ND	0.39		
Dec-18	ND	3.10		
Jan-19	ND	3.53	US	US
Feb-19	ND			
Mar-19	ND			
Apr-19	ND	3.72		
May-19	ND	0.83	1.48	1.94
Jun-19	ND	0.88		
Jul-19	ND	1.70	1.42	2.27
Aug-19	ND	2.17		
Sep-19	ND	2.21		
Oct-19	ND	0.45	1.09	1.65
Nov-19	ND	1.15		
Dec-19	ND	2.17		
Jan-20	ND			3.47
Feb-20	ND			
Mar-20	ND			
Apr-20	ND	1.65	1.31	0.86
May-20	ND	1.55		
Jun-20	ND	1.21	1.17	
Jul-20	ND	3.23	1.75	
Aug-20	ND	2.63		1.68
Sep-20	ND	0.91		
Oct-20	ND	0.80	1.92	2.55
Nov-20	ND	1.69		
Dec-20	ND	0.77		
Jan-21	ND	1.49		
Feb-21	ND			
Mar-21	ND			1.12
Apr-21	ND	1.04		
May-21	ND	0.59	1.13	
Jun-21	ND	1.04		4.00
Jul-21	ND	1.95		
Aug-21	ND	2.52	1.72	2.42
Sep-21	ND	1.14		
Oct-21	ND	0.92	2.86	4.13
Nov-21	ND	0.43		
Dec-21	ND	0.78		
Jan-22	ND	2.56		
Feb-22	ND			
Mar-22	ND			
Apr-22	ND	0.73		
May-22	ND	1.21		
Jun-22	ND	1.79	2.17	3.03
Jul-22	ND	2.09	2.80	3.77
Aug-22	ND	3.40		
Sep-22	ND	2.00		
Oct-22	ND	1.14	1.12	1.64
Nov-22	ND	0.45		
Dec-22	ND	3.81		
Jan-23	ND	8.24	0.48	
Feb-23	ND			0.75
Mar-23	ND			
Apr-23	ND	4.41		
May-23	ND	1.37	2.51	
Jun-23	ND	0.93		2.58
Jul-23	ND	2.52	1.73	2.37
Aug-23	ND	1.78		
Sep-23	ND	1.08		
Oct-23	ND	0.87	0.76	1.13
Nov-23	ND	0.73		
Dec-23	ND	3.54		
*Average 2009	4.43	<1.75	1.57	1.74
*Average 2010		0.86	1.21	<0.98
*Average 2011		1.36	1.12	1.59
*Average 2012		1.71	1.51	1.88
*Average 2013		1.05	1.32	1.70
*Average 2014		<0.95	2.40	2.18
*Average 2015		1.11	3.32	2.42
*Average 2016		1.15	1.59	1.81
*Average 2017		0.69	1.39	1.47
*Average 2018		1.09	1.40	1.46
*Average 2019		1.63	1.33	1.95
*Average 2020		1.69	1.54	2.14
*Average 2021		1.50	1.91	2.92
*Average 2022		1.67	2.03	2.81
*Average 2023		1.44	1.24	1.71
Average All Years	2.56	<1.27	<1.64	<1.94

Southwest Fen - Receives effluent from central quarry (2006 only)
Northeast Fen - Receives effluent from plant site excavation, sewage treatment plant, landfill and pit sump
Southeast Fen - Control site
Northwest Control - Control site
*Annual averages are calculated using months that correspond to the Northwest Control Site (S-4) for comparative purposes
** Samples discarded due to lab miscommunication
MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1.
NEF/F not sampled in February and March as per permit amendment
Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.
Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.
D: Dry
F: Frozen
US: Unsafe to sample
ND: not determined (C. of A. #3374-6G7J2Y was revoked)

Table 5: Methyl Mercury - Fens (Unfiltered) (concentrations in ng/L)

Date	Southwest Fen (SWF/F) S-1	Northeast Fen (NEF/F) S-2	Southeast Fen (SEF/F) S-3	Northwest Control (HgCON) S-4
CEQG for Protection of Aquatic Life: 4 ng/L				
Jul-06	0.16	0.10	0.03	0.06
Oct-06	0.20	0.02	0.02	0.05
Jan-07	0.97	0.07	0.07	0.16
May-07	0.14	0.07	<0.02	0.04
Jul-07	0.68	0.10	0.02	0.05
Oct-07	0.81	0.15	0.08	0.09
Jan-08	5.58	1.72	1.07	0.34
Mar-08	F	2.07	F	F
Apr-08	8.37	2.90	0.07	0.65
Jul-08	0.69	0.40	0.11	0.12
Oct-08	0.27	0.50	0.05	0.04
Jan-09	4.59	1.99	0.12	0.19
Apr/May-09	2.79	5.08	0.05	0.04
Jul-09	ND	0.34	<0.02	0.03
Oct-09	ND	0.12	0.03	0.04
Jan-10	ND	2.38	0.06	0.18
Apr-10	ND	0.21	0.04	0.06
Jul-10	ND	1.10	0.03	0.08
Oct-10	ND	0.24	0.03	0.07
Jan-11	ND	0.65	0.08	0.06
Apr-11	ND	0.13	0.18	0.18
Jul-11	ND	1.03	0.03	0.04
Oct-11	ND	0.23	0.07	0.07
Jan-12	ND	8.09	0.94	0.47
Apr-12	ND	0.49	0.10	0.05
Jul-12	ND	1.74	0.03	0.07
Oct-12	ND	0.15	0.02	0.03
Jan-13	ND	1.18	F	0.19
Apr/May-13	ND	6.05	0.08	0.04
Jul-13	ND	0.68	0.07	0.11
Oct-13	ND	0.48	<0.02	0.03
Jan-14	ND	0.49	F	0.50
Apr/May-14	ND	1.55	0.04	0.06
Jul-14	ND	1.56	0.05	0.19
Oct-14	ND	0.17	0.08	0.09
Jan-15	ND	1.16	F	0.98
May-15	ND	0.10	0.09	0.06
Jul-15	ND	1.02	0.07	0.14
Oct-15	ND	0.60	0.06	0.20
Jan-16	ND	1.66	0.15	0.26
Apr-16	ND	1.86		
May-16	ND	0.36	0.02	0.03
Jul-16	ND	1.54	0.05	0.09
Oct-16	ND	0.94	0.04	0.05
Nov-16	ND	0.15		
Jan-17	ND	0.32	0.06	0.13
Apr-17	ND	2.83		
May-17	ND	0.18	0.05	0.05
Jul-17	ND	1.78	0.05	0.11
Oct-17	ND	0.21	0.03	0.06
Nov-17	ND	1.54		
Jan-18	ND	1.71		
Mar-18	ND		F	F
Apr-18	ND	8.16		
May-18	ND	0.46	0.05	0.04
Jun-18	ND	0.21		
Jul-18	ND	0.60	0.05	0.06
Aug-18	ND	1.36		
Sep-18	ND	1.79		
Oct-18	ND	0.29	0.06	0.10
Nov-18	ND	0.21		
Dec-18	ND	4.74		
Jan-19	ND	4.96	US	US
Feb-19	ND			
Mar-19	ND			
Apr-19	ND	4.94		
May-19	ND	0.27	0.03	0.06
Jun-19	ND	0.54		
Jul-19	ND	1.33	0.41	0.09
Aug-19	ND	3.46		
Sep-19	ND	1.33		
Oct-19	ND	0.37	0.12	0.06
Nov-19	ND	1.18		
Dec-19	ND	2.51		
Jan-20	ND			0.11
Feb-20	ND			
Mar-20	ND			
Apr-20	ND	4.56	0.339	0.48
May-20	ND	0.79		
Jun-20	ND	0.82	0.077	
Jul-20	ND	2.75	0.216	
Aug-20	ND	2.41		0.08
Sep-20	ND	0.46		
Oct-20	ND	0.53	0.271	0.22
Nov-20	ND	1.52		
Dec-20	ND	0.57		
Jan-21	ND	1.99		
Feb-21	ND			
Mar-21	ND			0.33
Apr-21	ND	1.83		
May-21	ND	0.16	0.10	
Jun-21	ND	0.33		0.11
Jul-21	ND	1.34		
Aug-21	ND	1.59	0.04	0.06
Sep-21	ND	0.56		
Oct-21	ND	0.59	0.46	0.18
Nov-21	ND	0.27		
Dec-21	ND	0.69		
Jan-22	ND	3.37		
Feb-22	ND			
Mar-22	ND			
Apr-22	ND	1.68		
May-22	ND	0.46		
Jun-22	ND	1.07	0.20	0.18
Jul-22	ND	1.67	0.09	0.09
Aug-22	ND	2.63		
Sep-22	ND	1.37		
Oct-22	ND	0.86	0.03	0.08
Nov-22	ND	1.13		
Dec-22	ND	3.77		
Jan-23	ND	10.43	0.08	
Feb-23	ND			0.15
Mar-23	ND			
Apr-23	ND	4.03		
May-23	ND	0.32	0.05	
Jun-23	ND	0.97		0.09
Jul-23	ND	2.08	0.06	0.09
Aug-23	ND	1.25		
Sep-23	ND	1.23		
Oct-23	ND	0.92	<0.040	0.13
Nov-23	ND	0.47		
Dec-23	ND	3.20		
Average 2009	3.69	1.88	<0.05	0.07
Average 2010		0.98	0.04	0.10
Average 2011		0.51	0.09	0.09
Average 2012		2.62	0.27	0.16
Average 2013		2.10	<0.06	0.09
Average 2014		0.94	0.06	0.21
Average 2015		0.72	0.07	0.35
Average 2016*		1.13	0.07	0.11
Average 2017*		0.62	0.05	0.09
Average 2018*		2.69	0.06	0.06
Average 2019*		1.73	0.18	0.07
Average 2020*		2.50	0.23	0.22
Average 2021*		0.84	0.20	0.17
Average 2022*		1.20	0.11	0.12
Average 2023*		1.33	0.05	0.11
Average all Data	2.10	1.22	<0.11	0.14

Southwest Fen - Receives effluent from central quarry (2006 only)

Northeast Fen - Receives effluent from plant site excavation, sewage treatment plant, landfill and pit sump

Southeast Fen - Control site

Northwest Control - Control site

Quarterly sampling in accordance with Amended C. of A. #3960-7Q4K2G

*Annual averages are calculated using months that correspond to the Northwest Control Site (S-4) for comparative purposes

MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury), as per Section 1.

NEF/F: MeHg was not requested for June, August, September, December 2017

NEF/F: not sampled in February and March as per permit amendment

Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.

Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.

D: Dry

F: Frozen

US: Unsafe to sample

ND: not determined (C. of A. #3374-6G7J2Y was revoked)

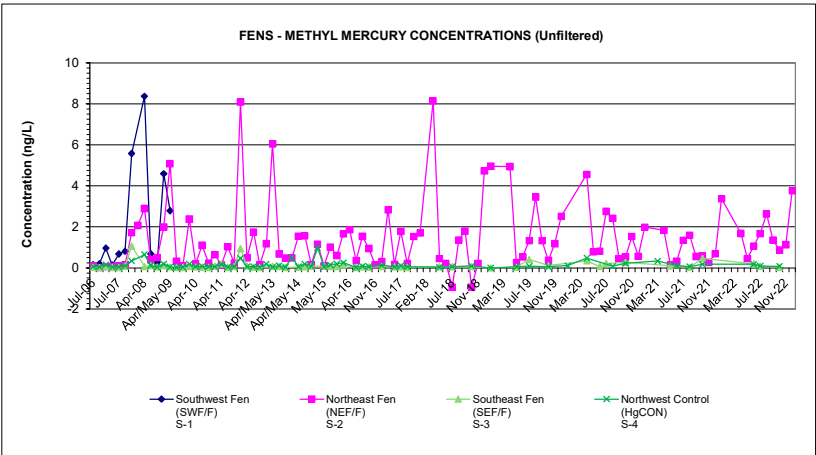


Table 6: Methyl Mercury - Fens (Filtered) (concentrations in ng/L)

Date	Southwest Fen (SWF/F) S-1	Northeast Fen (NEF/F) S-2	Southeast Fen (SEF/F) S-3	Northwest Control (HgCON) S-4
	Draft USEPA Criteria: 0.05 ng/L			
Jul-06	0.13	0.08	0.02	<0.02
Oct-06	0.15	0.02	<0.02	0.02
Jan-07	0.68	0.04	0.06	0.10
May-07	0.08	0.06	0.02	0.04
Jul-07	0.30	0.10	0.02	0.04
Oct-07	0.63	0.12	0.04	0.09
Jan-08	3.48	1.29	0.39	0.17
Mar-08	F	1.34	F	F
Apr-08	3.42	1.73	0.03	0.37
Jul-08	0.58	0.41	0.08	0.07
Oct-08	0.29	0.39	0.02	0.04
Jan-09	3.03	0.89	0.09	0.14
Apr/May-09	1.85	3.32	0.05	0.05
Jul-09	ND	0.16	0.07	0.08
Oct-09	ND	0.13	0.05	0.06
Jan-10	ND	0.76	0.11	0.07
Apr-10	ND	0.12	0.03	0.05
Jul-10	ND	0.59	0.02	0.04
Oct-10	ND	0.23	0.03	0.06
Jan-11	ND	0.40	0.03	0.03
Apr-11	ND	<0.02	0.04	0.06
Jul-11	ND	0.88	0.02	0.04
Oct-11	ND	0.04	0.03	<0.02
Jan-12	ND	4.09	0.17	0.20
Apr-12	ND	0.27	0.07	<0.02
Jul-12	ND	1.18	0.02	0.04
Oct-12	ND	0.11	<0.02	0.03
Jan-13	ND	0.97	F	0.24
Apr/May-13	ND	2.85	<0.02	0.04
Jul-13	ND	0.45	0.06	0.09
Oct-13	ND	0.18	<0.02	<0.02
Jan-14	ND	0.31	F	0.07
Apr/May-14	ND	1.09	0.04	0.04
Jul-14	ND	0.68	0.03	0.19
Oct-14	ND	0.11	0.03	0.05
Jan-15	ND	0.46	F	0.68
May-15	ND	0.08	0.09	0.05
Jul-15	ND	0.76	<0.02	0.02
Oct-15	ND	0.23	0.05	0.17
Jan-16	ND	0.84	0.11	0.15
Apr-16	ND	0.60		
May-16	ND	0.18	0.02	<0.02
Jul-16	ND	0.76	0.02	0.06
Aug-16	ND	1.21		
Oct-16	ND	0.49	0.03	0.03
Nov-16	ND	0.11		
Jan-17	ND	0.19	0.02	0.06
Apr-17	ND	1.60		
May-17	ND	0.13	0.03	<0.02
Jul-17	ND	0.70	0.03	0.07
Aug-17	ND	1.03		
Oct-17	ND	0.13	<0.02	0.02
Nov-17	ND	0.86		
Jan-18	ND	1.17		
Mar-18	ND		F	F
Apr-18	ND	4.09		
May-18	ND	0.24	0.04	0.02
Jun-18	ND	0.12		
Jul-18	ND	0.53	0.03	0.04
Aug-18	ND	1.27		
Sep-18	ND	1.00		
Oct-18	ND	0.20	0.04	0.05
Nov-18	ND	0.10		
Dec-18	ND	2.82		
Jan-19	ND	3.69	US	US
Feb-19	ND			
Mar-19	ND			
Apr-19	ND	2.37		
May-19	ND	0.17	<0.02	<0.02
Jun-19	ND	0.37		
Jul-19	ND	0.89	0.18	0.07
Aug-19	ND	1.05		
Sep-19	ND	0.95		
Oct-19	ND	0.16	0.10	0.05
Nov-19	ND	0.72		
Dec-19	ND	1.49		
Jan-20	ND			0.12
Feb-20	ND			
Mar-20	ND			
Apr-20	ND	1.39	0.39	0.32
May-20	ND	0.40		
Jun-20	ND	0.64	0.07	
Jul-20	ND	2.22	0.20	
Aug-20	ND	1.22		0.05
Sep-20	ND	0.39		
Oct-20	ND	0.36	0.22	0.07
Nov-20	ND	1.00		
Dec-20	ND	0.42		
Jan-21	ND	1.36		
Feb-21	ND			
Mar-21	ND			0.23
Apr-21	ND	1.04		
May-21	ND	0.17	0.04	
Jun-21	ND	0.25		0.11
Jul-21	ND	0.84		
Aug-21	ND	0.95	0.03	0.05
Sep-21	ND	0.44		
Oct-21	ND	0.45	0.27	0.09
Nov-21	ND	0.14		
Dec-21	ND	0.48		
Jan-22	ND	2.14		
Feb-22	ND			
Mar-22	ND			
Apr-22	ND	0.28		
May-22	ND	0.23		
Jun-22	ND	0.82	0.13	0.07
Jul-22	ND	1.22	0.08	0.06
Aug-22	ND	1.78		
Sep-22	ND	1.17		
Oct-22	ND	0.50	0.03	0.04
Nov-22	ND	0.21		
Dec-22	ND	2.67		
Jan-23	ND	5.12	<0.029	
Feb-23	ND			0.08
Mar-23	ND			
Apr-23	ND	2.64		
May-23	ND	0.22	0.05	
Jun-23	ND	0.61		0.10
Jul-23	ND	1.11	<0.034	0.06
Aug-23	ND	0.86		
Sep-23	ND	0.61		
Oct-23	ND	0.66	<0.040	<0.040
Nov-23	ND	0.40		
Dec-23	ND	2.59		
Average 2009	2.44	1.12	0.07	0.08
Average 2010		0.43	0.05	0.06
Average 2011		<0.33	0.03	<0.04
Average 2012		1.41	<0.07	<0.07
Average 2013		1.11	<0.03	<0.10
Average 2014		0.55	0.03	0.09
Average 2015		0.38	<0.05	0.23
Average 2016*		0.57	0.05	0.07
Average 2017*		0.29	<0.02	<0.04
Average 2018*		1.50	0.04	0.04
Average 2019*		1.23	0.10	0.05
Average 2020*		0.99	0.22	0.14
Average 2021*		0.55	0.12	0.06
Average 2022*		0.85	0.08	0.12
Average 2023*		0.79	0.04	0.07
Average All Data	1.22	<0.69	<0.07	<0.09

Southwest Fen - Receives effluent from central quarry (2006 only)
Northeast Fen - Receives effluent from plant site excavation, sewage treatment plant, landfill and pit sump
Southeast Fen - Control site
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*Annual averages are calculated using months that correspond to the Northwest Control Site (S-4) for comparative purposes
MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury), as per Section 1.
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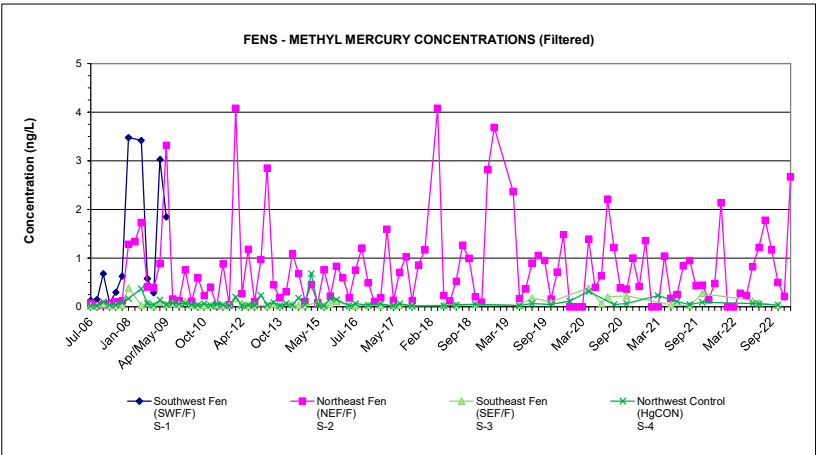


Table 7: Fen Systems - Statistical Analysis - Total Mercury (concentrations in ng/L)

UNFILTERED DATA - TWO-WAY ANALYSIS OF VARIANCE TABLES

Month / Year	Northeast Fen (NEF/F) MS-2	Southeast Fen (SEF/F) MS-3	Northwest Control Fen (HgCON) MS-4	Sum r.
May-13	0.64	2.55	3.36	6.55
Jul-13	1.52	1.11	1.67	4.30
Oct-13	1.34	4.52	1.86	7.72
May-14	2.92	6.13	3.17	12.22
Jul-14	3.27	2.62	3.25	9.14
Oct-14	1.59	1.69	3.03	6.31
May-15	0.44	1.22	2.84	4.50
Jul-15	1.75	2.89	4.11	8.75
Oct-15	1.54	2.64	5.13	9.31
May-16	1.77	1.50	1.53	4.81
Jul-16	3.17	1.81	2.00	6.97
Oct-16	2.93	1.52	1.96	6.41
May-17	0.87	2.77	1.89	5.53
Jul-17	3.26	1.52	2.73	7.50
Oct-17	0.49	0.84	1.96	3.29
May-18	2.11	2.36	1.12	5.59
Jul-18	1.66	1.98	2.46	6.10
Oct-18	0.44	1.66	3.71	5.80
May-19	2.12	2.74	3.74	8.60
Jul-19	2.51	2.85	3.99	9.35
Oct-19	1.36	1.28	2.14	4.78
Apr-20	8.26	1.87	3.25	13.38
Oct-20	1.42	2.99	3.95	8.36
Aug-21	3.62	1.98	3.05	8.65
Oct-21	1.25	3.61	5.49	10.35
Jul-22	2.73	2.70	4.25	9.68
Oct-22	2.33	1.27	2.64	6.24
Jul-23	4.24	1.51	2.64	8.39
Oct-23	2.09	1.03	1.80	4.91
Sum c.	63.65	65.13	84.72	213.50

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	53.41	28	1.908	1.33	0.182	1.68
Columns	9.54	2	4.771	3.32	0.043	3.16
Error	80.51	56	1.438			
Total	143.46	86				

Treatment Effect (i.e., difference between fen systems)
Significant

FILTERED DATA - TWO-WAY ANALYSIS OF VARIANCE TABLES

Month / Year	Northeast Fen (NEF/F) MS-2	Southeast Fen (SEF/F) MS-3	Northwest Control Fen (HgCON) MS-4	Sum r.
May-13	0.37	1.83	2.32	4.52
Jul-13	0.69	0.7	1	2.39
Oct-13	0.82	1.44	1.27	3.53
May-14	0.72	4.18	1.7	6.60
Jul-14	2.1	1.69	2.13	5.92
Oct-14	0.1	1.34	2.79	4.23
May-15	0.29	6.37	2.07	8.73
Jul-15	1.41	1.71	2.51	5.63
Oct-15	1.02	1.89	2.63	5.54
May-16	0.73	0.80	0.54	2.07
Jul-16	1.44	1.70	1.96	5.10
Oct-16	1.25	1.31	1.56	4.12
May-17	0.54	1.70	0.52	2.76
Jul-17	1.42	1.36	2.53	5.31
Oct-17	0.37	0.77	1.13	2.27
May-18	1.13	1.58	<0.69	<3.40
Jul-18	1.06	1.49	1.33	3.88
Oct-18	<0.40	1.14	2.36	3.90
May-19	0.83	1.48	1.94	4.25
Jul-19	1.70	1.42	2.27	5.39
Oct-19	0.45	1.09	1.65	3.19
Apr-20	1.65	1.31	0.86	3.82
Oct-20	0.80	1.92	2.55	5.27
Aug-21	2.52	1.72	2.42	6.66
Oct-21	0.92	2.86	4.13	7.91
Jul-22	2.09	2.80	3.77	8.66
Oct-22	1.14	1.12	1.64	3.90
Jul-23	2.52	1.73	2.37	6.62
Oct-23	0.87	0.76	1.13	2.76
Sum c.	31.35	51.21	55.77	138.33

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	30.72	28	1.097	1.61	0.066	1.68
Columns	11.63	2	5.814	8.51	0.001	3.16
Error	38.27	56	0.683			
Total	80.62	86				

Treatment Effect (i.e., difference between fen systems)
Significant

r. - rows; c. - columns
CEQG for Protection of Aquatic Life: 26ng/L

Table 8a: Total Mercury - Ribbed Fen Surface Waters (Unfiltered) (concentrations in ng/L)

Date	MS-1-R (ES1R-S)	MS-2-R (ES2R-S)	MS-7-R (NS-7R-S)	MS-8-R (NS8-1R-S)	MS-9(1)-R (SS9-1R-S)	MS-9(2)-R (SS9-2R-S)	MS-13-R (WS13-R-S)	MS-15-R (WS15-R-S)	MS-V(1)-R (ES2R-S)	MS-V(2)-R (SSV2-R)	MS-V(3)-R (SSV3-R)
CEQG for Protection of Aquatic Life: 26 ng/L											
Aug / Sep-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nov-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
May-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aug-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oct-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jan-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
May-09	3.29	2.65	3.50	3.38	5.26	1.85	3.85	1.95	2.65	2.05	2.98
Aug-09	1.50	1.47	1.29	1.74	4.13	0.90	2.84	0.96	1.47	2.10	1.88
Oct-09	1.29	1.64	1.40	1.56	1.42	1.51	2.47	0.73	1.64	2.18	1.94
Jan-10	1.46	1.34	0.97	4.94	1.64	0.92	0.79	0.71	1.34	1.29	
May-10	1.88	1.48	0.61	1.48	1.22	0.71	2.19	0.58	1.48	0.68	2.17
Jul/Aug-10	2.46	2.42	4.24	1.92	1.48	2.24	2.61	0.98	2.42	1.81	1.98
Oct-10	1.32	1.52	0.93	2.04	2.47	1.32	3.11	0.62	1.52	1.31	1.77
Jan/Feb-11		12.98	5.22	2.61	1.13	1.98	3.03	13.34	12.98		
Apr-11	2.41	1.32	1.78	2.30	1.12	1.89	8.96	1.32	1.32	3.25	1.24
Jul-11	2.88	14.02	1.69	2.41	1.89	1.50	3.36	0.66	14.02	2.64	1.74
Oct-11	3.09	2.80	6.02	4.07	2.22	2.43	4.40	1.25	2.80	2.66	5.75
Jan-12	5.10		12.32	4.52	2.76	2.48	5.64	1.26		5.74	9.23
May-12	2.29	4.01	1.41	1.48	1.55	1.64	2.49	0.77	4.01	1.06	1.21
Aug/Sep-12	2.16	2.56	1.81	1.68	2.00	2.37	3.75	0.85	2.56	1.67	3.88
Oct-12	2.35	2.33	3.93	2.15	1.57	1.04	3.54	0.78	2.33	1.19	3.73
Jan/Feb-13	F	F	F	F	2.91	4.25	F	7.24	F	F	F
May-13	2.96	2.91	2.55	1.95	1.96	2.27	3.19	1.44	2.91	3.50	3.45
Jul-13	1.38	1.29	0.67	1.21	0.63	0.64	2.05	0.52	1.29	0.86	1.33
Oct-13	2.37	1.87	0.77	2.15	1.62	2.67	3.88	0.66	1.87	0.95	1.51
Mar-14	F	F	F	F	8.80	F	F	11.00	F	F	F
May/Jun-14	3.23	3.13	6.51	2.50	1.85	2.12	3.05	1.25	3.13	4.20	4.02
Aug/Sep-14	9.14	2.30	1.29	1.71	7.46	1.77	3.71	1.17	2.30	1.38	1.25
Oct-14	3.72	3.72	2.67	4.02	6.22	2.77	5.04	1.61	3.72	2.73	3.28
Jan/Mar-15		F	F	F	F	F	F	F	F	F	F
Jun-15	3.41	2.77	4.75	3.74	2.27	2.58	3.50	1.40	2.77	4.69	3.57
Jul-15	2.98	2.58	4.88	5.56	1.59	2.10	4.38	1.38	2.58	2.42	3.86
Oct-15	2.40	1.14	3.36	3.04	2.10	4.91	4.93	0.81	1.14	2.96	2.48
Jan-16	F	F	F	F	3.17	3.11	F	0.99	F	F	F
Apr/May-16	3.00	2.12	4.00	1.87	1.72	1.73	3.16	2.07	2.12	3.14	2.45
Jul-16	2.25	2.45	3.56	2.59	1.36	1.52	3.48	1.12	2.45	1.67	5.05
Oct/Nov-16	2.58	1.88	2.83	2.27	1.74	1.71	3.32	0.69	1.88	4.10	1.64
Jan/Mar-17	2.52	2.93	5.57	F	1.62	1.79	F	7.21	2.93	F	3.32
Jun-17	2.74	2.29	3.81	5.42	2.35	2.99	3.23	1.27	2.29	4.74	3.94
Jul-17	2.74	2.37	2.22	2.44	1.52	1.62	3.56	0.97	2.37	2.97	3.81
Oct/Nov-17	4.18	2.24	4.17	1.35	1.76	1.43	2.63	0.96	2.24	0.99	F
Mar-18	F	F	F	F	F	F	F	F	F	F	F
May-18	5.23	3.79	5.01	2.08	3.15	2.16	4.73	1.28	3.79	4.55	4.34
Jul/Aug/Sep-18	2.89	1.41	3.43	1.86	1.61	1.25	3.65	1.01	1.41	1.69	2.80
Nov/Dec-18	F	F	1.59	F	F	1.28	F	0.58	F	F	F
Jan/Mar-19	F	F	1.87	1.73	F	F	F	F	F	F	F
May-19	5.59	3.87	5.73	3.32	2.93	3.51	4.63	2.01	3.87	4.35	2.39
Jul/Aug-19	2.44	2.83	5.49	4.96	2.91	1.74	3.54	1.02	2.83	3.38	4.93
Oct-19	2.40	1.32	3.19	1.91	2.04	2.24	3.78	0.65	1.32	3.40	3.23
Mar-20	F	F	F	8.98	2.49	9.75	F	2.52	F	F	15.93
May/Jun-20	5.77	4.34	5.45	2.64	2.78	2.93	6.21	1.42	0.10	1.58	2.83
Jul/Aug-20	4.54	7.40	12.57	2.55	2.21	2.24	4.64	1.22	0.23	4.17	3.88
Oct-20	3.54	3.35	6.10	3.69	3.07	2.71	4.81	1.09	0.07	3.24	4.85
Feb/Mar-21	F	F	F	5.93	2.07	2.27	F	2.00	F	F	F
May/Jun-21	3.68	2.80	4.89	2.84	2.37	2.58	4.29	1.15	2.80	2.90	3.66
Jul/Aug-21	3.27	2.10	3.01	2.61	1.70	4.31	4.07	1.21	2.10	2.00	3.80
Oct/Nov-21	2.82	2.78	3.97	2.71	3.11	3.51	4.08	1.09	2.78	3.95	4.07
Feb/Mar-22	F	F	F	F	F	100.60	F	F	F	F	F
May/Jun-22	3.16	3.23	4.06	3.01	3.25	2.84	4.08	1.82	3.23	3.55	4.20
Jul/Aug-22	2.97	19.63	2.31	2.18	2.98	2.44	NA	NA	19.63	10.01	8.38
Oct/Nov-22	2.24	1.28	2.65	1.87	1.76	1.65	3.38	0.80	1.28	3.19	6.27
Feb-23	F	F	F	F	2.94	2.41	F	1.02	F	F	F
May/Jun-23	4.32	5.25	6.07	5.40	3.77	1.97	4.45	2.23	5.25	4.58	5.46
Jul-23	2.58	2.10	2.96	2.14	1.96	1.84	3.85	1.50	2.10	1.70	2.96
Oct-23	2.01	2.11	1.45	1.45	1.65	2.24	2.42	0.84	2.11	1.91	3.55
2009 Average	2.03	1.92	2.06	2.23	3.60	1.42	3.05	1.21	1.92	2.11	2.27
2010 Average	1.78	1.69	1.69	2.60	1.70	1.30	2.18	0.72	1.69	1.27	1.97
2011 Average	2.79	7.78	3.68	2.85	1.59	1.95	4.94	4.14	7.78	2.85	2.91
2012 Average	2.98	2.97	4.87	2.46	1.97	1.88	3.86	0.92	2.97	2.42	4.51
2013 Average	2.24	2.02	1.33	1.77	1.78	2.46	3.04	2.47	2.02	1.77	2.10
2014 Average	5.36	3.05	3.49	2.74	6.08	2.22	3.93	3.76	3.05	2.77	2.85
2015 Average	2.93	2.16	4.33	4.11	1.99	3.20	4.27	1.20	2.16	3.36	3.30
2016 Average	2.61	2.15	3.46	2.24	2.00	2.02	3.32	1.22	2.15	2.97	3.05
2017 Average	3.05	2.46	3.94	3.07	1.81	1.96	3.14	2.60	2.46	2.90	3.69
2018 Average	4.06	2.60	3.34	1.97	2.38	1.70	4.19	0.96	2.60	3.12	3.57
2019 Average	3.48	2.67	4.07	2.98	2.63	2.49	3.98	1.22	2.67	3.71	3.51
2020 Average	4.62	5.03	8.04	4.47	2.64	4.41	5.22	1.56	0.13	3.00	6.87
2021 Average	3.26	2.56	3.96	3.52	2.31	3.17	4.15	1.36	2.56	2.95	3.84
2022 Average	2.79	8.04	3.01	2.35	2.66	26.88	3.73	1.31	8.04	5.58	6.29
2023 Average	2.97	3.16	3.49	3.00	2.58	2.12	3.57	1.40	3.16	2.73	3.99
Average All Years	3.07	3.41	3.65	2.88	2.50	4.10	3.75	1.80	3.09	2.85	3.74
CEQG for Protection of Aquatic Life: 26 ng/L											

MS-2-R and MS-V(1)-R are the same stations

Stations located at or inside the Upper Bedrock 2 m drawdown contour

Stations located outside the Upper Bedrock 2 m drawdown contour

Amended C. of A. #3960-7Q4K2G provides for annual sampling of peat pore water and quarterly sampling of ribbed fen surface water (the previous C. of A. #4111-7DXKQW provided for the same sampling frequency).

MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1.

Data prior to May 2009 refers to groundwater concentrations.

Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.

Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.

D: Dry

F: Frozen

US: Unsafe to sample

NA

Table 8b: Total Mercury - Ribbed Fen Surface Waters (Filtered) (concentrations in ng/L)

Date	MS-1-R (ES1R-S)	MS-2-R (ES2R-S)	MS-7-R (NS-7R-S)	MS-8-R (NS8-1R-S)	MS-9(1)-R (SS9-1R-S)	MS-9(2)-R (SS9-2R-S)	MS-13-R (WS13-R-S)	MS-15-R (WS15-R-S)	MS-V(1)-R (ES2R-S)	MS-V(2)-R (SSV2-R)	MS-V(3)-R (SSV3-R)
Aug / Sep-07	1.81	1.56	0.62	1.00	0.72	1.29	0.40	0.43	1.56	<0.10	<0.10
Nov-07	1.67	2.30	0.82	1.36	1.11	1.01	1.70	1.11	2.30	<0.10	<0.10
May-08	2.86	5.56	F	0.91	0.53	F	0.42	0.38	5.56	F	F
Aug-08	2.27	2.02	0.52	0.98	1.26	0.90	0.95	0.92	2.02	0.60	1.69
Oct-08	1.52	1.07	0.72	1.26	1.26	0.70	1.22	0.37	1.07	0.41	1.33
Jan-09	F	F	F	F	F	F	F	F	F	F	F
May-09	2.90	1.98	1.92	3.25	2.10	2.40	4.08	2.19	1.98	2.38	3.19
Aug-09	1.00	0.95	0.95	1.38	1.01	1.44	2.54	0.86	0.95	0.94	1.78
Oct-09	1.19	1.01	1.15	1.19	1.18	1.24	2.54	0.75	1.01	0.86	2.01
Jan-10	0.65	<0.10	<0.10	2.45	1.17	<0.10	1.21	<0.10	<0.10	<0.10	F
May-10	1.86	1.75	0.74	1.32	1.40	0.93	2.68	1.05	1.75	0.83	2.06
Aug-10	1.24	1.43	0.44	1.60	0.47	0.72	<0.10	<0.10	1.43	0.85	0.76
Oct-10	1.11	1.24	0.81	1.79	1.25	1.05	3.03	0.68	1.24	1.03	1.67
Jan / Feb-11	F	0.60	0.41	1.42	0.94	0.54	1.92	0.49	0.60	F	F
Apr-11	1.07	0.83	0.84	1.35	0.92	0.84	2.63	0.63	0.83	0.47	1.01
Jul-11	2.10	1.23	1.20	1.52	1.52	1.04	3.06	0.51	1.23	1.36	1.38
Oct-11	2.52	2.07	4.43	2.73	2.00	2.01	3.43	1.02	2.07	1.45	3.92
Jan-12	1.68	F	0.84	4.44	1.98	0.94	4.84	0.73	F	1.70	1.95
Apr-12	2.00	2.28	1.03	0.87	1.21	1.37	2.09	0.69	2.28	0.49	0.71
Jul-12	1.70	0.66	0.76	1.18	1.23	1.70	2.97	0.62	0.66	1.24	2.87
Oct-12	2.05	1.76	2.89	1.87	1.34	0.71	3.25	0.67	1.76	0.76	2.61
Jan / Feb-13	F	F	F	F	2.09	1.58	F	0.66	F	F	F
Apr / May-13	2.43	1.56	1.92	1.12	1.66	1.35	2.59	1.23	1.56	3.14	2.76
Jul-13	1.00	1.00	0.50	1.00	0.40	0.40	1.70	0.40	1.00	0.60	0.80
Oct-13	1.64	1.01	0.52	1.12	1.20	0.85	3.31	0.48	1.01	0.84	0.91
Mar-14	F	F	F	F	1.93	F	F	0.78	F	F	F
May / Jun-14	3.00	2.14	5.18	2.19	1.82	1.77	2.92	1.15	2.14	3.83	3.82
Aug-14	2.70	2.27	1.07	1.63	1.34	1.36	2.35	1.51	2.27	1.31	0.88
Oct-14	3.69	2.07	2.71	2.87	2.41	2.42	3.51	1.02	2.07	1.81	2.17
Jan/Mar-15		F	F	F	F	F	F	F	F	F	F
Jun-15	2.66	2.33	4.35	3.09	1.99	2.29	3.39	1.27	2.33	4.30	3.23
Jul-15	2.28	1.53	4.02	5.26	1.48	1.79	4.17	1.29	1.53	1.79	3.32
Oct-15	2.34	0.60	1.20	2.17	1.75	1.13	2.69	0.55	0.60	2.50	1.72
Jan-16	F	F	F	F	2.16	1.27	F	0.64	F	F	F
Apr/May-16	2.45	1.11	3.06	1.33	1.57	1.24	2.75	0.13	1.11	2.36	1.84
Jul-16	2.19	1.50	2.88	2.25	0.90	1.08	3.08	0.75	1.50	1.38	3.83
Oct/Nov-16	2.52	1.75	1.94	1.92	1.71	1.63	3.28	0.52	1.75	3.31	1.54
Jan-17	0.49	1.32	0.69	F	0.73	0.30	F	0.29	1.32	F	2.54
Apr/May-17	2.36	1.60	2.72	4.08	1.94	2.29	2.87	1.13	1.60	3.74	3.30
Jul-17	2.19	1.47	1.79	1.96	1.35	1.39	3.38	0.73	1.47	2.29	2.82
Oct/Nov-17	1.30	0.26	2.83	1.18	0.79	1.04	2.59	0.54	0.26	0.99	F
Mar-18	F	F	F	F	F	F	F	F	F	F	F
May-18	5.09	2.98	3.98	1.19	1.63	1.55	3.92	0.84	2.98	3.24	2.86
Jul/Aug/Sep -18	2.75	1.00	3.05	1.58	1.50	1.03	3.83	0.92	1.00	1.64	2.77
Nov/Dec-18	F	F	1.13	F	F	0.40	F	0.32	F	F	F
Jan/Mar-19	F	F	0.75	0.58	F	F	F	F	F	F	F
May-19	4.60	2.09	4.32	1.96	2.13	2.70	4.11	1.60	2.09	3.49	1.33
Jul/Aug-19	1.97	1.98	3.90	2.58	2.20	1.33	3.56	0.85	1.98	2.04	3.81
Oct-19	2.17	0.79	2.34	1.53	1.90	1.90	3.57	0.57	0.79	2.37	3.12
Mar-20	F	F	F	1.01	0.99	1.18	F	0.38	F	F	2.43
May/Jun-20	2.52	2.32	3.31	1.66	2.09	2.12	5.00	1.26	2.32	0.96	1.80
Jul/Aug-20	3.50	2.31	2.93	1.97	1.71	1.73	3.71	1.10	2.31	2.71	4.29
Oct-20	2.46	1.90	2.23	2.77	2.52	2.19	4.12	0.93	1.90	2.14	4.52
Feb/Mar-21	F	F	F	1.54	1.01	0.55	F	0.48	F	F	F
May/Jun-21	3.30	2.44	4.50	2.48	2.33	2.55	4.00	1.38	2.44	2.26	3.31
Jul/Aug-21	2.92	1.60	1.77	1.95	1.52	1.68	3.80	0.90	1.60	1.72	3.18
Oct/Nov-21	2.32	1.50	2.66	2.01	2.57	2.19	3.14	0.97	1.50	2.89	3.45
Feb/Mar-22	F	F	F	F	F	1.19	F	F	F	F	F
May/Jun-22	3.03	1.96	3.25	2.31	2.35	2.22	3.35	1.57	1.96	2.55	3.56
Jul/Aug-22	2.88	1.16	1.77	2.06	1.82	1.79	4.17	1.03	1.16	1.66	5.01
Oct/Nov-22	1.85	0.91	1.57	1.57	1.72	1.51	3.21	0.93	0.91	1.53	3.16
Feb-23	F	F	F	F	1.34	0.53	F	0.50	F	F	F
May/Jun-23	3.77	2.07	2.91	3.97	2.31	1.76	3.78	1.79	2.07	3.33	3.82
Jul-23	2.38	1.55	2.49	1.90	1.91	1.79	3.93	1.21	1.55	1.31	2.28
Oct-23	1.43	0.62	0.80	1.11	1.14	0.73	2.26	0.55	0.62	1.08	3.23
2009 Average	1.70	1.31	1.34	1.94	1.43	1.69	3.05	1.27	1.31	1.39	2.32
2010 Average	1.22	<1.13	<0.52	1.79	1.07	<0.70	<1.76	<0.48	<1.13	<0.70	1.50
2011 Average	1.90	1.18	1.72	1.76	1.35	1.11	2.76	0.66	1.18	1.09	2.10
2012 Average	1.86	1.57	1.38	2.09	1.44	1.18	3.29	0.68	1.57	1.05	2.04
2013 Average	1.69	1.19	0.98	1.08	1.34	1.05	2.53	0.69	1.19	1.53	1.49
2014 Average	3.13	2.16	2.99	2.23	1.88	1.85	2.93	1.12	2.16	2.32	2.29
2015 Average	2.43	1.49	3.19	3.51	1.74	1.74	3.42	1.04	1.49	2.86	2.76
2016 Average	2.38	1.45	2.63	1.83	1.58	1.30	3.04	0.51	1.45	2.35	2.40
2017 Average	1.58	1.16	2.01	2.41	1.20	1.26	2.95	0.67	1.16	2.34	2.88
2018 Average	3.92	1.99	2.72	1.38	1.56	0.99	3.87	0.69	1.99	2.44	2.82
2019 Average	2.91	1.62	2.83	1.66	2.08	1.98	3.75	1.01	1.62	2.63	2.75
2020 Average	2.83	2.18	2.82	1.85	1.83	1.80	4.28	0.92	2.18	1.94	3.26
2021 Average	2.85	1.85	2.98	1.99	1.86	1.74	3.65	0.93	1.85	2.29	3.31
2022 Average	2.59	1.34	2.20	1.98	1.96	1.68	3.58	1.17	1.34	1.91	3.91
2023 Average	2.53	1.41	2.06	2.32	1.67	1.20	3.33	1.01	1.41	1.91	3.11
Average All Years	2.26	1.60	2.00	1.90	1.53	1.37	2.94	0.82	1.60	1.74	2.45

MS-2-R and MS-V(1)-R are the same stations

	Stations located at or inside the Upper Bedrock 2 m drawdown contour
	Stations located outside the Upper Bedrock 2 m drawdown contour

Amended C. of A. #3960-7Q4K2G provides for annual sampling of peat pore water and quarterly sampling of ribbed fen surface water (the previous C. of A. #4111-7DXKQW provided for the same sampling frequency).

MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1.

Data prior to May 2009 refers to groundwater concentrations.

Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.

Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.

D: Dry

F: Frozen

US: Unsafe to sample

Table 8c: Methyl Mercury - Ribbed Fen Surface Waters (Unfiltered)

Date	MS-1-R (ES1R-S)	MS-2-R (ES2R-S)	MS-7-R (NS-7R-S)	MS-8-R (NS8-1R-S)	MS-9(1)-R (SS9-1R-S)	MS-9(2)-R (SS9-2R-S)	MS-13-R (WS13-R-S)	MS-15-R (WS15-R-S)	MS-V(1)-R (ES2R-S)	MS-V(2)-R (SSV2-R)	MS-V(3)-R (SSV3-R)
CEQG for Protection of Aquatic Life: 4 ng/L											
Aug / Sep-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nov-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
May-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aug-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oct-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jan-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
May-09	0.02	0.07	<0.02	0.09	<0.02	<0.02	0.09	<0.02	0.07	0.04	0.04
Aug-09	<0.02	0.11	0.08	0.04	0.07	0.06	0.02	0.12	0.11	0.03	0.14
Oct-09	0.09	0.04	0.04	<0.02	<0.02	0.02	0.05	<0.02	0.04	0.17	0.03
Jan-10	0.13	0.08	0.03	0.14	0.14	0.25	0.08	0.07	0.08	0.08	
May-10	<0.02	0.05	<0.02	0.05	0.03	0.04	0.04	<0.02	0.05	0.02	0.08
Jul/Aug-10	0.05	0.07	0.09	0.05	0.03	0.08	0.19	0.03	0.07	0.10	0.14
Oct-10	0.05	0.05	0.02	0.10	0.08	0.03	0.13	<0.02	0.05	0.02	0.09
Jan/Feb-11		0.54	0.08	0.16	0.04	0.11	0.30	0.12	0.54		
Apr-11	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Jul-11	0.10	0.40	0.05	0.11	0.05	0.04	0.17	<0.02	0.40	0.06	0.04
Oct-11	0.06	0.08	0.09	0.16	0.02	0.04	0.20	0.03	0.08	0.05	0.34
Jan-12	1.49		0.04	3.08	0.32	0.43	1.42	0.12		0.95	1.22
May-12	0.07	0.10	0.04	0.08	0.05	0.06	0.11	0.03	0.10	0.04	0.05
Aug/Sep-12	0.08	0.13	0.04	0.31	0.04	0.06	0.25	0.11	0.13	0.03	0.13
Oct-12	0.05	0.05	0.03	0.03	0.03	0.03	0.07	<0.02	0.05	0.04	0.12
Jan/Feb-13	F	F	F	F	0.09	0.07	F	0.12	F	F	F
May-13	0.05	0.07	0.02	0.08	0.07	0.06	0.10	0.04	0.07	0.11	0.08
Jul-13	0.13	0.08	0.05	0.09	0.04	0.06	0.25	0.03	0.08	0.04	0.07
Oct-13	0.02	0.03	<0.02	0.02	0.02	0.04	0.10	<0.02	0.03	<0.02	<0.02
Mar-14	F	F	F	F	1.83	F	F	0.06	F	F	F
May/Jun-14	0.08	0.08	0.13	0.07	0.05	0.07	0.13	0.03	0.08	0.16	0.13
Aug/Sep-14	0.06	0.04	0.03	0.05	0.05	0.04	0.33	0.03	0.04	0.04	0.03
Oct-14	0.05	0.04	0.04	0.04	0.04	0.05	0.11	<0.02	0.04	0.11	0.05
Jan/Mar-15		F	F	F	F	F	F	F	F	F	F
Jun-15	0.08	0.06	0.05	0.09	0.02	0.03	0.10	0.02	0.06	0.12	0.07
Jul-15	0.07	0.04	0.10	0.15	0.03	0.06	0.18	0.02	0.04	0.06	0.18
Oct-15	<0.02	0.03	0.06	0.04	0.02	0.06	0.15	<0.02	0.03	0.10	0.07
Jan-16	F	F	F	F	0.09	0.13	F	0.02	F	F	F
Apr/May-16	0.10	0.10	0.10	0.05	0.03	0.04	0.09	0.13	0.10	0.13	0.04
Jul-16	0.06	0.11	0.09	0.05	<0.02	0.02	0.09	<0.02	0.11	0.05	0.09
Oct/Nov-16	0.04	0.05	0.07	0.03	0.03	0.03	0.09	<0.02	0.05	0.13	0.04
Jan-17	0.05	0.07	0.38	F	0.08	0.11	F	0.09	0.07	F	0.09
Apr/May-17	0.07	0.12	0.09	0.07	0.04	0.06	0.17	<0.02	0.12	0.13	0.12
Jul-17	0.08	0.11	0.06	0.06	0.04	0.06	0.19	0.03	0.11	0.11	0.21
Oct/Nov-17	0.14	0.07	0.08	0.03	0.07	0.04	0.14	<0.02	0.07	0.02	F
Mar-18	F	F	F	F	F	F	F	F	F	F	F
May-18	0.06	0.05	0.11	0.03	0.04	0.05	0.12	<0.02	0.05	0.10	0.08
Jul/Aug/Sep -18	0.13	0.08	0.12	0.04	0.05	0.04	0.25	0.03	0.08	0.04	0.15
Nov/Dec-18	F	F	0.04	F	F	0.06	F	<0.02	F	F	F
Jan/Mar-19	F	F	0.04	<0.02	F	F	F	F	F	F	F
May-19	0.03	0.04	0.04	0.05	0.03	0.03	0.08		0.04	0.05	<0.02
Jul/Aug-19	0.07	0.17	0.13	0.10	0.08	0.03	0.25	<0.02	0.17	0.62	0.14
Oct-19	0.03	<0.02	0.07	0.03	0.03	0.03	0.10	<0.02	<0.02	0.09	0.09
Mar-20	F	F	F	0.47	0.17	0.17	F	0.08	F	F	0.38
May/Jun-20	0.15	0.10	0.07	0.05	0.05	0.04	0.25	0.02	0.10	0.06	0.04
Jul/Aug-20	0.11	0.23	0.30	0.07	0.04	0.06	0.21	0.02	0.23	1.64	0.16
Oct-20	0.06	0.07	0.09	0.05	0.04	0.07	0.09	<0.02	0.07	0.09	0.12
Feb/Mar-21	F	F	F	0.29	0.10	0.11	F	0.07	F	F	F
May/Jun-21	0.10	0.14	0.12	0.09	0.08	0.09	0.23	0.07	0.14	0.19	0.15
Jul/Aug-21	0.05	0.03	0.04	0.03	0.04	0.09	0.20	<0.02	0.03	0.07	0.13
Oct/Nov-21	0.05	0.06	0.07	0.04	0.03	0.09	0.11	<0.02	0.06	0.07	0.13
Feb/Mar-22	F	F	F	F	F	<0.030	F	F	F	F	F
May/Jun-22	<0.047	<0.029	<0.054	<0.052	<0.048	<0.053	<0.123	<0.03	<0.029	<0.281	<0.084
Jul/Aug-22	<0.067	<0.067	<0.046	<0.053	<0.051	<0.030	<0.161	NA	<0.067	<0.058	<0.109
Oct/Nov-22	<0.029	<0.029	<0.029	<0.042	<0.029	<0.029	<0.109	<0.03	<0.029	<0.044	<0.075
Feb-23	F	F	F	F	0.07	0.08	F	<0.029	F	F	F
May/Jun-23	0.06	0.07	0.08	0.04	0.04	0.06	0.07	<0.034	0.07	0.06	<0.034
Jul-23	0.08	0.07	0.05	0.09	0.06	0.06	0.21	0.04	0.07	0.07	0.14
Oct-23	0.15	0.04	0.05	0.06	0.05	0.07	0.11	<0.040	0.04	0.07	0.09
2009 Average	<0.04	0.07	<0.05	<0.05	<0.04	<0.04	0.05	<0.05	0.07	0.08	0.07
2010 Average	<0.06	0.06	<0.04	0.09	0.07	0.10	0.11	<0.03	0.06	0.07	0.10
2011 Average	<0.06	<0.26	<0.06	<0.11	<0.03	<0.05	<0.17	<0.05	<0.26	<0.04	<0.13
2012 Average	0.42	0.09	0.04	0.87	0.11	0.15	0.46	<0.07	0.09	0.26	0.38
2013 Average	0.06	0.06	<0.03	0.06	0.05	0.06	0.15	<0.05	0.06	<0.06	<0.06
2014 Average	0.06	0.05	0.06	0.05	0.49	0.05	0.19	<0.03	0.05	0.10	0.07
2015 Average	<0.06	0.04	0.07	0.09	0.02	0.05	0.14	<0.02	0.04	0.09	0.11
2016 Average	0.07	0.09	0.09	0.04	0.04	0.06	0.09	<0.05	0.09	0.10	0.06
2017 Average	0.09	0.09	0.15	0.05	0.06	0.07	0.17	0.04	0.09	0.09	0.14
2018 Average	0.09	0.07	0.09	0.04	0.04	0.05	0.18	<0.02	0.07	0.07	0.11
2019 Average	0.04	0.08	0.07	0.05	0.05	0.03	0.14	<0.02	0.08	0.25	0.08
2020 Average	0.11	0.13	0.15	0.16	0.07	0.08	0.18	<0.02	0.13	0.60	0.17
2021 Average	0.07	0.07	0.08	0.11	0.06	0.10	0.18	<0.02	0.07	0.11	0.14
2022 Average	0.05	0.04	0.04	0.05	0.04	0.04	0.13	<0.02	0.04	0.13	0.09
2023 Average	0.10	0.06	0.06	0.06	0.06	0.07	0.13	<0.02	0.06	0.07	<0.12
Average All Years	<0.10	<0.09	<0.07	<0.14	<0.09	<0.07	<0.17	<0.04	<0.09	<0.15	<0.13
CEQG for Protection of Aquatic Life: 4 ng/L											

MS-2-R and MS-V(1)-R are the same stations

	Stations located at or inside the Upper Bedrock 2 m drawdown contour
	Stations located outside the Upper Bedrock 2 m drawdown contour

Amended C. of A. #3960-7Q4K2G provides for annual sampling of peat pore water and quarterly sampling of ribbed fen surface water (the previous C. of A. #4111-7DXKQW provided for the same sampling frequency).

MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury), as per Section 1.

Data prior to May 2009 refers to groundwater concentrations.

Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.

Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.

D: Dry

F: Frozen

US: Unsafe to sample

NA

Table 8d: Methyl Mercury - Ribbed Fen Surface Waters (Filtered) (concentrations in ng/L)

Date	MS-1-R (ES1R-S)	MS-2-R (ES2R-S)	MS-7-R (NS-7R-S)	MS-8-R (NS8-1R-S)	MS-9(1)-R (SS9-1R-S)	MS-9(2)-R (SS9-2R-S)	MS-13-R (WS13-R-S)	MS-15-R (WS15-R-S)	MS-V(1)-R (ES2R-S)	MS-V(2)-R (SSV-2R-S)	MS-V(3)-R (SSV-3R-S)
	Draft USEPA Criteria: 0.05 ng/L										
Aug / Sep-07	0.02	<0.02	<0.02	<0.02	0.02	<0.02	0.13	0.02	<0.02	<0.02	<0.02
Nov-07	0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
May-08	0.11	0.07	F	<0.02	<0.02	F	<0.02	0.02	0.07	F	F
Aug-08	0.07	0.04	<0.02	<0.02	0.03	0.06	<0.02	0.02	0.04	<0.02	0.02
Oct-08	0.02	<0.02	<0.02	<0.02	0.02	0.04	<0.02	0.02	<0.02	<0.02	<0.02
Jan-09	F	F	F	F	F	F	F	F	F	F	F
May / June-09	0.07	0.05	<0.02	0.08	0.02	<0.02	0.08	<0.02	0.05	0.04	0.04
Aug-09	0.03	0.05	0.03	0.09	<0.02	0.04	0.04	0.11	0.05	0.04	<0.02
Oct-09	0.05	0.03	0.05	0.06	0.04	0.04	0.09	0.02	0.03	0.05	0.14
Jan-10	0.07	<0.02	<0.02	0.10	<0.02	<0.02	0.05	0.02	<0.02	<0.02	F
May-10	0.04	0.04	0.03	0.03	0.04	0.03	0.07	0.02	0.04	0.03	0.06
Aug-10	0.06	0.08	0.02	<0.02	<0.02	0.05	<0.02	<0.02	0.08	0.04	<0.02
Oct-10	0.03	0.04	<0.02	0.08	0.03	<0.02	0.12	<0.02	0.04	<0.02	0.07
Jan / Feb-11	F	0.03	<0.02	0.03	0.09	<0.02	0.04	<0.02	0.03	F	F
Apr-11	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Jul-11	0.05	0.07	0.03	0.05	0.03	<0.02	0.16	<0.02	0.07	0.03	0.03
Oct-11	0.07	0.06	0.08	0.14	0.03	0.04	0.15	<0.02	0.06	0.05	0.23
Jan-12	0.29	F	0.03	0.95	0.02	0.13	0.63	0.07	F	0.18	0.10
Apr-12	0.06	0.06	0.03	0.05	0.04	0.06	0.10	0.02	0.06	<0.02	0.03
Jul-12	0.04	0.05	<0.02	0.11	<0.02	0.05	0.20	<0.02	0.05	0.03	<0.02
Oct-12	0.04	0.02	0.02	0.03	<0.02	0.02	0.06	<0.02	0.02	<0.02	0.10
Jan / Feb-13	F	F	F	F	0.05	0.09	F	0.04	F	F	F
Apr / May-13	<0.02	<0.02	<0.02	0.05	0.03	0.03	<0.02	0.03	<0.02	0.06	0.04
Jul-13	0.12	0.05	0.03	0.09	0.04	0.03	0.21	<0.02	0.05	<0.02	0.05
Oct-13	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.09	<0.02	<0.02	<0.02	<0.02
Mar-14	F	F	F	F	0.20	F	F	0.03	F	F	F
May-14	0.07	0.06	0.07	0.06	0.03	0.04	0.12	<0.02	0.06	0.12	0.07
Aug-14	0.03	0.02	0.02	0.03	0.02	0.02	0.14	<0.02	0.02	<0.02	0.02
Oct-14	0.03	0.03	0.02	0.04	0.04	0.03	0.09	<0.02	0.03	0.06	0.04
Jan/Mar-15		F	F	F	F	F	F	F	F	F	F
Jun-15	0.05	0.05	0.04	0.08	0.03	0.03	0.11	ND	0.05	0.12	0.10
Jul-15	<0.02	0.03	0.07	<0.02	<0.02	<0.02	0.08	<0.02	0.03	<0.02	0.04
Oct-15	0.04	0.03	0.04	0.03	0.03	0.03	0.13	ND	0.03	0.12	0.08
Jan-16	F	F	F	F	0.08	0.07	F	<0.02	F	F	F
Apr/May-16	0.08	0.06	0.07	0.03	0.02	0.02	0.07	<0.02	0.06	0.09	0.05
Jul-16	0.06	0.06	0.06	0.04	<0.02	0.02	0.15	<0.02	0.06	<0.02	0.09
Oct/Nov-16	0.03	0.04	0.03	0.03	0.03	0.02	0.08	<0.02	0.04	0.12	0.04
Jan-17	0.02	0.05	0.14	F	0.05	0.05	F	<0.02	0.05	F	0.07
Apr/May-17	0.06	0.08	0.07	0.07	0.03	0.05	0.16	<0.02	0.08	0.11	0.10
Jul-17	0.06	0.07	0.05	0.04	0.03	0.05	0.17	<0.02	0.07	0.08	0.17
Oct/Nov-17	0.05	<0.02	0.04	0.03	0.06	0.02	0.12	<0.02	<0.02	<0.02	F
Mar-18	F	F	F	F	F	F	F	F	F	F	F
May-18	0.05	0.05	0.07	0.03	<0.02	0.03	0.10	<0.02	0.05	0.10	0.06
Jul/Aug/Sep -18	0.10	0.05	0.10	0.04	0.04	0.04	0.22	<0.02	0.05	0.04	0.12
Nov/Dec-18	F	F	0.02	F	F	0.03	F	<0.02	F	F	F
Jan/Mar-19	F	F	<0.02	<0.02	F	F	F	F	F	F	F
May-19	0.03	0.03	<0.02	<0.02	<0.02	0.03	0.07	<0.02	0.03	0.04	<0.02
Jul/Aug-19	0.05	0.06	0.08	0.07	0.06	0.02	0.22	<0.02	0.06	0.53	0.11
Oct-19	0.04	<0.02	0.06	<0.02	0.03	0.03	0.10	<0.02	<0.02	0.05	0.08
Mar-20	F	F	F	0.09	0.09	0.05	F	0.02	F	F	0.13
May/Jun-20	0.05	0.06	0.04	0.04	0.05	0.02	0.22	<0.02	0.06	0.06	0.03
Jul/Aug-20	0.08	0.06	0.08	0.04	0.04	0.03	0.15	<0.02	0.06	0.96	0.16
Oct-20	0.04	0.02	0.04	0.06	0.04	0.05	0.09	<0.02	0.02	0.07	0.10
Feb/Mar-21	F	F	F	F	F	0.03	F	F	F	F	F
May/Jun-21	0.05	0.03	0.05	0.05	0.05	0.05	0.12	<0.03	0.03	0.28	0.08
Jul/Aug-21	0.07	0.07	0.05	0.05	0.05	0.03	0.16	<0.03	0.07	0.06	0.11
Oct/Nov-21	<0.03	<0.03	<0.03	0.04	<0.03	<0.03	0.11	<0.03	<0.03	0.04	0.08
Feb/Mar-22	F	F	F	F	F	0.03	F	F	F	F	F
May/Jun-22	0.05	0.03	0.05	0.05	0.05	0.05	0.12	<0.029	0.03	0.28	0.08
Jul/Aug-22	0.07	0.07	0.05	0.05	0.05	0.03	0.16	<0.029	0.07	0.06	0.11
Oct/Nov-22	<0.029	<0.029	<0.029	0.04	<0.029	<0.029	0.11	<0.029	<0.029	0.04	0.08
Feb-23	F	F	F	F	0.06	<0.029	F	0.03	F	F	F
May/Jun-23	<0.034	<0.034	0.04	0.04	<0.034	0.05	0.06	<0.034	<0.034	0.04	<0.034
Jul-23	0.07	0.08	0.05	0.07	0.05	0.05	0.23	0.04	0.08	0.07	0.13
Oct-23	0.17	<0.040	<0.040	0.06	<0.040	<0.040	0.09	<0.040	<0.040	0.05	0.07
2009 Average	0.05	0.04	<0.03	0.08	<0.03	<0.03	0.07	<0.05	0.04	0.04	<0.07
2010 Average	0.05	<0.05	<0.02	<0.06	<0.03	<0.03	<0.07	<0.02	<0.05	<0.03	<0.05
2011 Average	<0.05	<0.04	<0.04	<0.06	<0.04	<0.03	<0.09	<0.02	<0.05	<0.03	<0.09
2012 Average	0.11	0.04	<0.02	0.28	<0.02	0.06	0.25	<0.03	0.04	<0.06	<0.06
2013 Average	<0.05	<0.03	<0.02	<0.05	<0.04	0.05	<0.11	<0.03	<0.03	<0.03	<0.04
2014 Average	0.05	0.04	0.04	0.04	0.07	0.03	0.11	<0.02	0.04	<0.07	0.04
2015 Average	<0.04	0.04	0.05	<0.04	<0.02	<0.03	0.11	<0.02	0.04	<0.09	0.07
2016 Average	0.05	0.05	0.05	0.03	0.04	0.03	0.10	<0.02	0.05	0.08	0.06
2017 Average	0.05	0.06	0.07	0.04	0.04	0.04	0.15	<0.02	0.06	0.07	0.11
2018 Average	0.07	0.05	0.06	0.03	<0.02	0.03	0.16	<0.02	0.05	0.07	0.09
2019 Average	0.04	<0.03	<0.05	<0.03	<0.04	0.03	0.13	<0.02	<0.03	0.21	<0.07
2020 Average	0.06	0.05	0.04	0.05	0.04	0.04	0.13	<0.03	0.04	0.13	0.09
2021 Average	0.05	0.04	0.05	0.05	0.05	0.04	0.15	<0.02	0.05	0.37	0.11
2022 Average	0.05	0.04	0.04	0.05	0.04	0.04	0.13	0.03	0.04	0.13	0.09
2023 Average	0.09	0.05	0.04	0.05	0.05	0.04	0.13	0.04	0.05	0.05	0.08
Average All Years	0.06	0.04	0.04	0.06	0.04	0.04	0.12	0.03	0.04	0.09	0.07
Draft USEPA Criteria: 0.05 ng/L											

MS-2-R and MS-V(1)-R are the same stations

	Stations located at or inside the Upper Bedrock 2 m drawdown contour
	Stations located outside the Upper Bedrock 2 m drawdown contour

Amended C. of A. #3960-7Q4K2G provides for annual sampling of peat pore water and quarterly sampling of ribbed fen surface water (the previous C. of A. #4111-7DXKQW provided for the same sampling frequency).

MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury), as per Section 1.

Data prior to May 2009 refers to groundwater concentrations.

Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.

Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.

D: Dry

F: Frozen

US: Unsafe to sample

ND

Table 9: Muskeg System Ribbed Fen General Chemistry Results (Surface Water) - All Years

Station	Year	Number of Samples	Parameter												
			Cl (mg/L)	Cond (µs/cm)	Nitrate (mg/L)	DOC (mg/L)	pH (units)	SO ₄ (mg/L)	TP (mg/L)	Ca-D (mg/L)	Fe-D (mg/L)	Mg-D (mg/L)	Na-D (mg/L)	Average Methyl Mercury (unfiltered) (ng/L)	Average Methyl Mercury (filtered) (ng/L)
MS-V(1)-R (ES2R-S)	2007														
	2008														
	2009	3	0.4	18.7	<0.1	16.4	6.43	<0.1	<0.01	3.4	0.320	0.4	<0.4		
	2010	4	0.6	27.4	<0.1	22.2	5.84	<1.0	0.01	3.7	0.860	0.3	0.4	0.06	<0.04
	2011	4	5.7	60.4	<0.1	23.7	6.41	2.6	0.03	5.0	1.292	0.8	3.2	<0.25	<0.04
	2012	3	0.5	25.7	<0.1	36.0	6.09	<1.0	0.01	3.2	1.064	0.4	0.4	0.09	0.04
	2013	3	<1.2	22.2	<0.1	26.6	5.62	<1.5	0.02	3.0	0.483	0.4	0.6	0.06	<0.03
	2014	3	0.6	21.2	<0.1	22.5	5.01	<1.0	0.01	2.9	0.813	0.3	0.4	0.05	0.04
	2015	3	0.5	12.9	<0.1	27.3	5.71	<1.0	<0.01	4.4	0.651	0.3	1.1	0.04	0.04
	2016	3	1.3	16.1	<0.1	19.0	5.34	<1.0	<0.006	2.7	0.783	0.3	0.3	0.09	0.03
	2017	4	<1.3	26.1	<0.8	26.1	5.64	<1.0	0.017	4.5	2.548	0.4	0.5	0.09	0.06
	2018	2	0.6	19.9	<0.1	18.6	5.76	<1.0	0.040	2.6	0.641	0.3	0.4	0.07	0.05
	2019	3	0.5	18.7	<0.1	19.0	5.69	<1.0	0.011	2.7	0.864	0.4	0.4	<0.08	<0.03
	2020	3	<0.3	18.3	<0.05	23.5	5.79	<0.5	0.032	3.18	0.78	0.33	0.25	0.13	<0.05
	2021	3	<0.3	20.7	<0.05	21.4	6.20	<0.5	0.012	3.32	0.65	0.38	0.29	0.07	<0.03
	2022	3	<0.2	25.5	<0.05	25.4	5.67	<0.5	0.029	2.70	1.49	0.29	0.24	0.33	0.04
	2023	3	<0.7		<0.05	20.0	5.76	<0.5	0.02	2.50	0.85	0.27	0.30	<0.06	0.08
MS-V(2)-R (SSV-2R-S)	2007														
	2008														
	2009	3	0.4	18.7	<0.1	14.8	6.52	<0.1	<0.01	18.9	0.107	2.8	7.1		
	2010	4	0.5	70.3	<0.1	18.7	6.93	<1.0	0.02	12.4	0.568	0.7	0.5	<0.05	<0.08
	2011	3	2.1	84.4	<0.1	18.9	7.53	<1.0	0.08	11.8	0.077	0.9	0.7	<0.04	<0.03
	2012	4	2.5	193.9	<0.1	38.3	7.28	<1.0	0.05	32.8	0.950	3.1	1.8	0.26	<0.06
	2013	3	0.7	62.3	<0.1	24.8	6.70	<1.0	0.01	10.3	0.061	1.0	0.7	<0.06	<0.03
	2014	3	0.6	69.4	<0.1	25.6	6.43	<1.0	0.04	10.6	0.112	1.2	0.7	0.10	<0.07
	2015	3	0.7	38.3	<0.1	29.8	6.46	<1.0	0.01	8.7	0.116	1.1	0.6	0.09	<0.09
	2016	3	<1	45.5	<0.1	20.3	6.89	<1.0	0.01	9.6	0.118	1.2	0.4	0.10	0.08
	2017	3	1.3	68.4	<0.1	25.4	7.15	<1.0	0.01	12.4	0.121	1.7	0.4	0.09	0.07
	2018	2	1.1	116.2	<0.1	26.9	7.41	<1.0	0.02	18.6	0.097	2.6	0.6	0.07	0.07
	2019	3	0.8	77.7	<0.1	22.8	6.75	<1.0	0.02	11.0	0.162	2.1	1.5	0.25	0.29
	2020	3	0.7	101.7	<0.1	19.4	7.45	<0.6	0.03	14.0	0.144	2.0	1.8	0.60	0.37
	2021	3	0.3	52.7	<0.1	20.1	6.72	<0.5	0.02	8.8	0.148	1.5	0.9	0.11	0.09
	2022	3	<0.3	108.0	<0.05	21.5	7.09	<0.5	0.065	11.95	0.15	1.91	0.76	0.34	0.13
	2023	4	0.6		<0.05	19.0	6.76	<0.5	0.02	9.18	0.13	1.58	0.69	0.07	0.05
MS-V(3)-R (SSV-3R-S)	2007														
	2008														
	2009	3	0.3	18.0	<0.1	20.8	5.34	<0.1	<0.01	1.0	0.100	0.1	<0.5		
	2010	3	0.3	20.0	<0.1	23.6	5.08	<1.0	0.01	1.8	0.161	0.1	0.2	0.10	0.08
	2011	4	0.5	36.5	<0.1	22.9	6.07	<1.0	0.01	3.6	0.079	0.5	0.4	<0.13	<0.09
	2012	4	2.3	75.1	<0.1	38.0	6.48	<1.0	0.04	11.1	0.318	1.4	0.7	0.38	<0.06
	2013	3	<0.4	39.1	<0.1	17.2	6.11	<1.0	0.03	5.6	0.059	0.6	0.4	<0.06	<0.04
	2014	3	<0.6	40.7	<0.1	21.7	5.60	<1.0	0.01	5.2	0.086	0.7	0.4	0.07	0.04
	2015	3	<0.5	21.3	<0.1	26	4.85	<1.0	<0.003	2.3	0.191	0.3	0.3	0.11	0.07
	2016	3	<1.0	25.4	<0.1	20.6	6.06	<1.0	<0.01	4.4	0.090	0.5	0.3	0.06	0.06
	2017	3	1.7	41.5	<0.1	32.0	5.35	<1.0	0.02	6.4	0.181	0.8	0.5	0.14	0.11
	2018	2	0.5	19.1	<0.1	22.2	4.86	<1.0	0.01	1.5	0.090	0.3	0.2	0.11	0.09
	2019	3	<0.3	22.0	<0.1	25.9	4.77	<1.0	0.01	1.9	0.193	0.4	0.2	<0.08	<0.07
	2020	4	<0.7	18.6	<0.1	33.6	5.50	<1.3	0.02	8.1	0.326	1.2	0.4	<0.17	<0.11
	2021	3	<0.2	21.0	<0.1	31.2	4.93	<0.5	0.01	2.3	0.191	0.4	0.2	<0.12	<0.12
	2022	3	<0.3	29.1	<0.05	32.9	4.77	<0.5	0.035	2.03	0.21	0.35	0.19	0.18	0.09
	2023	3	<0.5		<0.05	29.7	4.78	<0.5	0.02	1.77	0.13	0.39	0.40	<0.12	0.10
MS-1-R (ES1R-S)	2007														
	2008														
	2009	3	0.5	26.0	<0.1	18.9	6.47	<0.1	<0.01	3.4	0.136	0.3	<0.6		
	2010	4	0.4	34.5	<0.1	22.6	6.22	<1.0	0.01	5.6	0.499	0.4	0.8	<0.06	0.05
	2011	4	0.7	42.6	<0.1	24.8	6.77	<1.0	0.01	5.7	0.317	0.5	1.1	<0.05	<0.04
	2012	4	2.3	81.8	<0.1	44.7	6.66	<1.0	0.01	13.1	2.578	1.3	2.1	0.42	0.11
	2013	3	2.6	35.3	<0.1	29.8	6.23	<2.8	0.01	5.4	0.180	0.5	2.1	0.06	<0.05
	2014	3	1.0	31.2	<0.1	25.2	5.53	<1.0	0.02	4.7	0.280	0.4	1.4	0.06	0.05
	2015	3	<1.3	21.1	<0.1	23.6	6.11	<1.0	0.005	5.7	0.191	0.4	1.3	<0.06	<0.04
	2016	3	<1.3	26.9	<0.1	21.8	6.26	<1.0	<0.01	5.2	0.218	0.4	1.0	0.07	0.05
	2017	4	<2.7	60.8	<0.1	35.1	6.19	<1.0	<0.026	12.2	1.128	0.8	2.5	0.09	0.05
	2018	2	0.7	34.5	<0.1	25.2	6.53	<1.0	0.010	5.7	0.225	0.4	1.5	0.09	0.07
	2019	3	<0.7	29.7	<0.1	23.3	6.58	<1.0	0.013	4.2	0.209	0.4	0.9	0.04	0.04
	2020	3	<0.4	24.6	<0.1	26.8	6.10	<0.5	0.049	4.7	0.273	0.4	0.6	0.11	0.06
	2021	3	<0.4	27.7	<0.1	25.2	6.44	<0.5	0.012	5.6	0.204	0.5	1.0	0.07	0.05
	2022	3	<0.6	33.9	<0.05	25.6	6.53	<0.5	0.01	4.93	0.20	0.4	1.3	0.09	0.05
	2023	3	<0.7		<0.05	24.1	6.33	<0.5	0.03	5.67	0.20	0.57	1.63	<0.10	0.12
MS-7-R (NS-7R-S)	2007														
	2008														
	2009	2	0.6	30.5	<0.1	13.6	7.14	<0.1	<0.01	2.6	0.165	0.2	0.9		
	2010	4	0.6	76.1	<0.1	16.6	6.83	<1.0	<0.01	11.2	1.480	1.1	1.5	<0.04	<0.03
	2011	4	0.6	67.1	<0.1	21.4	6.92	<1.0	0.01	9.9	2.187	0.7	1.5	<0.06	<0.03
	2012	4	2.5	78.0	<0.1	18.3	6.92	<1.0	0.07	10.1	0.892	1.2	1.9	0.04	<0.02
	2013	3	0.6	55.8	<0.1	13.1	6.61	<1.0	0.01	7.9	0.118	0.8	1.6	<0.03	<0.02
	2014	3	0.9	46.4	<0.1	20.9	5.83	<1.0	0.02	6.4	0.221	0.7	1.4	0.06	0.04
	2015	3	0.6	31.4	<0.1	20.2	5.85	<1.0	0.01	5.4	0.473	0.5	1.1	0.07	0.05
	2016	3	<1.0	29.1	<0.1	18.1	6.37	<1.0	<0.01	4.8	0.319	0.4	0.9	0.09	<0.05
	2017	4	1.5	52.1	<0.1	19.7	6.29	<1.0	<0.01	8.1	2.410	0.7	1.2	0.15	0.07
	2018	3	1.0	44.0	<0.1	17.8	6.51	<0.8	<0.01	6.8	0.307	0.7	1.1	0.09	0.06
	2019	4	1.3	79.8	<0.1	29.2	6.28	<0.5	<0.01	11.6	1.708	1.1	1.3	0.07	0.04
	2020	3	0.7	28.6	<0.1	24.8	5.99	<0.5	0.06	4.8	0.555	0.5	1.0	0.15	0.05
	2021	3	0.7	40.0	<0.1	19.1	6.55	<0.5	0.01	6.7	0.339	0.7	1.1	0.08	0.06
	2022	3	<0.5	38.5	<0.05	16.4	6.97	<0.5	0.01	5.6	0.13	0.6	0.9	0.07	0.04
	2023	3	1.1		<0.05	16.9	6.95	<0.5	0.02	6.02	0.14	0.63	1.25	0.06	0.04

MS-8-R (NS8-1R-S)	2007														
	2008														
	2009	2	1.2	28.0	<0.1	16.4	6.81	<0.2	<0.01	1.9	0.119	0.5	2.3		
	2010	4	3.5	69.2	<0.1	30.7	6.40	<1.0	0.01	7.1	0.764	1.3	6.1	0.09	0.06
	2011	4	4.6	79.7	<0.1	30.5	6.95	<1.0	0.01	6.2	0.990	1.1	5.3	<0.11	<0.06
	2012	4	8.9	146.7	<0.1	72.1	7.00	<1.3	0.03	15.3	7.257	3.0	11.4	0.87	0.28
	2013	3	3.6	46.6	<0.1	23.1	6.31	<1.0	0.03	3.3	0.200	0.7	5.0	0.06	<0.05
	2014	3	2.3	41.2	<0.1	23.5	5.93	<1.0	0.01	3.2	0.191	0.7	3.8	0.05	0.04
	2015	3	1.0	25.9	<0.1	29.1	5.52	<1.0	<0.01	3.5	0.474	0.7	1.8	<0.09	<0.04
	2016	3	2.8	32.1	<0.1	18.6	6.65	<1.0	<0.02	3.1	0.182	0.5	3.0	0.04	0.03
	2017	3	2.4	31.0	<0.1	21.7	6.17	<1.0	<0.01	3.1	0.291	0.6	2.8	0.05	0.04
	2018	2	2.8	43.3	<0.1	17.95	6.80	<1.1	<0.01	3.1	0.169	0.5	3.8	0.04	0.03
	2019	3	1.0	25.3	<0.1	19.13	6.30	<1.0	<0.01	2.5	0.219	0.7	1.9	0.05	<0.05
	2020	4	4.6	124.7	<0.1	47.9	6.52	<0.5	0.03	12.2	5.110	2.2	7.0	0.16	0.05
MS-9(1)-R (SS9-1R-S)	2021	4	3.6	86.5	<0.1	41.0	6.49	<0.5	0.02	10.5	5.096	1.8	4.9	0.12	0.07
	2022	4	<1.6	38.2	<0.05	19.4	6.78	<0.6	0.012	2.74	0.17	0.52	2.81	0.07	0.05
	2023	4	1.8		<0.05	20.6	6.50	<0.9	0.02	3.02	0.19	0.65	2.89	0.06	0.05
	2007														
	2008														
	2009	3	0.3	21.7	<0.1	14.6	6.56	<0.1	<0.02	2.5	0.067	0.2	<0.5		
	2010	4	0.3	31.7	<0.1	19.4	6.14	<1.0	<0.01	5.5	0.238	0.4	0.4	0.07	0.02
	2011	4	0.4	32.5	<0.1	18.0	6.73	<1.0	<0.01	5.0	0.114	0.4	0.5	<0.03	<0.04
	2012	4	1.5	36.6	<0.1	20.9	6.57	<1.0	<0.01	5.8	0.392	0.5	0.5	0.11	<0.02
	2013	4	0.7	35.7	<0.1	31.6	6.20	<1.0	0.02	6.2	0.431	0.6	0.6	0.05	<0.04
	2014	4	1.1	84.4	<0.1	43.5	6.07	<1.0	0.06	15.3	1.108	1.1	1.0	0.49	0.07
	2015	3	<0.5	20.2	<0.1	19.7	6.04	<1.0	<0.01	4.5	0.118	0.3	0.4	0.02	<0.02
	2016	4	<1.4	30.3	<0.2	19.7	6.12	<1.3	<0.01	5.5	0.337	0.4	0.4	0.04	0.04
	2017	4	<1.4	31.6	<0.1	22.3	6.16	<1.0	<0.01	6.0	0.416	0.4	0.4	0.06	0.04
	2018	2	0.3	23.2	<0.1	14.5	6.30	<1.0	0.02	3.8	0.081	0.3	0.3	0.04	0.03
MS-9(2)-R (SS9-2R)	2019	3	<0.3	20.0	<0.1	19.0	5.78	<1.0	0.01	2.8	0.145	0.2	0.3	0.06	<0.04
	2020	4	0.6	21.3	<0.1	25.8	6.17	<0.5	0.19	6.0	0.560	0.5	0.4	0.07	0.05
	2021	4	0.5	30.8	<0.1	23.9	6.30	<0.5	0.01	5.7	0.402	0.4	0.4	0.07	0.08
	2022	4	<0.2	23.2	<0.05	18.3	6.39	<0.5	0.01	3.3	0.13	0.2	0.3	0.07	0.04
	2023	4	<0.5		<0.05	21.2	5.93	<0.5	0.04	5.41	0.35	0.40	0.41	<0.06	0.06
	2007														
	2008														
	2009	3	0.5	30.0	<0.1	13.0	6.98	<0.1	<0.02	3.6	0.087	0.4	<0.5		
	2010	4	0.7	57.9	<0.1	19.2	6.66	<1.0	0.03	10.1	0.881	1.1	0.7	0.10	<0.02
	2011	4	0.7	70.5	<0.1	18.3	7.12	<1.0	<0.01	10.5	1.618	1.0	1.1	<0.05	<0.02
	2012	4	0.8	60.1	<0.1	19.1	7.02	<1.0	<0.01	8.9	1.278	1.2	1.3	0.15	0.06
	2013	4	1.0	49.3	<0.1	13.5	6.37	<1.0	0.02	8.4	0.904	1.3	1.6	0.06	0.05
	2014	3	0.6	46.8	<0.1	18.5	6.25	<1.0	0.01	6.2	0.207	0.9	1.0	0.05	0.03
	2015	3	<0.5	37.5	<0.1	21.2	6.42	<1.0	<0.01	8.0	0.138	0.8	0.7	0.05	<0.03
	2016	4	<1.6	58.0	<0.1	17.1	6.76	<1.3	0.02	10.0	1.507	1.0	0.8	0.06	0.03
MS-13-R (WS13-R-S)	2017	4	<1.4	64.4	<0.1	19.8	6.72	<1.0	<0.01	11.3	1.655	1.1	1.0	0.07	0.04
	2018	2	0.7	48.6	<0.1	15.1	6.62	<0.8	<0.01	6.6	0.407	0.7	0.8	0.05	0.03
	2019	3	<0.5	38.7	<0.1	16.8	6.65	<0.5	<0.01	5.8	0.148	0.7	0.6	0.03	0.03
	2020	4	1.1	38.1	<0.05	25.8	6.48	<0.5	0.02	12.5	1.55	1.5	1.4	0.08	0.04
	2021	4	0.5	58.0	<0.05	20.4	6.78	<0.5	0.02	9.5	0.85	1.3	0.9	0.10	0.08
	2022	4	<0.9	47.0	<0.05	25.7	6.91	<0.5	0.14	14.245	2.12	1.4	1.3	0.56	0.04
	2023	3	0.8		<0.05	21.7	6.74	<0.5	0.02	12.05	2.87	1.24	1.21	<0.07	0.05
	2007														
	2008														
	2009	3	<0.3	21.7	<0.1	22.9	4.54	<0.1	<0.01	<0.6	0.067	0.1	<0.5		
	2010	3	0.9	30.5	<0.1	26.0	4.34	<1.0	<0.01	0.9	0.090	0.1	0.3	0.11	0.09
	2011	4	2.6	51.6	<0.1	50.9	4.30	<1.1	0.02	2.5	0.351	0.4	0.4	<0.17	<0.09
	2012	4	1.4	42.0	<0.1	66.2	4.75	<1.0	<0.01	2.4	0.458	0.3	0.4	0.46	0.25
	2013	3	0.3	33.6	<0.1	44.5	4.03	<1.0	0.01	0.9	0.098	0.2	0.3	0.15	<0.11
	2014	3	0.4	37.6	<0.1	31.8	4.04	<1.0	0.01	0.8	0.138	0.2	0.3	0.19	0.11
MS-15-R (WS15-R-S)	2015	3	<1.0	30.5	<0.1	33.1	3.97	<1.7	<0.01	0.8	0.092	0.1	0.2	0.14	0.11
	2016	3	<1.7	27.4	<0.1	27.0	4.11	<3.4	<0.01	0.6	0.100	0.1	<0.2	0.09	0.10
	2017	3	1.7	31.9	<0.8	29.4	3.91	<1.0	<0.01	0.8	0.133	0.2	0.2	0.17	0.15
	2018	2	0.3	38.8	<0.1	21.7	5.54	<1.0	0.01	0.8	0.075	0.1	0.2	0.18	0.16
	2019	3	<0.3	32.7	<0.1	29.4	4.03	<1.0	0.01	0.8	0.144	0.2	0.2	0.14	0.13
	2020	3	<0.2	32.8	<0.1	32.3	4.11	<0.5	0.01	0.9	0.15	0.2	<0.1	0.18	0.15
	2021	3	<0.2	37.7	<0.1	35.2	4.21	<0.5	0.01	1.0	0.15	0.2	<0.2	0.18	0.16
	2022	3	<0.2	38.0	<0.05	31.6	4.20	<0.5	0.01	0.8	0.13	0.2	0.2	0.16	0.13
	2023	3	<0.4		<0.05	29.2	4.53	<0.5	0.01	0.77	0.10	0.15	0.27	0.13	0.13
	2007														
	2008														
	2009	3	0.4	50.0	<0.1	9.8	7.27	<0.1	<0.01	6.8	0.019	0.5	<0.5		
	2010	4	0.6	86.0	<0.1	12.7	7.12	<1.0	<0.01	15.7	<0.182	1.3	0.6	<0.03	<0.02
	2011	4	0.5	86.3	<0.1	10.2	7.49	<1.0	0.01	12.9	<0.259	1.0	0.7	<0.04	<0.02
	2012	4	0.7	97.8	<0.1	13.4	7.30	<1.0	<0.01	15.5	<0.263	1.3	0.9	<0.07	<0.03
	2013	4	<0.8	109.6	<0.1	11.8	6.68	<1.0	0.02	17.6	<0.978	1.6	0.9	<0.05	<0.03
	2014	4	<0.9	131.2	<0.1	15.2	6.60	<1.0	<0.02	23.1	0.636	1.7	1.0	<0.03	<0.02
	2015	3	<0.5	63.6	<0.1	14.2	6.74	<1.0	<0.03	13.1	<0.027	0.9	0.5	<0.02	<0.02
	2016	4	<1.0	88.4	<0.1	11.2	6.89	<1.0	<0.03	14.8	<0.084	1.0	0.52	<0.04	<0.02
	2017	4	<1.2	93.9	<0.1	10.9	7.15	<1.0	<0.01	16.2	0.201	1.1	0.64	0.03	<0.02
	2018	2	0.4	66.6	<0.1	14.6	5.83	<0.8	0.01	10.8	0.087	0.7	0.47	<0.02	<0.02
	2019	3	<0.5	72.0	<0.1	10.1	7.32	<1.0	0.01	11.1	0.095	0.9	0.53	<0.02	<0.02
	2020	4	<0.5	69.9	<0.05	12.2	7.28	<0.5	0.01	16.6	0.575	1.4	0.67	<0.02	<0.02
	2021	4	<0.5	92	<0.05	11.7	7.16	<0.5	0.01	17.8	0.350	1.2	0.63	<0.05	<0.02
	2022	4	<0.4	62.3	<0.05	11.2	7.60	<0.5	0.01	10.9	0.07	0.8	0.5	0.03	0.03
	2023	4	<0.4		<0.05	12.8	6.96	<0.5	0.01	14.08	0.34	1.02	0.62	<0.04	0.03

MS-8-R This station stands out as being influenced by natural groundwater upwellings, as evidenced by elevated Cl and Na

Beyond zone of dewatering influence

MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury), as per Section 1.

Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.

Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.

D: Dry

F: Frozen

US: Unsafe to sample

Table 10a: Total Mercury - North Granny Creek (Unfiltered)
(concentrations in ng/L)

Date	N. Granny Creek Upstream of Supplementation G-0	N. Granny Creek Upstream (NGC/UP/NWF) G-1	N. Granny Creek Downstream (NGC/DN/NWF) G-2	N. Granny Creek Downstream (NGC/DN/NEF) G-3	N. Granny Creek Upstream of Confluence (NGC/UP/CONF) G-4	Tributary-5A
CEQG for Protection of Aquatic Life: 26 ng/L						
May-06			1.18	1.66		
Jun-06			3.20			
Jul-06			2.92	2.80		
Aug-06			4.21	3.77		
Sep-06			2.37	2.26		
Oct-06				1.61		
Dec-06			2.53	4.58		
Jan-07		2.02	2.74	2.35		
Feb-07			5.07	2.02		
Mar-07		7.17	8.73	F		
Apr-07		8.82	8.82	5.87		
May-07		3.01	3.01	3.02		
Jun-07		3.34	3.26	2.99		
Jul-07		3.16	3.24	2.23		
Aug-07		3.10	1.98	1.94		
Sep-07		1.96	2.05	2.04		4.42
Oct-07		5.91		5.67		
Nov-07		3.19	3.26	3.00		2.12
Dec-07		2.42	2.72	2.60	2.55	
Jan-08		2.95	2.43	2.42	2.72	
Feb-08		2.19	2.50	2.29		0.98
Mar-08		0.46	2.72	2.66		
Apr-08		11.90	5.58	F	4.23	
May-08		3.54	3.72	3.73		2.53
Jun-08		3.06	3.00	3.08		
Jul-08		3.28	3.22	1.61	4.85	2.20
Aug-08		2.71	2.73	2.69		
Sep-08		1.76	1.60	2.32		
Oct-08		1.37	2.44	1.57	1.73	1.48
Nov-08		3.20	1.95	2.39		
Dec-08		1.82	1.43	1.83		
Jan-09		1.41	1.14	1.54	1.48	0.84
Feb-09		1.18	1.29	1.34		
Mar-09		1.48	1.21	2.26		
Apr-09		3.19	3.15	1.41		0.70
May-09		5.18	3.08	3.81		
Jun-09		2.95	3.93	2.72		
Jul-09		3.62	2.12	3.48	3.58	1.93
Aug-09		2.07	2.48	2.08		
Sep-09		1.45	1.59	1.82		
Oct-09		1.47	1.74	1.38	1.57	0.89
Nov-09		1.70	1.11	1.79		
Dec-09		1.11	1.00	1.02		
Jan-10		1.46	1.33	1.03	1.56	0.67
Feb-10		1.49	1.73	1.36		
Mar-10		1.64	1.82	1.78		
Apr-10		1.56	1.92	2.05		1.57
May-10		1.99	1.12	1.80	2.15	
Jun-10		0.93	0.99	0.97		
Jul-10		0.92	3.67	1.04	<0.10	0.83
Aug-10		3.90	2.66	3.15		
Sep-10		2.44	1.74	2.71		
Oct-10		1.46	2.01	1.81	1.79	0.98
Nov-10		1.94	2.14	2.10		
Dec-10		1.50	1.41	1.62		
Jan-11		1.31	1.45	1.24	1.25	0.72
Feb-11		1.77	1.04	1.64		
Mar-11		1.56	1.23	1.36		
Apr-11		0.92	3.74	1.04	0.93	0.64
May-11		3.58	2.74	3.75		
Jun-11		2.99		2.65		
Jul-11		1.51	2.08	2.03	2.47	1.28
Aug-11		1.81	1.86	1.92		
**Sep-11						
Oct-11		4.36	4.59	4.11	4.12	2.72
Nov-11		3.12	3.37	3.45		
Dec-11		1.82	1.84	2.05		
Jan-12			1.23		1.64	1.18
Feb-12		0.78	0.68	0.81		
Mar-12		0.78	0.83	1.15		
Apr-12			2.45		3.00	1.96
May-12		2.08	1.98	2.23		
Jun-12		3.96	3.84	4.06		
Jul-12		1.94	2.30	2.29	2.42	1.22
Aug-12		1.48	1.76	1.75		
Sep-12		1.71	2.10	2.15		
Oct-12			2.81		2.46	1.55
Nov-12			3.97	5.12		
Dec-12		3.76	3.62	3.31		-
Jan-13		F	2.30	F	2.49	1.13
Feb-13		1.72	3.93	1.69		
Mar-13		1.39	1.31	1.31		
Apr-13		1.27	1.43	1.24	1.00	0.52
May-13		3.68	3.89	3.60		
Jun-13		3.48	3.59	3.53		
Jul-13		1.30	1.56	1.55	1.03	0.88
Aug-13		1.49	1.70	1.54		
Sep-13		1.75	2.33	2.25		
Oct-13		2.04	1.44	0.99	1.08	1.06
Nov-13		1.09	1.25	1.29		
Dec-13		1.12	0.50	1.19		
Jan-14		1.36	1.70	1.16	1.29	0.55
Feb-14		1.84	1.39	1.20		
Mar-14		1.42	1.52	0.79		
Apr-14		2.25	0.95	2.69	8.19	
May-14		2.26	5.19	3.37		4.16
Jun-14		4.25	4.42	3.85		
Jul-14		3.41	3.09	3.03	2.32	1.31
Aug-14		3.09	2.03	1.91		
Sep-14		2.96	15.10	6.33		1.17
Oct-14		4.76	4.83	3.34	5.24	1.65
Nov-14		3.62	3.57	3.48		2.34
Dec-14		US	2.37	4.91		
Jan-15			1.44	1.53	1.55	0.58
Feb-15		1.55	1.35	1.40		
Mar-15		2.74	2.23	6.85		
Apr-15		2.89	1.47	1.48	1.14	0.63
May-15		3.41	2.90	3.25		
Jun-15		3.60	3.35	3.44		
Jul-15		4.19	4.07	6.85	4.71	1.70
Aug-15		4.29	4.42	4.84		
Sep-15		6.94	4.55	4.65		
Oct-15		2.63	2.20	2.97	2.82	1.61
Nov-15		2.47	2.29	2.40	2.60	
Dec-15		1.31	1.36	1.59	1.56	
Jan-16		2.44	2.50	2.87	2.22	2.99
Feb-16		1.97	1.97	1.93	1.91	
Mar-16		1.46	1.34	1.21	5.40	
Apr-16		1.59	1.69	1.72	1.96	
May-16		2.33	2.39	2.43	4.03	2.91
Jun-16		3.51	3.07	2.92	3.75	
Jul-16		2.86	2.56	2.50	2.65	1.46
Aug-16		2.88	2.18	2.14	3.45	1.47
Sep-16		3.21	2.47	2.24	3.04	1.24
Oct-16		3.56	3.77	3.26	3.13	1.43
Nov-16		3.60	3.38	3.12	3.47	1.51
Dec-16		2.53	2.47	2.21	2.62	1.10

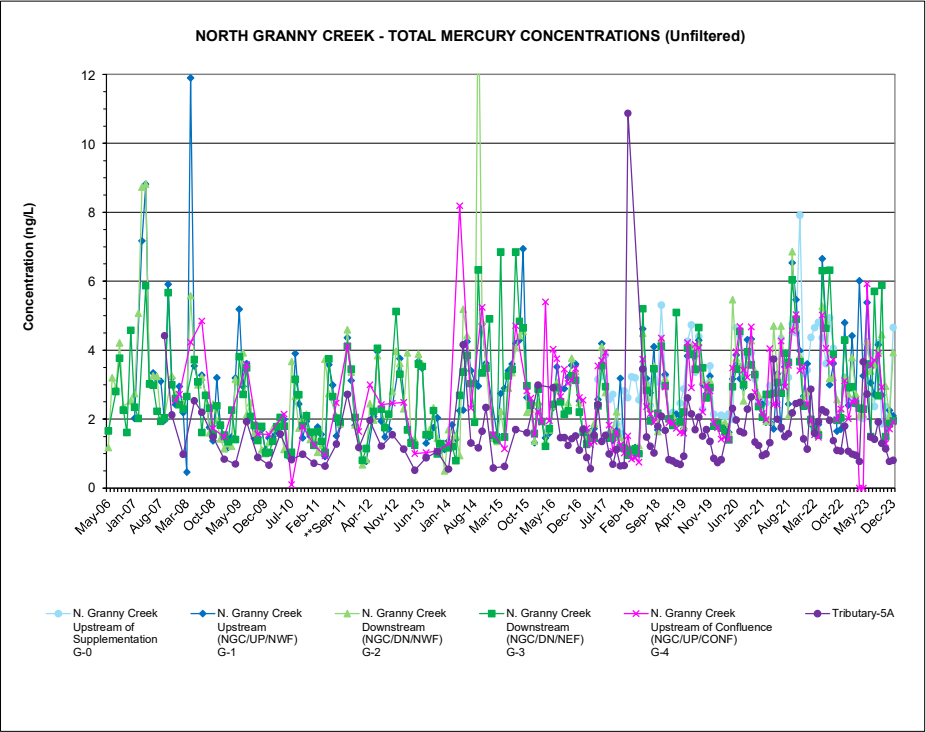


Table 10a: Total Mercury - North Granny Creek (Unfiltered)
(concentrations in ng/L)

Date	N. Granny Creek Upstream of Supplementation G-0	N. Granny Creek Upstream (NGC/UP/NWF) G-1	N. Granny Creek Downstream (NGC/DN/NWF) G-2	N. Granny Creek Downstream (NGC/DN/NEF) G-3	N. Granny Creek Upstream of Confluence (NGC/UP/CONF) G-4	Tributary-5A
	CEQG for Protection of Aquatic Life: 26 ng/L					
Jan-17		1.65	1.67	1.62	2.55	1.71
Feb-17		1.37	1.40	1.27	1.74	0.89
Mar-17		1.63	1.61	1.45	1.26	0.57
Apr-17		1.72	1.87	1.44	1.35	1.54
May-17	3.15	2.57	2.51	2.38	3.54	2.42
Jun-17	3.24	4.19	4.10	3.55	3.70	1.35
Jul-17	3.86	2.98	2.77	2.94	3.93	1.53
Aug-17	2.57	1.59	1.61	1.45	1.83	0.99
Sep-17	2.72	1.38	1.71	1.47	1.07	0.69
Oct-17	1.87	1.67	2.22	1.58	1.63	1.12
Nov-17	1.59	3.19	1.48	1.18	1.25	0.64
Dec-17	2.82	1.18	1.15	1.15	1.01	0.66
Jan-18	2.62	1.17	1.28	0.95	1.52	10.87
Feb-18	3.23	0.96	0.94	1.10	0.84	F
Mar-18	3.20	1.18	1.15	1.14	0.88	F
Apr-18	2.56	1.00	1.23	1.00	0.75	F
May-18	3.43	4.62	4.49	5.20	3.74	3.46
Jun-18	3.03	3.18	3.02	2.84	2.36	1.48
Jul-18	2.40	2.77	2.31	1.95	2.16	1.22
Aug-18	3.48	4.10	3.54	3.46	1.91	1.02
Sep-18	3.08	1.69	1.64	2.17	2.11	1.79
Oct-18	5.31	4.19	4.33	4.11	4.35	2.09
Nov-18	3.27	3.30	3.18	2.97	2.93	1.67
Dec-18	1.95	2.02	2.07	2.01	1.90	0.83
Jan-19	2.20	2.05	2.11	1.82	1.89	0.79
Feb-19	2.11	2.15	1.90	5.09	1.73	0.72
Mar-19	2.46	2.11	1.90	1.92	1.62	0.69
Apr-19	2.88	1.72	1.78	2.21	1.59	0.93
May-19	4.26	3.83	4.08	4.07	4.22	2.62
Jun-19	4.74	4.02	4.12	3.88	2.92	2.15
Jul-19	3.36	3.83	3.42	3.45	4.17	1.70
Aug-19	4.39	4.29	4.22	4.66	4.08	2.06
Sep-19	2.28	3.01	3.11	3.49	2.21	1.51
Oct-19	3.02	2.73	2.72	2.61	2.99	1.70
Nov-19	3.54	3.25	3.12	2.92	2.82	1.36
Dec-19	2.14	1.85	1.88	1.80	1.89	0.86
Jan-20		1.88	1.88	1.86	1.75	0.74
Feb-20	2.12	1.81	1.88	1.74	1.42	0.83
Mar-20	2.07	1.83	1.91	1.63	1.48	
Apr-20	2.15	1.61	1.62	1.40	1.40	
May-20	1.99	3.17	5.47	2.94	3.48	2.31
Jun-20	4.65	3.86	3.77	3.45	3.95	1.98
Jul-20	4.45	3.17	3.54	4.55	4.68	1.65
Aug-20	3.35	2.92	2.53	3.01	3.42	1.60
Sep-20	3.84	4.30	3.98	3.95	3.21	2.29
Oct-20	3.92	4.32	4.27	3.57	4.68	2.65
Nov-20	3.16	3.29	3.40	3.29	2.78	1.34
Dec-20	2.48	2.61	2.70	2.36	2.50	1.24
Jan-21	2.54	2.44	2.10	2.06	2.17	0.95
Feb-21	2.46	1.91	1.94	2.72	1.99	0.99
Mar-21	2.98	1.91	1.94	2.72	4.05	1.32
Apr-21	2.89	1.71	4.70	2.75	2.41	3.75
May-21	3.30	3.31	3.29	3.06	2.41	2.00
Jun-21	4.34	1.71	4.70	2.75	4.27	1.77
Jul-21	3.65	3.51	3.43	3.91	2.93	1.50
Aug-21	3.21	2.43	2.10	3.64	3.57	1.58
Sep-21	4.76	6.54	6.86	6.05	4.57	2.19
Oct-21	4.51	5.47	4.66	4.90	5.03	2.45
Nov-21	7.91	3.99	3.84	3.67	3.41	2.49
Dec-21	3.34	2.66	2.66	2.38	3.51	1.43
Jan-22	3.42	3.61	2.80	2.40	2.45	1.13
Feb-22	4.37	1.86	1.91	1.99	1.96	2.87
Mar-22	4.65	1.78	1.67	1.71	1.55	1.59
Apr-22	4.80	1.85	1.70	1.54	1.47	1.93
May-22	4.36	6.65	5.27	6.31	5.02	2.27
Jun-22	3.61	4.67	4.86	4.63	4.05	2.20
Jul-22	4.94	2.99	3.18	6.32	3.63	1.97
Aug-22	4.06	3.61	3.21	3.89	3.73	1.37
Sep-22	1.97	1.65	2.57	1.96	1.98	1.10
Oct-22	1.98	1.70	2.30	2.03	2.30	1.07
Nov-22	3.22	4.80	3.20	4.30	3.11	1.80
Dec-22	2.54	2.40	2.73	2.91	2.01	1.07
Jan-23	2.55	4.42	3.79	2.94	2.52	0.99
Feb-23	2.44	2.65	2.74	2.47	2.54	0.95
Mar-23	2.05	6.01	2.10	2.32		0.78
Apr-23	2.02	3.26	2.15	2.29		3.66
May-23	3.12	5.38	4.25	3.60	5.93	2.73
Jun-23	3.91	3.05	3.40	1.50	3.57	1.48
Jul-23	2.37	2.72	3.58	5.70	3.71	1.42
Aug-23	4.22	4.16	3.98	2.68	3.91	1.92
Sep-23	1.86	2.70	4.45	5.88	2.93	1.30
Oct-23	2.37	1.46	2.95	1.49	1.29	1.14
Nov-23	2.09	2.26	2.10	1.86	1.71	0.78
Dec-23	4.66	2.10	3.93	1.95	1.92	0.81
Average 2009		2.23	1.99	2.06	2.21	1.09
Average 2010		1.77	1.88	1.79	1.40	1.01
Average 2011		2.25	2.39	2.29	2.19	1.34
Average 2012		2.06	2.30	2.54	2.38	1.48
Average 2013		1.85	2.10	1.83	1.40	0.90
Average 2014		2.84	3.85	3.01	4.26	1.86
Average 2015		3.27	2.64	3.44	2.40	1.13
Average 2016		2.66	2.48	2.38	3.14	1.76
Average 2017	2.73	2.09	2.01	1.79	2.07	1.18
Average 2018	3.13	2.51	2.43	2.41	2.12	2.71
Average 2019	3.12	2.90	2.86	3.16	2.68	1.42
Average 2020	3.11	2.90	3.08	2.81	2.89	1.66
Average 2021	3.82	3.13	3.52	3.38	3.36	1.87
Average 2022	3.66	3.13	2.95	3.33	2.77	1.70
Average 2023	2.80	3.35	3.28	2.89	3.00	1.50
Average All Data	3.22	2.72	2.74	2.63	2.67	1.62
CEQG for Protection of Aquatic Life: 26 ng/L						

** Samples discarded due to lab miscommunication
MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1
North Granny Creek receives effluent from the PKC facility
Station G-4 was changed from quarterly to monthly sampling in October 2015
Tributary-5A was changed from quarterly to monthly sampling in July 2016
Sampling at Station G-0 was initiated in May 2017
Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.
Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.
D: Dry
F: Frozen
US: Unsafe to sample

Table 10b: Total Mercury - South Granny Creek (Unfiltered)
(concentrations in ng/L)

Date	S. Granny Creek Upstream (SGC/UP/SWF) G-5	S. Granny Creek Downstream (SGC/DS/SWF) G-6	S. Granny Creek Upstream of Confluence (SGC/UP/CONF) G-7	Tributary-5A
	CEQG for Protection of Aquatic Life: 26 ng/L			
May-06	0.86	1.26		
Jun-06	3.37	3.16		
Jul-06	2.72	3.08		
Aug-06	2.57	2.60		
Sep-06	2.28	2.74		
Oct-06	1.34	1.30		
Dec-06	2.23	2.08		
Jan-07	16.20	4.52		
Feb-07	3.57	3.16		
Mar-07	F	7.43		
Apr-07	3.72	3.76		
May-07	2.46	2.08		
Jun-07	2.49	3.04		
Jul-07	2.73	2.03		
Aug-07		2.17		
Sep-07	4.41	1.61		4.42
Oct-07	5.16	3.79		
Nov-07	2.74	2.49		2.12
Dec-07	2.67	2.61	2.61	
Jan-08	2.97	2.94	3.41	
Feb-08	3.76	2.91		0.98
Mar-08	3.06	3.35		
Apr-08	2.19	2.91	1.50	
May-08	3.37	3.42		2.53
Jun-08	2.55	2.81		
Jul-08	3.60	2.68	2.84	2.20
Aug-08	2.63	2.38		
Sep-08	1.94	2.78		
Oct-08	2.14	1.83	1.47	1.48
Nov-08		1.81		
Dec-08	1.84	1.88		
Jan-09	4.42	1.64	1.66	0.84
Feb-09	2.22	1.52		
Mar-09	2.56	1.45		
Apr-09	2.19	2.98	1.59	0.70
May-09	3.31	3.82		
Jun-09	2.65	2.76		
Jul-09	2.70	2.69	2.92	1.93
Aug-09	2.06	2.05		
Sep-09	1.47	1.39		
Oct-09	1.40	1.05	1.29	0.89
Nov-09	3.65	0.98		
Dec-09	1.08	0.96		
Jan-10	0.94	1.89	2.45	0.67
Feb-10	1.89	2.03		
Mar-10	2.14	1.84		
Apr-10	1.68	1.90		1.57
May-10	1.90	2.13	2.25	
Jun-10	0.83	0.78		
Jul-10	0.70	1.28	0.09	0.83
Aug-10	3.06	3.37		
Sep-10	2.21	2.00		
Oct-10	1.59	1.55	1.63	0.98
Nov-10	1.82	1.86		
Dec-10	1.59	1.67		
Jan-11	1.50	1.46	1.54	0.72
Feb-11	1.70	1.42		
Mar-11	2.55	1.11		
Apr-11	2.40	1.38	1.18	0.64
May-11	2.98	3.53		
Jun-11	2.34	2.36		
Jul-11	2.08	2.00	2.30	1.28
Aug-11	2.42	2.28		
**Sep-11				
Oct-11	3.67	3.57	4.14	2.72
Nov-11	3.00	2.72		
Dec-11	2.32	1.97		
Jan-12	2.33	1.56	1.15	1.18
Feb-12	2.06	0.95		
Mar-12	29.4*	0.82		
Apr-12	2.72	2.41	2.66	1.96
May-12	2.13	2.42		
Jun-12	3.36	2.95		
Jul-12	2.42	2.68	2.68	1.22
Aug-12	2.28	1.74		
Sep-12	2.77	2.61		
Oct-12	2.63	2.34	2.38	1.55
Nov-12	2.33	3.53		
Dec-12	3.26	3.31		
Jan-13	2.49	2.10	3.03	1.13
Feb-13	2.53	2.14		
Mar-13	2.14	1.32		
Apr-13	2.35	1.64	1.00	0.52
May-13	3.33	3.16		
Jun-13	2.84	2.68		
Jul-13	1.58	1.88	1.39	0.88
Aug-13	2.95	2.43		
Sep-13	2.16	1.71		
Oct-13	1.41	0.86	1.27	1.06
Nov-13	1.96	2.51		
Dec-13	1.87	0.95		
Jan-14	0.88	0.79	1.35	0.55
Feb-14	1.51	1.39		
Mar-14	2.40	1.20		
Apr-14	3.19	0.98	2.13	
May-14	4.25	4.43		4.16
Jun-14	2.67	3.38		
Jul-14	2.48	2.85	3.94	1.31
Aug-14	2.22	1.96		
Sep-14	2.16	4.96		1.17
Oct-14	3.52	3.59	4.17	1.65
Nov-14	3.36	5.30		2.34
Dec-14	NA	NA		
Jan-15	1.91	1.94	1.31	0.58
Feb-15	2.34	1.65		
Mar-15	3.98	2.42		
Apr-15	2.69	1.29	1.55	0.63
May-15	3.01	3.28		
Jun-15	2.64	3.08		
Jul-15	2.27	2.26	3.79	1.70
Aug-15	3.41	3.69		
Sep-15	4.81	5.30		
Oct-15	2.92	2.86	2.33	1.61
Nov-15	4.96	2.48	2.31	
Dec-15	2.35	1.85	2.48	
Jan-16	2.78	2.45	2.82	2.99
Feb-16	2.88	2.24	6.17	
Mar-16	1.40	2.80	1.18	
Apr-16	9.52	8.79	4.26	
May-16	2.83	3.33	3.34	2.91
Jun-16	3.14	3.19	3.12	
Jul-16	1.97	2.47	3.01	1.46
Aug-16	2.75	2.78	2.60	1.47
Sep-16	2.71	2.27	2.29	1.24
Oct-16	2.18	2.15	2.19	1.43
Nov-16	3.53	2.70	2.08	1.51
Dec-16	2.72	2.69	2.59	1.10

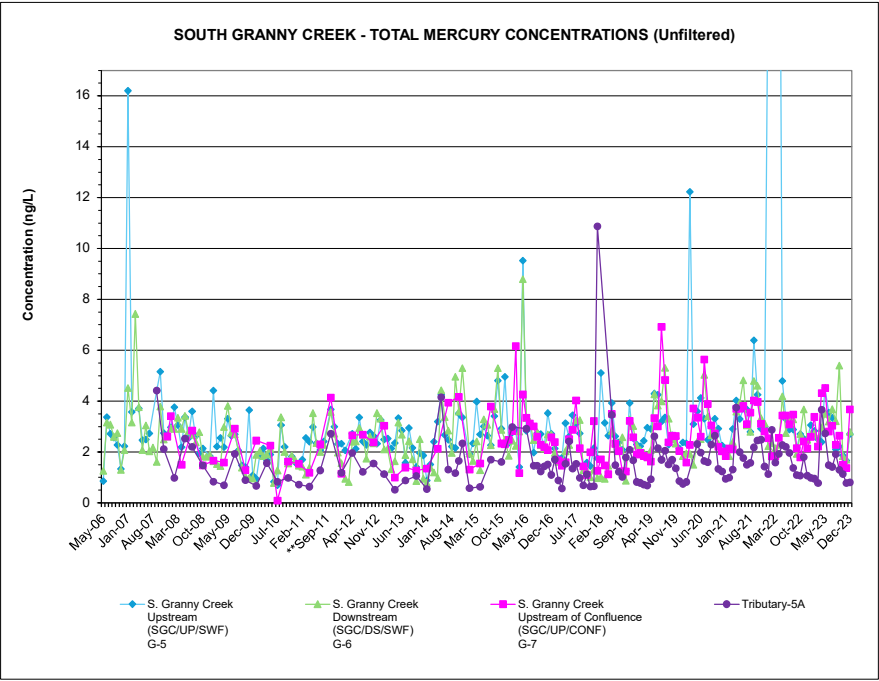


Table 10b: Total Mercury - South Granny Creek (Unfiltered)
(concentrations in ng/L)

Date	S. Granny Creek Upstream (SGC/UP/SWF) G-5	S. Granny Creek Downstream (SGC/DS/SWF) G-6	S. Granny Creek Upstream of Confluence (SGC/UP/CONF) G-7	Tributary-5A
	CEQG for Protection of Aquatic Life: 26 ng/L			
Jan-17	2.14	1.97	2.39	1.71
Feb-17	1.75	1.62	1.68	0.89
Mar-17	1.78	1.62	1.46	0.57
Apr-17	3.13	2.03	1.60	1.54
May-17	2.60	2.28	2.51	2.42
Jun-17	3.45	2.94	2.87	1.35
Jul-17	3.12	3.25	4.03	1.53
Aug-17	2.73	3.26	2.15	0.99
Sep-17	1.43	1.28	1.43	0.69
Oct-17	1.59	1.26	1.11	1.12
Nov-17	1.45	1.02	1.98	0.64
Dec-17	2.15	1.31	3.21	0.66
Jan-18	1.76	0.98	1.26	10.87
Feb-18	5.11	1.02	1.71	F
Mar-18	3.14	0.95	1.47	F
Apr-18	2.65	1.47	1.13	F
May-18	3.93	2.83	3.50	3.46
Jun-18	2.62	2.37	2.33	1.48
Jul-18	2.38	2.03	2.04	1.22
Aug-18	2.09	2.58	1.24	1.02
Sep-18	1.27	0.87	1.23	1.79
Oct-18	3.92	3.28	3.22	2.09
Nov-18	2.55	3.02	2.58	1.67
Dec-18	2.29	2.26	1.91	0.83
Jan-19	2.23	2.08	1.97	0.79
Feb-19	2.44	1.98	1.85	0.72
Mar-19	2.96	1.84	1.79	0.69
Apr-19	2.91	2.07	1.63	0.93
May-19	4.30	4.27	3.34	2.62
Jun-19	4.25	3.83	3.01	2.15
Jul-19	3.20	4.00	6.92	1.70
Aug-19	3.36	5.31	4.83	2.06
Sep-19	2.30	3.31	2.38	1.51
Oct-19	2.65	2.51	2.64	1.70
Nov-19	2.55	2.33	2.63	1.36
Dec-19	2.14	2.05	2.05	0.86
Jan-20	2.38	1.84		0.74
Feb-20	2.34	1.96	1.59	0.83
Mar-20	12.23	1.93	2.27	
Apr-20	3.10	1.50	3.71	
May-20	3.60	2.41	3.36	2.31
Jun-20	4.12	2.51	2.61	1.98
Jul-20	3.31	5.04	5.64	1.65
Aug-20	2.48	3.41	3.89	1.60
Sep-20	2.99	2.65	3.04	2.29
Oct-20	3.31	2.84	2.73	2.65
Nov-20	2.92	2.31	2.21	1.34
Dec-20	2.25	2.05	2.02	1.24
Jan-21	2.14	1.92	1.83	0.95
Feb-21	2.14	1.84	2.14	0.99
Mar-21	2.91	2.40	2.10	1.32
Apr-21	4.02	3.58	3.70	3.75
May-21	3.30	3.94	3.70	2.00
Jun-21	3.71	4.82	3.81	1.77
Jul-21	3.67	3.04	3.10	1.50
Aug-21	2.80	2.80	3.56	1.58
Sep-21	6.39	4.80	4.03	2.19
Oct-21	4.26	4.61	3.97	2.45
Nov-21	2.93	3.34	3.12	2.49
Dec-21	3.00	3.12	2.81	1.43
Jan-22	21.94	2.23	2.54	1.13
Feb-22	47.29	2.34	1.83	2.87
Mar-22	132.20	2.15	1.84	1.59
Apr-22	32.98	2.28	2.56	1.93
May-22	4.80	4.19	3.44	2.27
Jun-22	3.30	2.75	3.44	2.20
Jul-22	2.88	3.38	3.09	1.97
Aug-22	2.88	3.29	3.47	1.37
Sep-22	2.16	1.92	2.15	1.10
Oct-22	2.70	2.70	1.79	1.07
Nov-22	2.52	3.67	2.42	1.80
Dec-22	2.52	2.49	2.14	1.07
Jan-23	3.06	2.70	2.59	0.99
Feb-23	2.83	2.73	3.38	0.95
Mar-23	2.51	2.28	2.22	0.78
Apr-23	2.40	2.95	4.32	3.66
May-23	4.52	3.50	4.52	2.73
Jun-23	3.55	3.20	2.80	1.48
Jul-23	3.34	3.68	3.03	1.42
Aug-23	2.11	3.22	2.28	1.92
Sep-23	2.22	5.40	2.65	1.30
Oct-23	1.87	1.83	1.50	1.14
Nov-23	1.67	1.70	1.37	0.78
Dec-23	2.71	2.79	3.67	0.81
Average 2009	2.48	1.94	1.87	1.09
Average 2010	1.70	1.86	1.61	1.01
Average 2011	2.45	2.16	2.29	1.34
Average 2012	2.57	2.28	2.22	1.48
Average 2013	2.30	1.95	1.67	0.90
Average 2014	2.60	2.80	2.90	1.86
Average 2015	3.11	2.68	2.30	1.13
Average 2016	3.20	3.16	2.97	1.76
Average 2017	2.28	1.99	2.20	1.18
Average 2018	2.81	1.97	1.97	2.71
Average 2019	2.94	2.96	2.92	1.42
Average 2020	3.75	2.54	3.01	1.66
Average 2021	3.44	3.35	3.16	1.87
Average 2022	21.52	2.78	2.56	1.70
Average 2023	2.73	3.00	2.86	1.50
Average All Data	3.91	2.54	2.56	1.62
CEQG for Protection of Aquatic Life: 26 ng/L				

* Samples excluded from annual average calculation
** Samples discarded due to lab miscommunication
MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1
Station G-7 was changed from quarterly to monthly sampling in October 2015
Tributary-5A was changed from quarterly to monthly sampling in July 2016
Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.
Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.
D: Dry
F: Frozen
US: Unsafe to sample
NA

Table10c: Total Mercury - Granny Creek
Confluence (Unfiltered)
(concentrations in ng/L)

Date	Granny Creek Confluence (GC/CONF-7) G-8	Tributary-5A
	CEQG for Protection of Aquatic Life: 26 ng/L	
Sep-07		4.42
Oct-07		
Nov-07		2.12
Dec-07	2.41	
Jan-08	2.85	
Feb-08		0.98
Mar-08		
Apr-08	4.30	
May-08		2.53
Jun-08		
Jul-08	3.72	2.20
Aug-08		
Sep-08		
Oct-08	1.60	1.48
Nov-08		
Dec-08		
Jan-09	1.62	0.84
Feb-09		
Mar-09		
Apr-09	1.33	0.70
May-09		
Jun-09		
Jul-09	3.73	1.93
Aug-09		
Sep-09		
Oct-09	1.52	0.89
Nov-09		
Dec-09		
Jan-10	1.24	0.67
Feb-10		
Mar-10		
Apr-10		1.57
May-10	2.08	
Jun-10		
Jul-10	0.15	0.83
Aug-10		
Sep-10		
Oct-10	1.71	0.98
Nov-10		
Dec-10		
Jan-11	1.46	0.72
Feb-11		
Mar-11		
Apr-11	1.28	0.64
May-11		
Jun-11		
Jul-11	2.34	1.28
Aug-11		
Sep-11		
Oct-11		2.72
Nov-11		
Dec-11		
Jan-12	1.59	1.18
Feb-12		
Mar-12		
Apr-12	2.74	1.96
May-12		
Jun-12		
Jul-12	2.46	1.22
Aug-12		
Sep-12		
Oct-12	2.62	1.55
Nov-12		
Dec-12		
Jan-13	2.93	1.13
Feb-13		
Mar-13		
Apr-13	0.95	0.52
May-13		
Jun-13		
Jul-13	1.66	0.88
Aug-13		
Sep-13		
Oct-13	1.10	1.06
Nov-13		
Dec-13		
Jan-14	1.30	0.55
Feb-14		
Mar-14		
Apr-14	0.48	
May-14		4.16
Jun-14		
Jul-14	1.42	1.31
Aug-14		
Sep-14		1.17
Oct-14	2.90	1.65
Nov-14		2.34
Dec-14		
Jan-15		0.58
Feb-15	1.49	
Mar-15		
Apr-15	1.06	0.63
May-15		
Jun-15		
Jul-15	1.70	1.70
Aug-15		
Sep-15		
Oct-15	2.80	1.61
Nov-15	2.27	
Dec-15	1.80	
Jan-16	2.37	2.99
Feb-16	3.49	
Mar-16	1.29	
Apr-16	8.76	
May-16	4.17	2.91
Jun-16	3.93	
Jul-16	2.67	1.46
Aug-16	2.99	1.47
Sep-16	2.84	1.24
Oct-16	2.87	1.43
Nov-16	2.70	1.51
Dec-16	2.47	1.10

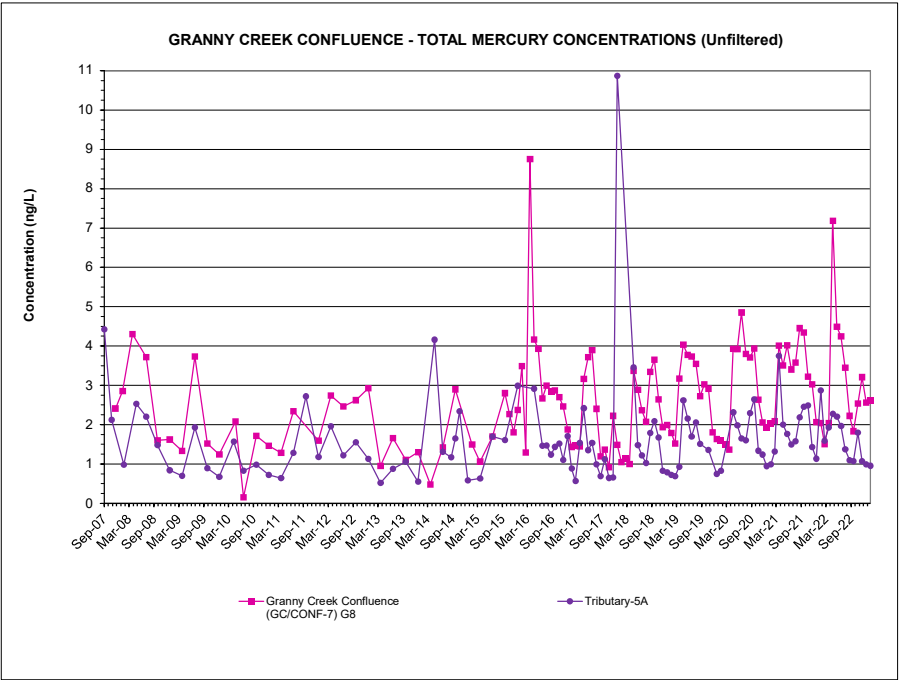


Table10c: Total Mercury - Granny Creek
Confluence (Unfiltered)
(concentrations in ng/L)

Date	Granny Creek Confluence (GC/CONF-7) G-8	Tributary-5A
	CEQG for Protection of Aquatic Life: 26 ng/L	
Jan-17	1.87	1.71
Feb-17	1.44	0.89
Mar-17	1.48	0.57
Apr-17	1.45	1.54
May-17	3.16	2.42
Jun-17	3.72	1.35
Jul-17	3.90	1.53
Aug-17	2.40	0.99
Sep-17	1.19	0.69
Oct-17	1.36	1.12
Nov-17	0.92	0.64
Dec-17	2.22	0.66
Jan-18	1.48	10.87
Feb-18	1.05	F
Mar-18	1.15	F
Apr-18	1.00	F
May-18	3.37	3.46
Jun-18	2.88	1.48
Jul-18	2.37	1.22
Aug-18	2.07	1.02
Sep-18	3.34	1.79
Oct-18	3.65	2.09
Nov-18	2.65	1.67
Dec-18	1.94	0.83
Jan-19	1.99	0.79
Feb-19	1.78	0.72
Mar-19	1.52	0.69
Apr-19	3.17	0.93
May-19	4.04	2.62
Jun-19	3.77	2.15
Jul-19	3.73	1.70
Aug-19	3.55	2.06
Sep-19	2.72	1.51
Oct-19	3.03	1.70
Nov-19	2.91	1.36
Dec-19	1.80	0.86
Jan-20	1.63	0.74
Feb-20	1.59	0.83
Mar-20	1.48	
Apr-20	1.36	
May-20	3.93	2.31
Jun-20	3.92	1.98
Jul-20	4.85	1.65
Aug-20	3.80	1.60
Sep-20	3.71	2.29
Oct-20	3.94	2.65
Nov-20	2.64	1.34
Dec-20	2.05	1.24
Jan-21	1.92	0.95
Feb-21	2.02	0.99
Mar-21	2.08	1.32
Apr-21	4.01	3.75
May-21	3.50	2.00
Jun-21	4.02	1.77
Jul-21	3.40	1.50
Aug-21	3.58	1.58
Sep-21	4.45	2.19
Oct-21	4.34	2.45
Nov-21	3.22	2.49
Dec-21	3.03	1.43
Jan-22	2.06	1.13
Feb-22	2.04	2.87
Mar-22	1.50	1.59
Apr-22	2.04	1.93
May-22	7.18	2.27
Jun-22	4.49	2.20
Jul-22	4.25	1.97
Aug-22	3.44	1.37
Sep-22	2.22	1.10
Oct-22	1.83	1.07
Nov-22	2.54	1.80
Dec-22	3.21	1.07
Jan-23	2.56	0.99
Feb-23	2.63	0.95
Mar-23	2.53	0.78
Apr-23	3.40	3.66
May-23	3.97	2.73
Jun-23	2.98	1.48
Jul-23	3.12	1.42
Aug-23	3.59	1.92
Sep-23	2.74	1.30
Oct-23	3.37	1.14
Nov-23	1.46	0.78
Dec-23	1.86	0.81
Average 2009	2.05	1.09
Average 2010	1.30	1.01
Average 2011	1.69	1.34
Average 2012	2.35	1.48
Average 2013	1.66	0.90
Average 2014	1.53	1.86
Average 2015	1.85	1.13
Average 2016	3.38	1.76
Average 2017	2.09	1.18
Average 2018	2.24	2.71
Average 2019	2.83	1.42
Average 2020	2.91	1.66
Average 2021	3.30	1.87
Average 2022	3.07	1.70
Average 2023	2.85	1.50
Average All Data	2.61	1.62

CEQG for Protection of Aquatic Life: 26 ng/L

MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1

Station G-8 was changed from quarterly to monthly sampling in October 2015

Tributary-5A was changed from quarterly to monthly sampling in July 2016

Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.

Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.

D: Dry

F: Frozen

US: Unsafe to sample

Table 11a: Total Mercury - North Granny Creek (Filtered)
(concentrations in ng/L)

Date	N. Granny Creek Upstream of Supplementation G-0	N. Granny Creek Upstream (NGC/UP/NWF) G-1	N. Granny Creek Downstream (NGC/DN/NWF) G-2	N. Granny Creek Downstream (NGC/DN/NEF) G-3	N. Granny Creek Upstream of Confluence (NGC/UP/CONF) G-4	Tributary-5A
May-06			0.87	0.90		
Jun-06			2.91			
Jul-06			2.33	2.22		
Aug-06			3.43	3.03		
Sep-06			1.64	1.70		
Oct-06				1.30		
Dec-06			1.98	3.98		
Jan-07		1.06	1.23	1.40		
Feb-07				0.75		
Mar-07		7.05	5.74	F		
Apr-07		4.19	4.19	2.50		
May-07		2.40	2.40	2.56		
Jun-07		2.51	2.81	2.64		
Jul-07		2.96	1.97	2.10		
Aug-07		1.52	1.90	1.81		
Sep-07		1.96	1.94	1.75		4.05
Oct-07		5.19		5.60		
Nov-07		2.91	3.01	2.74		1.97
Dec-07		2.05	2.22	2.18	2.10	
Jan-08		1.42	1.65	1.63	1.85	
Feb-08		1.91	1.74	1.60		0.73
Mar-08		1.76	1.64	1.63		
Apr-08		1.84	2.57	F	3.29	
May-08		3.16	3.27	3.21		2.21
Jun-08		2.74	2.81	2.72		
Jul-08		2.95	2.94	1.49	4.17	2.16
Aug-08		2.39	2.42	2.34		
Sep-08		1.35		1.88		
Oct-08		1.19	1.44	1.40	1.55	1.16
Nov-08		2.28	2.23	2.15		
Dec-08		1.30	1.72	1.65		
Jan-09		1.33	1.20	1.27	1.25	0.59
Feb-09		1.15	1.18	1.05		
Mar-09		1.15	1.05	1.40		
Apr-09		1.56	0.96	1.09		0.53
May-09		2.43	2.12	2.34		
Jun-09		3.24	3.16	3.19		
Jul-09		2.57	2.37	2.93	2.19	1.47
Aug-09		1.66	1.69	1.69		
Sep-09		1.54	1.63	1.63		
Oct-09		1.45	1.65	1.38	1.45	0.69
Nov-09		1.51	1.51	1.45		
Dec-09		0.97	0.99	0.68		
Jan-10		1.07	1.12	1.11	1.00	<0.10
Feb-10		0.88	1.08	1.05		
Mar-10		0.96	1.08	1.02		
Apr-10		0.97	0.99	1.10		1.16
May-10		1.43	1.37	1.11	1.48	
Jun-10		1.47	0.91	0.87		
Jul-10		0.89	0.61	0.65	0.71	0.67
Aug-10		3.33	2.54	2.10		
Sep-10		1.66	1.85	1.57		
Oct-10		1.38	1.69	0.54	1.74	0.38
Nov-10		1.59	1.56	1.63		
Dec-10		0.98	0.98	0.92		
Jan-11		0.82	0.86	0.81	0.76	0.62
Feb-11		1.30	1.05	1.44		
Mar-11		0.94	0.66	0.70		
Apr-11		0.69	1.13	0.73	0.90	0.56
May-11		2.24	2.06	1.95		
Jun-11		2.94	2.59	2.45		
Jul-11		1.19	1.42	1.85	1.69	0.98
Aug-11		0.73	0.86	0.84		
*Sep-11						
Oct-11		2.96	2.56	2.36	3.19	2.01
Nov-11		2.53	2.59	2.40		
Dec-11		1.05	1.22	1.20		
Jan-12			0.93		0.87	0.52
Feb-12		0.46	0.41	0.38		
Mar-12		0.42	0.33*	0.34		
Apr-12			1.62		1.93	1.39
May-12		1.66	1.56	1.56		
Jun-12		3.47	3.26	3.16		
Jul-12		1.54	1.52	1.60	1.64	0.84
Aug-12		0.86	0.97	0.98		
Sep-12		1.13	1.51	1.46		
Oct-12			1.91		1.47	1.10
Nov-12			1.94	3.10		
Dec-12		1.59	1.58	1.88		
Jan-13		F	1.85	F	1.78	0.62
Feb-13		1.27	1.30	1.13		
Mar-13		0.86	0.86	0.79		
Apr-13		0.82	0.79	0.82	0.64	0.44
May-13		3.25	3.20	2.86		
Jun-13		2.86	2.90	2.72		
Jul-13		0.80	0.90	0.90	0.70	0.50
Aug-13		0.79	1.06	0.82		
Sep-13		1.27	1.71	1.69		
Oct-13		0.83	0.98	0.91	0.76	0.88
Nov-13		0.76	0.73	0.71		
Dec-13		0.72	1.31	0.56		
Jan-14		0.68	0.74	0.63	1.00	0.26
Feb-14		0.82	1.15	0.80		
Mar-14		0.70	0.62	0.58		
Apr-14		0.90	0.73	0.46	0.62	
May-14		2.19	3.04	1.21		2.46
Jun-14		3.54	3.34	3.12		
Jul-14		1.94	2.17	2.07	1.13	1.11
Aug-14		0.99	0.93	0.87		
Sep-14		1.61	2.18	2.16		1.01
Oct-14		4.04	3.44	2.67	3.33	1.30
Nov-14		2.84	2.90	2.73		1.45
Dec-14		US	1.35	2.02		-
Jan-15			1.30	1.11	1.06	0.58
Feb-15		1.08	0.83	0.86		
Mar-15		1.80	1.73	1.63		
Apr-15		2.37	0.80	0.96	0.70	0.18
May-15		3.48	3.20	2.94		
Jun-15		3.40	0.25	2.75		
Jul-15		3.97	3.02	4.00	3.64	1.42
Aug-15		2.89	2.84	3.60		
Sep-15		5.74	2.03	2.42		
Oct-15		1.60	1.67	1.81	1.45	1.04
Nov-15		1.64	1.66	1.51	1.72	
Dec-15		1.58	1.58	1.51	1.85	
Jan-16		1.59	1.28	0.93	1.30	0.64
Feb-16		1.33	1.17	1.06	1.09	
Mar-16		1.27	1.15	1.02	1.09	
Apr-16		1.30	1.12	1.08	1.03	
May-16		1.10	1.09	1.11	1.53	1.83
Jun-16		2.66	2.50	1.94	2.29	
Jul-16		1.93	1.86	1.66	1.77	1.21
Aug-16		1.54	1.58	1.51	2.60	1.20
Sep-16		1.44	1.68	1.85	1.62	0.84
Oct-16		2.41	2.22	2.20	2.41	1.20
Nov-16		2.50	2.38	2.05	1.87	1.16
Dec-16		1.67	1.59	2.03	1.14	0.85

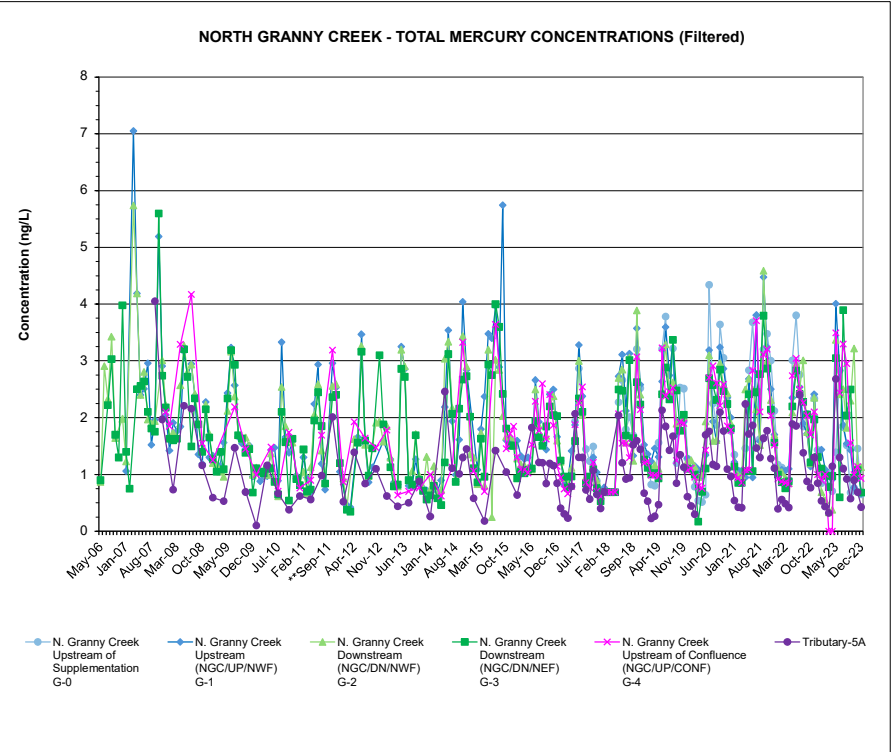


Table 11a: Total Mercury - North Granny Creek (Filtered)
(concentrations in ng/L)

Date	N. Granny Creek Upstream of Supplementation G-0	N. Granny Creek Upstream (NGC/UP/NWF) G-1	N. Granny Creek Downstream (NGC/DN/NWF) G-2	N. Granny Creek Downstream (NGC/DN/NEF) G-3	N. Granny Creek Upstream of Confluence (NGC/UP/CONF) G-4	Tributary-5A
Jan-17		1.24	1.23	1.25	0.94	0.40
Feb-17		0.82	0.93	0.96	0.74	0.31
Mar-17		0.93	0.83	0.77	0.66	0.23
Apr-17		1.41	1.12	0.97	0.79	0.79
May-17	1.94	1.87	1.66	1.59	1.88	2.07
Jun-17	2.87	3.28	3.00	2.34	2.26	1.30
Jul-17		2.38	2.05	2.10	2.55	1.30
Aug-17	1.45	0.85	0.96	0.84	0.86	0.73
Sep-17	1.23	0.96	0.94	0.96	0.77	0.57
Oct-17	1.49	1.30	1.13	1.09	1.21	1.07
Nov-17	0.89	1.04	0.90	0.76	0.71	0.65
Dec-17	0.66	0.71	0.64	0.53	0.61	0.40
Jan-18	<0.69	0.77	<0.69	<0.69	<0.69	<0.69
Feb-18	<0.69	<0.69	<0.69	<0.69	<0.69	F
Mar-18	<0.69	0.69	<0.69	<0.69	<0.69	F
Apr-18	<0.69	<0.69	<0.69	<0.69	<0.69	F
May-18	2.27	2.73	2.70	2.50	2.07	2.04
Jun-18	2.66	3.11	2.85	2.48	1.55	1.20
Jul-18	1.80	2.12	1.56	1.68	1.55	0.92
Aug-18	2.01	3.13	3.06	3.02	1.30	0.94
Sep-18	1.69	1.33	1.24	1.64	1.54	1.52
Oct-18	3.21	3.57	3.89	2.62	3.07	1.60
Nov-18	2.52	2.58	2.41	2.23	2.14	1.44
Dec-18	1.37	1.52	1.32	1.27	1.20	0.67
Jan-19	1.19	1.36	1.19	1.12	1.24	0.53
Feb-19	0.82	1.23	1.09	1.00	0.99	0.23
Mar-19	0.80	1.46	1.16	1.02	0.99	0.26
Apr-19	1.56	1.31	1.10	0.93	0.97	0.47
May-19	3.21	2.64	2.46	2.42	3.23	2.13
Jun-19	3.78	3.60	3.29	2.89	2.38	1.85
Jul-19	2.37	2.75	2.46	2.32	2.46	1.42
Aug-19	3.22	3.36	2.62	3.37	2.53	1.67
Sep-19	1.20	1.71	1.89	2.48	1.25	0.85
Oct-19	2.53	1.95	1.80	1.77	1.93	1.35
Nov-19	2.51	1.93	2.01	2.05	1.90	1.13
Dec-19	1.28	1.28	1.23	1.10	1.07	0.61
Jan-20		1.25	1.25	1.11	1.11	0.45
Feb-20	0.78	1.15	1.14	1.00	0.95	0.30
Mar-20	0.54	1.09	0.95	0.17	0.79	
Apr-20	0.52	0.97	1.01	0.70	0.76	
May-20	0.64	1.34	1.93	1.10	1.42	1.70
Jun-20	4.34	3.19	3.10	2.69	2.71	1.76
Jul-20	2.25	1.93	1.59	2.57	2.91	1.18
Aug-20	1.87	1.59	1.61	2.31	2.61	1.14
Sep-20	3.64	3.24	2.96	2.85	2.21	2.10
Oct-20	3.05	2.86	2.57	2.47	2.58	1.76
Nov-20	2.36	2.36	2.43	2.24	1.85	1.09
Dec-20	1.77	2.00	1.90	1.81	1.78	0.97
Jan-21	1.35	1.21	1.17	1.14	0.96	0.54
Feb-21	1.06	1.06	0.99	0.85	0.94	0.42
Mar-21	1.06	1.06	0.99	0.85	0.86	0.41
Apr-21	1.46	0.95	2.50	1.06	1.08	2.24
May-21	2.84	2.68	2.69	2.41	1.08	1.71
Jun-21	3.68	0.95	2.50	1.06	2.83	1.87
Jul-21	2.43	3.81	2.15	2.45	3.71	1.47
Aug-21	1.62	1.59	1.52	2.77	2.10	1.30
Sep-21	3.21	4.48	4.59	3.80	3.11	1.64
Oct-21	3.48	3.24	3.00	2.87	3.21	1.77
Nov-21	3.01	2.50	2.32	2.14	2.03	1.28
Dec-21	2.12	1.70	1.70	1.56	1.52	1.11
Jan-22	1.17	1.06	1.11	1.00	0.92	0.39
Feb-22	1.12	1.08	1.04	0.86	0.87	0.56
Mar-22	0.82	1.07	0.94	0.76	0.86	0.49
Apr-22	0.90	1.10	0.85	0.88	0.84	0.42
May-22	3.01	2.35	2.09	2.20	2.74	1.89
Jun-22	3.80	2.89	2.96	2.83	3.04	1.86
Jul-22	2.76	2.54	2.50	2.42	2.50	2.40
Aug-22	1.85	1.90	3.01	2.28	2.27	1.38
Sep-22	2.07	1.72	1.75	2.06	2.03	0.88
Oct-22	1.23	1.14	1.20	1.21	1.70	0.77
Nov-22	2.34	2.41	2.35	1.97	2.10	1.30
Dec-22	1.43	1.29	1.33	1.30	1.00	0.85
Jan-23	0.85	1.44	0.69	1.11	0.90	0.53
Feb-23	1.04	1.09	0.55	0.98	1.00	0.43
Mar-23	1.02	0.78	0.33	0.78		0.32
Apr-23	0.71	0.91	0.38	0.97		1.14
May-23	1.39	4.01	3.37	3.05	3.50	2.68
Jun-23	2.83	2.83	2.42	0.60	2.44	1.30
Jul-23	1.83	1.87	2.50	3.89	3.30	1.10
Aug-23	1.51	1.54	1.82	2.04	2.95	0.92
Sep-23	0.68	1.43	2.30	2.50	1.55	0.58
Oct-23	0.76	0.77	3.22	0.94	1.00	0.90
Nov-23	1.46	1.09	1.16	1.08	1.14	0.69
Dec-23	0.65	0.66	1.13	0.68	0.93	0.43
Average 2009		1.71	1.63	1.68	1.63	0.82
Average 2010		1.38	1.32	1.14	1.23	<0.58
Average 2011		1.58	1.55	1.52	1.64	1.04
Average 2012		1.39	1.56	1.61	1.48	0.96
Average 2013		1.29	1.47	1.26	0.97	0.61
Average 2014		1.84	1.88	1.61	1.52	1.27
Average 2015		2.69	1.74	2.09	1.74	0.81
Average 2016		1.73	1.63	1.54	1.64	1.12
Average 2017	1.50	1.40	1.28	1.18	1.16	0.82
Average 2018	1.69	<1.91	<1.81	<1.68	1.43	<1.23
Average 2019	2.04	2.05	1.86	1.87	1.74	1.04
Average 2020	1.98	1.91	1.87	1.75	1.81	1.24
Average 2021	2.28	2.10	2.17	1.91	1.95	1.31
Average 2022	1.87	1.71	1.76	1.65	1.74	1.10
Average 2023	1.23	1.53	1.66	1.55	1.87	0.92
Average All Data		<1.85	<1.78	<1.68	1.66	<1.09

* Samples excluded from annual average calculation
** Samples discarded due to lab miscommunication
MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1.
North Granny Creek receives effluent from the PKC facility
Station G-4 was changed from quarterly to monthly sampling in October 2015
Tributary-5A was changed from quarterly to monthly sampling in July 2016
Sampling at Station G-0 was initiated in May 2017
Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.
Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.
D: Dry
F: Frozen
US: Unsafe to sample

Table 11b: Total Mercury - South Granny Creek (Filtered)
(concentrations in ng/L)

Date	S. Granny Creek Upstream (SGC/UP/SWF) G-5	S. Granny Creek Downstream (SGC/DS/SWF) G-6	S. Granny Creek Upstream of Confluence (SGC/UP/CONF) G-7	Tributary-SA
May-06	0.55	0.90		
Jun-06		2.83		
Jul-06	2.07	1.94		
Aug-06	2.07	1.94		
Sep-06	1.34	2.11		
Oct-06	1.11	0.97		
Dec-06	1.92	1.58		
Jan-07	2.01	3.37		
Feb-07	0.79	1.90		
Mar-07	F	2.92		
Apr-07	1.96	1.84		
May-07	2.40	1.83		
Jun-07	2.26	1.79		
Jul-07	2.32	2.01		
Aug-07		1.70		
Sep-07	3.87	1.49		4.05
Oct-07	4.76	3.42		
Nov-07	2.45	2.16		1.97
Dec-07	2.35	2.61	1.48	
Jan-08	2.21	2.33	2.49	
Feb-08	2.24	2.08		0.73
Mar-08	1.76	1.98		
Apr-08	1.63	2.06	0.78	
May-08	2.90	2.97		
Jun-08	2.29	2.36		
Jul-08	2.84	2.32	2.48	2.16
Aug-08	2.23	2.06		
Sep-08	1.62	1.60		
Oct-08	1.88	1.27	1.34	1.16
Nov-08		1.73		
Dec-08	1.77	1.71		
Jan-09	2.05	1.34	1.35	0.59
Feb-09	1.68	1.19		
Mar-09	1.75	1.22		
Apr-09	1.34	1.78	1.19	0.53
May-09	1.98	2.19		
Jun-09	2.75	2.71		
Jul-09	2.20	1.96	2.07	1.47
Aug-09	1.80	1.59		
Sep-09	1.39	1.39		
Oct-09	1.01	1.08	1.02	0.69
Nov-09	2.01	0.80		
Dec-09	0.95	0.75		
Jan-10	1.29	1.31	1.05	<0.10
Feb-10	1.37	1.32		
Mar-10	1.11	1.23		
Apr-10	1.14	1.07		1.16
May-10	1.54	1.45	1.42	
Jun-10	0.68	0.60		
Jul-10	0.50	0.70	<0.10	0.67
Aug-10	2.72	2.25		
Sep-10	1.69	1.48		
Oct-10	1.71	1.61	1.54	0.38
Nov-10	1.61	1.54		
Dec-10	1.08	0.95		
Jan-11	1.07	1.02	0.96	0.62
Feb-11	1.65	1.02		
Mar-11	0.75	0.69		
Apr-11	0.77	0.76	1.04	0.56
May-11	1.85	1.83		
Jun-11	2.13	2.16		
Jul-11	1.72	1.16	1.81	0.98
Aug-11	1.09	1.10		
**Sep-11				
Oct-11	2.71	2.30	2.71	2.01
Nov-11	2.45	1.95		
Dec-11	1.67	1.21		
Jan-12	1.68	0.99	0.68	0.52
Feb-12	1.03	0.49		
Mar-12	0.41	0.38		
Apr-12	1.84	1.44	1.45	1.39
May-12	1.58	1.52		
Jun-12	2.63	2.28		
Jul-12	1.57	1.61	1.44	0.84
Aug-12	1.30	1.02		
Sep-12	2.09	2.09		
Oct-12	2.13	1.48	1.40	1.10
Nov-12	1.94	1.81		
Dec-12	1.67	1.49		
Jan-13	1.50	1.10	1.85	0.62
Feb-13	1.56	1.29		
Mar-13	1.08	0.81		
Apr-13	0.70	0.82	0.57	0.44
May-13	2.05	2.59		
Jun-13	2.58	2.20		
Jul-13	1.00	1.20	0.90	0.50
Aug-13	0.73	1.09		
Sep-13	1.10	1.37		
Oct-13	0.69	0.85	0.78	0.88
Nov-13	1.00	0.10		
Dec-13	0.63	0.72		
Jan-14	0.59	0.64	0.49	0.26
Feb-14	0.78	0.85		
Mar-14	0.31	0.65		
Apr-14	0.44	0.70	0.56	
May-14	3.27	2.76		2.46
Jun-14	2.51	2.81		
Jul-14	1.47	1.99	1.55	1.11
Aug-14	1.13	0.75		
Sep-14	1.49	1.65		1.01
Oct-14	3.27	3.19	1.70	1.30
Nov-14	2.68	1.87		1.45
Dec-14	NA	NA		
Jan-15	1.41	1.19	0.94	0.58
Feb-15	1.17	1.07		
Mar-15	1.78	1.78		
Apr-15	0.63	0.92	0.73	0.18
May-15	3.08	2.02		
Jun-15	2.35	2.77		
Jul-15	2.10	1.95	2.67	1.42
Aug-15	2.68	3.00		
Sep-15	3.08	2.53		
Oct-15	1.83	1.92	1.47	1.04
Nov-15	2.21	1.46	1.28	
Dec-15	1.73	1.67	1.80	
Jan-16	1.58	1.21	1.38	0.64
Feb-16	1.56	1.32	1.30	
Mar-16	1.07	1.04	1.00	
Apr-16	0.88	0.95	0.92	
May-16	1.22	1.12	1.41	1.83
Jun-16	2.48	2.21	3.19	
Jul-16	1.81	1.97	1.93	1.21
Aug-16	1.57	2.16	2.26	1.20
Sep-16	1.17	1.36	1.39	0.84
Oct-16	1.66	1.50	1.67	1.20
Nov-16	1.26	2.09	1.44	1.16
Dec-16	2.16	1.29	1.17	0.85

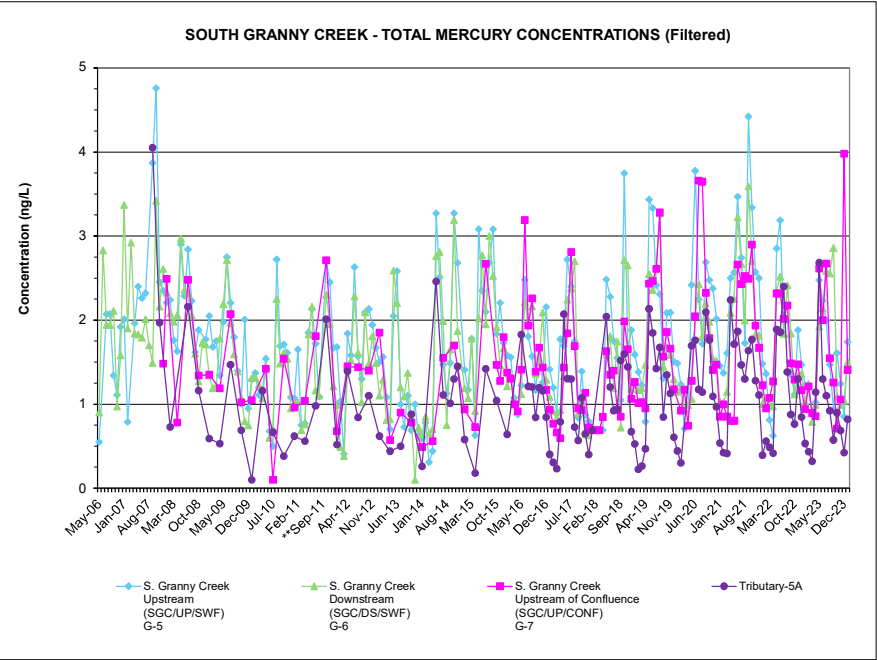


Table 11b: Total Mercury - South Granny Creek (Filtered)
(concentrations in ng/L)

Date	S. Granny Creek Upstream (SGC/UP/SWF) G-5	S. Granny Creek Downstream (SGC/DS/SWF) G-6	S. Granny Creek Upstream of Confluence (SGC/UP/CONF) G-7	Tributary-5A
Jan-17	1.42	1.09	0.93	0.40
Feb-17	1.20	0.91	0.77	0.31
Mar-17	0.88	0.84	0.66	0.23
Apr-17	1.77	0.93	0.59	0.79
May-17	1.69	1.33	1.44	2.07
Jun-17	2.72	2.24	1.84	1.30
Jul-17	2.40	2.38	2.81	1.30
Aug-17	1.75	2.70	1.69	0.73
Sep-17	0.84	0.89	0.95	0.57
Oct-17	1.39	1.04	0.93	1.07
Nov-17	0.87	0.64	1.14	0.65
Dec-17	0.80	0.63	0.73	0.40
Jan-18	<0.69	<0.69	<0.69	<0.69
Feb-18	<0.69	<0.69	<0.69	F
Mar-18	<0.69	<0.69	<0.69	F
Apr-18	<0.69	0.84	0.85	F
May-18	2.48	1.59	1.63	2.04
Jun-18	2.28	1.81	1.35	1.20
Jul-18	1.75	1.19	1.40	0.92
Aug-18	1.55	1.74	0.93	0.94
Sep-18	1.05	0.72	0.85	1.52
Oct-18	3.75	2.72	1.99	1.60
Nov-18	1.66	2.65	1.65	1.44
Dec-18	1.88	1.18	1.06	0.67
Jan-19	1.59	1.23	1.26	0.53
Feb-19	1.38	1.17	1.01	0.23
Mar-19	1.23	1.19	1.02	0.26
Apr-19	0.79	1.47	0.95	0.47
May-19	3.43	2.55	2.43	2.13
Jun-19	3.33	2.36	2.46	1.85
Jul-19	2.42	2.65	2.61	1.42
Aug-19	2.31	3.27	3.28	1.67
Sep-19	1.31	1.44	1.57	0.85
Oct-19	2.09	1.68	1.86	1.35
Nov-19	2.09	1.59	1.66	1.13
Dec-19	1.51	1.30	1.18	0.61
Jan-20	1.49	1.15		0.45
Feb-20	1.23	1.19	0.92	0.30
Mar-20	0.71	0.95	1.17	
Apr-20	0.76	0.99	0.74	
May-20	2.42	1.06	1.28	1.70
Jun-20	3.77	2.05	2.04	1.76
Jul-20	2.25	2.43	3.66	1.18
Aug-20	1.72	1.80	3.65	1.14
Sep-20	2.69	2.19	2.32	2.10
Oct-20	2.48	1.98	1.79	1.76
Nov-20	2.38	1.54	1.41	1.09
Dec-20	2.01	1.52	1.47	0.97
Jan-21	1.46	1.03	0.85	0.54
Feb-21	1.37	1.02	1.00	0.42
Mar-21	1.61	1.15	0.85	0.41
Apr-21	2.50	2.09	0.80	2.24
May-21	2.57	2.25	0.80	1.71
Jun-21	3.47	3.22	2.66	1.87
Jul-21	2.74	2.67	2.43	1.47
Aug-21	1.73	2.00	2.52	1.30
Sep-21	4.42	3.59	2.49	1.64
Oct-21	3.34	2.70	2.90	1.77
Nov-21	2.57	1.83	1.93	1.28
Dec-21	2.50	1.82	1.67	1.11
Jan-22	1.48	1.00	1.23	0.39
Feb-22	1.36	1.08	0.95	0.56
Mar-22	0.81	1.01	1.07	0.49
Apr-22	0.63	0.97	1.27	0.42
May-22	2.85	2.36	2.32	1.89
Jun-22	3.19	2.52	2.32	1.86
Jul-22	1.99	1.84	2.02	2.40
Aug-22	1.99	2.42	2.18	1.38
Sep-22	1.36	1.84	1.49	0.88
Oct-22	1.11	1.11	1.29	0.77
Nov-22	1.88	1.34	1.47	1.30
Dec-22	1.47	1.36	1.17	0.85
Jan-23	1.23	1.03	0.94	0.53
Feb-23	1.23	1.24	1.21	0.43
Mar-23	0.90	0.79	0.89	0.32
Apr-23	1.02	0.99	0.86	1.14
May-23	2.48	1.93	2.61	2.68
Jun-23	2.23	2.15	2.00	1.30
Jul-23	2.00	2.58	2.67	1.10
Aug-23	1.47	2.55	1.55	0.92
Sep-23	0.93	2.86	1.26	0.58
Oct-23	1.61	1.09	0.71	0.90
Nov-23	1.24	0.99	1.05	0.69
Dec-23	0.85	1.04	3.98	0.43
Average 2009	1.74	1.50	1.41	0.82
Average 2010	1.37	1.29	1.03	<0.58
Average 2011	1.62	1.38	1.63	1.04
Average 2012	1.66	1.38	1.24	0.96
Average 2013	1.22	1.18	1.03	0.61
Average 2014	1.63	1.62	1.08	1.27
Average 2015	2.00	1.86	1.48	0.81
Average 2016	1.53	1.52	1.59	1.12
Average 2017	1.48	1.30	1.21	0.82
Average 2018	1.60	1.38	1.15	1.23
Average 2019	1.96	1.82	1.77	1.04
Average 2020	1.99	1.57	1.86	1.24
Average 2021	2.52	2.11	1.74	1.31
Average 2022	1.68	1.57	1.56	1.10
Average 2023	1.43	1.60	1.64	0.92
Average All Data	1.75	1.62	1.50	<1.08

** Samples discarded due to lab miscommunication
MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1.
Station G-7 was changed from quarterly to monthly sampling in October 2015
Tributary-5A was changed from quarterly to monthly sampling in July 2016
Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.
Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.
D: Dry
F: Frozen
US: Unsafe to sample

Table 11c: Total Mercury - Granny Creek Confluence (Filtered) (concentrations in ng/L)

Date	Granny Creek Confluence (GC/CONF-7) G-8	Tributary-5A
Sep-07		4.05
Oct-07		
Nov-07		1.97
Dec-07	2.15	
Jan-08	2.11	
Feb-08		0.73
Mar-08		
Apr-08	3.65	
May-08		2.21
Jun-08		
Jul-08	3.24	2.16
Aug-08		
Sep-08		
Oct-08	1.43	1.16
Nov-08		
Dec-08		
Jan-09	1.37	0.59
Feb-09		
Mar-09		
Apr-09	1.03	0.53
May-09		
Jun-09		
Jul-09	2.22	1.47
Aug-09		
Sep-09		
Oct-09	1.27	0.69
Nov-09		
Dec-09		
Jan-10	0.89	<0.10
Feb-10		
Mar-10		
Apr-10		1.16
May-10	1.31	
Jun-10		
Jul-10	0.11	0.67
Aug-10		
Sep-10		
Oct-10	1.23	0.38
Nov-10		
Dec-10		
Jan-11	0.89	0.62
Feb-11		
Mar-11		
Apr-11	1.19	0.56
May-11		
Jun-11		
Jul-11	1.63	0.98
Aug-11		
**Sep-11		
Oct-11	1.24	2.01
Nov-11		
Dec-11		
Jan-12	0.85	0.52
Feb-12		
Mar-12		
Apr-12	1.77	1.39
May-12		
Jun-12		
Jul-12	1.59	0.84
Aug-12		
Sep-12		
Oct-12	1.54	1.10
Nov-12		
Dec-12		
Jan-13	1.87	0.62
Feb-13		
Mar-13		
Apr-13	0.53	0.44
May-13		
Jun-13		
Jul-13	1.00	0.50
Aug-13		
Sep-13		
Oct-13	0.68	0.88
Nov-13		
Dec-13		
Jan-14	0.69	0.26
Feb-14		
Mar-14		
Apr-14	0.39	
May-14		2.46
Jun-14		
Jul-14	1.07	1.11
Aug-14		
Sep-14		1.01
Oct-14	1.86	1.30
Nov-14		1.45
Dec-14		
Jan-15		0.58
Feb-15	0.94	
Mar-15		
Apr-15	0.64	0.18
May-15		
Jun-15		
Jul-15	1.60	1.42
Aug-15		
Sep-15		
Oct-15	1.62	1.04
Nov-15	1.07	
Dec-15	1.55	
Jan-16	1.26	0.64
Feb-16	1.19	
Mar-16	1.05	
Apr-16	1.02	
May-16	1.09	1.83
Jun-16	2.14	
Jul-16	1.69	1.21
Aug-16	2.06	1.20
Sep-16	1.68	0.84
Oct-16	2.16	1.20
Nov-16	1.67	1.16
Dec-16	1.39	0.85

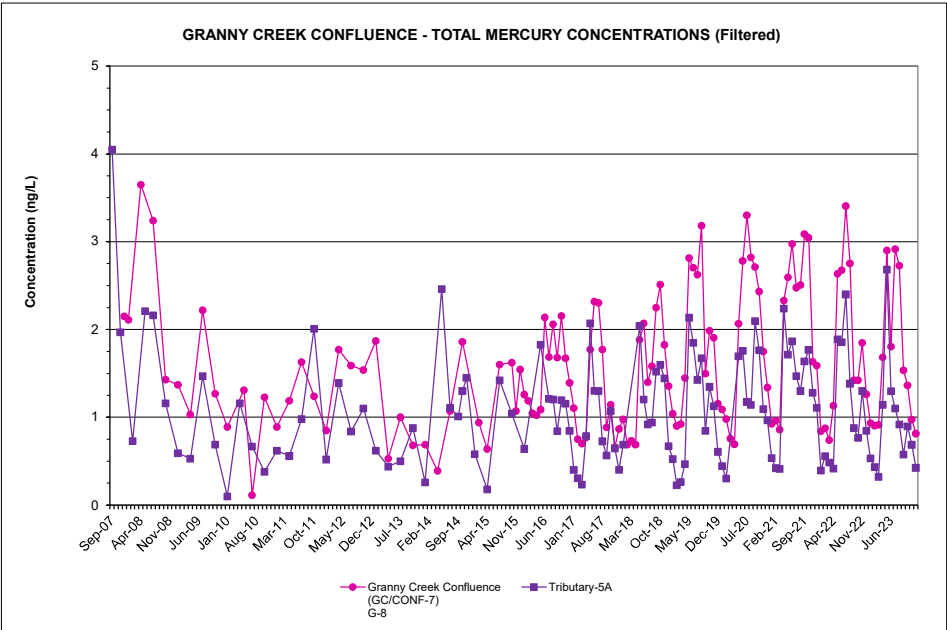


Table 11c: Total Mercury - Granny Creek
Confluence (Filtered)
(concentrations in ng/L)

Date	Granny Creek Confluence (GC/CONF-7) G-8	Tributary-5A
Jan-17	1.11	0.40
Feb-17	0.75	0.31
Mar-17	0.70	0.23
Apr-17	0.77	0.79
May-17	1.77	2.07
Jun-17	2.32	1.30
Jul-17	2.30	1.30
Aug-17	1.77	0.73
Sep-17	0.89	0.57
Oct-17	1.14	1.07
Nov-17	0.66	0.65
Dec-17	0.87	0.40
Jan-18	0.98	<0.69
Feb-18	<0.69	F
Mar-18	0.73	F
Apr-18	<0.69	F
May-18	1.89	2.04
Jun-18	2.07	1.20
Jul-18	1.40	0.92
Aug-18	1.58	0.94
Sep-18	2.25	1.52
Oct-18	2.51	1.60
Nov-18	1.83	1.44
Dec-18	1.36	0.67
Jan-19	1.04	0.53
Feb-19	0.90	0.23
Mar-19	0.92	0.26
Apr-19	1.45	0.47
May-19	2.81	2.13
Jun-19	2.70	1.85
Jul-19	2.63	1.42
Aug-19	3.18	1.67
Sep-19	1.50	0.85
Oct-19	1.99	1.35
Nov-19	1.91	1.13
Dec-19	1.16	0.61
Jan-20	1.09	0.45
Feb-20	0.98	0.30
Mar-20	0.76	
Apr-20	0.69	
May-20	2.07	1.70
Jun-20	2.78	1.76
Jul-20	3.30	1.18
Aug-20	2.82	1.14
Sep-20	2.71	2.10
Oct-20	2.43	1.76
Nov-20	1.75	1.09
Dec-20	1.34	0.97
Jan-21	0.93	0.54
Feb-21	0.96	0.42
Mar-21	0.86	0.41
Apr-21	2.33	2.24
May-21	2.59	1.71
Jun-21	2.98	1.87
Jul-21	2.48	1.47
Aug-21	2.51	1.30
Sep-21	3.09	1.64
Oct-21	3.05	1.77
Nov-21	1.63	1.28
Dec-21	1.59	1.11
Jan-22	0.84	0.39
Feb-22	0.88	0.56
Mar-22	0.74	0.49
Apr-22	1.13	0.42
May-22	2.64	1.89
Jun-22	2.68	1.86
Jul-22	3.41	2.40
Aug-22	2.75	1.38
Sep-22	1.42	0.88
Oct-22	1.42	0.77
Nov-22	1.85	1.30
Dec-22	1.26	0.85
Jan-23	0.93	0.53
Feb-23	0.90	0.43
Mar-23	0.92	0.32
Apr-23	1.68	1.14
May-23	2.90	2.68
Jun-23	1.81	1.30
Jul-23	2.92	1.10
Aug-23	2.73	0.92
Sep-23	1.54	0.58
Oct-23	1.36	0.90
Nov-23	0.98	0.69
Dec-23	0.82	0.43
Average 2009	1.47	0.82
Average 2010	0.89	<0.58
Average 2011	1.24	1.04
Average 2012	1.44	0.96
Average 2013	1.02	0.61
Average 2014	1.00	1.27
Average 2015	1.24	0.81
Average 2016	1.53	1.12
Average 2017	1.25	0.82
Average 2018	1.50	1.23
Average 2019	1.85	1.04
Average 2020	1.89	1.24
Average 2021	2.08	1.31
Average 2022	1.75	1.10
Average 2023	1.62	0.92
Average All Data	1.60	<1.09

** Samples discarded due to lab miscommunication
MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1
Station G-8 was changed from quarterly to monthly sampling in October 2015
Tributary-5A was changed from quarterly to monthly sampling in July 2016
Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.
Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.
D: Dry
F: Frozen
US: Unsafe to sample

TABLE 12a
METHYL MERCURY - NORTH GRANNY CREEK (Unfiltered)
(concentrations in ng/L)

Date	N. Granny Creek Upstream of Supplementation G-0	N. Granny Creek Upstream (NGC/UP/NWF) G-1	N. Granny Creek Downstream (NGC/DN/NWF) G-2	N. Granny Creek Downstream (NGC/DN/NEF) G-3	N. Granny Creek Upstream of Confluence (NGC/UP/CONF) G-4	Tributary-5A
CEQG for Protection of Aquatic Life: 4 ng/L						
Jul-06			0.11	0.10		
Oct-06				0.13		
Jan-07		0.12		0.18		
Feb-07						
Mar-07						
Apr-07						
May-07		0.07		0.09		
Jun-07						
Jul-07		0.09	0.07	0.10		
Aug-07						
Sep-07						0.08
Oct-07		0.09	0.15	0.10		
Nov-07						0.03
Dec-07					0.20	
Jan-08		<0.02		0.26	0.24	0.03
Feb-08		0.09	0.47	<0.02		0.12
Mar-08		<0.02		0.29		
Apr-08		0.44	1.44	0.13	0.15	
May-08						0.20
Jun-08						
Jul-08		0.09	0.09	0.52	0.52	0.03
Aug-08						
Sep-08						
Oct-08		0.04	0.07	0.11	0.18	<0.02
Nov-08						
Dec-08						
Jan-09		0.04	0.04	0.08	0.06	0.03
Feb-09						
Mar-09						
Apr-09		0.04	<0.02	<0.02		<0.02
May-09						
Jun-09						
Jul-09		0.06	0.02	0.02	<0.02	0.04
Aug-09						
Sep-09						
Oct-09		<0.02	0.07	0.07	0.14	0.03
Nov-09						
Dec-09						
Jan-10		0.19	0.11	0.11	0.14	0.06
Feb-10						
Mar-10						
Apr-10		0.06	0.10	0.10	<0.02	0.05
May-10					0.03	
Jun-10						
Jul-10		0.06	0.04	0.19	1.13	0.07
Aug-10						
Sep-10						
Oct-10		0.07	0.12	0.16	0.19	0.02
Nov-10						
Dec-10						
Jan-11		0.07	0.07	0.09	0.11	0.02
Feb-11						
Mar-11						
Apr-11		<0.02	<0.02	0.06	<0.02	0.02
May-11		0.05	0.13			
Jun-11		0.07	0.11			
Jul-11		0.06	0.21	0.35	0.48	0.04
Aug-11		0.10	0.56	0.53		
Sep-11						
Oct-11		<0.02	0.21		0.30	0.03
Nov-11		0.11	0.16			
Dec-11		0.08	0.17			
Jan-12			0.09	0.18	0.08	0.09
Feb-12		0.03	0.08	0.07		
Mar-12		0.03	0.05	0.04		
Apr-12			0.07	0.22	0.08	0.05
May-12		0.05	0.09	0.11		
Jun-12		0.05	0.10	0.12		
Jul-12		0.06	0.20	0.24	0.28	0.04
Aug-12		0.02	0.40			
Sep-12		0.07	0.47			
Oct-12			0.16	0.19	0.27	<0.02
Nov-12			1.58			
Dec-12		0.12	0.13			
Jan-13		F	0.03	F	0.11	0.03
Feb-13		0.04	0.06	0.09		
Mar-13		0.04	0.04	0.09		
Apr-13		0.11	0.06	0.14	0.08	0.04
May-13		0.06	0.09			
Jun-13		0.06	0.13			
Jul-13		0.07	0.27	0.30	0.28	0.06
Aug-13		0.08	0.43	0.52		
Sep-13		0.14	0.49	0.43		
Oct-13		0.22	0.39	0.30	0.47	<0.02
Nov-13		0.05	0.12	0.16		
Dec-13		0.03	0.09	0.14		
Jan-14		<0.02	0.06	0.11	0.11	0.06
Feb-14		0.05	0.06	0.05		
Mar-14		0.05	0.17	0.08		
Apr-14		0.15	0.06	0.05	0.13	
May-14		0.10	0.44	0.26		0.04
Jun-14		0.08	0.18	0.18		
Jul-14		0.17	0.29	0.31	0.36	0.02
Aug-14		0.32	0.25	0.24		
Sep-14		0.50	0.49	0.41		0.02
Oct-14		0.14	0.15	0.18	0.19	0.02
Nov-14		0.08	0.13	0.15		0.03
Dec-14		US	0.13	0.13		
Jan-15			0.07	0.13	0.13	0.03
Feb-15		0.12	0.13	0.14		
Mar-15		0.10	0.14	0.09		
Apr-15		0.04	0.05	0.06	0.05	<0.02
May-15		0.05	0.04	0.06		
Jun-15		0.08	0.09	0.09		
Jul-15		0.16	0.25	2.31	0.73	0.04
Aug-15		0.25	0.49	1.55		
Sep-15		0.15	0.65	1.29		
Oct-15		0.12	0.08	0.29	0.29	<0.02
Nov-15		0.07	0.09	0.13	0.25	
Dec-15		0.08	0.11	0.15	0.17	
Jan-16		0.07	0.10	0.25	0.18	0.05
Feb-16		0.04	0.07	0.09	0.14	
Mar-16		0.07	0.06	0.07	0.38	
Apr-16		0.04	0.05	0.07	0.13	
May-16		0.03	0.04	0.07	0.13	0.03
Jun-16		0.21	0.14	0.15	0.16	
Jul-16		0.14	0.19	0.23	0.40	0.03
Aug-16		0.18	0.25	0.27	0.56	0.03
Sep-16		0.56	0.50	0.36	0.59	<0.02
Oct-16		0.21	0.20	0.31	0.46	0.02
Nov-16		0.10	0.14	0.14	0.21	0.03
Dec-16		0.10	0.10	0.12	0.15	<0.02

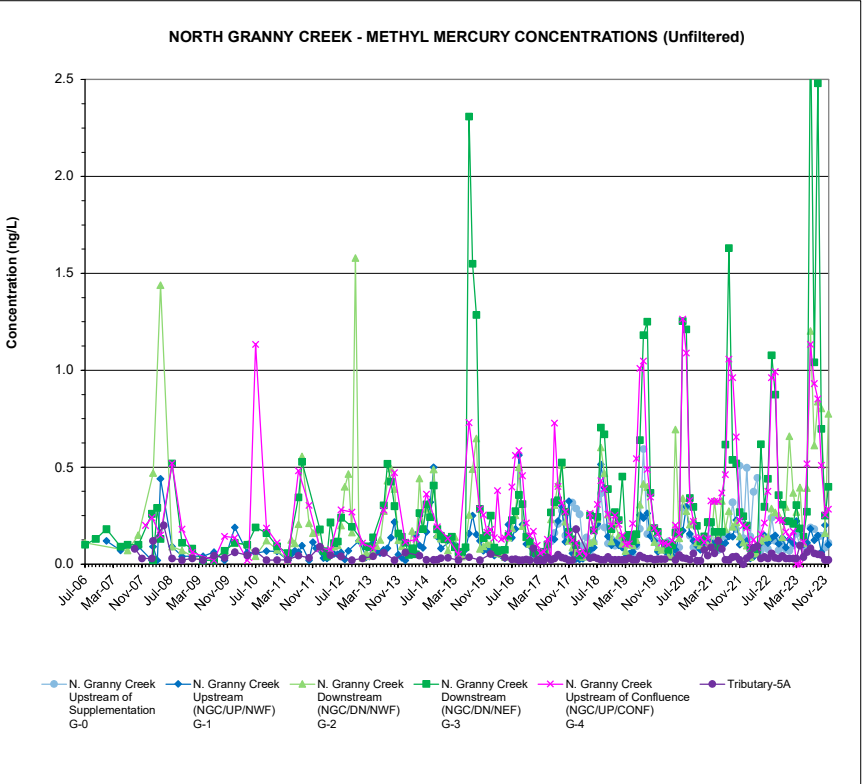


TABLE 12a
METHYL MERCURY - NORTH GRANNY CREEK (Unfiltered)
(concentrations in ng/L)

Date	N. Granny Creek Upstream of Supplementation G-0	N. Granny Creek Upstream (NGC/UP/NWF) G-1	N. Granny Creek Downstream (NGC/DN/NWF) G-2	N. Granny Creek Downstream (NGC/DN/NEF) G-3	N. Granny Creek Upstream of Confluence (NGC/UP/CONF) G-4	Tributary-5A
CEQG for Protection of Aquatic Life: 4 ng/L						
Jan-17		0.05	0.09	0.06	0.17	0.08
Feb-17		0.04	0.04	0.06	0.10	<0.02
Mar-17		0.04	0.03	0.05	0.06	<0.02
Apr-17		0.05	0.05	0.07	0.07	<0.02
May-17	0.08	0.05	0.06	0.10	0.13	0.04
Jun-17	0.12	0.14	0.23	0.27	0.03	0.02
Jul-17	0.16	0.13	0.31	0.32	0.73	0.03
Aug-17	0.21	0.22	0.42	0.33	0.40	0.05
Sep-17	0.28	0.30	0.51	0.53	0.32	0.03
Oct-17	0.15	0.12	0.22	0.27	0.27	0.03
Nov-17	0.16	0.33	0.12	0.17	0.15	<0.02
Dec-17	0.32	0.06	0.09	0.13	0.12	0.02
Jan-18	0.29	0.03	0.06	0.10	0.11	0.18
Feb-18	0.26	0.02	0.04	0.05	0.05	F
Mar-18	0.10	0.03	0.04	0.05	0.07	F
Apr-18	0.14	0.04	0.06	0.06	0.04	F
May-18	0.07	0.07	0.11	0.25	0.26	0.03
Jun-18	0.11	0.09	0.12	0.17	0.17	0.04
Jul-18	0.19	0.21	0.23	0.24	0.31	0.03
Aug-18	0.37	0.51	0.60	0.71	0.43	<0.02
Sep-18	0.19	0.39	0.47	0.67	0.39	<0.02
Oct-18	0.11	0.14	0.26	0.39	0.26	0.04
Nov-18	0.13	0.10	0.12	0.18	0.20	<0.02
Dec-18	0.10	0.12	0.21	0.27	0.25	<0.02
Jan-19	0.12	0.10	0.15	0.23	0.21	<0.02
Feb-19	0.12	0.09	0.11	0.45	0.15	<0.02
Mar-19	0.12	0.04	0.07	0.13	0.10	<0.02
Apr-19	0.12	0.05	0.10	0.15	0.11	0.03
May-19	0.04	0.07	0.10	0.12	0.21	<0.02
Jun-19	0.09	0.10	0.13	0.16	0.55	<0.02
Jul-19	0.18	0.25	0.31	0.64	1.01	0.04
Aug-19	0.59	0.24	0.41	1.18	1.05	0.03
Sep-19	0.16	0.26	0.40	1.25	0.49	0.03
Oct-19	0.18	0.15	0.19	0.37	0.35	0.03
Nov-19	0.13	0.12	0.11	0.19	0.19	<0.02
Dec-19	0.12	0.07	0.09	0.17	0.16	0.03
Jan-20		0.07	0.07	0.11	0.11	0.03
Feb-20	0.11	0.07	0.09	0.11	0.11	0.03
Mar-20	0.12	0.05	0.04	0.07	0.10	
Apr-20	0.09	0.04	0.04	0.10	0.12	
May-20	0.05	0.07	0.70	0.16	0.20	0.02
Jun-20	0.09	0.15	0.13	0.17	0.15	0.05
Jul-20	0.29	0.17	0.34	1.25	1.26	0.03
Aug-20	0.29	0.30	0.27	1.21	1.09	0.03
Sep-20	0.15	0.16	0.20	0.34	0.33	0.02
Oct-20	0.09	0.12	0.23	0.30	0.22	0.06
Nov-20	0.09	0.10	0.11	0.20	0.13	<0.02
Dec-20	0.11	0.07	0.10	0.12	0.14	<0.02
Jan-21	0.13	0.10	0.15	0.14	0.11	0.07
Feb-21	0.13	0.11	0.10	0.22	0.13	<0.02
Mar-21	0.21	0.11	0.10	0.22	0.33	0.09
Apr-21	0.09	0.11	0.33	0.17	0.32	0.06
May-21	0.07	0.10	0.15	0.09	0.32	0.12
Jun-21	0.14	0.11	0.33	0.17	0.37	0.08
Jul-21	0.14	0.11	0.18	0.62	0.46	<0.02
Aug-21	0.15	0.14	0.27	1.63	1.06	<0.02
Sep-21	0.32	0.14	0.19	0.54	0.96	<0.02
Oct-21	0.18	0.23	0.22	0.52	0.66	<0.02
Nov-21	0.51	0.10	0.14	0.27	0.23	<0.02
Dec-21	0.13	0.11	0.11	0.25	0.20	<0.02
Jan-22	0.50	0.12	0.10	0.20	0.19	0.03
Feb-22	0.14	0.03	0.04	0.08	0.09	0.05
Mar-22	0.37	0.04	0.05	0.08	0.13	0.08
Apr-22	0.45	0.05	0.06	0.08	0.09	0.09
May-22	0.07	0.11	0.12	0.62	0.16	0.03
Jun-22	0.10	0.15	0.14	0.30	0.21	0.04
Jul-22	0.08	0.11	0.14	0.44	0.38	<0.03
Aug-22	0.24	0.13	0.29	1.08	0.96	0.06
Sep-22	0.12	0.15	0.27	0.88	0.99	0.03
Oct-22	0.07	0.11	0.25	0.36	0.23	<0.03
Nov-22	0.10	0.14	0.14	0.31	0.23	0.04
Dec-22	0.08	0.09	0.30	0.22	0.17	<0.03
Jan-23	0.07	0.13	0.66	0.22	0.14	<0.03
Feb-23	0.10	0.11	0.37	0.21	0.17	<0.03
Mar-23	0.16	0.22	0.27	0.31		0.03
Apr-23	0.10	0.18	0.40	0.19		0.10
May-23	0.09	0.10	0.11	0.14	0.11	0.04
Jun-23	0.11	0.11	0.39	0.27	0.52	0.06
Jul-23	0.19	0.18	1.20	2.82	1.13	0.08
Aug-23	0.18	0.12	0.61	1.04	0.93	0.06
Sep-23	0.14	0.15	0.84	2.48	0.85	0.05
Oct-23	0.15	0.06	0.80	0.70	0.51	0.05
Nov-23	0.09	0.20	0.16	0.25	0.25	<0.02
Dec-23	0.11	0.10	0.78	0.40	0.28	<0.02
2009 Average		<0.04	<0.04	<0.05	<0.07	<0.03
2010 Average		0.09	0.09	0.14	0.30	0.05
2011 Average		<0.06	<0.18	0.26	<0.23	0.03
2012 Average		0.05	0.28	0.14	0.18	<0.05
2013 Average		0.08	0.18	0.24	0.24	<0.04
2014 Average		<0.15	0.20	0.18	0.20	0.03
2015 Average		0.11	0.18	0.52	0.27	<0.03
2016 Average		0.15	0.15	0.18	0.29	<0.03
2017 Average	0.18	0.13	0.18	0.20	0.21	<0.03
2018 Average	0.17	0.15	0.19	0.26	0.21	0.05
2019 Average	0.16	0.13	0.18	0.42	0.38	<0.03
2020 Average	0.13	0.11	0.19	0.34	0.33	<0.03
2021 Average	0.18	0.12	0.19	0.40	0.43	<0.06
2022 Average	0.19	0.10	0.16	0.39	0.32	<0.05
2023 Average	0.12	0.14	0.55	0.75	0.49	<0.05
Average All Years	0.16	<0.11	<0.22	<0.32	<0.30	<0.04
CEQG for Protection of Aquatic Life: 4 ng/L						

Quarterly sampling in accordance with Amended C. of A. #3960-7Q4K2G
MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury), as per Section 1.
North Granny Creek receives effluent from the PKC facility
Station G-4 was changed from quarterly to monthly sampling in October 2015
Tributary-5A was changed from quarterly to monthly sampling in July 2016
Sampling at Station G-0 was initiated in May 2017
Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.
Where cells are blank or contain "*", this indicates that the sample was not required to be collected or data was unavailable.
D: Dry
F: Frozen
US: Unsafe to sample

TABLE 12b
METHYL MERCURY - SOUTH GRANNY CREEK (Unfiltered)
(concentrations in ng/L)

Date	S. Granny Creek Upstream (SGC/UP/SWF) G-5	S. Granny Creek Downstream (SGC/DS/SWF) G-6	S. Granny Creek Upstream of Confluence (SGC/UP/CONF) G-7	Tributary-5A
CEQG for Protection of Aquatic Life: 4 ng/L				
Jul-06	0.06	0.04		
Oct-06	0.03	0.11		
Jan-07	0.10	0.13		
Feb-07				
Mar-07				
Apr-07				
May-07	0.04	0.06		
Jun-07				
Jul-07	0.05	0.05		
Aug-07				
Sep-07				0.08
Oct-07	0.05	0.07		
Nov-07				0.03
Dec-07			0.13	
Jan-08			0.17	
Feb-08	0.17	0.11		0.12
Mar-08				
Apr-08	0.06	0.15	0.35	
May-08				0.20
Jun-08				
Jul-08	0.06	0.07	0.26	0.03
Aug-08				
Sep-08				
Oct-08	0.02	0.04	0.10	<0.02
Nov-08				
Dec-08				
Jan-09	<0.02	0.06	0.04	0.03
Feb-09				
Mar-09				
Apr-09	0.08	0.06	0.04	<0.02
May-09				
Jun-09				
Jul-09	<0.02	0.05	0.03	0.04
Aug-09				
Sep-09				
Oct-09	<0.02	<0.02	0.23	0.03
Nov-09				
Dec-09				
Jan-10	0.06	0.07	0.11	0.06
Feb-10				
Mar-10				
Apr-10	0.05	0.08	<0.02	0.05
May-10			0.11	
Jun-10				
Jul-10	0.06	0.08	1.22	0.07
Aug-10				
Sep-10				
Oct-10	0.04	0.07	0.15	0.02
Nov-10				
Dec-10				
Jan-11	0.03	0.17	0.11	0.02
Feb-11				
Mar-11				
Apr-11	0.09	<0.02	<0.02	0.02
May-11				
Jun-11				
Jul-11	0.05	0.14	0.46	0.04
Aug-11				
Sep-11				
Oct-11	0.04	0.23	0.03	0.03
Nov-11				
Dec-11				
Jan-12	0.25	0.07	0.10	0.09
Feb-12				
Mar-12				
Apr-12	0.08	0.07	0.08	0.05
May-12				
Jun-12				
Jul-12	0.07	0.17	0.19	0.04
Aug-12				
Sep-12				
Oct-12	0.03	0.09	0.37	<0.02
Nov-12				
Dec-12				
Jan-13	0.06	0.08	0.09	0.03
Feb-13	0.08	0.08		
Mar-13	0.07	0.05		
Apr-13	0.09	0.10	0.05	0.04
May-13				
Jun-13				
Jul-13	0.07	0.49	0.67	0.06
Aug-13				
Sep-13				
Oct-13	0.06	0.25	0.33	<0.02
Nov-13				
Dec-13	NA	NA		
Jan-14	0.11	0.06	0.13	0.06
Feb-14	0.07	0.05		
Mar-14	NA	NA		
Apr-14	0.08	0.03	0.08	
May-14	NA	NA		0.04
Jun-14	NA	NA		
Jul-14	0.19	0.06	1.26	0.02
Aug-14	0.08	0.26		
Sep-14	0.05	0.43		0.02
Oct-14	0.14	0.04	0.23	0.02
Nov-14	0.05	0.29		0.03
Dec-14				
Jan-15	0.05	0.11	0.22	0.03
Feb-15	0.08	0.17		
Mar-15	0.06	0.07		
Apr-15	0.05	0.05	0.07	<0.02
May-15	0.03	0.05		
Jun-15	0.11	0.04		
Jul-15	0.32	0.32	0.49	0.04
Aug-15	0.07	0.75		
Sep-15				
Oct-15	0.05	0.41	0.36	<0.02
Nov-15	0.73	0.13	0.31	
Dec-15	0.04	0.13	0.22	
Jan-16	0.07	0.16	0.34	0.05
Feb-16	0.07	0.09	0.82	
Mar-16	0.10	0.23	0.18	
Apr-16	0.41	0.35	0.53	
May-16	0.04	0.23	0.17	0.03
Jun-16	0.05	0.15	0.18	
Jul-16	0.06	0.44	0.77	0.03
Aug-16	0.08	1.00	0.94	0.03
Sep-16	0.07	0.70	0.61	<0.02
Oct-16	0.04	0.43	0.61	0.02
Nov-16	0.16	0.05	0.20	0.03
Dec-16	0.04	0.09	0.21	<0.02

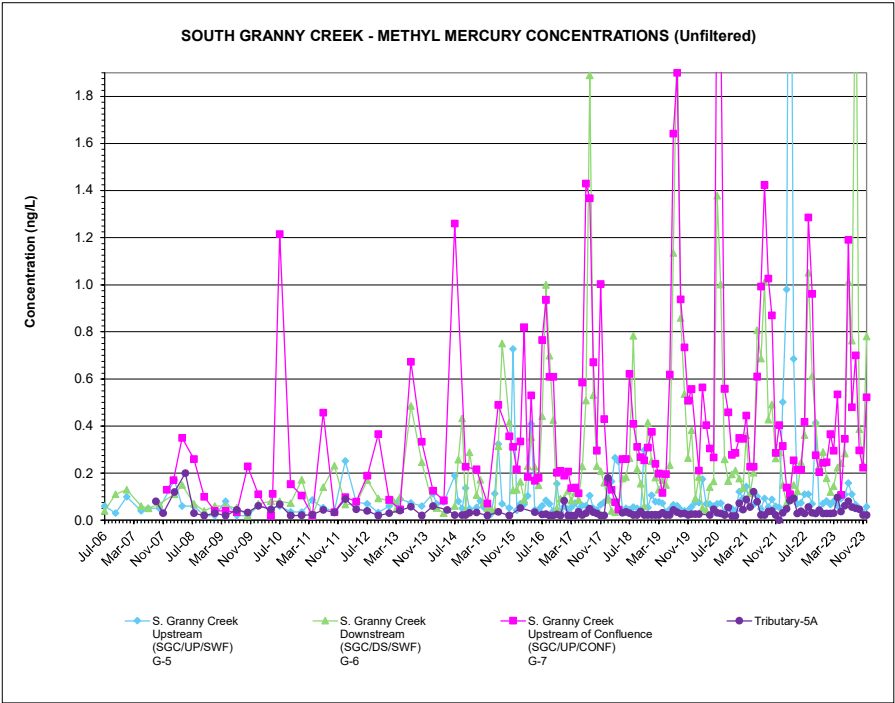


TABLE 12b
METHYL MERCURY - SOUTH GRANNY CREEK (Unfiltered)
(concentrations in ng/L)

Date	S. Granny Creek Upstream (SGC/UP/SWF) G-5	S. Granny Creek Downstream (SGC/DS/SWF) G-6	S. Granny Creek Upstream of Confluence (SGC/UP/CONF) G-7	Tributary-5A
CEQG for Protection of Aquatic Life: 4 ng/L				
Jan-17	0.06	0.09	0.19	0.08
Feb-17	0.05	0.13	0.21	<0.02
Mar-17	0.06	0.08	0.14	<0.02
Apr-17	0.07	0.12	0.14	<0.02
May-17	0.05	0.09	0.12	0.04
Jun-17	0.06	0.23	0.59	0.02
Jul-17	0.06	0.51	1.43	0.03
Aug-17	0.11	1.89	1.37	0.05
Sep-17	0.05	0.53	0.67	0.03
Oct-17	0.04	0.23	0.30	0.03
Nov-17	0.07	0.21	1.00	<0.02
Dec-17	0.08	0.16	0.43	0.02
Jan-18	0.09	0.09	0.16	0.18
Feb-18	0.17	0.04	0.13	F
Mar-18	0.26	0.04	0.08	F
Apr-18	0.25	0.05	0.05	F
May-18	0.04	0.18	0.26	0.03
Jun-18	0.05	0.18	0.26	0.04
Jul-18	0.05	0.27	0.62	0.03
Aug-18	0.06	0.78	0.41	<0.02
Sep-18	0.05	0.22	0.31	<0.02
Oct-18	0.04	0.16	0.27	0.04
Nov-18	0.30	0.06	0.26	<0.02
Dec-18	0.05	0.41	0.31	<0.02
Jan-19	0.11	0.25	0.38	<0.02
Feb-19	0.08	0.18	0.24	<0.02
Mar-19	0.08	0.13	0.20	<0.02
Apr-19	0.07	0.17	0.12	0.03
May-19	0.03	0.15	0.20	<0.02
Jun-19	0.05	0.23	0.62	<0.02
Jul-19	0.07	1.14	1.64	0.04
Aug-19	0.06	2.14	1.90	0.03
Sep-19	0.05	0.86	0.94	0.03
Oct-19	0.04	0.54	0.73	0.03
Nov-19	0.04	0.26	0.51	<0.02
Dec-19	0.06	0.38	0.56	0.03
Jan-20	0.08	0.09		0.03
Feb-20	0.08	0.18	0.21	0.03
Mar-20	0.18	0.05	0.56	
Apr-20	0.07	0.04	0.40	
May-20	0.07	0.14	0.31	0.02
Jun-20	0.06	0.17	0.27	0.05
Jul-20	0.07	1.38	2.50	0.03
Aug-20	0.07	1.00	2.17	0.03
Sep-20	0.03	0.26	0.56	0.02
Oct-20	0.05	0.17	0.46	0.06
Nov-20	0.05	0.20	0.28	0.02
Dec-20	0.04	0.21	0.29	0.02
Jan-21	0.12	0.18	0.35	0.07
Feb-21	0.09	0.14	0.35	0.05
Mar-21	0.14	0.36	0.45	0.09
Apr-21	0.06	0.12	0.23	0.06
May-21	0.07	0.20	0.23	0.12
Jun-21	0.10	0.81	0.61	0.08
Jul-21	0.05	0.69	0.99	0.02
Aug-21	0.09	1.01	1.42	0.02
Sep-21	0.06	0.43	1.03	0.04
Oct-21	0.09	0.49	0.87	0.04
Nov-21	0.06	0.26	0.29	0.02
Dec-21	0.06	0.29	0.40	<0.02
Jan-22	0.50	0.15	0.32	0.03
Feb-22	0.98	0.07	0.14	0.05
Mar-22	3.78	0.11	0.11	0.08
Apr-22	0.69	0.15	0.26	0.09
May-22	0.07	0.12	0.21	0.03
Jun-22	0.07	0.25	0.21	0.04
Jul-22	0.11	0.36	0.42	<0.03
Aug-22	0.11	1.05	1.29	0.06
Sep-22	0.07	0.61	0.96	0.03
Oct-22	0.41	0.41	0.28	<0.03
Nov-22	0.05	0.23	0.20	0.04
Dec-22	0.07	0.29	0.24	<0.03
Jan-23	0.08	0.18	0.25	<0.03
Feb-23	0.07	0.12	0.37	<0.03
Mar-23	0.08	0.15	0.30	0.03
Apr-23	0.06	0.22	0.54	0.10
May-23	0.09	0.24	0.11	0.04
Jun-23	0.11	0.28	0.35	0.06
Jul-23	0.16	1.01	1.19	0.08
Aug-23	0.11	0.76	0.48	0.06
Sep-23	0.07	2.53	0.70	0.05
Oct-23	0.05	0.39	0.30	0.05
Nov-23	0.03	0.24	0.22	<0.02
Dec-23	0.06	0.78	0.52	<0.02
2009 Average	<0.04	<0.05	0.09	<0.03
2010 Average	0.05	0.08	0.32	0.05
2011 Average	0.05	<0.14	<0.15	0.03
2012 Average	0.11	0.10	0.18	<0.05
2013 Average	0.07	0.17	<0.29	<0.04
2014 Average	0.10	0.15	0.42	0.03
2015 Average	0.14	0.20	0.28	<0.03
2016 Average	0.10	0.33	0.46	<0.03
2017 Average	0.06	0.36	0.55	<0.03
2018 Average	0.12	0.21	0.26	0.05
2019 Average	0.06	0.54	0.67	0.03
2020 Average	0.07	0.32	0.73	0.03
2021 Average	0.08	0.41	0.60	0.06
2022 Average	0.58	0.32	0.39	0.05
2023 Average	0.08	0.57	0.44	<0.05
Average All Years	<0.12	<0.30	<0.44	<0.04
CEQG for Protection of Aquatic Life: 4 ng/L				

Quarterly sampling in accordance with Amended C. of A. #3960-7Q4K2G
MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury), as per Section 1.
Station G-7 was changed from quarterly to monthly sampling in October 2015
Tributary-5A was changed from quarterly to monthly sampling in July 2016
Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.
Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.
D: Dry
F: Frozen
US: Unsafe to sample

TABLE 12c METHYL MERCURY - GRANNY CREEK CONFLUENCE (Unfiltered)
(concentrations in ng/L)

Date	Granny Creek Confluence (GC/CONF-7) G-8	Tributary-SA
	CEQG for Protection of Aquatic Life: 4 ng/L	
Sep-07		0.08
Oct-07		
Nov-07		0.03
Dec-07	0.16	
Jan-08	0.15	
Feb-08		0.12
Mar-08		
Apr-08	0.11	
May-08		<0.20
Jun-08		
Jul-08	0.33	0.03
Aug-08		
Sep-08		
Oct-08	0.14	<0.02
Nov-08		
Dec-08		
Jan-09	0.06	0.03
Feb-09		
Mar-09		
Apr-09	0.04	0.02
May-09		
Jun-09		
Jul-09	0.07	0.04
Aug-09		
Sep-09		
Oct-09	0.12	0.03
Nov-09		
Dec-09		
Jan-10	0.09	0.06
Feb-10		
Mar-10		
Apr-10	0.02	0.05
May-10	0.09	
Jun-10		
Jul-10	1.23	0.07
Aug-10		
Sep-10		
Oct-10	0.14	0.02
Nov-10		
Dec-10		
Jan-11	0.16	0.02
Feb-11		
Mar-11		
Apr-11	<0.02	0.02
May-11		
Jun-11		
Jul-11	0.39	0.04
Aug-11		
**Sep-11		
Oct-11		0.03
Nov-11		
Dec-11		
Jan-12	0.17	0.09
Feb-12		
Mar-12		
Apr-12	0.12	0.05
May-12		
Jun-12		
Jul-12	0.27	0.04
Aug-12		
Sep-12		
Oct-12	0.18	<0.02
Nov-12		
Dec-12		
Jan-13	0.07	0.03
Feb-13		
Mar-13		
Apr-13	0.10	0.04
May-13		
Jun-13		
Jul-13	0.27	0.06
Aug-13		
Sep-13		
Oct-13	0.27	<0.02
Nov-13		
Dec-13		
Jan-14	0.13	0.06
Feb-14		
Mar-14		
Apr-14	0.03	
May-14		0.04
Jun-14		
Jul-14	0.07	0.02
Aug-14		
Sep-14		0.02
Oct-14	0.04	0.02
Nov-14		0.03
Dec-14		
Jan-15		0.03
Feb-15	0.18	
Mar-15		
Apr-15	0.07	<0.02
May-15		
Jun-15		
Jul-15	0.07	0.04
Aug-15		
Sep-15		
Oct-15	0.33	<0.02
Nov-15	0.23	
Dec-15	0.16	
Jan-16	0.26	0.05
Feb-16	0.26	
Mar-16	0.19	
Apr-16	0.52	
May-16	0.15	0.03
Jun-16	0.19	
Jul-16	0.53	0.03
Aug-16	0.69	0.03
Sep-16	0.58	<0.02
Oct-16	0.30	0.02
Nov-16	0.21	0.03
Dec-16	0.14	<0.02

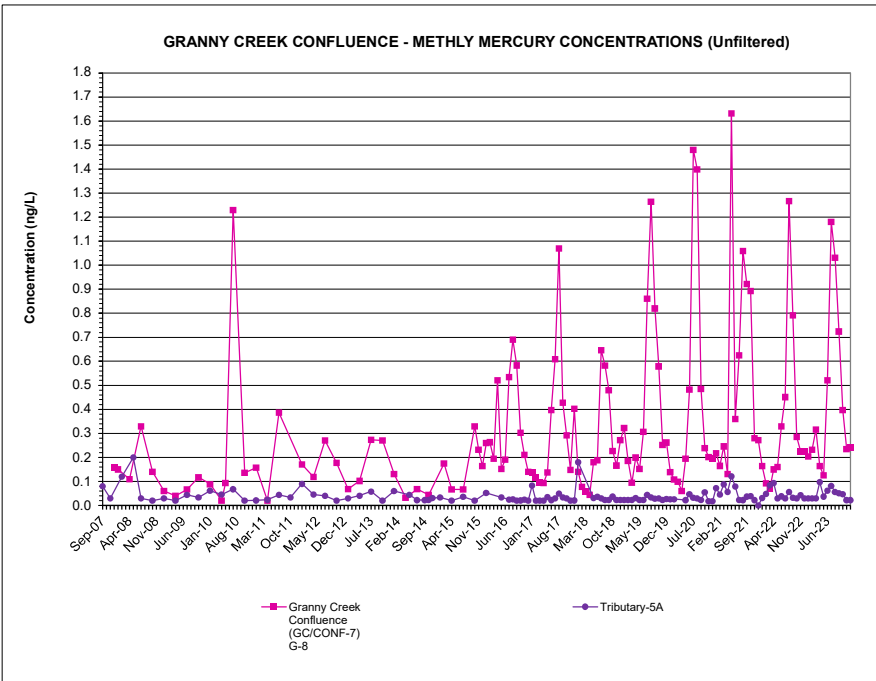


TABLE 12c METHYL MERCURY - GRANNY CREEK CONFLUENCE (Unfiltered) (concentrations in ng/L)

Date	Granny Creek Confluence (GC/CONF-7) G-8	Tributary-5A
	CEQG for Protection of Aquatic Life: 4 ng/L	
Jan-17	0.14	0.08
Feb-17	0.12	<0.02
Mar-17	0.10	<0.02
Apr-17	0.09	<0.02
May-17	0.14	0.04
Jun-17	0.40	0.02
Jul-17	0.61	0.03
Aug-17	1.07	0.05
Sep-17	0.43	0.03
Oct-17	0.29	0.03
Nov-17	0.15	<0.02
Dec-17	0.40	0.02
Jan-18	0.14	0.18
Feb-18	0.08	F
Mar-18	0.06	F
Apr-18	0.04	F
May-18	0.18	0.03
Jun-18	0.19	0.04
Jul-18	0.65	0.03
Aug-18	0.58	<0.02
Sep-18	0.48	<0.02
Oct-18	0.23	0.04
Nov-18	0.17	<0.02
Dec-18	0.27	<0.02
Jan-19	0.32	<0.02
Feb-19	0.19	<0.02
Mar-19	0.10	<0.02
Apr-19	0.20	0.03
May-19	0.15	<0.02
Jun-19	0.31	<0.02
Jul-19	0.86	0.04
Aug-19	1.26	0.03
Sep-19	0.82	0.03
Oct-19	0.58	0.03
Nov-19	0.25	<0.02
Dec-19	0.26	0.03
Jan-20	0.14	0.03
Feb-20	0.11	0.03
Mar-20	0.10	
Apr-20	0.06	
May-20	0.20	0.02
Jun-20	0.48	0.05
Jul-20	1.48	0.03
Aug-20	1.40	0.03
Sep-20	0.49	0.02
Oct-20	0.24	0.06
Nov-20	0.20	0.02
Dec-20	0.20	0.02
Jan-21	0.22	0.07
Feb-21	0.17	0.05
Mar-21	0.25	0.09
Apr-21	0.13	0.06
May-21	1.63	0.12
Jun-21	0.36	0.08
Jul-21	0.63	0.02
Aug-21	1.06	0.02
Sep-21	0.92	0.04
Oct-21	0.89	0.04
Nov-21	0.28	0.02
Dec-21	0.27	<0.02
Jan-22	0.16	0.03
Feb-22	0.09	0.05
Mar-22	0.07	0.08
Apr-22	0.15	0.09
May-22	0.16	0.03
Jun-22	0.33	0.04
Jul-22	0.45	<0.03
Aug-22	1.27	0.06
Sep-22	0.79	0.03
Oct-22	0.29	<0.03
Nov-22	0.23	0.04
Dec-22	0.23	<0.03
Jan-23	0.20	<0.03
Feb-23	0.23	<0.03
Mar-23	0.32	0.03
Apr-23	0.16	0.10
May-23	0.13	0.04
Jun-23	0.52	0.06
Jul-23	1.18	0.08
Aug-23	1.03	0.06
Sep-23	0.72	0.05
Oct-23	0.40	0.05
Nov-23	0.24	<0.02
Dec-23	0.24	<0.02
Average 2009	0.07	0.04
Average 2010	0.31	0.05
Average 2011	<0.19	0.03
Average 2012	0.18	<0.05
Average 2013	0.18	<0.04
Average 2014	0.07	0.03
Average 2015	0.17	<0.03
Average 2016	0.34	<0.03
Average 2017	0.33	<0.03
Average 2018	0.26	<0.05
Average 2019	0.44	<0.03
Average 2020	0.42	0.03
Average 2021	0.57	0.06
Average 2022	0.35	0.05
Average 2023	0.45	<0.05
Average All Data	<0.33	<0.04

CEQG for Protection of Aquatic Life: 4 ng/L

Quarterly sampling in accordance with Amended C. of A. #3960-7Q4K2G

MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury), as per Section 1.

Station G-8 was changed from quarterly to monthly sampling in October 2015

Tributary-5A was changed from quarterly to monthly sampling in July 2016

Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.

Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.

D: Dry

F: Frozen

US: Unsafe to sample

TABLE 13a METHYL MERCURY - NORTH GRANNY CREEK (Filtered) (concentrations in ng/L)

Date	N. Granny Creek Upstream of Supplementation G-0	N. Granny Creek Upstream (NGC/UP/NWF) G-1	N. Granny Creek Downstream (NGC/DN/NWF) G-2	N. Granny Creek Downstream (NGC/DN/NEF) G-3	N. Granny Creek Upstream of Confluence (NGC/UP/CONF) G-4	Tributary-5A
Draft USEPA Criteria: 0.05 ng/L						
May-06						
Jun-06						
Jul-06			0.05	0.08		
Aug-06						
Sep-06						
Oct-06				0.14		
Nov-06						
Dec-06						
Jan-07		0.08		0.13		
Feb-07						
Mar-07						
Apr-07						
May-07		0.06	0.07	0.09		
Jun-07						
Jul-07		0.06	0.09	0.10		
Aug-07						
Sep-07						0.07
Oct-07		0.09	0.11	0.07		
Nov-07						0.04
Dec-07					0.20	
Jan-08		<0.02		0.15	0.13	
Feb-08		0.06	0.14	<0.02		<0.02
Mar-08		<0.02		0.17		
Apr-08		0.08	0.41	0.05	0.05	
May-08						0.20
Jun-08						
Jul-08		0.09	0.09	0.49	0.48	0.03
Aug-08						
Sep-08						
Oct-08		0.05	0.04	0.11	0.15	<0.02
Nov-08						
Dec-08						
Jan-09		0.03	0.04	0.06	0.06	<0.02
Feb-09						
Mar-09						
Apr-09		0.02	<0.02	<0.02		<0.02
May-09						
Jun-09					0.11	
Jul-09		0.06	0.06	0.12	0.08	0.03
Aug-09						
Sep-09						
Oct-09		0.04	0.04	0.04	0.11	0.04
Nov-09						
Dec-09						
Jan-10		0.05	0.04	0.04	0.08	<0.02
Feb-10						
Mar-10						
Apr-10		0.03	0.03	0.05		0.02
May-10					0.06	
Jun-10						
Jul-10		0.05	0.07	0.10	0.08	0.03
Aug-10						
Sep-10						
Oct-10		0.05	0.08	0.13	0.13	0.02
Nov-10						
Dec-10						
Jan-11		0.03	0.05	<0.02	0.04	0.05
Feb-11						
Mar-11						
Apr-11		<0.02	detect	0.03	<0.02	<0.02
May-11		0.04	0.08			
Jun-11		<0.02	0.09			
Jul-11		0.04	0.45	0.39	0.32	0.04
Aug-11		0.09	0.46	0.21		
Sep-11						
Oct-11		<0.02	0.18	0.18	0.27	0.03
Nov-11		0.07	0.09			
Dec-11		0.05	0.13			
Jan-12			0.07	0.06	0.05	0.05
Feb-12		<0.02	0.03	0.02		
Mar-12		<0.02	<0.02	<0.02		
Apr-12			0.07	0.15	0.06	0.03
May-12		0.04	0.05	0.09		
Jun-12		0.04	0.07	0.10		
Jul-12		0.05	0.15	0.18	0.22	0.02
Aug-12		<0.02	0.29			
Sep-12		0.04	0.41			
Oct-12			0.11	0.16	0.22	<0.02
Nov-12			0.11			
Dec-12		0.05	0.11			
Jan-13		F	0.09	F	0.10	<0.02
Feb-13		0.04	0.04	0.08		
Mar-13		0.03	0.03	0.06		
Apr-13		0.04	0.02	0.10	0.05	<0.02
May-13		<0.02	0.08			
Jun-13		0.05	0.11			
Jul-13		0.03	0.21	0.22	0.25	0.05
Aug-13		0.07	0.34	0.37		
Sep-13		0.09	0.43	0.05		
Oct-13		0.06	0.19	0.25	0.31	<0.02
Nov-13		<0.02	0.10	0.11		
Dec-13		0.02	0.05	0.09		
Jan-14		<0.02	0.02	0.05	0.15	<0.02
Feb-14		<0.02	0.03	0.04		
Mar-14		0.03	0.10	0.06		<0.02
Apr-14		<0.02	0.03	0.03	0.03	
May-14		0.03	0.23	0.09		
Jun-14		0.07	0.17	0.17		
Jul-14		0.12	0.19	0.27	0.29	0.03
Aug-14		0.16	0.22	0.17		
Sep-14		0.31	0.33	0.28		<0.02
Oct-14		0.12	0.13	0.13	0.14	<0.02
Nov-14		0.08	0.12	0.12		<0.02
Dec-14		US	0.10	0.10		
Jan-15			0.06	0.11	0.10	<0.02
Feb-15		0.07	0.09	0.08		
Mar-15		0.04	0.05	0.05		
Apr-15		0.02	0.04	0.04	0.05	0.03
May-15		0.05	0.06	0.07		
Jun-15		0.03	0.06	0.08		
Jul-15		<0.02	0.06	0.67	0.66	<0.02
Aug-15		0.13	0.49	1.14		
Sep-15		0.17	0.44	0.90		
Oct-15		0.10	0.20	0.30	0.21	<0.02
Nov-15		0.06	0.09	0.14	0.18	
Dec-15		0.05	0.08	0.12	0.16	
Jan-16		0.05	0.06	0.11	0.13	0.02
Feb-16		0.03	0.05	0.05	0.08	
Mar-16		0.02	0.03	0.03	0.07	
Apr-16		0.03	0.03	0.03	0.06	
May-16		0.02	0.03	0.05	0.07	0.02
Jun-16		0.07	0.10	0.10	0.10	
Jul-16		0.08	0.13	0.17	0.28	<0.02
Aug-16		0.19	0.20	0.23	0.50	0.02
Sep-16		0.40	0.32	0.29	0.42	<0.02
Oct-16		0.20	0.26	0.30	0.40	<0.02
Nov-16		0.09	0.13	0.13	0.16	<0.02
Dec-16		0.06	0.07	0.08	0.10	<0.02
Jan-17		0.05	0.05	0.06	0.08	<0.02
Feb-17		0.02	0.04	0.03	0.05	<0.02
Mar-17		0.03	0.03	0.03	0.03	<0.02
Apr-17		0.03	0.03	0.04	0.03	<0.02
May-17	0.04	0.03	0.05	0.06	0.05	0.03
Jun-17	0.10	0.11	0.16	0.20	0.33	0.02
Jul-17	0.11	0.10	0.23	0.31	0.56	<0.02
Aug-17	0.12	0.14	0.30	0.24	0.28	0.02
Sep-17	0.17	0.18	0.30	0.38	0.22	<0.02
Oct-17	0.10	0.06	0.09	0.14	0.17	<0.02
Nov-17	0.11	0.07	0.08	0.13	0.15	<0.02
Dec-17	0.11	0.04	0.05	0.11	0.09	<0.02

NORTH GRANNY CREEK - METHYL MERCURY CONCENTRATIONS (Filtered)

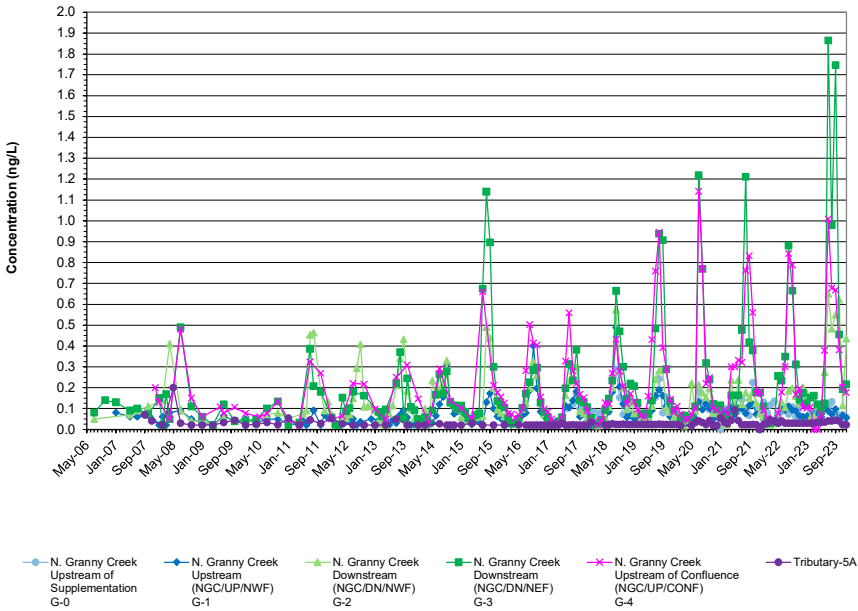


TABLE 13a METHYL MERCURY - NORTH GRANNY CREEK (Filtered) (concentrations in ng/L)

Date	N. Granny Creek Upstream of Supplementation G-0	N. Granny Creek Upstream (NGC/UP/NWF) G-1	N. Granny Creek Downstream (NGC/DN/NWF) G-2	N. Granny Creek Downstream (NGC/DN/NEF) G-3	N. Granny Creek Upstream of Confluence (NGC/UP/CONF) G-4	Tributary-5A
Draft USEPA Criteria: 0.05 ng/L						
Jan-18	0.08	<0.02	0.04	0.06	0.03	0.03
Feb-18	0.08	<0.02	0.03	0.03	0.04	F
Mar-18	0.07	0.02	<0.02	0.03	0.02	F
Apr-18	0.08	0.03	0.03	0.05	0.04	F
May-18	0.04	0.04	0.05	0.09	0.13	0.02
Jun-18	0.08	0.09	0.11	0.15	0.12	0.02
Jul-18	0.19	0.18	0.20	0.23	0.27	0.03
Aug-18	0.29	0.49	0.57	0.66	0.43	<0.02
Sep-18	0.15	0.20	0.28	0.47	0.28	0.02
Oct-18	0.07	0.12	0.20	0.30	0.21	0.03
Nov-18	0.11	0.06	0.10	0.15	0.12	<0.02
Dec-18	0.08	0.07	0.13	0.22	0.17	<0.02
Jan-19	0.07	0.05	0.08	0.21	0.13	<0.02
Feb-19	0.05	0.05	0.08	0.13	0.10	<0.02
Mar-19	0.04	0.04	0.06	0.07	0.07	<0.02
Apr-19	0.07	0.04	0.07	0.08	0.06	<0.02
May-19	0.04	0.06	0.06	0.07	0.16	<0.02
Jun-19	0.10	0.09	0.11	0.14	0.43	<0.02
Jul-19	0.15	0.16	0.24	0.48	0.76	<0.02
Aug-19	0.24	0.19	0.28	0.94	0.94	0.03
Sep-19	0.08	0.16	0.28	0.91	0.39	<0.02
Oct-19	0.16	0.11	0.10	0.29	0.29	<0.02
Nov-19	0.07	0.06	0.08	0.14	0.14	<0.02
Dec-19	0.06	0.05	0.06	0.09	0.08	<0.02
Jan-20		0.06	0.06	0.13	0.11	<0.02
Feb-20	0.06	0.04	0.04	0.06	0.07	<0.02
Mar-20	0.06	0.03	0.02	0.07	0.05	
Apr-20	0.05	0.03	0.04	0.05	0.04	
May-20	< 0.02	0.03	0.22	0.06	0.07	<0.02
Jun-20	0.09	0.05	0.09	0.11	0.10	0.03
Jul-20	0.18	0.13	0.21	1.22	1.14	0.04
Aug-20	0.13	0.09	0.18	0.77	0.77	0.03
Sep-20	0.12	0.12	0.15	0.32	0.22	0.02
Oct-20	0.10	0.10	0.20	0.24	0.25	0.04
Nov-20	0.06	0.05	0.08	0.12	0.10	<0.02
Dec-20	0.06	0.08	0.09	0.10	0.09	<0.02
Jan-21		0.10	0.11	0.12	0.07	0.05
Feb-21	0.10	0.08	0.03	0.06	0.09	<0.03
Mar-21	0.08	0.08	0.03	0.06	0.07	<0.03
Apr-21	0.11	0.10	0.24	0.16	0.30	0.04
May-21	0.08	0.07	0.11	0.09	0.30	0.09
Jun-21	0.09	0.10	0.24	0.16	0.33	0.04
Jul-21	0.14	0.10	0.12	0.48	0.32	<0.02
Aug-21	0.09	0.08	0.18	1.21	0.76	<0.02
Sep-21	0.07	0.11	0.15	0.42	0.83	<0.02
Oct-21	0.23	0.12	0.18	0.38	0.56	<0.02
Nov-21	0.11	0.07	0.13	0.18	0.17	<0.02
Dec-21	0.09	0.08	0.08	0.18	0.18	<0.02
Jan-22	0.13	0.05	0.06	0.11	0.09	<0.02
Feb-22	0.08	<0.02	0.03	0.04	0.05	0.03
Mar-22	0.12	<0.02	<0.02	0.03	0.04	0.05
Apr-22	0.14	<0.03	<0.03	0.04	0.04	0.04
May-22	0.05	0.03	0.03	0.26	0.08	0.03
Jun-22	0.09	0.10	0.13	0.23	0.18	0.04
Jul-22	0.10	0.09	0.11	0.35	0.30	<0.03
Aug-22	0.07	0.11	0.19	0.88	0.84	<0.03
Sep-22	0.11	0.09	0.20	0.67	0.79	<0.03
Oct-22	0.06	0.09	0.16	0.31	0.17	<0.03
Nov-22	0.11	0.07	0.13	0.14	0.20	<0.03
Dec-22	0.05	0.06	0.20	0.18	0.11	<0.03
Jan-23	0.05	0.06	0.17	0.12	0.10	<0.03
Feb-23	0.08	0.06	0.06	0.15	0.11	<0.03
Mar-23	0.08	0.07	0.06	0.16		<0.03
Apr-23	<0.03	0.09	0.12	0.12		<0.03
May-23	<0.03	0.06	0.09	0.09	0.07	<0.03
Jun-23	0.11	0.10	0.27	0.13	0.38	<0.03
Jul-23	0.11	0.09	0.65	1.87	1.01	0.04
Aug-23	0.13	0.07	0.48	0.98	0.68	<0.04
Sep-23	0.07	0.10	0.55	1.75	0.67	0.04
Oct-23	0.07	<0.04	0.62	0.45	0.38	<0.04
Nov-23	0.07	0.07	0.11	0.19	0.20	<0.02
Dec-23	0.06	0.06	0.44	0.22	0.18	<0.02
2009 Average		0.04	<0.04	<0.06	0.09	<0.03
2010 Average		0.04	0.06	0.08	0.09	<0.02
2011 Average		<0.04	0.19	<0.17	<0.16	<0.04
2012 Average		<0.03	<0.12	<0.10	0.14	<0.03
2013 Average		<0.04	0.14	0.15	0.18	<0.03
2014 Average		<0.09	0.14	0.12	0.15	<0.02
2015 Average		<0.07	0.14	0.31	0.23	<0.02
2016 Average		0.10	0.12	0.13	0.20	<0.02
2017 Average	0.11	0.07	0.12	0.14	0.17	<0.02
2018 Average	0.11	0.11	0.15	0.20	0.16	<0.02
2019 Average	0.09	0.09	0.13	0.30	0.30	<0.02
2020 Average	0.08	0.07	0.11	0.27	0.25	<0.03
2021 Average	0.11	0.09	0.13	0.29	0.33	<0.04
2022 Average	0.09	0.06	0.11	0.27	0.24	<0.03
2023 Average	0.07	0.07	0.30	0.52	0.38	0.03
Average All Years	0.09	<0.07	<0.14	<0.22	<0.23	<0.03

Quarterly sampling in accordance with Amended C. of A. #3960-7Q4K2G
MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury), as per Section 1.
North Granny Creek receives effluent from the PKC facility
Station G-4 was changed from quarterly to monthly sampling in October 2015
Sampling at Station G-0 was initiated in May 2017
Tributary-5A was changed from quarterly to monthly sampling in July 2016
Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.
Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.
D: Dry
F: Frozen
US: Unsafe to sample

TABLE 13b METHYL MERCURY - SOUTH GRANNY CREEK (Filtered)
(concentrations in ng/L)

Date	S. Granny Creek Upstream (SGC/UP/SWF) G-5	S. Granny Creek Downstream (SGC/DS/SWF) G-6	S. Granny Creek Upstream of Confluence (SGC/UP/CONF) G-7	Tributary-5A
	Draft USEPA Criteria: 0.05 ng/L			
Jul-06	0.05	0.02		
Oct-06	0.03	0.08		
Jan-07	0.08	0.10		
Feb-07				
Mar-07				
Apr-07				
May-07	0.04	0.06		
Jun-07				
Jul-07	0.05	0.04		
Aug-07				
Sep-07				0.07
Oct-07	0.04	0.05		
Nov-07				0.04
Dec-07			0.09	
Jan-08			0.09	
Feb-08	0.10	0.07		<0.02
Mar-08				
Apr-08	0.04	0.09	0.35/0.2	
May-08				0.20
Jun-08				
Jul-08	0.04	0.06	0.30	0.03
Aug-08				
Sep-08				
Oct-08	0.02	0.03	0.06	<0.02
Nov-08				
Dec-08				
Jan-09	0.06	0.04	0.04	<0.02
Feb-09				
Mar-09				
Apr-09	0.02	0.02	<0.02	<0.02
May-09				
Jun-09				
Jul-09	0.04	0.05	0.03	0.03
Aug-09				
Sep-09				
Oct-09	0.05	0.02	0.23	0.04
Nov-09				
Dec-09				
Jan-10	0.04	0.02	0.11	<0.02
Feb-10				
Mar-10				
Apr-10	0.04	0.05	<0.02	0.02
May-10			0.11	
Jun-10				
Jul-10	0.02	0.06	1.22	0.03
Aug-10				
Sep-10				
Oct-10	0.04	0.07	0.15	0.02
Nov-10				
Dec-10				
Jan-11	0.03	0.11	0.09	0.05
Feb-11				
Mar-11				
Apr-11	0.04	<0.02	<0.02	<0.02
May-11				
Jun-11				
Jul-11	0.05	0.11	0.35	0.04
Aug-11				
Sep-11				
Oct-11	<0.02	0.08	0.24	0.03
Nov-11				
Dec-11				
Jan-12	0.10	0.04	0.09	0.05
Feb-12				
Mar-12				
Apr-12	0.03	0.07	0.06	0.03
May-12				
Jun-12				
Jul-12	0.05	0.12	0.14	0.02
Aug-12				
Sep-12				
Oct-12	0.03	0.08	0.30	<0.02
Nov-12				
Dec-12				
Jan-13	0.04	0.06	0.08	<0.02
Feb-13				
Mar-13				
Apr-13	0.03	0.08	0.02	<0.02
May-13				
Jun-13				
Jul-13	0.05	0.33	0.48	0.05
Aug-13				
Sep-13				
Oct-13	0.05	0.16	0.24	<0.02
Nov-13				
Dec-13				
Jan-14	0.08	<0.02	0.05	<0.02
Feb-14				
Mar-14				<0.02
Apr-14	<0.02	<0.02	0.03	
May-14				
Jun-14				
Jul-14	0.15	0.05	1.06	0.03
Aug-14				
Sep-14				<0.02
Oct-14	0.07	0.03	0.11	<0.02
Nov-14				<0.02
Dec-14				
Jan-15	0.02	0.04	0.11	<0.02
Feb-15	0.05	0.13		
Mar-15	0.04	0.06		
Apr-15	0.04	0.03	0.09	0.03
May-15	0.03	0.06		
Jun-15	0.09	0.05		
Jul-15	0.12	0.12	0.63	<0.02
Aug-15				
Sep-15				
Oct-15	0.06	0.38	0.29	<0.02
Nov-15	0.73	0.12	0.21	
Dec-15	0.03	0.11	0.19	
Jan-16	0.05	0.12	0.25	0.02
Feb-16	0.05	0.06	0.18	
Mar-16	0.04	0.12	0.12	
Apr-16	0.02	<0.02	0.13	
May-16	0.02	0.07	0.09	0.02
Jun-16	0.03	0.09	0.13	
Jul-16	0.04	0.34	0.63	<0.02
Aug-16	0.05	0.75	0.82	0.02
Sep-16	0.04	0.46	0.45	<0.02
Oct-16	0.04	0.33	0.48	<0.02
Nov-16	0.07	0.05	0.17	<0.02
Dec-16	0.03	0.06	0.14	<0.02

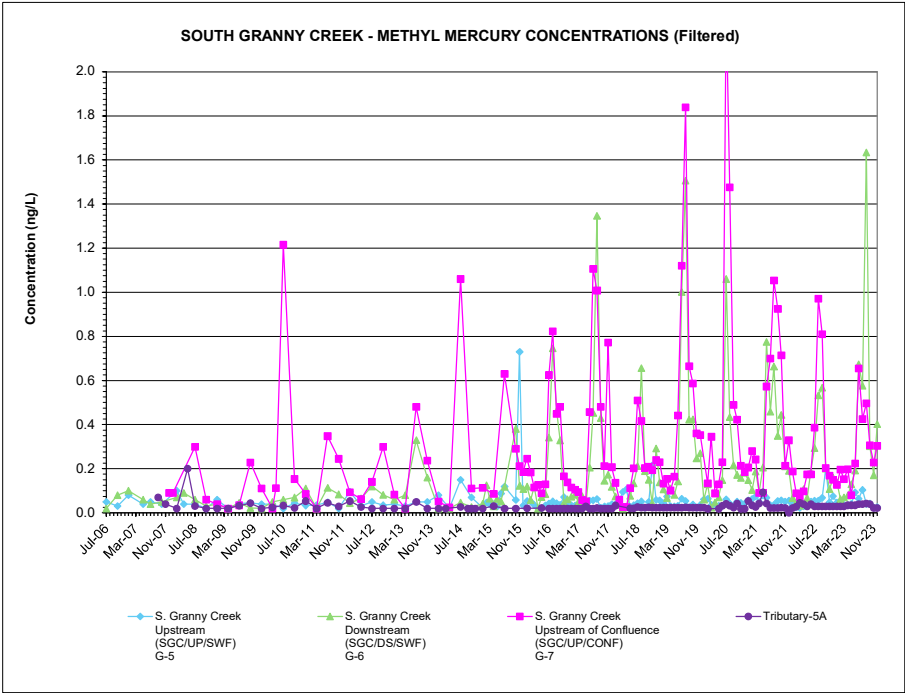


TABLE 13b METHYL MERCURY - SOUTH GRANNY CREEK (Filtered)
(concentrations in ng/L)

Date	S. Granny Creek Upstream (SGC/UP/SWF) G-5	S. Granny Creek Downstream (SGC/DS/SWF) G-6	S. Granny Creek Upstream of Confluence (SGC/UP/CONF) G-7	Tributary-5A
	Draft USEPA Criteria: 0.05 ng/L			
Jan-17	0.03	0.07	0.12	<0.02
Feb-17	0.03	0.08	0.11	<0.02
Mar-17	0.03	0.05	0.10	<0.02
Apr-17	0.03	0.08	0.06	<0.02
May-17	0.03	0.03	0.05	0.03
Jun-17	0.06	0.21	0.46	0.02
Jul-17	0.06	0.45	1.11	<0.02
Aug-17	0.06	1.35	1.01	0.02
Sep-17	0.02	0.43	0.48	<0.02
Oct-17	0.03	0.15	0.21	<0.02
Nov-17	0.03	0.17	0.77	<0.02
Dec-17	0.04	0.12	0.21	<0.02
Jan-18	0.04	0.07	0.14	0.03
Feb-18	0.05	0.04	0.06	F
Mar-18	0.10	0.02	0.03	F
Apr-18	0.11	0.03	0.03	F
May-18	0.03	0.08	0.11	0.02
Jun-18	0.03	0.13	0.20	0.02
Jul-18	0.04	0.21	0.51	0.03
Aug-18	0.05	0.66	0.42	<0.02
Sep-18	<0.02	0.19	0.20	0.02
Oct-18	0.05	0.15	0.21	0.03
Nov-18	0.22	0.04	0.19	<0.02
Dec-18	0.06	0.29	0.24	<0.02
Jan-19	0.06	0.14	0.23	<0.02
Feb-19	0.04	0.11	0.13	<0.02
Mar-19	0.07	0.07	0.15	<0.02
Apr-19	0.03	0.11	0.10	<0.02
May-19	0.03	0.08	0.16	<0.02
Jun-19	0.03	0.14	0.44	<0.02
Jul-19	0.06	1.00	1.12	<0.02
Aug-19	0.05	1.51	1.84	0.03
Sep-19	0.03	0.42	0.67	<0.02
Oct-19	0.04	0.42	0.59	<0.02
Nov-19	<0.02	0.25	0.36	<0.02
Dec-19	0.04	0.27	0.35	<0.02
Jan-20	0.06	0.06		<0.02
Feb-20	0.06	0.13	0.13	<0.02
Mar-20	0.04	0.02	0.35	
Apr-20	0.04	0.05	0.09	
May-20	0.03	0.07	0.13	<0.02
Jun-20	0.03	0.15	0.23	0.03
Jul-20	0.06	1.06	2.31	0.04
Aug-20	0.04	0.43	1.48	0.03
Sep-20	0.03	0.22	0.49	0.02
Oct-20	0.05	0.17	0.42	0.04
Nov-20	0.05	0.16	0.21	<0.02
Dec-20	0.04	0.18	0.18	<0.02
Jan-21	0.06	0.15	0.21	<0.05
Feb-21	0.06	0.10	0.28	<0.03
Mar-21	0.08	0.19	0.24	<0.03
Apr-21	0.05	0.10	0.09	<0.04
May-21	0.08	0.21	0.09	<0.09
Jun-21	0.07	0.78	0.57	<0.04
Jul-21	0.03	0.46	0.70	<0.02
Aug-21	0.04	0.66	1.05	<0.02
Sep-21	0.05	0.35	0.93	<0.02
Oct-21	0.06	0.44	0.71	<0.02
Nov-21	0.05	0.21	0.21	<0.02
Dec-21	0.06	0.19	0.33	<0.02
Jan-22	0.04	0.07	0.19	<0.02
Feb-22	0.03	0.05	0.09	0.03
Mar-22	<0.02	0.03	0.07	0.05
Apr-22	<0.03	0.11	0.10	0.04
May-22	<0.03	0.07	0.17	<0.03
Jun-22	0.05	0.19	0.17	0.04
Jul-22	0.06	0.29	0.39	<0.03
Aug-22	0.06	0.53	0.97	<0.03
Sep-22	0.07	0.57	0.81	<0.03
Oct-22	0.20	0.20	0.20	<0.03
Nov-22	0.05	0.11	0.17	<0.03
Dec-22	0.08	0.16	0.15	<0.03
Jan-23	0.05	0.14	0.13	<0.03
Feb-23	0.05	0.06	0.20	<0.03
Mar-23	0.04	0.07	0.15	<0.03
Apr-23	<0.03	0.08	0.20	<0.03
May-23	0.04	0.13	0.08	<0.03
Jun-23	0.09	0.19	0.22	<0.03
Jul-23	0.06	0.67	0.66	0.04
Aug-23	0.10	0.58	0.43	<0.04
Sep-23	<0.04	1.63	0.50	0.04
Oct-23	0.04	0.30	0.31	<0.04
Nov-23	0.02	0.17	0.23	<0.02
Dec-23	0.03	0.40	0.30	<0.02
2009 Average	0.04	0.03	<0.08	<0.03
2010 Average	0.04	0.05	0.32	<0.02
2011 Average	<0.03	<0.08	<0.17	<0.04
2012 Average	0.05	0.08	0.15	<0.03
2013 Average	0.04	0.16	0.20	<0.03
2014 Average	0.08	<0.03	0.31	<0.02
2015 Average	0.12	0.11	0.25	<0.02
2016 Average	0.04	<0.20	0.30	<0.02
2017 Average	0.04	0.27	0.37	<0.02
2018 Average	<0.07	0.16	0.19	<0.02
2019 Average	<0.04	0.38	0.51	<0.02
2020 Average	<0.04	0.22	0.55	<0.03
2021 Average	<0.06	0.32	0.45	<0.04
2022 Average	0.06	0.20	0.29	<0.03
2023 Average	<0.05	0.37	0.28	<0.03
Average All Years	<0.05	<0.21	<0.33	<0.03

Quarterly sampling in accordance with Amended C. of A. #3960-7Q4K2G
MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury), as per Section 1.
Station G-7 was changed from quarterly to monthly sampling in October 2015
Tributary-5A was changed from quarterly to monthly sampling in July 2016
Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.
Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.
D: Dry
F: Frozen
US: Unsafe to sample

TABLE 13c METHYL MERCURY - GRANNY CREEK CONFLUENCE (Filtered)
(concentrations in ng/L)

Date	Granny Creek Confluence G-8	Tributary-5A
	Draft USEPA Criteria: 0.05 ng/L	
Sep-07		0.07
Oct-07		
Nov-07		0.04
Dec-07	0.11	
Jan-08	0.12	
Feb-08		<0.02
Mar-08		
Apr-08	0.05	
May-08		0.20
Jun-08		
Jul-08	0.32	0.03
Aug-08		
Sep-08		
Oct-08	0.10	<0.02
Nov-08		
Dec-08		
Jan-09	0.05	<0.02
Feb-09		
Mar-09		
Apr-09	<0.02	<0.02
May-09		
Jun-09		
Jul-09	0.18	0.03
Aug-09		
Sep-09		
Oct-09	0.12	0.04
Nov-09		
Dec-09		
Jan-10	0.31	<0.02
Feb-10		
Mar-10		
Apr-10	0.02	0.02
May-10	0.07	
Jun-10		
Jul-10	0.83	0.03
Aug-10		
Sep-10		
Oct-10	0.10	0.02
Nov-10		
Dec-10		
Jan-11	0.08	0.05
Feb-11		
Mar-11		
Apr-11	<0.02	<0.02
May-11		
Jun-11		
Jul-11	0.06	0.04
Aug-11		
**Sep-11		
Oct-11	0.05	0.03
Nov-11		
Dec-11		
Jan-12	0.07	0.05
Feb-12		
Mar-12		
Apr-12	0.08	0.03
May-12		
Jun-12		
Jul-12	0.18	0.02
Aug-12		
Sep-12		
Oct-12	0.13	<0.02
Nov-12		
Dec-12		
Jan-13	0.14	<0.02
Feb-13		
Mar-13		
Apr-13	0.06	<0.02
May-13		
Jun-13		
Jul-13	<0.02	0.05
Aug-13		
Sep-13		
Oct-13	0.18	<0.02
Nov-13		
Dec-13		
Jan-14	0.09	<0.02
Feb-14		
Mar-14		<0.02
Apr-14	0.03	
May-14		
Jun-14		
Jul-14	0.04	0.03
Aug-14		
Sep-14		<0.02
Oct-14	0.03	<0.02
Nov-14		<0.02
Dec-14		
Jan-15		<0.02
Feb-15	0.13	
Mar-15		
Apr-15	0.06	0.03
May-15		
Jun-15		
Jul-15	0.04	<0.02
Aug-15		
Sep-15		
Oct-15	0.30	<0.02
Nov-15	0.17	
Dec-15	0.15	
Jan-16	0.18	0.02
Feb-16	0.12	
Mar-16	0.09	
Apr-16	0.07	
May-16	0.06	0.02
Jun-16	0.10	
Jul-16	0.38	<0.02
Aug-16	0.68	0.02
Sep-16	0.43	<0.02
Oct-16	0.26	<0.02
Nov-16	0.15	<0.02
Dec-16	0.10	<0.02

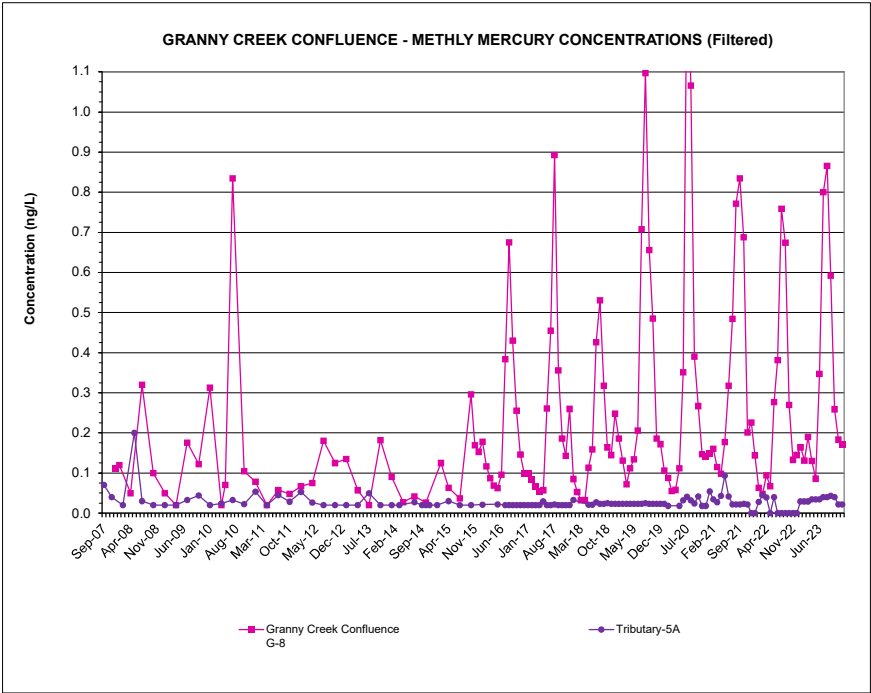


TABLE 13c METHYL MERCURY - GRANNY CREEK CONFLUENCE (Filtered)
(concentrations in ng/L)

Date	Granny Creek Confluence G-8	Tributary-5A
	Draft USEPA Criteria: 0.05 ng/L	
Jan-17	0.10	<0.02
Feb-17	0.08	<0.02
Mar-17	0.07	<0.02
Apr-17	0.05	<0.02
May-17	0.06	0.03
Jun-17	0.26	0.02
Jul-17	0.46	<0.02
Aug-17	0.89	0.02
Sep-17	0.36	<0.02
Oct-17	0.19	<0.02
Nov-17	0.14	<0.02
Dec-17	0.26	<0.02
Jan-18	0.09	0.03
Feb-18	0.05	F
Mar-18	0.03	F
Apr-18	0.03	F
May-18	0.11	0.02
Jun-18	0.16	0.02
Jul-18	0.43	0.03
Aug-18	0.53	<0.02
Sep-18	0.32	0.02
Oct-18	0.16	0.03
Nov-18	0.15	<0.02
Dec-18	0.25	<0.02
Jan-19	0.19	<0.02
Feb-19	0.13	<0.02
Mar-19	0.07	<0.02
Apr-19	0.11	<0.02
May-19	0.13	<0.02
Jun-19	0.21	<0.02
Jul-19	0.71	<0.02
Aug-19	1.10	0.03
Sep-19	0.66	<0.02
Oct-19	0.49	<0.02
Nov-19	0.19	<0.02
Dec-19	0.17	<0.02
Jan-20	0.11	<0.02
Feb-20	0.09	<0.02
Mar-20	0.06	
Apr-20	0.06	
May-20	0.11	<0.02
Jun-20	0.35	0.03
Jul-20	1.38	0.04
Aug-20	1.07	0.03
Sep-20	0.39	0.02
Oct-20	0.27	0.04
Nov-20	0.15	<0.02
Dec-20	0.14	<0.02
Jan-21	0.15	<0.05
Feb-21	0.16	<0.03
Mar-21	0.12	<0.03
Apr-21	0.10	<0.04
May-21	0.18	<0.09
Jun-21	0.32	<0.04
Jul-21	0.48	<0.02
Aug-21	0.77	<0.02
Sep-21	0.84	<0.02
Oct-21	0.69	<0.02
Nov-21	0.20	<0.02
Dec-21	0.23	<0.02
Jan-22	0.14	<0.022
Feb-22	0.06	0.03
Mar-22	0.05	0.05
Apr-22	0.09	0.04
May-22	0.07	<0.029
Jun-22	0.28	0.04
Jul-22	0.38	<0.029
Aug-22	0.76	<0.029
Sep-22	0.67	<0.029
Oct-22	0.27	<0.029
Nov-22	0.13	<0.029
Dec-22	0.15	<0.029
Jan-23	0.16	<0.03
Feb-23	0.13	<0.03
Mar-23	0.19	<0.03
Apr-23	0.13	<0.03
May-23	0.09	<0.03
Jun-23	0.35	<0.03
Jul-23	0.80	0.04
Aug-23	0.87	<0.04
Sep-23	0.59	0.04
Oct-23	0.26	<0.04
Nov-23	0.18	<0.02
Dec-23	0.17	<0.02
Average 2009	<0.09	<0.03
Average 2010	0.27	<0.02
Average 2011	<0.05	<0.04
Average 2012	0.11	<0.03
Average 2013	<0.10	<0.03
Average 2014	0.05	<0.02
Average 2015	0.14	<0.02
Average 2016	0.22	<0.02
Average 2017	0.24	<0.02
Average 2018	0.19	<0.02
Average 2019	0.35	<0.02
Average 2020	0.35	<0.03
Average 2021	0.35	<0.04
Average 2022	0.25	<0.04
Average 2023	0.33	<0.03
Average All Data	<0.24	<0.03

Quarterly sampling in accordance with Amended C. of A. #3960-7Q4K2G
MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1.
Station G-8 was changed from quarterly to monthly sampling in October 2015
Tributary-5A was changed from quarterly to monthly sampling in July 2016
Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.
Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.
D: Dry
F: Frozen
US: Unsafe to sample

Table 14: North Granny Creek Summer Condition Methyl Mercury Concentrations (concentrations in ng/L)

Table 14a: Flow and Water Quality Data with Loading Calculations							
Year / Date	Flow / Discharge Rates			Water Quality			Calculated Water Quality In the Absence of Supplementation or PKC Discharge (ng/L)
	NGC 5-day Average Flow at NG-001 (m³/d)	NGC 5-day Average Flow Supplementation Rate (m³/d)	Fine PKC Effluent Discharge (m³/d)	NGC-DN-NEF (G-3) (Filtered) (ng/L)	Flow Supplementation Water (A-2) (ng/L - Filtered)	Fine PKC Discharge (CQ) (ng/L - Filtered)	
2013							
01-Jul-13	11,886	5,209	0	0.22	<0.02	-	0.38
05-Aug-13	10,508	8,672	0	0.37	0.18	-	1.27
02-Sep-13	12,558	10,019	0	0.05	0.06	-	0.01
2014							
02-Jun-14	61,422	0	0	0.17	0.04	-	0.17
07-Jul-14	18,118	1,056	0	0.27	0.03	-	0.28
04-Aug-14	11,798	9,385	0	0.17	0.04	-	0.68
01-Sep-14	21,821	2,590	0	0.28	0.05	-	0.31
2015							
01-Jun-15	67,875	0	0	0.08	0.03	-	0.08
03-Jul-15	51,222	719	0	0.67	<0.02	-	0.68
03-Aug-15	74,630	0	4,701	1.14	0.05	0.34	1.19
07-Sep-15	142,070	0	10,772	0.90	0.04	0.38	0.94
2016							
01-Jun-16	61,844	0	4,499	0.10	0.03	0.02	0.11
03-Jul-16	23,292	0	0	0.17	0.03	-	0.17
03-Aug-16	16,581	8,723	0	0.23	0.03	-	0.45
07-Sep-16	21,455	3,133	0	0.29	0.03	-	0.33
2017							
12-Jun-17	128,641	0	0	0.20	0.04	-	0.20
10-Jul-17	42,166	0	2,356	0.31	0.03	0.11	0.33
07-Aug-17	12,387	8,975	0	0.24	0.02	-	0.81
04-Sep-17	13,199	9,371	0	0.38	0.01	-	1.29
2018							
04-Jun-18	58,530	0	0	0.15	0.04	-	0.15
02-Jul-18	18,630	9,650	0	0.23	0.03	-	0.45
06-Aug-18	14,205	1,397	0	0.66	0.05	-	0.73
03-Sep-18	11,553	9,633	0	0.47	<0.02	-	2.71
2019							
11-Jun-19	68,279	0	0	0.14	0.03	-	0.14
15-Jul-19	48,516	0	0	0.48	0.05	-	0.48
07-Aug-19	38,871	0	0	0.94	0.04	-	0.94
05-Sep-19	13,296	34	0	0.91	<0.02	-	0.91
2020							
02-Jun-20	84,607	0	0	0.11	0.03	-	0.11
14-Jul-20	10,852	5,035	0	1.22	0.04	-	2.23
04-Aug-20	13,877	5,999	0	0.77	0.02	-	1.34
15-Sep-20	52,023	0	0	0.32	<0.04	-	0.32
2021							
04-Jun-21	89,266	0	0	0.16	0.02	-	0.16
06-Jul-21	19,779	7,942	0	0.48	0.03	-	0.78
03-Aug-21	13,592	8,005	0	1.21	0.03	-	2.91
07-Sep-21	182,244	0	0	0.42	<0.04	-	0.42
2022							
20-Jun-22	72,107	0	0	0.35	0.09	-	0.35
05-Jul-22	40,260	0	0	0.35	0.10	-	0.35
02-Aug-22	20,848	0	0	0.88	0.07	-	0.88
06-Sep-22	14,985	0	0	0.67	0.11	-	0.67
2023							
06-Jun-23	63,015	0	0	0.13	0.11	-	0.13
04-Jul-23	3,609	0	0	1.87	0.11	-	1.87
01-Aug-23	1,485	0	0	0.98	0.13	-	0.98
05-Sep-23	714	0	0	1.75	0.07	-	1.75

Table 14b: Data for Chart 14a

NGC 5-day Average Flow at NG-001 (m³/d)	NGC-DN-NEF G-3 (Filtered) (ng/L)
11,886	0.22
10,508	0.37
12,558	0.05
61,422	0.17
18,118	0.27
11,798	0.17
21,821	0.28
67,875	0.08
51,222	0.67
74,630	1.14
142,070	0.90
61,844	0.10
23,292	0.17
16,581	0.23
21,455	0.29
128,641	0.20
42,166	0.31
12,387	0.24
13,199	0.38
58,530	0.15
18,630	0.23
14,205	0.66
11,553	0.47
68,279	0.14
48,516	0.48
38,871	0.94
13,296	0.91
84,607	0.11
10,852	1.22
13,877	0.77
52,023	0.32
89,266	0.16
19,779	0.48
13,592	1.21
182,244	0.42
72,107	0.35
40,260	0.35
20,848	0.88
14,985	0.67
63,015	0.13
3,609	1.87
1,485	0.98
714	1.75

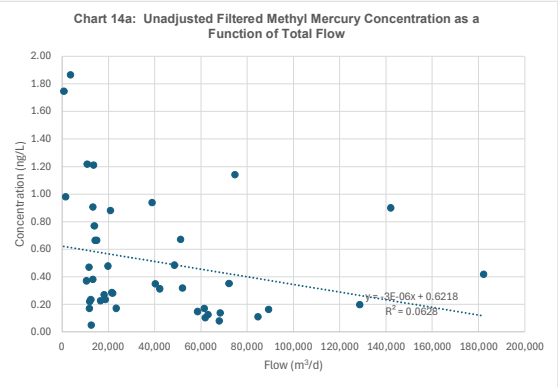


Table 14c: Data for Chart 14b

NGC 5-day Average Flow at NG-001 (m³/d)	NGC-DN-NEF (G-3) Absence of Flow Suppl or PKC Discharge (Filtered) (ng/L)
11,886	0.38
10,508	1.27
12,558	0.01
61,422	0.17
18,118	0.28
11,798	0.68
21,821	0.31
67,875	0.08
51,222	0.68
74,630	1.19
142,070	0.94
61,844	0.11
23,292	0.17
16,581	0.45
21,455	0.33
128,641	0.20
42,166	0.33
12,387	0.81
13,199	1.29
58,530	0.15
18,630	0.45
14,205	0.73
11,553	2.71
68,279	0.14
48,516	0.48
38,871	0.94
13,296	0.91
84,607	0.11
10,852	2.23
13,877	1.34
52,023	0.32
89,266	0.16
19,779	0.78
13,592	2.91
182,244	0.42
72,107	0.35
40,260	0.35
20,848	0.88
14,985	0.67
63,015	0.13
3,609	1.87
1,485	0.98
714	1.75

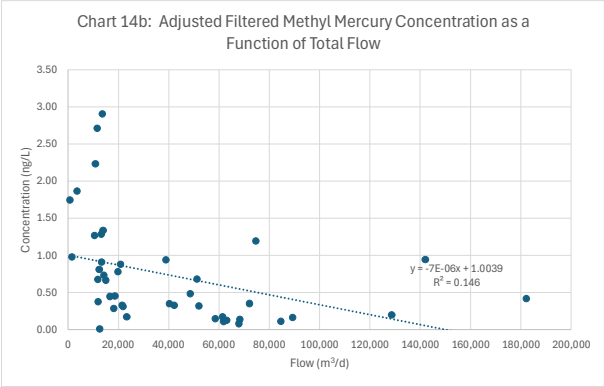


Table 14d: Methyl Mercury as a Function of Natural Flow - July (data for Chart 14c)

Year	Natural Flow (m³/d)	Adjusted NGC-DN-NEF (G-3) (Filtered) (ng/L)
2013	6,677	0.38
2014	17,062	0.28
2015	50,503	0.68
2016	23,292	0.17
2017	42,166	0.33
2018	18,630	0.45
2019	48,516	0.48
2020	10,852	2.23
2021	19,779	0.78
2022	40,260	0.35
2023	3,609	1.87

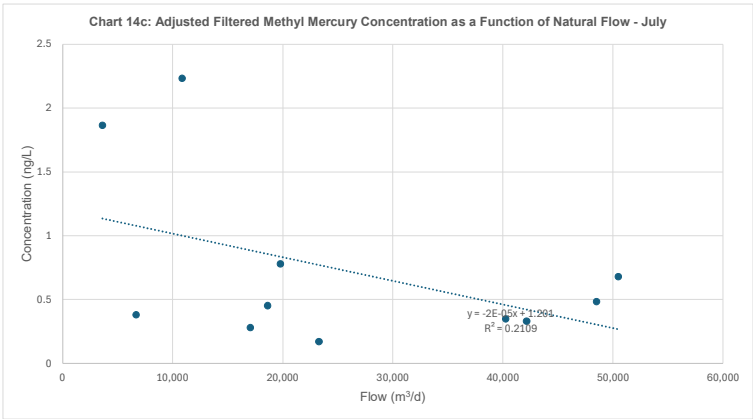


Table 14e: Methyl Mercury as a Function of Natural Flow - August (data for Chart 14d)

Year	Natural Flow (m³/d)	Adjusted NGC-DN-NEF (G-3) (Filtered) (ng/L)
2013	1,836	1.27
2014	2,413	0.68
2015	69,929	1.19
2016	7,858	0.45
2017	12,387	0.81
2018	14,205	0.73
2019	38,871	0.94
2020	13,877	1.34
2021	13,592	2.91
2022	20,848	0.88
2023	1,485	0.98

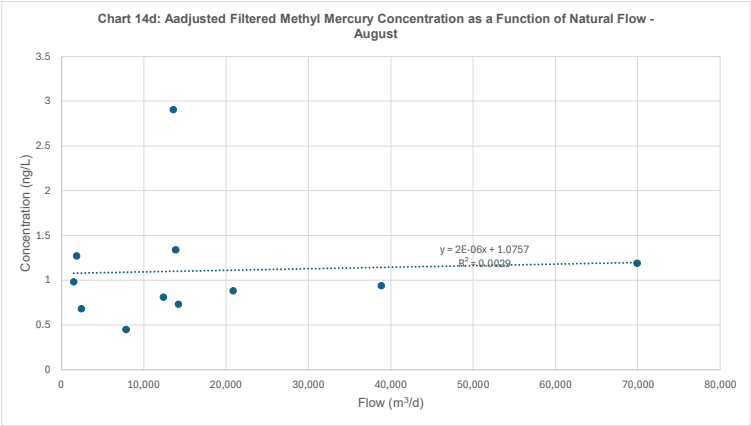


Table 14f: Methyl Mercury as a Function of Natural Flow - September (data for Chart 14e)

Year	Natural Flow (m³/d)	Adjusted NGC-DN-NEF (G-3) (Filtered) (ng/L)
2013	2,539	0.01
2014	19,231	0.31
2015	131,298	0.94
2016	18,322	0.33
2017	13,199	1.29
2018	11,553	2.71
2019	13,296	0.91
2020	52,023	0.32
2021	182,244	0.42
2022	14,985	0.67
2023	714	1.75

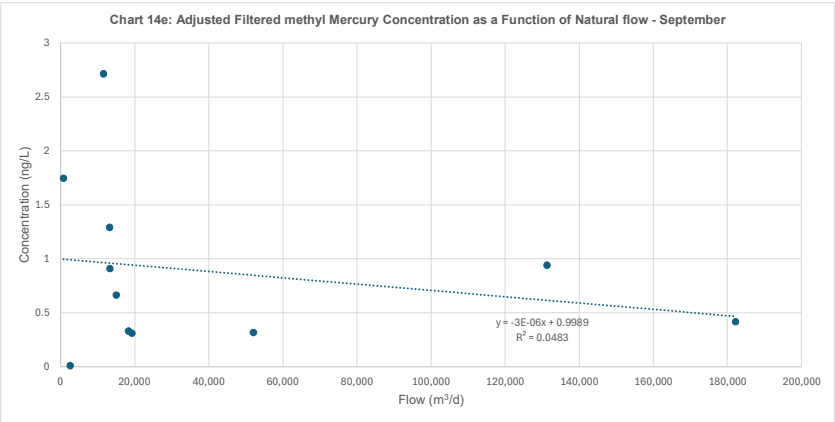


Table 15a: July / October Methyl Mercury Concentrations For Downstream Granny Creek Stations G4, G7 and G8 (Filtered) (concentrations in ng/L)

Station / Year	Month		
	July	Oct	Average
G4			
2008	0.48	0.15	0.32
2009	0.08	0.11	0.10
2010	0.08	0.13	0.11
2011	0.32	0.27	0.30
2012	0.22	0.22	0.22
2013	0.25	0.31	0.28
2014	0.29	0.14	0.22
2015	0.66	0.21	0.44
2016	0.28	0.40	0.34
2017	0.56	0.17	0.36
2018	0.27	0.21	0.24
2019	0.76	0.29	0.52
2020	1.14	0.25	0.69
2021	0.32	0.56	0.44
2022	0.30	0.17	0.23
2023	1.01	0.38	0.70
G7			
2008	0.30	0.06	0.18
2009	0.03	0.23	0.13
2010	1.22	0.15	0.69
2011	0.35	0.24	0.30
2012	0.14	0.30	0.22
2013	0.48	0.24	0.36
2014	1.06	0.11	0.59
2015	0.63	0.29	0.46
2016	0.63	0.48	0.55
2017	1.11	0.21	0.66
2018	0.51	0.21	0.36
2019	1.12	0.59	0.85
2020	2.31	0.42	1.36
2021	0.70	0.71	0.71
2022	0.39	0.20	0.30
2023	0.66	0.31	0.48
G8			
2008	0.32	0.10	0.21
2009	0.18	0.12	0.15
2010	0.83	0.10	0.47
2011	0.06	0.05	0.06
2012	0.18	0.13	0.16
2013	0.02	0.18	0.10
2014	0.04	0.03	0.04
2015	0.04	0.30	0.17
2016	0.38	0.26	0.32
2017	0.46	0.19	0.33
2018	0.43	0.16	0.29
2019	0.71	0.49	0.60
2020	1.38	0.27	0.82
2021	0.48	0.69	0.59
2022	0.38	0.27	0.33
2023	0.80	0.26	0.53

Year	Station July/October Average		
	NGC (G4)	SGC (G7)	GC (G8)
2008	0.32	0.18	0.21
2009	0.10	0.13	0.15
2010	0.11	0.69	0.47
2011	0.30	0.30	0.06
2012	0.22	0.22	0.16
2013	0.28	0.36	0.10
2014	0.22	0.59	0.04
2015	0.44	0.46	0.17
2016	0.34	0.55	0.32
2017	0.36	0.66	0.33
2018	0.24	0.36	0.29
2019	0.52	0.85	0.60
2020	0.69	1.36	0.82
2021	0.44	0.71	0.59
2022	0.23	0.30	0.33
2023	0.70	0.48	0.53

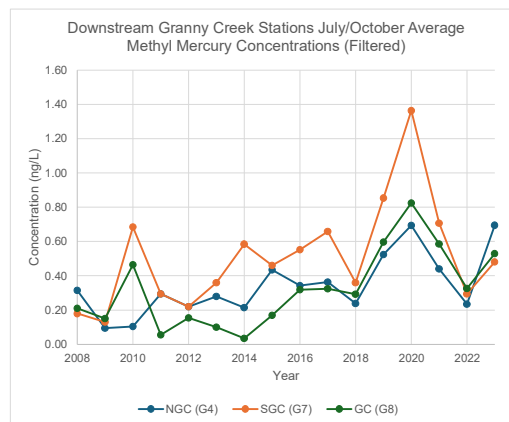


Table 15b: July / October Methyl Mercury Concentrations for Downstream Granny Creek Stations G4, G7 and G8 (Unfiltered) (concentrations in ng/L)

Station / Year	Month		
	July	Oct	Average
G4			
2008	0.52	0.18	0.35
2009	0.02	0.14	0.08
2010	1.13	0.19	0.66
2011	0.48	0.30	0.39
2012	0.28	0.27	0.28
2013	0.28	0.47	0.38
2014	0.36	0.19	0.28
2015	0.73	0.25	0.49
2016	0.40	0.46	0.43
2017	0.73	0.27	0.50
2018	0.31	0.26	0.28
2019	1.01	0.35	0.68
2020	1.26	0.22	0.74
2021	0.46	0.66	0.56
2022	0.38	0.23	0.30
2023	1.13	0.51	0.82
G7			
2008	0.26	0.10	0.18
2009	0.03	0.22	0.13
2010	1.22	0.15	0.68
2011	0.46	0.03	0.25
2012	0.19	0.37	0.28
2013	0.67	0.33	0.50
2014	1.26	0.23	0.75
2015	0.49	0.36	0.43
2016	0.77	0.61	0.69
2017	1.43	0.30	0.86
2018	0.62	0.27	0.45
2019	1.64	0.73	1.19
2020	2.50	0.46	1.48
2021	0.99	0.87	0.93
2022	0.42	0.28	0.35
2023	1.19	0.30	0.74
G8			
2008	0.33	0.14	0.24
2009	0.07	0.12	0.10
2010	1.23	0.14	0.69
2011	0.27	0.18	0.23
2012	0.18	0.13	0.16
2013	0.27	0.27	0.27
2014	0.07	0.04	0.06
2015	0.07	0.33	0.20
2016	0.53	0.30	0.42
2017	0.61	0.29	0.45
2018	0.65	0.23	0.44
2019	0.86	0.58	0.72
2020	1.48	0.24	0.86
2021	0.63	0.89	0.76
2022	0.45	0.29	0.37
2023	1.18	0.40	0.79

Year	Station July/October Average		
	NGC (G4)	SGC (G7)	GC (G8)
2008	0.35	0.18	0.24
2009	0.08	0.13	0.10
2010	0.66	0.68	0.69
2011	0.39	0.25	0.23
2012	0.28	0.28	0.16
2013	0.38	0.50	0.27
2014	0.28	0.75	0.06
2015	0.49	0.43	0.20
2016	0.43	0.69	0.42
2017	0.50	0.86	0.45
2018	0.28	0.45	0.44
2019	0.68	1.19	0.72
2020	0.74	1.48	0.86
2021	0.56	0.93	0.76
2022	0.30	0.35	0.37
2023	0.82	0.74	0.79

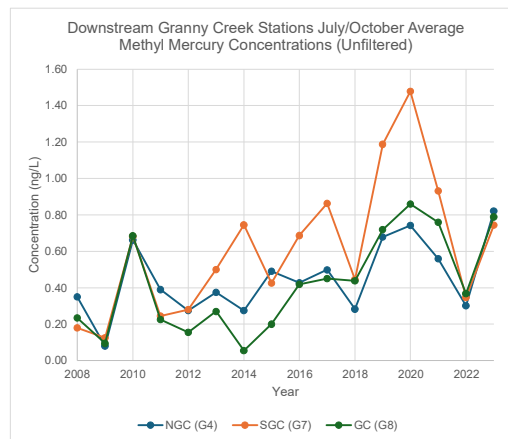


Table 16a: Total Mercury - Nayshkootayaow and Attawapiskat Rivers (Unfiltered) (concentrations in ng/L)

Date	Nayshkootayaow River Upstream N-1 (Naysh Riv UP)	Nayshkootayaow River Middle N-2 (Naysh Riv DN)	Nayshkootayaow River Downstream of NGC SGC Confluence (Naysh DN Conf)	Nayshkootayaow River Downstream N-3 (Naysh Riv UP Att Riv)	Monument Channel (Naysh Riv Control)	Attawapiskat River A-1 (Att Riv UP 2)	Attawapiskat River A-2 (Att Riv UP A2-1)	Attawapiskat River A-5 (Att Riv DN 500)	Attawapiskat River A-3 (Att Riv DN A3-1)	Attawapiskat River A-4 (Att Riv DN Naysh Riv)
						CEQG for Protection of Aquatic Life: 26 ng/L				
Feb-08	1.48	1.47	-	5.33	0.81	0.75	2.19	-	10.50	2.20
May-08	4.31	4.58	-	3.30	3.15	3.41	3.64	-	3.64	3.61
Aug-08	1.98	2.14	-	2.28	2.13	1.91	2.32	-	2.09	1.82
Oct-08	2.30	2.31	-	2.53	1.86	1.93	1.25	-	1.72	1.79
Jan-09	1.39	1.19	-	2.00	1.07	1.39	2.09	-	2.35	1.34
Feb-09	-	-	-	-	-	-	2.17	-	1.84	-
Mar-09	-	-	-	-	-	-	1.36	-	1.28	-
Apr-09	-	1.00	-	1.47	0.69	1.36	1.26	-	1.93	1.22
May-09	5.26	-	-	-	-	-	4.17	-	3.19	-
Jun-09	-	-	-	-	-	-	2.81	-	2.57	-
Jul-09	2.80	2.58	-	2.47	2.83	3.58	3.23	-	3.48	3.50
Aug-09	-	-	-	-	-	-	1.69	-	1.79	-
Sep-09	-	-	-	-	-	-	1.56	-	1.56	-
Oct-09	0.80	0.70	-	1.33	1.07	1.58	1.25	-	1.30	1.35
Nov-09	-	-	-	-	-	-	1.07	-	1.13	-
Dec-09	-	-	-	-	-	-	0.81	-	0.96	-
Jan-10	-	-	-	-	-	-	1.20	-	1.52	-
Feb-10	1.39	1.11	-	1.50	1.03	1.76	1.43	-	1.93	1.52
Mar-10	-	-	-	-	-	-	1.87	-	1.80	-
Apr-10	-	-	-	-	1.60	-	2.13	-	2.31	-
May-10	2.54	2.21	-	2.17	-	2.58	2.68	-	2.82	2.77
Jun-10	-	-	-	-	-	-	0.70	-	0.94	-
Jul-10	1.28	1.10	-	1.12	1.10	1.40	1.08	-	0.87	0.90
Aug-10	-	-	-	-	-	-	2.50	-	1.89	-
Sep-10	-	-	-	-	-	-	1.23	-	1.12	-
Oct-10	1.27	1.35	-	1.28	1.30	1.31	1.71	-	1.24	1.26
Nov-10	-	-	-	-	-	-	1.52	-	1.28	-
Dec-10	-	-	-	-	-	-	2.17	-	1.35	-
Jan-11	0.86	0.86	-	0.98	0.74	1.07	1.31	-	1.10	1.05
Feb-11	-	-	-	-	-	-	1.12	-	1.39	-
Mar-11	-	-	-	-	-	-	2.67	-	1.22	-
Apr-11	0.69	0.66	-	1.30	0.68	0.70	2.18	-	0.93	0.77
May-11	-	-	-	-	-	-	3.20	-	3.83	-
Jun-11	-	-	-	-	-	-	1.76	-	1.90	-
Jul-11	1.16	1.46	-	1.67	2.14	1.36	1.42	-	1.43	1.44
Aug-11	-	-	-	-	-	-	1.48	-	1.55	-
Sep-11*	-	-	-	-	-	-	-	-	-	-
Oct-11	1.90	2.53	-	2.09	2.99	-	2.85	-	1.99	1.95
Nov-11	-	-	-	-	-	-	1.79	-	2.09	-
Dec-11	-	-	-	-	-	-	3.51	-	1.23	-
Jan-12	1.53	1.28	-	1.47	0.94	1.27	1.16	-	1.28	1.15
Feb-12	-	-	-	-	-	-	0.85	-	0.88	-
Mar-12	-	-	-	-	-	-	0.73	-	0.75	-
Apr-12	-	-	-	-	-	-	US	-	US	-
May-12	2.22	1.86	-	2.06	2.54	1.80	1.62	-	1.51	1.61
Jun-12	-	-	-	-	-	-	3.59	-	4.00	-
Jul-12	2.00	1.79	-	1.77	2.39	2.27	2.93	-	2.20	2.37
Aug-12	-	-	-	-	-	-	1.76	-	1.51	-
Sep-12	-	-	-	-	-	-	1.43	-	1.88	-
Oct-12	1.82	1.80	-	1.91	2.56	1.30	1.08	-	1.03	1.09
Nov-12	-	-	-	-	-	-	US	-	US	-
Dec-12	-	-	-	-	-	-	2.11	-	2.24	-
Jan-13	2.13	6.63	-	1.47	3.72	1.58	3.14	-	2.63	-
Feb-13	-	-	-	-	-	-	2.00	-	1.89	-
Mar-13	-	-	-	-	-	-	1.24	-	1.36	1.32
Apr-13	0.82	0.88	-	0.78	2.79	1.77	1.09	-	1.01	0.83
May-13	-	-	-	-	-	-	3.11	-	2.43	-
Jun-13	-	-	-	-	-	-	3.06	-	2.48	-
Jul-13	0.77	0.76	-	0.84	0.99	1.04	1.16	0.98	0.95	1.06
Aug-13	-	-	-	-	-	-	1.90	1.48	1.34	-
Sep-13	-	-	-	-	-	-	1.70	1.63	1.60	-
Oct-13	0.96	1.16	-	1.12	1.08	1.08	1.03	1.22	1.21	1.35
Nov-13	-	-	-	-	-	-	1.14	US	0.97	-
Dec-13	-	-	-	-	-	-	0.82	US	0.82	-
Jan-14	-	0.30	-	0.83	<0.1	0.31	0.81	US	0.43	0.55
Feb-14	-	-	-	-	-	-	1.10	US	1.35	-
Mar-14	0.69	-	-	-	-	-	0.87	US	1.09	-
Apr-14	0.98	0.81	-	1.32	0.52	0.82	1.54	US	2.05	2.38
May-14	-	-	-	-	-	-	4.02	4.54	6.34	-
Jun-14	-	-	-	-	-	-	2.69	2.79	2.80	-
Jul-14	1.71	1.81	-	2.07	1.74	2.54	2.59	2.41	2.42	2.84
Aug-14	-	-	-	-	-	-	1.94	2.11	1.58	-
Sep-14	-	-	-	-	-	-	3.00	3.03	2.25	-
Oct-14	2.24	2.75	-	3.62	2.23	4.81	2.01	1.29	1.38	3.28
Nov-14	-	-	-	-	-	-	1.83	US	1.83	-
Dec-14	-	-	-	-	-	-	1.59	US	US	-
Jan-15	-	-	-	-	0.77	-	6.91	US	NA	-
Feb-15	1.03	7.05	-	4.78	-	1.37	1.42	US	1.36	1.16
Mar-15	-	-	-	-	-	-	2.39	US	4.87	-
Apr-15	-	0.66	-	0.68	2.78	1.16	1.54	US	1.88	1.28
May-15	2.24	-	-	-	-	-	2.77	2.48	2.75	-
Jun-15	-	-	-	-	-	-	2.09	1.98	2.40	-
Jul-15	1.66	1.79	-	1.90	-	1.50	1.76	1.74	1.60	1.53
Aug-15	-	-	-	-	-	-	2.43	2.71	2.89	-
Sep-15	-	-	-	-	3.40	-	2.19	2.28	1.81	-
Oct-15	1.61	1.23	-	1.82	-	2.00	2.07	1.98	1.70	1.84
Nov-15	-	-	-	-	1.76	-	2.38	US	2.14	-
Dec-15	-	-	-	-	-	-	US	US	US	-
Jan-16	1.52	1.44	-	2.33	-	1.95	1.78	US	US	3.59
Feb-16	-	-	-	-	1.03	-	1.76	US	1.85	-
Mar-16	-	-	-	-	-	-	1.70	US	1.60	-
Apr-16	1.37	1.45	-	1.38	-	1.83	3.66	US	1.55	2.07
May-16	-	-	-	-	4.05	-	2.09	2.27	2.27	-
Jun-16	-	-	-	-	-	-	2.59	2.92	3.30	-
Jul-16	1.63	1.49	-	1.47	2.15	1.70	1.73	2.00	2.12	1.83
Aug-16	-	-	-	-	-	-	1.46	2.03	1.81	-
Sep-16	-	-	-	-	-	-	2.28	2.33	2.16	-
Oct-16	1.75	1.79	-	1.63	-	2.09	2.47	2.73	2.77	1.86
Nov-16	-	-	-	-	1.64	-	1.76	1.85	2.15	-
Dec-16	-	-	-	-	-	-	US	US	US	-
Jan-17	US	1.12	-	2.20	-	1.66	US	US	US	1.56
Feb-17	-	-	-	-	-	-	1.36	US	8.25	-
Mar-17	US	-	-	-	0.67	-	1.40	US	1.53	-
Apr-17	-	-	-	-	-	-	US	US	US	-
May-17	-	-	3.30	-	-	-	US	US	US	-
Jun-17	3.94	2.44	1.93	3.52	1.82	2.56	2.28	2.34	2.29	2.73



Table 16a: Total Mercury - Nayshkootayaow and Attawapiskat Rivers (Unfiltered) (concentrations in ng/L)

Date	Nayshkootayaow River Upstream N-1 (Naysh Riv UP)		Nayshkootayaow River Middle N-2 (Naysh Riv DN)		Nayshkootayaow River Downstream of NGC SGC Confluence (Naysh DN Conf)		Nayshkootayaow River Downstream N-3 (Naysh Riv UP Att Riv)		Monument Channel (Naysh Riv Control)	Attawapiskat River A-1 (Att Riv UP 2)	Attawapiskat River A-2 (Att Riv UP A2-1)	Attawapiskat River A-5 (Att Riv DN 500)	Attawapiskat River A-3 (Att Riv DN A3-1)	Attawapiskat River A-4 (Att Riv DN Naysh Riv)						
CEQG for Protection of Aquatic Life: 26 ng/L																				
Jul-17	1.88		1.77		2.19		2.11		0.99	2.71	1.41	US	1.42	2.16						
Aug-17	-		-		1.67		-		-	-	1.02	US	0.98	-						
Sep-17	-		-		0.92		-		-	-	0.85	US	1.03	-						
Oct-17	0.96		0.96		1.12		1.02		-	1.19	2.13	1.23	1.31	12.28						
Nov-17	-		-		0.60		-		0.98	-	0.88	US	1.09	-						
Dec-17	-		-		0.81		-		-	-	0.98	US	1.36	-						
Jan-18	0.81		<0.69		0.83		<0.69		-	1.89	0.84	US	0.85	0.92						
Feb-18	-		-		0.84		-		<0.69	-	1.00	US	1.00	-						
Mar-18	-		-		0.93		-		-	-	0.88	US	1.29	-						
Apr-18	0.84		0.77		0.92		0.80		-	0.90	0.86	US	1.18	0.77						
May-18	-		-		4.10		-		-	-	2.61	1.85	2.86	-						
Jun-18	-		-		1.97		-		1.93	-	1.98	US	1.95	-						
Jul-18	2.23		3.54		1.41		2.76		-	2.96	1.67	US	1.60	2.26						
Aug-18	-		-		1.81		-		-	-	1.59	US	1.56	-						
Sep-18	-		-		0.89		-		3.17	-	0.86	0.94	0.97	-						
Oct-18	-		-		3.13		-		2.30	-	2.79	2.73	2.76	-						
Nov-18	-		-		2.97		-		-	-	2.03	2.03	2.06	-						
Dec-18	1.22		1.18		3.12		1.19		-	1.85	3.03	US	US	1.68						
Jan-19	US				1.32		1.33			5.70	4.25	US	2.02	2.01						
Feb-19	-		1.19		1.24		-		0.92	-	3.83	US	1.96	-						
Mar-19	-		-		1.36		-		-	-	17.79	US	1.94	-						
Apr-19	1.20		1.16		1.39		1.69		-	1.81	1.87	US	1.66	1.32						
May-19	-		-		5.82		-		5.65	-	3.33	3.41	3.39	-						
Jun-19	-		-		2.97		-		-	-	3.17	US	3.21	-						
Jul-19	2.71		2.81		2.06		2.86		-	4.53	4.16	3.98	2.08	3.66						
Aug-19	-		-		2.50		-		1.58	-	2.11	2.00	2.06	-						
Sep-19	-		-		1.44		-		-	-	1.48	1.29	1.46	-						
Oct-19	2.56		1.88		1.96		2.01		2.07	3.12	1.50	2.55	1.50	2.37						
Nov-19	-		-		1.66		-		-	-	1.68	US	1.80	-						
Dec-19	-		-		1.20		-		-	-	US	US	2.02	-						
Jan-20	1.07		1.07		1.03		1.08		1.10	2.63	2.79	1.72	1.74	1.78						
Feb-20	-		-		1.14		-		-	-	1.84	1.76	1.73	-						
Mar-20	-		-		1.04		-		-	-	1.63	-	1.76	-						
Apr-20	-		-		0.97		-		-	-	1.48	1.39	1.47	-						
May-20	-		-		4.46		-		4.81	-	-	-	7.65	-						
Jun-20	2.55		2.57		4.17		2.65		-	3.13	4.41	3.80	2.41	2.92						
Jul-20	-		-		4.16		-		-	-	2.53	2.73	2.70	-						
Aug-20	2.38		1.66		2.31		2.02		1.99	2.20	1.38	1.50	1.43	2.16						
Sep-20	-		-		2.02		-		-	-	3.54	3.27	3.69	-						
Oct-20	2.95		2.75		2.86		3.27		2.57	2.44	2.15	2.36	2.17	2.83						
Nov-20	-		-		2.05		-		-	-	-	-	-	-						
Dec-20	-		-		6.33		-		-	-	-	-	2.09	-						
Jan-21	-		-		1.19		-		-	-	3.90	1.47	1.54	-						
Feb-21	-		-		8.75		-		-	-	1.49	1.48	2.55	-						
Mar-21	1.43		1.29		1.54		4.63		2.03	1.63	1.59	1.53	1.67	1.16						
Apr-21	-		-		-		-		-	-	-	-	-	-						
May-21	-		-		3.41		-		-	-	2.53	2.61	2.43	-						
Jun-21	2.29		2.29		2.31		2.36		2.20	1.99	2.36	2.26	2.02	1.83						
Jul-21	-		-		2.07		-		-	-	1.47	1.93	1.47	-						
Aug-21	6.46		3.87		2.31		2.00		2.81	2.29	2.12	1.57	1.68	4.63						
Sep-21	-		-		3.13		-		-	-	2.97	2.76	3.49	-						
Oct-21	2.88		3.91		3.16		2.52		-	2.11	2.07	2.35	2.21	5.35						
Nov-21	-		-		2.20		-		3.08	-	4.38	1.90	2.46	-						
Dec-21	-		-		-		-		-	-	-	-	2.66	-						
Jan-22	-		-		1.59		-		-	-	6.48	1.83	1.67	-						
Feb-22	1.52		1.69		-		31.13		0.96	2.77	11.85	2.56	3.33	1.69						
Mar-22	-		-		1.27		-		-	-	1.64	1.53	1.62	-						
Apr-22	-		-		2.38		-		-	-	1.46	1.48	2.42	-						
May-22	-		-		7.25		-		-	-	-	-	-	-						
Jun-22	2.71		3.91		2.94		3.17		2.84	3.57	4.65	5.39	3.47	3.36						
Jul-22	2.01		2.08		2.19		2.83		-	2.88	2.78	3.94	2.88	3.97						
Aug-22	-		-		2.75		-		2.78	-	4.98	2.44	2.55	-						
Sep-22	-		-		1.62		-		-	-	1.77	2.05	0.97	-						
Oct-22	1.33		1.98		1.42		1.41		1.38	1.97	3.94	1.91	1.49	2.03						
Nov-22	-		-		1.61		-		-	-	1.96	1.94	1.85	-						
Dec-22	-		-		1.32		-		-	-	-	-	-	-						
Jan-23	-		-		1.45		2.06		-	2.02	1.66	1.85	1.45	1.43						
Feb-23	1.23		1.51		1.76		-		1.05	-	5.83	5.16	1.50	-						
Mar-23	-		-		1.12		-		-	-	1.22	1.22	1.92	-						
Apr-23	-		-		1.47		-		-	-	1.56	1.23	1.43	-						
May-23	-		-		6.30		-		8.25	-	-	-	-	-						
Jun-23	1.92		1.93		1.79		2.11		-	2.38	2.14	2.06	2.53	2.45						
Jul-23	-		-		1.33		-		1.33	-	1.37	2.17	1.25	-						
Aug-23	1.04		1.40		1.63		1.23		-	1.80	0.95	2.09	1.61	1.80						
Sep-23	-		-		0.63		-		-	-	1.09	1.03	1.24	-						
Oct-23	1.46		1.44		0.87		1.32		1.74	0.99	0.87	1.70	0.82	1.48						
Nov-23	-		-		0.99		-		-	-	1.48	-	1.40	-						
Dec-23	-		-		1.61		-		-	-	1.87	-	2.28	-						
Average / Standard Deviation 2009	2.56	1.98	1.37	0.83	-	-	1.82	0.52	1.42	0.96	1.98	1.07	1.96	1.00	-	-	1.96	0.80	1.85	1.10
Average / Standard Deviation 2010	1.62	0.62	1.44	0.53	-	-	1.52	0.46	1.26	0.25	1.76	0.58	1.67	0.60	-	-	1.59	0.58	1.61	0.81
Average / Standard Deviation 2011	1.15	0.53	1.38	0.84	-	-	1.51	0.48	1.64	1.13	1.04	0.33	2.12	0.82	-	-	1.70	0.80	1.30	0.51
Average / Standard Deviation 2012	1.89	0.29	1.68	0.27	-	-	1.80	0.25	2.11	0.78	1.66	0.47	1.73	0.92	-	-	1.73	0.95	1.56	0.59
Average / Standard Deviation 2013	1.17	0.65	2.36	2.85	-	-	1.05	0.32	2.15	1.34	1.37	0.36	1.78	0.87	1.33	0.29	1.56	0.65	1.14	0.24
Average / Standard Deviation 2014	1.41	0.70	1.42	1.09	-	-	1.91	1.28	<1.15	1.00	2.12	2.03	1.99	0.95	2.70	1.09	2.14	1.54	2.26	1.20
Average / Standard Deviation 2015 ¹	1.63	0.53	1.61	0.39	-	-	1.60	0.32	1.62	0.43	1.66	0.40	1.87	0.17	2.01	0.97	1.78	0.23	1.62	0.40
Average / Standard Deviation 2016	1.57	0.16	1.54	0.17	-	-	1.70	0.43	2.22	1.31	1.89	0.17	2.12	0.62	2.30	0.39	2.16	0.54	2.34	0.84
Average / Standard Deviation 2017	2.26	1.53	1.57	0.68	1.57	0.90	2.21	1.02	1.11	0.50	2.03	0.73	1.37	0.52	1.78	0.78	2.14	2.32	4.68	5.09
Average / Standard Deviation 2018	1.28	0.66	<1.55	1.35	1.91	1.12	<1.33	0.83	<2.26	0.92	1.89	0.73	1.68	0.81	1.89	0.73	1.76	0.71	1.46	0.61
Average / Standard Deviation 2019	2.15	0.83	1.76	0.78	2.08	1.30	1.97	0.65	2.55	2.12	3.79	1.69	4.11	4.66	2.65	1.07	2.09	0.60	2.34	0.98
Average / Standard Deviation 2020	2.24	0.81	2.01	0.79	2.78	1.68	2.25	0.94	2.62	1.58	2.60	0.39	2.39	1.02	2.36	0.87	2.66	1.78	2.42	0.55
Average / Standard Deviation 2021	3.26	2.21	2.84	1.28	3.01	2.14	2.88	1.19	2.53	0.50	2.00	0.28	2.49	1.00	1.99	0.48	2.20	0.61	3.24	2.06
Average / Standard Deviation 2022	1.89	0.62	2.42	1.01	2.39	1.71	9.63	14.35	1.99	0.96	2.80	0.66	4.15	3.19	2.51	1.23	2.22	0.83	2.76	1.08
Average / Standard Deviation 2023	1.41	0.38	1.57	0.24	1.76	1.47	1.68	0.47	3.09	3.45	1.80	0.59	1.82	1.38	2.06	1.24	1.58	0.49	1.79	0.47
Average / Standard Deviation All Years	1.87	1.06	1.89	1.26	2.21	1.55	2.43	3.77	2.00	1.33	2.16	1.29	2.25	1.79	2.21	0.90	2.03	1.24	2.16	1.61

Sampling locations and frequency governed by Amended C. of A. #3960-7Q4K2G.

Bracketed sampling notations are field identifications.

MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1.

¹Average and Standard Deviation has been changed in 2015 due to an error in calculation.

Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.

Sampling at Station Naysh DN Conf was initiated in May 2017.

Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.

D: Dry

F: Frozen

US: Unsafe to sample

ND

Table 16b: Total Mercury - Nayshkootayaow and Attawapiskat Rivers (Filtered) (concentrations in ng/L)

Date	Nayshkootayaow River Upstream N-1 (Naysh Riv UP)	Nayshkootayaow River Middle N-2 (Naysh Riv DN)	Nayshkootayaow River Downstream of NGC SGC Confluence (Naysh DN Conf)	Nayshkootayaow River Downstream N-3 (Naysh Riv UP Att Riv)	Monument Channel (Naysh Riv Control)	Attawapiskat River A-1 (Att Riv UP 2)	Attawapiskat River A-2 (Att Riv UP A2-1)	Attawapiskat River A-5 (Att Riv DN 500(40))	Attawapiskat River A-3 (Att Riv DN A3-1)	Attawapiskat River A-4 (Att Riv DN Naysh Riv)
Feb-08	1.15	1.12	-	2.31	0.69	2.36	2.12	-	1.73	1.97
May-08	2.71	2.71	-	2.35	2.57	2.82	2.58	-	2.80	2.64
Aug-08	1.66	1.71	-	1.89	1.68	1.57	1.53	-	1.53	1.49
Oct-08	1.79	1.79	-	1.90	1.72	1.60	1.24	-	1.39	1.39
Jan-09	0.96	0.99	-	1.99	0.80	1.14	1.58	-	1.49	1.17
Feb-09	-	-	-	-	-	-	-	-	-	-
Mar-09	-	-	-	-	-	-	-	-	-	-
Apr-09	-	0.78	-	0.76	0.67	1.08	1.11	-	1.36	1.06
May-09	2.40	-	-	-	-	-	2.11	-	2.07	-
Jun-09	-	-	-	-	-	-	1.93	-	1.84	-
Jul-09	1.49	1.43	-	1.50	1.75	2.36	1.82	-	2.03	2.34
Aug-09	-	-	-	-	-	-	1.20	-	1.22	-
Sep-09	-	-	-	-	-	-	1.32	-	1.53	-
Oct-09	0.80	0.68	-	0.86	0.80	1.05	1.05	-	1.02	0.94
Nov-09	-	-	-	-	-	-	0.76	-	0.69	-
Dec-09	-	-	-	-	-	-	0.67	-	0.68	-
Jan-10	-	-	-	-	-	-	1.41	-	1.49	-
Feb-10	0.85	0.65	-	1.06	0.50	1.21	1.47	-	1.64	1.49
Mar-10	-	-	-	-	-	-	1.30	-	1.30	-
Apr-10	-	-	-	-	1.05	-	1.45	-	1.58	-
May-10	1.28	1.59	-	1.28	-	1.69	1.77	-	1.29	1.84
Jun-10	-	-	-	-	-	-	0.60	-	0.69	-
Jul-10	0.74	0.74	-	0.73	0.70	0.77	0.72	-	1.55	0.63
Aug-10	-	-	-	-	-	-	1.62	-	1.59	-
Sep-10	-	-	-	-	-	-	0.86	-	0.71	-
Oct-10	1.07	1.08	-	1.10	1.09	1.17	1.24	-	1.27	1.30
Nov-10	-	-	-	-	-	-	1.39	-	1.39	-
Dec-10	-	-	-	-	-	-	0.98	-	0.94	-
Jan-11	0.62	0.59	-	0.62	0.51	0.92	0.98	-	0.89	0.99
Feb-11	-	-	-	-	-	-	0.85	-	0.94	-
Mar-11	-	-	-	-	-	-	1.05	-	0.98	-
Apr-11	0.68	0.46	-	1.12	0.37	0.67	0.78	-	0.73	0.94
May-11	-	-	-	-	-	-	1.99	-	2.06	-
Jun-11	-	-	-	-	-	-	1.18	-	1.21	-
Jul-11	1.15	1.15	-	1.28	0.94	1.28	0.93	-	0.88	0.90
Aug-11	-	-	-	-	-	-	<0.1	-	0.98	-
Sep-11*	-	-	-	-	-	-	-	-	-	-
Oct-11	1.35	1.53	-	1.51	1.72	1.35	1.73	-	1.31	1.33
Nov-11	-	-	-	-	-	-	1.23	-	1.23	-
Dec-11	-	-	-	-	-	-	1.00	-	0.91	-
Jan-12	1.47	0.68	-	0.84	0.43	0.77	0.72	-	0.75	0.73
Feb-12	-	-	-	-	-	-	0.49	-	0.52	-
Mar-12	-	-	-	-	-	-	0.49	-	0.45	-
Apr-12	-	-	-	-	-	-	US	-	US	-
May-12	1.07	1.06	-	1.23	1.49	0.94	0.81	-	0.86	0.87
Jun-12	-	-	-	-	-	-	1.68	-	1.62	-
Jul-12	0.99	0.99	-	1.02	1.46	1.23	1.28	-	1.18	1.03
Aug-12	-	-	-	-	-	-	0.81	-	0.82	-
Sep-12	-	-	-	-	-	-	1.05	-	1.23	-
Oct-12	1.08	0.96	-	1.08	1.57	0.78	0.80	-	0.69	0.66
Nov-12	-	-	-	-	-	-	US	-	US	-
Dec-12	-	-	-	-	-	-	1.26	-	1.20	-
Jan-13	1.58	1.62	-	0.63	1.73	1.24	1.98	-	1.94	-
Feb-13	-	-	-	-	-	-	1.29	-	1.18	-
Mar-13	-	-	-	-	-	-	0.91	-	0.87	0.82
Apr-13	0.40	0.44	-	0.47	0.41	0.63	0.74	-	0.75	0.48
May-13	-	-	-	-	-	-	1.65	-	1.23	-
Jun-13	-	-	-	-	-	-	1.64	-	1.64	-
Jul-13	0.40	0.40	-	0.50	0.40	0.70	0.70	0.6	0.60	0.60
Aug-13	-	-	-	-	-	-	0.82	0.79	0.80	-
Sep-13	-	-	-	-	-	-	1.31	1.28	1.32	-
Oct-13	0.82	0.25	-	0.68	1.07	0.73	0.78	1.03	0.73	0.76
Nov-13	-	-	-	-	-	-	0.10	US	0.71	-
Dec-13	-	-	-	-	-	-	0.59	US	0.78	-
Jan-14	-	0.25	-	0.19	0.15	0.38	0.74	US	0.51	0.45
Feb-14	-	-	-	-	-	-	0.94	US	1.94	-
Mar-14	0.45	-	-	-	-	-	1.30	US	0.95	-
Apr-14	0.40	0.50	-	0.75	0.34	0.70	0.65	US	0.74	0.92
May-14	-	-	-	-	-	-	1.81	2.46	2.11	-
Jun-14	-	1.03	-	1.28	-	-	2.28	1.94	2.42	-
Jul-14	1.15	-	-	-	1.56	1.75	1.68	1.54	1.56	1.73
Aug-14	-	-	-	-	-	-	1.24	1.28	1.16	-
Sep-14	-	-	-	-	-	-	2.26	2.12	1.60	-
Oct-14	1.70	2.18	-	1.56	1.21	2.10	1.22	1.24	1.32	1.98
Nov-14	-	-	-	-	-	-	1.33	US	1.50	-
Dec-14	-	-	-	-	-	-	1.44	US	US	-
Jan-15	-	-	-	-	0.51	-	1.57	US	ND	-
Feb-15	0.59	0.66	-	0.49	-	1.04	0.91	US	1.39	0.94
Mar-15	-	-	-	-	-	-	1.68	US	1.83	-
Apr-15	-	0.46	-	0.44	0.32	0.90	1.00	US	1.06	0.92
May-15	1.73	-	-	-	-	-	1.50	1.99	1.83	-
Jun-15	-	-	-	-	-	-	1.94	1.57	1.93	-
Jul-15	1.49	1.52	-	1.57	-	1.79	1.66	1.66	1.66	1.65
Aug-15	-	-	-	-	-	-	2.45	2.28	2.31	-
Sep-15	-	-	-	-	1.88	-	1.50	1.66	1.45	-
Oct-15	1.16	1.27	-	1.22	-	1.22	1.31	1.24	1.24	1.46
Nov-15	-	-	-	-	0.98	-	1.62	US	1.57	-
Dec-15	-	-	-	-	-	-	US	US	US	-
Jan-16	0.77	0.73	-	0.76	-	1.55	1.60	US	US	1.47
Feb-16	-	-	-	-	0.40	-	1.43	US	1.47	-
Mar-16	-	-	-	-	-	-	1.37	US	1.24	-
Apr-16	0.57	0.56	-	0.51	-	1.25	1.26	US	1.30	1.18
May-16	-	-	-	-	1.70	-	1.32	1.34	1.43	-
Jun-16	-	-	-	-	-	-	1.58	1.74	1.78	-
Jul-16	1.12	1.26	-	1.28	1.04	1.33	1.37	1.48	1.32	1.27
Aug-16	-	-	-	-	-	-	0.92	1.27	1.20	-
Sep-16	-	-	-	-	-	-	1.36	1.49	1.37	-
Oct-16	1.04	1.08	-	1.13	-	1.31	1.46	1.42	1.42	1.37
Nov-16	-	-	-	-	1.08	-	1.08	1.17	1.04	-
Dec-16	-	-	-	-	-	-	US	US	US	-
Jan-17	US	0.67	-	0.84	-	1.22	US	US	US	1.11
Feb-17	-	-	-	-	-	-	1.18	US	1.48	-
Mar-17	US	-	-	-	0.26	-	1.15	US	1.22	-
Apr-17	-	-	-	-	-	-	US	US	US	-
May-17	-	-	1.81	-	-	-	US	US	US	-
Jun-17	1.74	1.29	1.18	1.77	1.31	1.56	1.43	1.37	1.42	1.61

Table 16b: Total Mercury - Nayshkootayaow and Attawapiskat Rivers (Filtered) (concentrations in ng/L)

Date	Nayshkootayaow River Upstream N-1 (Naysh Riv UP)	Nayshkootayaow River Middle N-2 (Naysh Riv DN)	Nayshkootayaow River Downstream of NGC SGC Confluence (Naysh DN Conf)	Nayshkootayaow River Downstream N-3 (Naysh Riv UP Att Riv)	Monument Channel (Naysh Riv Control)	Attawapiskat River A-1 (Att Riv UP 2)	Attawapiskat River A-2 (Att Riv UP A2-1)	Attawapiskat River A-5 (Att Riv DN 500(40))	Attawapiskat River A-3 (Att Riv DN A3-1)	Attawapiskat River A-4 (Att Riv DN Naysh Riv)
Jul-17	1.29	1.39	1.35	1.39	0.40	1.34	0.92	US	0.97	1.45
Aug-17	-	-	0.83	-	-	-	0.68	US	0.71	-
Sep-17	-	-	0.65	-	-	-	0.66	US	0.71	-
Oct-17	0.77	0.91	0.91	0.87	-	1.04	1.21	1.09	1.24	1.16
Nov-17	-	-	0.47	-	0.86	-	0.76	US	1.02	-
Dec-17	-	-	0.37	-	-	-	0.65	US	0.71	-
Jan-18	<0.69	<0.69	<0.69	<0.69	-	0.79	<0.69	US	0.73	<0.69
Feb-18	-	-	<0.69	-	<0.69	-	<0.69	US	<0.69	-
Mar-18	-	-	<0.69	-	-	-	0.80	US	1.05	-
Apr-18	0.89	0.83	<0.69	<0.69	-	<0.69	0.88	US	<0.69	<0.69
May-18	-	-	2.45	-	-	-	1.44	1.58	1.79	-
Jun-18	-	-	1.34	-	1.33	-	1.34	1.33	1.38	-
Jul-18	1.21	1.25	1.04	1.38	-	0.88	0.98	1.04	0.95	0.86
Aug-18	-	-	1.33	-	-	-	1.11	1.23	1.06	-
Sep-18	-	-	0.75	-	2.06	-	0.80	0.73	0.82	-
Oct-18	-	-	1.48	-	1.63	-	1.49	1.61	1.51	-
Nov-18	-	-	1.94	-	-	-	1.55	1.39	1.54	-
Dec-18	0.75	0.75	0.86	0.74	-	1.39	1.58	US	US	1.41
Jan-19	US		0.80	0.69		1.54	1.66	US	1.54	1.49
Feb-19		0.73	0.65		0.49		1.41	US	1.48	
Mar-19			0.74				1.41	US	1.49	
Apr-19	0.62	0.62	0.73	1.10		1.12	1.48	US	1.34	0.84
May-19			2.53		2.51		2.06	2.13	2.08	
Jun-19			1.72				1.93	US	1.96	
Jul-19	1.47	1.64	1.35	1.72		2.80	2.79	2.31	1.39	1.89
Aug-19			1.88		1.38		1.29	1.34	1.37	
Sep-19			1.16				1.04	1.40	1.18	
Oct-19	1.23	1.20	1.25	1.29	1.57	1.18	1.11	1.06	1.07	1.20
Nov-19			1.02				1.15	US	1.20	
Dec-19			0.73				US	US	1.62	
Jan-20	0.82	0.56	0.73	0.61	0.57	1.30	1.63	1.51	1.34	1.42
Feb-20			0.63				1.44	1.43	1.52	
Mar-20			0.46				1.26		1.27	
Apr-20			0.47				1.13	1.10	1.08	
May-20			1.85		2.30				1.79	
Jun-20	1.67	1.66	2.19	1.72		2.02	2.16	2.12	1.76	1.84
Jul-20			1.50				1.61	1.66	1.63	
Aug-20	1.39	0.99	1.45	1.36	1.17	1.20	0.92	0.98	1.03	1.12
Sep-20			1.54				2.39	2.28	2.65	
Oct-20	1.75	1.62	1.64	1.88	1.40	1.59	1.36	1.49	1.37	1.59
Nov-20			1.30							
Dec-20			1.00						1.58	
Jan-21			0.60				1.20	1.05	1.08	
Feb-21			0.79				1.10	1.17	1.13	
Mar-21	0.60	0.59	0.64	0.62	0.79	1.02	1.11	1.07	1.15	0.57
Apr-21										
May-21			2.08				1.64	1.74	1.74	
Jun-21	1.88	1.86	1.79	1.83	1.88	1.67	1.67	1.88	1.60	1.65
Jul-21			1.47				1.47	1.47	1.47	
Aug-21	2.37	1.46	2.04	1.39	1.70	1.16	1.10	1.18	1.28	2.32
Sep-21			2.01				1.97	1.80	2.24	
Oct-21	2.04	1.86	2.13	1.86		1.81	1.57	1.63	1.53	1.77
Nov-21			1.45		1.48		1.32	1.29	1.50	
Dec-21									1.46	
Jan-22			0.76				1.15	1.06	1.16	
Feb-22	0.78	0.84		1.19		1.30	1.30	1.22	1.20	1.11
Mar-22			0.54		0.35		1.03	0.95	1.08	
Apr-22			1.36				1.25	1.30	1.50	
May-22			2.49							
Jun-22	1.79	1.54	1.87	1.65	1.74	2.53	2.17	2.42	2.34	2.37
Jul-22	1.45	1.63	2.36	1.32		2.06	2.06	1.89	2.63	1.99
Aug-22			1.78		1.40		1.95	1.65	2.08	
Sep-22			1.28				1.02	1.57	1.12	
Oct-22	0.98	1.13	0.98	1.16	0.92	1.53	1.18	1.49	1.17	1.36
Nov-22			1.20				1.38	1.41	1.38	
Dec-22			0.78							
Jan-23			0.67	0.68		0.97	0.94	0.96	0.83	0.75
Feb-23	0.65	0.54	0.64		0.44		1.04	1.22	1.04	
Mar-23			0.53				0.91	0.91	0.88	
Apr-23			0.53				0.71	0.94	0.56	
May-23			2.24		1.66					
Jun-23	1.20	1.06	1.40	1.44		2.03	1.82	1.25	1.96	1.95
Jul-23			1.17		0.82		1.18	0.82	1.18	
Aug-23	0.52	0.39	0.80	0.47		0.95	0.75	0.96	1.03	0.88
Sep-23			0.30				0.52	0.59	0.58	
Oct-23	0.77	0.71	0.18	0.63	1.07	0.48	0.36	1.25	0.44	0.74
Nov-23			0.67				1.08		1.19	
Dec-23			0.47				0.96		1.12	
Average / Standard Deviation 2009	1.41	0.72	0.97	0.33	-	-	1.28	0.58	-	
Average / Standard Deviation 2010	0.99	0.24	1.01	0.43	-	-	1.04	0.23	0.83	0.28
Average / Standard Deviation 2011	0.95	0.36	0.93	0.50	-	-	1.13	0.38	0.89	0.61
Average / Standard Deviation 2012	1.15	0.22	0.92	0.17	-	-	1.04	0.16	1.24	0.54
Average / Standard Deviation 2013	0.80	0.56	0.68	0.63	-	-	0.97	0.10	0.90	0.63
Average / Standard Deviation 2014	0.93	0.62	0.99	0.86	-	-	0.95	0.61	0.82	0.68
Average / Standard Deviation 2015	1.24	0.49	0.98	0.50	-	-	0.93	0.56	0.92	0.70
Average / Standard Deviation 2016	0.87	0.26	0.91	0.32	-	-	0.92	0.35	1.06	0.53
Average / Standard Deviation 2017	1.27	0.49	1.07	0.34	0.95	0.48	1.22	0.44	0.71	0.48
Average / Standard Deviation 2018	0.86	0.21	0.85	0.23	1.26	0.57	0.85	0.30	1.57	0.51
Average / Standard Deviation 2019	1.11	0.44	1.05	0.47	1.21	0.58	1.20	0.43	1.49	0.83
Average / Standard Deviation 2020	1.36	0.52	1.21	0.53	1.23	0.57	1.39	0.57	1.36	0.72
Average / Standard Deviation 2021	1.72	0.77	1.44	0.60	1.50	0.82	1.42	0.58	1.41	0.38
Average / Standard Deviation 2022	1.25	0.46	1.29	0.37	1.40	0.65	1.33	0.23	1.10	0.61
Average / Standard Deviation 2023	0.78	0.30	0.67	0.29	0.80	0.57	0.80	0.43	1.00	0.51
Average / Standard Deviation All Years	1.16	0.53	1.05	0.51	1.18	0.60	1.14	0.50	1.12	0.60

Table 17a: Methyl Mercury - Nayshkootayaow and Attawapiskat Rivers (Unfiltered) (concentrations in ng/L)

Date	Nayshkootayaow River Upstream N-1 (Naysh Riv UP)	Nayshkootayaow River Middle N-2 (Naysh Riv DN)	Nayshkootayaow River Downstream of NGC SGC Confluence (Naysh DN Conf)	Nayshkootayaow River Downstream N-3 (Naysh Riv UP Att Riv)	Monument Channel (Naysh Riv Control)	Attawapiskat River A-1 (Att Riv UP 2)	Attawapiskat River A-2 (Att Riv UP A2-1)	Attawapiskat River A-5 (Att Riv DN 500(40))	Attawapiskat River A-3 (Att Riv DN A3-1)	Attawapiskat River A-4 (Att Riv DN Naysh Riv)
	CEQG for Protection of Aquatic Life: 4 ng/L									
Feb-08	0.03	0.03	-	0.09	0.04	0.14	0.03	-	0.20	0.04
May-08	0.04	0.04	-	<0.02	0.08	0.06	0.07	-	0.05	0.04
Aug-08	0.06	0.07	-	0.11	0.14	0.06	0.05	-	0.03	0.04
Oct-08	0.06	0.05	-	0.07	0.06	0.04	0.02	-	0.03	0.02
Jan-09	0.03	0.02	-	0.04	0.05	0.02	0.04	-	0.03	0.02
Feb-09	-	-	-	-	-	-	-	-	-	-
Mar-09	-	-	-	-	-	-	-	-	-	-
Apr-09	-	0.03	-	0.02	0.02	0.03	0.02	-	<0.02	0.03
May-09	0.03	-	-	-	-	-	0.02	-	0.02	-
Jun-09	-	-	-	-	-	-	0.10	-	0.07	-
Jul-09	0.05	0.05	-	0.03	0.03	0.04	0.04	-	0.10	0.02
Aug-09	-	-	-	-	-	-	-	-	-	-
Sep-09	-	-	-	-	-	-	-	-	-	-
Oct-09	0.06	0.05	-	0.05	0.10	0.09	0.06	-	0.05	0.10
Nov-09	-	-	-	-	-	-	0.04	-	0.05	-
Dec-09	-	-	-	-	-	-	0.08	-	0.10	-
Jan-10	-	-	-	-	-	-	0.09	-	0.08	-
Feb-10	0.20	0.04	-	0.03	0.02	0.04	0.05	-	0.07	0.03
Mar-10	-	-	-	-	-	-	0.06	-	0.03	-
Apr-10	-	-	-	-	0.07	-	0.06	-	0.06	-
May-10	0.05	<0.02	-	0.05	-	<0.02	<0.02	-	0.05	<0.02
Jun-10	-	-	-	-	-	-	0.08	-	0.05	-
Jul-10	<0.02	0.10	-	0.11	0.14	0.15	0.04	-	0.12	0.09
Aug-10	-	-	-	-	-	-	0.08	-	0.07	-
Sep-10	-	-	-	-	-	-	0.04	-	0.04	-
Oct-10	0.04	0.05	-	0.05	0.14	0.03	0.03	-	0.04	0.03
Nov-10	-	-	-	-	-	-	0.07	-	0.04	-
Dec-10	-	-	-	-	-	-	<0.02	-	0.04	-
Jan-11	0.03	0.03	-	<0.02	0.05	0.04	0.04	-	0.03	0.04
Feb-11	-	-	-	-	-	-	<0.02	-	<0.02	-
Mar-11	-	-	-	-	-	-	0.03	-	<0.02	-
Apr-11	-	-	-	-	-	-	0.06	-	0.03	-
May-11	-	-	-	-	-	-	0.07	-	0.05	-
Jun-11	-	-	-	-	-	-	0.03	-	0.03	-
Jul-11	0.07	0.06	-	0.08	0.13	0.05	0.05	-	0.05	0.03
Aug-11	-	-	-	-	-	-	0.07	-	0.07	-
Sep-11*	-	-	-	-	-	-	-	-	-	-
Oct-11	0.27	0.08	-	0.08	0.12	-	0.10	-	0.07	0.04
Nov-11	-	-	-	-	-	-	0.07	-	0.06	-
Dec-11	-	-	-	-	-	-	0.07	-	0.04	-
Jan-12	0.08	0.09	-	0.06	0.12	0.06	0.06	-	0.08	0.06
Feb-12	-	-	-	-	-	-	0.06	-	<0.02	-
Mar-12	-	-	-	-	-	-	0.03	-	0.03	-
Apr-12	-	-	-	-	-	-	US	-	US	-
May-12	0.05	0.05	-	0.05	0.10	0.07	0.06	-	0.06	0.04
Jun-12	-	-	-	-	-	-	<0.02	-	0.08	-
Jul-12	0.07	0.07	-	0.08	0.17	0.06	0.07	-	0.04	0.06
Aug-12	-	-	-	-	-	-	0.05	-	0.03	-
Sep-12	-	-	-	-	-	-	0.04	-	0.04	-
Oct-12	0.03	0.04	-	0.06	0.07	<0.02	0.02	-	<0.02	0.04
Nov-12	-	-	-	-	-	-	US	-	US	-
Dec-12	-	-	-	-	-	-	0.05	-	0.05	-
Jan-13	<0.02	0.03	-	<0.02	0.10	<0.02	0.04	-	0.04	-
Feb-13	-	-	-	-	-	-	0.04	-	0.04	-
Mar-13	-	-	-	-	-	-	0.03	-	0.04	-
Apr-13	0.04	0.03	-	0.03	0.09	0.05	0.03	-	0.03	0.04
May-13	-	-	-	-	-	-	0.04	-	0.09	0.02
Jun-13	-	-	-	-	-	-	0.07	-	0.06	-
Jul-13	0.02	<0.02	-	0.04	0.03	<0.02	0.04	0.05	0.02	0.08
Aug-13	-	-	-	-	-	-	0.05	0.06	0.07	-
Sep-13	-	-	-	-	-	-	0.07	0.05	0.05	-
Oct-13	0.18	0.08	-	0.05	0.11	0.04	0.04	<0.02	0.02	0.02
Nov-13	-	-	-	-	-	-	US	-	US	-
Dec-13	-	-	-	-	-	-	<0.02	-	<0.02	-
Jan-14	-	<0.02	-	0.04	0.05	<0.02	0.03	US	<0.02	0.04
Feb-14	-	-	-	-	-	-	0.03	US	0.05	-
Mar-14	0.03	-	-	-	-	-	0.02	US	0.03	-
Apr-14	0.04	<0.02	-	0.03	0.05	0.03	0.02	US	0.05	0.04
May-14	-	-	-	-	-	-	0.06	0.06	0.06	-
Jun-14	-	-	-	-	-	-	0.06	0.06	0.08	-
Jul-14	0.07	0.07	-	0.09	0.18	0.06	0.06	0.09	0.05	0.07
Aug-14	-	-	-	-	-	-	0.06	0.05	0.06	-
Sep-14	-	-	-	-	-	-	0.09	0.08	0.05	-
Oct-14	0.07	0.04	-	0.08	0.08	0.05	0.05	0.10	0.06	0.05
Nov-14	-	-	-	-	-	-	US	-	0.04	-
Dec-14	-	-	-	-	-	-	0.05	US	US	-
Jan-15	-	-	-	-	0.05	-	0.05	US	ND	-
Feb-15	0.07	0.14	-	0.19	-	0.05	0.04	US	0.08	0.05
Mar-15	-	-	-	-	-	-	0.05	US	0.09	-
Apr-15	-	0.03	-	0.03	0.04	0.03	0.04	US	0.03	0.03
May-15	0.04	-	-	-	-	-	0.04	0.05	0.03	-
Jun-15	-	-	-	-	-	-	0.04	0.03	0.04	-
Jul-15	0.07	0.07	-	0.08	-	0.07	0.06	0.06	0.06	0.07
Aug-15	-	-	-	-	-	-	0.06	0.07	0.06	-
Sep-15	-	-	-	-	0.10	-	0.09	0.06	0.04	-
Oct-15	0.03	0.03	-	0.06	-	0.03	0.20	0.02	0.03	0.03
Nov-15	-	-	-	-	0.08	-	US	-	0.03	-
Dec-15	-	-	-	-	-	-	US	US	US	-
Jan-16	0.04	0.03	-	0.06	-	0.04	0.26	US	US	0.06
Feb-16	-	-	-	-	0.05	-	0.04	US	0.03	-
Mar-16	-	-	-	-	-	-	0.04	US	0.04	-
Apr-16	0.04	0.03	-	0.04	-	0.04	0.08	US	0.04	0.04
May-16	-	-	-	-	0.07	-	0.03	0.03	0.02	-
Jun-16	-	-	-	-	-	-	0.04	0.04	0.06	-
Jul-16	0.06	0.05	-	0.07	<0.02	0.05	0.04	0.04	0.07	0.05
Aug-16	-	-	-	-	-	-	0.04	0.03	0.04	-
Sep-16	-	-	-	-	-	-	0.03	0.05	0.04	-
Oct-16	0.04	0.05	-	0.04	-	0.04	0.04	0.05	0.04	0.04
Nov-16	-	-	-	-	0.06	-	0.05	0.04	0.04	-
Dec-16	-	-	-	-	-	-	US	US	US	-
Jan-17	US	0.03	-	0.05	-	0.03	US	US	US	0.02
Feb-17	-	-	-	-	-	-	0.03	US	0.19	-
Mar-17	US	-	-	-	0.06	-	0.03	US	0.03	-
Apr-17	-	-	-	-	-	-	US	US	US	-
May-17	-	-	0.07	-	-	-	US	US	US	-
Jun-17	0.09	0.07	0.07	0.10	0.15	0.07	0.04	0.05	0.04	0.04



Table 17a: Methyl Mercury - Nayshkootayaow and Attawapiskat Rivers (Unfiltered) (concentrations in ng/L)

Date	Nayshkootayaow River Upstream N-1 (Naysh Riv UP)	Nayshkootayaow River Middle N-2 (Naysh Riv DN)	Nayshkootayaow River Downstream of NGC SGC Confluence (Naysh DN Conf)	Nayshkootayaow River Downstream N-3 (Naysh Riv UP Att Riv)	Monument Channel (Naysh Riv Control)	Attawapiskat River A-1 (Att Riv UP 2)	Attawapiskat River A-2 (Att Riv UP A2-1)	Attawapiskat River A-5 (Att Riv DN 500(40))	Attawapiskat River A-3 (Att Riv DN A3-1)	Attawapiskat River A-4 (Att Riv DN Naysh Riv)
CEQG for Protection of Aquatic Life: 4 ng/L										
Jul-17	0.18	0.08	0.11	0.10	-	0.07	0.03	US	0.03	0.07
Aug-17	-	-	0.08	-	0.08	-	0.02	US	0.02	-
Sep-17	-	-	0.19	-	-	-	0.03	US	0.02	-
Oct-17	0.04	0.05	0.15	0.06	-	0.04	0.03	0.03	0.03	0.03
Nov-17	-	-	0.05	-	0.08	-	0.05	US	0.02	-
Dec-17	-	-	0.04	-	-	-	0.03	US	0.04	-
Jan-18	0.04	0.04	0.05	0.06	-	0.86	0.03	US	0.04	0.02
Feb-18	-	-	0.05	-	0.06	-	0.03	US	0.03	-
Mar-18	-	-	0.04	-	-	-	0.03	US	0.03	-
Apr-18	0.05	0.06	0.05	0.04	-	0.02	0.03	US	0.02	0.04
May-18	-	-	0.07	-	-	-	0.06	0.03	0.03	-
Jun-18	-	-	0.06	-	0.13	-	0.05	0.05	0.05	-
Jul-18	0.24	0.08	0.10	0.11	-	0.16	0.06	0.06	0.06	0.14
Aug-18	-	-	0.10	-	-	-	0.14	0.05	0.05	-
Sep-18	-	-	0.08	-	0.16	-	0.04	0.04	0.03	-
Oct-18	-	-	0.06	-	0.10	-	0.06	0.06	0.04	-
Nov-18	-	-	0.09	-	-	-	0.05	0.04	0.03	-
Dec-18	0.04	0.04	0.09	0.07	-	0.04	0.07	US	US	0.04
Jan-19	US	-	0.05	0.05	-	0.18	0.09	US	0.04	0.02
Feb-19	-	0.04	-	-	0.05	-	0.07	US	0.04	-
Mar-19	-	-	0.03	-	-	-	0.25	US	0.03	-
Apr-19	0.05	0.04	0.06	0.10	-	0.05	0.04	US	0.03	0.04
May-19	-	-	0.05	-	0.10	-	0.05	0.04	0.04	-
Jun-19	-	-	0.07	-	-	-	0.05	US	0.05	-
Jul-19	0.07	0.07	0.12	0.10	-	0.09	0.07	0.05	0.09	0.10
Aug-19	-	-	0.21	-	0.13	-	0.06	0.06	0.06	-
Sep-19	-	-	0.13	-	-	-	0.03	0.05	0.03	-
Oct-19	0.05	0.08	0.07	0.07	0.07	0.04	0.03	0.03	0.03	0.06
Nov-19	-	-	0.05	-	-	-	0.04	US	0.03	-
Dec-19	-	-	0.05	-	-	-	US	US	0.04	-
Jan-20	0.03	0.03	0.04	0.03	0.07	0.06	0.05	0.04	0.04	0.05
Feb-20	-	-	0.05	-	-	-	0.04	0.07	0.03	-
Mar-20	-	-	-	-	-	-	0.04	-	0.04	-
Apr-20	-	-	0.05	-	-	-	0.04	0.03	0.03	-
May-20	-	-	0.10	-	0.12	-	-	-	0.12	-
Jun-20	0.05	0.06	0.07	0.08	-	0.07	0.07	0.07	0.07	0.06
Jul-20	-	-	0.15	-	-	-	0.05	0.05	0.05	-
Aug-20	0.13	0.09	0.20	0.14	0.13	0.07	0.04	0.05	0.04	0.06
Sep-20	-	-	0.06	-	-	-	0.11	0.06	0.05	-
Oct-20	0.06	0.04	0.07	0.10	0.08	0.05	0.05	0.04	9.94	0.10
Nov-20	-	-	0.07	-	-	-	-	-	-	-
Dec-20	-	-	0.14	-	-	-	-	-	0.10	-
Jan-21	-	-	0.08	-	-	-	0.12	0.07	0.04	-
Feb-21	-	-	0.19	-	-	-	0.08	0.06	0.07	-
Mar-21	0.07	0.07	0.07	0.12	0.17	0.07	0.06	0.06	0.09	0.08
Apr-21	-	-	-	-	-	-	-	-	-	-
May-21	-	-	0.08	-	-	-	0.08	0.09	0.09	-
Jun-21	0.05	0.12	0.14	0.09	0.14	0.07	0.10	0.08	0.08	0.10
Jul-21	-	-	0.12	-	-	-	0.05	0.05	0.04	-
Aug-21	0.09	0.08	0.19	0.15	0.20	0.06	0.08	0.07	0.02	0.16
Sep-21	-	-	0.14	-	-	-	0.06	0.04	0.04	-
Oct-21	0.16	0.13	0.13	0.11	-	0.06	0.07	0.05	0.12	0.08
Nov-21	-	-	0.07	-	0.16	-	0.09	0.04	0.05	-
Dec-21	-	-	-	-	-	-	-	-	0.04	-
Jan-22	-	-	0.04	-	-	-	0.12	0.04	0.04	-
Feb-22	0.04	0.05	-	0.66	-	0.04	0.11	0.04	0.03	0.03
Mar-22	-	-	0.04	-	0.05	-	0.04	0.04	0.04	-
Apr-22	-	-	0.07	-	-	-	<0.03	<0.03	0.05	-
May-22	-	-	0.11	-	-	-	-	-	-	-
Jun-22	0.06	0.07	0.08	0.07	0.10	0.06	0.07	0.07	0.04	0.05
Jul-22	0.05	0.06	0.07	0.06	-	0.06	0.07	0.07	0.07	0.06
Aug-22	-	-	0.17	-	0.26	-	0.14	0.08	0.10	-
Sep-22	-	-	0.09	-	-	-	0.07	0.05	0.05	-
Oct-22	0.04	0.08	0.07	0.08	-	0.07	0.09	0.06	0.04	0.06
Nov-22	-	-	0.05	-	-	-	0.04	0.03	0.04	-
Dec-22	-	-	0.03	-	-	-	-	-	-	-
Jan-23	-	-	<0.03	0.03	-	<0.03	0.03	<0.03	<0.03	<0.03
Feb-23	<0.03	<0.03	0.03	-	0.05	-	0.05	0.09	<0.03	-
Mar-23	-	-	0.04	-	-	-	0.03	<0.03	0.03	-
Apr-23	-	-	0.08	-	-	-	0.04	0.04	0.06	-
May-23	-	-	0.14	-	0.08	-	-	-	-	-
Jun-23	0.10	0.10	0.13	0.12	-	0.08	0.15	0.10	0.08	0.09
Jul-23	-	-	0.10	-	0.10	-	0.08	0.06	0.06	-
Aug-23	0.09	0.06	0.10	0.09	-	0.07	<0.04	<0.04	0.09	0.06
Sep-23	-	-	0.09	-	-	-	0.07	0.05	0.04	-
Oct-23	0.08	0.07	0.08	0.11	0.20	0.05	0.05	0.06	0.05	0.09
Nov-23	-	-	0.06	-	-	-	0.04	-	0.03	-
Dec-23	-	-	0.05	-	-	-	0.03	-	0.04	-
Average / Standard Deviation 2009	0.04	0.01	0.04	0.01	0.03	0.01	0.05	0.04	0.03	0.03
Average / Standard Deviation 2010	<0.08	<0.08	<0.05	<0.04	-	-	0.06	0.04	0.09	0.05
Average / Standard Deviation 2011	0.12	0.13	0.05	0.02	-	-	<0.06	<0.03	0.10	0.04
Average / Standard Deviation 2012	0.06	0.02	0.06	0.02	-	-	0.06	0.01	0.11	0.04
Average / Standard Deviation 2013	<0.07	<0.08	<0.04	<0.03	-	-	<0.03	<0.02	0.08	0.04
Average / Standard Deviation 2014	0.05	0.02	<0.04	<0.02	-	-	0.06	0.03	0.09	0.06
Average / Standard Deviation 2015	0.05	0.02	0.06	0.05	-	-	0.09	0.07	0.07	0.03
Average / Standard Deviation 2016	0.04	0.01	0.04	0.01	-	-	0.05	0.02	<0.05	<0.02
Average / Standard Deviation 2017	0.10	0.07	0.05	0.02	0.09	0.05	0.08	0.03	0.09	0.04
Average / Standard Deviation 2018	0.08	0.09	0.05	0.02	0.07	0.02	0.12	0.04	0.22	0.36
Average / Standard Deviation 2019	0.06	0.01	0.06	0.02	0.08	0.05	0.08	0.03	0.09	0.07
Average / Standard Deviation 2020	0.07	0.05	0.06	0.03	0.09	0.05	0.04	0.10	0.03	0.06
Average / Standard Deviation 2021	0.09	0.05	0.10	0.03	0.12	0.05	0.12	0.02	0.17	0.02
Average / Standard Deviation 2022	0.05	0.01	0.07	0.01	0.07	0.04	0.22	0.29	0.12	0.09
Average / Standard Deviation 2023	0.07	0.03	0.07	0.03	0.08	0.04	0.09	0.04	0.11	0.06
Average / Standard Deviation All Years	<0.07	<0.05	<0.06	<0.03	<0.08	<0.04	<0.08	<0.08	<0.09	<0.05

Sampling locations and frequency governed by Amended C. of A. #3960-7Q4K2G.

Bracketed sampling notations are field identifications.

MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury), as per Section 1.

Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.

Sampling at Station Naysh DN Conf was initiated in May 2017.

Where cells are blank or contain "<", this indicates that the sample was not required to be collected or data was unavailable.

D: Dry

F: Frozen

US: Unsafe to sample

ND

Table 17b: Methyl Mercury - Nayshkootayaow and Attawapiskat Rivers (Filtered) (concentrations in ng/L)

Date	Nayshkootayaow River Upstream N-1 (Naysh Riv UP)	Nayshkootayaow River Middle N-2 (Naysh Riv DN)	Nayshkootayaow River Downstream of NGC SGC Confluence (Naysh DN Conf)	Nayshkootayaow River Downstream N-3 (Naysh Riv UP Att Riv)	Monument Channel (Naysh Riv Control)	Attawapiskat River A-1 (Att Riv UP 2)	Attawapiskat River A-2 (Att Riv UP A2-1)	Attawapiskat River A-5 (Att Riv DN 500(40))	Attawapiskat River A-3 (Att Riv DN A3-1)	Attawapiskat River A-4 (Att Riv DN Naysh Riv)
Draft USEPA Criteria: 0.05 ng/L										
Feb-08	0.03	0.02	-	0.03	0.03	0.04	0.05	-	0.03	0.04
May-08	<0.02	0.03	-	0.02	0.06	<0.02	0.03	-	0.02	-
Aug-08	0.05	0.05	-	0.06	0.10	0.04	0.02	-	0.03	0.03
Oct-08	0.03	0.02	-	0.03	0.04	0.03	0.02	-	0.02	0.02
Jan-09	0.03	0.03	-	0.03	0.02	0.02	0.02	-	0.02	0.02
Feb-09	-	-	-	-	-	-	-	-	-	-
Mar-09	-	-	-	-	-	-	-	-	-	-
Apr-09	-	<0.02	-	<0.02	<0.02	0.02	0.02	-	0.03	<0.02
May-09	0.09	-	-	-	-	-	0.03	-	0.03	-
Jun-09	-	-	-	-	-	-	0.03	-	0.03	-
Jul-09	0.04	0.10	-	0.11	0.07	0.15	0.03	-	0.02	0.03
Aug-09	-	-	-	-	-	-	0.05	-	0.03	-
Sep-09	-	-	-	-	-	-	-	-	-	-
Oct-09	0.07	0.04	-	0.06	0.04	0.04	0.05	-	0.06	0.07
Nov-09	-	-	-	-	-	-	0.03	-	0.15	-
Dec-09	-	-	-	-	-	-	0.08	-	0.09	-
Jan-10	-	-	-	-	-	-	<0.02	-	0.04	-
Feb-10	<0.02	0.05	-	0.09	0.03	0.04	0.07	-	0.05	0.04
Mar-10	-	-	-	-	-	-	0.05	-	0.03	-
Apr-10	-	-	-	-	0.05	-	0.04	-	0.03	-
May-10	0.04	0.12	-	0.04	-	0.05	0.03	-	0.04	0.05
Jun-10	-	-	-	-	-	-	<0.02	-	<0.02	-
Jul-10	0.05	0.06	-	0.03	0.07	<0.02	0.03	-	0.04	0.04
Aug-10	-	-	-	-	-	-	0.04	-	0.05	-
Sep-10	-	-	-	-	-	-	0.03	-	<0.02	-
Oct-10	0.05	0.04	-	0.05	0.10	0.04	0.03	-	0.04	0.03
Nov-10	-	-	-	-	-	-	0.02	-	<0.02	-
Dec-10	-	-	-	-	-	-	0.04	-	0.02	-
Jan-11	<0.02	<0.02	-	<0.02	0.03	0.02	<0.02	-	0.02	<0.02
Feb-11	-	-	-	-	-	-	<0.02	-	<0.02	-
Mar-11	-	-	-	-	-	-	<0.02	-	<0.02	-
Apr-11	-	-	-	-	-	-	<0.02	-	<0.02	-
May-11	-	-	-	-	-	-	0.02	-	<0.02	-
Jun-11	-	-	-	-	-	-	<0.02	-	0.02	-
Jul-11	0.04	0.05	-	0.05	0.03	0.02	0.02	-	0.02	0.03
Aug-11	-	-	-	-	-	-	0.07	-	0.07	-
Sep-11*	-	-	-	-	-	-	-	-	-	-
Oct-11	0.06	0.06	-	0.07	0.11	0.05	0.06	-	0.04	0.04
Nov-11	-	-	-	-	-	-	0.04	-	0.04	-
Dec-11	-	-	-	-	-	-	<0.02	-	0.03	-
Jan-12	<0.02	0.02	-	0.04	0.08	<0.02	0.04	-	0.05	0.02
Feb-12	-	-	-	-	-	-	0.05	-	<0.02	-
Mar-12	-	-	-	-	-	-	<0.02	-	0.03	-
Apr-12	-	-	-	-	-	-	US	-	-	-
May-12	0.04	0.02	-	0.04	0.08	0.03	0.04	-	0.02	0.02
Jun-12	-	-	-	-	-	-	<0.02	-	0.04	-
Jul-12	0.04	0.05	-	0.05	0.09	0.03	0.05	-	0.02	0.02
Aug-12	-	-	-	-	-	-	0.04	-	0.03	-
Sep-12	-	-	-	-	-	-	0.03	-	0.03	-
Oct-12	0.02	0.02	-	0.04	0.04	<0.02	0.03	-	<0.02	<0.02
Nov-12	-	-	-	-	-	-	US	-	US	-
Dec-12	-	-	-	-	-	-	0.06	-	0.04	-
Jan-13	0.06	0.04	-	0.02	0.02	<0.02	0.03	-	0.03	-
Feb-13	-	-	-	-	-	-	0.04	-	0.02	-
Mar-13	-	-	-	-	-	-	<0.02	-	<0.02	<0.02
Apr-13	<0.02	<0.02	-	<0.02	0.04	0.02	<0.02	-	<0.02	<0.02
May-13	-	-	-	-	-	-	0.03	-	0.04	-
Jun-13	-	-	-	-	-	-	<0.02	-	0.03	-
Jul-13	<0.02	<0.02	-	0.04	<0.02	<0.02	<0.02	0.03	0.02	<0.02
Aug-13	-	-	-	-	-	-	0.18	<0.02	<0.02	-
Sep-13	-	-	-	-	-	-	0.06	0.02	0.04	-
Oct-13	0.03	0.05	-	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.02
Nov-13	-	-	-	-	-	-	<0.02	US	<0.02	-
Dec-13	-	-	-	-	-	-	<0.02	US	<0.02	-
Jan-14	-	0.03	-	0.04	0.03	0.03	0.03	US	<0.02	<0.02
Feb-14	-	-	-	-	-	-	<0.02	US	<0.02	-
Mar-14	0.02	-	-	-	-	-	<0.02	US	<0.02	-
Apr-14	0.02	0.02	-	0.03	<0.02	0.02	<0.02	US	<0.02	<0.02
May-14	-	-	-	-	-	-	0.03	0.03	0.03	-
Jun-14	-	-	-	-	-	-	0.04	0.04	0.04	-
Jul-14	<0.02	0.03	-	0.07	0.11	0.04	0.03	0.03	0.03	0.03
Aug-14	-	-	-	-	-	-	0.04	0.03	0.03	-
Sep-14	-	-	-	-	-	-	0.05	0.05	0.03	-
Oct-14	0.03	0.03	-	0.03	0.04	0.04	0.03	0.02	<0.02	<0.02
Nov-14	-	-	-	-	-	-	0.03	US	0.03	-
Dec-14	-	-	-	-	-	-	0.04	US	US	-
Jan-15	-	-	-	-	0.04	-	0.03	US	ND	-
Feb-15	0.04	0.04	-	0.03	-	0.05	0.03	US	0.03	0.05
Mar-15	-	-	-	-	-	-	0.05	US	0.04	-
Apr-15	-	<0.02	-	0.03	<0.02	0.04	<0.02	US	0.03	0.02
May-15	0.02	-	-	-	-	-	0.03	0.02	0.03	-
Jun-15	-	-	-	-	-	-	0.03	0.02	0.05	-
Jul-15	0.02	0.03	-	0.05	-	0.06	<0.02	0.02	<0.02	<0.02
Aug-15	-	-	-	-	-	-	0.05	0.05	0.04	-
Sep-15	-	-	-	-	0.07	-	0.04	0.04	0.04	-
Oct-15	0.04	0.04	-	0.05	-	0.03	0.06	0.03	0.03	0.02
Nov-15	-	-	-	-	0.05	-	0.03	US	0.03	-
Dec-15	-	-	-	-	-	-	US	US	US	-
Jan-16	0.03	0.03	-	0.04	-	0.03	0.04	US	US	0.03
Feb-16	-	-	-	-	<0.02	-	0.03	US	0.03	-
Mar-16	-	-	-	-	-	-	0.03	US	0.03	-
Apr-16	0.03	<0.02	-	<0.02	-	0.02	<0.02	US	0.02	<0.02
May-16	-	-	-	-	0.04	-	0.03	0.02	0.03	-
Jun-16	-	-	-	-	-	-	0.03	0.04	0.03	-
Jul-16	0.03	0.03	-	0.05	<0.02	0.03	0.03	0.02	0.03	0.03
Aug-16	-	-	-	-	-	-	0.03	0.02	0.03	-
Sep-16	-	-	-	-	-	-	0.03	0.03	0.03	-
Oct-16	0.02	0.03	-	0.04	-	0.03	0.03	0.03	0.02	0.03
Nov-16	-	-	-	-	0.05	-	0.03	<0.02	0.03	-
Dec-16	-	-	-	-	-	-	US	US	US	-
Jan-17	US	<0.02	-	0.03	-	<0.02	US	US	US	<0.02
Feb-17	-	-	-	-	-	-	0.03	US	0.03	-
Mar-17	US	-	-	-	<0.02	-	<0.02	US	0.03	-
Apr-17	-	-	0.03	-	-	-	US	US	US	-
May-17	-	-	-	-	-	-	US	US	US	-
Jun-17	0.05	0.03	0.04	0.06	0.08	0.04	0.03	0.02	0.03	0.03



Table 17b: Methyl Mercury - Nayshkootayaow and Attawapiskat Rivers (Filtered) (concentrations in ng/L)

Date	Nayshkootayaow River Upstream N-1 (Naysh Riv UP)	Nayshkootayaow River Middle N-2 (Naysh Riv DN)	Nayshkootayaow River Downstream of NGC SGC Confluence (Naysh DN Conf)	Nayshkootayaow River Downstream N-3 (Naysh Riv UP Att Riv)	Monument Channel (Naysh Riv Control)	Attawapiskat River A-1 (Att Riv UP 2)	Attawapiskat River A-2 (Att Riv UP A2-1)	Attawapiskat River A-5 (Att Riv DN 500(40))	Attawapiskat River A-3 (Att Riv DN A3-1)	Attawapiskat River A-4 (Att Riv DN Naysh Riv)
Draft USEPA Criteria: 0.05 ng/L										
Jul-17	0.05	0.04	0.06	0.07	-	0.03	0.05	US	0.02	0.03
Aug-17	-	-	0.03	-	0.04	-	<0.02	US	<0.02	-
Sep-17	-	-	0.12	-	-	-	<0.02	US	<0.02	-
Oct-17	0.03	0.04	0.06	0.06	-	0.03	<0.02	<0.02	0.02	<0.02
Nov-17	-	-	0.04	-	0.05	-	0.03	US	<0.02	-
Dec-17	-	-	0.04	-	-	-	<0.02	US	0.03	-
Jan-18	0.04	0.03	0.04	0.03	-	0.47	0.02	US	0.02	<0.02
Feb-18	-	-	0.03	-	0.03	-	0.02	US	0.02	-
Mar-18	-	-	0.03	-	-	-	0.03	US	<0.02	-
Apr-18	<0.02	0.05	0.04	0.03	-	<0.02	<0.02	US	<0.02	<0.02
May-18	-	-	0.03	-	-	-	0.03	0.03	0.02	-
Jun-18	-	-	0.04	-	0.08	-	0.04	0.03	0.05	-
Jul-18	0.12	0.05	0.08	0.08	-	0.04	0.03	0.03	0.03	0.05
Aug-18	-	-	0.05	-	-	-	0.05	<0.02	0.04	-
Sep-18	-	-	0.06	-	0.07	-	<0.02	<0.02	<0.02	-
Oct-18	-	-	<0.02	-	0.06	-	<0.02	0.03	<0.02	-
Nov-18	-	-	0.08	-	-	-	0.05	<0.02	<0.02	-
Dec-18	0.03	0.02	0.03	0.03	-	0.03	0.04	US	US	0.03
Jan-19	US	-	0.04	0.03	-	0.04	0.04	US	0.04	0.03
Feb-19	-	0.03	0.03	-	<0.02	-	0.04	US	0.05	-
Mar-19	-	-	0.03	-	-	-	<0.02	US	0.03	-
Apr-19	<0.02	<0.02	0.03	0.06	-	<0.02	0.04	US	0.03	0.04
May-19	-	-	0.03	-	0.03	-	0.03	0.03	0.03	-
Jun-19	-	-	0.05	-	-	-	0.03	US	0.03	-
Jul-19	0.06	0.05	0.10	0.08	-	0.05	0.05	0.05	0.05	0.07
Aug-19	-	-	0.09	-	0.09	-	0.04	0.04	0.04	-
Sep-19	-	-	0.09	-	-	-	<0.02	<0.02	<0.02	-
Oct-19	0.04	0.05	0.05	0.05	0.04	0.03	<0.02	0.03	<0.02	0.04
Nov-19	-	-	0.03	-	-	-	<0.02	US	<0.02	-
Dec-19	-	-	0.03	-	-	-	US	US	0.03	-
Jan-20	0.03	0.03	<0.02	0.04	0.04	0.04	0.03	0.03	0.03	0.05
Feb-20	-	-	0.02	-	-	-	0.03	0.03	0.03	-
Mar-20	-	-	0.02	-	-	-	0.03	-	0.02	-
Apr-20	-	-	0.03	-	-	-	0.03	0.03	0.03	-
May-20	-	-	0.03	-	0.08	-	-	-	0.02	-
Jun-20	0.05	0.05	0.05	0.08	-	0.04	0.03	0.05	0.07	0.04
Jul-20	-	-	0.08	-	-	-	0.04	0.04	0.05	-
Aug-20	0.08	0.04	0.09	0.09	0.08	0.02	0.02	0.05	0.02	0.04
Sep-20	-	-	0.05	-	-	-	0.02	0.04	0.03	-
Oct-20	0.07	0.05	0.07	0.07	0.05	0.05	0.03	0.03	0.02	0.08
Nov-20	-	-	0.05	-	-	-	-	-	-	-
Dec-20	-	-	0.03	-	-	-	-	-	0.04	-
Jan-21	-	-	<0.03	-	-	-	0.06	0.06	0.04	-
Feb-21	-	-	<0.05	-	-	-	0.05	0.05	0.05	-
Mar-21	0.08	0.09	0.06	0.02	0.09	0.04	0.06	0.03	0.07	0.04
Apr-21	-	-	-	-	-	-	-	-	-	-
May-21	-	-	0.08	-	-	-	0.04	0.04	0.06	-
Jun-21	0.03	0.10	0.10	0.05	0.11	0.02	0.02	0.08	0.05	0.05
Jul-21	-	-	0.09	-	-	-	0.03	0.05	0.02	-
Aug-21	0.02	0.05	0.11	0.10	0.12	0.04	0.03	0.03	0.02	0.11
Sep-21	-	-	0.09	-	-	-	0.03	0.03	0.03	-
Oct-21	0.05	0.05	0.07	0.06	-	0.03	0.04	0.03	0.08	0.04
Nov-21	-	-	0.04	-	0.07	-	0.04	0.03	0.03	-
Dec-21	-	-	-	-	-	-	-	-	0.03	-
Jan-22	-	-	<0.02	-	-	-	0.02	<0.02	<0.02	-
Feb-22	<0.02	0.03	-	0.04	-	0.02	<0.02	0.03	0.02	0.02
Mar-22	-	-	<0.02	-	<0.02	-	0.05	<0.02	<0.02	-
Apr-22	-	-	0.04	-	-	-	<0.03	0.03	<0.03	-
May-22	-	-	<0.03	-	-	-	-	-	-	-
Jun-22	0.04	0.06	0.06	0.04	0.07	0.03	0.05	0.06	0.05	0.04
Jul-22	0.03	0.05	0.05	0.05	-	0.03	0.05	0.05	<0.03	<0.03
Aug-22	-	-	0.07	-	0.13	-	0.05	0.03	0.04	-
Sep-22	-	-	0.09	-	-	-	0.05	0.03	0.05	-
Oct-22	<0.03	<0.03	<0.03	0.05	0.06	0.04	0.05	<0.03	0.03	0.04
Nov-22	-	-	0.07	-	-	-	<0.03	0.04	0.03	-
Dec-22	-	-	0.03	-	-	-	-	-	-	-
Jan-23	-	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Feb-23	<0.03	<0.03	<0.03	-	<0.03	-	0.06	<0.03	<0.03	-
Mar-23	-	-	<0.03	-	-	-	0.03	<0.03	<0.03	-
Apr-23	-	-	0.04	-	-	-	<0.03	<0.03	0.06	-
May-23	-	-	<0.03	-	<0.03	-	-	-	-	-
Jun-23	0.09	0.05	0.09	0.08	-	0.06	0.07	0.05	0.04	0.06
Jul-23	-	-	0.09	-	0.04	-	<0.03	<0.03	<0.03	-
Aug-23	<0.04	<0.04	0.07	<0.04	-	<0.04	<0.04	<0.04	<0.04	0.06
Sep-23	-	-	<0.04	-	-	-	0.05	<0.04	0.11	-
Oct-23	0.05	<0.04	<0.04	0.04	0.13	<0.04	<0.04	<0.04	<0.04	<0.04
Nov-23	-	-	0.04	-	-	-	0.03	-	0.02	-
Dec-23	-	-	0.03	-	-	-	<0.02	-	<0.02	-
Average / Standard Deviation 2009	0.06	0.03	<0.05	<0.04	-	-	<0.05	<0.04	<0.04	<0.02
Average / Standard Deviation 2010	<0.04	<0.01	0.07	0.04	-	-	0.05	0.03	0.06	0.03
Average / Standard Deviation 2011	<0.04	<0.02	<0.04	<0.02	-	-	<0.05	<0.03	0.06	0.05
Average / Standard Deviation 2012	<0.03	<0.01	0.03	0.01	-	-	0.04	0.01	0.07	0.02
Average / Standard Deviation 2013	<0.03	<0.02	<0.03	<0.01	-	-	<0.03	<0.01	<0.02	<0.01
Average / Standard Deviation 2014	<0.02	<0.01	0.03	0.00	-	-	0.04	0.02	<0.05	<0.04
Average / Standard Deviation 2015	0.03	0.01	<0.03	<0.01	-	-	0.04	0.01	<0.05	<0.02
Average / Standard Deviation 2016	0.03	0.00	<0.03	<0.00	-	-	<0.03	<0.01	<0.03	<0.01
Average / Standard Deviation 2017	0.04	0.01	0.03	0.01	0.05	0.03	0.05	0.02	0.05	0.03
Average / Standard Deviation 2018	<0.05	0.04	0.04	0.01	0.05	0.02	0.04	0.02	0.06	0.02
Average / Standard Deviation 2019	<0.04	<0.02	<0.04	<0.01	0.05	0.04	0.06	0.02	0.05	0.03
Average / Standard Deviation 2020	0.05	0.02	0.04	0.01	0.05	0.03	0.07	0.02	0.06	0.02
Average / Standard Deviation 2021	0.04	0.02	0.07	0.03	0.07	0.03	0.06	0.04	0.10	0.02
Average / Standard Deviation 2022	0.03	0.01	0.04	0.01	0.05	0.02	0.04	0.01	0.07	0.04
Average / Standard Deviation 2023	0.05	0.03	0.04	0.01	0.05	0.02	0.06	0.05	0.04	0.01
Average / Standard Deviation All Years	<0.04	<0.02	<0.04	<0.02	<0.05	<0.03	<0.05	<0.02	<0.06	<0.03

Sampling locations and frequency governed by Amended C. of A. #3960-7Q4K2G.

Bracketed sampling notations are field identifications.

MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury), as per Section 1.

Annotation is provided for missing data for the years 2013 and later. Historical annotation previous to this was unavailable or could not be verified.

Sampling at Station Naysh DN Conf was initiated in May 2017.

Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.

D: Dry

F: Frozen

US: Unsafe to sample

ND

Table 18: Species-Specific Catch per Unit Effort for Electrofishing by Location

Waterbody	Area	Sample ID	Date (dd/mm/yyyy)	Duration (min)	Total Effort (sec)	Species								Site Catch Total	Site CPUE Total	
						Burbot	Lake Chub	Mottled Sculpin	Northern Pike	Shorthead Redhorse	Trout Perch	Walleye	White Sucker			Yellow Perch
Attawapiskat River	Exposure	ATT-NF-EF1	13/08/2023	60	3600	2	5	0	7	6	166	2	0	0	188	3.13
		ATT-NF-EF2	14/08/2023	106	6345	0	0	1	5	5	96	0	2	0	109	1.03
		ATT-FF-EF1	14/08/2023	106	6334	4	25	0	14	15	1	4	0	10	73	0.69
		ATT-FF-EF2	15/08/2023	111	6682	4	12	9	10	11	150	3	0	6	205	1.84
	Reference	ATT-US-EF1	20/08/2023	44	2611	2	15	2	7	0	75	0	2	0	103	2.37
		ATT-US-EF2	21/08/2023	87	5224	0	13	0	4	0	148	5	6	0	176	2.02
		ATT-REF2-EF1	18/08/2023	49	2935	6	5	0	1	1	131	2	0	0	146	2.98
		ATT-REF2-EF2	19/08/2023	128	7650	1	0	0	0	0	106	1	0	0	108	0.85
Nayshkootayaow River	Exposure	NAY-DS6-EF1	22/08/2023	50	3020	2	0	0	1	0	94	2	0	0	99	1.97
	Reference	NAY-US3-EF1	22/08/2023	43	2550	0	0	0	0	0	51	0	0	0	51	1.20
		NAY-US3-EF2	23/08/2023	40	2410	No Catch								0	0.00	
Species Catch Total						21	75	12	49	38	1018	19	10	16	1258	18.08

Table 19: Species-Specific Catch per Unit Effort for Fyke Nets by Location

Waterbody	Area	Sample ID	Date (dd/mm/yyyy)	Duration (hr)	# of Nets	Total Effort (hr)	Species											Site Catch Total	Site CPUE Total
							Brook Stickleback	Brook Trout	Burbot	Finescale Dace	Iowa Darter	Lake Chub	Northern Pearl Dace	Northern Pike	Northern Redbelly Dace	White Sucker			
North Granny Creek	Exposure	NGC-OUT-FN1	24/08/2023	42.5	1	43	0	0	0	0	0	0	0	0	0	3	3	0.07	
		NGC-OUT-FN2	25/08/2023	23.5	1	24	No Catch											0	0.00
		NGC-OUT-FN3	27/08/2023	43.0	1	43	No Catch											0	0.00
		NGC-SUP-FN1	19/08/2023	38.0	2	76	0	3	0	0	0	3	13	0	0	2	21	0.55	
		NGC-SUP-FN2	21/08/2023	52.0	2	104	0	0	0	0	0	0	9	0	0	0	9	0.17	
		NGC-SUP-FN3	23/08/2023	39.5	1	40	6	0	0	20	0	0	14	0	0	0	40	1.01	
	Reference	NGC-UP-FN1	19/08/2023	22.5	1	23	18	0	0	85	0	0	78	0	0	0	181	8.04	
		NGC-REF1-FN1	20/08/2023	24.5	1	25	13	0	0	40	0	0	40	0	0	0	93	3.80	
		NGC-REF1-FN2	22/08/2023	38.0	1	38	6	0	0	23	0	0	19	0	0	0	48	1.26	
		NGC-REF2-FN1	24/08/2023	42.0	1	42	0	0	0	15	0	0	10	0	0	0	25	0.60	
		NGC-REF2-FN2	26/08/2023	58.0	1	58	0	0	0	8	0	0	20	0	0	0	28	0.48	
		NGC-REF2-FN3	27/08/2023	21.0	1	21	0	0	0	8	0	0	4	1	0	0	13	0.62	
South Granny Creek	Exposure	SGC-WOOD-FN1	19/08/2023	21.0	1	21	0	0	0	0	0	10	3	0	0	10	23	1.10	
	Reference	SGC-UP-FN1	20/08/2023	45.0	1	45	0	0	0	0	0	0	77	0	0	0	77	1.71	
		SGC-UP-FN2	22/08/2023	36.5	1	37	54	0	0	118	0	0	150	0	0	0	322	8.82	
		SGC-UP-FN3	24/08/2023	46.0	1	46	8	0	0	25	0	0	18	0	0	0	51	1.11	
		SGC-UP-FN4	27/08/2023	84.0	1	84	0	0	0	18	0	0	20	0	0	0	38	0.45	
Trib5-A	Reference	ST5A-FN1	23/08/2023	51.0	1	51	0	0	0	0	0	0	56	0	0	0	56	1.10	
		ST5A-FN2	25/08/2023	40.0	1	40	0	1	1	18	0	0	30	0	0	0	50	1.25	
		ST5A-FN3	27/08/2023	54.0	1	54	0	0	0	17	4	0	55	0	6	27	109	2.02	
Species Catch Total							105	4	1	395	4	13	616	1	6	42	1187	34.17	

Table 20: Species-Specific Catch per Unit Effort for Seine Netting by Location

Waterbody	Area	Sample ID	Date (dd/mm/yyyy)	No. Hauls	Species								Site Catch Total	Site CPUE Total
					Brook Stickleback	Fathead Minnow	Finescale Dace	Iowa Darter	Lake Chub	Northern Pearl Dace	Northern Pike	White Sucker		
North Granny Creek	Exposure	NGC-SUP-SN1	25/08/2023	1	0	3	23	0	0	97	0	0	123	123.0
		NGC-OUT-SN1	21/08/2023	3	1	0	0	2	0	1	1	2	7	2.3
		NGC-CUL-SN1	15/08/2023	3	0	0	0	0	0	36	0	0	36	12.0
South Granny Creek	Exposure	SGC-WOOD-SN1	19/08/2023	2	No Catch								0	0.0
		SGC-SUP-SN1	17/08/2023	2	0	0	20	0	0	1	0	0	21	10.5
		SGC-REL-SN1	19/08/2023	2	58	0	153	0	0	48	0	0	259	129.5
	Reference	SGC-UP-SN1	20/08/2023	1	21	0	60	0	0	10	0	0	91	91.0
		SGC-UP-SN2	20/08/2023	3	0	0	12	0	0	2	0	0	14	4.7
Trib5-A	Reference	ST5A-SN1	21/08/2023	4	0	0	50	0	3	45	0	0	98	24.5
		ST5A-SN2	25/08/2023	1	No Catch								0	0.0
Species Catch Total					80	3	318	2	3	240	1	2	649	397.5

Table 21: Species-Specific Catch per Unit Effort for Minnow Traps by Location

Waterbody	Area	Sample ID	Date (dd/mm/yyyy)	Duration (hr)	# of Traps	Total Effort (hr)	Species							Site Catch Total	Site CPUE Total
							Brook Stickleback	Finescale Dace	Iowa Darter	Lake Chub	Northern Pearl Dace	Trout Perch	White Sucker		
North Granny Creek	Exposure	NGC-OUT-MT1	21/08/2023	24	15	360	No Catch							0	0.000
		NGC-OUT-MT2	22/08/2023	23	18	414	No Catch							0	0.000
		NGC-OUT-MT3	24/08/2023	44	18	792	0	0	0	0	1	0	0	1	0.001
		NGC-OUT-MT4	25/08/2023	24	15	353	0	0	0	0	1	0	0	1	0.003
		NGC-OUT-MT5	27/08/2023	43	15	645	0	0	0	2	0	0	0	2	0.003
		NGC-OWR-MT1	18/08/2023	25	15	368	0	0	0	25	3	0	0	28	0.076
		NGC-OWR-MT2	19/08/2023	25	29	725	0	0	0	42	10	0	0	52	0.072
		NGC-SUP-MT1	21/08/2023	37	15	555	No Catch							0	0.000
		NGC-SUP-MT2	24/08/2023	74	15	1103	No Catch							0	0.000
		NGC-UP-MT1	21/08/2023	24	15	360	No Catch							0	0.000
	NGC-UP-MT2	24/08/2023	63	15	945	No Catch							0	0.000	
	Reference	NGC-REF1-MT1	18/08/2023	21	8	164	8	200	0	0	221	0	0	429	2.616
		NGC-REF1-MT2	19/08/2023	27	8	212	20	118	0	0	102	0	0	240	1.132
South Granny Creek	Exposure	SGC-SUP-MT1	17/08/2023	21	15	311	No Catch							0	0.000
		SGC-WOOD-MT1	17/08/2023	22	15	323	0	45	0	46	38	0	0	129	0.400
		SGC-WOOD-MT2	18/08/2023	23	15	343	0	200	0	50	103	0	0	353	1.031
		SGC-WOOD-MT3	19/08/2023	21	15	318	0	0	0	40	77	0	0	117	0.369
		SGC-REL-MT1	20/08/2023	23	15	340	88	0	22	40	84	0	0	234	0.688
	Reference	SGC-UP-MT1	17/08/2023	19	15	290	35	200	0	0	116	0	0	351	1.210
		SGC-UP-MT2	17/08/2023	26	15	393	40	100	0	0	90	0	0	230	0.586
Tributary 5a	Reference	ST5A-MT1	23/08/2023	51	15	765	0	38	0	0	80	0	0	118	0.154
Nayshkootayaow River	Reference	NAY-US3-MT1	23/08/2022	23	7	160	0	0	0	0	0	1	0	1	0.006
		NAY-US3-MT2	24/08/2023	78	22	1716	0	0	0	2	0	0	1	3	0.002
Species Catch Total							191	901	22	247	926	1	1	2289	8.349

Table 22: Species-Specific Catch per Unit Effort for Dip Netting by Location

Waterbody	Area	Sample ID	Date (dd/mm/yyyy)	Duration (hr)	# of Nets	Total Effort (hr)	# of Dips	Species				Site Catch Total	Site CPUE Total
								Brook Stickleback	Finescale Dace	Northern Pearl Dace	White Sucker		
North Granny Creek	Exposure	NGC-OUT-DN1	22/08/2023	0.50	2	1.00	20	4	28	10	6	48	2.40
		NGC-OUT-DN2	23/08/2023	2.00	2	4.00	20	0	0	32	0	32	1.60
		NGC-OUT-DN3	23/08/2023	0.50	2	1.00	12	0	0	8	0	8	0.67
	Reference	NGC-REF1-DN1	18/08/2023	0.50	2	1.00	6	0	15	10	0	25	4.17
		NGC-REF1-DN2	20/08/2023	0.50	2	1.00	15	0	12	0	0	12	0.80
		NGC-REF2-DN1	22/08/2023	0.50	2	1.00	8	0	6	0	0	6	0.75
South Granny Creek	Reference	SGC-UP-DN1	22/08/2023	0.42	2	0.83	18	0	50	0	0	50	2.78
		SGC-UP-DN2	22/08/2023	0.42	2	0.83	15	0	8	0	0	8	0.53
		SGC-UP-DN3	22/08/2023	0.42	2	0.83	10	0	10	0	0	10	1.00
Trib5-A	Reference	ST5A-DN1	25/08/2023	0.42	2	0.83	15	No Catch				0	0.00
Species Catch Total								4	129	60	6	199	14.69

Table 23: Results of ANCOVA for Total Mercury Adjusted for Total Length and Age in Northern Pearl Dace from the Granny Creek System and Tributary 5A

Adjusted For (Covariate)	Age 1+						Significant post-hoc comparisons*
	Area	NGC-REF	NGC-EXP	SGC-REF	SGC-EXP	ST-5A	
Total Length (mm)	LS Mean	0.254	0.252	0.171	0.442	0.089	NGC-EXP>ST-5A
	SE	0.010	0.012	0.011	0.014	0.012	SGC-EXP>SGC-REF
							SGC-EXP>ST-5A
Age (years)	Area	NGC-REF	NGC-EXP	SGC-REF	SGC-EXP	ST-5A	Significant post-hoc comparisons*
	LS Mean	0.250	0.285	0.166	0.452	0.088	NGC-EXP>ST-5A
	SE	0.010	0.014	0.011	0.013	0.012	SGC-EXP>SGC-REF
							SGC-EXP>ST-5A

(*) significance based on post-hoc pairwise comparison at alpha of 0.05; only significant comparisons between reference and exposure locations are shown

(LS) represents least mean square

(SE) represents standard error of the mean

Assumptions of homogeneity of regression slopes for ANCOVA were met for all models; Slopes of regression lines in ANCOVA are considered parallel at an alpha of 0.05

Sample sizes of YOY Northern Pearl Dace were too small to allow for statistical comparisons in 2023

Table 24: Before-After-Control-Impact (BACI) Design ANCOVA Results for 2009 Versus 2023 Control Versus Impact Sites for Northern Pearl Dace from the Granny Creek System and Tributary 5A

Comparison (Period*Site)	Species	n	F-value ¹	P-value ¹	Significant Difference ²	*Significant Pairwise Comparisons
2009*NGC-EXP 2009*SGC-EXP 2009* ST5A 2023*NGC-EXP 2023*SGC-EXP 2023*ST5A	Northern Pearl Dace	388	144.1	<0.001	Yes	
						NGC-EXP*2009 vs. NGC-EXP*2023
						SGC-EXP*2009 vs. SGC-EXP*2023

(*) significance based on post-hoc pairwise comparison at alpha of 0.05; only significant comparisons between reference and exposure locations are shown

(¹) F-value and P-value are specific to the interaction term of Year*Location

(²) Significance of Interaction term based on $\alpha = 0.05$

Sampling year 2009 was used as baseline; sample size at SGC in 2008 was too small for analysis (n=5)

SGC-REF and NGC-REF were not sampled until 2017 are were excluded from analysis

Analysis is inclusive of all ageclasses to increase sample size

Table 25: Results of two-way and one-way ANOVA tests for Total Mercury in Trout Perch from the Attawapiskat River

2 Way ANOVA ¹								
	SS	df	MS	F	P-value	p<0.05		
Location	0.56	3	0.19	10.02	>0.001	Yes		
Ageclass	8.73	1	8.73	470.10	>0.001	Yes		
Location:Ageclass	0.85	3	0.28	15.25	>0.001	Yes		
Residuals	7.41	399	0.02					
1 Way ANOVA (YOY)								*Significant post-hoc
Source of Variation	SS	df	MS	F	P-value	p<0.05	Power	ATT-US<ATT-NF
Between Groups	1.16	3	0.39	22.88	>0.001	Yes	0.9	ATT-US<ATT-FF
Error	3.32	196	0.02					
1 Way ANOVA (Age 1+)								*Significant post-hoc
Source of Variation	SS	df	MS	F	P-value	p<0.05	Power	ATT-US>ATT-FF
Between Groups	0.31	3	0.10	5.18	0.002	Yes	0.9	
Error	4.09	196	0.02					

Total mercury was log transformed in all models to meet assumptions of ANOVA test

(¹) 2 way ANOVA run with YOY and age 1+ ageclasses

(SS) sum of squares

(MS) mean square

(df) degrees of freedom

(F) estimate of between group variability / within group variability

(P-value) level of marginal significance within a statistical hypothesis test; probability of the occurrence of a given event

(p<0.05) indicates significance of test for null-hypothesis (equal means) at an alpha of 0.05

(*) significance based on Tukey HSD at alpha of 0.05; only significant comparisons between reference and exposure locations are shown

Table 26: Results of ANCOVA for Total Mercury Adjusted for Total Length and Age in Trout Perch from the Attawapiskat River

Adjusted For (Covariate)	Age 1+					Significant post-hoc comparisons*
	Area	ATT-NF	ATT-FF	ATT-US	ATT-REF2	
Total Length (mm)	LS Mean	0.105	0.088	0.097	0.094	
	SE	0.004	0.003	0.004	0.003	
Age (years)	Area	ATT-NF	ATT-FF	ATT-US	ATT-REF2	Significant post-hoc comparisons*
	LS Mean	0.101	0.087	0.108	0.094	ATT-US>ATT-FF
	SE	0.004	0.004	0.005	0.004	
Total Length (mm)	YOY					Significant post-hoc comparisons*
	Area	ATT-NF	ATT-FF	ATT-US	ATT-REF2	
	LS Mean	0.058	0.045	0.041	0.054	ATT-US<ATT-NF
	SE	0.003	0.002	0.003	0.002	ATT-REF2>ATT-FF

(*) significance based on post-hoc pairwise comparison at alpha of 0.05; only significant comparisons between reference and exposure locations are shown

(LS) represents least mean square

(SE) represents standard error of the mean

Assumptions of homogeneity of regression slopes for ANCOVA were met for all models; Slopes of regression lines in ANCOVA are considered parallel at an alpha of 0.05

Table 27: Before-After-Control-Impact (BACI) Design ANCOVA Results for 2009 Versus 2023 Control Versus Impact Sites

Comparison (Period*Site)	Species	n	F-value ¹	P-value ¹	Significant Difference ²	*Significant Pairwise Comparisons
2009*ATT-NF 2009*ATT-FF 2009* ATT-US 2023*ATT-NF 2023*ATT-FF 2023*ATT-US	Trout Perch	390	9.093	<0.001	Yes	
						ATT-FF*2009 vs. ATT-FF*2023
						ATT-NF*2009 vs. ATT-NF*2023

(*) significance based on post-hoc pairwise comparison at alpha of 0.05; only significant comparisons between reference and exposure locations are shown

(¹) F-value and P-value are specific to the interaction term of Year*Location

(²) Significance of Interaction term based on $\alpha = 0.05$

ATT-REF2 was not sampled until 2014 and was therefore excluded from analysis

Analysis is inclusive of all ageclasses to increase sample size

Table 28: Results of two-way and one-way ANOVA tests for Total Mercury in Trout Perch from the Nayshkootayaow River

2 Way ANOVA ¹								
	SS	df	MS	F	P-value	p<0.05		
Location	2.55	1	2.55	94.5	>0.001	Y		
Ageclass	2.57	1	2.57	95.21	>0.001	Y		
Location:Ageclass	0.30	1	0.29	10.91	0.001	Y		
Residuals	3.84	142	0.03					
1 Way ANOVA (YOY)								Direction
Source of Variation	SS	df	MS	F	P-value	p<0.05	Power	NAY-DS6>NAY-US3
Between Groups	1.70	1	1.70	55.62	>0.001	Y	0.9	
Error	2.81	92	0.03					
1 Way ANOVA (Age 1+)								Direction
Source of Variation	SS	df	MS	F	P-value	p<0.05	Power	
Between Groups	0.03	1	0.03	1.29	0.262	N	0.83	
Error	1.02	50	0.02					

Total mercury was log transformed in all models to meet assumptions of ANOVA test

(¹) 2 way ANOVA run with YOY and age 1+ ageclasses

(SS) sum of squares

(MS) mean square

(df) degrees of freedom

(F) estimate of between group variability / within group variability

(P-value) level of marginal significance within a statistical hypothesis test; probability of the occurrence of a given event

(p<0.05) indicates significance of test for null-hypothesis (equal means) at an alpha of 0.05

Table 29: Results of ANCOVA for Total Mercury Adjusted for Total Length and Age in Trout Perch from the Nayshkootayaow River

Adjusted For (Covariate)	Age 1+			Significant pairwise comparisons*
	Area	NAY-DS6	NAY-US3	
Total Length (mm)	LS Mean	0.124	0.119	
	SE	0.006	0.013	
Age (years)	Area	NAY-DS6	NAY-US3	Significant pairwise comparisons*
	LS Mean	0.127	0.108	
	SE	0.006	0.012	
Total Length (mm)	YOY			Significant pairwise comparisons*
	Area	NAY-DS6	NAY-US3	NAY-DS6>NAY-US3
	LS Mean	0.077	0.041	
	SE	0.003	0.004	

(*) significance based on post-hoc pairwise comparison at alpha of 0.05; only significant comparisons between reference and e

(LS) represents least mean square

(SE) represents standard error of the mean

Assumptions of homogeneity of regression slopes for ANCOVA were met for all models; Slopes of regression lines in ANCOVA

Table 30: Before-After-Control-Impact (BACI) Design ANCOVA Results for 2012 Versus 2023 Control Versus Impact Sites for Trout Perch from the Nayshkootayaow River

Comparison (Period*Site)	Species	n	F-value ¹	P-value ¹	Significant Difference ²	*Significant Pairwise Comparisons
2012*NAY-DS6 2012*NAY-US3 2023* NAY-DS6 2023*NAY-US3	Trout Perch	253	10.32	6.009	Yes	2012*NAY-DS6 vs. 2023*NAY-DS6 2012*NAY-US3 vs. 2023*NAY-US3

(*) significance based on post-hoc pairwise comparison at alpha of 0.05; only significant comparisons between reference and exposure locations are shown

(¹) F-value and P-value are specific to the interaction term of Year*Location

(²) Significance of Interaction term based on $\alpha = 0.05$

Analysis is inclusive of all ageclasses to increase sample size

Table 31a: Muskeg Monitoring Program - Statistical Analysis of Cluster Peat Horizon Mercury Pore Waters Annual Sampling Program 2023 Results - Cluster S-1

TOTAL AND METHYL MERCURY PORE WATER CONCENTRATIONS (ng/L)

Cluster Location	Substrate/Condition	Well Name	Total Mercury (Filtered)	Methyl Mercury (Filtered)
MS-1	Peat - Domed Bog	MS-1-D	0.32	< 0.03
	Peat - Flat Bog	MS-1-F	1.08	< 0.03
	Peat - Horizontal Fen	MS-1-H	0.30	< 0.03
	Peat - Ribbed Fen	MS-1-R	-	-
MS-2	Peat - Domed Bog	MS-2-D	1.98	0.22
	Peat - Flat Bog	MS-2-F	2.14	0.11
	Peat - Ribbed Fen	MS-2-R	0.76	0.09
MS-7	Peat - Domed Bog	MS-7-D	1.04	< 0.03
	Peat - Flat Bog	MS-7-F	1.33	< 0.03
	Peat - Horizontal Fen	MS-7-H	1.98	< 0.03
	Peat - Ribbed Fen	MS-7-R	1.67	< 0.03
MS-8	Peat - Domed Bog	MS-8-D	1.76	0.09
	Peat - Flat Bog	MS-8-F	5.75	0.11
	Peat - Horizontal Fen	MS-8-H	0.25	0.05
	Peat - Ribbed Fen	MS-8-R	1.31	0.09
MS-9(1)	Peat - Domed Bog	MS-9(1)-D	0.72	< 0.03
	Peat - Flat Bog	MS-9(1)-F	0.75	0.06
	Peat - Horizontal Fen	MS-9(1)-H	1.78	0.04
	Peat - Ribbed Fen	MS-9(1)-R	0.30	< 0.03
MS-9(2)	Peat - Domed Bog	MS-9(2)-D	0.67	< 0.03
	Peat - Flat Bog	MS-9(2)-F	1.35	0.06
	Peat - Horizontal Fen	MS-9(2)-H	< 0.16	< 0.03
	Peat - Ribbed Fen	MS-9(2)-R	0.31	< 0.03
MS-13	Peat - Domed Bog	MS-13-D	2.74	0.04
	Peat - Flat Bog	MS-13-F	1.12	0.07
	Peat - Horizontal Fen	MS-13-H	< 0.16	< 0.03
	Peat - Ribbed Fen	MS-13-R	0.78	0.06
MS-15	Peat - Domed Bog	MS-15-D	< 0.16	< 0.03
	Peat - Flat Bog	MS-15-F	-	-
	Peat - Horizontal Fen	MS-15-H	0.21	< 0.03
	Peat - Ribbed Fen	MS-15-R	0.29	0.06
MS-V(1)	Peat - Domed Bog	MS-V(1)-D	-	-
	Peat - Ribbed Fen	MS-V(1)-R	-	-
MS-V(2)	Peat - Domed Bog	MS-V(2)-D	0.30	<0.03
	Peat - Ribbed Fen	MS-V(2)-R	1.45	0.05
MS-V(3)	Peat - Domed Bog	MS-V(3)-D	-	-
	Peat - Ribbed Fen	MS-V(3)-R	0.57	<0.03

 Clusters used for statistical analysis

MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury and 0.1 ng/L for total mercury), as per Section 1.

Blank cells indicate concentration was not determined.

Due to missing data the analysis was not performed

TWO-WAY ANALYSIS OF VARIANCE TABLES

TOTAL MERCURY

Habitat	Control Mean (S13+S15)	S-1	Sum r.
D. Bog			
F. Bog			
H. Fen			
R. Fen			
Sum c.			

ANOVA Table					
Source V.	d.f.	SS	MS	F _{cal}	F _{tab} 0.05
Total					
Treatment					
Block					
Error					

Treatment Effect (i.e., difference between Control and S-1)

METHYL MERCURY

Habitat	Control Mean (S13+S15)	S-1	Sum r.
D. Bog			
F. Bog			
H. Fen			
R. Fen			
Sum c.			

ANOVA Table					
Source V.	d.f.	SS	MS	F _{cal}	F _{tab} 0.05
Total					
Treatment					
Block					
Error					

Treatment Effect (i.e., difference between Control and S-1)

Table 31b: Muskeg Monitoring Program - Statistical Analysis of Cluster Peat Horizon Mercury Pore Waters Annual Sampling Program 2023 Results - Cluster S-2

TOTAL AND METHYL MERCURY PORE WATER CONCENTRATIONS (ng/L)

Cluster Location	Substrate/Condition	Well Name	Total Mercury (Filtered)	Methyl Mercury (Filtered)
MS-1	Peat - Domed Bog	MS-1-D	0.32	< 0.03
	Peat - Flat Bog	MS-1-F	1.08	< 0.03
	Peat - Horizontal Fen	MS-1-H	0.30	< 0.03
	Peat - Ribbed Fen	MS-1-R	-	-
MS-2	Peat - Domed Bog	MS-2-D	1.98	0.22
	Peat - Flat Bog	MS-2-F	2.14	0.11
	Peat - Ribbed Fen	MS-2-R	0.76	0.09
MS-7	Peat - Domed Bog	MS-7-D	1.04	< 0.03
	Peat - Flat Bog	MS-7-F	1.33	< 0.03
	Peat - Horizontal Fen	MS-7-H	1.98	< 0.03
	Peat - Ribbed Fen	MS-7-R	1.67	< 0.03
MS-8	Peat - Domed Bog	MS-8-D	1.76	0.09
	Peat - Flat Bog	MS-8-F	5.75	0.11
	Peat - Horizontal Fen	MS-8-H	0.25	0.05
	Peat - Ribbed Fen	MS-8-R	1.31	0.09
MS-9(1)	Peat - Domed Bog	MS-9(1)-D	0.72	< 0.03
	Peat - Flat Bog	MS-9(1)-F	0.75	0.06
	Peat - Horizontal Fen	MS-9(1)-H	1.78	0.04
	Peat - Ribbed Fen	MS-9(1)-R	0.30	< 0.03
MS-9(2)	Peat - Domed Bog	MS-9(2)-D	0.67	< 0.03
	Peat - Flat Bog	MS-9(2)-F	1.35	0.06
	Peat - Horizontal Fen	MS-9(2)-H	< 0.16	< 0.03
	Peat - Ribbed Fen	MS-9(2)-R	0.31	< 0.03
MS-13	Peat - Domed Bog	MS-13-D	2.74	0.04
	Peat - Flat Bog	MS-13-F	1.12	0.07
	Peat - Horizontal Fen	MS-13-H	< 0.16	< 0.03
	Peat - Ribbed Fen	MS-13-R	0.78	0.06
MS-15	Peat - Domed Bog	MS-15-D	< 0.16	< 0.03
	Peat - Flat Bog	MS-15-F	-	-
	Peat - Horizontal Fen	MS-15-H	0.21	< 0.03
	Peat - Ribbed Fen	MS-15-R	0.29	0.06
MS-V(1)	Peat - Domed Bog	MS-V(1)-D	-	-
	Peat - Ribbed Fen	MS-V(1)-R	-	-
MS-V(2)	Peat - Domed Bog	MS-V(2)-D	0.30	<0.03
	Peat - Ribbed Fen	MS-V(2)-R	1.45	0.05
MS-V(3)	Peat - Domed Bog	MS-V(3)-D	-	-
	Peat - Ribbed Fen	MS-V(3)-R	0.57	<0.03

TWO-WAY ANALYSIS OF VARIANCE TABLES

TOTAL MERCURY

Habitat	Control Mean (S13+S15)	S-2	Sum r.
D. Bog			
F. Bog			
R. Fen			
Sum c.			

ANOVA Table					
Source V.	d.f.	SS	MS	F _{cal}	F _{tab} 0.05
Total					
Treatment					
Block					
Error					

Treatment Effect (i.e., difference between Control and S-2)

METHYL MERCURY

Habitat	Control Mean (S13+S15)	S-2	Sum r.
D. Bog			
F. Bog			
R. Fen			
Sum c.			

ANOVA Table					
Source V.	d.f.	SS	MS	F _{cal}	F _{tab} 0.05
Total					
Treatment					
Block					
Error					

Treatment Effect (i.e., difference between Control and S-2)

Clusters used for statistical analysis

MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury and 0.1 ng/L for total mercury), as per Section 1.

Blank cells indicate concentration was not determined.

Due to missing data the analysis was not performed

Table 31c: Muskeg Monitoring Program - Statistical Analysis of Cluster Peat Horizon Mercury Pore Waters Annual Sampling Program 2023 Results - Cluster S-7

TOTAL AND METHYL MERCURY PORE WATER CONCENTRATIONS (ng/L)

Cluster Location	Substrate/Condition	Well Name	Total Mercury (Filtered)	Methyl Mercury (Filtered)
MS-1	Peat - Domed Bog	MS-1-D	0.32	< 0.03
	Peat - Flat Bog	MS-1-F	1.08	< 0.03
	Peat - Horizontal Fen	MS-1-H	0.30	< 0.03
	Peat - Ribbed Fen	MS-1-R	-	-
MS-2	Peat - Domed Bog	MS-2-D	1.98	0.22
	Peat - Flat Bog	MS-2-F	2.14	0.11
	Peat - Ribbed Fen	MS-2-R	0.76	0.09
MS-7	Peat - Domed Bog	MS-7-D	1.04	< 0.03
	Peat - Flat Bog	MS-7-F	1.33	< 0.03
	Peat - Horizontal Fen	MS-7-H	1.98	< 0.03
	Peat - Ribbed Fen	MS-7-R	1.67	< 0.03
MS-8	Peat - Domed Bog	MS-8-D	1.76	0.09
	Peat - Flat Bog	MS-8-F	5.75	0.11
	Peat - Horizontal Fen	MS-8-H	0.25	0.05
	Peat - Ribbed Fen	MS-8-R	1.31	0.09
MS-9(1)	Peat - Domed Bog	MS-9(1)-D	0.72	< 0.03
	Peat - Flat Bog	MS-9(1)-F	0.75	0.06
	Peat - Horizontal Fen	MS-9(1)-H	1.78	0.04
	Peat - Ribbed Fen	MS-9(1)-R	0.30	< 0.03
MS-9(2)	Peat - Domed Bog	MS-9(2)-D	0.67	< 0.03
	Peat - Flat Bog	MS-9(2)-F	1.35	0.06
	Peat - Horizontal Fen	MS-9(2)-H	< 0.16	< 0.03
	Peat - Ribbed Fen	MS-9(2)-R	0.31	< 0.03
MS-13	Peat - Domed Bog	MS-13-D	2.74	0.04
	Peat - Flat Bog	MS-13-F	1.12	0.07
	Peat - Horizontal Fen	MS-13-H	< 0.16	< 0.03
	Peat - Ribbed Fen	MS-13-R	0.78	0.06
MS-15	Peat - Domed Bog	MS-15-D	< 0.16	< 0.03
	Peat - Flat Bog	MS-15-F	-	-
	Peat - Horizontal Fen	MS-15-H	0.21	< 0.03
	Peat - Ribbed Fen	MS-15-R	0.29	0.06
MS-V(1)	Peat - Domed Bog	MS-V(1)-D	-	-
	Peat - Ribbed Fen	MS-V(1)-R	-	-
MS-V(2)	Peat - Domed Bog	MS-V(2)-D	0.30	<0.03
	Peat - Ribbed Fen	MS-V(2)-R	1.45	0.05
MS-V(3)	Peat - Domed Bog	MS-V(3)-D	-	-
	Peat - Ribbed Fen	MS-V(3)-R	0.57	<0.03

Clusters used for statistical analysis

MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury and 0.1 ng/L for total mercury), as per Section 1.

Blank cells indicate concentration was not determined.

TWO-WAY ANALYSIS OF VARIANCE TABLES

TOTAL MERCURY

Habitat	Control Mean (S13+S15)	S-7	Sum r.
D. Bog	1.450	1.04	2.490
H. Fen	0.185	1.98	2.165
R. Fen	0.535	1.67	2.205
Sum c.	2.170	4.69	6.860

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	0.031	2	0.016	0.025	0.976	19.00
Columns	1.058	1	1.058	1.65	0.327	18.51
Error	1.281	2	0.640			
Total	2.371	5				

Treatment Effect (i.e., difference between Control and S-7) **Not Significant**

METHYL MERCURY

Habitat	Control Mean (S13+S15)	S-7	Sum r.
D. Bog	0.035	0.03	0.065
H. Fen	0.030	0.03	0.060
R. Fen	0.060	0.03	0.090
Sum c.	0.13	0.090	0.215

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	0.00026	2	0.000	1.000	0.500	19.00
Columns	0.00020	1	0.000	1.58	0.336	18.51
Error	0.00026	2	0.000			
Total	0.00072	5				

Treatment Effect (i.e., difference between Control and S-7) **Not Significant**

Table 31d: Muskeg Monitoring Program - Statistical Analysis of Cluster Peat Horizon Mercury Pore Waters Annual Sampling Program 2023 Results - Cluster S-8

TOTAL AND METHYL MERCURY PORE WATER CONCENTRATIONS (ng/L)

Cluster Location	Substrate/Condition	Well Name	Total Mercury (Filtered)	Methyl Mercury (Filtered)
MS-1	Peat - Domed Bog	MS-1-D	0.32	< 0.03
	Peat - Flat Bog	MS-1-F	1.08	< 0.03
	Peat - Horizontal Fen	MS-1-H	0.30	< 0.03
	Peat - Ribbed Fen	MS-1-R	-	-
MS-2	Peat - Domed Bog	MS-2-D	1.98	0.22
	Peat - Flat Bog	MS-2-F	2.14	0.11
	Peat - Ribbed Fen	MS-2-R	0.76	0.09
MS-7	Peat - Domed Bog	MS-7-D	1.04	< 0.03
	Peat - Flat Bog	MS-7-F	1.33	< 0.03
	Peat - Horizontal Fen	MS-7-H	1.98	< 0.03
	Peat - Ribbed Fen	MS-7-R	1.67	< 0.03
MS-8	Peat - Domed Bog	MS-8-D	1.76	0.09
	Peat - Flat Bog	MS-8-F	5.75	0.11
	Peat - Horizontal Fen	MS-8-H	0.25	0.05
	Peat - Ribbed Fen	MS-8-R	1.31	0.09
MS-9(1)	Peat - Domed Bog	MS-9(1)-D	0.72	< 0.03
	Peat - Flat Bog	MS-9(1)-F	0.75	0.06
	Peat - Horizontal Fen	MS-9(1)-H	1.78	0.04
	Peat - Ribbed Fen	MS-9(1)-R	0.30	< 0.03
MS-9(2)	Peat - Domed Bog	MS-9(2)-D	0.67	< 0.03
	Peat - Flat Bog	MS-9(2)-F	1.35	0.06
	Peat - Horizontal Fen	MS-9(2)-H	< 0.16	< 0.03
	Peat - Ribbed Fen	MS-9(2)-R	0.31	< 0.03
MS-13	Peat - Domed Bog	MS-13-D	2.74	0.04
	Peat - Flat Bog	MS-13-F	1.12	0.07
	Peat - Horizontal Fen	MS-13-H	< 0.16	< 0.03
	Peat - Ribbed Fen	MS-13-R	0.78	0.06
MS-15	Peat - Domed Bog	MS-15-D	< 0.16	< 0.03
	Peat - Flat Bog	MS-15-F	-	-
	Peat - Horizontal Fen	MS-15-H	0.21	< 0.03
	Peat - Ribbed Fen	MS-15-R	0.29	0.06
MS-V(1)	Peat - Domed Bog	MS-V(1)-D	-	-
	Peat - Ribbed Fen	MS-V(1)-R	-	-
MS-V(2)	Peat - Domed Bog	MS-V(2)-D	0.30	<0.03
	Peat - Ribbed Fen	MS-V(2)-R	1.45	0.05
MS-V(3)	Peat - Domed Bog	MS-V(3)-D	-	-
	Peat - Ribbed Fen	MS-V(3)-R	0.57	<0.03

TWO-WAY ANALYSIS OF VARIANCE TABLES

TOTAL MERCURY

Habitat	Control Mean (S13+S15)	S-8	Sum r.
D. Bog	1.450	1.76	3.210
H. Fen	0.185	0.25	0.435
R. Fen	0.535	1.31	1.845
Sum c.	2.17	3.320	5.490

ANOVA						
Source of Var	SS	df	MS	F	P-value	F crit
Rows	1.925	2	0.963	14.80	0.063	19.00
Columns	0.220	1	0.220	3.39	0.207	18.51
Error	0.130	2	0.065			
Total	2.276	5				

Treatment Effect (i.e., difference between Control and S-8) **Not Significant**

METHYL MERCURY

Habitat	Control Mean (S13+S15)	S-8	Sum r.
D. Bog	0.035	0.09	0.125
H. Fen	0.030	0.05	0.080
R. Fen	0.060	0.09	0.150
Sum c.	0.13	0.230	0.355

ANOVA						
Source of Var	SS	df	MS	F	P-value	F crit
Rows	0.00126	2	0.00063	3.872	0.205	19.00
Columns	0.00184	1	0.00184	11.31	0.078	18.51
Error	0.00032	2	0.00016			
Total	0.00342	5				

Treatment Effect (i.e., difference between Control and S-8) **Not Significant**

Clusters used for statistical analysis

MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury and 0.1 ng/L for total mercury), as per Section 1.

Blank cells indicate concentration was not determined.

Table 31e: Muskeg Monitoring Program - Statistical Analysis of Cluster Peat Horizon Mercury Pore Waters Annual Sampling Program 2023 Results - Cluster S-9(1)

TWO-WAY ANALYSIS OF VARIANCE TABLES

TOTAL AND METHYL MERCURY PORE WATER CONCENTRATIONS (ng/L)

Cluster Location	Substrate/Condition	Well Name	Total Mercury (Filtered)	Methyl Mercury (Filtered)
MS-1	Peat - Domed Bog	MS-1-D	0.32	< 0.03
	Peat - Flat Bog	MS-1-F	1.08	< 0.03
	Peat - Horizontal Fen	MS-1-H	0.30	< 0.03
	Peat - Ribbed Fen	MS-1-R	-	-
MS-2	Peat - Domed Bog	MS-2-D	1.98	0.22
	Peat - Flat Bog	MS-2-F	2.14	0.11
	Peat - Ribbed Fen	MS-2-R	0.76	0.09
MS-7	Peat - Domed Bog	MS-7-D	1.04	< 0.03
	Peat - Flat Bog	MS-7-F	1.33	< 0.03
	Peat - Horizontal Fen	MS-7-H	1.98	< 0.03
	Peat - Ribbed Fen	MS-7-R	1.67	< 0.03
MS-8	Peat - Domed Bog	MS-8-D	1.76	0.09
	Peat - Flat Bog	MS-8-F	5.75	0.11
	Peat - Horizontal Fen	MS-8-H	0.25	0.05
	Peat - Ribbed Fen	MS-8-R	1.31	0.09
MS-9(1)	Peat - Domed Bog	MS-9(1)-D	0.72	< 0.03
	Peat - Flat Bog	MS-9(1)-F	0.75	0.06
	Peat - Horizontal Fen	MS-9(1)-H	1.78	0.04
	Peat - Ribbed Fen	MS-9(1)-R	0.30	< 0.03
MS-9(2)	Peat - Domed Bog	MS-9(2)-D	0.67	< 0.03
	Peat - Flat Bog	MS-9(2)-F	1.35	0.06
	Peat - Horizontal Fen	MS-9(2)-H	< 0.16	< 0.03
	Peat - Ribbed Fen	MS-9(2)-R	0.31	< 0.03
MS-13	Peat - Domed Bog	MS-13-D	2.74	0.04
	Peat - Flat Bog	MS-13-F	1.12	0.07
	Peat - Horizontal Fen	MS-13-H	< 0.16	< 0.03
	Peat - Ribbed Fen	MS-13-R	0.78	0.06
MS-15	Peat - Domed Bog	MS-15-D	< 0.16	< 0.03
	Peat - Flat Bog	MS-15-F	-	-
	Peat - Horizontal Fen	MS-15-H	0.21	< 0.03
	Peat - Ribbed Fen	MS-15-R	0.29	0.06
MS-V(1)	Peat - Domed Bog	MS-V(1)-D	-	-
	Peat - Ribbed Fen	MS-V(1)-R	-	-
MS-V(2)	Peat - Domed Bog	MS-V(2)-D	0.30	<0.03
	Peat - Ribbed Fen	MS-V(2)-R	1.45	0.05
MS-V(3)	Peat - Domed Bog	MS-V(3)-D	-	-
	Peat - Ribbed Fen	MS-V(3)-R	0.57	<0.03

TOTAL MERCURY

Habitat	Control Mean (S13+S15)	S-9(1)	Sum r.
D. Bog	1.450	0.72	2.170
H. Fen	0.185	1.78	1.965
R. Fen	0.535	0.30	0.835
Sum c.	2.17	2.800	4.970

ANOVA						
Source of Vari	SS	df	MS	F	P-value	F crit
Rows	0.517	2	0.258	0.345	0.744	19.00
Columns	0.066	1	0.066	0.09	0.794	18.51
Error	1.500	2	0.750			
Total	2.083	5				

Treatment Effect (i.e., difference between Control and S-9[1]) **Not Significant**

METHYL MERCURY

Habitat	Control Mean (S13+S15)	S-9(1)	Sum r.
D. Bog	0.035	0.03	0.065
H. Fen	0.030	0.04	0.070
R. Fen	0.060	0.03	0.090
Sum c.	0.13	0.100	0.225

ANOVA						
Source of Vari	SS	df	MS	F	P-value	F crit
Rows	0.00018	2	0.000088	0.429	0.700	19.00
Columns	0.00010	1	0.000104	0.51	0.549	18.51
Error	0.00041	2	0.000204			
Total	0.00069	5				

Treatment Effect (i.e., difference between Control and S-9[1]) **Not Significant**

Clusters used for statistical analysis

MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury and 0.1 ng/L for total mercury), as per Section 1.

Blank cells indicate concentration was not determined.

Table 31f: Muskeg Monitoring Program - Statistical Analysis of Cluster Peat Horizon Mercury Pore Waters Annual Sampling Program 2023 Results - Cluster S-9(2)

TWO-WAY ANALYSIS OF VARIANCE TABLES

TOTAL AND METHYL MERCURY PORE WATER CONCENTRATIONS (ng/L)

Cluster Location	Substrate/Condition	Well Name	Total Mercury (Filtered)	Methyl Mercury (Filtered)
MS-1	Peat - Domed Bog	MS-1-D	0.32	< 0.03
	Peat - Flat Bog	MS-1-F	1.08	< 0.03
	Peat - Horizontal Fen	MS-1-H	0.30	< 0.03
	Peat - Ribbed Fen	MS-1-R	-	-
MS-2	Peat - Domed Bog	MS-2-D	1.98	0.22
	Peat - Flat Bog	MS-2-F	2.14	0.11
	Peat - Ribbed Fen	MS-2-R	0.76	0.09
MS-7	Peat - Domed Bog	MS-7-D	1.04	< 0.03
	Peat - Flat Bog	MS-7-F	1.33	< 0.03
	Peat - Horizontal Fen	MS-7-H	1.98	< 0.03
	Peat - Ribbed Fen	MS-7-R	1.67	< 0.03
MS-8	Peat - Domed Bog	MS-8-D	1.76	0.09
	Peat - Flat Bog	MS-8-F	5.75	0.11
	Peat - Horizontal Fen	MS-8-H	0.25	0.05
	Peat - Ribbed Fen	MS-8-R	1.31	0.09
MS-9(1)	Peat - Domed Bog	MS-9(1)-D	0.72	< 0.03
	Peat - Flat Bog	MS-9(1)-F	0.75	0.06
	Peat - Horizontal Fen	MS-9(1)-H	1.78	0.04
	Peat - Ribbed Fen	MS-9(1)-R	0.30	< 0.03
MS-9(2)	Peat - Domed Bog	MS-9(2)-D	0.67	< 0.03
	Peat - Flat Bog	MS-9(2)-F	1.35	0.06
	Peat - Horizontal Fen	MS-9(2)-H	< 0.16	< 0.03
	Peat - Ribbed Fen	MS-9(2)-R	0.31	< 0.03
MS-13	Peat - Domed Bog	MS-13-D	2.74	0.04
	Peat - Flat Bog	MS-13-F	1.12	0.07
	Peat - Horizontal Fen	MS-13-H	< 0.16	< 0.03
	Peat - Ribbed Fen	MS-13-R	0.78	0.06
MS-15	Peat - Domed Bog	MS-15-D	< 0.16	< 0.03
	Peat - Flat Bog	MS-15-F	-	-
	Peat - Horizontal Fen	MS-15-H	0.21	< 0.03
	Peat - Ribbed Fen	MS-15-R	0.29	0.06
MS-V(1)	Peat - Domed Bog	MS-V(1)-D	-	-
	Peat - Ribbed Fen	MS-V(1)-R	-	-
MS-V(2)	Peat - Domed Bog	MS-V(2)-D	0.30	<0.03
	Peat - Ribbed Fen	MS-V(2)-R	1.45	0.05
MS-V(3)	Peat - Domed Bog	MS-V(3)-D	-	-
	Peat - Ribbed Fen	MS-V(3)-R	0.57	<0.03

TOTAL MERCURY

Habitat	Control Mean (S13+S15)	S-9(2)	Sum r.
D. Bog	1.450	0.67	2.120
H. Fen	0.185	0.16	0.345
R. Fen	0.535	0.31	0.845
Sum c.	2.170	1.140	3.310

ANOVA						
Source of Vari	SS	df	MS	F	P-value	F crit
Rows	0.83771	2	0.419	5.475	0.154	19.00
Columns	0.17682	1	0.177	2.31	0.268	18.51
Error	0.15301	2	0.077			
Total	1.16753	5				

Treatment Effect (i.e., difference between Control and S-9[2]) **Not Significant**

METHYL MERCURY

Habitat	Control Mean (S13+S15)	S-9(2)	Sum r.
D. Bog	0.035	0.03	0.065
H. Fen	0.030	0.03	0.060
R. Fen	0.060	0.03	0.090
Sum c.	0.125	0.090	0.215

ANOVA						
Source of Vari	SS	df	MS	F	P-value	F crit
Rows	0.00026	2	0.000	1.000	0.500	19.00
Columns	0.00020	1	0.000	1.58	0.336	18.51
Error	0.00026	2	0.000			
Total	0.00072	5				

Treatment Effect (i.e., difference between Control and S-9[2]) **Not Significant**

Clusters used for statistical analysis

MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury and 0.1 ng/L for total mercury), as per Section 1.

Blank cells indicate concentration was not determined.

Table 31g: Muskeg Monitoring Program - Statistical Analysis of Cluster Peat Horizon Mercury Pore Waters Annual Sampling Program 2023 Results - Cluster S-V Series

TWO-WAY ANALYSIS OF VARIANCE TABLES

TOTAL AND METHYL MERCURY PORE WATER CONCENTRATIONS (ng/L)

Cluster Location	Substrate/Condition	Well Name	Total Mercury (Filtered)	Methyl Mercury (Filtered)
MS-1	Peat - Domed Bog	MS-1-D	0.32	< 0.03
	Peat - Flat Bog	MS-1-F	1.08	< 0.03
	Peat - Horizontal Fen	MS-1-H	0.30	< 0.03
	Peat - Ribbed Fen	MS-1-R	-	-
MS-2	Peat - Domed Bog	MS-2-D	1.98	0.22
	Peat - Flat Bog	MS-2-F	2.14	0.11
	Peat - Ribbed Fen	MS-2-R	0.76	0.09
MS-7	Peat - Domed Bog	MS-7-D	1.04	< 0.03
	Peat - Flat Bog	MS-7-F	1.33	< 0.03
	Peat - Horizontal Fen	MS-7-H	1.98	< 0.03
	Peat - Ribbed Fen	MS-7-R	1.67	< 0.03
MS-8	Peat - Domed Bog	MS-8-D	1.76	0.09
	Peat - Flat Bog	MS-8-F	5.75	0.11
	Peat - Horizontal Fen	MS-8-H	0.25	0.05
	Peat - Ribbed Fen	MS-8-R	1.31	0.09
MS-9(1)	Peat - Domed Bog	MS-9(1)-D	0.72	< 0.03
	Peat - Flat Bog	MS-9(1)-F	0.75	0.06
	Peat - Horizontal Fen	MS-9(1)-H	1.78	0.04
	Peat - Ribbed Fen	MS-9(1)-R	0.30	< 0.03
MS-9(2)	Peat - Domed Bog	MS-9(2)-D	0.67	< 0.03
	Peat - Flat Bog	MS-9(2)-F	1.35	0.06
	Peat - Horizontal Fen	MS-9(2)-H	< 0.16	< 0.03
	Peat - Ribbed Fen	MS-9(2)-R	0.31	< 0.03
MS-13	Peat - Domed Bog	MS-13-D	2.74	0.04
	Peat - Flat Bog	MS-13-F	1.12	0.07
	Peat - Horizontal Fen	MS-13-H	< 0.16	< 0.03
	Peat - Ribbed Fen	MS-13-R	0.78	0.06
MS-15	Peat - Domed Bog	MS-15-D	< 0.16	< 0.03
	Peat - Flat Bog	MS-15-F	-	-
	Peat - Horizontal Fen	MS-15-H	0.21	< 0.03
	Peat - Ribbed Fen	MS-15-R	0.29	0.06
MS-V(1)	Peat - Domed Bog	MS-V(1)-D	-	-
	Peat - Ribbed Fen	MS-V(1)-R	-	-
MS-V(2)	Peat - Domed Bog	MS-V(2)-D	0.30	<0.03
	Peat - Ribbed Fen	MS-V(2)-R	1.45	0.05
MS-V(3)	Peat - Domed Bog	MS-V(3)-D	-	-
	Peat - Ribbed Fen	MS-V(3)-R	0.57	<0.03

 Clusters used for statistical analysis

MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury and 0.1 ng/L for total mercury), as per Section 1.

Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.

Due to missing data the analysis was not performed

TOTAL MERCURY

Habitat	Control Mean (S13+S15)	S-V1	S-V2	S-V3	Sum r.
D. Bog					
R. Fen					
Sum c.					

ANOVA Table					
Source V.	d.f.	SS	MS	F _{cal}	F _{tab} 0.05
Total					
Treatment					
Block					
Error					

Treatment Effect (i.e., difference between Control and S-V Series)

METHYL MERCURY

Habitat	Control Mean (S13+S15)	S-V1	S-V2	S-V3	Sum r.
D. Bog					
R. Fen					
Sum c.					

ANOVA Table					
Source V.	d.f.	SS	MS	F _{cal}	F _{tab} 0.05
Total					
Treatment					
Block					
Error					

Treatment Effect (i.e., difference between Control and S-V Series)

Table 32a: Muskeg Cluster Peat Horizon Methyl Mercury Pore Water Annual Sampling Cluster S8 vs S13/S15 - Average Values Across all Muskeg Types for all Years

Year	Cluster	
	S8	Control Mean S13-S15
2008	0.028	0.064
2009	0.133	0.261
2010	0.114	0.040
2011	0.075	0.070
2012	0.051	0.050
2013	0.105	0.067
2014	0.078	0.071
2015	0.090	0.045
2016	0.084	0.038
2017	0.094	0.048
2018	0.131	0.055
2019	0.142	0.049
2020	0.134	0.048
2021	0.125	0.073
2022	0.101	0.101
2023	0.083	0.085
Average	0.099	0.072

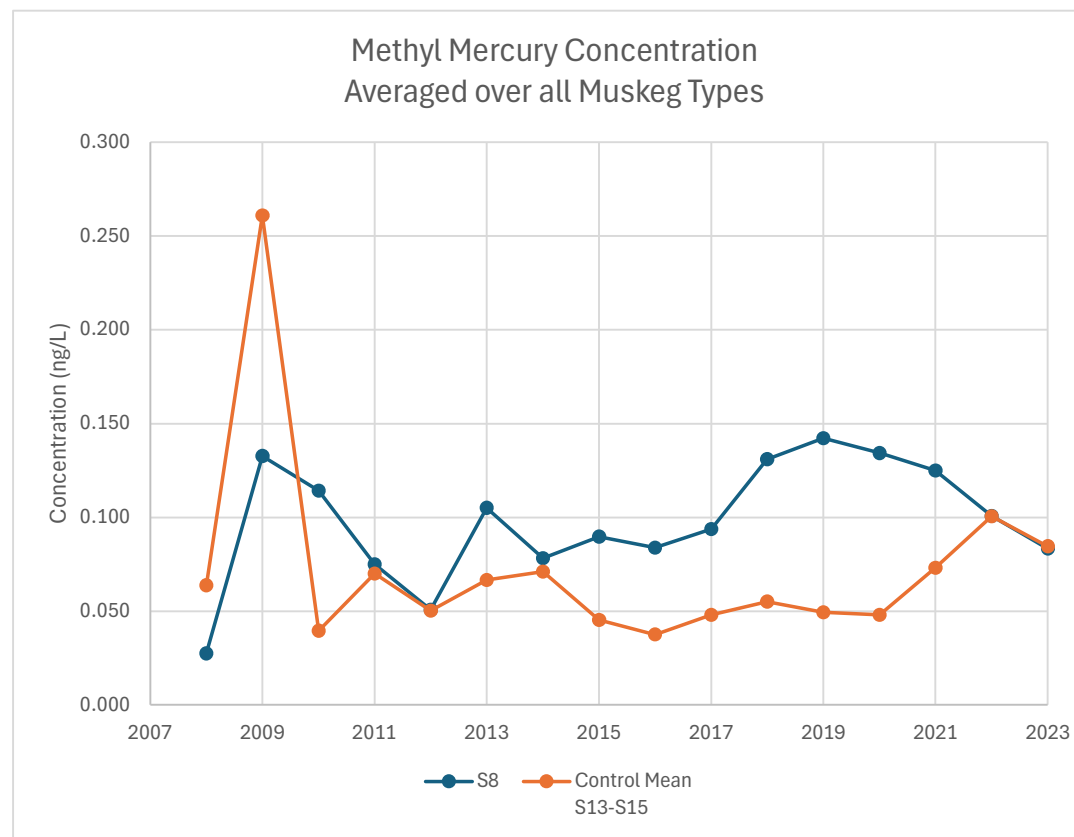


Table 32b: Muskeg Monitoring S-8 Long-term Analysis - Methyl Mercury (concentrations in ng/L)

S8 vs S13 / S15 Methyl Mercury Analysis - 2 Way ANOVA

Date	S8	S13 / S15 Average	Sum r.
2008	0.028	0.064	0.092
2009	0.133	0.261	0.394
2010	0.114	0.040	0.154
2011	0.075	0.070	0.145
2012	0.051	0.050	0.101
2013	0.105	0.067	0.172
2014	0.078	0.071	0.149
2015	0.009	0.045	0.054
2016	0.084	0.038	0.122
2017	0.094	0.048	0.142
2018	0.131	0.055	0.186
2019	0.128	0.049	0.177
2020	0.134	0.048	0.182
2021	0.125	0.073	0.198
2022	0.101	0.101	0.202
2023	0.083	0.085	0.168
Sum c.	1.473	1.165	2.638

ANOVA						
Source of Vari	SS	df	MS	F	P-value	F crit
Rows	0.04037	15	0.0027	1.740	0.147	2.40
Columns	0.00296	1	0.0030	1.92	0.186	4.54
Error	0.02320	15	0.0015			
Total	0.066528	31				

Treatment Effect (i.e., difference between S8 and S13/S15)
Not Significant

Notes: r. - rows; c. - columns

Annual data set exceeds comparison data set by >25%

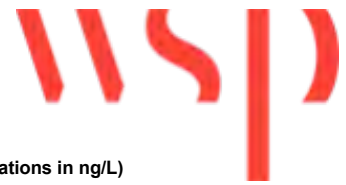


Table 33a: North Granny Creek - Statistical Analysis - Mercury - 2023 (Unfiltered) (concentrations in ng/L)

TOTAL MERCURY DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Date	UP SUPP (G-0)	UP NWF (G-1)	DN NWF (G-2)	DN NEF (G-3)	UP CONF (G-4)	Conf (G8)	Sum r.
Jan	2.55	4.42	3.79	2.94	2.52	2.56	18.78
Feb	2.44	2.65	2.74	2.47	2.54	2.63	15.47
May	3.12	5.38	4.25	3.60	5.93	3.97	26.25
Jun	3.91	3.05	3.40	1.50	3.57	2.98	18.41
Jul	2.37	2.72	3.58	5.70	3.71	3.12	21.20
Aug	4.22	4.16	3.98	2.68	3.91	3.59	22.54
Sept	1.86	2.70	4.45	5.88	2.93	2.74	20.56
Oct	2.37	1.46	2.95	1.49	1.29	3.37	12.93
Nov	2.09	2.26	2.10	1.86	1.71	1.46	11.48
Dec	4.66	2.10	3.93	1.95	1.92	1.86	16.42
Sum c.	27.04	26.48	31.38	27.13	27.51	25.72	165.26

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	30.29	9	3.365	3.700	0.0015	2.096
Columns	2.80	5	0.559	0.615	0.6892	2.422
Error	40.93	45	0.909			
Total	74.01	59				

Treatment Effect (i.e., difference between US and DS)
Not Significant

UP NWF - Upstream Northwest Fen; DN NWF - Downstream Northwest Fen; DN NEF - Downstream Northeast Fen; UP CONF - Upstream Confluence

r. - rows; c. - columns

CEQG for Protection of Aquatic Life: 26ng/L

MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1.

METHYL MERCURY DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Date	UP SUPP (G-0)	UP NWF (G-1)	DN NWF (G-2)	DN NEF (G-3)	UP CONF (G-4)	Conf (G8)	Sum r.
Jan	0.07	0.13	0.66	0.22	0.14	0.20	1.42
Feb	0.10	0.11	0.37	0.21	0.17	0.23	1.19
May	0.09	0.10	0.11	0.14	0.11	0.13	0.68
Jun	0.11	0.11	0.39	0.27	0.52	0.52	1.92
Jul	0.19	0.18	1.20	2.82	1.13	1.18	6.70
Aug	0.18	0.12	0.61	1.04	0.93	1.03	3.91
Sept	0.14	0.15	0.84	2.48	0.85	0.72	5.18
Oct	0.15	0.06	0.80	0.70	0.51	0.40	2.62
Nov	0.09	0.20	0.16	0.25	0.25	0.24	1.19
Dec	0.11	0.10	0.78	0.40	0.28	0.24	1.91
Sum c.	1.16	1.13	5.26	8.31	4.75	4.69	25.30

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	5.85	9	0.650	4.541	0.0003	2.096
Columns	3.97	5	0.795	5.548	0.0005	2.422
Error	6.45	45	0.143			
Total	16.27	59				

Treatment Effect (i.e., difference between US and DS)
Significant

UP NWF - Upstream Northwest Fen; DN NWF - Downstream Northwest Fen; DN NEF - Downstream Northeast Fen; UP CONF - Upstream Confluence

r. - rows; c. - columns

CEQG for Protection of Aquatic Life: 4ng/L

MDLs have been adjusted for all years for uniformity (0.02 ng/L for total mercury), as per Section 1.

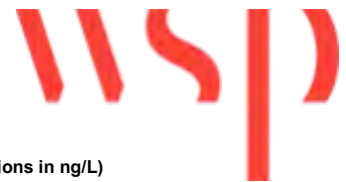


Table 33b: North Granny Creek - Statistical Analysis - Mercury - 2023 (Filtered) (concentrations in ng/L)

TOTAL MERCURY DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Date	UP SUPP (G-0)	UP NWF (G-1)	DN NWF (G-2)	DN NEF (G-3)	UP CONF (G-4)	Conf (G8)	Sum r.
Jan	0.85	1.44	0.69	1.11	0.90	0.93	5.92
Feb	1.04	1.09	0.55	0.98	1.00	0.90	5.56
May	1.39	4.01	3.37	3.05	3.50	2.90	18.22
Jun	2.83	2.83	2.42	0.60	2.44	1.81	12.93
Jul	1.83	1.87	2.50	3.89	3.30	2.92	16.31
Aug	1.51	1.54	1.82	2.04	2.95	2.73	12.59
Sept	0.68	1.43	2.30	2.50	1.55	1.54	10.00
Oct	0.76	0.77	3.22	0.94	1.00	1.36	8.05
Nov	1.46	1.09	1.16	1.08	1.14	0.98	6.91
Dec	0.65	0.66	1.13	0.68	0.93	0.82	4.87
Sum c.	12.15	15.29	18.47	15.76	17.81	15.96	95.44

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	33.09	9	3.676	9.251	0.0000	2.096
Columns	2.36	5	0.472	1.189	0.3297	2.422
Error	17.88	45	0.397			
Total	53.33	59				

Treatment Effect (i.e., difference between US and DS)
Not Significant

UP NWF - Upstream Northwest Fen; DN NWF - Downstream Northwest Fen; DN NEF - Downstream Northeast Fen; UP CONF - Upstream Confluence
r. - rows; c. - columns
CEQG for Protection of Aquatic Life: 26ng/L
MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1.

METHYL MERCURY DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Date	UP SUPP (G-0)	UP NWF (G-1)	DN NWF (G-2)	DN NEF (G-3)	UP CONF (G-4)	Conf (G8)	Sum r.
Jan	0.05	0.06	0.17	0.12	0.10	0.16	0.66
Feb	0.08	0.06	0.06	0.15	0.11	0.13	0.59
May	<0.03	0.06	0.09	0.09	0.07	0.09	0.43
Jun	0.11	0.10	0.27	0.13	0.38	0.35	1.34
Jul	0.11	0.09	0.65	1.87	1.01	0.80	4.53
Aug	0.13	0.07	0.48	0.98	0.68	0.87	3.21
Sept	0.07	0.10	0.55	1.75	0.67	0.59	3.73
Oct	0.07	<0.04	0.62	0.45	0.38	0.26	1.82
Nov	0.07	0.07	0.11	0.19	0.20	0.18	0.82
Dec	0.06	0.06	0.44	0.22	0.18	0.17	1.13
Sum c.	0.73	0.65	3.27	5.83	3.68	3.44	17.60

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	3.24	9	0.360	5.025	0.0001	2.096
Columns	2.00	5	0.401	5.596	0.0004	2.422
Error	3.22	45	0.072			
Total	8.46	59				

Treatment Effect (i.e., difference between US and DS)
Significant

UP NWF - Upstream Northwest Fen; DN NWF - Downstream Northwest Fen; DN NEF - Downstream Northeast Fen; UP CONF - Upstream Confluence
r. - rows; c. - columns
CEQG for Protection of Aquatic Life: 4ng/L
MDLs have been adjusted for all years for uniformity (0.02 ng/L for total mercury), as per Section 1.

Table 33c: South Granny Creek - Statistical Analysis - Mercury - 2023 (Unfiltered) (concentrations in ng/L)

TOTAL MERCURY DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Date	UP SWF (G-5)	DN SWF (G-6)	UP CONF (G-7)	Conf (G-8)	Sum r.
Jan	3.06	2.70	2.59	2.56	10.91
Feb	2.83	2.73	3.38	2.63	11.57
Mar	2.51	2.28	2.22	2.53	9.54
Apr	2.40	2.95	4.32	3.40	13.07
May	4.52	3.50	4.52	3.97	16.51
Jun	3.55	3.20	2.80	2.98	12.53
Jul	3.34	3.68	3.03	3.12	13.17
Aug	2.11	3.22	2.28	3.59	11.20
Sep	2.22	5.40	2.65	2.74	13.01
Oct	1.87	1.83	1.50	3.37	8.57
Nov	1.67	1.70	1.37	1.46	6.20
Dec	2.71	2.79	3.67	1.86	11.03
Sum c.	29.73	33.28	31.74	31.65	126.40

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	18.71	11	1.701	3.723	0.0016	2.093
Columns	0.43	3	0.142	0.311	0.8175	2.892
Error	15.07	33	0.457			
Total	34.21	47				

Treatment Effect (i.e., difference between US and DS)
Not Significant

UP SWF - Upstream Southwest Fen; DN SWF - Downstream Southwest Fen; UP CONF - Upstream Confluence
r. - rows; c. - columns
CEQG for Protection of Aquatic Life: 26ng/L
MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1.

METHYL MERCURY DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Date	UP SWF (G-5)	DN SWF (G-6)	UP CONF (G-7)	Conf (G-8)	Sum r.
Jan	0.08	0.18	0.25	0.20	0.71
Feb	0.07	0.12	0.37	0.23	0.79
Mar	0.08	0.15	0.30	0.32	0.85
Apr	0.06	0.22	0.54	0.16	0.98
May	0.09	0.24	0.11	0.13	0.57
Jun	0.11	0.28	0.35	0.52	1.26
Jul	0.16	1.01	1.19	1.18	3.54
Aug	0.11	0.76	0.48	1.03	2.38
Sep	0.07	2.53	0.70	0.72	4.02
Oct	0.05	0.39	0.30	0.40	1.14
Nov	0.03	0.24	0.22	0.24	0.73
Dec*	0.06	0.78	0.52	0.24	1.60
Sum c.	0.89	6.72	5.08	5.17	17.86

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	3.68	11	0.335	3.005	0.0071	2.093
Columns	1.63	3	0.544	4.882	0.0064	2.892
Error	3.68	33	0.111			
Total	8.99	47				

Treatment Effect (i.e., difference between US and DS):
Significant

UP SWF - Upstream Southwest Fen; DN SWF - Downstream Southwest Fen; UP CONF - Upstream Confluence
r. - rows; c. - columns
CEQG for Protection of Aquatic Life: 4ng/L
MDLs have been adjusted for all years for uniformity (0.02 ng/L for total mercury), as per Section 1.

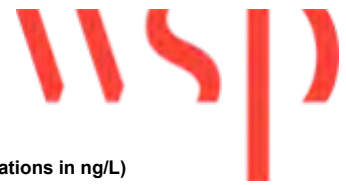


Table 33d: South Granny Creek - Statistical Analysis - Mercury - 2023 (Filtered) (concentrations in ng/L)

TOTAL MERCURY DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Date	UP SWF (G-5)	DS SWF (G-6)	UP CONF (G-7)	Conf (G-8)	Sum r.
Jan	1.23	1.03	0.94	0.93	4.13
Feb	1.23	1.24	1.21	0.90	4.58
Mar	0.90	0.79	0.89	0.92	3.50
Apr	1.02	0.99	0.86	1.68	4.55
May	2.48	1.93	2.61	2.90	9.92
Jun	2.23	2.15	2.00	1.81	8.19
Jul	2.00	2.58	2.67	2.92	10.17
Aug	1.47	2.55	1.55	2.73	8.30
Sep	0.93	2.86	1.26	1.54	6.59
Oct	1.61	1.09	0.71	1.36	4.77
Nov	1.24	0.99	1.05	0.98	4.26
Dec	0.85	1.04	3.98	0.82	6.69
Sum c.	15.96	18.21	18.79	18.56	71.52

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	15.24	11	1.385	3.708	0.0017	2.093
Columns	0.34	3	0.113	0.303	0.8229	2.892
Error	12.33	33	0.374			
Total	27.91	47				

Treatment Effect (i.e., difference between US and DS)
Not Significant

UP SWF - Upstream Southwest Fen; DN SWF - Downstream Southwest Fen; UP CONF - Upstream Confluence
r. - rows; c. - columns

CEQG for Protection of Aquatic Life: 26ng/L

MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1.

METHYL MERCURY DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Date	UP SWF (G-5)	DN SWF (G-6)	UP CONF (G-7)	Conf (G-8)	Sum r.
Jan	0.05	0.14	0.13	0.16	0.48
Feb	0.05	0.06	0.20	0.13	0.44
Mar	0.04	0.07	0.15	0.19	0.45
Apr	<0.03	0.08	0.20	0.13	0.44
May	0.04	0.13	0.08	0.09	0.34
Jun	0.09	0.19	0.22	0.35	0.85
Jul	0.06	0.67	0.66	0.80	2.19
Aug	0.10	0.58	0.43	0.87	1.98
Sep	<0.04	1.63	0.50	0.59	2.76
Oct	0.04	0.30	0.31	0.26	0.91
Nov	0.02	0.17	0.23	0.18	0.60
Dec*	0.03	0.40	0.30	0.17	0.90
Sum c.	0.54	4.28	3.28	3.76	11.86

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	1.83	11	0.166	3.661	0.0019	2.093
Columns	0.73	3	0.245	5.399	0.0039	2.892
Error	1.50	33	0.045			
Total	4.06	47				

Treatment Effect (i.e., difference between US and DS):
Significant

UP SWF - Upstream Southwest Fen; DN SWF - Downstream Southwest Fen; UP CONF - Upstream Confluence
r. - rows; c. - columns

CEQG for Protection of Aquatic Life: 4ng/L

MDLs have been adjusted for all years for uniformity (0.02 ng/L for total mercury), as per Section 1.

Table 33e: Nayshkootayaow River - Statistical Analysis - Mercury - 2023 (Unfiltered) (concentrations in ng/L)

TOTAL MERCURY DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Habitat	Naysh R. UP (N-1)	Naysh R. M (N-2)	Naysh R. DN Conf.	Naysh R. DN (N-3)	Sum r.
Jun	1.92	1.93	1.79	2.11	7.75
Aug	1.04	1.40	1.63	1.23	5.30
Oct	1.46	1.44	0.87	1.32	5.09
Sum c.	4.42	4.77	4.29	4.66	18.14

UP - Upstream; M - Middle; DN - Downstream

r. - rows; c. - columns

CEQG for Protection of Aquatic Life: 26 ng/L

MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1.

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	1.094	2	0.5468	7.807	0.021	5.143
Columns	0.048	3	0.0160	0.229	0.873	4.757
Error	0.420	6	0.0700			
Total	1.562	11				

Treatment Effect (i.e., difference between US and DS)
Not Significant

METHYL MERCURY DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Habitat	Naysh R. UP (N-1)	Naysh R. M (N-2)	Naysh R. DN Conf.	Naysh R. DN (N-3)	Sum r.
Jun	0.10	0.10	0.13	0.12	0.450
Aug	0.09	0.06	0.10	0.09	0.340
Oct	0.08	0.07	0.08	0.11	0.340
Sum c.	0.270	0.230	0.310	0.320	1.130

UP - Upstream; M - Middle; DN - Downstream

r. - rows; c. - columns

CEQG for Protection of Aquatic Life: 4ng/L

MDLs have been adjusted for all years for uniformity (0.02 ng/L for total mercury), as per Section 1.

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	0.0020	2	0.0010	7.723	0.022	5.14
Columns	0.0017	3	0.0006	4.319	0.061	4.75
Error	0.0008	6	0.0001			
Total	0.0045	11				

Treatment Effect (i.e., difference between US and DS)
Not Significant

Table 33f: Nayshkootayaow River - Statistical Analysis - Mercury - 2023 (Filtered) (concentrations in ng/L)

TOTAL MERCURY DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Habitat	Naysh R. UP (N-1)	Naysh R. M (N-2)	Naysh R. DN Conf.	Naysh R. DN (N-3)	Sum r.
Jun	1.20	1.06	1.40	1.44	5.10
Aug	0.52	0.39	0.80	0.47	2.18
Oct	0.77	0.71	0.18	0.63	2.29
Sum c.	2.49	2.16	2.38	2.54	9.57

UP - Upstream; M - Middle; DN - Downstream

r. - rows; c. - columns

MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1.

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	1.370	2	0.6848	10.905	0.010	5.143
Columns	0.028	3	0.0095	0.151	0.925	4.757
Error	0.377	6	0.0628			
Total	1.775	11				

Treatment Effect (i.e., difference between US and DS)

Not Significant

METHYL MERCURY DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Habitat	Naysh R. UP (N-1)	Naysh R. M (N-2)	Naysh R. DN Conf.	Naysh R. DN (N-3)	Sum r.
Jun	0.09	0.05	0.09	0.08	0.310
Jul	<0.04	<0.04	0.07	<0.04	0.190
Oct	0.05	<0.04	<0.04	0.04	0.170
Sum c.	0.180	0.130	0.200	0.160	0.670

UP - Upstream; M - Middle; DN - Downstream

r. - rows; c. - columns

Draft USEPA Criteria: 0.05 ng/L

MDLs have been adjusted for all years for uniformity (0.02 ng/L for total mercury), as per Section 1.

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	0.0029	2	0.0014	9.214	0.015	5.143
Columns	0.0009	3	0.0003	1.911	0.229	4.757
Error	0.0009	6	0.0002			
Total	0.0047	11				

Treatment Effect (i.e., difference between US and DS)

Not Significant

Table 33g: Attawapiskat River - Statistical Analysis - Mercury - 2023 (Unfiltered) (concentrations in ng/L)

TOTAL MERCURY DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Habitat	Att R. (A-1)	Att R. (A-2)	Att R. (A-3)	Att R. (A-4)	Sum r.
Jan	2.02	1.66	1.45	1.43	6.56
Jun	2.38	2.14	2.53	2.45	9.50
Aug	1.80	0.95	1.61	1.80	6.16
Oct	0.99	0.87	0.82	1.48	4.16
Sum c.	7.19	5.62	6.41	7.16	26.38

r. - rows; c. - columns

CEQG for Protection of Aquatic Life: 26ng/L

MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1.

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	3.640	3	1.2132	16.620	0.001	3.863
Columns	0.415	3	0.1382	1.893	0.201	3.863
Error	0.657	9	0.0730			
Total	4.711	15				

Treatment Effect (i.e., difference between US and DS)
Not Significant

METHYL MERCURY DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Habitat	Att R. (A-1)	Att R. (A-2)	Att R. (A-3)	Att R. (A-4)	Sum r.
Jan	<0.03	0.03	<0.03	<0.03	0.120
Jun	0.08	0.15	0.08	0.09	0.400
Aug	0.07	<0.04	0.09	0.06	0.260
Oct	0.05	0.05	0.05	0.09	0.240
Sum c.	0.230	0.270	0.250	0.270	1.020

r. - rows; c. - columns

CEQG for Protection of Aquatic Life: 4ng/L

MDLs have been adjusted for all years for uniformity (0.02 ng/L for total mercury), as per Section 1.

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	0.0099	3	0.0033	5.267	0.023	3.863
Columns	0.0003	3	0.0001	0.147	0.929	3.863
Error	0.0056	9	0.0006			
Total	0.0158	15				

Treatment Effect (i.e., difference between US and DS)
Not Significant

Table 33h: Attawapiskat River - Statistical Analysis - Mercury - 2023 (Filtered) (concentrations in ng/L)

TOTAL MERCURY DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Habitat	Att R. (A-1)	Att R. (A-2)	Att R. (A-3)	Att R. (A-4)	Sum r.
Jan	0.97	0.94	0.83	0.75	3.49
Jun	2.03	1.82	1.96	1.95	7.76
Aug	0.95	0.75	1.03	0.88	3.61
Oct	0.48	0.36	0.44	0.74	2.02
Sum c.	4.43	3.87	4.26	4.32	16.88

r. - rows; c. - columns

CEQG for Protection of Aquatic Life: 26ng/L

MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1.

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	4.569	3	1.5231	103.297	0.000	3.863
Columns	0.045	3	0.0148	1.007	0.433	3.863
Error	0.133	9	0.0147			
Total	4.746	15				

Treatment Effect (i.e., difference between US and DS)

Not Significant

METHYL MERCURY DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Habitat	Att R. (A-1)	Att R. (A-2)	Att R. (A-3)	Att R. (A-4)	Sum r.
Jan	<0.03	<0.03	<0.03	<0.03	0.120
Jun	0.06	0.07	0.04	0.06	0.230
Aug	<0.04	<0.04	<0.04	0.06	0.180
Oct	<0.04	<0.04	<0.04	<0.04	0.160
Sum c.	0.170	0.180	0.150	0.190	0.690

r. - rows; c. - columns

CEQG for Protection of Aquatic Life: 4ng/L

MDLs have been adjusted for all years for uniformity (0.02 ng/L for total mercury), as per Section 1.

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	0.0016	3	0.0005	8.461	0.006	3.863
Columns	0.0002	3	0.0001	1.180	0.371	3.863
Error	0.0006	9	0.0001			
Total	0.0023	15				

Treatment Effect (i.e., difference between US and DS)

Not Significant

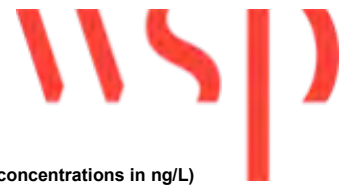


Table 34: Granny Creek Confluence and Trib 5A - Statistical Analysis - Mercury - Averages All Years (concentrations in ng/L)

TOTAL MERCURY DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES (Unfiltered)

Date	Granny Cr Confluence (G-8)	Trib 5A	Sum r.
2009	2.05	1.09	3.14
2010	1.30	1.01	2.31
2011	1.69	1.34	3.03
2012	2.35	1.48	3.83
2013	1.66	0.90	2.56
2014	1.53	1.86	3.39
2015	1.85	1.13	2.98
2016	3.38	1.76	5.14
2017	2.09	1.18	3.27
2018	2.24	2.71	4.95
2019	2.83	1.42	4.25
2020	2.91	1.66	4.57
2021	3.30	1.87	5.17
2022	3.07	1.70	4.77
2023	2.85	1.50	4.35
Sum c.	35.10	22.61	57.71

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	6.45	14	0.461	2.281	0.0674	2.484
Columns	5.20	1	5.200	25.732	0.0002	4.600
Error	2.83	14	0.202			
Total	14.48	29				

Treatment Effect (i.e., difference between G-8 and Trib 5A)
Significant

r. - rows; c. - columns

CEQG for Protection of Aquatic Life: 26ng/L

MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1.

TOTAL MERCURY DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES (Filtered)

Date	Granny Cr Confluence (G-8)	Trib 5A	Sum r.
2009	1.47	0.82	2.29
2010	0.89	0.58	1.47
2011	1.24	1.04	2.28
2012	1.44	0.96	2.40
2013	1.02	0.61	1.63
2014	1.00	1.27	2.27
2015	1.24	0.81	2.05
2016	1.53	1.12	2.65
2017	1.25	0.82	2.07
2018	1.50	1.23	2.73
2019	1.85	1.04	2.89
2020	1.89	1.24	3.13
2021	2.08	1.31	3.39
2022	1.75	1.10	2.85
2023	1.62	0.92	2.54
Sum c.	21.77	14.87	36.64

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	1.93	14	0.138	3.666	0.0104	2.48
Columns	1.59	1	1.587	42.288	0.0000	4.60
Error	0.53	14	0.038			
Total	4.04	29				

Treatment Effect (i.e., difference between G-8 and Trib 5A)
Significant

r. - rows; c. - columns

CEQG for Protection of Aquatic Life: 4ng/L

MDLs have been adjusted for all years for uniformity (0.02 ng/L for total mercury), as per Section 1.

Table 35a: Sulphate Trends Over Time (average values)

Location	Year															Average
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023		
LG Pond 2					13.1	157.8	181	211	189.5	292.4	259.0	216.3	107.2	105.6	180.8	
LG Pond 3					10.1	50.4	-	-	-	-	-	-	-	-	30.3	
LG Pond 4					23.8		-	-	-	-	-	-	-	-	23.8	
E House P1					54.7	36.5	52.9	78.9	77.3	63.1	57.2	58.5	34.3	-	57.0	
NEF – M	23.3	186.5	115.3	177.2	120	155.2	220	287.3	202.5	199.3	137.6	222.2	203.4	178.1	173.1	
NEF – M ²	17.5	58.7	87.9	35.9	44.9	55.6	69.2	48.8	58	87.1	66.7	93.5	93.3	108.8	62.9	
NEF – F	30.6	59.7	97.5	74.5	60.2	72.6	84.9	71.9	73.5	70.3	71.3	99.9	89.5	92.2	73.6	
Phase 1 Ditch	39.4	70	80.6	73.6	70.8	72	75.5	71	58.4	64.8	-	-	-	-	67.6	
LF 3	143.5	141.6	137.8	168.5	151.7	140.6	134.5	197.7	226.7	250.6	183.1	231.3	178.8	248.1	175.9	
LF 4A	6.9	<2.1	1.7	<7.9	1.7	<2.2	<1	<5	1.9	<1.5	<1.8	<7.2	<5.2	92.8	3.7	
LF 4B	<1.0	<1.9	<2.5	<23.9	31.8	<7.3	-	-	-	-	-	-	-	-	11.4	
LF 5		<3.1	<2.3	<3.2	<1.5	<3.6	8.6	15	11.4	<1.2	2.2	7.3	4.9	14.8	5.7	
LF 6			17.5	10.2	<14.4	<3.8	7.1	3	1.7	<2.0	<6.0	7.6	27.0	66.6	10.3	
LF 7						11.3	35.2	16.4	26.8	<5.6	<4.3	4.9	2.6	10.5	16.2	
WR-North						90.6	93.5	110.1	115.9	69.8	114.8	44.0	57.0	54.4	87.0	
WR-Centre						378.3	425	425.4	400	378.3	363.0	320.7	365.3	386.8	382.0	
WR-East						402.8	431.6	388.6	304.6	404.9	363.4	376.1	374.6	343.1	380.8	
WR-A						<3.8	90.2	1	<1	<1	1.2	1.6	0.7	8.0	12.6	
WR-B						369.5	394	500	469.7	376.4	410.0	304.5	325.3	177.9	393.7	
WR-C						342.7	446	355.7	327.1	274.5	230.7	222.6	318.2	281.8	314.7	
LG-South						121.6	85.7	11.6	116.26	234.5	311.5	242.5	317.1	193.1	180.1	
	Graphed values															

Where cells are blank or contain "-", this indicates that the sample was not required to be collected or data was unavailable.

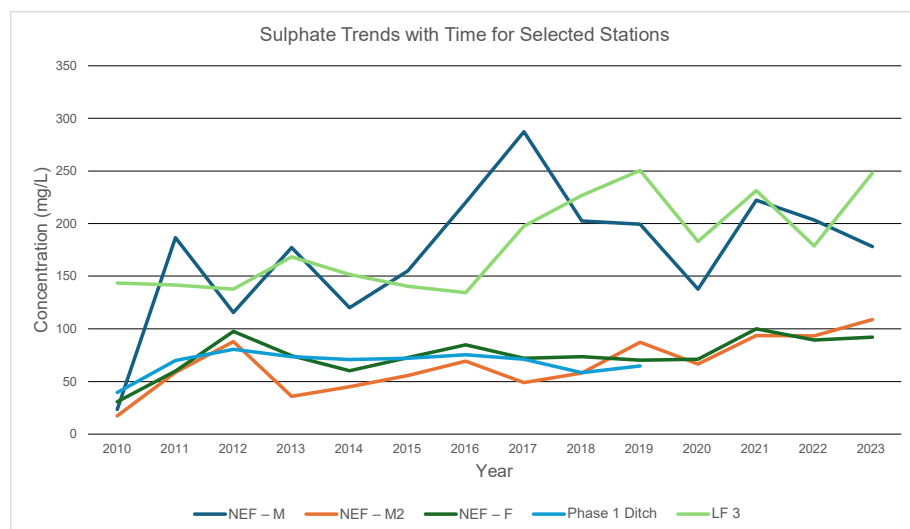
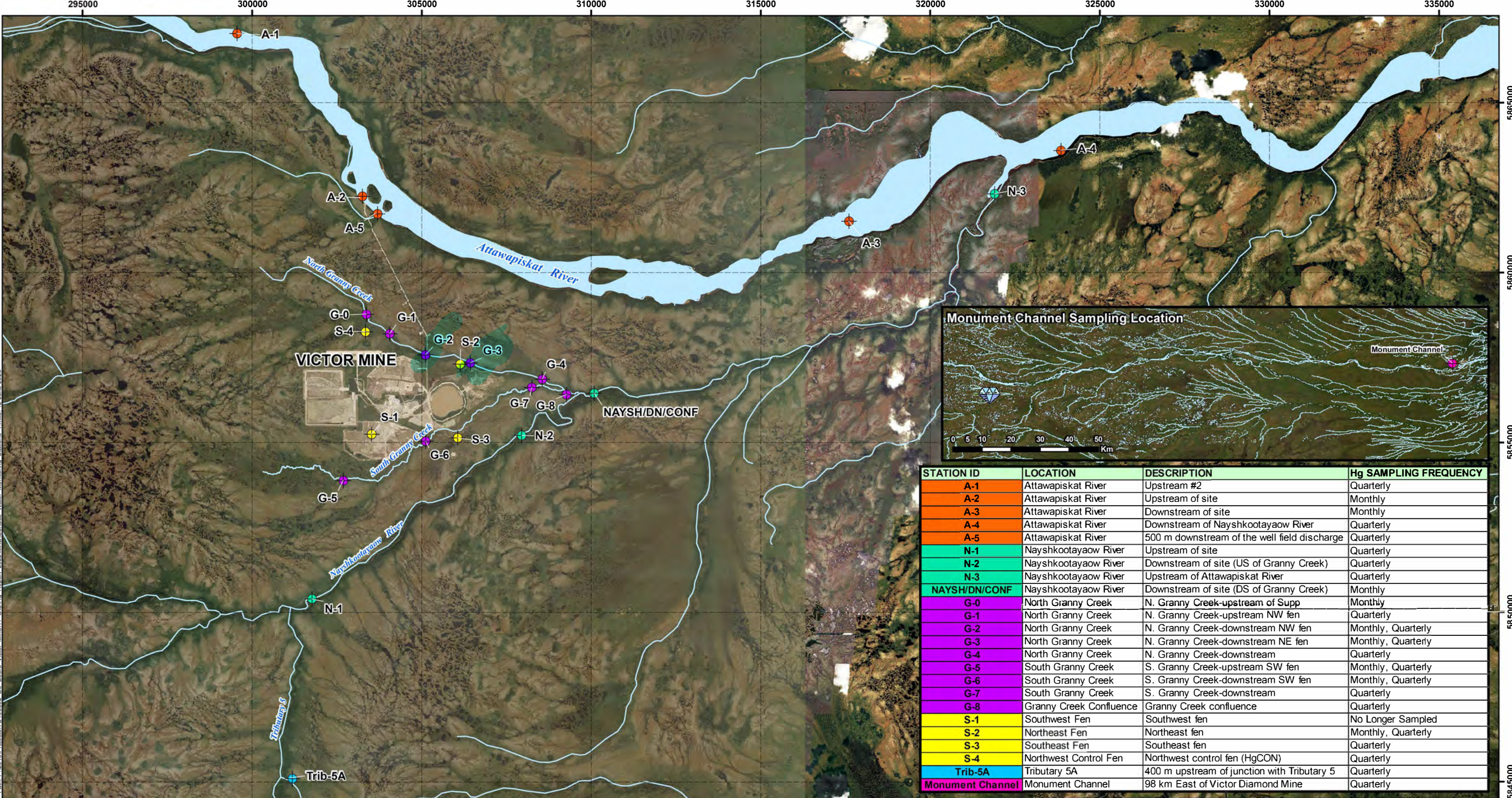


Table 35b: 2023 Sulphate Investigation Results (mg/L)

Location	Count	Minimum	Maximum	Average	75th Percentile	Period
LG Pond 2	7	20.2	264	105.6	150.0	January - December
LG Pond 3	-	-	-	-	-	-
LG Pond 4	-	-	-	-	-	-
E House P1	-	-	-	-	-	January - December
NEF – M	91	14.8	280	178.1	235.0	January - December
NEF – M2	21	31.7	167	108.8	126.5	May - October
NEF – F	34	13.6	136	92.2	110.0	January - December
Phase 1 Ditch	-	-	-	-	-	January - November
LF 3	53	22.5	461	248.1	319.5	January – December
LF 4A	7	40.5	160	92.8	142.0	February– December
LF 4B	-	-	-	-	-	-
LF 5	7	1.3	52.4	14.8	33.0	June - December
LF 6	6	2.4	252	66.6	119.0	June - November
LF 7	6	1.2	53.4	10.5	15.5	January - November
WR-North	12	10.4	74	54.4	68.4	January - December
WR-Centre	12	343	436	386.8	410.5	January - December
WR-East	14	312	382	343.1	354.5	January - December
WR-A	7	0.6	43.6	8.0	5.0	April - November
WR-B	6	53.1	263	177.9	225.5	May - October
WR-C	6	175	383	281.8	368.8	May - October
LG-South	8	147	241	193.1	214.8	January - December

Sample locations are shown in Figure 28

LG – low grade PK stockpile; NEF – Northeast Fen; LF – landfill; WR – Waste rock pile



Path: P:\2019\Projects\B1C1\B001\2022\MapXDSurface Water Monitoring Stations 1.mxd, 12 June 2023



STATION ID	LOCATION	DESCRIPTION	Hg SAMPLING FREQUENCY
A-1	Attawapiskat River	Upstream #2	Quarterly
A-2	Attawapiskat River	Upstream of site	Monthly
A-3	Attawapiskat River	Downstream of site	Monthly
A-4	Attawapiskat River	Downstream of Nayshkootayaow River	Quarterly
A-5	Attawapiskat River	500 m downstream of the well field discharge	Quarterly
N-1	Nayshkootayaow River	Upstream of site	Quarterly
N-2	Nayshkootayaow River	Downstream of site (US of Granny Creek)	Quarterly
N-3	Nayshkootayaow River	Upstream of Attawapiskat River	Quarterly
NAYSH/DN/CONF	Nayshkootayaow River	Downstream of site (DS of Granny Creek)	Monthly
G-0	North Granny Creek	N. Granny Creek-upstream of Supp	Monthly
G-1	North Granny Creek	N. Granny Creek-upstream NW fen	Quarterly
G-2	North Granny Creek	N. Granny Creek-downstream NW fen	Monthly, Quarterly
G-3	North Granny Creek	N. Granny Creek-downstream NE fen	Monthly, Quarterly
G-4	North Granny Creek	N. Granny Creek-downstream	Quarterly
G-5	South Granny Creek	S. Granny Creek-upstream SW fen	Monthly, Quarterly
G-6	South Granny Creek	S. Granny Creek-downstream SW fen	Monthly, Quarterly
G-7	South Granny Creek	S. Granny Creek-downstream	Quarterly
G-8	Granny Creek Confluence	Granny Creek confluence	Quarterly
S-1	Southwest Fen	Southwest fen	No Longer Sampled
S-2	Northeast Fen	Northeast fen	Monthly, Quarterly
S-3	Southeast Fen	Southeast fen	Quarterly
S-4	Northwest Control Fen	Northwest control fen (HgCON)	Quarterly
Trib-5A	Tributary 5A	400 m upstream of junction with Tributary 5	Quarterly
Monument Channel	Monument Channel	98 km East of Victor Diamond Mine	Quarterly

LEGEND

-  Victor Diamond Mine
- Surface Water Monitoring Station Location
-  Attawapiskat River

 Nayshkootayaow River

 Granny Creek

 Fens

 Monument Channel

 Tributary 5A

NOTES:
- Aerial imagery current as of September 2022.

DE BEERS
GROUP OF COMPANIES



VICTOR DIAMOND MINE

Surface Water Monitoring Stations

Datum: NAD83
Projection: UTM Zone 17N



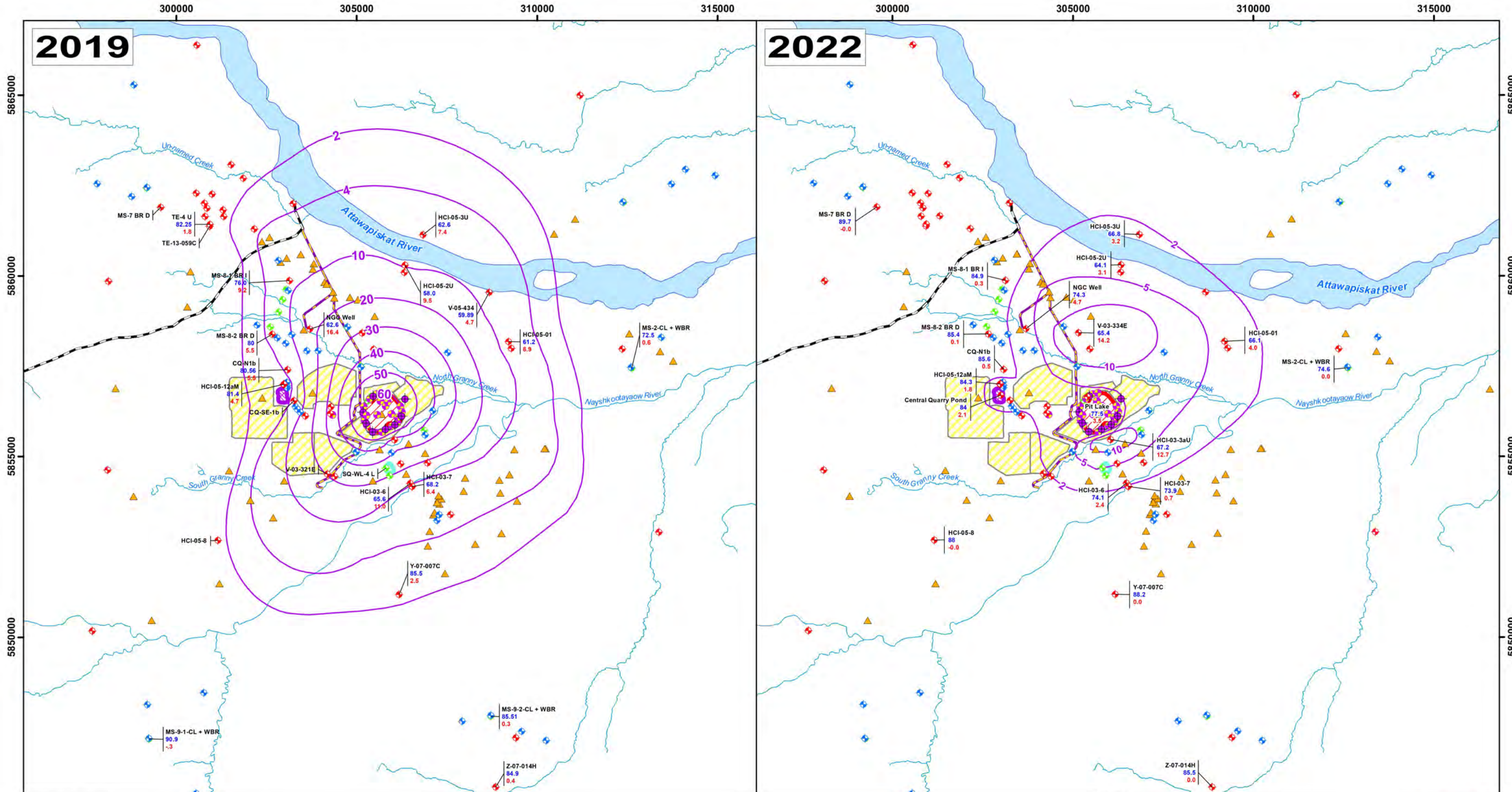
PROJECT N°: TC190502

FIGURE: 2

SCALE: 1:107,000

June 2024





LEGEND

- | | | |
|------------------------------|-----------------------------|---|
| Well Type/Description | VDM Open Pit | Drawdown in Upper Limestone Aquifer Unit (2m or 10m Contour Interval) |
| Bedrock Monitoring Well | South Quarry | Granny Creek Pipeline |
| Clay/Peat Piezometer | Central Quarry | Nayshkootayaow River Pipeline |
| Clay/Peat/Bedrock Piezometer | Stockpile Areas/PK Facility | Watercourse |
| Non-Permit Well | Attawapiskat River | |
| Pumping Wells | | |
| Dry Ponds | | |

NOTES:
- Only wells included in drawdown surface are labeled with groundwater elevation (blue - mASL) and drawdown (red - meters)



VICTOR DIAMOND MINE

**Interpreted Drawdown Contours (m)
in Upper Limestone Aquifer
(March 2019 and August 2022)**

Datum: NAD83
Projection: UTM Zone 17N



PROJECT N^o: TC190502

SCALE: 1:100,000

FIGURE: 3

DATE: June 2023

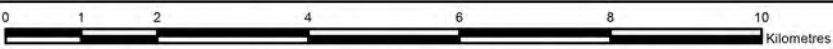


Figure 4a: Ribbed Fen Surface Water Average Methyl Mercury Concentration (Filtered)
as a Function of DOC

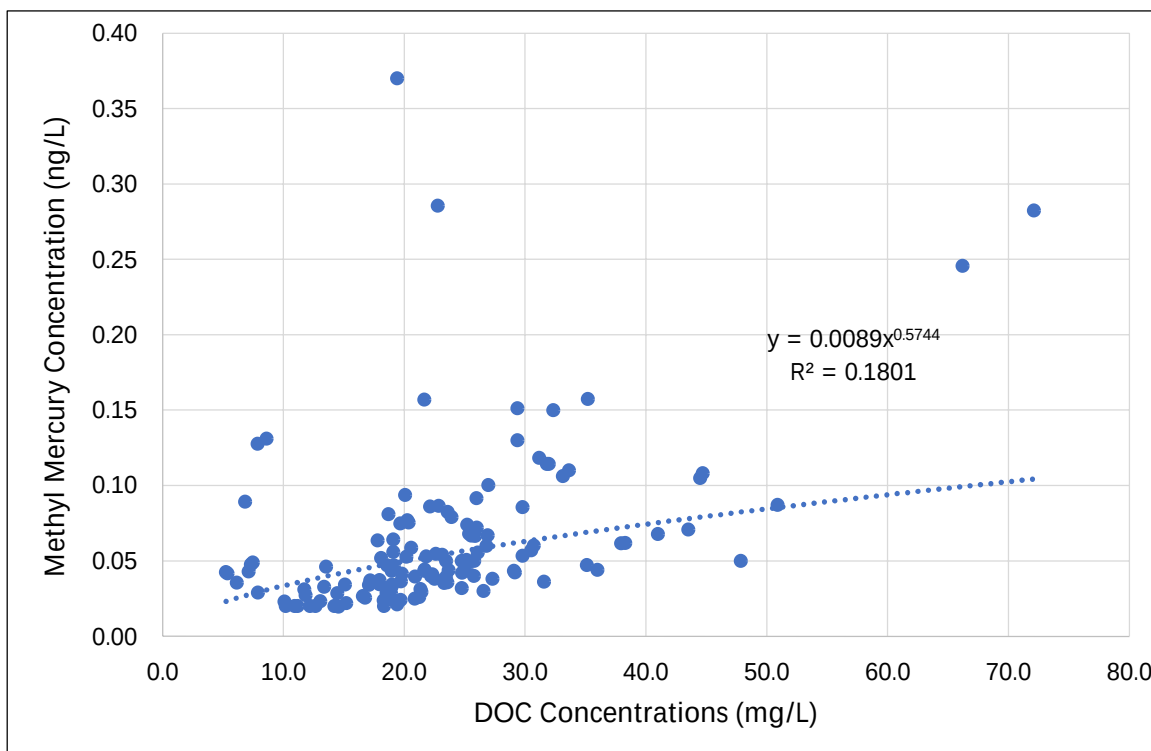


Figure 4b: Ribbed Fen Surface Water Average Methyl Mercury Concentration (Filtered)
as a Function of pH

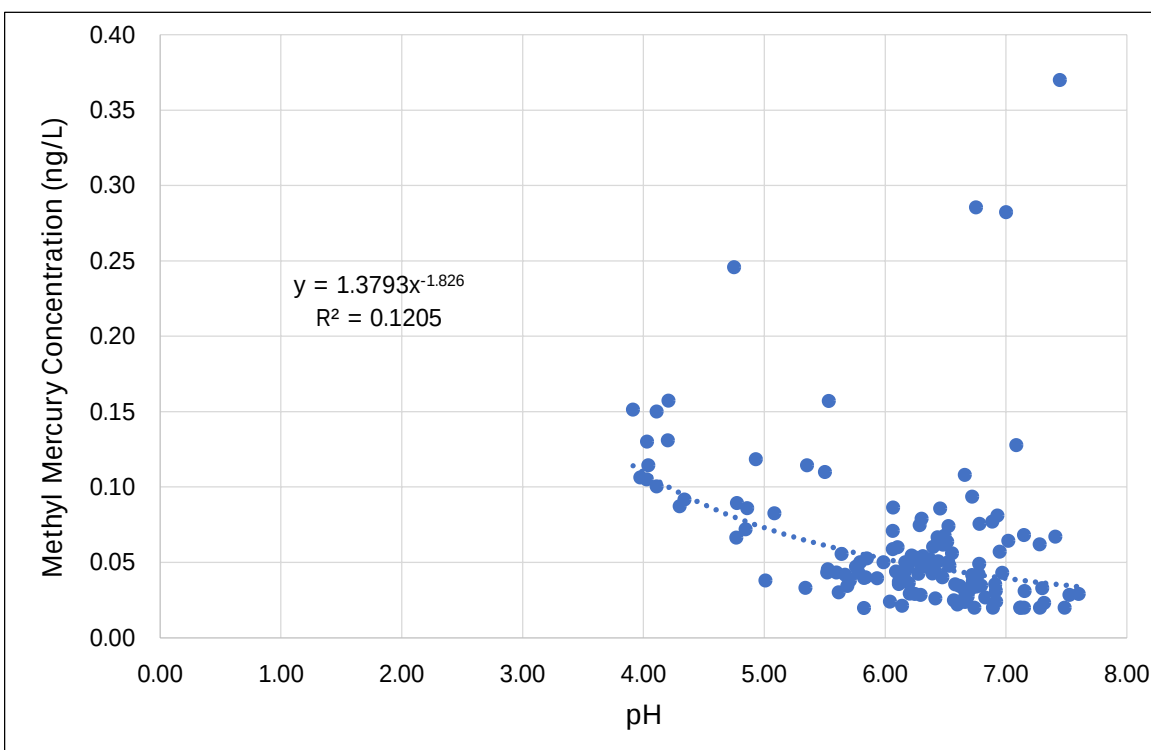


Figure 5a: Nayshkootayaow River Total and Methyl Mercury Trends (Filtered and Unfiltered)

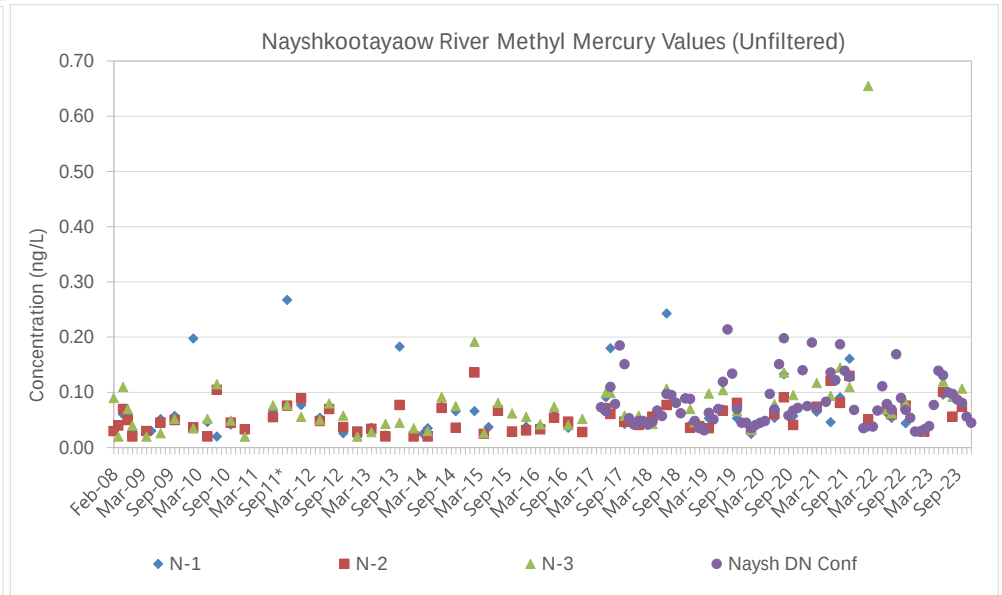
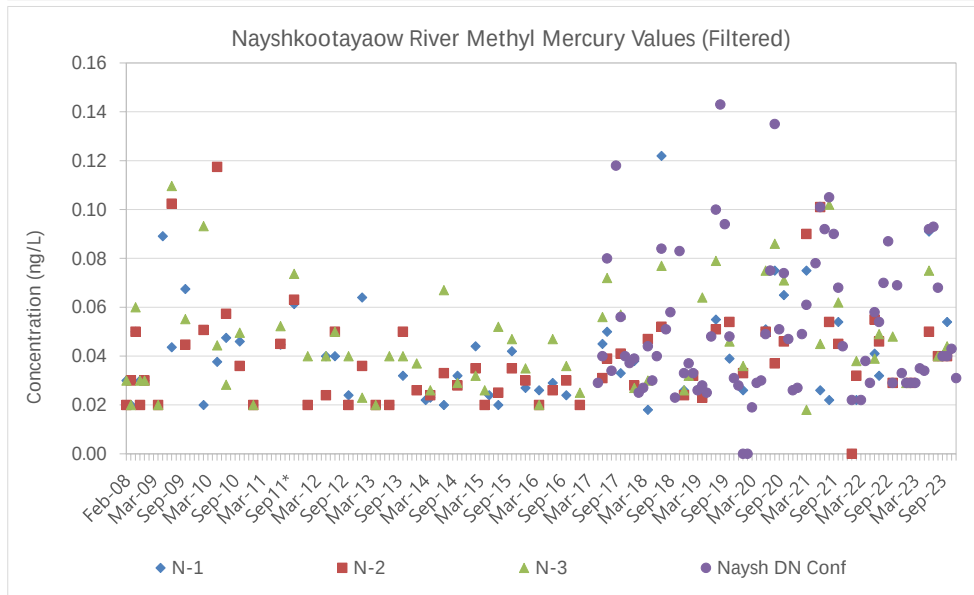
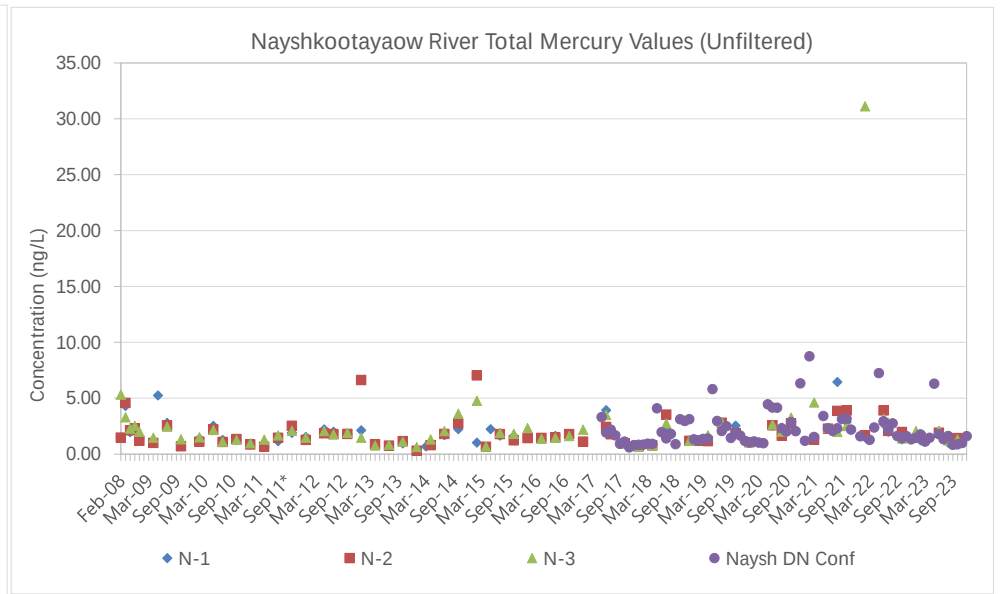
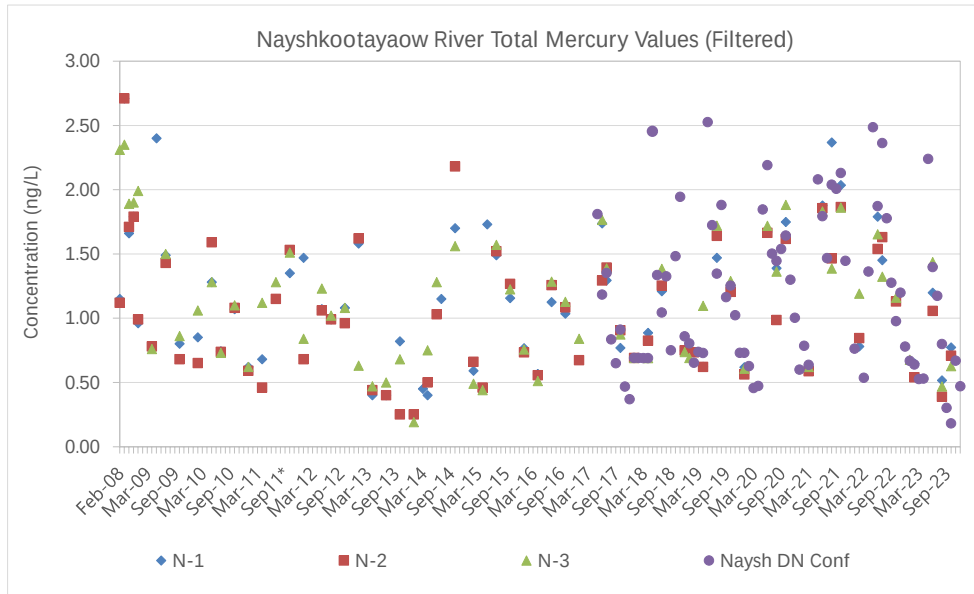
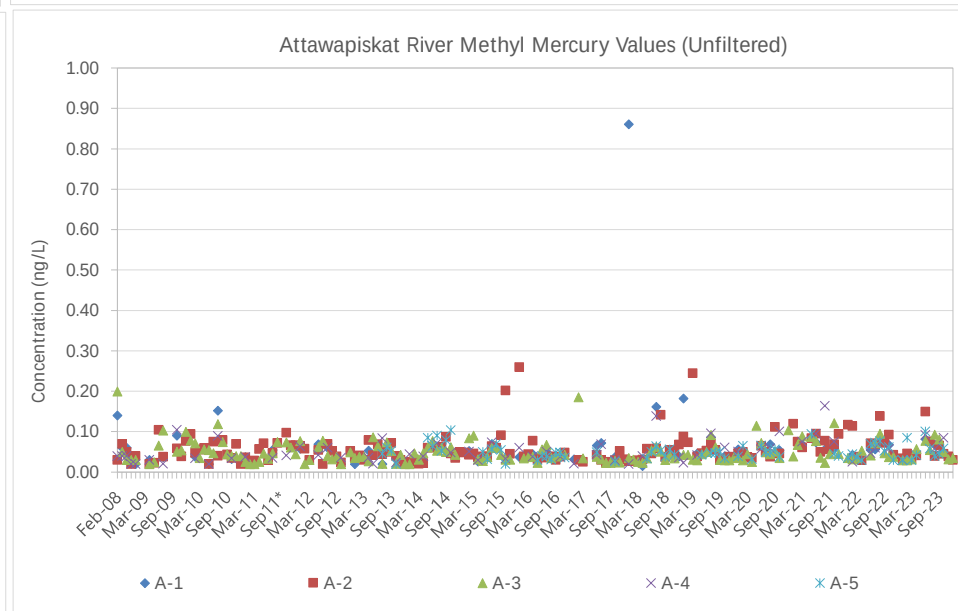
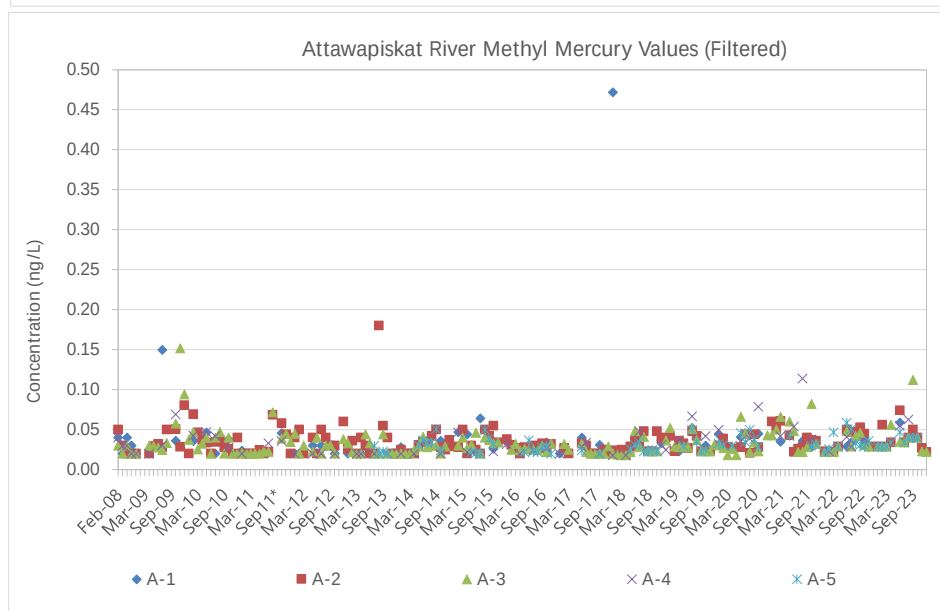
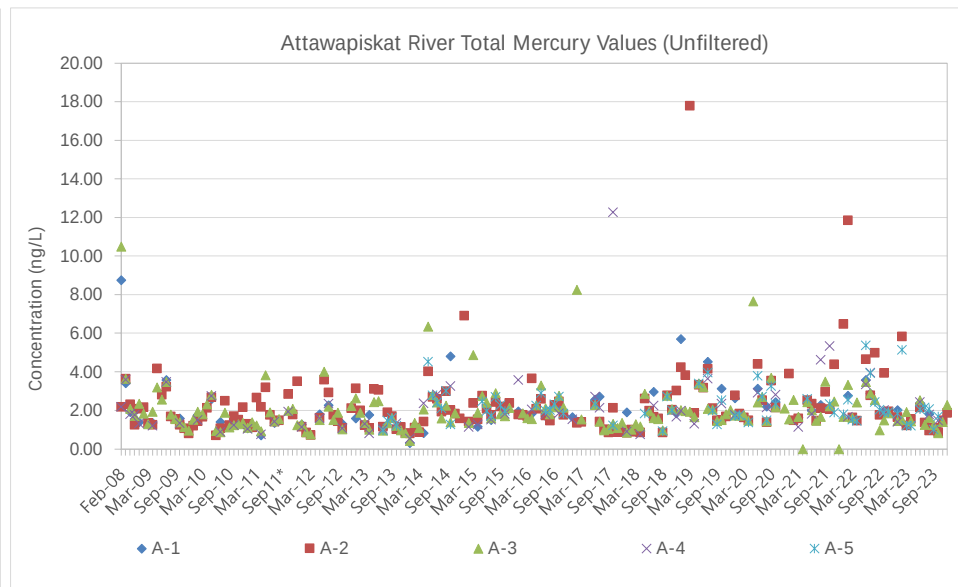
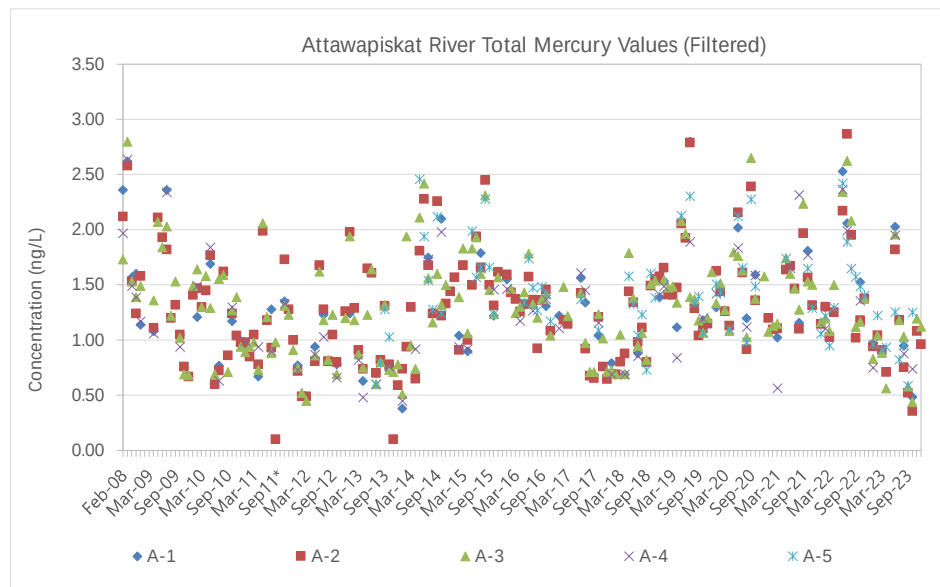


Figure 5b: Attawapiskat River Total and Methyl Mercury Trends (Filtered and Unfiltered)



Path: X:\CANACAO\300-OAK\MIS-FS1-Project\F2019\Projects\TC190502_De Beers_Victor_Mine\11_GIS\Hg_Report_2023\MXD\Fish_Sampling_Mercury_1.mxd

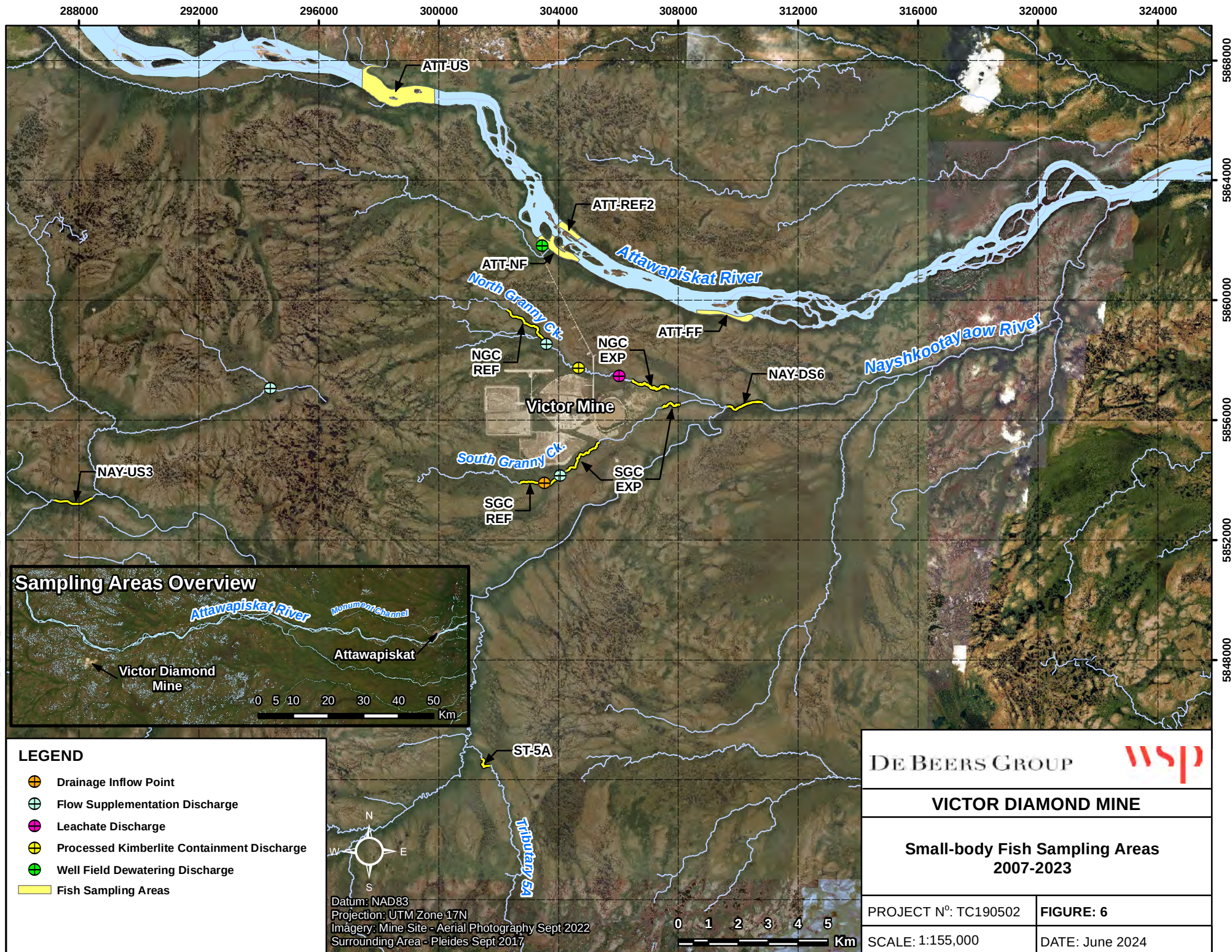
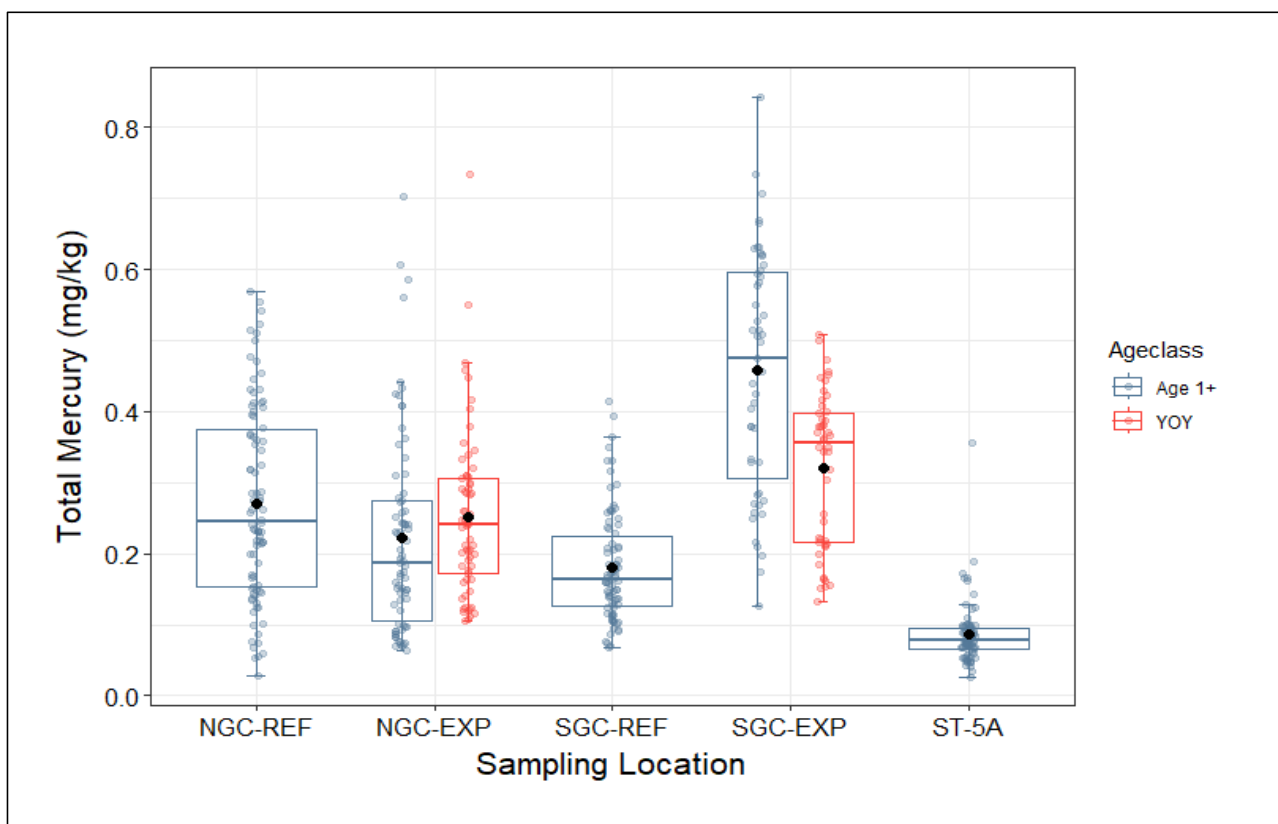
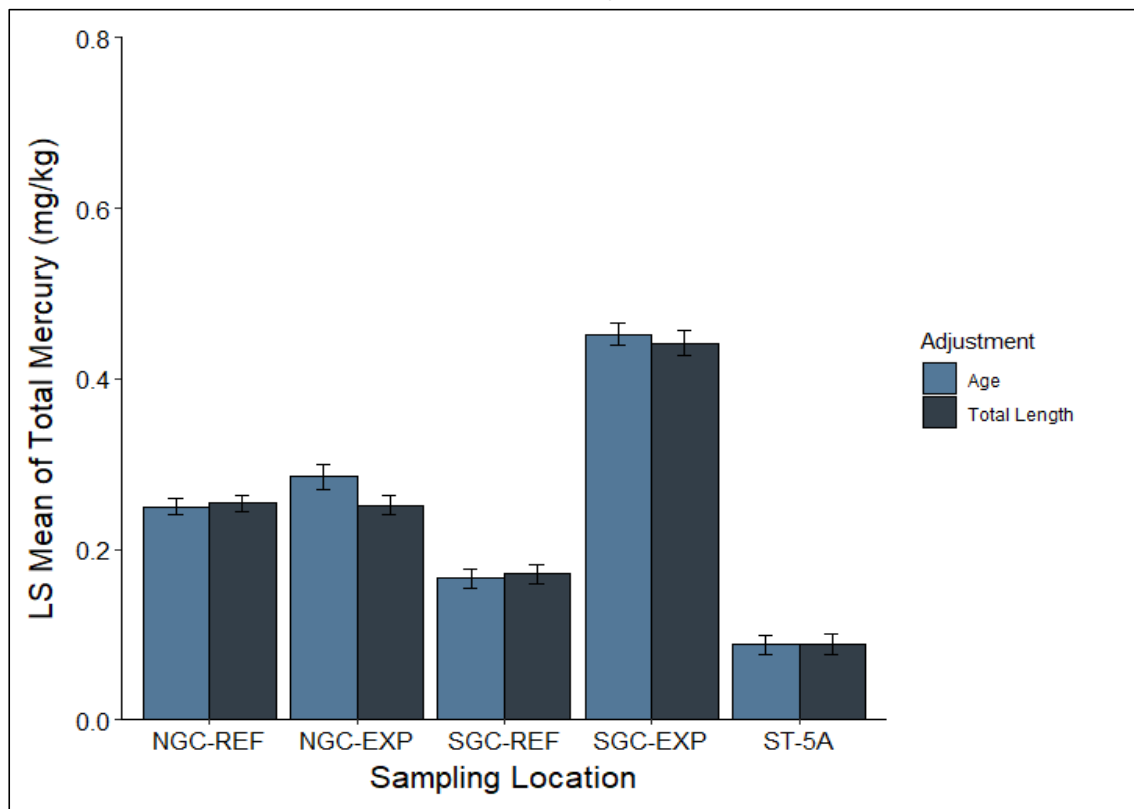


Figure 7: Total Mercury for Northern Pearl Dace in the Granny Creek System and Tributary 5A in 2023



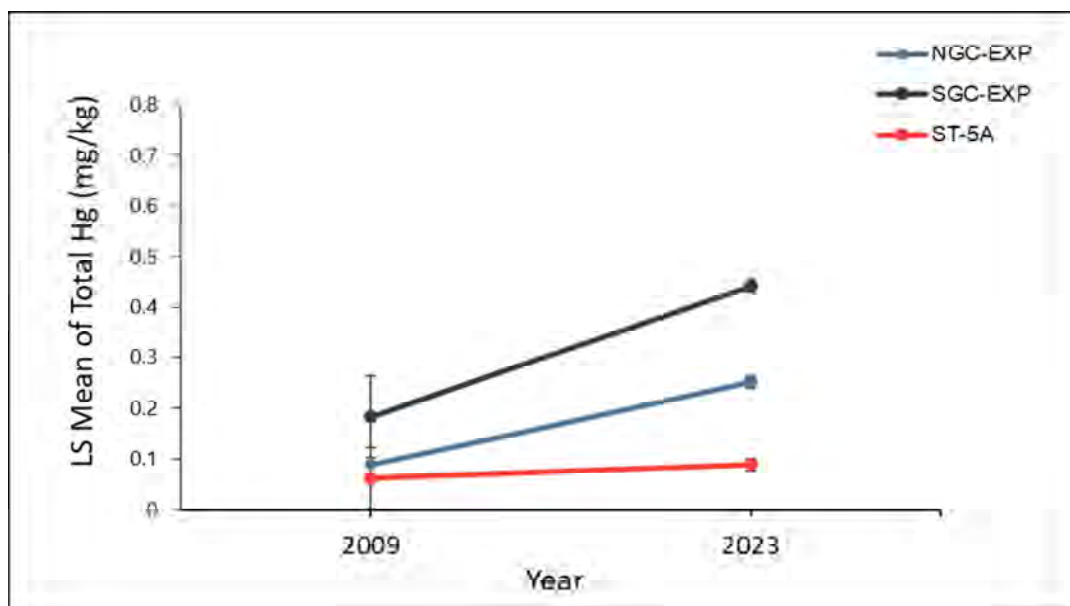
Comparison of total mercury levels (mg/kg) for YOY and age 1+ Northern Pearl Dace from the Granny Creek System and Tributary 5A sampling locations. Each box shows the first quartile, median and third quartile. Whiskers show minimum and maximum values. Black dots represent average total mercury values. YOY Northern Pearl Dace were not captured in sufficient abundance from ST-5A, NGC-REF and SGC-REF in 2023.

Figure 8: Histogram of Total Mercury Adjusted for Total Length and Age in Northern Pearl Dace from the Granny Creek System and Tributary 5A



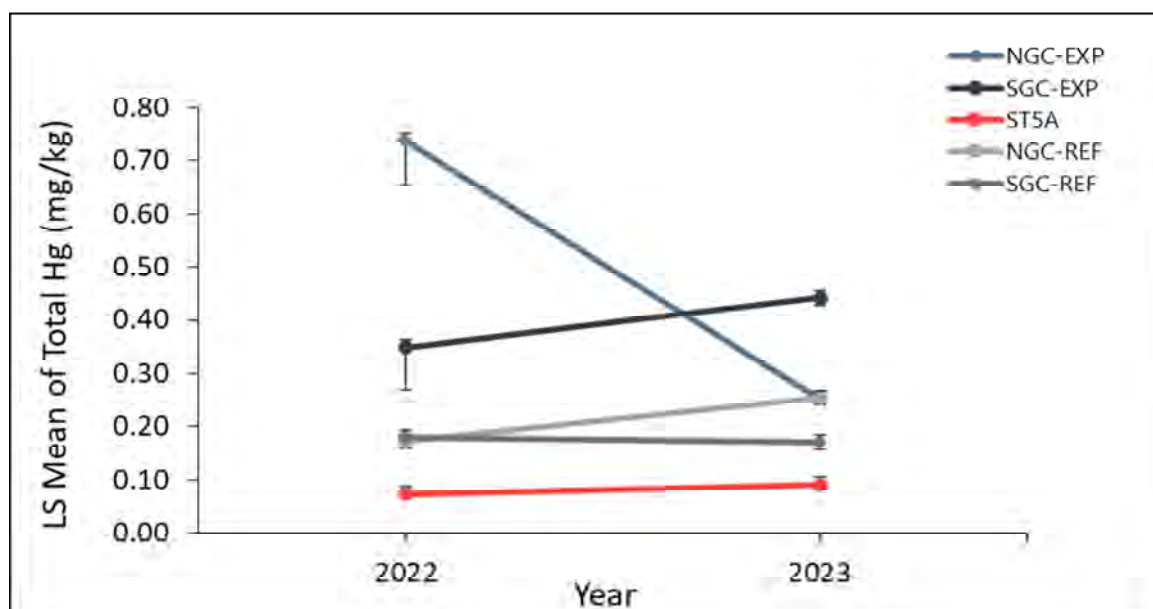
Histogram of least square means and standard error for total mercury adjusted for total length and in age 1+ Northern Pearl Dace from the Granny Creek System and Tributary 5A in 2023. Statistical comparisons involving YOY fish were not completed due to low sample sizes.

Figure 9: Plot of Total Mercury Concentrations Adjusted for Total Length in 2009 and 2023 for Northern Pearl Dace from the Granny Creek System and Tributary 5A



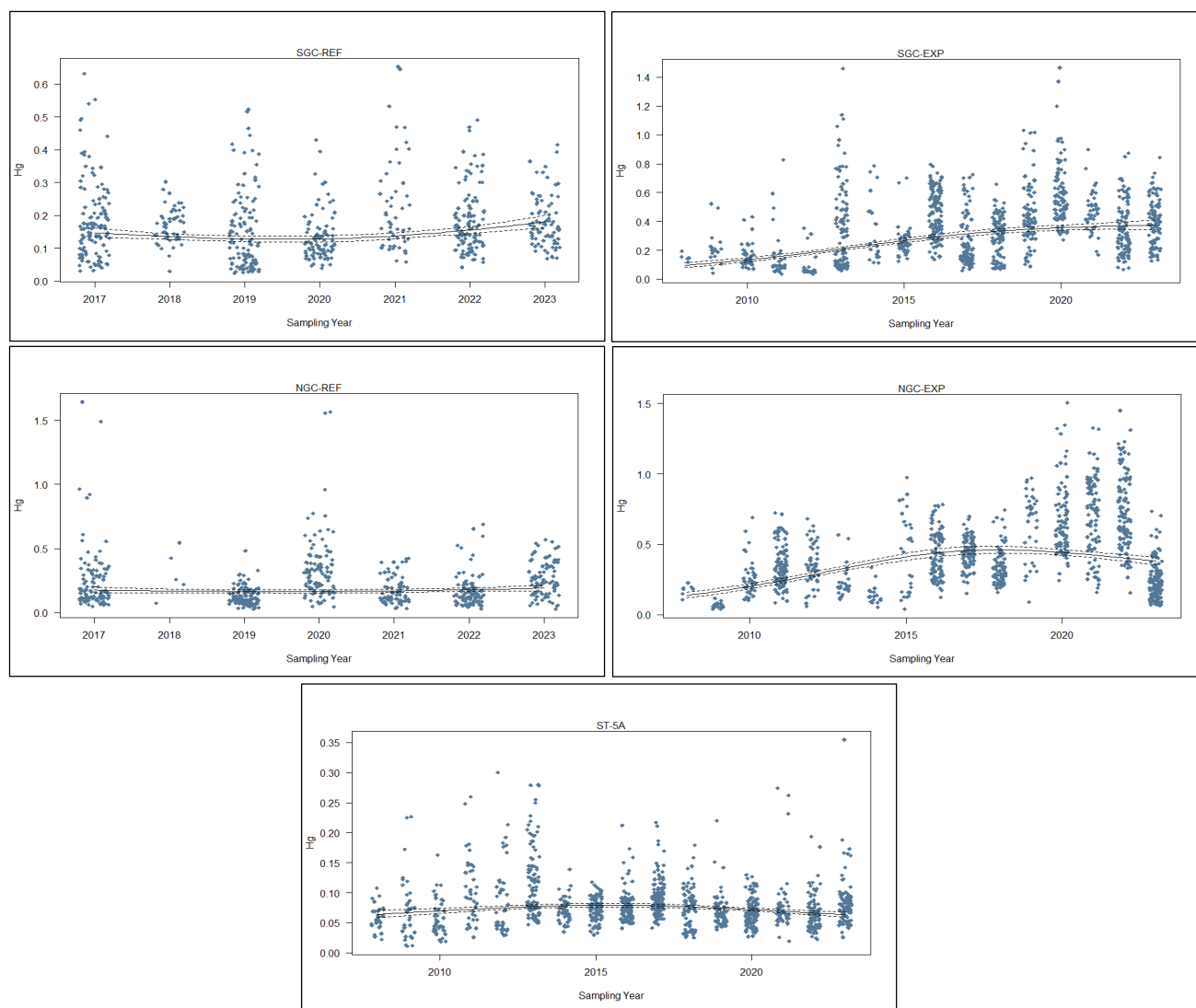
Plot of least square means of total mercury (mg/kg) adjusted for total length and area comparisons for Northern Pearl Dace in 2009 and 2023 from the Granny Creek System. Figure includes Northern Pearl Dace of all age classes captured in both years; model corrects for differences in total length. The 2009 Sampling year was used as baseline as sample size at SGC in 2008 was too small for analysis (n=5).

Figure 10: Plot of Total Mercury Concentrations Adjusted for Total Length in 2021 and 2023 for Northern Pearl Dace from the Granny Creek System and Tributary 5A



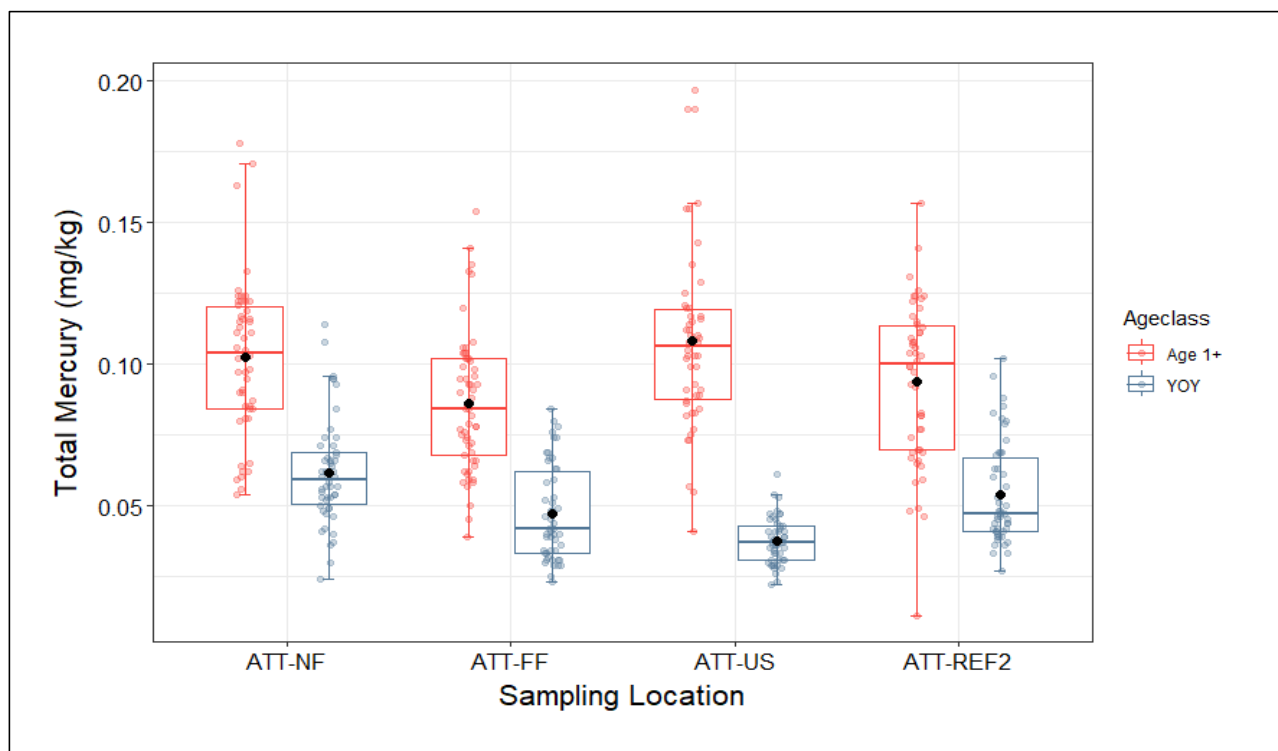
Plot of least square means of total mercury (mg/kg) adjusted for total length and area comparisons for Northern Pearl Dace in 2022 and 2023 from the Granny Creek System and Tributary 5A. Figure includes Northern Pearl Dace of all age classes captured in both years; model corrects for differences in total length.

Figure 11: Total Mercury Additive Model for Northern Pearl Dace of Standard Size (60 mm) from 2008 to 2023 in the Granny Creek System and Tributary 5A



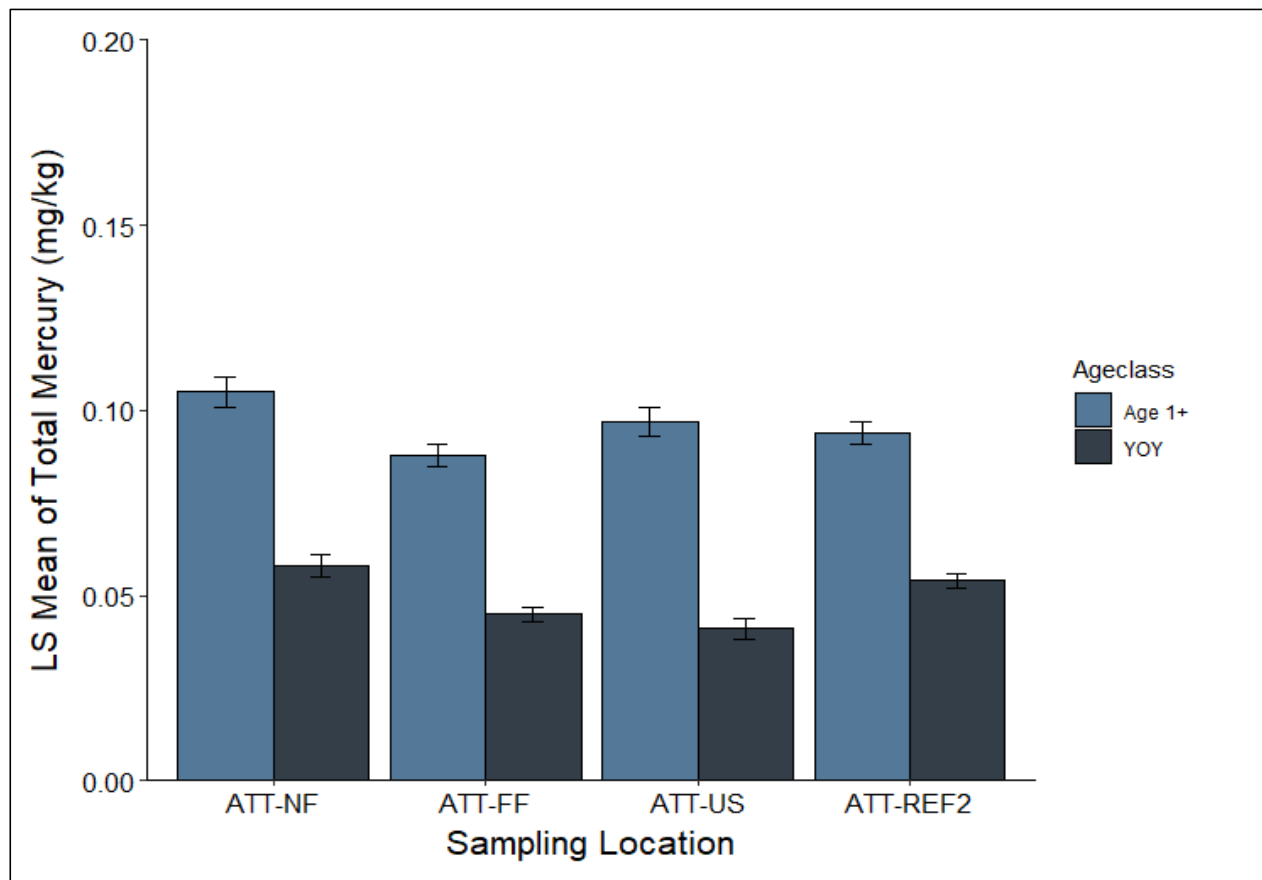
General additive model plot of total mercury with smoothers of year and total length (standard 60 mm) for Northern Pearl Dace from the Granny Creek System and Tributary 5A. A reference location in North Granny Creek and South Granny Creek was added in 2017.

Figure 12: Total Mercury for Trout Perch from the Attawapiskat River in 2023



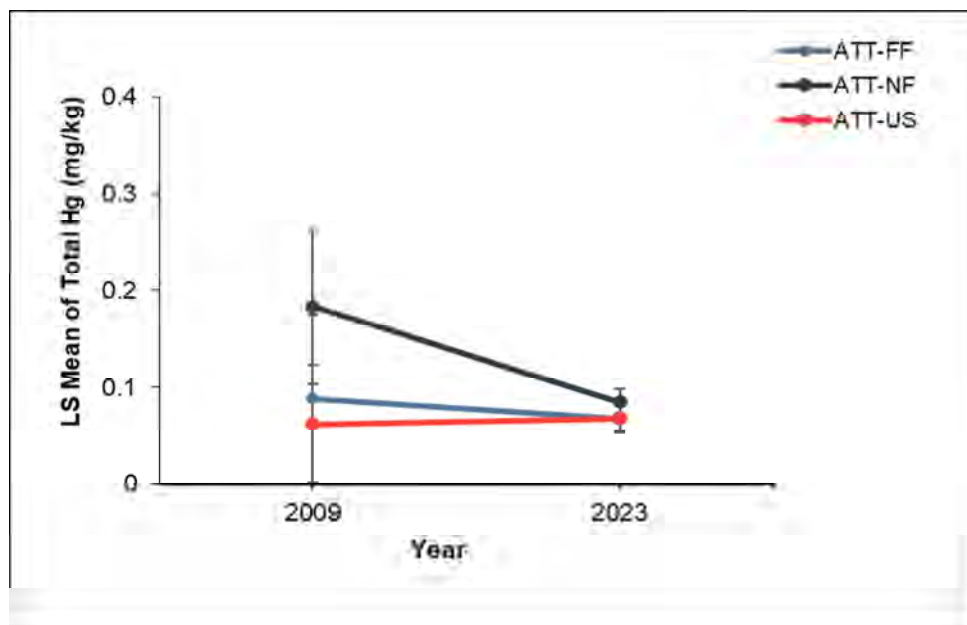
Comparison of total mercury levels (mg/kg) for YOY and age 1+ Trout Perch from the Attawapiskat River sampling locations. Each box shows the first quartile, median and third quartile. Whiskers show minimum and maximum values. Black dots represent average total mercury values.

Figure 13: Histogram of Total Mercury Adjusted for Total Length in Trout Perch from the Attawapiskat River



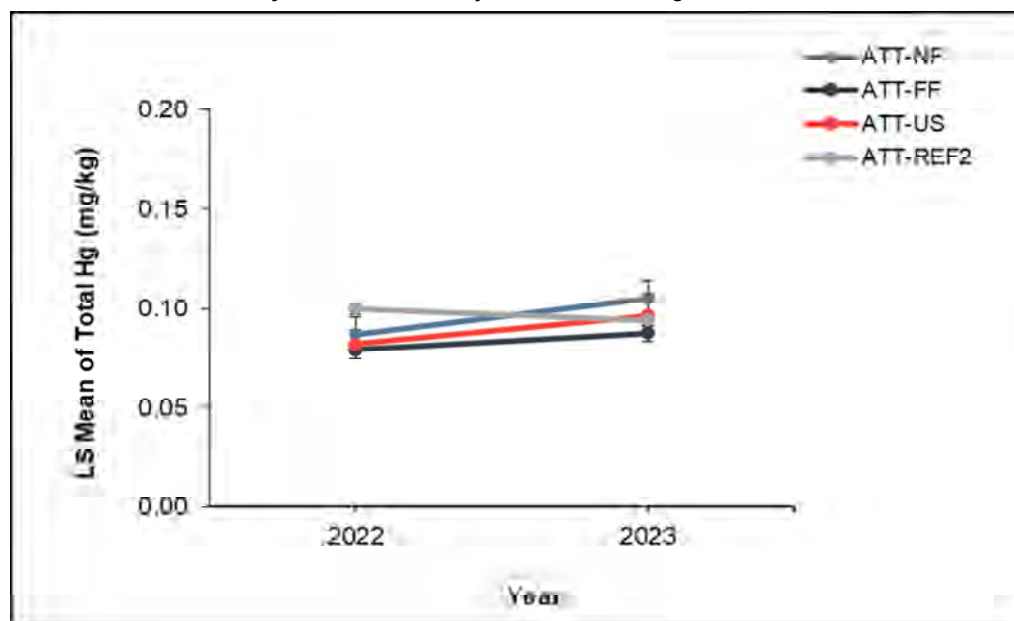
Histogram of least square means and standard error for total mercury adjusted for total length in YOY and age 1+ Trout Perch from Attawapiskat River in 2023.

Figure 14: Plot of Total Mercury Concentrations Adjusted for Total Length in 2009 and 2023 in Trout Perch from the Attawapiskat River



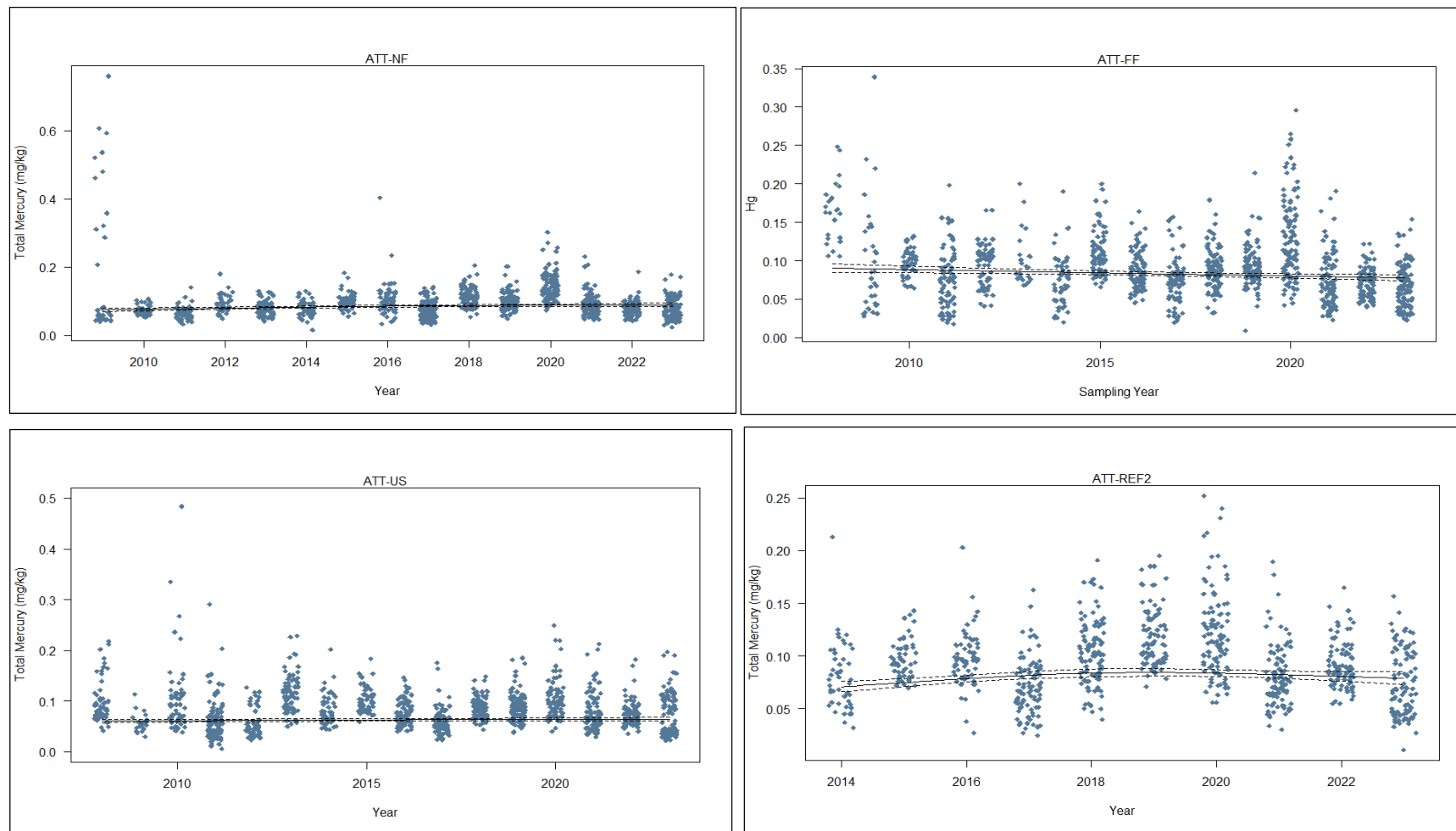
Plot of least square means of total mercury (mg/kg) adjusted for total length and area comparisons for Trout Perch in 2009 and 2023 from the Attawapiskat River. Figure includes Trout Perch of all age classes captured in both years; model corrects for differences in total length. ATT-REF2 was not sampled until 2014 and was therefore excluded from figure.

Figure 15: Plot of Total Mercury Concentrations Adjusted for Total Length in 2022 and 2023 in Trout Perch from the Attawapiskat River



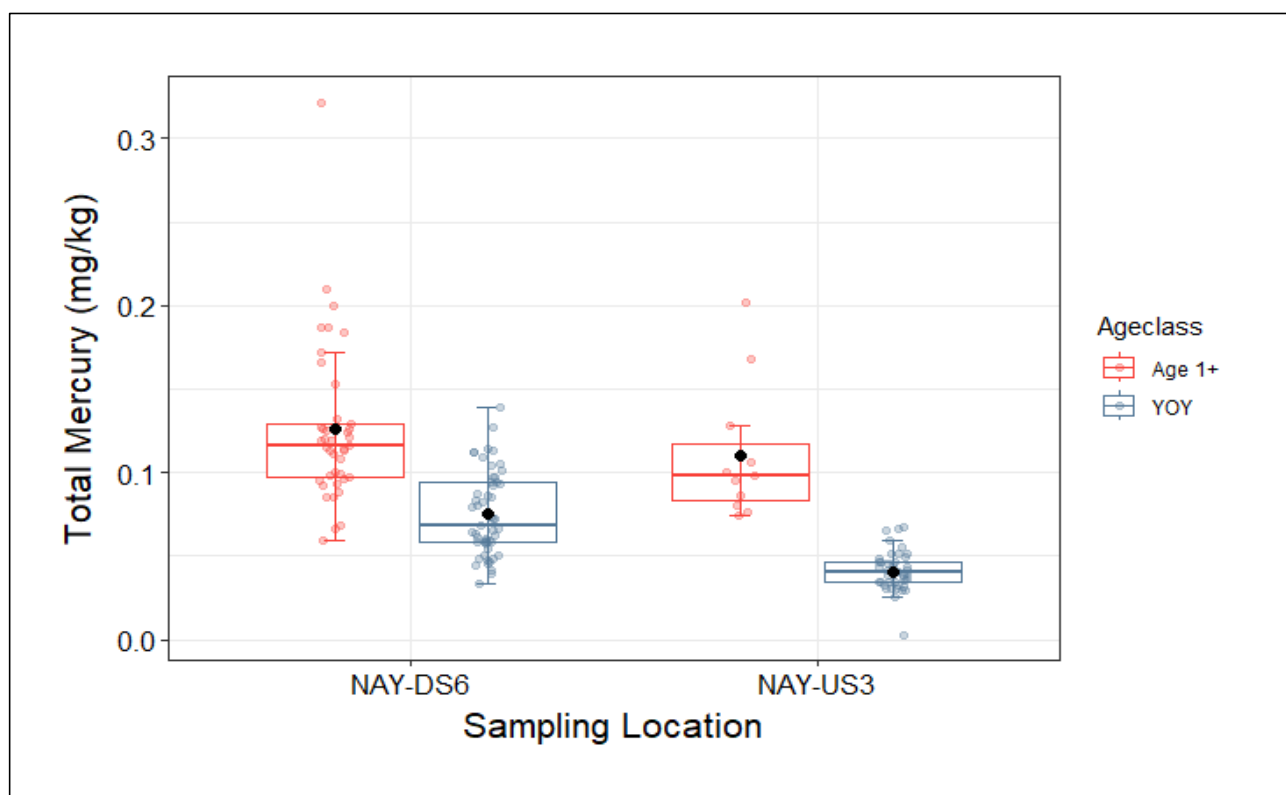
Plot of least square means of total mercury (mg/kg) adjusted for total length and area comparisons for Trout Perch in 2022 and 2023 from the Attawapiskat River. Figure includes age 1+ Trout Perch captured in both years; model corrects for differences in total length.

Figure 16: Total Mercury Additive Model for Trout Perch of Standard Size (50 mm) from 2008 to 2023 in Attawapiskat River



General additive model plot of total mercury with smoothers of year and total length (standard 50 mm) for Trout Perch from the Attawapiskat River. ATT-REF2 was added as a secondary reference location in 2014.

Figure 17: Total Mercury for Trout Perch from the Nayshkootayaow River in 2023



Comparison of total mercury levels (mg/kg) for YOY and age 1+ Trout Perch from the Nayshkootayaow River sampling locations. Each box shows the first quartile, median and third quartile. Whiskers show minimum and maximum values. Black dots represent average total mercury values.

Figure 18: Histogram of Total Mercury Adjusted for Total Length in Trout Perch from the Nayshkootayaow River

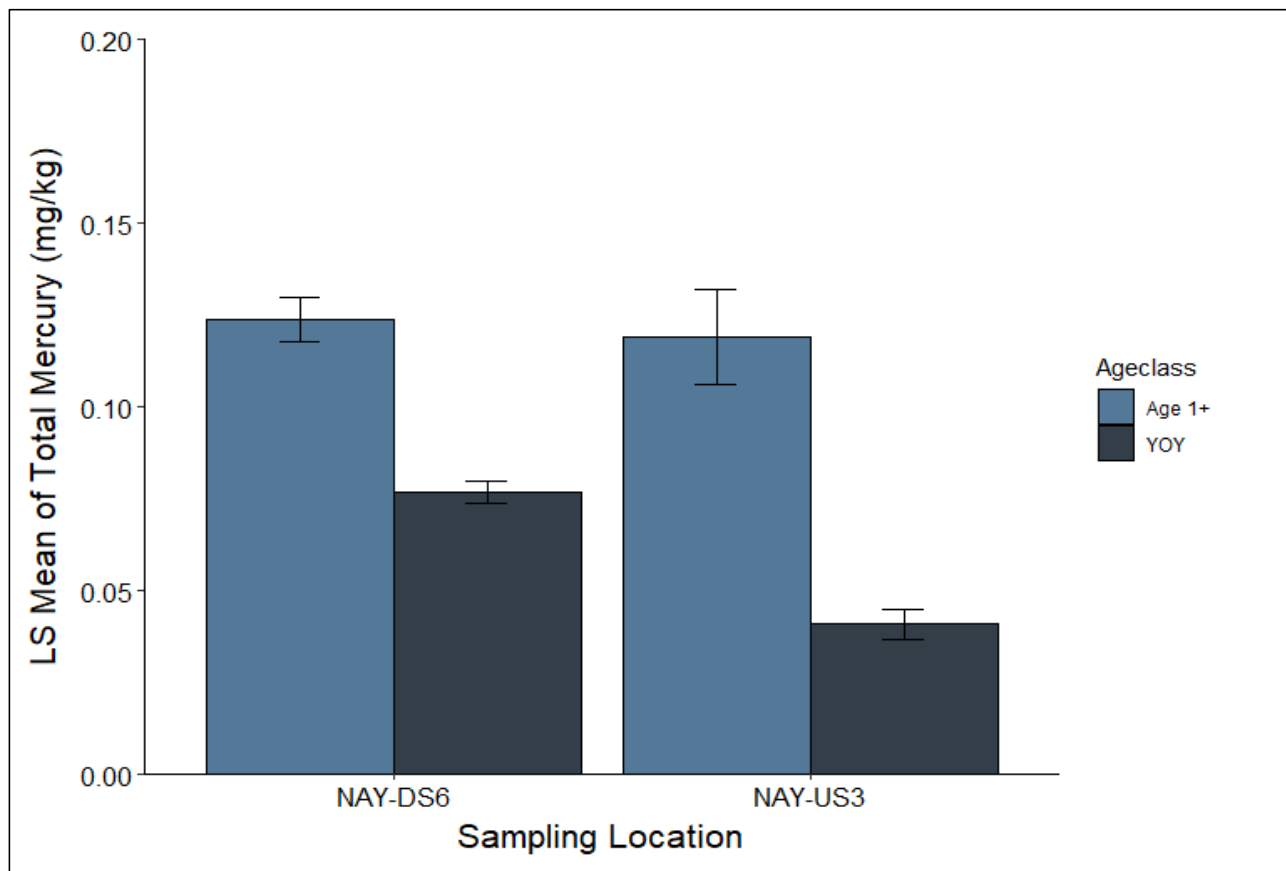
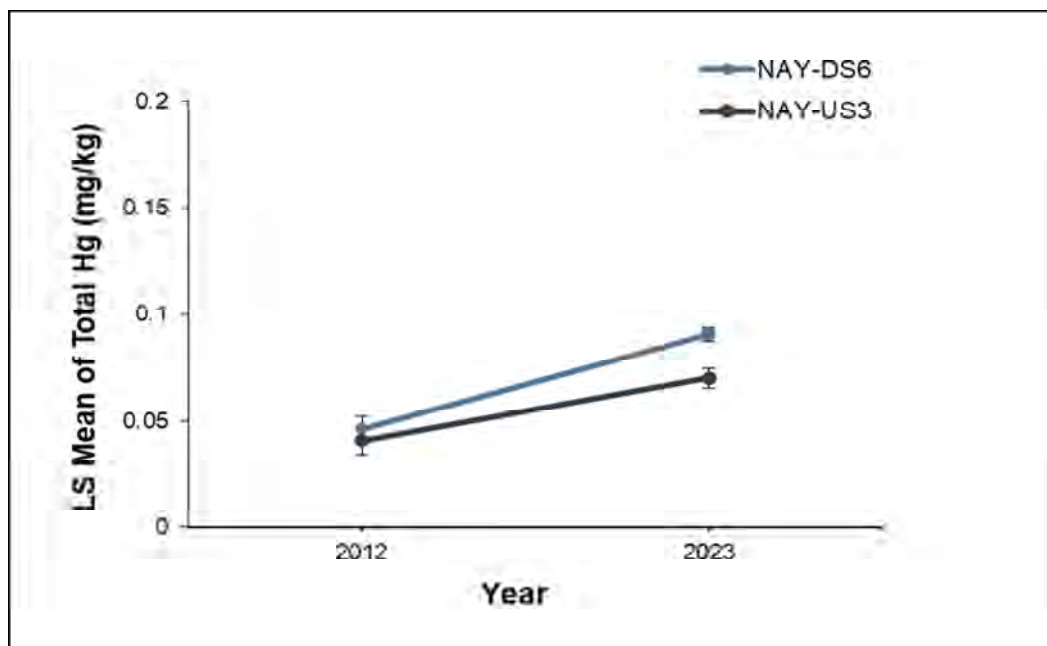
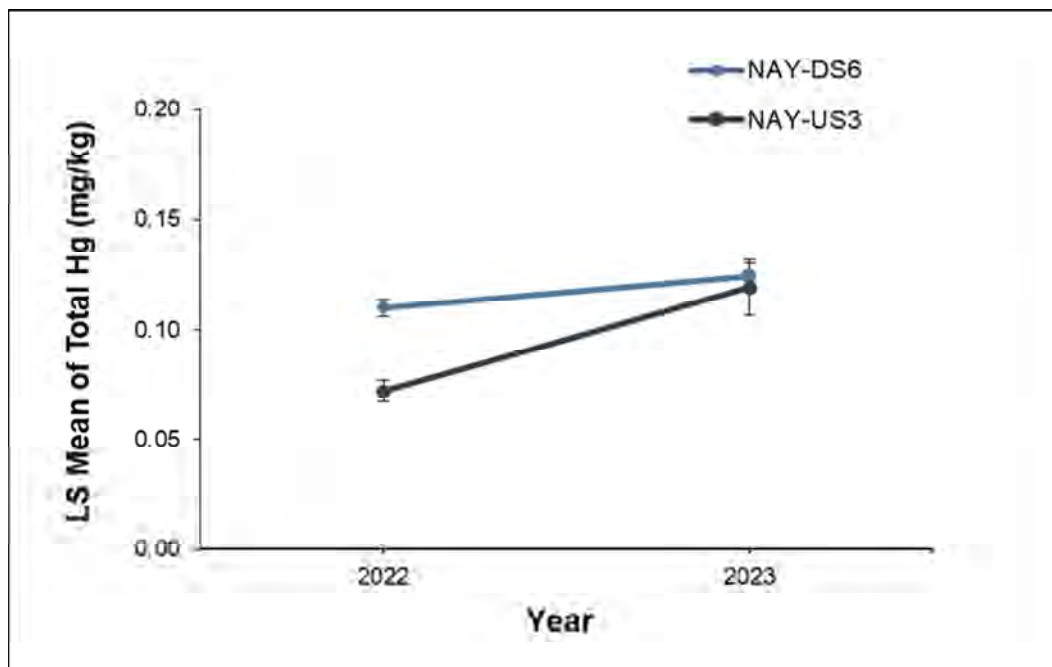


Figure 19: Plot of Total Mercury Concentrations Adjusted for Total Length in 2012 and 2023 in Trout Perch from the



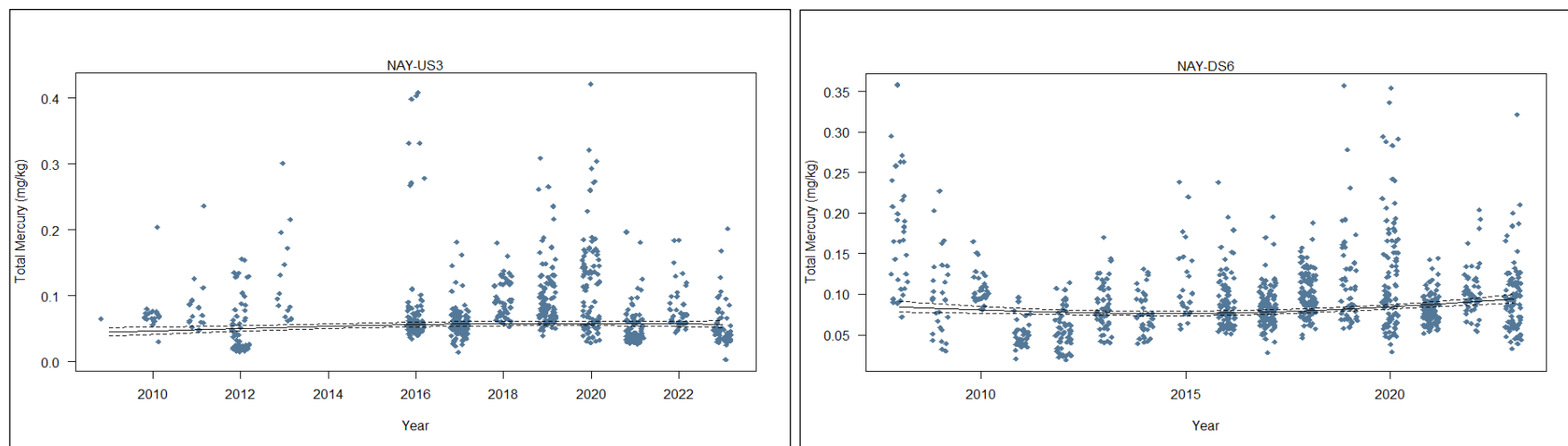
Plot of least square means of total mercury (mg/kg) adjusted for total length and area comparisons for Trout Perch in 2012 and 2023 from the Nayshkootayaow River. Figure includes Trout Perch of age 1+ captured in both years; model corrects for differences in total length. Sample sizes prior to 2012 were too small for LS mean statistical analysis.

Figure 20: Plot of Total Mercury Concentrations Adjusted for Total Length in 2021 and 2023 in Trout Perch from the

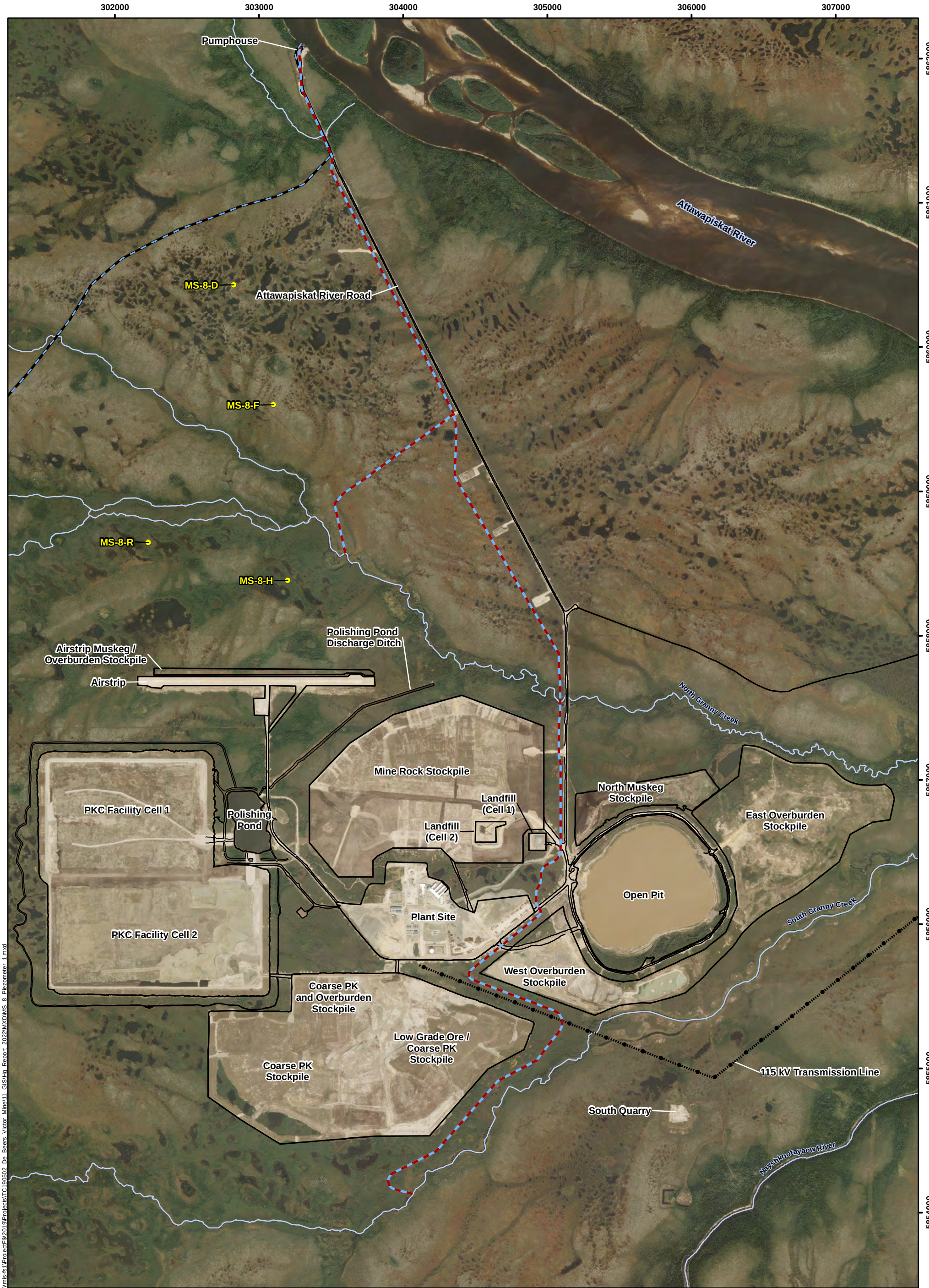


Plot of least square means of total mercury (mg/kg) adjusted for total length and area comparisons for Trout Perch in 2022 and 2023 from the Nayshkootayaow River. Figure includes Trout Perch of age 1+ captured in both years; model corrects for differences in total length.

Figure 21: Total Mercury Additive Model for Trout Perch of Standard Size (50 mm) from 2008 to 2023 in Nayshkootayaow River



General additive model plot of total mercury with smoothers of year and total length (standard 50 mm) for Trout Perch from the Nayshkootayaow River. Trout Perch were not successfully captured from 1



\\ms-fs1\Project\2019\Projects\TC190502 De Beers Victor Mine\11 GIS\Ship Report 2022\MXD\MMS 8 Piezometer 1.mxd

LEGEND Mine Feature 115 kV Transmission Line Granny Creek Supplementation Pipeline Nayshkootayaow River Supplementation Pipeline Watercourse		Muskeg Monitoring Stations Clay/Peat Piezometer	
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Figure 23a: G3 / G4 Filtered Methyl Mercury Trend

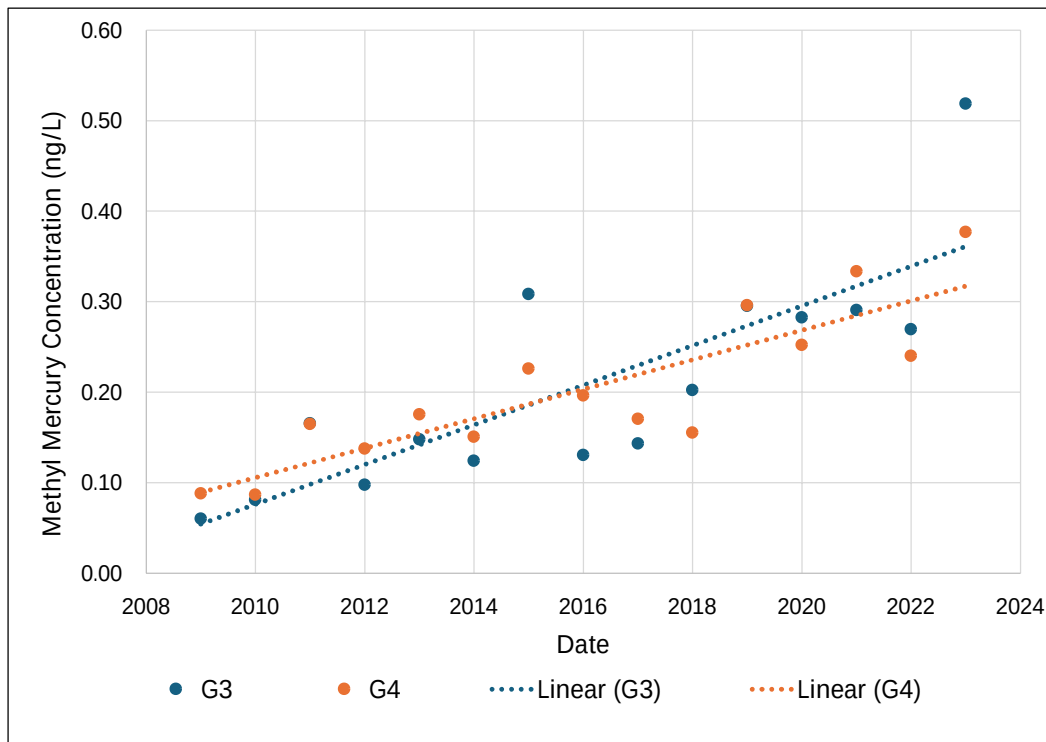
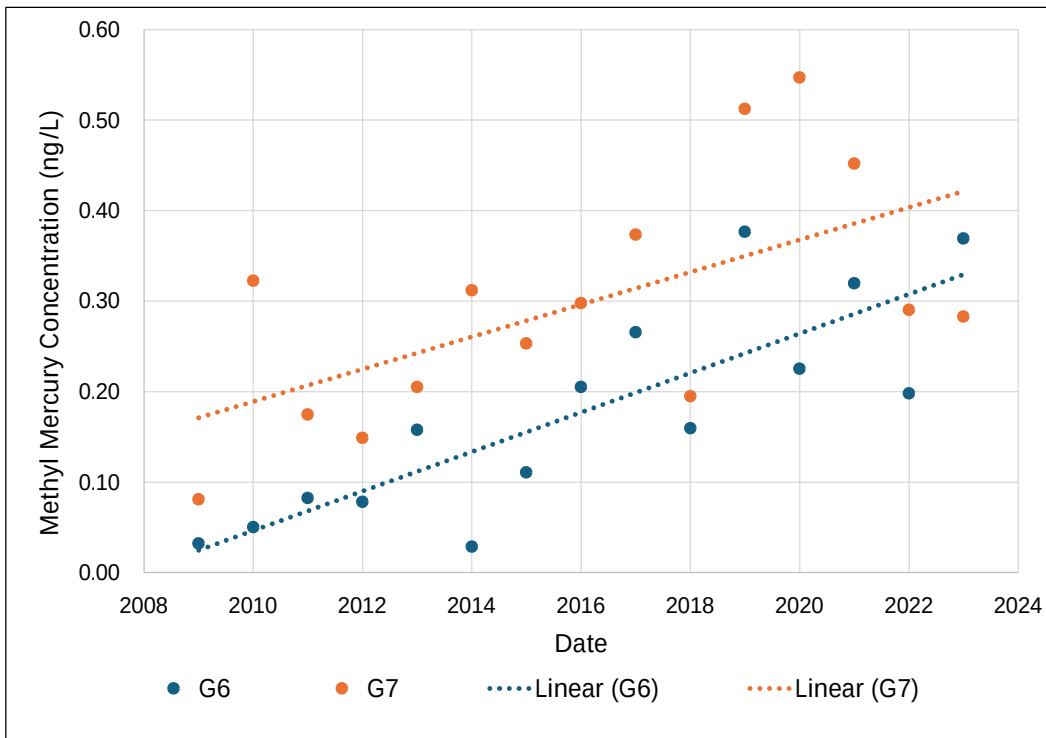
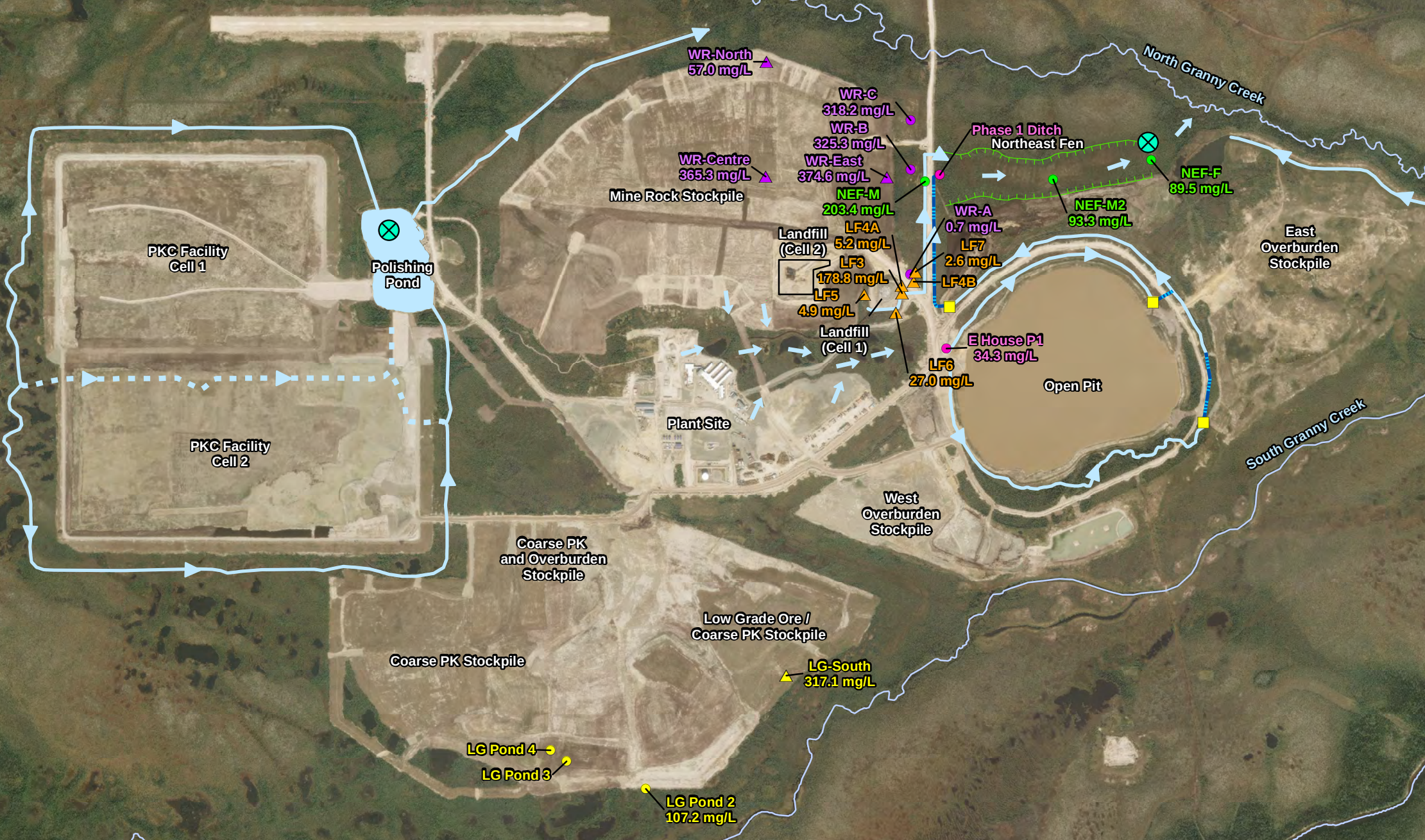
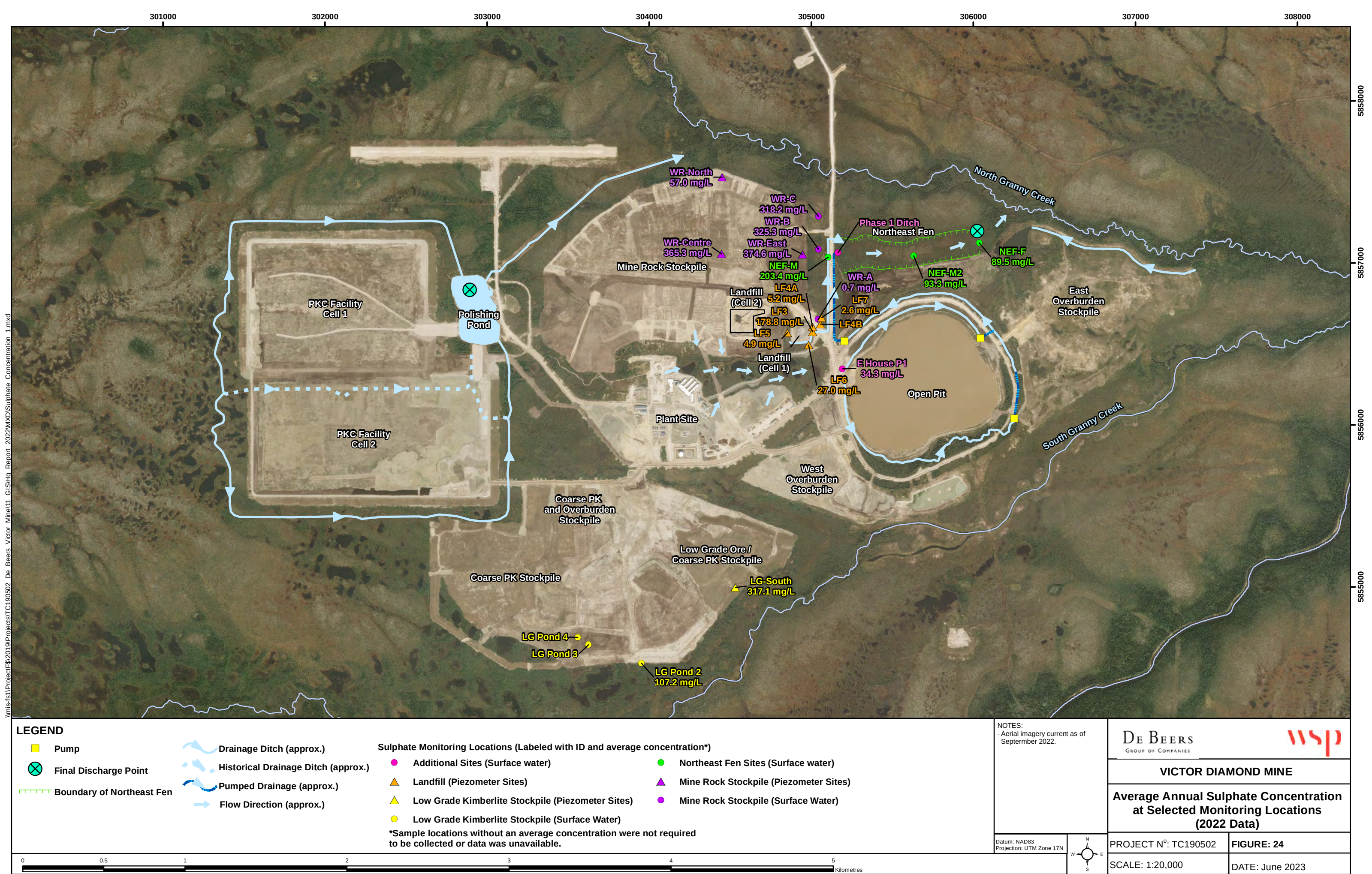


Figure 23b: G6 / G7 Filtered Methyl Mercury Trend



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APPENDIX A

SUPPLEMENTAL FISH TISSUE ANALYSIS DATA

De Beers Canada Inc., Victor Mine

Mercury Performance Monitoring, 2023 Annual Report

per Environmental Compliance Approval #3960-7Q4K2G, Conditions 7(5) and 7(6)

June 2024

Figure A-1: Length-Frequency Distributions for Northern Pearl Dace in the Granny Creek System and Tributary 5A

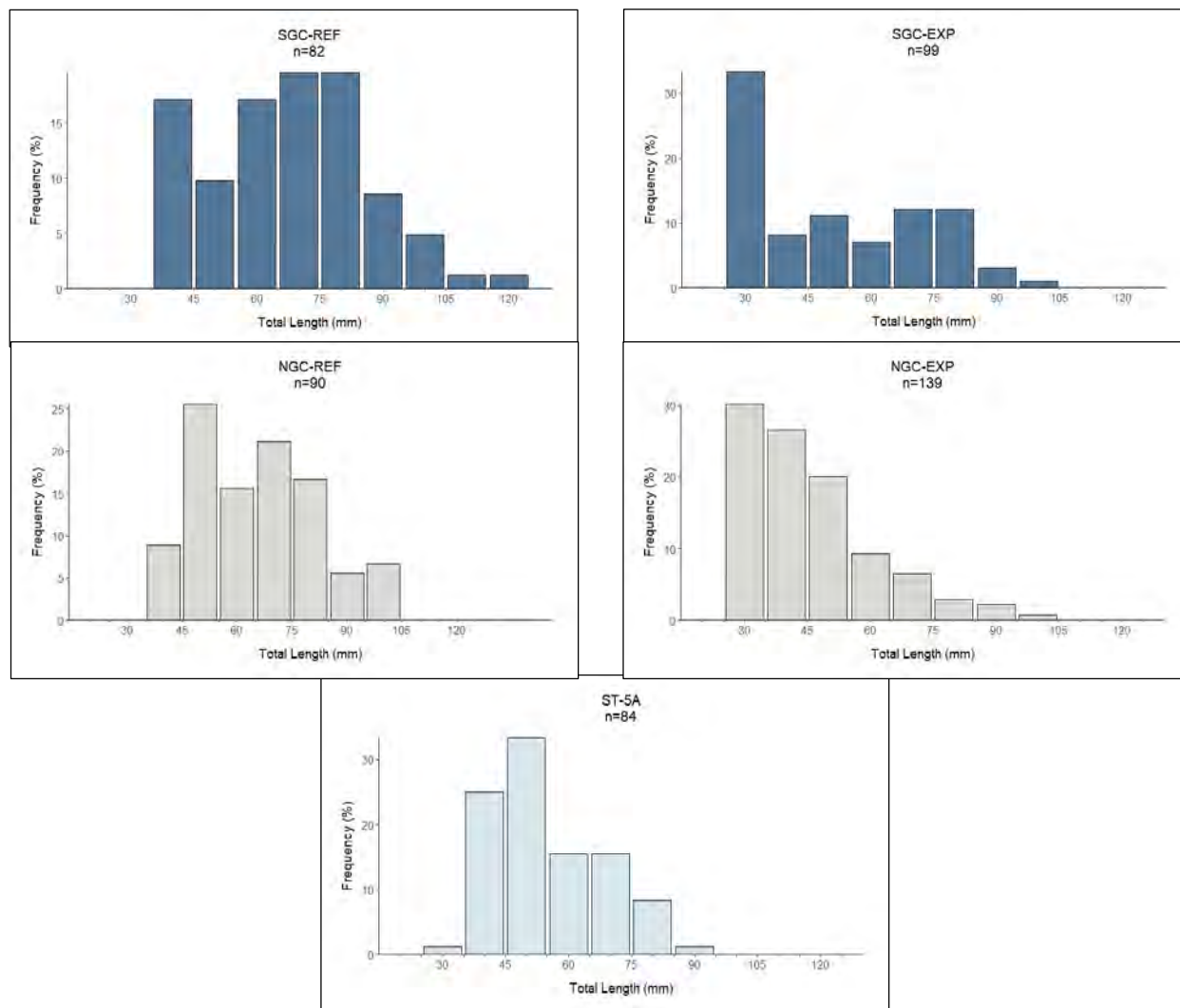
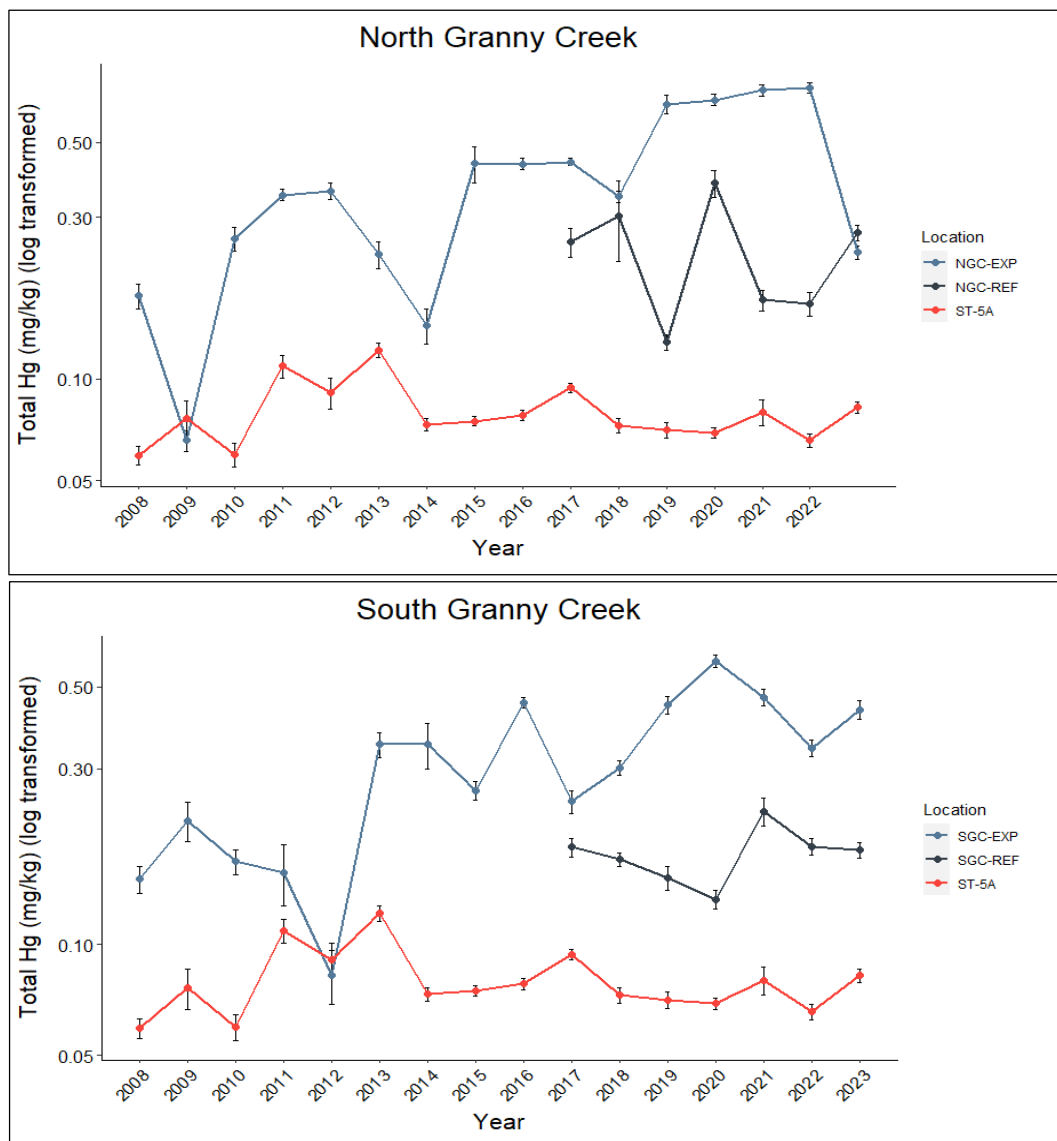


Figure A-2: Comparison of Average Total Mercury from 2008 to 2023 in Northern Pearl Dace from the Granny Creek System and Tributary 5A



Comparison of average total mercury levels (mg/kg) in Northern Pearl Dace from the Granny Creek System and Tributary 5A from 2008 to 2023. Figure consists of all Northern Pearl Dace captured each year regardless of age-class to increase sample size for summary statistics. A South Granny Creek reference location (SGC-REF) was not added until 2017. Dots represent average total mercury value with standard error. Y-axis is log transformed.

Figure A-3: Length-Frequency Distributions for Trout Perch in the Attawapiskat River

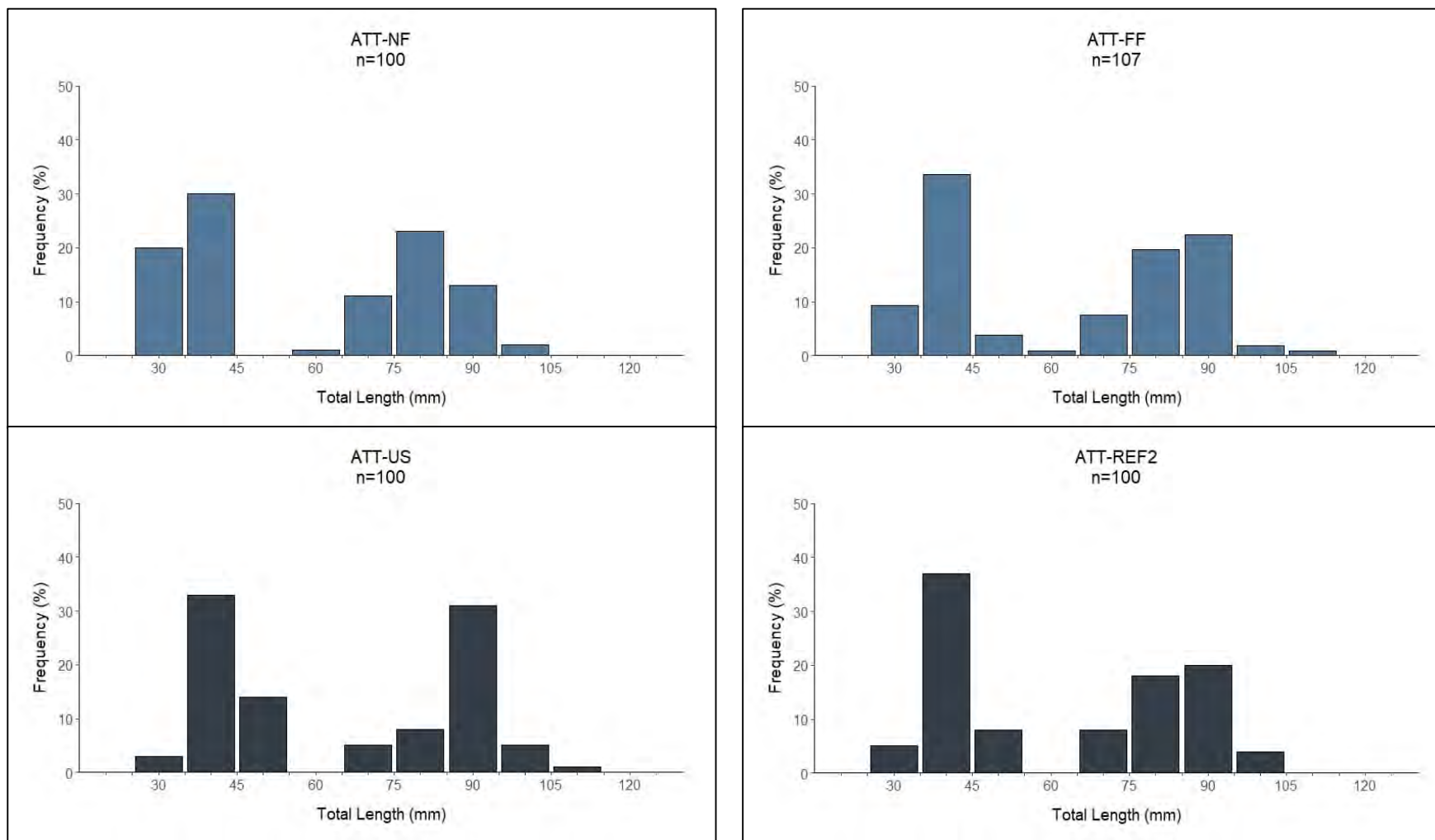
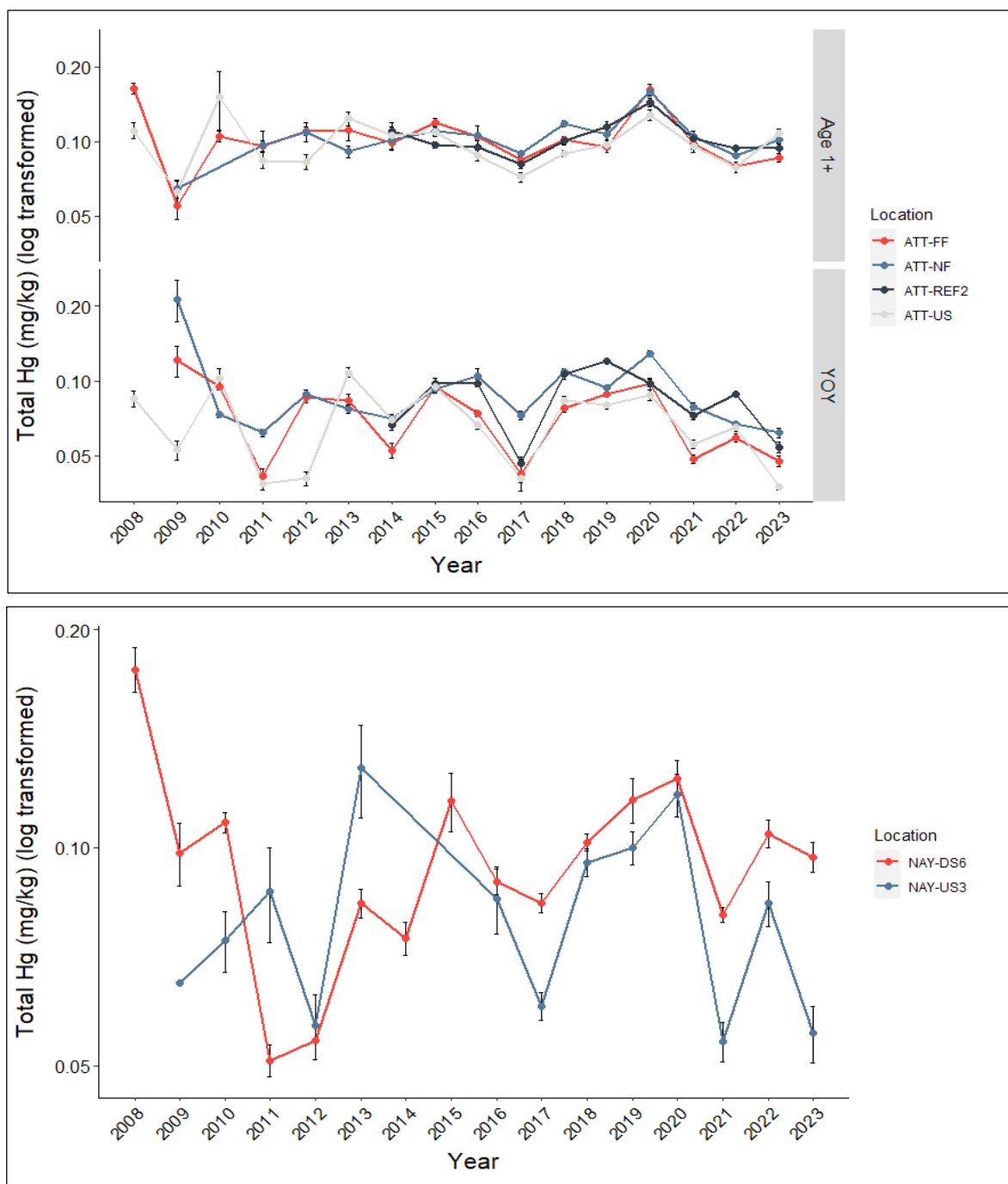


Figure A-4: Comparison of Average Total Mercury from 2008 to 2023 in Trout Perch from the Nayshkootayaow River and Attawapiskat River



Comparison of average total mercury levels (mg/kg) for Trout Perch from the Nayshkootayaow River and Attawapiskat River from 2008 to 2023. Nayshkootayaow River figure consists of all Trout Perch captured each year regardless of age-class to increase sample size for summary statistics. Age-class for Trout Perch from the Attawapiskat River was determined by otolith agine structures in 2011 and from 2013 to 2023, and by length frequency distributions from 2008 to 2010 and in 2012. ATT-REF2 was introduced as a sampling location in 2014. Dots represent average total mercury value with standard error. Y-axis is log transformed.

Figure A-5: Length-Frequency Distributions for Trout Perch in the Nayshkootayaow River

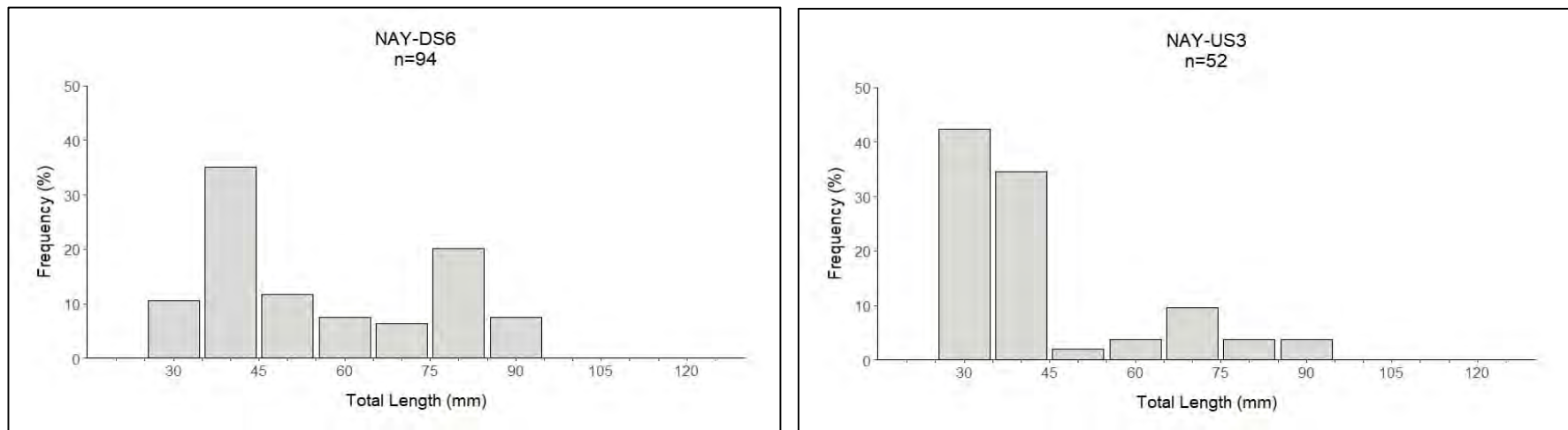


Table A-1: Summary of Northern Pearl Dace Univariate Statistics by Age Class for the Granny Creek System and Tributary 5A

	Area	Age class						
		YOY Northern Pearl Dace		Age 1+ Northern Pearl Dace				
		NGC-EXP	SGC-EXP	NGC-REF	NGC-EXP	SGC-REF	SGC-EXP	Tributary 5A
Total Length (mm)	n	65	48	90	74	82	51	84
	Mean	37.14	31.85	69.63	61.30	72.63	69.65	60.02
	SE	0.60	0.59	1.75	1.69	2.22	2.10	1.48
	Median	36.00	31.00	69.50	57.00	73.00	71.00	56.50
	Minimum	29.00	25.00	43.00	38.00	41.00	43.00	39.00
	Maximum	49.00	45.00	109.00	109.00	132.00	106.00	99.00
Weight (g)	n	65	48	90	74	82	51	84
	Mean	0.50	0.24	3.05	2.35	4.07	3.25	2.26
	SE	0.03	0.02	0.24	0.25	0.39	0.28	0.18
	Median	0.42	0.19	2.55	1.65	3.28	2.85	1.67
	Minimum	0.17	0.12	0.46	0.68	0.46	0.76	0.45
	Maximum	1.16	0.75	10.36	12.38	19.63	9.61	7.66
Total Hg (mg/kg wwt)	n	65	48	90	74	82	51	84
	Mean	0.25	0.32	0.27	0.22	0.18	0.46	0.09
	SE	0.01	0.02	0.01	0.02	0.01	0.02	0.01
	Median	0.24	0.36	0.25	0.19	0.16	0.48	0.08
	Minimum	0.10	0.13	0.03	0.06	0.07	0.13	0.03
	Maximum	0.73	0.51	0.57	0.70	0.42	0.84	0.36
Age	n			90	74	82	51	84
	Mean			2.34	1.54	2.63	2.14	1.67
	SE			0.12	0.09	0.16	0.14	0.09
	Median			2	1	2	2	1
	Minimum			1	1	1	1	1
	Maximum			5	4	8	5	4

Sample sizes of YOY Northern Pearl Dace were too small for analysis at NGC-REF, SGC-REF and ST-5A

(n) sample size

(SE) standard error of the mean

(wwt) wet weight

Table A-2: Total Length, Weight, Age and Total Mercury Comparison by Location for Age 1+ Northern Pearl Dace in the Granny Creek System

Total Length (log transformed)								* Significant Post-hoc
Source of Variation	SS	df	MS	F	P-value	p<0.05	Power	NGC-REF>NGC-EXP
Between Groups	2.10	4	0.52	9.25	<0.001	Y	0.9	ST-5A<SGC-EXP
Error	21.32	376	0.06					
Weight (log transformed)								* Significant Post-hoc
Source of Variation	SS	df	MS	F	P-value	p<0.05	Power	ST-5A<SGC-EXP
Between Groups	14.39	4	3.60	6.70	<0.001	Y	0.9	
Error	201.81	376	0.54					
Age (kruskal- wallis)								* Significant Post-hoc
Chi-Square (H)	df	P-value	P<0.05					NGC-REF>NGC-EXP
47.15	4	<0.001	Y					ST-5A<SGC-EXP
Total Mercury (log transformed)								* Significant Post-hoc
Source of Variation	SS	df	MS	F	P-value	p<0.05	Power	NGC-REF>NGC-EXP
Between Groups	19.05	4	4.76	97.223	<0.001	Y	0.9	SGC-REF<SGC-EXP
Error	18.41	376	0.05					ST-5A<NGC-EXP
								ST-5A<SGC-EXP

(SS) sum of squares

(MS) mean square

(df) degrees of freedom

(F) estimate of between group variability / within group variability

(P-value) level of marginal significance within a statistical hypothesis test; probability of the occurrence of a given event

(p<0.05) indicates significance of test for null-hypothesis (equal means) at an alpha of 0.05

(*) significance based on Tukey HSD and Dunn Test at alpha of 0.05; only significant comparisons between reference and exposure locations are shown

Chi-Square' represents the comparison of observed to expected frequencies in each group

Non-parametric Kruskal-Wallis (KW) test used when ANOVA test assumptions violated

Power estimates not applicable for Kruskal-Wallis test

Post-hoc Kruskal-Wallis analysis was performed using the Dunn Test

Sample sizes of YOY Northern Pearl Dace were too small to allow for statistical comparisons in 2023

Table A-3: Summary of Trout Perch Univariate Statistics by Age Class for the Attawapiskat River and Nayshkootayaow River

	Area	Age Class											
		YOY Trout Perch						Age 1+ Trout Perch					
		ATT-US	ATT-REF2	ATT-NF	ATT-FF	NAY-DS6	NAY-US3	ATT-US	ATT-REF2	ATT-NF	ATT-FF	NAY-DS6	NAY-US3
Total Length (mm)	n	50	50	50	50	53	41	50	50	50	50	41	11
	Mean	46.50	45.00	40.20	42.46	43.70	38.95	92.52	88.14	85.64	87.70	81.59	78.09
	SE	0.62	0.62	0.48	0.61	0.80	0.72	1.13	1.14	1.11	1.13	1.61	2.85
	Median	47.00	45.00	40.00	43.00	44.00	38.00	92.50	89.00	86.50	89.00	85.00	76.00
	Minimum	35.00	35.00	31.00	34.00	27.00	30.00	75.00	73.00	65.00	67.00	56.00	65.00
	Maximum	55.00	53.00	49.00	53.00	56.00	54.00	118.00	105.00	104.00	113.00	99.00	96.00
Weight (g)	n	50	50	50	50	53	41	50	50	50	50	41	11
	Mean	0.94	0.86	0.65	0.76	0.81	0.57	7.45	7.13	6.13	6.93	5.54	4.28
	SE	0.62	0.04	0.02	0.03	0.04	0.03	0.28	0.28	0.24	0.32	0.31	0.49
	Median	0.89	0.84	0.66	0.76	0.78	0.52	7.36	7.31	6.11	6.80	5.85	3.82
	Minimum	0.43	0.45	0.32	9.34	0.16	0.25	3.77	3.91	2.52	3.66	0.91	2.66
	Maximum	1.52	1.41	1.11	1.00	1.55	1.52	14.81	11.49	10.62	17.73	10.57	7.76
Total Hg (mg/kg wwt)	n	50	50	50	50	53	41	50	50	50	50	41	11
	Mean	0.04	0.05	0.05	0.05	0.07	0.04	0.11	0.09	0.10	0.09	0.13	0.11
	SE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Median	0.04	0.05	0.06	0.04	0.07	0.04	0.11	0.10	0.10	0.08	0.12	0.10
	Minimum	0.02	0.03	0.02	0.02	0.03	0.01	0.04	0.01	0.05	0.04	0.06	0.07
	Maximum	0.06	0.10	0.11	0.08	0.14	0.07	0.20	0.16	0.18	0.15	0.32	0.20
Age	n							50	50	50	50	41	11
	Mean							2.50	2.28	1.98	2.12	1.73	1.82
	SE							0.08	0.08	0.11	0.07	0.08	0.35
	Median							2.48	2.00	2.00	2.00	2.00	1.00
	Minimum							0.04	1.00	1.00	1.00	1.00	1.00
	Maximum							0.20	3.00	4.00	4.00	3.00	4.00

(n) sample size

(SE) standard error of the mean

(wwt) wet weight

YOY Trout Perch were not captured within the Nayshkootayaow River sampling locations in 2022

Table A-4: Total Length, Weight and Age Comparison by Location and Ageclass for Trout Perch from the Attawapiskat River

YOY Trout Perch								
Total Length								* Significant Post-hoc
Source of Variation	SS	df	MS	F	P-value	p<0.05	Power	ATT-US>ATT-NF
Between Groups	1160.80	3	386.92	22.74	<0.001	Y	0.9	ATT-REF2>ATT-NF
Error	3334.90	196	17.01					ATT-US>ATT-FF
								ATT-REF2>ATT-FF
Weight (log transformed)								* Significant Post-hoc
Source of Variation	SS	df	MS	F	P-value	p<0.05	Power	ATT-US>ATT-NF
Between Groups	3.52	3	1.17	14.03	<0.001	Y	0.9	ATT-REF2>ATT-NF
Error	16.40	196	0.08					ATT-US>ATT-FF
Age 1+ Trout Perch								
Total Length								* Significant Post-hoc
Source of Variation	SS	df	MS	F	P-value	p<0.05	Power	ATT-US>ATT-NF
Between Groups	1259.70	3	419.88	6.37	<0.001	Y	0.9	ATT-US>ATT-FF
Error	13379.90	196	65.91					
Weight (log transformed)								* Significant Post-hoc
Source of Variation	SS	df	MS	F	P-value	p<0.05	Power	ATT-US>ATT-NF
Between Groups	1.12	3	0.37	4.29	0.006	Y	0.9	
Error	17.62	196	0.09					
Age								* Significant Post-hoc
Chi-Square (H)	df	P-value	P<0.05					ATT-US>ATT-NF
19.231	3	<0.001	Y					ATT-US>ATT-FF

(SS) sum of squares

(MS) mean square

(df) degrees of freedom

(F) estimate of between group variability / within group variability

(P-value) level of marginal significance within a statistical hypothesis test; probability of the occurrence of a given event

(p<0.05) indicates significance of test for null-hypothesis (equal means) at an alpha of 0.05

(*) significance based on Tukey HSD and Dunn Test at alpha of 0.05; only significant comparisons between reference and exposure locations are shown

Chi-Square' represents the comparison of observed to expected frequencies in each group

Non-parametric Kruskal-Wallis (KW) test used when ANOVA test assumptions violated

Power estimates not applicable for Kruskal-Wallis test

Post-hoc Kruskal-Wallis analysis was performed using the Dunn Test

Table A-5: Total Length, Weight and Age Comparison by Location and Ageclass for Trout Perch from the Nayshkootayaow River

YOY Trout Perch								
Total Length								Direction
Source of Variation	SS	df	MS	F	P-value	p<0.05	Power	NAY-DS6>NAY-US3
Between Groups	520.9	1	520.9	18.41	<0.001	Y	0.9	
Error	2603.1	92	28.29					
Weight (log transformed)								
								Direction
Source of Variation	SS	df	MS	F	P-value	p<0.05	Power	NAY-DS6>NAY-US3
Between Groups	2.6377		2.6377	17.4	<0.001	Y	0.9	
Error	13.9467		0.15159					
Age 1+ Trout Perch								
Total Length								Direction
Source of Variation	SS	df	MS	F	P-value	p<0.05	Power	
Between Groups	105.9	1	105.91	1.0277	0.3156	N	0.78	
Error	5152.9	50	103.06					
Weight (log transformed)								Direction
Source of Variation	SS	df	MS	F	P-value	p<0.05	Power	
Between Groups	13.857	1	13.8572	3.8478	0.06	N	0.8	
Error	180.065	50	3.6013					
Age								Direction
Chi-Square (H)	df	P-value	P<0.05					
0.58497	1	0.4443715	N					

(SS) sum of squares

(MS) mean square

(df) degrees of freedom

(F) estimate of between group variability / within group variability

(P-value) level of marginal significance within a statistical hypothesis test; probability of the occurrence of a given event

(p<0.05) indicates significance of test for null-hypothesis (equal means) at an alpha of 0.05

Chi-Square' represents the comparison of observed to expected frequencies in each group

Non-parametric Kruskal-Wallis (KW) test used when ANOVA test assumptions violated

Power estimates not applicable for Kruskal-Wallis test