DE BEERS CANADA INC.
VICTOR MINE

MERCURY PERFORMANCE MONITORING
2014 ANNUAL REPORT

AS PER CONDITIONS 7(5) AND 7(6) OF CERTIFICATE OF APPROVAL #3960-7Q4K2G

Submitted to:
Ministry of the Environment and Climate Change
Timmins District Office
Ontario Government Complex, Highway 101E
P.O. Bag 3080, South Porcupine, Ontario, P0N 1H0

Submitted by:
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June 2014
TC140504

June 26, 2015
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Ms. Carroll Leith, District Manager
Ministry of the Environment and Climate Change
Ontario Government Complex
Highway 101E
South Porcupine, Ontario, P0N 1H0

Chief Theresa Spence
Attawapiskat First Nation
First Nation Office
Box 248
Attawapiskat, Ontario, P0L 1A0

Dear Ms. Leith / Chief Spence:

Re: Mercury Performance Monitoring 2014 Annual Report
Certificate of Approval #3960-7Q4K2G, Conditions 7(5) and 7(6)

Please find enclosed the Annual Mercury Performance Monitoring Report which is being submitted on behalf of the De Beers Canada Inc. Victor Mine, for the 2014 reporting period. The report addresses Conditions 7(5) and 7(6) of Certificate of Approval #3960-7Q4K2G, and summarizes monitoring data relating to peat pore water, surface water systems, groundwater (well field) discharge and fish.

All monitoring results to date are consistent with permit application expectations relating to mine dewatering activities, showing no adverse effects of mine dewatering on area mercury levels in peatlands, surface waters, or fish flesh for the 2014 monitoring period. It has been observed, however, as per previous reports, that localized sulphate release, unrelated to mine dewatering, has contributed to mercury methylation effects, particularly in the Northeast Fen. This has contributed to slightly elevated methyl mercury levels within the lower reaches of Granny Creek. This effect does not extend to either of the Nayshkootayaow or Attawapiskat Rivers, and is still under study.

We would be pleased to discuss any aspect of the above with the MOECC or with the Attawapiskat First Nation. Should you have any questions please do not hesitate to contact the undersigned at (905) 568-2929.

Regards,
Amec Foster Wheeler Environment & Infrastructure
a Division of Amec Foster Wheeler Americas Limited
On behalf of De Beers Canada Inc.

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TABLE OF CONTENTS

LIST OF TABLES

PAGE

LIST OF TABLES (Cont'd)

PAGE

LIST OF TABLES (Cont'd)

PAGE

LIST OF FIGURES

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
HgCON	Mercury Control Station / Northwest Control
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
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 report was prepared by Amec Foster Wheeler Environment & Infrastructure, a Division of Amec Foster Wheeler Americas Limited (Amec Foster Wheeler) on behalf of De Beers Canada Inc. (De Beers), pursuant to the requirements of Conditions 7(5) and 7(6) of Certificate of Approval (C. of A.) #3960-7Q4K2G. This report is the seventh in a series of annual mercury monitoring reports that have been prepared for the Victor Mine to date. This seventh annual report summarizes all Victor Mine site mercury monitoring data collected for the 2014 calendar year related to this permit, and also provides summaries of earlier data and trends where appropriate. For consistency and readability from year to year, this report keeps the same general format and much of the same wording as previous annual reports, with updates in data interpretation where warranted.

A broad-based, rigorous mercury monitoring program was established for the De Beers Victor Mine because of concerns raised during the provincial permitting process regarding the possible influences of mine dewatering activities on muskeg system hydrodynamics and associated mercury chemodynamics. In particular, 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 as a result of the long-range aerial transport of emissions from natural and anthropogenic sources unrelated to activities of the Victor Mine. 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 one of the primary anthropogenic sources for long-range mercury transport.

Amec Foster Wheeler and De Beers previously provided evidence supporting the position that mine dewatering activities were not likely to result in a condition that would substantively increase mercury release rates to area receiving waters; and that if evidence of such substantive release rates was to occur, mitigation measures would be implemented to prevent or arrest the aggravating condition. The Victor Mine mercury monitoring program is designed to test De Beers' position that mine dewatering is not likely to substantively increase mercury release rates to area receiving waters.

Data collected up to the end of 2014 continues to support De Beers' opinion that mine dewatering is unlikely to result in substantive increases in mercury release to area surface waters. A minor localized increase in methyl mercury concentrations has, however, been noted over the past few years in downstream Granny Creek waters. This increase has been attributed to sulphate releases to the local muskeg environment unrelated to mine dewatering. Sulphate acts as an electron acceptor for sulphate reducing bacteria (SRB). SRB are believed to be the primary promotors of mercury methylation in wetland environments, and the stimulation of SRB growth leads to increased rates of methyl mercury production. 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 2009). 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 water sample 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 flesh analyses were similarly conducted at Dr. Branfireun's laboratory at the University of Toronto, and subsequently at the Biotron Analytical Services laboratory since 2008. All of the above laboratories are recognized for their specialty of ultra-trace analyses for mercury.

Method detection limits (MDLs) for water quality sampling have changed over time and according to the laboratory used. These changes have, in some instances, created false impressions of mercury concentration changes over time. In particular, some of the earlier data were reported at values that are below current Biotron Analytical Services laboratory MDLs. To address this concern, all historic water quality data presented in this seventh annual mercury report have been adjusted for uniformity to reference detection limits of 0.02 ng/L for methyl mercury and 0.1 ng/L for total mercury currently used by Biotron. Overall, results at the detection limits, as presented in this report, are more conservative (higher) than those previously reported.

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.

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. The Provincial Water Quality Objective for the protection of aquatic life is 200 ng/L for total mercury. There is no Provincial Water Quality Objective for methyl mercury.

A number of peer-reviewed scientific papers have been published in the *Hydrological Processes* journal and the S*cience of the Total Environment* journal in 2012 through 2014, in relation to the operation and dewatering effects at the Victor Mine site. Papers relevant to this report are listed below. The data presented in these research papers, where applicable, support the data and conclusions presented in this report.

- Ulanowski, T.A. and B.A. Branfireun. 2013. Small-scale Variability in Peatland Pore-Water Biogeochemistry, Hudson Bay Lowland, Canada. Science of the Total Environment. 454-455: 211-218.

- Whittington, P. and J. Price. 2012. Effect of Mine Dewatering on Peatlands of the James Bay Lowland: the Role of Bioherms. Hydrological Processes. 26: 1818-1826.

- Whittington, P. and J. Price. 2013. Effect of Mine Dewatering on the Peatlands of the James Bay Lowland: the Role of Marine Sediments on Mitigating Peatland Drainage. Hydrological Processes. Published online in Wiley Online Library.

- Kompanizare, M. and J.S. Price. 2014. Analytical Solution for Enhanced Recharge around a Bedrock Exposure Caused by Deep-aquifer Dewatering through a Variable Thickness Aquitard. Advanced in Water Resources. Volume 74, December 2014, Pages 102-115.

- Orlova, Y. and B.A. Branfireun. 2014. Surface Water and Groundwater Contributions to Streamflow in the James Bay Lowland, Canada. Arctic, Antarctic and Alpine Research.

2.0 REQUIREMENTS

Condition 7(5) of C. of A. #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 3 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 Certificate of 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, and most recently AMEC (2014) for a discussion early phase sampling program nuances related to Condition 6(8)(b) of C. of A. #3960-7Q4K2G, and its predecessors. The C. of A. provides for the annual collection of peat pore water samples from muskeg monitoring program stations identified in the C. of A. (Table 2 therein), as well as from associated mineral soil and bedrock monitoring wells / piezometers. Samples are to be analyzed for total and methyl mercury on filtered samples, as per standard groundwater sampling protocols.

All of the observed values for total mercury and methyl mercury are well below their respective Canadian Environmental Quality Guideline (CEQG) values of 26 ng/L for total mercury and 4 ng/L for methyl mercury.

Muskeg monitoring program pore water sample results for total 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 2014. Sampling station locations are shown in Figure 1.

Tables 2c to 2i provide graphical presentations of data from Tables 2a and 2b. It should be noted that the vertical scales on these graphs vary depending on the range of results observed. Statistical analyses using all data sets are presented in Section 4. With the exception of minor and possibly anomalous results for a few samples, total and methyl mercury values observed in 2014 were within the range of values observed in previous years for all stations. Occasional spikes in data were observed for some of the stations for both total and methyl mercury in 2014, but there is no temporal or spatial pattern to the data. Such spikes were equally likely to be observed in stations remote from the area under-drained by Victor Mine dewatering (e.g., Station Clusters S-9(1), S-9(2), S-13 and S-15) as at areas closer to the mine (Station Clusters S-1, S-2, S-7 and S-8, as well as the S-V1, S-V2 and S-V3 Clusters). Year to year variations therefore appear to be a regional phenomenon that is not linked to mine dewatering effects on muskeg mercury chemodynamics.

One possible exception to total mercury values being within the range of values observed in previous years is for the MS-8 station cluster, where there was a noted increase in total mercury concentrations for three of the four muskeg monitoring stations in 2014 (Table 2a). The MS-8 station cluster is of interest because of its proximity to the Victor Mine. There is however, no long-term trend to the data and similar increases for 2014 are not shown for any of the S-V series stations which are equally close to the Victor Mine (Table 2a). Year 2014 results for the MS-8 station cluster may therefore simply represent random year to year variations. The reader is cautioned not to read too much into the MS-8 station 2014 data, which are flagged here simply because of the proximity of this station cluster to the Victor Mine site. A similar increase was not shown for methyl mercury for the MS-8 station cluster in 2014. Further discussions on this aspect are presented in Section 4.1.

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
- 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 waste water 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 ongoing but limited discharge);
- 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 for the SWF and the NEF. The SEF previously received minor discharges from the shallow South Quarry during parts of 2004 and 2005, but was not materially affected by these discharges. It is therefore regarded as being not impacted by mine site discharges or runoff. The HgCON has never received effluent discharge from any source.

Sampling from the SWF was discontinued in June, 2009 as the C. of A. for 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 and processed kimberlite). There are consequently no data for the SWF beyond May, 2009.

The Phase 1 Mine Water Settling Pond has discharged surface runoff collected from the pit perimeter area since 2008. The Phase 1 Mine Water Settling Pond also intermittently received well development water. The practice of discharging this water to the Phase 1 Mine Water Settling Pond was discontinued in 2014 as it contains sulphates that occur naturally in the groundwater.

Total mercury data (unfiltered and filtered) for the passive fen treatment and control system fens are presented in Tables 3 and 4. Methyl mercury data (unfiltered and filtered) for these same systems are presented in Tables 5 and 6. All results are within applicable federal (and provincial) guidelines (objectives) for the protection of aquatic life with the exception of methyl mercury samples taken from the NEF in January 2012 and April / May 2013. All filtered methyl mercury values have been below the federal guideline (Canadian Environmental Quality Guideline; CEQG) value of 4 ng/L except for the January 2012 value. 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.

Unlike other years, total mercury concentrations in 2014 tended to be slightly lower in the effluent treatment fen station (NEF) compared with the two control fen stations (SEF and HgCON) for both unfiltered and filtered samples (Tables 3 and 4). This trend is also reflected in the longer-term averages between these three fen systems.

Results for methyl mercury in 2014 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 (with the exception of under-ice methyl mercury samples collected in January 2012 and April / May 2013 in the NEF); concentrations of methyl mercury continued to be decidedly higher in the NEF compared with the two control fens.

Methyl mercury concentrations in the NEF are believed 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 total mercury to methyl mercury (Ullrich et al. 2001; Jeremiason et al. 2006). Sulphate concentrations in the NEF during 2014 averaged 60.2 mg/L. This value compares with average sulphate concentrations of 47.9, 32.2, 30.5, 60.0, 84.5 and 74.5 mg/L for the years of 2008 through 2013, respectively. The optimal sulphate range for mercury methylation is 20 to 50 mg/L (Ullrich et al. 2001).

Ongoing elevated sulphate values observed for the NEF indicate that sulphate containing waters are still draining to the NEF, most likely from the Mine Rock Stockpile and from well development waters intermittently discharged to the Phase 1 Mine Water Settling Pond during part of 2014. Starting in later 2014, well development water is now only discharged to the open pit, where it is eventually collected by the well field dewatering system and does not come into contact with the local muskeg environment.

Samples from control fen sites typically contain <0.1 mg/L of sulphate. The increased mercury methylation rate observed for the NEF is therefore a localized phenomenon, and is not believed to be related to localized muskeg dewatering effects. As per Sections 5 and 8 of this report, De Beers is currently investigating methods to better control the release of sulphates to localized muskeg environments including to the NEF.

It is of interest that the ratio of filtered methyl mercury concentrations observed during the open water period (July and October) between the NEF and the HgCON, continued to decline in 2014 from peak values observed in 2011 and 2012 (Figure 2). Data from future years will be required to verify this trend. If the trend is real, either:

- The small stores of inorganic mercury originally present in the upper fen sediments are 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 processes can occur simultaneously.

Relative to the first possibility (depletion of inorganic mercury stores in upper fen sediments) Table 4 shows a trend to reduced total mercury concentrations in the NEF compared with the two control fens in 2013 and 2014.

With respect to possible NEF substrate sulphide effects, the reason why there is an optimal sulphate concentration for mercury methylation, is that if sulphide concentrations (a by-product of sulphate reduction by sulphate reducing bacteria) become too high in sediments, insoluble mercury sulphide is formed, which renders mercury unavailable for methylation. Benoit et al. (1999) provided data showing that methyl mercury concentrations in wetland sediment pore water were reduced to near zero, when sediment sulphide concentrations reached approximately 10 mg/L. Whether or not sulphide concentrations in NEF sediments have reached a concentration where they are both stable and sufficiently elevated to inhibit mercury methylation is at this point speculative. Data available from Webb et al. (1998) suggest that sulphate concentrations exceeding a range of approximately 50 to 100 mg/L have potential to cause this effect, provided that the resulting sulphides produced are retained in an anoxic environment. The NEF experiences some fluctuations in water levels, such that this condition may not be fully met.

3.3.2 Ribbed Fen Systems

The water quality of general site area drainage is monitored on a quarterly basis at three ribbed fen stations located on or near the Victor Mine site (Stations MS-V1-R, MS-V2-R and MS-V3-R), as well as at several more remote sites (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 are shown in Tables 7a and 7b for 2007 through 2014. 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. 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, pH, sulphate, total phosphorus, calcium, iron, magnesium and sodium (Table 8). The most striking aspect of Table 8 is the variable results which are observed for chloride, sodium and sulphate for MS-8R. The data for these three parameters for 2007 and 2008 suggested that there were likely natural groundwater upwellings in this area in the predevelopment condition, but that groundwater upwelling gradients were reversed in 2009 as a result of mine dewatering. Since 2011, there have been variable increases in these three parameters, with inconsistent year to year results for the three parameters. Hydrogeological data confirm that the Upper Attawapiskat Formation underlying Station MS-8R has remained under-drained (Figure 3); but the fen track which drains to MS-8R originates well to the west of MS-8R in an area which is outside of the well field drawdown cone (Figure 3). It is therefore possible that year to year variations in hydrological conditions, outside of the well field zone of influence, could be contributing to periodic groundwater upwellings in the upstream portion of the MS-8R fen track. If this were the case, the occasionally elevated chloride, sodium and sulphate levels observed for this station would be naturally occurring.

Other ribbed fen stations showed fairly consistent general chemistry values from year to year, with the exception of Station MS-1V-R which showed a single elevated sulphate value in 2011 and a single slightly elevated chloride value in 2013. There appear to be no elevated values for any of the stations in 2014 compared to 2013 data, with the exception of an elevated sulphate value for MS-8R.

3.3.3 Granny Creek System

Total and methyl mercury data for the upstream and downstream stations on the Granny Creek system are provided in Tables 9 through 12. Sampling locations are shown in Figure 4. Average total mercury concentrations for the four stations for 2014 varied from 2.60 to 3.01 ng/L for unfiltered samples, and from 1.61 to 1.84 ng/L for filtered samples (Tables 9 and 10). These values are well below the 26 ng/L federal guideline (CEQG) for the protection of aquatic life. Filtered sample results for total mercury averaged over 2014 are similar for upstream and downstream samples from both creek branches (Table 10). The graphs attached to Tables 9 and 10 show that total mercury concentrations can vary substantively throughout the year due to seasonal and hydrological effects. There are, however, no long-term trends evident in the data for either North or South Granny Creeks, for stations upstream or downstream of the developed areas of the Victor Mine.

Methyl mercury concentrations for unfiltered and filtered samples, from upstream and downstream South and North Granny Creek stations, are shown in Tables 11 and 12. The values are again variable, depending on seasonal and hydrologic influences. However, unlike total mercury, where there is no evident trend between upstream and downstream stations, the trend to elevated downstream methyl mercury concentrations in North Granny Creek continued into 2014, and appears to have stabilized (Tables 11 and 12). While elevated methyl mercury concentrations are noted in downstream North Granny Creek waters (averaging 2.4 times background over all years sampled); these values are still very low and well below the federal guideline (CEQG) of 4 ng/L. Long-term average upstream and downstream South Granny Creek methyl mercury values are essentially identical: <0.05 ng/L for the upstream station for filtered values, and <0.07 ng/L for corresponding downstream values (Table 11).

Downstream increases in North Granny Creek methyl mercury appear to be related to sulphate drainages associated with the mine site area. These drainages occur primarily in association with the NEF as discussed in Section 3.3.1, and are not believed to be linked to muskeg dewatering effects, as all available evidence shows that the peat horizons in the general mine site area continue to be saturated (AMEC 2014a). Sulphate drainage effects are localized.

3.3.4 Nayshkootayaow and Attawapiskat Rivers

Total and methyl mercury results for the Nayshkootayaow and Attawapiskat Rivers are shown in Tables 13 and 14. Sample locations are shown in Figure 4. Graphical data are presented in Figure 5. All values are consistent across the stations, and well below federal guidelines (CEQG). 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 MOECC 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 for 2014 (Tables 13 and 14).

In addition to being well below the CEQG of 4 ng/L for the protection of aquatic life, methyl mercury concentrations in the Attawapiskat and Nayshkootayaow Rivers were also generally at or below the bioaccumulation threshold of 0.05 ng/L for filtered methyl mercury samples cited by the United States Environmental Protection Agency (US EPA 1997) for the protection of fish-eating wildlife species such as Bald Eagle and River Otter.

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

Sampling of the Victor Mine well field discharge has been ongoing since November 2007. All values for the period of November 2007 to December 2014 have remained low (below CEQG values) for both total and methyl mercury, as shown in Table 15a. Filtered total and methyl mercury concentrations in the well field discharge have thus far, on average, been at or below background concentrations measured in the Attawapiskat River shown in Tables 13 and 14. There are no evident temporal trends in the data. Moreover, it is important to stress that the average annualized well field discharge of approximately 80,000 m^3/d represents only 0.22% of the 36,000,000 m^3/d mean annual flow for the Attawapiskat River.

Quarterly total and methyl mercury sampling results for operating individual wells are shown in Tables 16 and 17, respectively. Wells VDW-11, 12, 21, and 22 continue to show the highest total mercury concentrations. There is a trend to increasing concentrations of total mercury in some of these wells over time, possibly due to less dilution from upper aquifer waters as production from individual wells declines.

Methyl mercury concentrations for 2014 were all low in the individual wells, averaging <0.02 ng/L for unfiltered and filtered samples, for all wells.

3.5 Condition 6(8)(e) – Sport and Small Fish Mercury Body Burdens

Sport (large) fish are sampled as part of the Victor Mine monitoring program, at three year intervals with the last sampling year being 2013. Consequently there are no sport fish sampling results to report for 2014. The next sampling period scheduled for sport fish is 2016. For discussions of mercury tissue concentrations in sport fish, the reader is consequently referred to the 2013 annual report (AMEC 2014b). Remaining discussions in this section are focused on small fish.

Small fish comparisons include annual surveys of average body burden mercury analysis for two age classes, young of the year (YOY) and aged 1+ years, comparing experimental stations with control sites. If total mercury concentrations in fish flesh from experimental stations are shown to be significantly different from control station concentrations, at an alpha level of 0.05, a potential concern will be deemed to exist, requiring further investigation (AMEC 2008). Small fish are a critical component of the monitoring program, as they serve as indicators of mercury bioavailability (AMEC 2008).

3.5.1 Methods

Small-bodied fish were collected in 2014 from:

- North Granny Creek (NGC);
- South Granny Creek (SGC);

- Control Tributary 5A (ST-5A);
- Nayshkootayaow River (downstream of the Granny Creek confluence, NAY-DS6); and from
- Four stations on the Attawapiskat River (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).

Sampling locations are shown in Figure 6.

The North and South Granny Creek locations are experimental stations, potentially influenced by the Victor Mine. Tributary 5A is a small creek similar to the Granny Creek system, which is located outside of the influence of mine related activities, and is the control site (reference area) for the Granny Creek system.

The control station for the Nayshkootayaow River downstream station, is the Nayshkootayaow River upstream station (upstream of Tributary 3). The upstream Nayshkootayaow River station could not be sampled for small fish in 2014, and there are consequently no recent data for this station. The reduction in catchability by previously conducted methods at the Nayshkootayaow River upstream station was a direct result of a large and rapid increase in the river discharge following a number of consecutive days of heavy precipitation. Nayshkootayaow River discharge (as measured at NR-002 flow station) increased from 10.75 m^3/s on October 1, 2014 to 57.39 m^3/s on October 6, 2014 and remained above 40 m^3/s until October 11, 2014.

In previous years, sampling from the Attawapiskat River was limited to three sampling locations, with the upstream station (ATT-US) serving as the control station, and the ATT-NF and ATT-FF stations serving as near-field and far-field experimental stations, respectively. In 2014, a second reference area was added for Attawapiskat River, located on the north shore of the river, parallel to the discharge location and near-field exposure area. This location was added as part of the 2014 Victor Mine Environmental Effects Monitoring (EEM) program, to provide further indication of the natural variability inherent in the system. The ATT-REF2 station is separated from the well field discharge location by an approximate 1,000 m cross-channel section of river and a chain of mid-channel islands, and is not influenced in any way by the well field discharge.

Small bodied fish were collected from the above locations using backpack electroshocking, minnow trapping and dip netting (where applicable). Collected numbers of Pearl Dace (*Margariscus margarita*) allowed for comparisons between North Granny Creek, South Granny Creek and Tributary 5A. A second species, Trout Perch (*Percopsis omiscomaycus*), was used to compare upstream and downstream Attawapiskat River locations. Both Trout Perch and Pearl Dace were collected from the downstream Nayshkootayaow River station. Species-specific catch data for each location are summarized in Tables 18 through 20 for electrofishing, dip netting, and minnow trapping.

Small bodied fish were analyzed at the Biotron laboratory. Individual samples were thawed and sub-sampled for dorsal muscle on which total mercury analysis was completed. A small mass was retained for oven-drying, and a minimum of two wet samples (<0.5 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 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.

Data was assessed for outliers and normality using the Shapiro-Wilk test at an alpha of 0.05, and transformed if needed to meet assumptions of the given statistical test.

Fish descriptors (total length, weight and age) were investigated with separate one-way ANOVA tests using the sample areas as independent factors. ANOVA tests were followed by post-hoc between group tests (Tukey HSD) to evaluate differences between the sampling areas.

Two-way ANOVA with replication was used to assess the interaction between sampling areas 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 (area 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; McDonald 2014). If the interaction term was found to be significant, separate one-way ANOVA tests for each age class were run to determine differences in total mercury levels between sampling areas.

ANCOVA was used to test for differences in fish body burden mercury concentrations between sampling areas while correcting for age and total length. Generalized linear models were used and included a response variable and an interaction term between the sampling areas and either total length or age. The inclusion of a covariate accounts for greater amounts of variability in the model.

To compare total mercury 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 area were analyzed for significance to determine if an effect was evident. The period of 2009 was used as a baseline and compared to the 2014 dataset to assess potential impacts of the Victor Mine on fish body burden mercury levels.

Body burden mercury values from 2008 to 2014 were plotted to observe any trends between areas over time. For Pearl Dace, boxplots were developed for all fish pooled regardless of age for 2008 to 2014; and for YOY and age 1+ fish based on otolith age data from 2013 and 2014. For Trout Perch from the Attawapiskat River, boxplots were developed for YOY and age 1+ fish. Years 2011, 2013 and 2014 were classified based on known ages from otolith aging structures. Fish from 2008 were classified based on the length cutoff used in the 2008 EEM report (fish <45 mm classified as YOY). Fish from 2009, 2010 and 2012 were classified based on length frequency distributions used to determine the length cutoff between YOY and age 1+. Fish classified as YOY were <45 mm in 2009, <55 mm in 2010 and <50 mm in 2012.

Trends in mercury levels over time were assessed using a Generalized Additive Model (GAM) for small-bodied fish to complement the above analyses. A GAM is a useful approach that can deal with non-linear data and provide statistical tests to determine if change over time has occurred. In this case, a cubic regression spline smoother (with three nodes) was applied to values of total mercury and year of collection. Due to the tendency of body burden mercury concentrations to increase as fish grow, and the difficulty in obtaining similar length fish across all years, fish length was also added to the model. A separate trend analysis was created for each species and each site. Time series data are provided assuming a standardized size of fish (60 mm for Pearl Dace, and 50 mm for Trout Perch) including 95% confidence intervals. 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.

3.5.2 Results – Granny Creek System

Univariate statistics for 2014 Pearl Dace data from Granny Creek, control Tributary 5A and downstream Nayshkootayaow River are summarized in Table 21.

For aged 1+ Pearl Dace from Granny Creek and control Tributary 5A, mean total length and weight were significantly greater for fish from SGC compared to fish from ST-5A (89.55 mm and 7.97 g versus 74.22 mm and 3.57 g) (ANOVA, $p>0.05$; Tables 21 and 22). Age was also greater for aged 1+ Pearl Dace from SGC compared to those from NGC (ANOVA, $p>0.05$; Tables 21 and 22). No YOY Pearl Dace were captured from SGC in 2014.

Two-way ANOVA indicated that there was no interaction effect for Pearl Dace, between sampling area and age class in relation to mercury concentrations (ANOVA, $p>0.05$; Table 23). One-way ANOVA indicated significantly higher body burden mercury concentrations for YOY Pearl Dace in NGC compared to ST5A (0.14 mg/kg vs. 0.06 mg/kg) (ANOVA, $p<0.05$; Tables 21 and 23; Figure 7). For Pearl Dace aged 1+, mercury concentrations were significantly higher in fish from SGC compared to fish from both NGC and ST5A (0.35, 0.14 and 0.07 mg/kg). Mercury concentrations were also significantly greater in Pearl Dace aged 1+ from NGC compared to ST5A (ANOVA, $p<0.05$; Tables 21 and 23; Figure 7).

For Pearl Dace (both age classes pooled), the least square mean of body burden mercury values adjusted for total fish length, was significantly higher for SGC compared to NGC and ST5A (0.2967 mg/kg versus 0.1191 and 0.0761 mg/kg) (ANCOVA, $p<0.05$; Table 24; Figure 8). For Pearl Dace aged 1+, least square means of mercury concentrations adjusted for age, also showed that fish from SGC had significantly higher mercury body burden concentrations compared with fish from both NGC and ST-5A (0.2967 mg/kg versus 0.1191 and 0.0761 mg/kg) (ANCOVA, $p<0.05$; Table 25).

Pearl Dace compared between 2009 and 2014 (baseline versus present) between SGC, NGC and ST5A were significantly different for body burden mercury concentrations (Table 26; Figure 9). In general, mercury levels in Pearl Dace increased between 2009 and 2014 for fish from NGC and SGC when corrected for total length; whereas total mercury levels remained essentially the same for Pearl Dace from ST5A (Figure 9). Post hoc comparison showed a significant increase between 2009 and 2014 at SGC (Table 26; Figure 9). There was also an increase from 2009 to 2014 at NGC, but this increase was not significant (Table 26; Figure 9).

The GAM model for Pearl Dace (Figure 10) was highly significant when including both year and total length and explained 42.5%, 18.7%, and 39.8% (NGC, SGC and ST5A, respectively) of the deviance in total mercury. The trend analysis indicates an increase in body burden mercury concentrations for fish from NGC since 2008 specific to a standardized fish size of 60 mm, with a peak reached in 2011 and 2012, followed by gradual reduction through 2013 and 2014. For SGC the trend analysis showed near steady state conditions from 2008 through 2012, but an increasing trend thereafter through 2013 and 2014. ST-5A showed a very slight increase in Pearl Dace body burden mercury concentrations from 2008 to 2014.

A comparison of body burden mercury concentrations for Pearl Dace from Granny Creek and Tributary 5A for both age classes pooled, from 2008 to 2014, showed a trend similar to that observed by the GAM model (Figure 11). Body burden mercury levels at NGC showed a steady increase from 2008 to 2012, followed by a decline in 2013 and 2014. The trend at SGC showed near steady state conditions from 2008 to 2012, followed by an increase in 2013 and 2014. Control Tributary 5A remained relatively consistent between years. For YOY Pearl Dace from NGC there was a slight decrease in body burden mercury levels from 2013 to 2014 (Figure 12). For age 1+ Pearl Dace, there is a slight decrease in fish body burden mercury concentrations for NGC and ST-5A, and a slight increase for SGC, from 2013 to 2014 (Figure 13).

Overall, the trend to decreasing body burden mercury concentrations in Pearl Dace from NGC observed in 2013 and 2014 is encouraging, and may reflect stabilizing filtered methyl mercury concentrations observed in downstream NGC (Table 12). The trend to increasing body burden mercury concentrations in Pearl Dace for SGC, on the other hand, is of potential concern and not easily explained. Downstream SGC filtered methyl mercury values increased to levels close to those of NGC in 2013, but declined to background levels in 2014 (Table 11); such that there does not appear to be an association between SGC Pearl Dace body burden mercury concentrations and downstream SGC methyl mercury concentrations. Methyl mercury is the mercury species most readily taken up by fish.

At least part of the explanation as to why body burden mercury concentrations have increased in aged 1+ years Pearl Dace from SGC may rest with the size and age of the 1+ year fish from SGC. The data presented in Table 21 show that 1+ aged SGC Pearl Dace were heavier (mean 7.97 g, compared with means 4.61 g and 3.57 g) and older (mean 2.6 years, compared with means of 1.33 years and 1.90 years) than respective fish from NGC and ST-5A. The length and weight difference between 1+ year fish from SGC was significantly different from the weight of this age class from ST-5A, and the age difference between 1+ Pearl Dace from SGC and NGC was also significantly different. The weight difference between 1+ age Pearl Dace from SGC and NGC was not significantly different, but the probability value of 0.088 for the ANOVA was only slightly greater than the 0.05 probability threshold.

Pearl Dace aged 1 + years captured at SGC were older and larger than their counterparts from NGC in 2014. No YOY Pearl Dace were captured from SGC in 2014. This age and size discrepancy occurred despite the utilization of comparable fishing techniques and efforts for both creeks, and at a level that has previously proven acceptable with respect to catchability for this species in these tributaries. As such, no selectivity bias toward larger size or age was introduced through sampling and the reasons for such differences are not fully understood. Greater success in capturing this species in these water bodies has been found earlier in the field season (late August to mid-September), prior to substantial reductions in water temperature. Further recommendations with respect to sampling small-bodied species in the Granny Creek system are provided in Section 8.

With regard to the cause of increased body burden mercury concentrations in Pearl Dace from the Granny Creek system compared with baseline conditions and the Tributary 5A control system, the route cause is believed to be enhanced mercury methylation within the lower portion of the Granny Creek watershed linked to sulphate release, as described in Section 3.3.

3.5.3 Results – Attawapiskat River

Univariate statistics for 2014 Trout Perch from the four Attawapiskat River stations, and from the downstream Nayshkootayaow River station, are summarized in Table 27. There were no differences in mean total length, weight, and age for both age classes in 2014 for Trout Perch from the Attawapiskat River (ANOVA, $p<0.05$; Tables 27 and 28).

Two-way ANOVA indicated a relationship between sampling area and age class for Trout Perch (ANOVA, $p<0.05$; Table 29). One-way ANOVA indicated significantly lower total mercury for YOY Trout Perch at the ATT-FF station compared to values for Trout Perch from the other three stations (0.05 mg/kg versus 0.07 mg/kg at the three other areas) (ANOVA, $p<0.05$; Tables 27 and 29; Figure 14). There was no significant difference in total mercury in fish aged 1+ (ANOVA, $p>0.05$; Tables 27 and 29, Figure 14). For Trout Perch (both age classes pooled), the least square mean of total mercury adjusted for total length was significantly lower at ATT-FF compared to ATT-NF and ATT-US (0.0682 mg/kg versus 0.0808 and 0.0827 mg/kg) (ANCOVA, $p<0.05$; Table 30; Figure 15). No differences were observed for age adjustments (ANCOVA, $p<0.05$; Table 31).

Trout Perch compared between 2009 and 2014 (baseline versus present) between ATT-NF, ATT-FF, and ATT-US were significantly different for total body burden mercury levels (Table 32; Figure 5b). Body burden mercury levels significantly decreased at ATT-NF from 2009 to 2014 (Table 32; Figure 16). There was a slight decrease at ATT-FF, and a slight increase at ATT-US from 2009 to 2014, but these differences were not significant (Table 32; Figure 16).

Results for Attawapiskat River Trout Perch (Figure 17) for a standardized length of 50 mm are fairly similar across all years, with total mercury values from all areas staying relatively even. At ATT-NF there was an increase in 2009 which then levelled off from 2010 to 2014. At ATT-FF and ATT-US, total mercury concentrations were slightly higher in 2008 and 2009, but began to decrease following 2009. Deviance explained by the model were 27.4%, 6.38%, and 24.2% for ATT-FF, ATT-NF and ATT-US, respectively.

Body burden mercury concentrations for Trout Perch from the Attawapiskat River remained relatively consistent from 2008 to 2014 for both YOY and age 1+ fish (Figures 18 and 19), with the exception of 2009 for age 1+ fish when mercury concentrations were lower.

The data collected thus far, when viewed in their entirety, show that there has not been an effect on small fish body burden mercury concentrations within the Attawapiskat River.

3.5.4 Nayshkootayaow River

Statistical comparisons were not performed on Pearl Dace captured from the Nayshkootayaow River downstream station in 2014, but it is evident from the data presented in Table 21 that body burden mercury concentrations in these fish were comparable to those captured from ST-5A, suggesting that these fish have not been affected.

Trout Perch body burden mercury concentrations for fish from the downstream Nayshkootayaow River station for 2014, were comparable to those of the four Attawapiskat River stations (Table 27), indicating no effect.

4.0 REPORTING – CONDITION 6(9) DATA

4.1 Annual Analysis of Peat Pore Water

As described in Section 3.2 and as a general observation, concentrations of total and methyl mercury in the 2014 peat horizon water samples were not markedly higher or lower than the range of data for previous years. The MS-8 series piezometers may be an exception for 2014, and are discussed below.

Statistical analyses of total and methyl mercury peat pore water concentrations are presented in Table 33 for the: S-1 stations (Table 33a), the S-2 stations (Table 33b), the S-7 stations (Table 33c), the S-8 stations (Table 33d), the S-9(1) stations (Table 33e), the S-9(2) stations (Table 33f), and the S-V stations (Table 33g). The only station cluster to show a statistically significant location effect compared with the S-13 / S-15 background control stations baseline using Two-Way Analysis of Variance at $\alpha = 0.05$, was the MS-8 cluster for total mercury.

The MS-8 peat horizon cluster consists of four stations (MS-8-D, MS-8-F, MS-8-H and MS-8-R) and is located to the north of the Victor Mine in an undisturbed area of muskeg. This station cluster is of interest because all four of the cluster points are located within the existing mine dewatering drawdown cone. Figure 20 shows long-term trend data for this station. Total methyl mercury concentrations were notably higher in 2014 for the domed bog, flat bog, and horizontal fen peatland types; but with the possible exception of the MS-8-F station, there are no defined long-term data trends. The 2014 data for the MS-8 cluster may therefore simply represent an effect of random variation, as has been observed at other times and locations during the Victor Mine mercury study program.

It is important to note that the 0.05 probability level for statistical significance means that one would expect 5% of the tests to yield a statistically significant result due to random chance alone, when the samples are in fact not statistically different. Out of 98 Two-Way Analysis of Variance tests performed on peat horizon total and methyl mercury concentrations for the years 2008 through 2014 combined, only two tests (including the MS-8, 2014 result for total mercury), have shown a significant difference for mercury concentrations for the experimental cluster versus the control cluster average. The 2014 result for the MS-8 station cluster may therefore simply be a result of random chance and not a biogeochemical effect. Data from future years will be required to confirm whether or not the 2014 data are indicative of an emerging trend.

As per Section 1, it was 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. Since the MS-8 series muskeg piezometers showed a statistically significant result for total mercury for 2014, it is important to consider this result within the context of the original concern.

The 2013 Annual Mercury Report compared satellite imagery for 2006 (predevelopment) with imagery from 2012. This analysis showed that muskeg environments surrounding the Victor Mine remained generally saturated, but that localized areas of mine-related muskeg dewatering in association with bioherms and bedrock subcrop zones were occurring. This effect was predicted in the federal environmental assessment conducted for the Victor Mine (Federal Authorities, 2005). With specific regard to the MS-8 station cluster of peat piezometers, the satellite image for September 2014 clearly shows that environments associated with each of the four muskeg piezometers remained saturated, with no evidence of drying ponds (Figure 21). Groundwater level data recorded from the four muskeg piezometers also shows that the muskeg environment associated with the four MS-8 series piezometers has remained saturated since 2007 despite depressurization of the underlying bedrock and marine sediment horizons (Figure 22). There is consequently no evidence to suggest that the muskeg environment within the vicinity of the MS-8 series of piezometers is experiencing drying out effects. The observed increase in total mercury concentrations for this piezometer set compared to the control station sets is likely an artefact of random variation. Data from subsequent years will provide further information on this aspect.

4.2 Annual Analysis of Mineral Soil Pore Water

Total and methyl mercury results from shallow and deep clay pore water samples have continued to show low values, with no defining trends (Tables 2g and 2h). Total mercury values have generally been <1 ng/L with the exception of the S-9(1) shallow clay station where a 4.94 ng/L total mercury value was recorded for 2014. The S-9(1) stations are located well outside of the 2014 mine dewatering drawdown cone (Figure 3). Methyl mercury values have generally been <0.1 ng/L, with the exception of the S-2 (shallow clay station) where a 0.25 ng/L methyl mercury value was recorded for 2014. Both values are not consistent with the remainder of the data set and appear anomalous. Sampling consistency for a number of the clay stations has been poor, in large part because the very slow recovery times after well purging, often make it impractical to collect samples from these sites. Also, use of the term clay is not quite appropriate, as further more detailed studies have determined that the fine grained materials at site are rock flour, a portion of which consists of clay-sized grains with the bulk of the material being silt. This overburden material is predominantly derived from carbonate rock (limestone) and is more appropriately termed fined-grained marine sediments.

Total and methyl mercury results from shallow bedrock water samples (Table 2i) also show no real trends. The comparatively high total mercury value of 12.19 ng/L for the S-15 cluster bedrock well is regarded as anomalous. This monitoring well is located 23 km west from the open pit centre, and is well beyond any mine dewatering influence.

4.3 Annual Analysis of Surface Waters

Statistical analyses of total and methyl mercury concentrations in surface water samples are presented in Table 34. Monthly analyses of total mercury concentrations for North and South Granny Creeks for upstream and downstream samples showed no statistical differences (Table 34a).

Methyl mercury concentrations in upstream, mid-stream and downstream reaches for both North and South Granny Creeks were not statistically different from one another; but as in previous years there was a trend to higher downstream methyl mercury concentrations in North Granny

Creek. There are no trends in the 2014 data for South Granny Creek (Table 34b). 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. Also, while methyl mercury values were elevated in downstream North Granny Creek waters for 2014, all values were well below the CEQG value of 4 mg/L.

Data for the Nayshkootayaow and Attawapiskat Rivers show no upstream or downstream trends. There were no statistically significant results for total mercury (Table 34c). The methyl mercury result for the two-way ANOVA in the Attawapiskat River showed a statistically significant result, with the upstream control station showing the highest overall average values (Table 34d).This result is interesting because all results are very low and close to the detection limit of 0.02 ng/L. A slight change to any of the values would render the result not significant. This shows the limitations of statistical analyses when all values are very close to the detection limit, but where there are consistent but small trends to the data. For example, if any of the values in the Attawapiskat River (A-1) column for January, April or July were to be reduced by 0.01 ng/L, the resulting statistical analysis would generate a non-significant result. The determination of statistical significance in this case, while mathematically correct, is not regarded as meaningful.

4.4 Trend Analysis of Well Field Water Discharge

Monthly well field discharge data are presented in Table 15. Similar to previous years, from 2009 to present, both total and methyl mercury remain, on average, at or below comparable Attawapiskat River background concentrations (Tables 13 and 14). There are no evident trends to the data (Table 15).

4.5 Annual Analysis of Fish Mercury Body Burdens

Overall mercury levels in small fish (Pearl Dace) tissues continued to be higher for North Granny Creek and South Granny Creek, compared with fish tissue values for control Tributary 5A. At least part of explanation as to why body burden mercury concentrations have increased in aged 1+ years Pearl Dace from South Granny Creek for 2014, may relate to the fact that 1+ year fish from South Granny Creek were noticeably larger and older than their counterparts for North Granny Creek and from Tributary 5A. This condition may be a function of sampling constraints in the fall of 2014 for South Granny Creek, which may have resulted in a lack of sampling of smaller, younger fish.

The root cause of increased body burden mercury concentrations in Pearl Dace from the Granny Creek system compared fish from control Tributary 5A is believed to be enhanced mercury methylation within the lower portion of the Granny Creek watershed linked to sulphate release. There is some evidence to suggest that this process may be attenuating, at least for the NEF which has been the primary pathway for increased methyl mercury addition to downstream North Granny Creek (Section 3.3, Figure 2).

Data collected thus far for small fish (Trout Perch) from the Attawapiskat River when viewed in their entirety, show that there has been no effect on small fish body burden mercury concentrations within the Attawapiskat River. Limited data were collected in 2014 on small fish (Pearl Dace and Trout Perch) from the Nayshkootayaow River, and only from the downstream location. Data on small fish collected thus far from the Nayshkootayaow River, however, also show no effect on small fish body burden mercury concentrations.

Relative to trigger thresholds defined in the AMEC (2008) document in relation to Granny Creek system results, all of the analytical components defined in Section 4.5 of that document have been carried out, namely:

- Source identification and release mechanisms;
- Transport dynamics;
- Receiving water speciation and phase transition;
- Potential for biological uptake;
- Temporal trends and projections; and
- Expert interpretation.

The source of mercury contamination in Granny Creek Pearl Dace has been identified as increased methyl mercury concentrations in downstream creek waters, linked to sulphate enrichment of localized muskeg drainages. Methyl mercury is the species of mercury most readily taken up by fish and other aquatic biota. Temporal trends are being tracked and it appears that body burden mercury concentrations in Pearl Dace from North Granny Creek may be declining. Further data are required for South Granny Creek to determine if Pearl Dace body burden mercury concentrations from this system are actually increasing, or whether the most recent results are primarily an artefact of disproportionately larger and older 1+ aged fish being captured from South Granny Creek in 2014. The observed increase in South Granny Creek Pearl Dace body burden mercury concentrations for 2014 is not consistent with observed methyl mercury water quality data for this same period. Additional Pearl Dace collections in 2015 may clarify 2014 observations.

5.0 NORTHEAST FEN SULPHATE SOURCE INVESTIGATION

In the 2012 annual mercury report, De Beers committed to undertaking a study of sulphate loadings to mine site area muskeg systems, with the objective of assessing alternatives to better limit such loadings, as a means of reducing mercury methylation rates in affected muskeg systems. Additional sulphate samples were collected in 2013 and 2014, with the 2014 results shown in Table 35. Sampling locations are shown in Figure 23. The 2014 data generally confirmed the results of early investigations, as per the following:

- Sulphate concentrations in the NEF final compliance point gradually increased from 2009 / 2010 to 2012, and have declined slightly thereafter. The peak annual average was 84.5 mg/L in 2012 declining to 60.2 mg/L in 2014. All values are within, or somewhat greater than, the optimal range for mercury methylation.

- Sulphate concentrations were highest in the proximal end of the NEF (i.e., in the ditch that receives runoff and seepage from the mine rock stockpile and the landfill), with the average annual value for 2014 being 120.3 mg/L, declining to 44.9 mg/L at the mid fen station (NEF-M2) (Table 35).

- Sulphate contributions to the NEF are currently deriving from the following areas: mine rock stockpile, the open pit phase 1 mine water pond, and possibly from the landfill.

- Five muskeg ponds bordering the west and south perimeters of the mine rock stockpile were sampled for sulphate in 2012. Three of five ponds showing values of <1 mg/L and the remaining two ponds showing values of 56.6 mg/l and 81.1 mg/L.

- The open pit phase 1 Mine Water Settling Pond continued to be a strong source of sulphate in 2014 with an average concentration of 70.8 mg/L.

- Shallow groundwater samples collected from the perimeter of the landfill showed average annual sulphate values ranging from near zero to 150 mg/L.

- Average annual sulphate concentrations from ponds bordering the low grade kimberlite stockpile ranged from 10.1 mg/L to 150.9 mg/L; the higher value was for a small pond surrounded on all sides by low grade ore deposits or a limestone berm (Table 35, Figure 23).

The primary sources of sulphate to the NEF continue to be mine rock stockpile drainage, and drainage from the open pit phase 1 Mine Water Settling Pond. NEF average annual sulphate concentrations have declined somewhat from peak 2012 values, but are still elevated relative to background concentrations. The practice of discharging well development water to the phase 1 Mine Water Settling Pond was discontinued in late 2014, such that the effects of this practice will not be fully known until 2015 results are available. Data available for April and May 2015 showed a 31% improvement over April and May values for 2014.

6.0 RESPONSE TO COMMENTS RECEIVED FROM VARIOUS REVIEWERS ON 2013 ANNUAL REPORT

Comments related to the Mercury Performance Monitoring 2013 Annual Report were received from Neegan Naynowan Stantec LP, on behalf of Attawapiskat First Nation, and from the Wildlands League. The Neegan Naynowan Stantec LP comments were dated July 23, 2014. A detailed response to these comments was provided to the AttFN on April 1, 2015. The Wildlands League comments, addressed to the MOECC in a series of e-mails in January 2015, were provided to De Beers by the Ministry. A detailed response to these comments was provided to the MOECC on April 6, 2015.

Neegan Naynowan Stantec LP concluded that the 2013 Annual Mercury Monitoring Report fulfilled its regulatory requirements; and that the report was complete, comprehensive and the data well documented. The reviewers had a few recommendations, suggesting in particular that for the small bodied fish analyses, age rather than length should be used as the covariate in the analysis, and that whole body samples rather than muscle tissue. They also requested minor clarifications on some report aspects.

Comments received from Wildlands League focused primarily on missing data elements: that unfiltered data were not shown for some stations; and that monthly rather than quarterly data should be collected for some stations. The missing data where appropriate, were provided to the Wildlands Leaque in the April 6, 2015 response, and have been included in this 2014 Annual Report. Unfiltered and filtered data are presented in the reports, as appropriate, and quarterly versus monthly sampling is carried out consistent with C. of A. requirements.

7.0 CONCLUSIONS

7.1 Peat Pore Waters

- 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, and there are no evident trends in the data.

- Statistical analysis of peat pore waters showed no significant differences (with one exception for total or methyl mercury), between peat complexes located near to and at mid-distances from the mine site, compared with more remote control stations. A statistically significant result was observed for 2014 total mercury data for the MS-8 peat horizon cluster. There is no obvious explanation for this result, and the result is believed to be an effect of random variation in relation to the large number of statistical tests carried out over several years, as described in Section 4.1.

7.2 Surface Waters

- Total mercury concentrations measured in proximal area fen systems (NEF, SEF and HgCON) were well below the CEQG value of 26 ng/L and showed no evident overall trends.

- Methyl mercury concentrations in the NEF, which receives (or received) various site effluents, continued to show elevated methyl mercury concentrations in 2014 compared with the control fens (SEF and HgCON). Elevated methyl mercury concentrations in the NEF are believed to be the result to 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. Some actions have been taken to reduce sulphate loadings to the NEF. There is also some evidence to suggest that mercury methylation rates within the NEF may have peaked in 2011 and 2012, and are beginning to decline (Section 3.3; Figure 2). Furthermore, while considerable attention has been focused on sulphate as the mechanism for increased mercury methylation and the resultant effects of this increase on downstream Granny Creek waters, it needs to be stressed that the resultant increased methyl mercury concentrations in downstream Granny Creek waters are still extremely low. The long-term average upstream and downstream North Granny Creek methyl mercury concentrations are <0.05 ng/L and <0.12 ng/L, respectively (Table 12). The corresponding values for 2014 were <0.09 ng/L and 0.12 ng/L. The long-term average upstream and downstream South Granny Creek methyl mercury concentrations are <0.05 ng/L and <0.07 ng/L, respectively (Table 11). The corresponding values for 2014 were <0.08 ng/L and <0.03 ng/L.

- Total and methyl mercury concentrations measured in area surface waters (Granny Creek, the Nayshkootayaow River and the Attawapiskat River) show mercury concentrations well below the applicable CEQG values of 26 ng/L and 4 ng/L, respectively. The

Nayshkootayaow and Attawapiskat River 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 to elevated methyl mercury concentrations in downstream waters, compared with the Tributary 5A control site. These observed increases in methyl mercury for North Granny Creek in particular, are believed to be attributable to sulphate-rich effluent waters which stimulate the mercury methylation process, and not a function of well field dewatering effects. These differences between systems are small and all values are extremely low, with long-term average methyl mercury concentrations for downstream North and South Granny Creeks and Tributary 5A being <0.12 ng/L, <0.07 ng/L and <0.03 ng/L, respectively (Table 36). The CEQG for methyl mercury is 4 ng/L. Total mercury values in upstream and downstream Granny Creek waters are at background levels.

- Well field discharge total and methyl mercury concentrations are well below CEQG values, and are also generally below Attawapiskat River background values upstream of the mine discharge. There are no evident long-term trends in the data.

7.3 Small Fish Mercury Body Burdens

- In general there has been an increase in total mercury body burden levels in small fish (Pearl Dace) within the Granny Creek system relative to baseline conditions, and to body burden concentrations observed for this species from the control site (Tributary 5A). This effect is attributed to increased sulphate loadings to localized muskeg environments near to the Victor Mine, with sulphate stimulating the growth of sulphate reducing (mercury methylating) bacteria.

- Pearl Dace body burdens in fish from North Granny Creek appear to be declining from peaks reached in 2011 and 2012, possibly due to a corresponding decline in methyl mercury release to this system. Body burden mercury concentrations in Pearl Dace from South Granny Creek, however, appear to be increasing. This apparent increase may be an artefact of sampling bias for 2014, wherein aged 1+ year fish from South Granny Creek were noticeably larger and older than their counterparts collected from North Granny Creek and Tributary 5A. Larger, older fish would be expected to carry higher body burden mercury levels.

- The data collected thus far for small fish (Trout Perch) from the Attawapiskat River, when viewed in their entirety, show that there has not been an effect on small fish body burden mercury concentrations within the Attawapiskat River; nor does there appear to have been an effect on body burden mercury levels in small fish collected thus far from the Nayshkootayaow River.

8.0 RECOMMENDATIONS

The mercury monitoring program conducted at the Victor Mine is both extensive and robust, and it is recommended that the monitoring program continue to be carried out in its current form.

De Beers is continuing to evaluate and consider the implementation of site specific management practices to limit sulphate loadings to adjacent muskeg areas, because of the effect of sulphate on the mercury methylation process. It was previously stated that plans for such actions would be provided to the MOECC and to the AttFN for review not later than December 31, 2014; and that the plans would be implemented as soon thereafter as reasonably practicable following agreement with the MOECC and the AttFN on the plans and any related permit modifications. Some site investigations critical to the plan have been delayed, particularly with respect to investigations regarding options on how best to manage drainage from the mine rock stockpile. These investigations will involve a drilling program which is now scheduled for the second half of 2015 with subsequent monitoring and data compilation. The MOECC and the AttFN will be updated as soon as this investigation has been completed.

As per the 2013 Annual Report, plans for sulphate management were to address the following areas as a minimum, some of which have already been completed:

1. Discontinuation of pit perimeter well development water discharge to the NEF. Task completed in late 2014.

2. Runoff and seepage from the mine rock stockpile. Runoff and seepage from the mine rock stockpile currently reports mainly to the NEF – no change.

3. Runoff and seepage from the landfill. Runoff and seepage from the landfill currently reports to the NEF – no change.

4. Runoff and seepage from the low grade ore and coarse processed kimberlite stockpile (pending further investigation). Runoff and seepage from this stockpile currently reports to South Granny Creek by way of one or more fen tracks – no change.

Subject to further evaluation, it is anticipated that groundwater, runoff and seepage from the above sources will be managed in one or more of the following ways, as appropriate to the source and condition:

- Continue to direct drill water from perimeter well development to the open pit, or pump the water to the fine processed kimberlite containment area.

- Construct perimeter ditching to capture runoff and seepage from the mine rock stockpile (and possibly the low grade and coarse kimberlite stockpile), before it contacts the muskeg environment. The collected water could be pumped to the fine processed kimberlite containment facility for re-use in processing, or be discharged to the Attawapiskat River along with well field water.

- Cap completed portions of mine rock and possibly coarse processed kimberlite stockpiles with a layer of marine sediments to shed runoff from the stockpile, thus minimizing the leaching of sulphate present in pore water within the stockpiles.

- Develop internal drainage gradients and associated collection points within stockpiles using wells, with collected water to be pumped to the fine processed kimberlite containment facility for re-use in processing or discharged to the Attawapiskat River along with the well field water.

- Long-term management of drainage from mine rock stockpiles after closure of the mine, by directing drainage into the open pit, which is expected to be a local drainage point into the underlying bedrock, with no discharge to surface waters.

Regarding the question of age bias in Pearl Dace collected from South Granny Creek in 2014, the collection of fish in future years needs to be timed to avoid such biases. This would include:

- Timing the sampling for Peal Dace within the Granny Creek system to coincide with the end of the growth season, but prior to fall precipitation events and marked reductions in air and water temperature, which reduce the catchability of this species. Sampling to be conducted so as to target Pearl Dace in Granny Creek and the control tributary (Tributary 5A) within the same period, and preferably late August to mid-September as in previous years, when catchability was optimal.

- To reduce the potential for bias associated with age of Pearl Dace between sampling areas, sample size should be increased above the minimum required by the C. of A. It is proposed that 30 YOY from each of North Granny Creek, South Granny Creek and Tributary 5A be sampled for analysis. Fish aged 1 year of age or greater should be sampled from each of the previously listed water courses at up to total of 50 individuals. Sampling should be random with respect to size and age to provide for a representative sample of age structure by water course. All individuals should have calcified age structures harvested to allow for assessment of known age for further comparative analysis.

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TABLE 1a
MUSKEG MONITORING PROGRAM - ANNUAL MERCURY RESULTS FOR CLAY AND BEDROCK; TOTAL MERCURY FILTERED (2007-2014)
(concentrations in ng/L)

Cluster Location	Substrate / Condition	Well Name	GPS Code	Sample Code	Total Mercury (Filtered)								
					2007	2008	2009	2010	2011 (Aug)	2011 (Sep / Nov)	2012	2013	2014
S-1	Bedrock (Bioherm)	MS-1-BR	ES1-BR	ES1BDR	1.30	-	0.27	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Clay - Deep	MS-1-CL(1)	ES1-BR	ES1CLD	1.47	-	0.18	<0.1	<0.1	<0.1	0.19	<0.1	0.1
	Clay - Shallow	MS-1-CL(2)	ES1-BR	ES1CLS	0.27	-	0.16	<0.1	<0.1	<0.1	0.16	<0.1	0.15
S-2	Bedrock (Bioherm)	DAS-1	EDAS-1	EDAS-1	0.23	-	0.24	0.45	<0.1	-	<0.1	<0.1	<0.1
		MS-2BR	ES2-BR	ES2BR	0.68	-	-	0.38	<0.1	-	0.21	0.17	-
	Clay - Deep	MS-2-CL(1)	ES2-BR	ES2CLD	-	-	0.36	<0.1	<0.1	<0.1	0.18	-	0.31
	Clay - Shallow	MS-2-CL(2)	ES2-BR	ES2CLS	0.98	-	0.17	<0.1	3.01	<0.1	<0.1	<0.1	0.95
S-7	BR Shallow		NS7-BR	NS7BRS	1.02	-	0.53	0.34	0.35	0.52	0.54	0.67	0.43
	BR Intermediate		NS7-BR	NS7BRI	1.93	-	0.23	<0.1	<0.1	-	0.23	0.53	0.29
	BR Deep		NS7-BR	NS7BRD	2.34	-	0.12	0.39	<0.1	<0.1	1.62	0.3	0.19
	Clay - Deep	MS-7-CL(1)	NS7-CL	NS7-CLD	0.59	-	0.25	<0.1	<0.1	<0.1	<0.1	0.22	1.46
	Clay - Intermediate		NS7-CL	NS7-CLI	0.41	-	0.13	<0.1	<0.1	<0.1	0.25	0.19	0.57
	Clay - Shallow	MS-7-CL(2)	NS7-CL	NS7-CLS	0.70	-	0.10	<0.1	0.96	<0.1	<0.1	0.18	0.29
S-8	Bedrock (Bioherm)	MS-8-BR(1)	NS8BR1	NS8B1S	7.46	-	1.56	7.14	1.37	-	0.79	0.54	0.27
	Bedrock (Bioherm)	MS-8-BR(2)	NS8BR1	NS8B1I	4.36	-	-	0.33	-	-	-	-	-
			NS8BR1	NS8B1D	1.83	-	-	-	-	-	-	-	-
	Clay - Deep	MS-8-CL(1)	NS8CL1	NS8C1D	0.31	-	0.24	<0.1	-	-	-	-	-
	Clay - Middle	MS-8-CL(2)	NS8CL1	NS8C1I	-	-	0.26	-	0.32	0.47	0.21	1.05	0.8
	Clay - Shallow	MS-8-CL(3)	NS8CL1	NS8C1S	0.89	-	0.28	0.50	<0.1	<0.1	-	1.13	-
	Clay - Deep	MS-8-CL(4)	NS8CL2	NS8C2D	0.14	-	0.16	<0.1	<0.1	-	<0.1	1.37	0.16
	Clay - Middle	MS-8-CL(5)	NS8CL2	NS8C2I	0.49	-	-	-	-	-	-	-	-
	Clay - Shallow	MS-8-CL(6)	NS8CL2	NS8C2S	0.33	-	0.59	<0.1	<0.1	0.17	<0.1	0.17	0.13
S-9(1)	Bedrock (Bioherm) *	MS-9(1)-BR			-	-	-	-	-	-	-	-	-
	Clay - Deep	MS-9(1)-CL(1)	SS9CL1	SS9C1D	0.66	-	<0.1	0.52	<0.1	<0.1	<0.1	0.32	0.29
	Clay - Shallow	MS-9(1)-CL(2)	SS9CL1	SS9C1S	1.03	-	0.10	0.43	<0.1	<0.1	0.24	0.26	4.94
S-9(2)	Bedrock (Bioherm) *	MS-9(2)-BR			-	-	-	-	-	-	-	-	-
	Clay - Deep	MS-9(2)-CL(1)	SS9CL2	SS9C2D	1.09	-	0.30	0.38	<0.1	<0.1	<0.1	0.25	0.69
	Clay - Shallow	MS-9(2)-CL(2)	SS9CL2	SS9C2S	0.44	-	0.13	<0.1	<0.1	<0.1	0.51	0.17	0.8
S-13	Bedrock (Bioherm)	MS-13-BR	WS13BR	WS13BS	2.57	-	0.72	0.87	-	-	0.56	0.92	0.75
			WS13BR	WS13BD	1.19	-	-	-	-	-	-	-	-
	Clay - Deep	MS-13-CL(1)	WS13CL	WS13CD	0.42	-	<0.1	<0.1	<0.1	<0.1	-	-	0.41
			WS13CL	WS13CI	1.48	-	0.18	-	<0.1	<0.1	-	-	0.38
	Clay - Shallow	MS-13-CL(2)	WS13CL	WS13CS	0.50	-	<0.1	0.36	<0.1	-	-	-	0.71
S-15	Bedrock (Bioherm)	MS-15-BR	WS15BR	WS15BS	2.00	-	2.34	2.74	2.46	-	2.02	0.88	12.19
			WS15BR	WS15BD	0.58	-	-	-	-	-	-	-	-
	Clay - Deep	MS-15-CL(1)	WS15CL	WS15CD	-	-	-	0.59	-	-	-	-	-
			WS15CL	WS15CI	1.70	-	-	-	-	-	-	-	-
	Clay - Shallow	MS-15-CL(2)	WS15CL	WS15CS	0.69	-	<0.1	<0.1	0.33	<0.1	-	-	-

- : total mercury concentration not determined

Near-field sites: S-2; S-8; S-V1; S-V2; S-V3

Mid-field sites: S-1; S-7; S-9(1); S-9(2)

Far-field sites: S-13; S-15

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

*Bedrock samples for stations S-9(1) and S-9(2) are collected at the overburden / bedrock interface and are reported as deep clay samples.

TABLE 1b
MUSKEG MONITORING PROGRAM - ANNUAL MERCURY RESULTS FOR CLAY AND BEDROCK; METHYL MERCURY FILTERED (2007-2014)
(concentrations in ng/L)

Cluster Location	Substrate / Condition	Well Name	GPS Code	Sample Code	Methyl Mercury (Filtered)								
					2007	2008	2009	2010	2011 (Aug)	2011 (Sep / Nov)	2012	2013	2014
S-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
	Clay - Deep	MS-1-CL(1)	ES1-BR	ES1CLD	-	-	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	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
S-2	Bedrock (Bioherm)	DAS-1	EDAS-1	EDAS-1	<0.02	-	0.05	0.02	0.07	-	<0.02	<0.02	<0.02
		MS-2BR	ES2-BR	ES2BR	<0.02	-	-	0.14	0.04	-	0.03	0.07	-
	Clay - Deep	MS-2-CL(1)	ES2-BR	ES2CLD	-	-	0.13	0.03	0.03	<0.02	<0.02	-	0.03
	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
S-7	BR Shallow		NS7-BR	NS7BRS	0.09	-	0.05	0.05	0.05	0.12	0.03	<0.02	0.05
	BR Intermediate		NS7-BR	NS7BRI	0.04	-	0.02	0.05	<0.02	-	<0.02	0.06	0.04
	BR Deep		NS7-BR	NS7BRD	0.03	-	0.03	0.03	0.03	0.03	<0.02	<0.02	<0.02
	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
	Clay - Intermediate		NS7-CL	NS7-CLI	0.02	-	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	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
S-8	Bedrock (Bioherm)	MS-8-BR(1)	NS8BR1	NS8B1S	0.03	-	0.03	0.13	0.04	-	0.03	<0.02	0.03
	Bedrock (Bioherm)	MS-8-BR(2)	NS8BR1	NS8B1I	<0.02	-	-	0.05	-	-	-	-	-
			NS8BR1	NS8B1D	<0.02	-	-	-	-	-	-	-	-
	Clay - Deep	MS-8-CL(1)	NS8CL1	NS8C1D	<0.02	-	0.02	<0.02	-	-	-	-	-
	Clay - Middle	MS-8-CL(2)	NS8CL1	NS8C1I	-	-	0.04	-	0.10	0.06	0.02	<0.02	<0.02
	Clay - Shallow	MS-8-CL(3)	NS8CL1	NS8C1S	0.03	-	0.02	0.06	0.08	0.03	-	0.63	-
	Clay - Deep	MS-8-CL(4)	NS8CL2	NS8C2D	<0.02	-	0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02
	Clay - Middle	MS-8-CL(5)	NS8CL2	NS8C2I	<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
S-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	0.039	0.02
	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
S-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
	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
S-13	Bedrock (Bioherm)	MS-13-BR	WS13BR	WS13BS	<0.02	-	<0.02	<0.02	-	-	<0.02	0.060	<0.02
			WS13BR	WS13BD	<0.02	-	-	-	-	-	-	-	-
	Clay - Deep	MS-13-CL(1)	WS13CL	WS13CD	0.03	-	0.02	0.02	<0.02	<0.02	-	-	<0.02
			WS13CL	WS13CI	0.04	-	0.04	-	<0.02	<0.02	-	-	0.05
	Clay - Shallow	MS-13-CL(2)	WS13CL	WS13CS	0.02	-	-	<0.02	<0.02	-	-	-	0.04
S-15	Bedrock (Bioherm)	MS-15-BR	WS15BR	WS15BS	<0.02	-	0.37	0.03	<0.02	-	<0.02	0.61	0.04
			WS15BR	WS15BD	<0.02	-	-	-	-	-	-	-	-
	Clay - Deep	MS-15-CL(1)	WS15CL	WS15CD	<0.02	-	-	0.04	-	-	-	-	-
			WS15CL	WS15CI	<0.02	-	-	-	-	-	-	-	-
	Clay - Shallow	MS-15-CL(2)	WS15CL	WS15CS	<0.02	-	<0.02	<0.02	<0.02	0.037	-	-	-

- : methyl mercury concentration not determined
Near-field sites: S-2; S-8; S-V1; S-V2; S-V3
Mid-field sites: S-1; S-7; S-9(1); S-9(2)
Far-field sites: S-13; S-15
MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury), as per Section 1.
*Bedrock samples for stations S-9(1) and S-9(2) are collected at the overburden / bedrock interface and are reported as deep clay samples.

TABLE 2a
MUSKEG MONITORING PROGRAM - ANNUAL MERCURY RESULTS FOR PEAT; TOTAL MERCURY FILTERED (2007 - 2014)
(concentrations in ng/L)

Cluster Location	Substrate / Condition	Well Name	GPS Code	Sample Code	Total Mercury (Filtered)							
					2007	2008	2009	2010	2011	2012	2013	2014
S-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
	Peat - Flat Bog	MS-1-F	ES1F	ES1F	2.73	3.04	0.83	1.47	1.18	1.31	0.79	2.3
	Peat - Horizontal Fen	MS-1-H	ES1H	ES1H	-	1.77	0.36	0.53	0.30	0.48	0.28	1.18
	Peat - Ribbed Fen	MS-1-R	ES1R	ES1R	1.81	2.27	0.49	1.24	0.91	1.06	<0.1	1.84
S-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
	Peat - Flat Bog	MS-2-F	ES2F	ES2F	3.12	3.05	2.35	2.74	5.79	1.53	2.48	5.17
	Peat - Ribbed Fen	MS-2-R	ES2R	ES2R	1.56	2.02	0.38	1.43	4.6	0.67	0.3	2.06
S-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
	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
	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
	Peat - Ribbed Fen	MS-7-R	NS-7R	NS-7R	0.62	0.52	0.12	0.44	0.36	0.25	<0.1	1.94
S-8	Peat - Domed Bog	MS-8-D	NS8-1D	NS8-1D	1.13	1.49	0.38	1.66	1.2	1.33	1.72	4.18
	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
	Peat - Horizontal Fen	MS-8-H	NS8-1H	NS8-1H	0.56	0.55	0.18	<0.1	<0.1	0.14	0.44	3.28
	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
S-9(1)	Peat - Domed Bog	MS-9(1)-D	SS9-1D	SS9-1D	0.77	0.77	0.27	0.58	<0.1	0.59	0.52	3.26
	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
	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	0.7
	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
S-9(2)	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
	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
	Peat - Horizontal Fen	MS-9(2)-H	SS9-2H	SS9-2H	0.80	0.59	0.30	<0.1	<0.1	0.11	1.37	1.51
	Peat - Ribbed Fen	MS-9(2)-R	SS9-2R	SS9-2R	1.29	0.90	0.33	0.72	5.16	0.34	<0.1	1.75
S-13	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
	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
	Peat - Horizontal Fen	MS-13-H	WS13-H	WS13-H	-	0.57	0.35	0.42	0.31	<0.1	0.11	3.12
	Peat - Ribbed Fen	MS-13-R	WS13-R	WS13-R	0.40	0.95	0.25	<0.1	<0.1	0.13	<0.1	0.26
S-15	Peat - Domed Bog	MS-15-D	WS15-D	WS15-D	1.35	1.89	0.93	<0.1	<0.1	0.17	0.23	0.41
	Peat - Flat Bog	MS-15-F	WS15-F	WS15-F	2.66	2.55	0.30	0.35	1.92	<0.1	0.63	1.99
	Peat - Horizontal Fen	MS-15-H	WS15-H	WS15-H	0.99	0.90	0.22	<0.1	<0.1	0.10	0.13	0.37
	Peat - Ribbed Fen	MS-15-R	WS15-R	WS15-R	0.43	0.92	0.15	<0.1	<0.1	<0.1	0.2	0.22
S-V1	Peat - Domed Bog	MS-V(1)-D	-	NS-V-1D	1.96	0.60	0.18	0.53	0.49	0.14	0.17	0.43
	Peat - Ribbed Fen	MS-V(1)-R	-	NS-V-1R	see MS-2-R	see MS-2-R	see MS-2-R	see MS-2-R	see MS-2-R	see MS-2-R	see MS-2-R	see MS-2-R
S-V2	Peat - Domed Bog	MS-V(2)-D	-	SS-V-2D	1.97	1.16	0.24	0.45	0.52	1.19	0.55	-
	Peat - Ribbed Fen	MS-V(2)-R	-	SS-V(2)-R	0.59	0.60	0.13	0.85	<0.1	0.33	0.61	1.13
S-V3	Peat - Domed Bog	MS-V(3)-D	-	SS-V-3D	0.72	0.61	0.49	0.60	5.20	0.47	0.64	1.06
	Peat - Ribbed Fen	MS-V(3)-R	-	SS-V(3)-R	1.08	1.69	0.47	0.76	0.89	0.64	0.76	0.61

- : total mercury concentration not determined
MDLs have been adjusted for uniformity (0.1 ng/L for total mercury), as per Section 1.

TABLE 2b
MUSKEG MONITORING PROGRAM - ANNUAL MERCURY RESULTS FOR PEAT; METHYL MERCURY FILTERED (2007 - 2014)
(concentrations in ng/L)

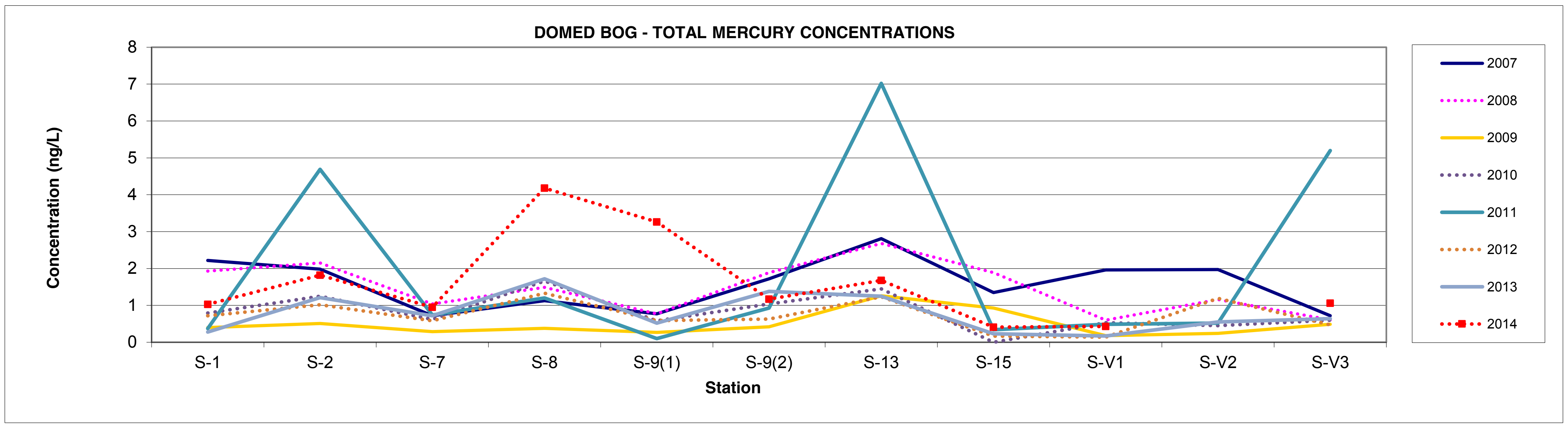
Cluster Location	Substrate / Condition	Well Name	GPS Code	Sample Code	Methyl Mercury (Filtered)							
					2007	2008	2009	2010	2011	2012	2013	2014
S-1	Peat - Domed Bog	MS-1-D	ES1D	ES1D	0.02	0.07	0.10	0.06	0.08	0.03	0.10	0.05
	Peat - Flat Bog	MS-1-F	ES1F	ES1F	<0.02	0.18	0.19	0.14	<0.02	0.06	0.10	0.09
	Peat - Horizontal Fen	MS-1-H	ES1H	ES1H	-	-	0.10	0.04	<0.02	0.10	0.04	<0.02
	Peat - Ribbed Fen	MS-1-R	ES1R	ES1R	0.02	0.07	0.06	0.06	0.05	<0.02	0.05	0.02
S-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
	Peat - Flat Bog	MS-2-F	ES2F	ES2F	<0.02	0.10	0.07	0.11	0.10	0.09	0.20	0.08
	Peat - Ribbed Fen	MS-2-R	ES2R	ES2R	<0.02	0.04	0.09	0.08	0.06	0.29	0.11	0.10
S-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
	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
	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
	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
S-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
	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
	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
	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
S-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
	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
	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
	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
S-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
	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
	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
	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
S-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
	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
	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
	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
S-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
	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
	Peat - Horizontal Fen	MS-15-H	WS15-H	WS15-H	-	<0.02	0.10	<0.02	0.02	<0.02	<0.02	<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
S-V1	Peat - Domed Bog	MS-V(1)-D	-	NS-V-1D	-	<0.02	0.02	0.02	0.03	<0.02	<0.02	<0.02
	Peat - Ribbed Fen	MS-V(1)-R	-	NS-V-1R	see MS-2-R	see MS-2-R	see MS-2-R	see MS-2-R	see MS-2-R	see MS-2-R	see MS-2-R	see MS-2-R
S-V2	Peat - Domed Bog	MS-V(2)-D	-	SS-V-2D	-	<0.02	0.02	0.05	0.07	0.03	0.05	-
	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
S-V3	Peat - Domed Bog	MS-V(3)-D	-	SS-V-3D	-	0.10	0.03	<0.02	0.07	<0.02	<0.02	0.03
	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

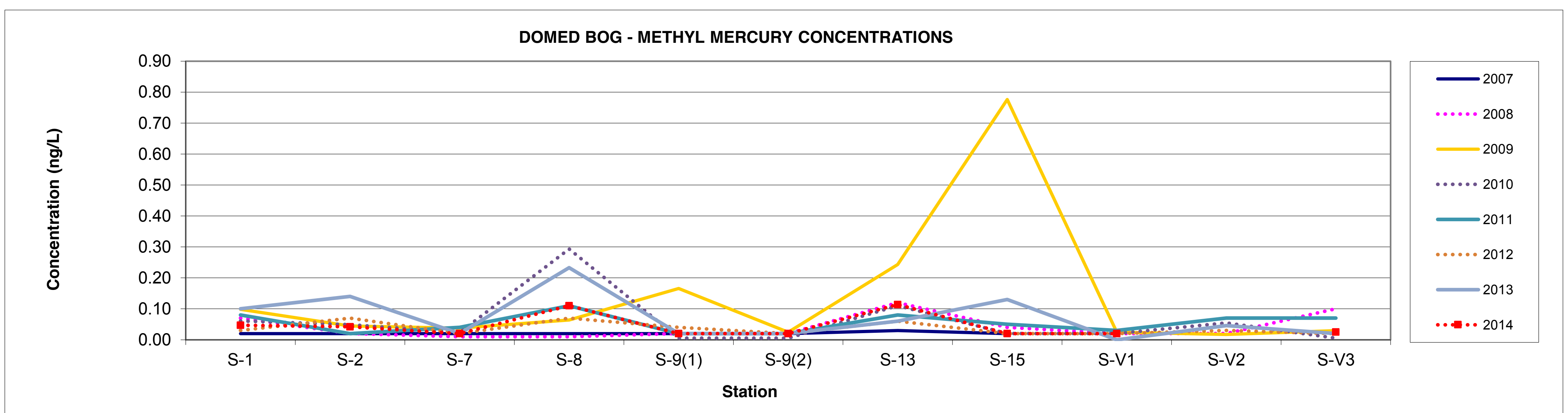
- : methyl mercury concentration not determined

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

TABLE 2c
MUSKEG PORE WATER - DOMED BOG 2007-2014 (Filtered)
(concentrations in ng/L)

Cluster Location	Total Mercury								Methyl Mercury							
	2007	2008	2009	2010	2011	2012	2013	2014	2007	2008	2009	2010	2011	2012	2013	2014
S-1	2.22	1.93	0.40	0.79	0.37	0.72	0.28	1.03	0.02	0.07	0.10	0.06	0.08	0.03	0.10	0.05
S-2	1.98	2.15	0.51	1.25	4.69	1.02	1.21	1.82	<0.02	0.02	0.04	0.05	<0.02	0.07	0.14	0.04
S-7	0.72	1.04	0.29	0.62	0.74	0.58	0.72	0.95	<0.02	0.01	0.04	0.02	0.04	0.02	<0.02	<0.02
S-8	1.13	1.49	0.38	1.66	1.2	1.33	1.72	4.18	<0.02	0.01	0.06	0.29	0.11	0.07	0.23	0.11
S-9(1)	0.77	0.77	0.27	0.58	<0.1	0.59	0.52	3.26	<0.02	<0.02	0.17	0.01	<0.02	0.04	<0.02	<0.02
S-9(2)	1.72	1.89	0.42	1.04	0.93	0.63	1.38	1.17	<0.02	0.02	0.02	0.01	<0.02	<0.02	<0.02	<0.02
S-13	2.81	2.68	1.26	1.45	7.02	1.23	1.25	1.68	0.03	0.12	0.24	0.11	0.08	0.06	0.06	0.11
S-15	1.35	1.89	0.93	<0.1	0.34	0.17	0.23	0.41	<0.02	0.04	0.78	0.02	0.05	<0.02	0.13	<0.02
S-V1	1.96	0.6	0.18	0.53	0.49	0.14	0.17	0.43		<0.02	0.02	0.02	0.03	<0.02	<0.02	<0.02
S-V2	1.97	1.16	0.24	0.45	0.52	1.19	0.55			<0.02	0.02	0.05	0.07	0.03	0.05	
S-V3	0.72	0.61	0.49	0.60	5.20	0.47	0.64	1.06		0.10	0.03	0.01	0.07	<0.02	<0.02	0.03

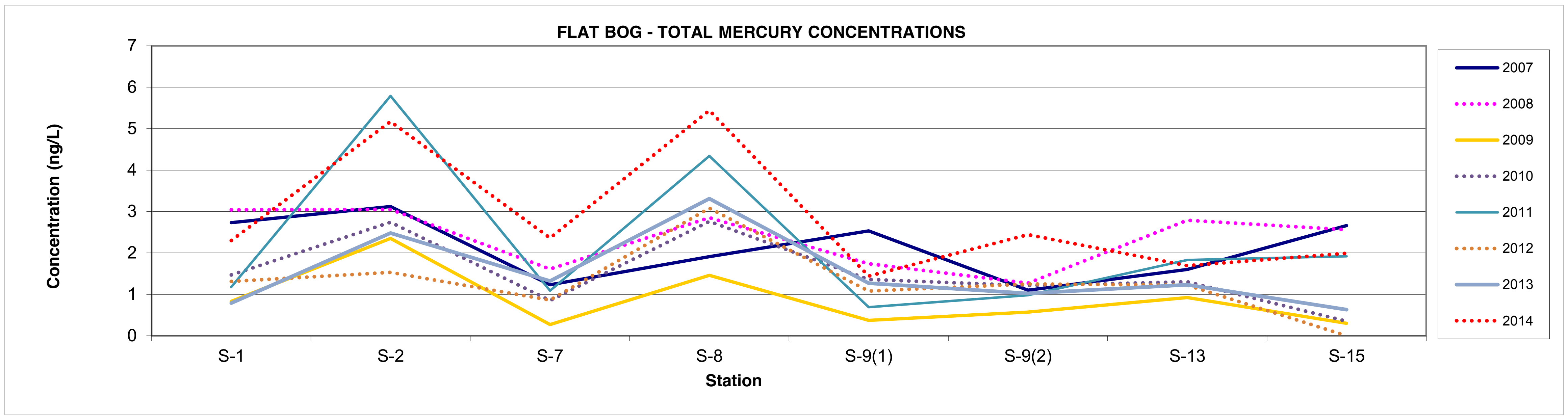


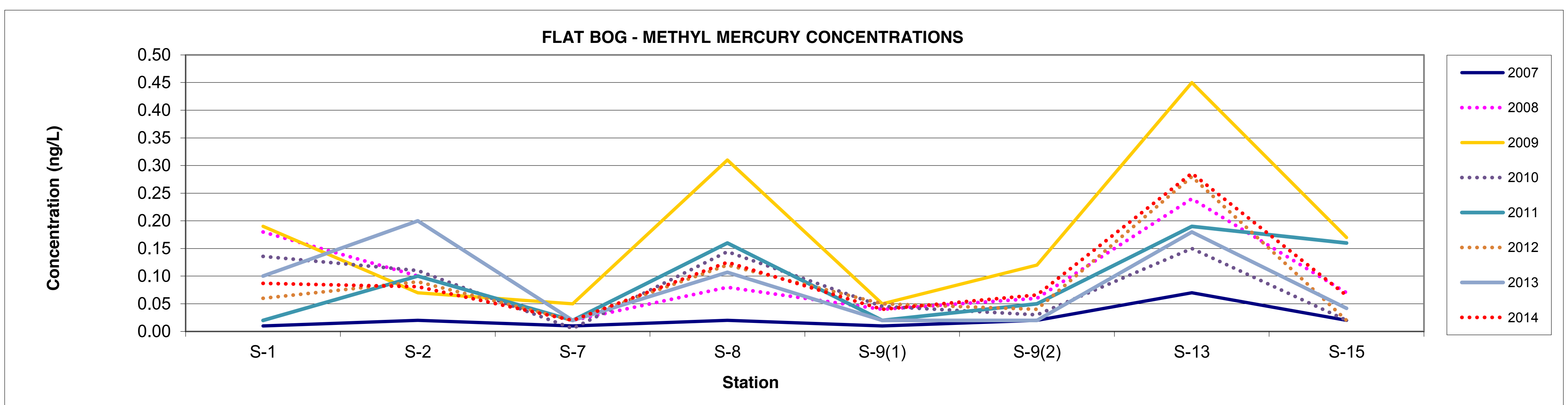


MDLs have been adjusted for uniformity (0.1 ng/L for total mercury and 0.02 ng/L for methyl mercury), as per Section 1.
Blank cells indicate concentration was not determined.

TABLE 2d
MUSKEG PORE WATER - FLAT BOG 2007-2014 (Filtered)
(concentrations in ng/L)

Cluster Location	Total Mercury								Methyl Mercury							
	2007	2008	2009	2010	2011	2012	2013	2014	2007	2008	2009	2010	2011	2012	2013	2014
S-1	2.73	3.04	0.83	1.47	1.18	1.31	0.79	2.3	0.01	0.18	0.19	0.14	<0.02	0.06	0.10	0.09
S-2	3.12	3.05	2.35	2.74	5.79	1.53	2.48	5.17	<0.02	0.10	0.07	0.11	0.10	0.09	0.20	0.08
S-7	1.23	1.61	0.27	0.85	1.09	0.86	1.32	2.36	0.01	<0.02	0.05	0.01	<0.02	<0.02	<0.02	<0.02
S-8	1.91	2.85	1.46	2.76	4.34	3.08	3.31	5.44	<0.02	0.08	0.31	0.14	0.16	0.12	0.11	0.13
S-9(1)	2.53	1.74	0.37	1.36	0.69	1.08	1.27	1.44	0.01	0.04	0.05	0.05	<0.02	0.05	<0.02	0.04
S-9(2)	1.10	1.27	0.57	1.21	0.98	1.25	1.02	2.44	<0.02	0.06	0.12	0.03	0.05	0.04	<0.02	0.07
S-13	1.60	2.79	0.92	1.30	1.83	1.22	1.23	1.69	0.07	0.24	0.45	0.15	0.19	0.28	0.18	0.29
S-15	2.66	2.56	0.30	0.35	1.92	<0.1	0.63	1.99	<0.02	0.07	0.17	<0.02	0.16	<0.02	0.04	0.07

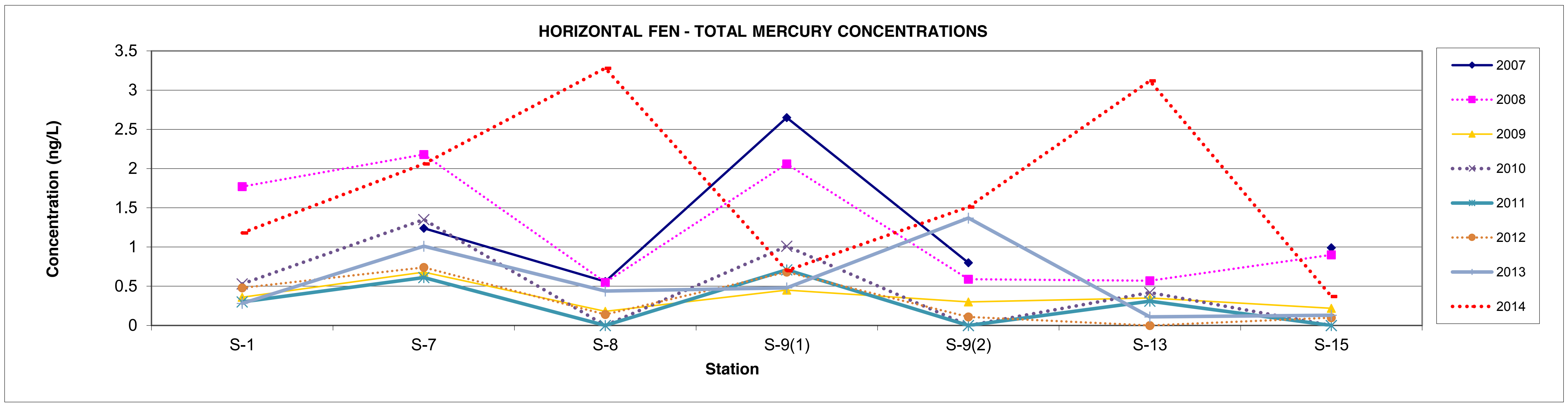


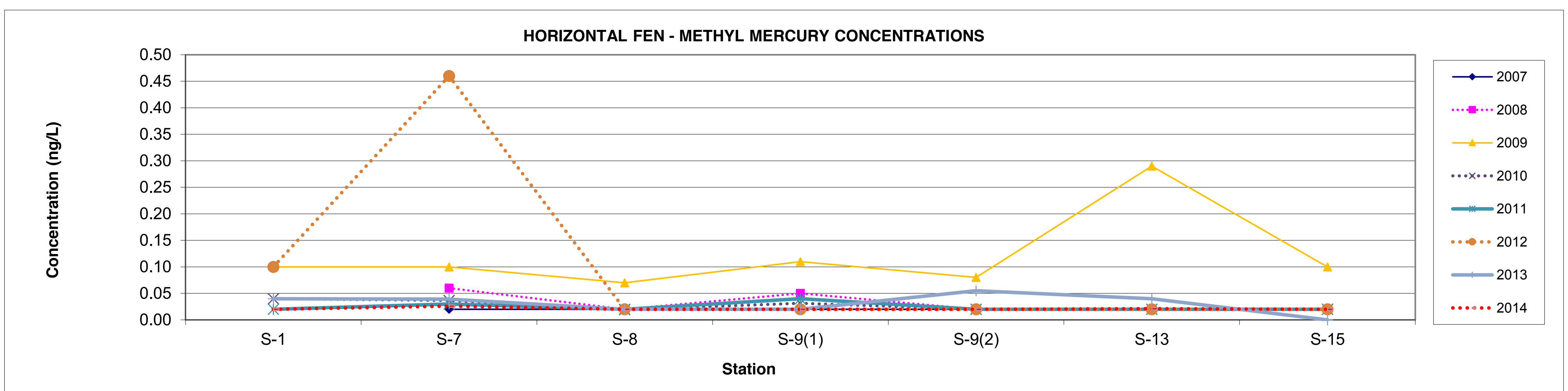


MDLs have been adjusted for uniformity (0.1 ng/L for total mercury and 0.02 ng/L for methyl mercury), as per Section 1.

TABLE 2e
MUSKEG PORE WATER - HORIZONTAL FEN 2007-2014 (Filtered)
(concentrations in ng/L)

Cluster Location	Total Mercury								Methyl Mercury							
	2007	2008	2009	2010	2011	2012	2013	2014	2007	2008	2009	2010	2011	2012	2013	2014
S-1		1.77	0.36	0.53	0.3	0.48	0.28	1.18			0.10	0.04	<0.02	0.10	0.04	<0.02
S-7	1.24	2.18	0.68	1.35	0.61	0.74	1.01	2.06	0.02	0.06	0.10	0.04	0.03	0.46	0.04	0.03
S-8	0.56	0.55	0.18	<0.1	<0.1	0.14	0.44	3.28	<0.02	<0.02	0.07	0.02	<0.02	<0.02	<0.02	<0.02
S-9(1)	2.65	2.06	0.45	1.01	0.71	0.68	0.48	0.7	0.02	0.05	0.11	0.03	0.04	0.02	<0.02	<0.02
S-9(2)	0.80	0.59	0.30	<0.1	<0.1	0.11	1.37	1.51	<0.02	<0.02	0.08	0.02	<0.02	<0.02	0.06	<0.02
S-13		0.57	0.35	0.42	0.31	<0.1	0.11	3.12	0.02	<0.02	0.29	<0.02	0.02	<0.02	0.04	0.02
S-15	0.99	0.90	0.22	<0.1	<0.1	0.10	0.13	0.37		<0.02	0.10	<0.02	0.02	<0.02	<0.02	<0.02

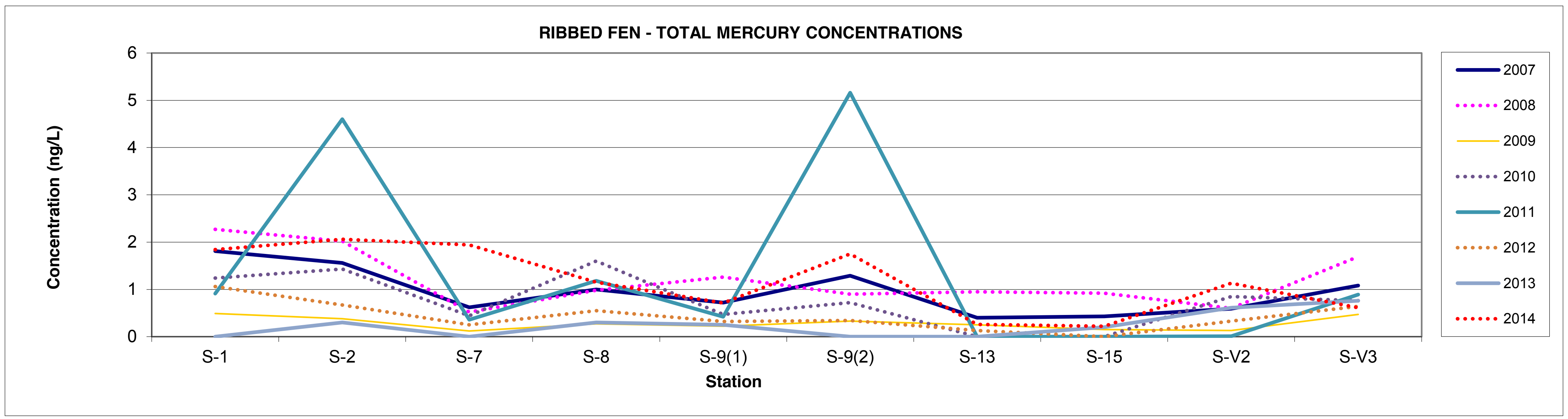


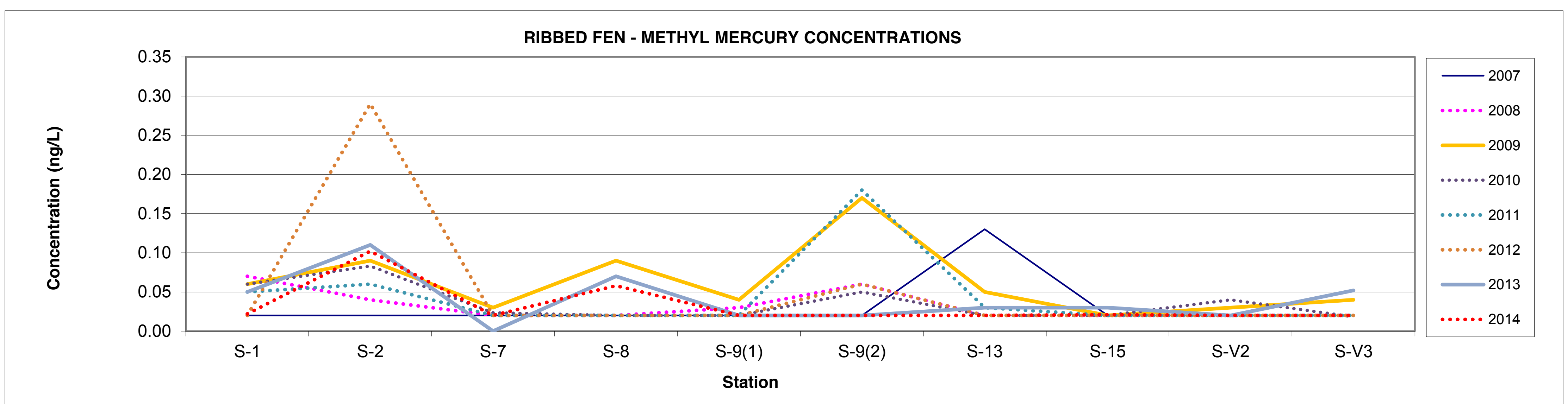


MDLs have been adjusted for uniformity (0.1 ng/L for total mercury and 0.02 ng/L for methyl mercury), as per Section 1.
Blank cells indicate concentration was not determined.

TABLE 2f
MUSKEG PORE WATER - RIBBED FEN 2007-2014 (Filtered)
(concentrations in ng/L)

Cluster Location	Total Mercury								Methyl Mercury							
	2007	2008	2009	2010	2011	2012	2013	2014	2007	2008	2009	2010	2011	2012	2013	2014
S-1	1.81	2.27	0.49	1.24	0.91	1.06	<0.1	1.84	0.02	0.07	0.06	0.06	0.05	<0.02	0.05	0.02
S-2	1.56	2.02	0.38	1.43	4.6	0.67	0.3	2.06	<0.02	0.04	0.09	0.08	0.06	0.29	0.11	0.10
S-7	0.62	0.52	0.12	0.44	0.36	0.25	<0.1	1.94	<0.02	<0.02	0.03	0.02	<0.02	<0.02	<0.02	<0.02
S-8	1.00	0.98	0.27	1.60	1.18	0.55	0.30	1.15	<0.02	<0.02	0.09	<0.02	0.02	<0.02	0.07	0.06
S-9(1)	0.72	1.26	0.22	0.47	0.42	0.32	0.25	0.71	0.02	0.03	0.04	0.02	0.02	<0.02	<0.02	<0.02
S-9(2)	1.29	0.90	0.33	0.72	5.16	0.34	<0.1	1.75	<0.02	0.06	0.17	0.05	0.18	0.06	0.02	<0.02
S-13	0.40	0.95	0.25	<0.1	<0.1	0.13	<0.1	0.26	0.13	<0.02	0.05	<0.02	0.03	<0.02	0.03	<0.02
S-15	0.43	0.92	0.15	<0.1	<0.1	<0.1	0.20	0.22	0.02	0.02	<0.02	0.02	<0.02	<0.02	0.03	0.02
S-V2	0.59	0.60	0.13	0.85	0.01	0.33	0.61	1.13		<0.02	0.03	0.04	<0.02	<0.02	<0.02	<0.02
S-V3	1.08	1.69	0.47	0.76	0.89	0.64	0.76	0.61		0.02	0.04	0.02	<0.02	<0.02	0.05	<0.02

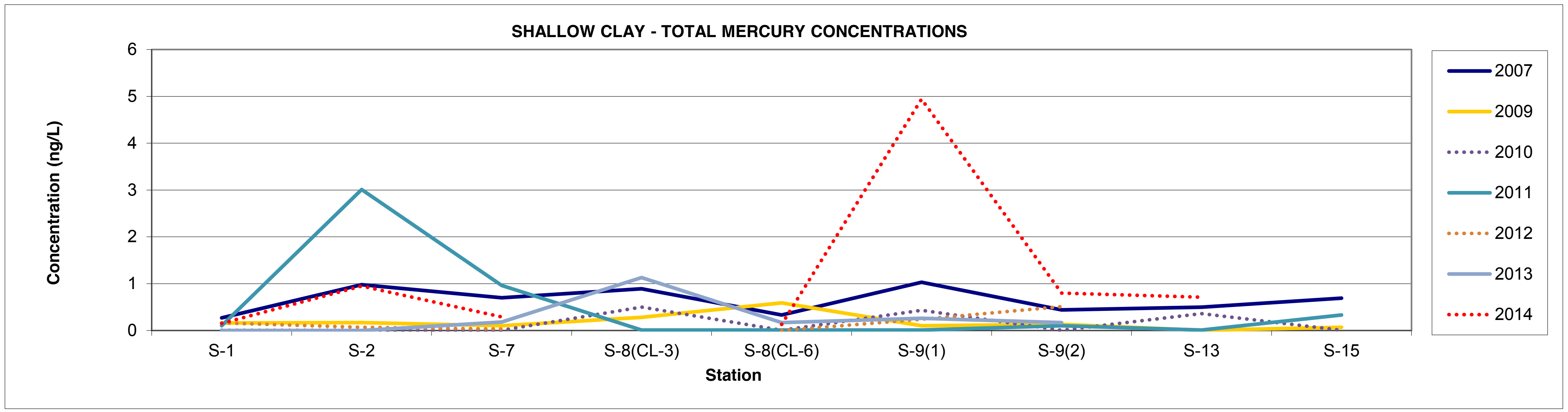


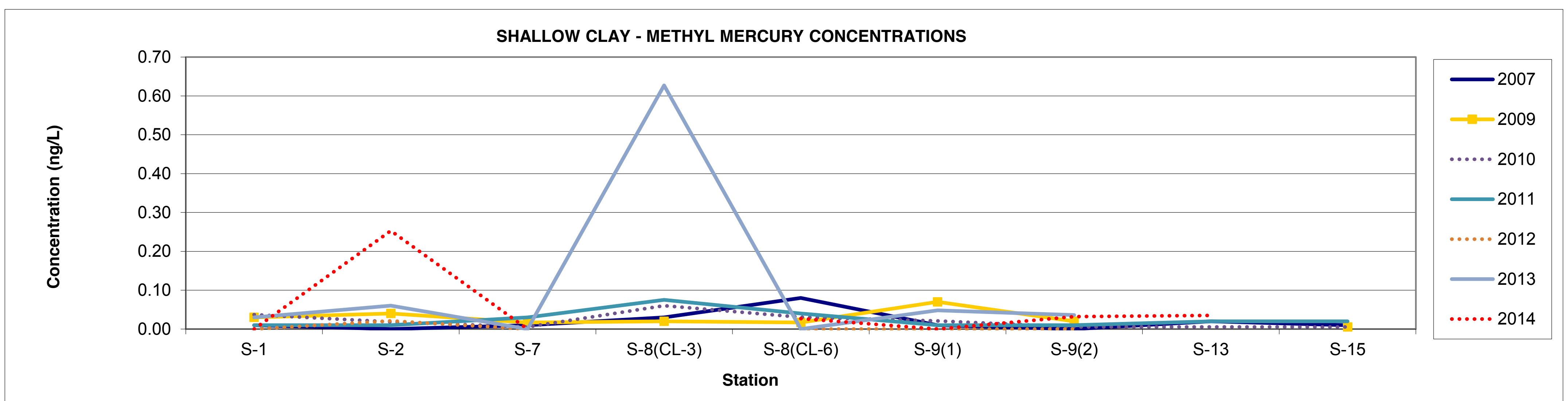


MDLs have been adjusted for uniformity (0.1 ng/L for total mercury and 0.02 ng/L for methyl mercury), as per Section 1.
Blank cells indicate concentration was not determined.

TABLE 2g
MINERAL HORIZON PORE WATER - SHALLOW CLAY 2007-2014 (Filtered)
(concentrations in ng/L)

Cluster Location	Total Mercury								Methyl Mercury							
	2007	2008	2009	2010	2011	2012	2013	2014	2007	2008	2009	2010	2011	2012	2013	2014
S-1	0.27		0.16	0.01	<0.1	0.16	<0.1	0.15	0.01		0.03	0.04	0.01	<0.02	0.03	<0.02
S-2	0.98		0.17	0.01	3.01	0.07	<0.1	0.95	<0.02		0.04	0.02	0.01	0.02	0.06	0.25
S-7	0.70		0.10	0.01	0.96	0.03	0.18	0.29	0.01		0.02	0.01	0.03	<0.02	<0.02	<0.02
S-8(CL-3)	0.89		0.28	0.50	0.01		1.13		0.03		0.02	0.06	0.08		0.63	
S-8(CL-6)	0.33		0.59	0.01	0.01	<0.1	0.17	0.13	0.08		0.02	0.03	0.04	<0.02	<0.02	0.03
S-9(1)	1.03		0.10	0.43	0.01	0.24	0.26	4.94	0.01		0.07	0.02	0.01	<0.02	0.05	<0.02
S-9(2)	0.44		0.13	0.01	<0.1	0.51	0.17	0.8	<0.02		0.02	0.01	0.01	<0.02	0.04	0.03
S-13	0.50		0.01	0.36	0.01			0.71	0.02			0.01	<0.02			0.04
S-15	0.69		0.07	0.01	0.33				0.01		0.01	0.01	<0.02			

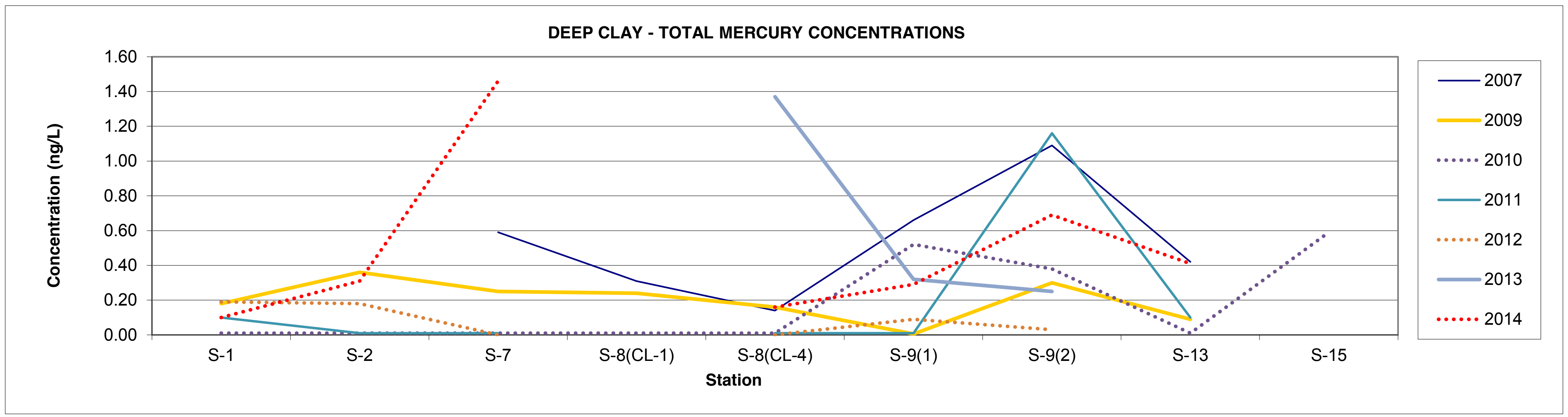


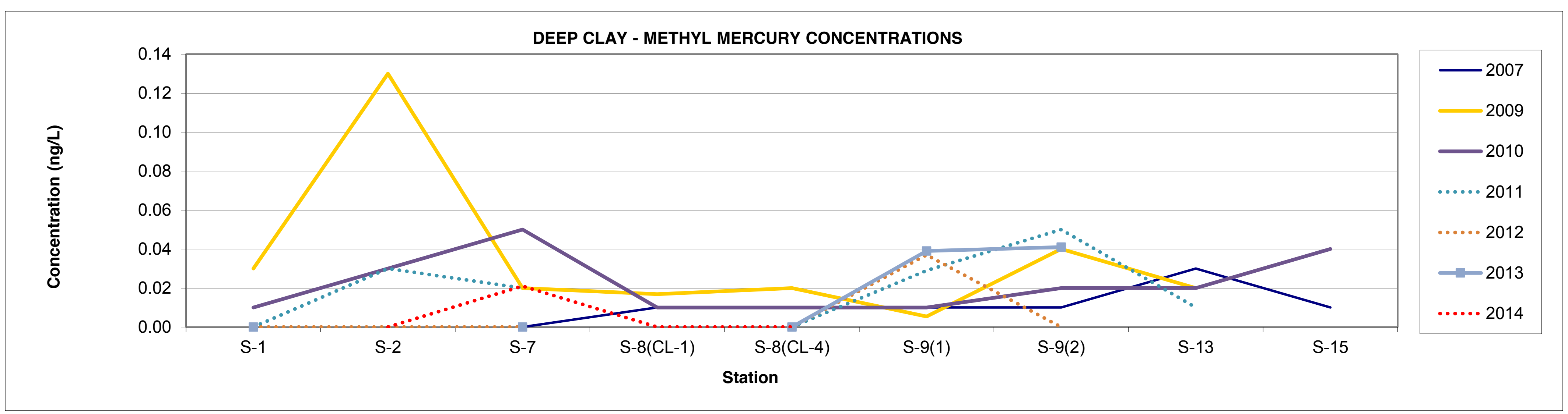


MDLs have been adjusted for uniformity (0.1 ng/L for total mercury and 0.02 ng/L for methyl mercury), as per Section 1.
Blank cells indicate concentration was not determined.

TABLE 2h
MINERAL HORIZON PORE WATER - DEEP CLAY 2007-2014 (Filtered)
(concentrations in ng/L)

Cluster Location	Total Mercury								Methyl Mercury							
	2007	2008	2009	2010	2011	2012	2013	2014	2007	2008	2009	2010	2011	2012	2013	2014
S-1	1.47		0.18	0.01	<0.1	0.19	<0.1	0.10			0.03	0.01	<0.02	<0.02	<0.02	<0.02
S-2			0.36	0.01	0.01	0.18		0.31			0.13	0.03	0.03	<0.02		0.03
S-7	0.59		0.25	0.01	0.01	<0.1	0.22	1.46	<0.02		0.02	0.05	<0.02	<0.02	<0.02	<0.02
S-8(CL-1)	0.31		0.24	0.01					0.01		0.02	0.01				
S-8(CL-4)	0.14		0.16	0.01	0.01	<0.1	1.37	0.16	0.01		0.02	0.01	<0.02	<0.02	<0.02	<0.02
S-9(1)	0.66		0.01	0.52	0.01	0.09	0.32	0.29	0.01		0.01	0.01	0.03	0.04	0.04	0.02
S-9(2)	1.09		0.30	0.38	1.16	0.03	0.25	0.69	0.01		0.04	0.02	0.05	<0.02	0.04	<0.02
S-13	0.42		0.09	0.01	<0.1			0.41	0.03		0.02	0.02	0.01			<0.02
S-15				0.59					0.01			0.04				



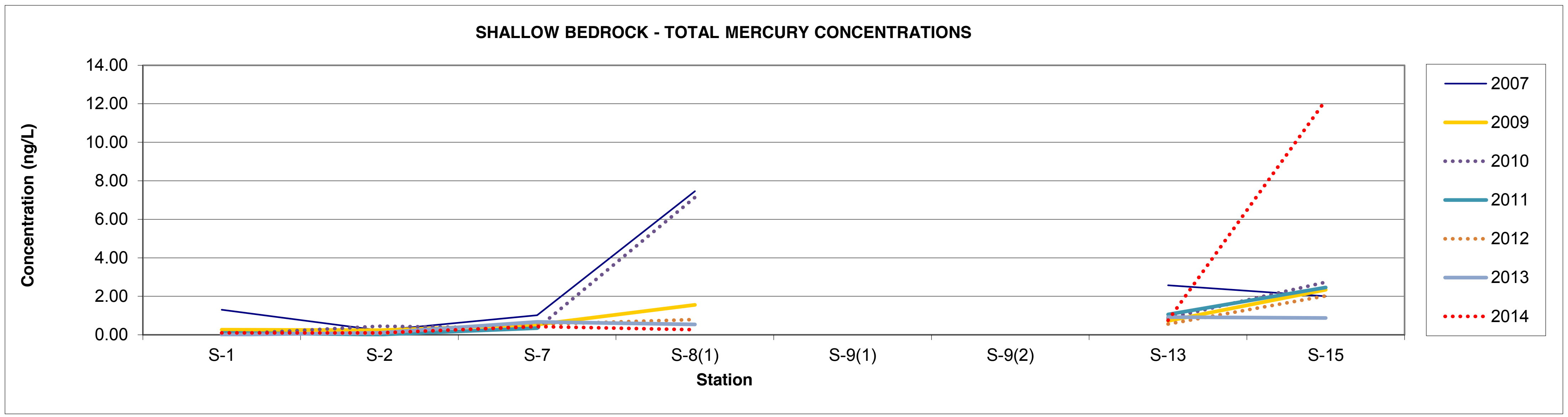


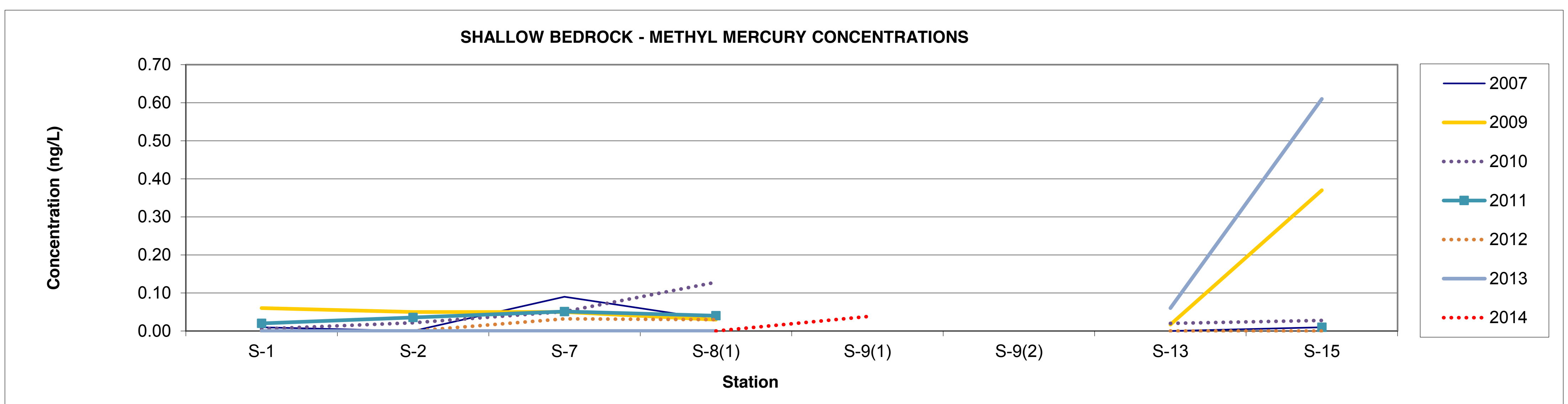
MDLs have been adjusted for uniformity (0.1 ng/L for total mercury and 0.02 ng/L for methyl mercury), as per Section 1.
Blank cells indicate concentration was not determined.

amec foster wheeler

TABLE 2i
MINERAL HORIZON PORE WATER - SHALLOW BEDROCK 2007-2014 (Filtered)
(concentrations in ng/L)

Cluster Location	Total Mercury								Methyl Mercury							
	2007	2008	2009	2010	2011	2012	2013	2014	2007	2008	2009	2010	2011	2012	2013	2014
S-1	1.30		0.27	0.01	<0.1	0.05	<0.1	<0.1	0.01		0.06	0.01	<0.02	<0.02	<0.02	<0.02
S-2	0.23		0.24	0.45	0.01	0.06	<0.1	<0.1	<0.02		0.05	0.02	0.04	<0.02	<0.02	<0.02
S-7	1.02		0.53	0.34	0.35	0.54	0.67	0.43	0.09		0.05	0.05	0.05	0.03	<0.02	0.05
S-8(1)	7.46		1.56	7.14		0.79	0.54	0.27	0.03		0.03	0.13	0.04	0.03	<0.02	0.03
S-9(1)																
S-9(2)																
S-13	2.57		0.72	0.87	1.06	0.56	0.92	0.75	<0.02		0.02	<0.02		<0.02	0.06	<0.02
S-15	2.00		2.34	2.74	2.46	2.02	0.88	12.19	0.01		0.37	0.03	0.01	<0.02	0.61	0.04





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.
Blank cells indicate concentration was not determined.

TABLE 3
TOTAL MERCURY - FENS (Unfiltered)
(concentrations in ng/L)

Date	Southwest Fen (SWF/F)	Northeast Fen (NEF/F)	Southeast Fen (SEF/F)	Northwest Control (HgCON)
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		1.20
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		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	1.4		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		
*Average 2009	5.03	2.31	1.87	2.42
*Average 2010	-	1.59	1.55	1.80
*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 All Years	3.62	1.99	2.72	2.75

F = Frozen (no sample)
ND: not determined (C. of A. #3374-6G7J2Y was revoked)
Southwest Fen - Receives effluent from central quarry (2006 only)
Northeast Fen - Receives effluent from plant site excavation, sewage treatment plant and pit sump
Southeast Fen - Control site
Northwest Control - Control site
*Annual average values are only for dates when control samples were collected
** Samples discarded due to lab miscommunicaton
Annual average values for 2011 and 2013 have been corrected to include only those values when control samples were collected.
MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1.
Blank cells indicate concentration was not determined.

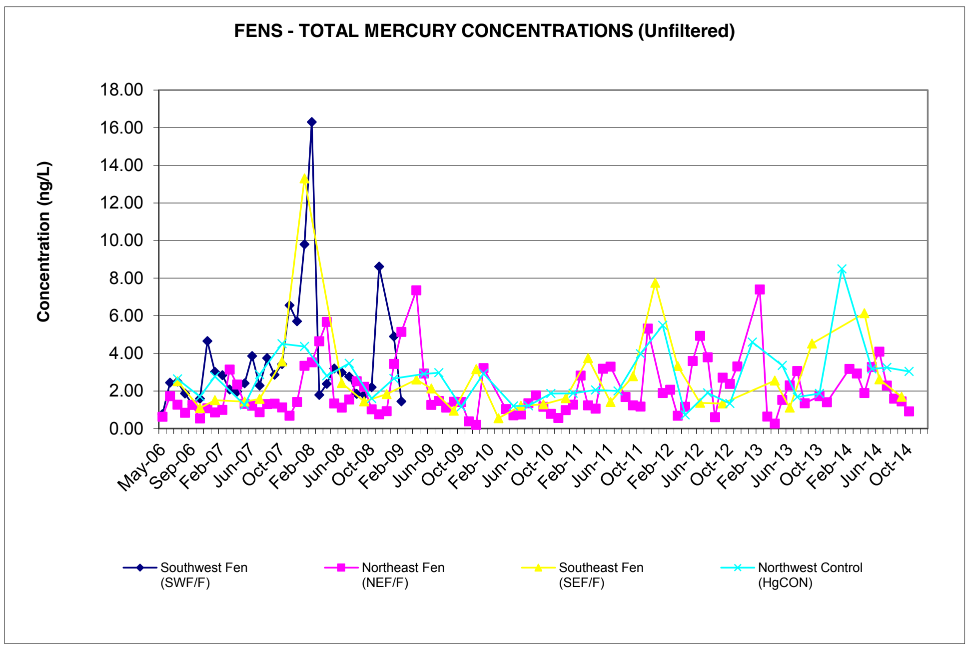


TABLE 4
TOTAL MERCURY - FENS (Filtered)
(concentrations in ng/L)

Date	Southwest Fen (SWF/F)	Northeast Fen (NEF/F)	Southeast Fen (SEF/F)	Northwest Control (HgCON)
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	0.08		
Jan-10	ND	1.40	1.93	2.21
Feb-10	ND			
Mar-10	ND			
Apr-10	ND	0.65		<0.1
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		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		2.08
Feb-14	ND			
Mar-14	ND			
Apr-14	ND	1.32		
May-14	ND	0.72	4.18	1.7
Jun-14	ND	1.19		
Jul-14	ND	2.1	1.69	2.13
Aug-14	ND	2.13		
Sep-14	ND	1.36		
Oct-14	ND	<0.1	1.34	2.79
Nov-14	ND	0.91		
Dec-14	ND	0.42		
*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 All Years	2.56	<1.26	1.51	<1.80

F = Frozen (no sample)
ND: not determined (C. of A. #3374-6G7J2Y was revoked)
Southwest Fen - Receives effluent from central quarry (2006 only)
Northeast Fen - Receives effluent from plant site excavation, sewage treatment plant and pit sump
Southeast Fen - Control site
Northwest Control - Control site
*Annual average values are only for dates when control samples were collected
** Samples discarded due to lab miscommunication
Annual average values for 2011 and 2013 have been corrected to include only those values when control samples were collected.
MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1.
Blank cells indicate concentration was not determined.

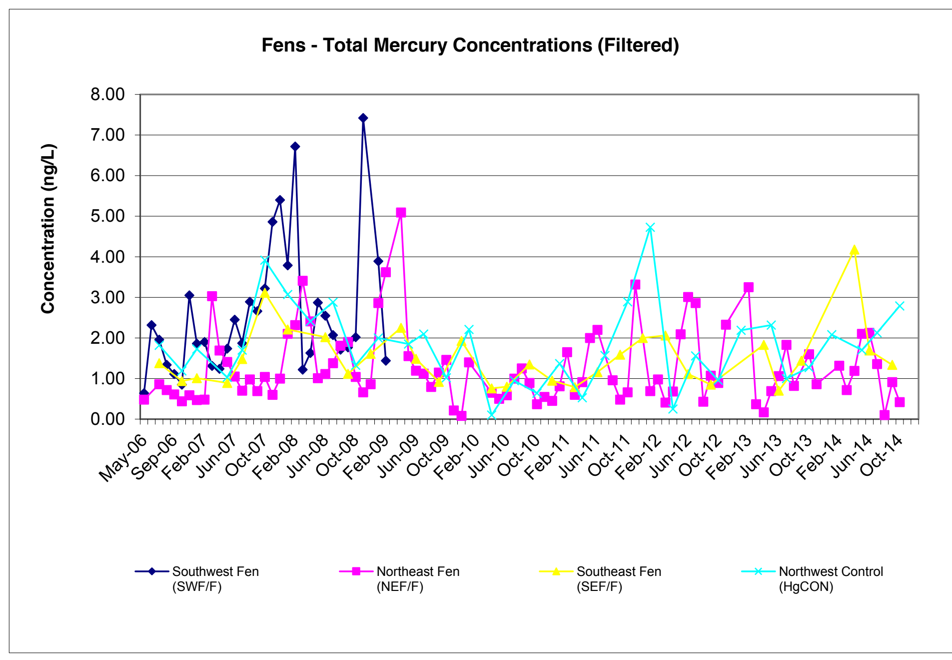


TABLE 5
METHYL MERCURY - FENS (Unfiltered)
(concentrations in ng/L)

Date	Southwest Fen (SWF/F)	Northeast Fen (NEF/F)	Southeast Fen (SEF/F)	Northwest Control (HgCON)
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		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		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
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 all Data	2.10	1.26	<0.12	0.13

F = Frozen (no sample)
ND: not determined (C. of A. #3374-6G7J2Y was revoked)
Southwest Fen - Received effluent from the Central Quarry
Northeast Fen - Receives effluent from plant site excavation, sewage treatment plant and pit sump
Southwest Fen - Control site
Northwest Control - Control site
CEQG for Protection of Aquatic Life; 4 ng/L (unfiltered)
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.
Blank cells indicate concentration was not determined.

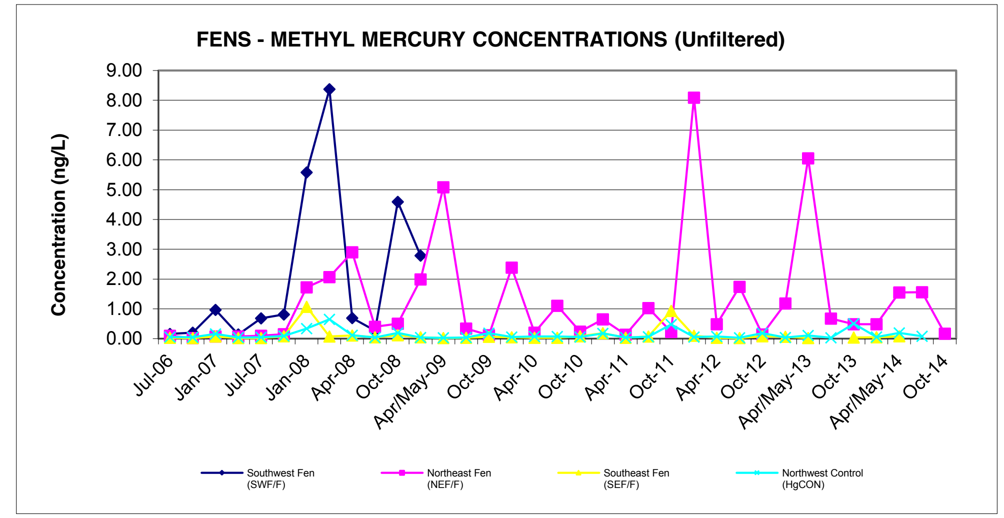


TABLE 6
METHYL MERCURY - FENS (Filtered)
(concentrations in ng/L)

Date	Southwest Fen (SWF/F)	Northeast Fen (NEF/F)	Southeast Fen (SEF/F)	Northwest Control (HgCON)
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		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		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
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 All Data	1.22	<0.73	<0.06	<0.08

F = Frozen (no sample)
ND: not determined (C. of A. #3374-6G7J2Y was revoked)
Southwest Fen - Received effluent from the Central Quarry
Northeast Fen - Receives effluent from plant site excavation, sewage treatment plant and pit sump
Southwest Fen - Control site
Northwest Control - Control site
CEQG for Protection of Aquatic Life; 4 ng/L (unfiltered)
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.
Blank cells indicate concentration was not determined.

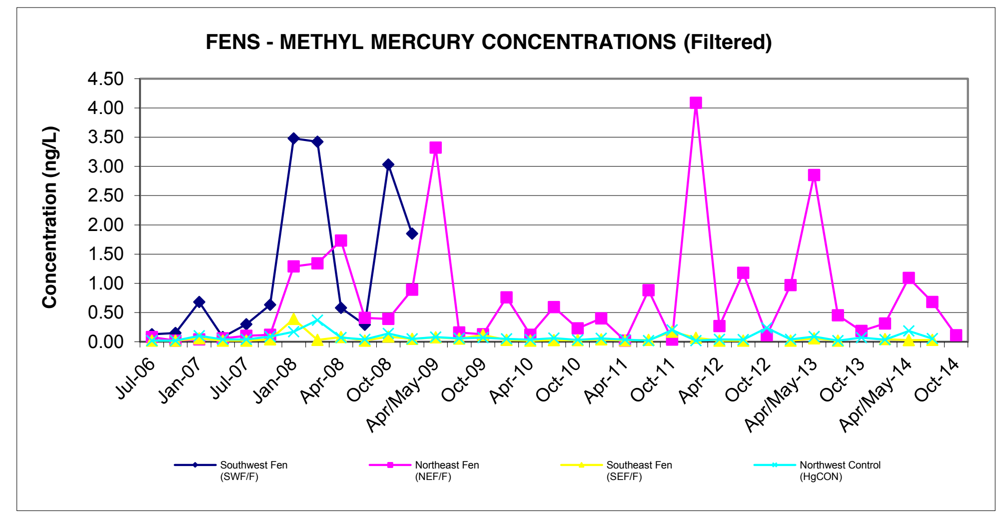


TABLE 7a
TOTAL MERCURY - RIBBED FEN SURFACE WATERS (Sampled as Peat Pore Water 2007-2014) (Filtered)
(concentrations in ng/L)

Date	MS-1-R (ES1-R)	MS-2-R (ES2-R)	MS-7-R (NS7-R)	MS-8-R (NS8-1R)	MS-9(1)-R (SS9-1R)	MS-9(2)-R (SS9-2R)	MS-13-R (WS13-R)	MS-15-R (WS15-R)	MS-V(1)-R (ES2-R)	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	<0.1	<0.1
Nov-07	1.67	2.30	0.82	1.36	1.11	1.01	1.70	1.11	2.30	<0.1	<0.1
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	<0.1	<0.1	2.45	1.17	<0.1	1.21	<0.1	<0.1	<0.1	F
May-10	1.86	1.75	0.74	1.32	1.32	1.40	0.93	2.68	1.75	0.83	2.06
Aug-10	1.24	1.43	0.44	1.60	0.47	0.72	<0.1	<0.1	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	0.4	0.40	1.7	0.4	1.00	0.60	0.8
Oct-13	1.64	1.01	0.52	1.12	1.2	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
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	1.05	<0.82	<1.32	<0.89	<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
Average All Years	1.91	<1.62	<1.32	1.68	1.33	<1.20	<2.30	<0.83	<1.62	<1.13	1.76

MS-2-R and MS-V(1)-R are the same stations
F = Frozen (no sample)
(orange) Stations located at or inside the Upper Bedrock 2 m drawdown contour
(green) 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.

TABLE 7b
METHYL MERCURY - RIBBED FEN SURFACE WATERS (Sampled as Peat Pore Water 2007-2014) (Filtered)
(concentrations in ng/L)

Date	MS-1-R (ES1-R)	MS-2-R (ES2-R)	MS-7-R (NS7-R)	MS-8-R (NS8-1R)	MS-9(1)-R (SS9-1R)	MS-9(2)-R (SS9-2R)	MS-13-R (WS13-R)	MS-15-R (WS15-R)	MS-V(1)-R (ES2-R)	MS-V(2)-R (SSV2-R)	MS-V(3)-R (SSV3-R)
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	0.02	0.07	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
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	<0.05	<0.03	<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
Average All Years	<0.06	<0.04	<0.03	<0.08	<0.04	<0.04	<0.10	<0.03	<0.04	<0.04	<0.05

MS-2-R and MS-V(1)-R are the same stations
F = Frozen (no sample)
(orange) Stations located at or inside the Upper Bedrock 2 m drawdown contour
(green) 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.

TABLE 8
MUSKEG SYSTEM RIBBED FEN GENERAL CHEMISTRY RESULTS - 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)
MS-1V-R (ES2-R)	2007	2	0.6	44	<0.1	16.7	6.06	<0.1	0.10	7.2	0.660	0.7	<0.8
	2008	3	0.6	37	<0.1	23.3	5.68	<0.1	0.21	4.6	1.132	0.3	<0.5
	2009	3	0.4	19	<0.1	10.0	6.43	<0.1	<0.01	3.4	0.320	0.4	<0.4
	2010	4	0.6	27	<0.1	22.2	5.84	<1.0	0.01	3.7	0.860	0.3	0.4
	2011	4	5.7	60	<0.1	23.7	6.41	7.5	0.03	5.0	1.292	0.8	3.2
	2012	3	0.5	26	<0.1	36.0	6.09	<1.0	0.01	3.2	1.064	0.4	0.4
	2013	1	4.6	126	<0.1	35.7	6.14	<1.0	0.07	8.5	1.380	0.7	1.1
	2014	1	2.1	36	<0.1	21.6	6.03	<1.0	0.01	4.4	0.853	0.4	1.3
MS-2V-R (SSV2-R)	2007	1	1.2	131	<0.1	29.0	6.18	0.2	1.81	24.4	1.910	1.6	0.8
	2008	2	0.9	91	<0.1	35.1	5.87	<0.1	0.06	11.6	0.557	0.5	0.7
	2009	3	0.4	19	<0.1	14.8	6.52	<0.1	<0.01	18.9	0.107	2.8	7.1
	2010	4	0.5	70	<0.1	18.7	6.93	<1.0	0.02	12.4	0.568	0.7	0.5
	2011	4	2.1	84	<0.1	18.9	7.53	<1.0	0.08	11.8	0.070	0.9	0.7
	2012	4	2.5	194	<0.1	38.3	7.28	<1.0	0.05	32.8	0.950	3.1	1.8
	2013	1	1.3	41	<0.1	53.6	6.63	<1.0	0.07	6.4	0.425	0.3	0.6
	2014	1	0.8	38	<0.1	42.5	5.58	<1.0	0.14	4.7	0.340	0.6	0.4
MS-3V-R (SSV3-R)	2007	1	1.8	141	<0.1	51.6	6.23	0.3	2.47	50.2	5.540	12.0	0.8
	2008	2	1.0	68	<0.1	59.2	5.75	<0.1	0.09	9.5	0.457	1.3	<0.5
	2009	3	0.3	18	<0.1	20.8	5.34	<0.1	<0.01	1.0	0.100	0.1	<0.5
	2010	3	0.3	20	<0.1	23.6	5.08	<1.0	0.01	1.8	0.161	0.2	0.2
	2011	4	0.5	37	<0.1	22.9	6.07	<1.0	0.01	3.6	0.108	0.5	0.4
	2012	4	2.3	75	<0.1	38.0	6.48	<1.0	0.04	11.1	0.318	1.4	0.7
	2013	2	1.0	63	<0.1	59.7	5.89	<1.0	0.32	8.9	0.394	1.8	0.2
	2014	1	0.6	48	<0.1	39.5	5.77	<1.0	0.08	6.0	0.361	1.1	0.2
MS-1R (ES1-R)	2007	2	0.6	98	<0.1	21.0	6.17	<0.1	0.20	11.3	0.340	0.8	1.5
	2008	3	0.8	47	<0.1	20.2	5.98	<0.1	0.13	5.5	0.340	0.4	1.2
	2009	3	0.5	26	<0.1	18.9	6.47	<0.1	<0.01	3.4	0.136	0.3	<0.6
	2010	4	0.4	34	<0.1	22.6	6.22	<1.0	0.01	5.6	0.499	0.4	0.8
	2011	4	0.7	43	<0.1	24.8	6.77	<1.0	0.01	5.7	0.317	0.5	1.1
	2012	4	2.3	82	<0.1	44.7	6.66	<1.0	0.01	13.1	2.578	1.3	2.1
	2013	1	0.9	249	<0.1	18.1	7.06	<1.0	0.03	43.0	1.310	2.5	8.4
	2014	1	2.0	69	<0.1	38.4	6.56	<1.0	0.06	11.9	0.799	0.9	1.8
MS-7R (NS-7-R)	2007	2	1.1	246	<0.1	28.7	6.33	<0.2	0.14	47.4	1.350	3.6	4.6
	2008	2	0.8	198	<0.1	14.9	6.40	<0.1	0.03	20.5	1.775	2.1	5.8
	2009	2	0.6	31	<0.1	13.6	7.14	<0.1	<0.01	2.6	0.165	0.3	0.9
	2010	4	0.6	76	<0.1	16.6	6.83	<1.0	0.01	11.2	1.966	1.1	1.5
	2011	4	0.6	67	<0.1	21.4	6.92	<1.0	0.01	9.9	2.187	0.7	1.5
	2012	4	2.5	78	<0.1	18.3	6.92	<1.0	0.07	10.1	0.892	1.2	1.9
	2013	1	1.2	154	<0.1	15.5	6.72	<1.0	0.03	18.1	1.310	1.8	4.6
	2014	1	0.9	148	<0.1	18.1	6.93	<1.0	0.04	15.1	1.870	2.5	4.3
MS-8R (NS-8-1R)	2007	2	85.8	591	<0.1	28.1	6.98	7.0	0.46	28.6	0.078	10.2	92.8
	2008	3	52.5	452	<0.1	33.2	7.13	<0.2	0.08	10.8	0.053	5.8	57.6
	2009	2	1.2	28	<0.1	16.4	6.81	<0.2	<0.01	1.9	0.119	0.5	2.3
	2010	4	4.2	82	<0.1	35.3	6.40	<1.0	0.02	8.4	0.993	1.4	7.2
	2011	4	4.6	80	0.16	30.5	6.95	<1.0	0.01	8.2	1.313	1.4	73.1
	2012	4	8.9	147	<0.1	72.1	7.00	1.25	0.03	15.3	7.257	3.0	11.4
	2013	1	3.9	230	<0.1	46.7	7.28	5.5	0.10	9.0	0.044	5.1	32.1
	2014	1	2.3	252	<0.1	31.4	7.92	23.7	0.07	13.3	0.264	9.7	26.1
MS-9(1)R (SS9-1R)	2007	2	0.5	199	<0.1	19.8	6.65	<0.3	0.22	38.5	0.245	1.0	1.4
	2008	3	0.4	77	<0.2	16.7	5.87	<0.1	0.02	9.8	0.241	0.7	<0.6
	2009	3	0.3	22	<0.1	14.6	6.56	<0.1	<0.02	2.5	0.670	0.2	<0.5
	2010	4	0.3	32	<0.1	19.4	6.14	<1.0	0.01	5.5	0.238	0.4	0.4
	2011	4	0.4	32	<0.1	18.0	6.73	<1.0	0.01	5.0	0.114	0.4	0.5
	2012	4	1.5	37	<0.1	20.9	6.57	<1.0	0.01	5.8	0.392	0.5	0.5
	2013	1	0.8	60	<0.1	20.3	6.40	<1.0	0.01	10.1	0.390	0.6	0.5
	2014	1	0.5	52	<0.1	18.0	6.29	<1.0	0.01	7.31	0.333	0.5	0.3
MS-9(2)R (SS9-2R)	2007	2	0.7	70	<0.1	17.8	6.28	<0.1	0.16	12.7	0.398	1.7	<1.1
	2008	2	0.4	79	<0.1	17.2	6.26	<0.1	0.05	10.4	0.847	1.1	1.4
	2009	3	0.5	30	<0.1	13.0	6.98	<0.1	<0.02	3.6	0.087	0.4	<0.5
	2010	4	0.7	58	<0.1	19.2	6.66	<1.0	0.03	10.1	0.881	1.1	0.7
	2011	4	0.7	70	<0.1	18.3	7.12	<1.0	0.01	10.5	1.618	1.0	1.1
	2012	4	0.8	60	<0.1	19.1	7.02	<1.0	0.01	8.9	1.278	1.2	1.3
	2013	1	0.9	184	<0.1	13.7	6.87	<1.0	0.05	19.2	0.850	2.1	2.6
	2014	1	<0.2	103	<0.1	13.0	6.81	<1.0	0.01	15.3	0.603	1.8	1.5
MS-13R (WS-13R)	2007	2	1.2	248	<0.1	20.9	6.25	<0.1	0.07	47.9	1.360	3.7	4.9
	2008	3	0.8	203	<0.1	67.0	5.91	<0.1	0.06	33.1	1.357	2.5	0.7
	2009	3	0.4	21	<0.1	22.9	4.53	<0.1	<0.01	0.7	0.067	0.1	<0.5
	2010	3	0.9	31	<0.1	26.0	4.34	<1.0	0.00	0.9	0.090	0.1	0.3
	2011	4	2.6	51.6	0.2	50.9	4.30	1.4	0.02	2.5	0.351	0.4	0.4
	2012	4	1.4	42.0	<0.1	66.2	4.75	1.0	0.01	2.4	0.458	0.3	0.4
	2013	1	2.0	98.9	<0.1	107.0	5.89	<1.0	0.03	20.4	1.050	1.2	0.5
	2014	1	0.9	160	<0.1	31.6	6.31	<1.0	0.03	14.7	1.120	1.4	0.6
MS-15R (WS15-R)	2007	2	0.8	172	<0.1	11.6	6.43	<0.1	0.04	36.8	0.769	2.6	1.3
	2008	3	0.7	191	<0.1	11.5	6.44	<0.1	0.04	24.0	0.666	1.9	1.0
	2009	3	0.4	50	<0.1	9.8	7.27	<0.1	<0.01	6.8	0.019	0.5	<0.5
	2010	4	0.7	86	<0.1	12.7	7.12	<1.0	0.00	15.7	0.344	1.3	0.6
	2011	4	0.5	86	<0.1	10.2	7.49	<1.0	0.01	12.9	0.499	1.0	0.7
	2012	4	0.7	98	<0.1	13.4	7.30	<1.0	0.01	15.5	0.263	1.3	0.9
	2013	1	0.9	163	<0.1	15.7	6.79	<1.0	0.33	25.7	0.530	2.2	1.0
	2014	1	0.7	174	<0.1	11.5	7.08	<1.0	0.04	21.0	1.200	2.3	1.1

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

(shaded) Beyond zone of dewatering influence

TABLE 9
TOTAL MERCURY - GRANNY CREEK (Unfiltered)
(concentrations in ng/L)

Date	N. Granny Creek Upstream (NGC/UP/NWF)	N. Granny Creek Downstream (NGC/DN/NEF)	S. Granny Creek Upstream (SGC/UP/SWF)	S. Granny Creek Downstream (SGC/DS/SWF)
May-06	1.18	1.66	0.86	1.26
Jun-06	3.55		3.37	3.16
Jul-06	2.92	2.80	2.72	3.08
Aug-06	4.21	3.77	2.57	2.6
Sep-06	2.37	2.26	2.28	2.74
Oct-06		1.61	1.34	1.30
Dec-06	2.53	4.58	2.23	2.08
Jan-07	2.02	2.35	16.20	4.52
Feb-07		2.02	3.57	3.16
Mar-07	7.17	F	F	7.43
Apr-07	8.82	5.87	3.72	3.76
May-07	3.01	3.02	2.46	2.08
Jun-07	3.34	2.99	2.49	3.04
Jul-07	3.16	2.23	2.73	2.03
Aug-07	3.10	1.94		2.17
Sep-07	1.96	2.04	4.41	1.61
Oct-07	5.91	5.67	5.16	3.79
Nov-07	3.19	3.00	2.74	2.49
Dec-07	2.42	2.60	2.67	2.61
Jan-08	2.95	2.42	2.97	2.94
Feb-08	2.19	2.29	3.76	2.91
Mar-08	0.46	2.66	3.06	3.35
Apr-08	11.90	F	2.19	2.91
May-08	3.54	3.73	3.37	3.42
Jun-08	3.06	3.08	2.55	2.81
Jul-08	3.28	1.61	3.60	2.68
Aug-08	2.71	2.69	2.63	2.38
Sep-08	1.76	2.32	1.94	2.78
Oct-08	1.37	1.57	2.14	1.83
Nov-08	3.20	2.39		1.81
Dec-08	1.82	1.83	1.84	1.88
Jan-09	1.41	1.54	4.42	1.64
Feb-09	1.18	1.34	2.22	1.52
Mar-09	1.48	2.26	2.56	1.45
Apr-09	3.19	1.41	2.19	2.98
May-09	5.18	3.81	3.31	3.82
Jun-09	2.95	2.72	2.65	2.76
Jul-09	3.62	3.48	2.70	2.69
Aug-09	2.07	2.08	2.06	2.05
Sep-09	1.45	1.82	1.47	1.39
Oct-09	1.47	1.38	1.40	1.05
Nov-09	1.70	1.79	3.65	0.98
Dec-09	1.11	1.02	1.08	0.96
Jan-10	1.46	1.03	0.94	1.89
Feb-10	1.49	1.36	1.89	2.03
Mar-10	1.64	1.78	2.14	1.84
Apr-10	1.56	2.05	1.68	1.90
May-10	1.99	1.80	1.90	2.13
Jun-10	0.93	0.97	0.83	0.78
Jul-10	0.92	1.04	0.70	1.28
Aug-10	3.90	3.15	3.06	3.37
Sep-10	2.44	2.71	2.21	2.00
Oct-10	1.46	1.81	1.59	1.55
Nov-10	1.94	2.10	1.82	1.86
Dec-10	1.50	1.62	1.59	1.67
Jan-11	1.31	1.24	1.50	1.46
Feb-11	1.77	1.64	1.70	1.42
Mar-11	1.56	1.36	2.55	1.11
Apr-11	0.92	1.04	2.40	1.38
May-11	3.58	3.75	2.98	3.53
Jun-11	2.99	2.65	2.34	2.36
Jul-11	1.51	2.03	2.08	2.00
Aug-11	1.81	1.92	2.42	2.28
**Sep-11				
Oct-11	4.36	4.11	3.67	3.57
Nov-11	3.12	3.45	3.00	2.72
Dec-11	1.82	2.05	2.32	1.97
Jan-12			2.33	1.56
Feb-12	0.78	0.81	2.06	0.95
Mar-12	0.78	1.15	29.4*	0.82
Apr-12			2.72	2.41
May-12	2.08	2.23	2.13	2.42
Jun-12	3.96	4.06	3.36	2.95
Jul-12	1.94	2.29	2.42	2.68
Aug-12	1.48	1.75	2.28	1.74
Sep-12	1.71	2.15	2.77	2.61
Oct-12			2.63	2.34
Nov-12		5.12	2.33	3.53
Dec-12	3.76	3.31	3.26	3.31
Jan-13			2.49	2.10
Feb-13	1.72	1.69	2.53	2.14
Mar-13	1.39	1.31	2.14	1.32
Apr-13	1.27	1.24	2.35	1.64
May-13	3.68	3.6	3.33	3.16
Jun-13	3.48	3.53	2.84	2.68
Jul-13	1.30	1.55	1.58	1.88
Aug-13	1.49	1.54	2.95	2.43
Sep-13	1.75	2.25	2.16	1.71
Oct-13	2.04	0.99	1.41	0.86
Nov-13	1.09	1.29	1.96	2.51
Dec-13	1.12	1.19	1.87	0.95
Jan-14	1.36	1.16	0.88	0.79
Feb-14	1.84	1.20	1.51	1.39
Mar-14	1.42	0.79	2.40	1.20
Apr-14	2.25	2.69	3.19	0.98
May-14	2.26	3.37	4.25	4.43
Jun-14	4.25	3.85	2.67	3.38
Jul-14	3.41	3.03	2.48	2.85
Aug-14	3.09	1.91	2.22	1.96
Sep-14	2.96	6.33	2.16	4.96
Oct-14	4.76	3.34	3.52	3.59
Nov-14	3.62	3.48	3.36	5.30
Dec-14		4.91		
Average 2009	2.23	2.06	2.48	1.94
Average 2010	1.77	1.79	1.70	1.86
Average 2011	2.25	2.29	2.45	2.16
Average 2012	2.06	2.54	2.57	2.28
Average 2013	1.85	1.83	2.30	1.95
Average 2014	2.84	3.01	2.60	2.80
Average All Data	2.55	2.39	2.61	2.35

* Samples excluded from annual average calculation
** Samples discarded due to lab miscommunication
F = Frozen (no sample)
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.
Blank cells indicate concentration was not determined.

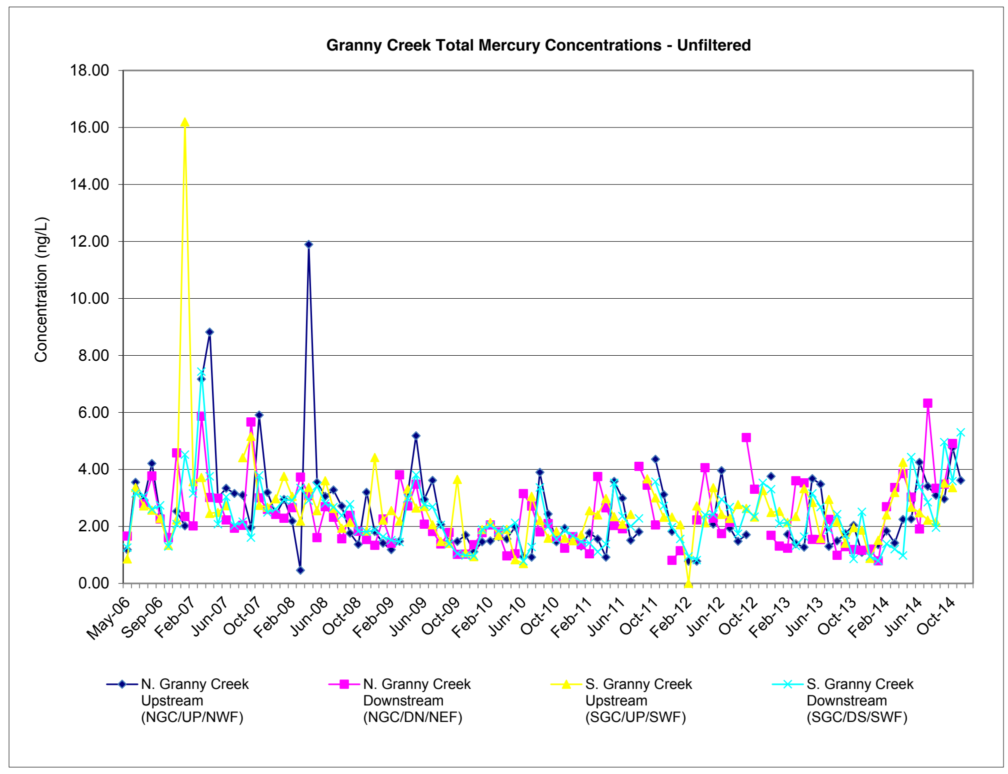


TABLE 10
TOTAL MERCURY - GRANNY CREEK (Filtered)
(concentrations in ng/L)

Date	N. Granny Creek Upstream (NGC/UP/NWF)	N. Granny Creek Downstream (NGC/DN/NEF)	S. Granny Creek Upstream (SGC/UP/SWF)	S. Granny Creek Downstream (SGC/DS/SWF)
May-06	0.87	0.90	0.55	0.90
Jun-06	2.91			2.83
Jul-06	2.33	2.22	2.07	1.94
Aug-06	3.43	3.03	2.07	1.94
Sep-06	1.64	1.70	1.34	2.11
Oct-06		1.30	1.11	0.97
Dec-06	1.98	3.98	1.92	1.58
Jan-07	1.06	1.40	2.01	3.37
Feb-07		0.75	0.79	1.90
Mar-07	7.05	F	F	2.92
Apr-07	4.19	2.50	1.96	1.84
May-07	2.40	2.56	2.40	1.83
Jun-07	2.51	2.64	2.26	1.79
Jul-07	2.96	2.10	2.32	2.01
Aug-07	1.52	1.81		1.70
Sep-07	1.96	1.75	3.87	1.49
Oct-07	5.19	5.60	4.76	3.42
Nov-07	2.91	2.74	2.45	2.16
Dec-07	2.05	2.18	2.35	2.61
Jan-08	1.42	1.63	2.21	2.33
Feb-08	1.91	1.60	2.24	2.08
Mar-08	1.76	1.63	1.76	1.98
Apr-08	1.84	F	1.63	2.06
May-08	3.16	3.21	2.90	2.97
Jun-08	2.74	2.72	2.29	2.36
Jul-08	2.95	1.49	2.84	2.32
Aug-08	2.39	2.34	2.23	2.06
Sep-08	1.35	1.88	1.62	1.60
Oct-08	1.19	1.40	1.88	1.27
Nov-08	2.28	2.15		1.73
Dec-08	1.30	1.65	1.77	1.71
Jan-09	1.33	1.27	2.05	1.34
Feb-09	1.15	1.05	1.68	1.19
Mar-09	1.15	1.40	1.75	1.22
Apr-09	1.56	1.09	1.34	1.78
May-09	2.43	2.34	1.98	2.19
Jun-09	3.24	3.19	2.75	2.71
Jul-09	2.57	2.93	2.20	1.96
Aug-09	1.66	1.69	1.80	1.59
Sep-09	1.54	1.63	1.39	1.39
Oct-09	1.45	1.38	1.01	1.08
Nov-09	1.51	1.45	2.01	0.80
Dec-09	0.97	0.68	0.95	0.75
Jan-10	1.07	1.11	1.29	1.31
Feb-10	0.88	1.05	1.37	1.32
Mar-10	0.96	1.02	1.11	1.23
Apr-10	0.97	1.10	1.14	1.07
May-10	1.43	1.11	1.54	1.45
Jun-10	1.47	0.87	0.68	0.60
Jul-10	0.89	0.65	0.50	0.70
Aug-10	3.33	2.10	2.72	2.25
Sep-10	1.66	1.57	1.69	1.48
Oct-10	1.38	0.54	1.71	1.61
Nov-10	1.59	1.63	1.61	1.54
Dec-10	0.98	0.92	1.08	0.95
Jan-11	0.82	0.81	1.07	1.02
Feb-11	1.30	1.44	1.65	1.02
Mar-11	0.94	0.70	0.75	0.69
Apr-11	0.69	0.73	0.77	0.76
May-11	2.24	1.95	1.85	1.83
Jun-11	2.94	2.45	2.13	2.16
Jul-11	1.19	1.85	1.72	1.16
Aug-11	0.73	0.84	1.09	1.10
* Sep-11				
Oct-11	2.96	2.36	2.71	2.30
Nov-11	2.53	2.40	2.45	1.95
Dec-11	1.05	1.20	1.67	1.21
Jan-12			1.68	0.99
Feb-12	0.46	0.38	1.03	0.49
Mar-12	0.42	0.34	0.41	0.38
Apr-12			1.84	1.44
May-12	1.66	1.56	1.58	1.52
Jun-12	3.47	3.16	2.63	2.28
Jul-12	1.54	1.60	1.57	1.61
Aug-12	0.86	0.98	1.30	1.02
Sep-12	1.13	1.46	2.09	2.09
Oct-12			2.13	1.48
Nov-12		3.10	1.94	1.81
Dec-12	1.59	1.88	1.67	1.49
Jan-13			1.50	1.10
Feb-13	1.27	1.13	1.56	1.29
Mar-13	0.86	0.79	1.08	0.81
Apr-13	0.82	0.82	0.70	0.82
May-13	3.25	2.86	2.05	2.59
Jun-13	2.86	2.72	2.58	2.20
Jul-13	0.80	0.90	1.00	1.20
Aug-13	0.79	0.82	0.73	1.09
Sep-13	1.27	1.69	1.10	1.37
Oct-13	0.83	0.91	0.69	0.85
Nov-13	0.76	0.71	1.00	0.10
Dec-13	0.72	0.56	0.63	0.72
Jan-14	0.68	0.63	0.59	0.64
Feb-14	0.82	0.8	0.78	0.85
Mar-14	0.70	0.58	0.31	0.65
Apr-14	0.90	0.46	0.44	0.70
May-14	2.19	1.21	3.27	2.76
Jun-14	3.54	3.12	2.51	2.81
Jul-14	1.94	2.07	1.47	1.99
Aug-14	0.99	0.87	1.13	0.75
Sep-14	1.61	2.16	1.49	1.65
Oct-14	4.04	2.67	3.27	3.19
Nov-14	2.84	2.73	2.68	1.87
Dec-14		2.02		
Average 2009	1.71	1.68	1.74	1.50
Average 2010	1.38	1.14	1.37	1.29
Average 2011	1.58	1.52	1.62	1.38
Average 2012	1.39	1.61	1.66	1.38
Average 2013	1.29	1.26	1.22	1.18
Average 2014	1.84	1.61	1.63	1.62
Average All Data	1.82	1.67	1.70	1.59

* Samples discarded due to lab miscommunication
F = Frozen (no sample)
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.
Blank cells indicate concentration was not determined.

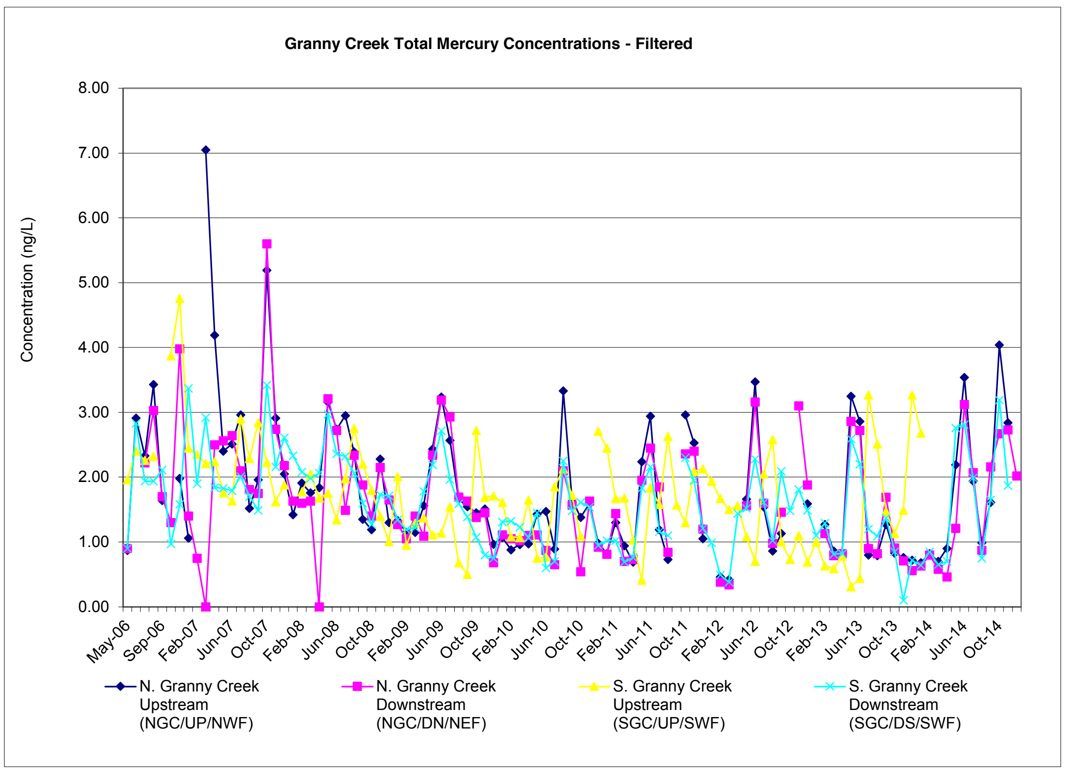


TABLE 11
METHYL MERCURY - SOUTH GRANNY CREEK
(concentrations in ng/L)

Date	Upstream SGC/UP/SWF		Downstream SGC/DS/SWF	
	US Unfiltered	US Filtered	DS Unfiltered	DS Filtered
Jul-06	0.06	0.05	0.04	0.02
Oct-06	0.03	0.03	0.11	0.08
Jan-07	0.10	0.08	0.13	0.10
May-07	0.04	0.04	0.06	0.06
Jul-07	0.05	0.05	0.05	0.04
Oct-07	0.05	0.04	0.07	0.05
Feb-08	0.17	0.10	0.11	0.07
Apr-08	0.06	0.04	0.15	0.09
Jul-08	0.06	0.04	0.07	0.06
Oct-08	0.02	0.02	0.04	0.03
Jan-09	<0.02	0.06	0.06	0.04
Apr-09	0.08	0.02	0.06	0.02
Jul-09	<0.02	0.04	0.05	0.05
Oct-09	0.02	0.05	<0.02	0.02
Jan-10	0.06	0.04	0.07	0.02
Apr-10	0.05	0.04	0.08	0.05
Jul-10	0.06	0.02	0.08	0.06
Oct-10	0.04	0.04	0.07	0.07
Jan-11	0.03	0.03	0.17	0.11
Apr-11	0.09	0.04	<0.02	<0.02
Jul-11	0.05	0.05	0.14	0.11
Oct-11	0.04	<0.02	0.23	0.08
Jan-12	0.25	0.10	0.07	0.04
Apr-12	0.08	0.03	0.07	0.07
Jul-12	0.07	0.05	0.17	0.12
Oct-12	0.03	0.03	0.09	0.08
Jan-13	0.06	0.04	0.08	0.06
Apr-13	0.09	0.03	0.10	0.08
Jul-13	0.08	0.05	0.49	0.33
Oct-13	0.06	0.05	0.25	0.16
Jan-14	0.11	0.08	0.06	<0.02
Apr-14	0.08	<0.02	0.03	<0.02
Jul-14	0.19	0.15	0.06	0.05
Oct-14	0.14	0.07	0.04	0.03
2009 Average	<0.03	0.04	<0.05	0.03
2010 Average	0.05	0.04	0.08	0.05
2011 Average	0.05	<0.03	<0.14	<0.08
2012 Average	0.11	0.05	0.10	0.08
2013 Average	0.07	0.04	0.23	0.16
2014 Average	0.13	<0.08	0.05	<0.03
Average All Years	<0.07	<0.05	<0.10	<0.07

CEQG for Protection of Aquatic Life; 4 ng/L (unfiltered)
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.

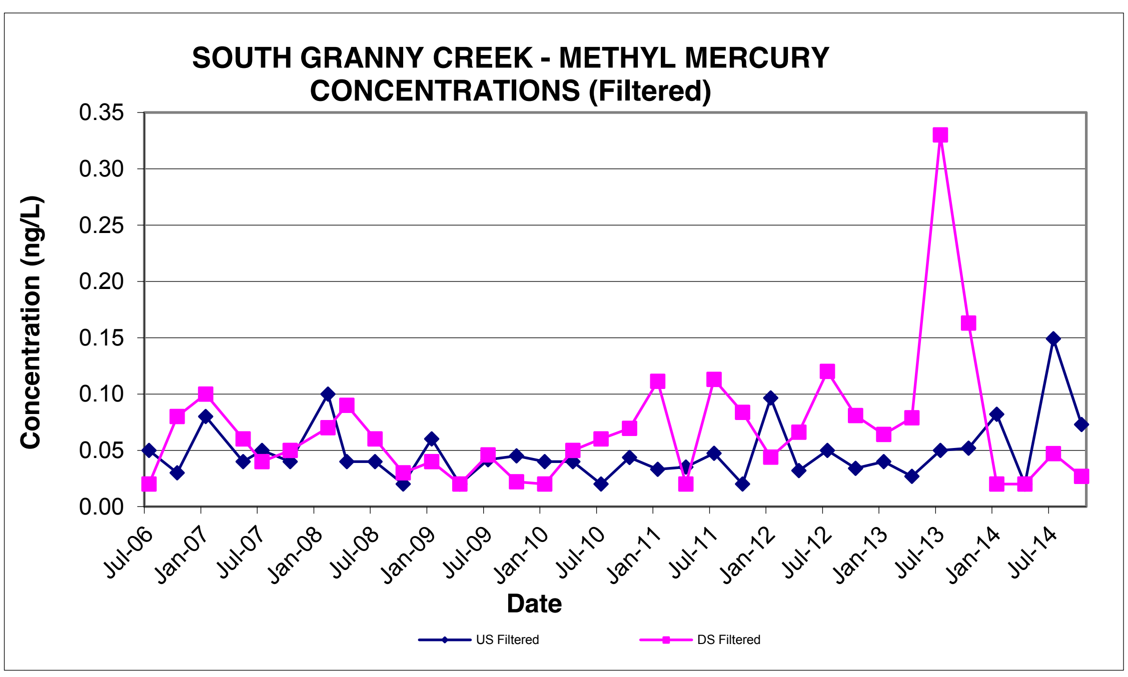


TABLE 12
METHYL MERCURY - NORTH GRANNY CREEK
(concentrations in ng/L)

Date	Upstream NGC/UP/NWF		Downstream NGC/DN/NEF	
	US Unfiltered	US Filtered	DS Unfiltered	DS Filtered
Jul-06	0.11	0.05	0.10	0.08
Oct-06	<0.02	<0.02	0.13	0.14
Jan-07	0.12	0.08	0.18	0.13
May-07	0.07	0.06	0.09	0.09
Jul-07	0.09	0.06	0.10	0.10
Oct-07	0.09	0.09	0.10	0.07
Jan-08	<0.02	<0.02	0.26	0.15
Feb-08	0.09	0.06	<0.02	<0.02
Mar-08	<0.02	<0.02	0.29	0.17
Apr-08	0.44	0.08	0.13	0.05
Jul-08	0.09	0.09	0.52	0.49
Oct-08	0.04	0.05	0.11	0.11
Jan-09	0.04	0.03	0.08	0.06
Apr-09	0.04	0.02	<0.02	<0.02
Jul-09	0.06	0.06	0.02	0.12
Oct-09	<0.02	0.04	0.07	0.04
Jan-10	0.19	0.05	0.11	0.04
Apr-10	0.06	0.03	0.10	0.05
Jul-10	0.06	0.05	0.19	0.10
Oct-10	0.07	0.05	0.16	0.13
Jan-11	0.07	0.03	0.09	<0.02
Apr-11	<0.02	<0.02	0.06	0.03
May-11	0.05	0.04		
Jun-11	0.07	<0.02		
Jul-11	0.06	0.04	0.35	0.39
Aug-11	0.10	0.09	0.53	0.21
Oct-11	<0.02	<0.02		0.18
Nov-11	0.11	0.07		
Dec-11	0.08	0.05		
Jan-12			0.18	0.06
Feb-12	0.03	<0.02	0.07	0.02
Mar-12	0.03	<0.02	0.04	<0.02
Apr-12			0.22	0.15
May-12	0.05	0.04	0.11	0.09
Jun-12	0.05	0.04	0.12	0.10
Jul-12	0.06	0.05	0.24	0.18
Aug-12	0.02	<0.02		
Sep-12	0.07	0.04		
Oct-12			0.19	0.16
Dec-12	0.12	0.05		
Jan-13				
Feb-13	0.04	0.04	0.09	0.08
Mar-13	0.04	0.03	0.09	0.06
Apr-13	0.11	0.04	0.14	0.10
May-13	0.06	<0.02		
Jun-13	0.06	0.05		
Jul-13	0.07	0.03	0.30	0.22
Aug-13	0.08	0.07	0.52	0.37
Sep-13	0.14	0.09	0.43	0.05
Oct-13	0.22	0.06	0.30	0.25
Nov-13	0.05	<0.02	0.16	0.11
Dec-13	0.03	0.02	0.14	0.09
Jan-14	<0.02	<0.02	0.11	0.05
Feb-14	0.05	<0.02	0.05	0.04
Mar-14	0.05	0.03	0.08	0.06
Apr-14	0.15	<0.02	0.05	0.03
May-14	0.10	0.03	0.26	0.09
Jun-14	0.08	0.07	0.18	0.17
Jul-14	0.17	0.12	0.31	0.27
Aug-14	0.32	0.16	0.24	0.17
Sep-14	0.50	0.31	0.41	0.28
Oct-14	0.14	0.12	0.18	0.13
Nov-14	0.08	0.08	0.15	0.12
Dec-14			0.13	0.10
2009 Average	<0.04	0.04	<0.05	<0.06
2010 Average	0.09	0.04	0.14	0.08
2011 Average	<0.06	<0.04	0.26	<0.17
2012 Average	0.05	<0.03	0.14	<0.10
2013 Average	0.08	<0.04	0.24	0.15
2014 Average	<0.15	<0.09	0.18	0.12
Average All Years	<0.09	<0.05	<0.18	<0.12

CEQG for Protection of Aquatic Life; 4 ng/L (unfiltered)
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.
Blank cells indicate concentration was not determined.

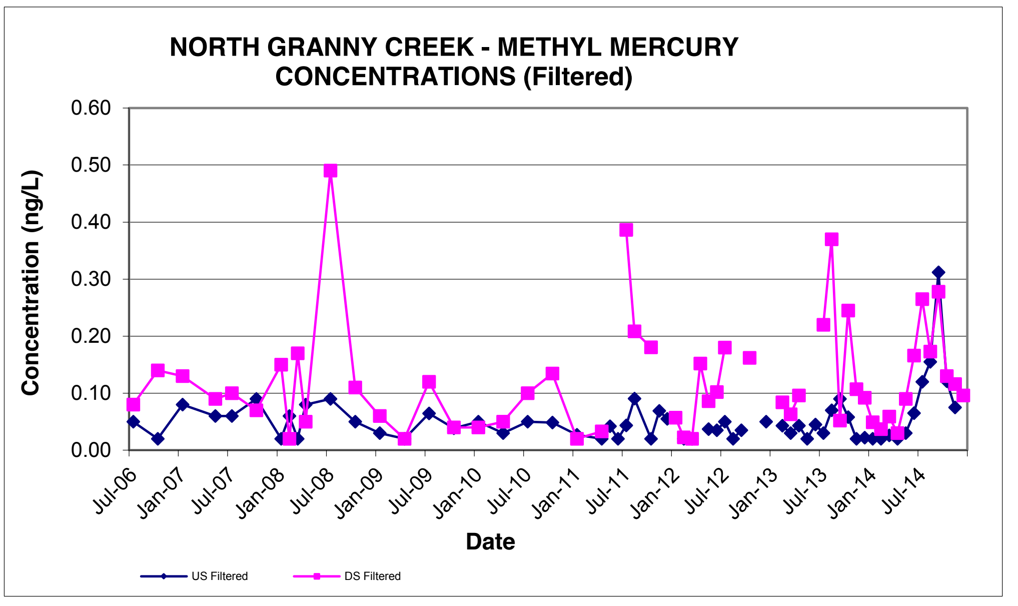


TABLE 13a
TOTAL MERCURY - NAYSHKOOTAYAOW AND ATTAWAPISKAT RIVERS (Unfiltered)
(concentrations in ng/L)

Date	Nayshkootayaow River Upstream (Naysh Riv up)	Nayshkootayaow River Middle (Naysh Riv dn)	Nayshkootayaow River Downstream (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	1.48	1.47	5.33	0.81	8.75	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	-	1.39	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	-	-	-	-	-	1.67	-	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	-	-	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-	-	-
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	-	0.97	-
Dec-13	-	-	-	-	-	0.82	-	0.82	-
Jan-14	-	0.30	0.63	<0.1	0.31	0.81	-	0.43	0.55
Feb-14	-	-	-	-	-	1.10	-	1.35	-
Mar-14	0.69	-	-	-	-	0.87	-	1.09	-
Apr-14	0.98	0.81	1.32	0.52	0.82	1.42	-	2.05	2.38
May-14	-	-	-	-	-	4.02	-	6.34	-
Jun-14	-	-	-	-	-	2.69	-	2.80	-
Jul-14	1.71	1.81	2.07	1.74	2.54	2.59	-	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	-	1.85	-
Dec-14	-	-	-	-	-	1.59	-	-	-
Average 2009	**2.56**	**1.37**	**1.82**	**1.42**	**1.98**	**1.96**	**-**	**1.96**	**1.85**
Average 2010	**1.62**	**1.44**	**1.52**	**1.26**	**1.76**	**1.67**	**-**	**1.59**	**1.61**
Average 2011	**1.15**	**1.38**	**1.51**	**1.64**	**1.04**	**2.12**	**-**	**1.70**	**1.30**
Average 2012	**1.89**	**1.68**	**1.80**	**2.11**	**1.66**	**1.73**	**-**	**1.73**	**1.56**
Average 2013	**1.17**	**2.36**	**1.05**	**2.15**	**1.37**	**1.78**	**1.33**	**1.56**	**1.14**
Average 2014	**1.41**	**1.42**	**1.91**	**<1.15**	**2.12**	**1.99**	**2.14**	**2.14**	**2.26**
Average All Years	**1.76**	**1.75**	**1.85**	**<1.67**	**2.03**	**1.90**	**1.68**	**1.93**	**1.73**

- : total mercury concentration not determined
CEQG for Protection of Aquatic Life; 26 ng/L
Sampling locations and frequency governed by Amended C. of A. #3960-7Q4K2G.
Bracketed sampling notations are field identifications.
* Samples discarded as a result of lab miscommunication.
MDLs have been adjusted for all years for uniformity (0.1 ng/L for total mercury), as per Section 1.

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TABLE 13b
TOTAL MERCURY - NAYSHKOOTAYAOW AND ATTAWAPISKAT RIVERS (Filtered)
(concentrations in ng/L)

Date	Nayshkootayaow River Upstream (Naysh Riv up)	Nayshkootayaow River Middle (Naysh Riv dn)	Nayshkootayaow River Downstream (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	2.62	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	-	-	-	-	-	1.04	-	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	-	-	-	-	-	1.28	-	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	-	-	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-	-	-
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	-	-	-	-	-	1.61	-	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	-	0.71	-
Dec-13	-	-	-	-	-	0.59	-	0.78	-
Jan-14	-	0.25	0.19	0.15	0.38	0.74	-	0.51	0.45
Feb-14	-	-	-	-	-	0.94	-	1.94	-
Mar-14	0.45	-	-	-	-	1.30	-	0.95	-
Apr-14	0.40	0.50	0.75	0.34	0.70	0.65	-	0.74	0.92
May-14	-	-	-	-	-	1.81	-	2.11	-
Jun-14	-	1.03	1.28	-	-	2.28	-	2.42	-
Jul-14	1.15	-	-	1.56	1.75	1.68	-	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	-	1.50	-
Dec-14	-	-	-	-	-	1.44	-	-	-
Average 2009	**1.41**	**0.97**	**1.28**	**1.01**	**1.41**	**1.36**	**-**	**1.39**	**1.38**
Average 2010	**0.99**	**1.01**	**1.04**	**0.83**	**1.21**	**1.21**	**-**	**1.29**	**1.32**
Average 2011	**0.95**	**0.93**	**1.13**	**0.89**	**1.06**	**<1.08**	**-**	**1.10**	**1.04**
Average 2012	**1.15**	**0.92**	**1.04**	**1.24**	**0.93**	**0.94**	**-**	**0.93**	**0.82**
Average 2013	**0.80**	**0.68**	**0.57**	**0.90**	**0.83**	**1.04**	**0.93**	**1.05**	**0.67**
Average 2014	**0.93**	**0.99**	**0.95**	**0.82**	**1.23**	**1.41**	**1.55**	**1.44**	**1.27**
Average All Years	**1.15**	**1.05**	**1.16**	**1.05**	**1.24**	**<1.21**	**1.19**	**1.24**	**1.19**

- : total mercury concentration not determined
CEQG for Protection of Aquatic Life; 26 ng/L
Sampling locations and frequency governed by Amended C. of A. #3960-7Q4K2G.
Bracketed sampling notations are field identifications.
* Samples discarded as a result of lab miscommunication.

TABLE 14a
METHYL MERCURY - NAYSHKOOTAYAOW AND ATTAWAPISKAT RIVERS (Unfiltered)
(concentrations in ng/L)

Date	Nayshkootayaow River Upstream (Naysh Riv up)	Nayshkootayaow River Middle (Naysh Riv dn)	Nayshkootayaow River Downstream (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	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	-	-	-	-	-	-	-	-	-
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
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	-	-	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-	-	-
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	0.08	-	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	-	-	-	-	-	0.03	-	0.04	-
Dec-13	-	-	-	-	-	<0.02	-	<0.02	-
Jan-14	-	<0.02	0.04	0.05	<0.02	0.03	-	<0.02	0.04
Feb-14	-	-	-	-	-	0.03	-	0.05	-
Mar-14	0.03	-	-	-	-	0.02	-	0.03	-
Apr-14	0.04	<0.02	0.03	0.05	0.03	0.02	-	0.05	0.04
May-14	-	-	-	-	-	0.06	-	0.06	-
Jun-14	-	-	-	-	-	0.06	-	0.08	-
Jul-14	0.07	0.07	0.09	0.18	0.06	0.06	-	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	-	-	-	-	-	0.04	-	0.04	-
Dec-14	-	-	-	-	-	0.05	-	-	-
Average 2009	**0.04**	**0.04**	**0.03**	**0.05**	**0.04**	**0.05**	**-**	**<0.06**	**0.04**
Average 2010	**0.08**	**<0.05**	**0.06**	**0.09**	**<0.06**	**<0.05**	**-**	**0.06**	**<0.04**
Average 2011	**0.12**	**0.05**	**<0.06**	**0.10**	**0.05**	**<0.06**	**-**	**<0.04**	**0.04**
Average 2012	**0.06**	**0.06**	**0.06**	**0.11**	**<0.05**	**<0.05**	**-**	**<0.04**	**0.05**
Average 2013	**<0.07**	**<0.04**	**<0.03**	**0.08**	**<0.03**	**<0.05**	**<0.04**	**<0.04**	**0.04**
Average 2014	**0.05**	**<0.04**	**0.06**	**0.09**	**<0.04**	**0.05**	**0.08**	**<0.05**	**0.05**
Average All Years	**<0.06**	**<0.05**	**<0.05**	**0.09**	**<0.05**	**<0.05**	**<0.06**	**<0.05**	**<0.04**

- : methyl mercury concentration not determined
CEQG Protection of Aquatic Life; 4 ng/L (unfiltered)
Sampling locations and frequency governed by Amended C. of A. #3960-7Q4K2G.
Bracketed sampling notations are field identifications.
* Samples discarded as a result of lab miscommunication.
MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury), as per Section 1.

TABLE 14b
METHYL MERCURY - NAYSHKOOTAYAOW AND ATTAWAPISKAT RIVERS (Filtered)
(concentrations in ng/L)

Date	Nayshkootayaow River Upstream (Naysh Riv up)	Nayshkootayaow River Middle (Naysh Riv dn)	Nayshkootayaow River Downstream (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	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	0.03
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	-	-	-	-	-	-	-	-	-
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	-
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	-	-	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-	-	-
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	0.04	-	<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	0.04	<0.02	<0.02	<0.02
Nov-13	-	-	-	-	-	<0.02	-	<0.02	-
Dec-13	-	-	-	-	-	<0.02	-	<0.02	-
Jan-14	-	0.03	0.04	0.03	0.03	0.03	-	<0.02	<0.02
Feb-14	-	-	-	-	-	<0.02	-	<0.02	-
Mar-14	0.02	-	-	-	-	<0.02	-	<0.02	-
Apr-14	0.02	0.02	0.03	<0.02	0.02	<0.02	-	0.02	<0.02
May-14	-	-	-	-	-	0.03	-	0.03	-
Jun-14	-	-	-	-	-	0.04	-	0.04	-
Jul-14	<0.02	0.03	0.07	0.11	0.04	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	-	0.03	-
Dec-14	-	-	-	-	-	0.04	-	-	-
Average 2009	**0.06**	**<0.05**	**<0.05**	**<0.04**	**0.06**	**0.04**	**-**	**0.05**	**<0.03**
Average 2010	**<0.04**	**0.07**	**0.05**	**0.06**	**<0.04**	**<0.03**	**-**	**<0.03**	**0.04**
Average 2011	**<0.04**	**<0.04**	**<0.05**	**0.06**	**0.03**	**<0.03**	**-**	**<0.03**	**<0.03**
Average 2012	**<0.03**	**0.03**	**0.04**	**0.07**	**<0.03**	**<0.04**	**-**	**<0.03**	**<0.02**
Average 2013	**<0.03**	**<0.03**	**<0.03**	**<0.03**	**<0.02**	**<0.04**	**<0.02**	**<0.03**	**<0.02**
Average 2014	**<0.02**	**0.03**	**0.04**	**<0.05**	**0.03**	**<0.03**	**0.04**	**<0.03**	**<0.02**
Average All Years	**<0.04**	**<0.04**	**<0.04**	**<0.05**	**<0.03**	**<0.04**	**<0.03**	**<0.03**	**<0.03**

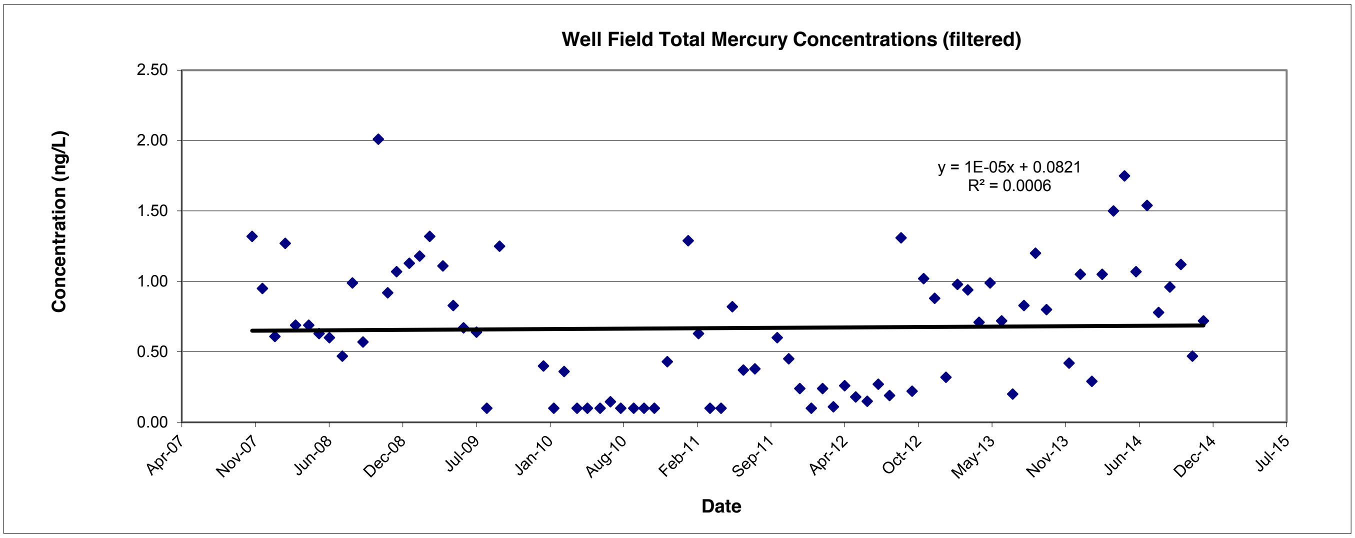
- : methyl mercury concentration not determined
CEQG Protection of Aquatic Life; 4 ng/L (unfiltered)
Sampling locations and frequency governed by Amended C. of A. #3960-7Q4K2G.
Bracketed sampling notations are field identifications.
* Samples discarded as a result of lab miscommunication
MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury), as per Section 1.

TABLE 15a
MERCURY CONTENT IN WELL FIELD DISCHARGE
(concentrations in ng/L)

Date	Total Mercury		Methyl Mercury		Wells in Production
	Unfiltered	Filtered	Unfiltered	Filtered	
Nov-07	1.33	1.32	<0.02	<0.02	VDW-6, 11 and 22
Dec-07	1.33	0.95	<0.02	<0.02	VDW-6, 11 and 22
Jan-08	0.87	0.61	<0.02	<0.02	VDW-6, 11, 15, 17 and 22
Feb-08	1.55	1.27	<0.02	<0.02	VDW-6, 11 and 22
Mar-08	0.70	0.69	<0.02	<0.02	VDW-6, 11, 15, 17 and 22
Apr-08	0.84	0.69	<0.02	<0.02	VDW-7, 11, 15, 17 and 22
May-08	0.78	0.63	<0.02	<0.02	VDW-7, 11, 15, 17 and 22
Jun-08	0.72	0.60			VDW-7, 11, 15, 17 and 22
Jul-08	0.65	0.47	<0.02	<0.02	VDW-6, 11, 15, 17 and 22
Aug-08	2.63	0.99			VDW-6, 11, 15, 17 and 22
Sep-08	0.67	0.57			VDW-6, 11, 15, 17 and 22
Oct-08	2.20	2.01	<0.02	<0.02	VDW-3, 6, 7, 11, 15, 17 and 22
Nov-08	1.00	0.92			VDW-3, 6, 7, 11, 15, 17 and 22
Dec-08	1.34	1.07	<0.02	<0.02	VDW-3, 6, 7, 11, 15, 17 and 22
Jan-09	1.01	1.13	<0.02	<0.02	VDW-3, 6, 7, 11, 15, 17 and 22
Feb-09	1.45	1.18			VDW-3, 6, 7, 11, 15, 17 and 22
Mar-09	1.49	1.32	<0.02	<0.02	VDW-3, 6, 7, 11, 15, 17 and 22
Apr-09	1.21	1.11	<0.02	<0.02	VDW-3, 6, 7, 11, 15, 17 and 22
May-09	1.49	0.83	<0.02	<0.02	VDW-3, 6, 7, 11, 15, 17 and 22
Jun-09	1.99	0.67	0.04	<0.02	VDW-3, 6, 7, 11, 15, 17 and 22
Jul-09	1.41	0.64	0.09	<0.02	VDW-3, 6, 7, 11, 15, 17 and 22
Aug-09	0.05	<0.1			VDW-3, 6, 7, 11, 15, 17 and 22
Sep-09		1.25	<0.02	<0.02	VDW-3, 6, 7, 11, 15, 17 and 22
Oct-09					VDW-3, 6, 7, 11, 15, 17 and 22
Nov-09					VDW-3, 6, 7, 11, 15, 17 and 22
Dec-09					VDW-3, 6, 7, 11, 15, 17 and 22
Jan-10	0.93	0.4	0.04	<0.02	VDW-3, 6, 7, 11, 14, 15, 17 and 22
Feb-10	1.65	<0.1	0.04	<0.02	VDW-3, 6, 7, 11, 14, 15, 17 and 22
Mar-10	1.6	0.36	0.03	0.02	VDW-3, 6, 7, 11, 14, 15, 17 and 22
Apr-10	0.72	<0.1	<0.02	<0.02	VDW-3, 6, 7, 11, 14, 15, 17 and 22
May-10	1.25	<0.1	<0.02	<0.02	VDW-3, 6, 7, 11, 14, 15, 17 and 22
Jun-10	<0.1	<0.1	0.04	0.03	VDW-3, 6, 7, 11, 14, 15, 17 and 22
Jul-10	1.04	0.15	0.02	<0.02	VDW-3, 6, 7, 11, 14, 15, 17 and 22
Aug-10	1.61	<0.1	<0.02	0.03	VDW-3, 6, 7, 11, 14, 15, 17 and 22
Sep-10	1.23	<0.1	<0.02	<0.02	VDW-3, 6, 7, 11, 14, 15, 17 and 22
Oct-10	1.19	<0.1	<0.02	<0.02	VDW-3, 6, 7, 11, 14, 15, 17 and 22
Nov-10	1.44	<0.1	<0.02	<0.02	VDW-3, 6, 7, 11, 14, 15, 17 and 22
Dec-10	0.88	0.43	0.03	<0.02	VDW-3, 6, 7, 11, 14, 15, 17 and 22
Jan-11	1.01		0.10	0.04	VDW-6, 7, 11, 12, 14, 15, 17, 18 and 22
Feb-11	1.49	1.29	<0.02	<0.02	VDW-6, 7, 11, 12, 14, 15, 17, 18 and 22
Mar-11	1.22	0.63	<0.02	<0.02	VDW-6, 7, 11, 12, 14, 15, 17, 18 and 22
Apr-11	0.85	<0.1	<0.02	<0.02	VDW-6, 7, 11, 12, 14, 15, 17, 18 and 22
May-11	1.55	<0.1	<0.02	<0.02	VDW-6, 7, 11, 12, 14, 15, 17, 18 and 22
Jun-11	0.96	0.82	<0.02	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18 and 22
Jul-11	1.96	0.37	<0.02	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18 and 22
Aug-11	0.89	0.38	<0.02	<0.02	VDW-2, 7, 11, 12, 14, 15, 17, 18 and 22
Sep-11					VDW-2, 6, 7, 11, 12, 14, 15, 17, 18 and 22
Oct-11	11.65	0.60	0.04	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18 and 22
Nov-11	3.1	0.45	0.04	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18 and 22
Dec-11	1.07	0.24	0.02	<0.02	VDW-2, 6, 7, 12, 14, 15, 17, 18 and 22
Jan-12	1.17	<0.1	0.02	<0.02	VDW-2, 6, 7, 12, 14, 15, 17, 18, 21 and 22
Feb-12	0.62	0.24	<0.02	<0.02	VDW-2, 6, 7, 12, 14, 15, 17, 18, 21 and 22
Mar-12	0.51	0.11	<0.02	<0.02	VDW-2, 6, 7, 12, 14, 15, 17, 18, 21 and 22
Apr-12	1.33	0.26	<0.02	<0.02	VDW-2, 6, 7, 12, 14, 15, 17, 18, 21 and 22
May-12	2.11	0.18	0.27	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21 and 22
Jun-12	1.38	0.15	<0.02	<0.02	VDW-2, 6, 7, 12, 14, 15, 17, 18, 21 and 22
Jul-12	0.8	0.27	0.02	<0.02	VDW-2, 6, 7, 12, 14, 15, 17, 18, 21 and 22
Aug-12	1.69	0.19		<0.02	VDW-2, 6, 7, 12, 14, 15, 17, 18, 21 and 22
Sep-12	3.55	1.31		<0.02	VDW-2, 6, 7, 12, 14, 15, 17, 18, 21 and 22
Oct-12	0.74	0.22	<0.02	<0.02	VDW-2, 6, 7, 12, 14, 15, 17, 18, 21 and 22
Nov-12	1.87	1.02		0.04	VDW-2, 6, 7, 12, 14, 15, 17, 18, 21 and 22
Dec-12	2.45	0.88		0.02	VDW-2, 6, 7, 12, 14, 15, 17, 18, 21 and 22
Jan-13	1.46	0.32	<0.02	0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21 and 22
Feb-13	5.51	0.98	<0.02	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21 and 22
Mar-13	2.63	0.94	<0.02	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21 and 22
Apr-13	2.03	0.71	0.03	0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21 and 22
May-13	2.12	0.99	0.04	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21 and 22
Jun-13	1.84	0.72	<0.02	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21 and 22
Jul-13	0.99	0.2	<0.02	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21 and 22
Aug-13	2.69	0.83	<0.02	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21, 22, 23 and 25
Sep-13	3.16	1.2	<0.02	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21, 22, 23 and 25
Oct-13	2.97	0.8	0.04	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21, 22, 23 and 25
Nov-13					VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21, 22, 23 and 25
Dec-13	2.46	0.42	<0.02	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21, 22, 23 and 25
Jan-14	7.40	1.05	<0.02	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21, 22, 23 and 25
Feb-14	2.53	0.29	<0.02	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21, 22, 23 and 25
Mar-14	3.33	1.05	0.02	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21, 22, 23 and 25
Apr-14	3.19	1.50	<0.02	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21, 22, 23 and 25
May-14	4.54	1.75			VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21, 22, 23 and 25
Jun-14	4.73	1.07			VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21, 22, 23, 25 and 31
Jul-14	3.35	1.54	<0.02	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21, 22, 23, 25 and 31
Aug-14	3.56	0.78	0.05	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21, 22, 23, 25 and 31
Sep-14	3.19	0.96	<0.02	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21, 22, 23, 25 and 31
Oct-14	2.95	1.12	<0.02	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21, 22, 23, 25 and 31
Nov-14	2.55	0.47	0.02	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21, 22, 23, 25 and 31
Dec-14	2.52	0.72	<0.02	<0.02	VDW-2, 6, 7, 11, 12, 14, 15, 17, 18, 21, 22, 23, 25 and 31
Average 2009	**1.26**	**<0.91**	**<0.03**	**<0.02**	
Average 2010	**<1.14**	**<0.18**	**<0.03**	**<0.02**	
Average 2011	**2.34**	**<0.50**	**<0.03**	**<0.02**	
Average 2012	**1.52**	**<0.41**	**<0.05**	**<0.02**	
Average 2013	**2.53**	**0.74**	**<0.02**	**<0.02**	
Average 2014	**3.65**	**1.03**	**<0.02**	**<0.02**	
Average All Years	**<1.95**	**<0.67**	**<0.03**	**<0.02**	

Blank cells indicate concentration was not determined.
CEQG for Protection of Aquatic Life: total mercury; 26 ng/L and methyl mercury; 4 ng/L
*Samples excluded from plots below
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.

TABLE 15b
MERCURY CONTENT IN WELL FIELD DISCHARGE GRAPHICAL PRESENTATION
(concentrations in ng/L)



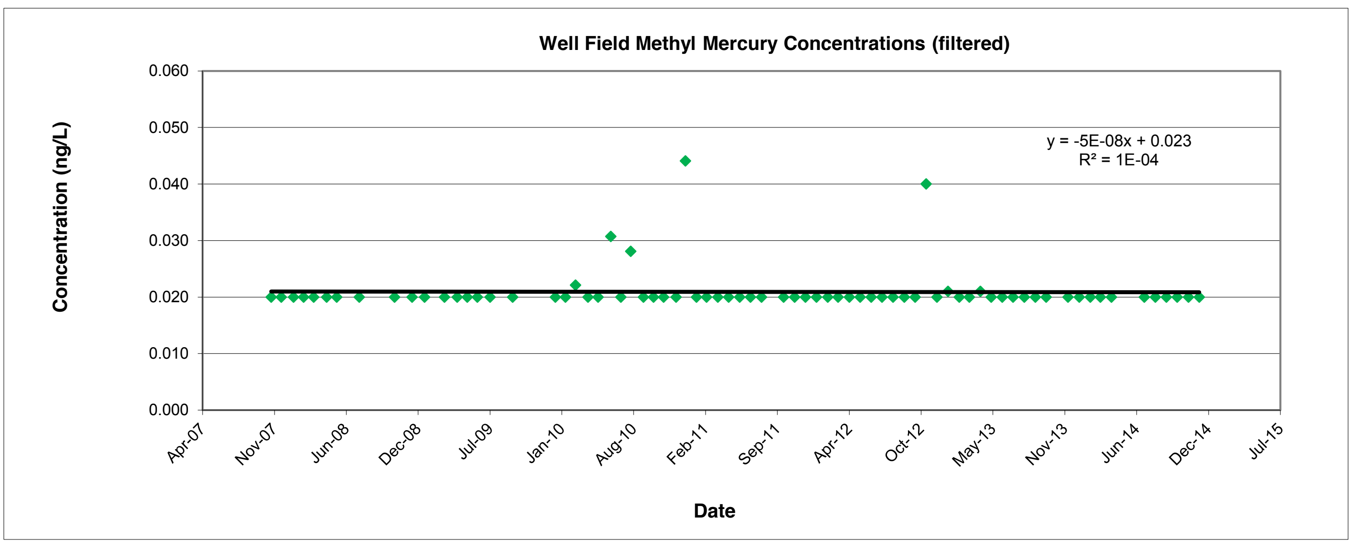


TABLE 16a
TOTAL MERCURY - INDIVIDUAL MINE DEWATERING WELLS (Unfiltered)
(concentrations in ng/L)

Date	VDW-2	VDW-3	VDW-6	VDW-7	VDW-11	VDW-12	VDW-14	VDW-15	VDW-17	VDW-18	VDW-21	VDW-D22	VDW-23	VDW-25	VDW-31
Nov-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dec-07	-	-	<0.1	-	1.31	-	-	-	-	-	-	3.08	-	-	-
Jan-08	-	-	<0.1	-	1.64	-	-	0.29	<0.1	-	-	3.66	-	-	-
Feb-08	-	-	0.12	-	1.41	-	-	-	-	-	-	3.13	-	-	-
Mar-08	-	-	0.33	-	2.93	-	-	0.22	0.28	-	-	3.26	-	-	-
Apr-08	-	-	-	-	1.89	-	-	0.64	0.31	-	-	4.27	-	-	-
Jul-08	-	-	0.14	-	2.18	-	-	0.20	0.19	-	-	2.28	-	-	-
Oct-08	-	<0.1	<0.1	0.42	*38.6	-	-	<0.1	<0.1	-	-	6.52	-	-	-
Jan-09	-	<0.1	<0.1	0.25	3.33	-	-	<0.1	0.10	-	-	6.56	-	-	-
Apr-09	-	<0.1	<0.1	-	3.34	-	-	<0.1	0.10	-	-	5.59	-	-	-
Jul-09	-	0.74	0.52	1.11	3.50	-	-	0.69	0.85	-	-	4.37	-	-	-
Oct-09	-	0.14	0.63	0.16	1.55	-	-	0.41	<0.1	-	-	1.61	-	-	-
Jan-10	-	<0.1	<0.1	<0.1	3.40	-	<0.1	<0.1	<0.1	-	-	3.80	-	-	-
Apr-10	-	<0.1	<0.1	<0.1	2.59	-	<0.1	<0.1	<0.1	-	-	3.32	-	-	-
Jul-10	-	0.12	<0.1	0.28	3.00	-	<0.1	<0.1	0.24	-	-	3.36	-	-	-
Oct-10	-	<0.1	<0.1	<0.1	4.31	-	<0.1	<0.1	<0.1	0.35	-	5.18	-	-	-
Jan-11	-	-	-	0.23	3.34	1.39	0.20	<0.1	<0.1	<0.1	-	3.66	-	-	-
Apr-11	-	-	0.39	0.72	3.76	1.37	1.07	0.44	0.66	0.40	-	2.92	-	-	-
Jul-11	0.85	-	-	0.57	5.15	2.18	0.37	0.79	0.25	0.39	-	5.18	-	-	-
Oct-11	0.59	-	0.60	2.08	*125.15	2.75	0.67	0.55	0.95	1.21	-	15.86*	-	-	-
Jan-12	0.43	-	<0.1	0.43	-	2.48	<0.1	0.41	<0.1	0.60	1.23	109.24*	-	-	-
Apr-12	0.54	-	0.47	0.68	-	3.65	0.51	0.56	0.32	1.00	0.89	6.63	-	-	-
Jul-12	0.12	-	0.13	0.28	-	2.66	<0.1	0.12	<0.1	0.47	0.42	8.29	-	-	-
Oct-12	<0.1	-	<0.1	0.69	-	3.63	<0.1	<0.1	<0.1	1.19	0.66	9.69	-	-	-
Jan-13	1.15	-	0.34	0.33	29.80	4.00	1.92	0.71	1.26	2.43	2.63	8.97	-	-	-
Apr-13	0.12	-	0.16	0.28	20.99	3.26	0.18	0.12	0.13	0.96	0.42	10.19	-	-	-
Jul-13	<0.1	-	0.23	0.23	24.70	2.88	<0.1	0.24	<0.1	1.46	1.53	3.85	-	-	-
Aug-13	-	-	-	-	-	-	-	-	-	-	-	-	1.05	<0.1	-
Oct-13	0.33	-	0.39	9.50	34.40	1.98	0.36	0.49	<0.1	1.61	6.98	3.54	1.32	-	-
Jan-14	0.28	-	0.28	0.45	16.8	3.14	0.22	0.18	<0.1	1.51	0.45	9.83	0.51	0.11	-
Apr-14	0.28	-	0.42	2.19	20.9	4.54	0.36	0.23	<0.1	2.88	26.1	25.3*	0.56	0.2	-
Jul-14	<0.1	-	<0.1	0.44	18.2	8.11	0.21	<0.1	<0.1	1.86	5.95	27.2	<0.1	0.22	0.42
Oct-14	2.72	-	1.50	9.09	11.7	8.8	3.77	0.29	0.52	2.28	3.31	15.2	<0.1	0.57	0.36
Average 2009	**-**	**<0.27**	**<0.34**	**0.51**	**2.93**	**-**	**-**	**<0.33**	**<0.29**	**-**	**-**	**4.53**	**-**	**-**	**-**
Average 2010	**-**	**<0.10**	**<0.10**	**<0.14**	**3.32**	**-**	**<0.10**	**<0.10**	**<0.13**	**-**	**-**	**3.91**	**-**	**-**	**-**
Average 2011	**0.72**	**-**	**0.50**	**0.90**	**4.08**	**1.92**	**0.58**	**<0.47**	**<0.49**	**<0.53**	**-**	**3.92**	**-**	**-**	**-**
Average 2012	**<0.30**	**-**	**<0.20**	**0.52**	**7.55**	**3.11**	**<0.20**	**<0.30**	**<0.16**	**0.82**	**0.80**	**8.20**	**-**	**-**	**-**
Average 2013	**<0.43**	**-**	**0.28**	**2.59**	**27.47**	**3.03**	**<0.64**	**0.39**	**<0.40**	**1.62**	**2.89**	**6.64**	**1.19**	**<0.10**	**-**
Average 2014	**<0.85**	**-**	**<0.58**	**3.04**	**16.90**	**6.15**	**1.14**	**<0.20**	**<0.21**	**2.13**	**8.95**	**17.41**	**<0.32**	**0.28**	**0.39**
Average All Years	**<0.55**	**<0.18**	**<0.28**	**<1.28**	**9.04**	**3.55**	**<0.53**	**<0.30**	**<0.26**	**<1.22**	**4.21**	**6.25**	**<0.61**	**<0.24**	**0.39**

- : total mercury concentration not determined
* Samples excluded from average calculations
CEQG for Protection of Aquatic Life; 26 ng/L
Sampling locations and frequency governed by 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.

TABLE 16b
TOTAL MERCURY - INDIVIDUAL MINE DEWATERING WELLS (Filtered)
(concentrations in ng/L)

Date	VDW-2	VDW-3	VDW-6	VDW-7	VDW-11	VDW-12	VDW-14	VDW-15	VDW-17	VDW-18	VDW-21	VDW-D22	VDW-23	VDW-25	VDW-31
Nov-07	-	-	<0.1	-	1.07	-	-	-	-	-	-	2.36	-	-	-
Dec-07	-	-	<0.1	-	0.96	-	-	-	-	-	-	2.27	-	-	-
Jan-08	-	-	<0.1	-	1.01	-	-	<0.1	0.12	-	-	1.87	-	-	-
Feb-08	-	-	0.10	-	1.17	-	-	-	-	-	-	2.74	-	-	
Mar-08	-	-	0.25	-	0.14	-	-	<0.1	0.17	-	-	2.92	-	-	-
Apr-08	-	-	-	-	1.21	-	-	0.18	0.35	-	-	3.71	-	-	-
Jul-08	-	-	0.18	-	1.56	-	-	0.15	0.18	-	-	1.82	-	-	-
Oct-08	-	<0.1	<0.1	0.41	*17.4	-	-	<0.1	<0.1	-	-	6.09	-	-	-
Jan-09	-	<0.1	<0.1	0.19	2.30	-	-	<0.1	<0.1	-	-	4.63	-	-	-
Apr-09	-	<0.1	<0.1	-	3.34	-	-	<0.1	<0.1	-	-	5.28	-	-	-
Jul-09	-	0.61	0.62	0.60	1.12	-	-	0.58	0.45	-	-	0.95	-	-	-
Oct-09	-	<0.1	0.34	0.10	0.49	-	-	0.36	<0.1	-	-	0.38	-	-	-
Jan-10	-	<0.1	<0.1	<0.1	0.53	-	<0.1	<0.1	<0.1	-	-	0.62	-	-	-
Apr-10	-	<0.1	<0.1	<0.1	0.82	-	<0.1	<0.1	<0.1	-	-	0.57	-	-	-
Jul-10	-	0.10	<0.1	0.11	0.42	-	0.20	<0.1	0.12	-	-	0.45	-	-	-
Oct-10	-	0.39	0.36	0.42	0.75	-	-	<0.1	<0.1	<0.1	-	<0.1	-	-	-
Jan-11	-	-	<0.1	0.23	0.88	0.48	0.40	<0.1	-	<0.1	-	0.73	-	-	-
Apr-11	-	-	<0.1	0.36	0.80	0.46	0.54	<0.1	0.38	0.37	-	1.10	-	-	-
Jul-11	<0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	1.86	-	-	-
Oct-11	<0.1	-	<0.1	<0.1	0.73	0.54	<0.1	<0.1	0.35	0.35	-	1.08	-	-	-
Jan-12	0.42	-	<0.1	0.40	-	0.82	<0.1	<0.1	<0.1	0.42	<0.1	0.71	-	-	-
Apr-12	0.18	-	0.16	0.30	-	0.28	0.18	<0.1	0.18	0.38	0.33	1.07	-	-	-
Jul-12	0.10	-	<0.1	0.15	-	1.59	<0.1	0.12	<0.1	0.20	0.14	0.64	-	-	-
Oct-12	<0.1	-	<0.1	<0.1	-	1.03	<0.1	<0.1	<0.1	0.36	0.18	1.08	-	-	-
Jan-13	1.19	-	0.11	0.14	3.52	2.34	1.21	<0.1	1.08	1.09	1.07	0.93	-	-	-
Apr-13	0.16	-	0.16	0.24	5.35	1.15	0.16	0.17	<0.1	0.50	0.15	0.62	-	-	-
Jul-13	<0.1	-	<0.1	<0.1	4.88	0.5	<0.1	<0.1	<0.1	0.20	<0.1	0.9	-	-	-
Aug-13	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-
Oct-13	0.15	-	0.14	0.39	10.9	0.57	0.23	0.60	<0.1	0.59	0.11	1.27	-	-	-
Jan-14	<0.1	-	<0.1	0.28	13.1	1.73	<0.1	<0.1	<0.1	0.85	0.21	3.32	0.22	<0.1	-
Apr-14	0.23	-	0.15	0.4	8.83	2.59	<0.1	0.11	<0.1	0.94	0.39	8.02	0.42	<0.1	-
Jul-14	<0.1	-	<0.1	0.33	10.9	1.56	<0.1	<0.1	<0.1	0.15	0.16	24	<0.1	<0.1	0.5
Oct-14	0.71	-	0.2	0.41	2.5	0.74	0.58	<0.1	<0.1	0.17	0.5	10	<0.1	0.14	0.12
Average 2009	**-**	**<0.23**	**<0.29**	**0.30**	**1.81**	**-**	**-**	**<0.26**	**<0.19**	**-**	**-**	**2.81**	**-**	**-**	**-**
Average 2010	**-**	**<0.17**	**<0.17**	**<0.18**	**0.63**	**-**	**<0.13**	**<0.10**	**<0.10**	**<0.10**	**-**	**<0.44**	**-**	**-**	**-**
Average 2011	**<0.10**	**-**	**<0.10**	**<0.20**	**<0.63**	**<0.40**	**<0.29**	**<0.10**	**<0.28**	**<0.23**	**-**	**1.19**	**-**	**-**	**-**
Average 2012	**<0.20**	**-**	**<0.12**	**<0.24**	**-**	**0.93**	**<0.12**	**<0.11**	**<0.12**	**0.34**	**<0.19**	**0.88**	**-**	**-**	**-**
Average 2013	**<0.40**	**-**	**<0.13**	**<0.22**	**6.16**	**1.14**	**<0.43**	**<0.24**	**<0.35**	**0.60**	**<0.36**	**0.93**	**<0.10**	**<0.10**	**-**
Average 2014	**<0.29**	**-**	**<0.14**	**0.36**	**8.83**	**1.66**	**<0.22**	**<0.10**	**<0.10**	**0.53**	**0.32**	**11.34**	**<0.21**	**<0.11**	**0.31**
Average All Years	**<0.27**	**<0.19**	**<0.15**	**<0.25**	**<2.94**	**<1.03**	**<0.24**	**<0.15**	**<0.18**	**<0.40**	**<0.29**	**<2.94**	**<0.19**	**<0.11**	**0.31**

- : total mercury concentration not determined
* Samples excluded from average calculations
CEQG for Protection of Aquatic Life; 26 ng/L
Sampling locations and frequency governed by 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.

TABLE 17a
METHYL MERCURY - INDIVIDUAL MINE DEWATERING WELLS (Unfiltered)
(concentrations in ng/L)

Date	VDW-2	VDW-3	VDW-6	VDW-7	VDW-11	VDW-12	VDW-14	VDW-15	VDW-17	VDW-18	VDW-21	VDW-D22	VDW-23	VDW-25	VDW-31
Nov-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dec-07	-	-	<0.02	-	<0.02	-	-	-	-	-	-	<0.02	-	-	-
Jan-08	-	-	<0.02	-	<0.02	-	-	<0.02	<0.02	-	-	<0.02	-	-	-
Feb-08	-	-	<0.02	-	<0.02	-	-	-	-	-	-	<0.02	-	-	-
Mar-08	-	-	0.02	-	0.02	-	-	0.02	<0.02	-	-	0.02	-	-	-
Apr-08	-	-	-	-	<0.02	-	-	<0.02	<0.02	-	-	<0.02	-	-	-
Jul-08	-	-	<0.02	-	0.02	-	-	0.02	0.02	-	-	<0.02	-	-	-
Oct-08	-	<0.02	<0.02	<0.02	<0.02	-	-	<0.02	<0.02	-	-	<0.02	-	-	-
Jan-09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apr-09	-	<0.02	<0.02	-	0.02	-	-	0.02	<0.02	-	-	<0.02	-	-	-
Jul-09	-	0.03	-	-	<0.02	-	-	-	-	-	-	-	-	-	-
Oct-09	-	<0.02	<0.02	<0.02	<0.02	-	-	<0.02	<0.02	-	-	0.04	-	-	-
Jan-10	-	0.04	0.03	0.07	0.07	-	0.03	0.06	0.20	-	-	0.06	-	-	-
Apr-10	-	<0.02	0.05	<0.02	<0.02	-	<0.02	<0.02	0.02	-	-	<0.02	-	-	-
Jul-10	-	0.02	<0.02	<0.02	<0.02	-	<0.02	0.03	<0.02	-	-	<0.02	-	-	-
Oct-10	-	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	0.03	-	<0.02	-	-	-
Jan-11	-	-	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	-	-	-
Apr-11	-	-	<0.02	<0.02	<0.02	-	-	0.55	<0.02	-	-	0.03	-	-	-
Jul-11	<0.02	-	-	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	-	-	-
Oct-11	<0.02	-	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	-	<0.02	-	-	-
Jan-12	0.02	-	0.07	<0.02	-	0.04	0.03	0.05	<0.02	0.05	<0.02	0.06	-	-	-
Apr-12	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	-	-	-
Jul-12	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	-	-
Oct-12	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	-	-
Jan-13	<0.02	-	<0.02	<0.02	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	-	-
Apr-13	<0.02	-	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	-	-
Jul-13	0.07	-	0.05	0.03	0.19	0.03	<0.02	0.04	0.05	0.05	0.03	0.03	-	-	-
Aug-13	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	-
Oct-13	<0.02	-	<0.02	<0.02	0.05	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	-	-
Jan-14	<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	-
Apr-14	<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	-
Jul-14	<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	<0.02
Oct-14	<0.02	-	<0.02	<0.02	0.025	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.026	<0.02
Average 2009	**-**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	**-**	**-**	**<0.02**	**<0.02**	**-**	**-**	**<0.03**	**-**	**-**	**-**
Average 2010	**-**	**<0.03**	**<0.03**	**<0.03**	**<0.03**	**-**	**<0.02**	**<0.03**	**<0.07**	**-**	**-**	**<0.03**	**-**	**-**	**-**
Average 2011	**<0.02**	**-**	**<0.03**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	**<0.15**	**<0.02**	**<0.03**	**-**	**<0.02**	**-**	**-**	**-**
Average 2012	**<0.02**	**-**	**<0.03**	**<0.02**	**-**	**<0.03**	**<0.02**	**<0.03**	**<0.02**	**<0.03**	**<0.02**	**<0.04**	**-**	**-**	**-**
Average 2013	**<0.03**	**-**	**<0.03**	**<0.02**	**0.09**	**<0.02**	**<0.02**	**<0.02**	**<0.03**	**<0.03**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	**-**
Average 2014	**<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**	**<0.02**
Average All Years	**<0.02**	**<0.02**	**<0.03**	**<0.02**	**<0.03**	**<0.02**	**<0.02**	**<0.04**	**<0.03**	**<0.03**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	**<0.02**

- : methyl mercury concentration not determined
CEQG for Protection of Aquatic Life; 4 ng/L (unfiltered)
Sampling locations and frequency governed by 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.

TABLE 17b
METHYL MERCURY - INDIVIDUAL MINE DEWATERING WELLS (Filtered)
(concentrations in ng/L)

Date	VDW-2	VDW-3	VDW-6	VDW-7	VDW-11	VDW-12	VDW-14	VDW-15	VDW-17	VDW-18	VDW-21	VDW-D22	VDW-23	VDW-25	VDW-31
Nov-07	-	-	<0.02	-	<0.02	-	-	-	-	-	-	<0.02	-	-	-
Dec-07	-	-	<0.02	-	<0.02	-	-	-	-	-	-	<0.02	-	-	-
Jan-08	-	-	<0.02	-	<0.02	-	-	<0.02	<0.02	-	-	<0.02	-	-	-
Feb-09	-	-	<0.02	-	<0.02	-	-	-	-	-	-	<0.02	-	-	-
Mar-09	-	-	<0.02	-	<0.02	-	-	<0.02	<0.02	-	-	0.02	-	-	-
Apr-08	-	-	-	-	<0.02	-	-	0.02	<0.02	-	-	0.02	-	-	-
Jul-08	-	-	0.02	-	<0.02	-	-	<0.02	<0.02	-	-	0.02	-	-	-
Oct-08	-	<0.02	<0.02	<0.02	<0.02	-	-	<0.02	<0.02	-	-	<0.02	-	-	-
Jan-09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apr-09	-	<0.02	0.02	-	0.02	-	-	0.02	<0.02	-	-	0.02	-	-	-
Jul-09	-	0.05	0.18	-	0.06	-	-	0.03	0.14	-	-	0.03	-	-	-
Oct-09	-	<0.02	<0.02	<0.02	<0.02	-	-	<0.02	<0.02	-	-	<0.02	-	-	-
Jan-10	-	0.07	0.02	0.04	<0.02	-	0.04	<0.02	0.02	-	-	<0.02	-	-	-
Apr-10	-	<0.02	<0.02	<0.02	0.02	-	<0.02	<0.02	<0.02	-	-	<0.02	-	-	-
Jul-10	-	<0.02	0.02	<0.02	<0.02	-	0.04	<0.02	<0.02	-	-	<0.02	-	-	-
Oct-10	-	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	0.05	-	<0.02	-	-	-
Jan-11	-	-	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	-	-	-
Apr-11	-	-	<0.02	<0.02	<0.02	-	-	<0.02	<0.02	-	-	<0.02	-	-	-
Jul-11	<0.02	-	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	-	-	-
Oct-11	<0.02	-	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	-	<0.02	-	-	-
Jan-12	0.02	-	0.05	<0.02	-	0.03	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	-	-	-
Apr-12	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	-	-
Jul-12	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	-	-
Oct-12	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	-	-
Jan-13	<0.02	-	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	-	-	-
Apr-13	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	-	-
Jul-13	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	-	-
Aug-13	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	-
Oct-13	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	-	-
Jan-14	<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	-
Apr-14	<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	-
Jul-14	<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	<0.02
Oct-14	<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	<0.02
Average 2009	**-**	**<0.03**	**<0.07**	**<0.02**	**<0.03**	**-**	**-**	**<0.02**	**<0.06**	**-**	**-**	**<0.02**	**-**	**-**	**-**
Average 2010	**-**	**<0.03**	**<0.02**	**<0.02**	**<0.02**	**-**	**<0.03**	**<0.02**	**<0.02**	**0.05**	**-**	**<0.02**	**-**	**-**	**-**
Average 2011	**<0.02**	**-**	**<0.03**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	**<0.03**	**-**	**<0.02**	**-**	**-**	**-**
Average 2012	**<0.02**	**-**	**<0.03**	**<0.02**	**-**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	**-**	**-**	**-**
Average 2013	**<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**	**-**
Average 2014	**<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**	**<0.02**
Average All Years	**<0.02**	**<0.03**	**<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**

- : methyl mercury concentration not determined
CEQG for Protection of Aquatic Life; 4 ng/L (unfiltered)
Sampling locations and frequency governed by 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.

TABLE 18
SPECIES-SPECIFIC CATCH PER UNIT EFFORT FOR ELECTROFISHING BY LOCATION (2014)

Waterbody	Sample ID	Date (dd/mm/yy)	Electroshocking Method	Effort (sec)	Species-specific CPUE Total Catch / (electroseconds / 60)																								
					Blacknose Shiner	Brook Stickleback	Brook Trout	Burbot	Cisco	Finescale Dace	Iowa Darter	Johnny Darter	Lake Chub	Lake Whitefish	Logperch	Longnose Dace	Longnose Sucker	Mottled Sculpin	Northern Pike	Pearl Dace	Shorthead Redhorse	Slimy Sculpin	Spottail Shiner	Trout Perch	Walleye	White Sucker	Yellow Perch	Site CPUE Total	Site Catch Total (n)
Attawapiskat River	ATT-US-E1	26/09/14	B	2134	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.08	3.63	0.11	0.03	0.00	**4.16**	**148**
	ATT-US-E2	27/09/14	B	1382	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.04	3.17	0.13	0.09	0.00	**3.56**	**82**
	ATT-REF2-E1	02/10/14	B	1475	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.12	0.12	0.04	0.00	0.00	0.12	0.65	0.00	0.00	0.04	0.00	0.00	4.64	0.12	0.04	0.00	**5.98**	**147**
	ATT-REF2-E2	02/10/14	B	1030	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.06	0.00	0.00	0.00	0.00	1.75	0.06	0.00	0.00	**2.10**	**36**
	ATT-REF2-E3	02/10/14	B	561	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	1.28	0.11	0.00	0.00	**2.46**	**23**
	ATT-NF-E1	30/09/14	B	2811	0.00	0.00	0.00	0.02	0.00	0.32	0.00	0.04	0.00	0.04	0.00	0.02	0.00	0.26	0.02	0.00	0.06	0.00	0.00	0.66	0.04	0.11	0.02	**1.62**	**76**
	ATT-NF-E2	30/09/14	B	1583	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.19	0.00	0.00	0.00	0.08	0.00	0.34	0.04	0.00	0.00	0.00	0.00	1.36	0.04	0.04	0.04	**2.16**	**57**
	ATT-NF-E3	30/09/14	B	2146	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.08	0.03	0.34	0.00	0.00	0.00	0.00	0.00	0.53	0.00	0.06	0.00	**1.17**	**42**
	ATT-NF-E4	30/09/14	B	1658	0.00	0.00	0.00	0.14	0.00	0.07	0.00	0.11	0.00	0.00	0.00	0.11	0.00	0.54	0.00	0.07	0.00	0.00	0.00	0.87	0.00	0.11	0.00	**2.03**	**56**
	ATT-NF-E5	01/10/14	B	1617	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.04	0.00	0.00	0.00	0.00	0.56	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.07	0.00	**1.48**	**40**
	ATT-NF-E6	01/10/14	B	1596	0.00	0.00	0.00	0.11	0.00	0.04	0.00	0.08	0.04	0.04	0.00	0.00	0.00	0.75	0.08	0.00	0.00	0.00	0.00	0.79	0.00	0.00	0.00	**1.92**	**51**
	ATT-NF-E7	04/10/14	B	971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.06	0.00	0.00	0.80	0.00	0.06	0.00	**1.17**	**19**
	ATT-FF-E1	04/10/14	B	1017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.18	0.00	0.00	0.00	0.24	0.00	0.00	0.18	0.00	0.00	7.37	0.18	0.00	0.00	**8.26**	**140**
	ATT-FF-E2	04/10/14	B	728	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.25	0.00	0.00	0.00	0.08	0.00	0.08	0.00	0.00	0.00	2.72	0.25	0.08	0.00	**3.71**	**45**
	ATT-FF-E3	04/10/14	B	971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.25	0.00	0.00	0.00	0.25	0.00	0.06	0.00	0.00	0.00	3.83	0.19	0.06	0.00	**4.70**	**76**
Nayshkootayaow River	NAY-DS6-E1	07/10/14	BK	1645	0.04	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.33	0.00	0.00	0.00	0.62	0.04	0.04	0.00	**1.20**	**33**
	NAY-DS6-E2	07/10/14	BK	1225	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.15	0.00	0.00	0.00	0.15	0.00	0.24	0.00	**0.59**	**12**
	NAY-DS6-E3	07/10/14	BK	686	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.17	0.00	0.00	0.00	1.75	0.00	0.09	0.00	**2.10**	**24**
	NAY-US3-E1	06/10/14	BK	3594	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	**0.23**	**14**
Tributary 2	ST2-E1	11/06/14	BK	525	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	**0.57**	**5**
Tributary 3	ST3-E1	12/06/14	BK	502	0.00	0.00	0.00	0.00	0.00	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.12	0.00	**1.43**	**12**
Tributary 5	ST5-E1	13/06/14	BK	657	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.09	0.00	**0.37**	**4**
Tributary 6	ST6-E1	13/06/14	BK	450	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.13	0.00	0.00	0.00	0.27	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.67**	**5**
	ST6-E1	29/09/14	BK	1050	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.17**	**3**
Tributary 7	ST7-E1	15/06/14	BK	401	0.00	0.15	0.00	0.00	0.00	0.30	0.15	0.15	0.00	0.00	0.00	0.60	0.00	0.90	0.00	1.35	0.00	0.00	0.00	0.00	0.00	0.75	0.00	**4.34**	**29**
	ST7-E1	27/09/14	BK	724	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.08	0.00	0.66	0.00	0.00	0.00	0.00	0.00	**0.91**	**11**
North Granny Creek	NGC-E1	14/06/14	BK	376	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.80**	**5**
	NGC-DS-E1	01/10/14	BK	870	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.28	0.00	0.00	0.00	0.07	0.00	0.00	0.00	**0.55**	**8**
	NGC-DS-E2	02/10/14	BK	1752	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.55**	**16**
South Granny Creek	SGC-E1	14/06/14	BK	322	0.00	0.00	0.00	0.00	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**1.12**	**6**
	SGC-DS-E1	02/10/14	BK	329	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.73**	**4**
				Species Catch Total (n)	**1**	**3**	**1**	**13**	**1**	**41**	**1**	**27**	**25**	**15**	**2**	**18**	**5**	**142**	**10**	**56**	**8**	**8**	**4**	**784**	**25**	**37**	**2**	**-**	**1229**

BK = Backpack electroshocking methods employed at the sampling site.
B = Boat electrofishing methods employed at the sampling site.
sec = Seconds

TABLE 19
SPECIES-SPECIFIC CPUE FOR DIP NETTING BY LOCATION (2014)

Waterbody	Sample ID	Date (dd/mm/yy)	Net Effort (total dips)	Species-specific CPUE (# fish/dips)					
				Brook Stickleback	Finescale Dace	Mottled Sculpin	Pearl Dace	Site CPUE Total	Site Catch Total (n)
Trib 5A	ST-5A-DP1	26/09/14	16	0.00	1.19	0.06	0.06	**1.31**	**21**
Trib 5A	ST-5A-DP2	28/09/14	10	0.30	0.40	0.00	0.00	**0.70**	**7**
Tributary 7	ST7-DN1	26/09/14	10	0.00	1.90	0.00	0.10	**2.00**	**20**
Species Site Catch Total (n)				**3**	**42**	**1**	**2**	**-**	**48**

TABLE 20
SPECIES-SPECIFIC CPUE FOR MINNOW TRAP BY LOCATION (2014)

Waterbody	Sample ID	Lift Date (dd/mm/yy)	# of Traps Set	Hours	Total Trap Hours (# traps*hours)	Species-specific Catch per Trap Hours (# fish/trap hours)								
						Brook Stickleback	Common White Sucker	Iowa Darter	Longnose Dace	Mottled Sculpin	Pearl Dace	Walleye	Site CPUE Total	Site Catch Total (n)
North Granny Creek	NGC-DS-MT1	25/09/14	9	15.3	138	0.000	0.007	0.007	0.000	0.000	0.000	0.000	**0.014**	**2**
South Granny Creek	SGC-DS-MT1	25/09/14	6	16.5	99	0.000	0.000	0.000	0.000	0.000	0.030	0.000	**0.030**	**3**
South Granny Creek	SGC-DIV-MT1	26/09/14	3	15.0	45	0.000	0.000	0.000	0.000	0.000	0.022	0.000	**0.022**	**1**
South Granny Creek	SGC-DIV-MT2	26/09/14	3	21.2	64	0.000	0.016	0.000	0.016	0.000	0.031	0.000	**0.063**	**4**
South Granny Creek	SGC-DS-MT2	26/09/14	6	21.0	126	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.000**	**0**
South Granny Creek	SGC-DIV-MT3	26/09/14	3	21.0	63	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.000**	**0**
North Granny Creek	NGC-BD-MT1	26/09/14	9	22.0	198	0.000	0.005	0.000	0.000	0.000	0.000	0.000	**0.005**	**1**
North Granny Creek	NGC-BD-MT2	28/09/14	9	54.3	488	0.000	0.004	0.000	0.000	0.000	0.002	0.000	**0.006**	**3**
South Granny Creek	SGC-DIV-MT5	28/09/14	3	78.4	235	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.000**	**0**
South Granny Creek	SGC-DIV-MT6	28/09/14	3	54.3	163	0.000	0.000	0.000	0.000	0.000	0.006	0.000	**0.006**	**1**
South Granny Creek	SGC-DIV-MT4	28/09/14	3	54.5	164	0.000	0.000	0.000	0.000	0.000	0.012	0.000	**0.012**	**2**
South Granny Creek	SGC-DS-MT3	28/09/14	6	55.0	330	0.000	0.000	0.000	0.000	0.000	0.003	0.000	**0.003**	**1**
Trib 5A	ST-5A-MT1	28/09/14	10	48.4	484	0.002	0.000	0.000	0.000	0.000	0.017	0.000	**0.019**	**9**
North Granny Creek	NGC-DS-MT1	30/09/14	11	22.3	246	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.000**	**0**
Trib 5A	ST-5A-MT2	01/10/14	10	68.4	684	0.001	0.000	0.000	0.000	0.001	0.015	0.000	**0.018**	**12**
North Granny Creek	NGC-DS-MT2	02/10/14	9	45.0	405	0.000	0.000	0.000	0.000	0.000	0.002	0.002	**0.005**	**2**
South Granny Creek	SGC-DS-MT1	02/10/14	11	46.6	513	0.000	0.000	0.000	0.000	0.000	0.004	0.000	**0.004**	**2**
South Granny Creek	SGC-DS-MT2	03/10/14	11	21.2	233	0.000	0.000	0.000	0.000	0.000	0.013	0.000	**0.013**	**3**
Trib 5A	ST-5A-MT3	03/10/14	10	52.2	522	0.000	0.000	0.000	0.000	0.000	0.010	0.000	**0.010**	**5**
South Granny Creek	SGC-DS-MT3	04/10/14	13	24.6	319	0.000	0.000	0.000	0.000	0.006	0.003	0.000	**0.009**	**3**
Trib 5A	ST-5A-MT4	04/10/14	10	26.0	260	0.008	0.000	0.000	0.000	0.000	0.077	0.000	**0.085**	**22**
					Species Catch Total (n)	**4**	**5**	**1**	**1**	**3**	**61**	**1**	-	**76**

TABLE 21
SUMMARY OF PEARL DACE UNIVARIATE STATISTICS BY AGE CLASS FOR 2014

		Age Class											
		YOY Pearl Dace				Age ≥1 Pearl Dace				Pearl Dace All Ages Pooled			
	Area	SGC	NGC	ST-5A	NAY-DS6	SGC	NGC	ST-5A	NAY-DS6	SGC	NGC	ST-5A	NAY-DS6
Total Length (mm)	n		10	2	11	20	6	41	3	20	16	44	14
	Mean		40.20	41.50	33.91	89.55	78.67	74.22	64.00	89.55	54.62	72.66	40.36
	SE		1.96	9.50	1.10	5.71	9.98	2.24	4.51	5.71	6.08	2.35	3.62
	Median		41.00	41.50	35.00	92.75	76.00	72.00	68.00	92.75	45.50	71.50	36.00
	Min		32.00	32.00	29.00	13.50	47.00	52.00	55.00	13.50	32.00	32.00	26.00
	Max		50.00	51.00	39.00	130.00	122.00	119.00	69.00	130.00	122.00	119.00	69.00
Weight (g)	n		10	2	11	20	6	41	3	20	16	44	14
	Mean		0.51	0.57	0.28	7.97	4.61	3.57	2.05	7.97	2.05	3.42	0.66
	SE		0.07	0.39	0.03	1.19	1.88	0.39	0.41	1.19	0.84	0.37	0.22
	Median		0.52	0.57	0.26	6.22	3.29	3.00	2.22	6.22	0.67	2.81	0.29
	Min		0.25	0.19	0.16	1.64	0.76	0.96	1.27	1.64	0.25	0.19	0.16
	Max		0.89	0.96	0.45	19.87	13.76	14.09	2.66	19.87	13.76	14.09	2.66
Total Hg (mg/kg)	n		10	2	11	20	6	41	3	20	16	44	14
	Mean		0.14	0.06	0.05	0.35	0.14	0.07	0.08	0.35	0.14	0.07	0.05
	SE		0.02	0.01	0.01	0.05	0.03	0.00	0.01	0.05	0.02	0.01	0.01
	Median		0.12	0.06	0.04	0.25	0.14	0.07	0.08	0.25	0.13	0.07	0.05
	Min		0.08	0.04	0.03	0.11	0.05	0.04	0.07	0.11	0.05	0.04	0.03
	Max		0.34	0.07	0.08	0.79	0.27	0.14	0.09	0.79	0.34	0.14	0.09
Age	n					20	6	41	3	20	16	43	14
	Mean					2.60	1.33	1.90	1.00	2.60	0.50	1.81	0.21
	SE					0.29	0.33	0.16	0.00	0.29	0.20	0.16	0.11
	Median					2	1	2	1	2	0	2	0
	Min					1	1	1	1	1	0	0	0
	Max					6	3	5	1	6	3	5	1

No YOY Pearl Dace were captured at South Granny Creek

TABLE 22
TOTAL LENGTH, WEIGHT AND AGE COMPARISON BY LOCATION FOR 2014 PEARL DACE IN THE GRANNY CREEKS AND TRIBUTARY 5A USING ANOVA

Total Length (YOY)							* Signficant post-hoc
Source of Variation	SS	df	MS	F	P-value	p<0.05	
Between Groups	2.82	1	1580.58	0.054	0.822	N	
Error	526.10	10	369.43				
Total Length (Age 1+)							Signficant post-hoc
Source of Variation	SS	df	MS	F	P-value	p<0.05	ST-5A≠SGC
Between Groups	3161.20	2	1580.58	4.279	0.0180	Y	
Error	23643.30	64	369.43				
Weight (YOY)							Signficant post-hoc
Source of Variation	SS	df	MS	F	P-value	p<0.05	
Between Groups	0.003	1	0.00	0.048	0.8305	N	
Error	0.58	10	0.06				
Weight (Age 1+)							Signficant post-hoc
Source of Variation	SS	df	MS	F	P-value	p<0.05	ST-5A≠SGC
Between Groups	1.50	2	0.75	8.779	<0.001	Y	
Error	5.46	64	0.09				
Age (All fish)							Signficant post-hoc
Source of Variation	SS	df	MS	F	P-value	p<0.05	ST-5A≠SGC
Between Groups	39.63	2	19.81	16.860	<0.001	Y	ST-5A≠NGC
Error	89.31	76	1.18				SGC≠NGC
Age (Age 1+)							Signficant post-hoc
Source of Variation	SS	df	MS	F	P-value	p<0.05	SGC≠NGC
Between Groups	10.02	2	5.01	4.233	0.019	Y	
Error	75.74	64	1.18				

Only post significant post hoc comparisons are shown in table (≠)
≠ describes area comparisons that are not equal
* Significance based on Tukey HSD at α = 0.05
SS = sum of squares
df = degrees of freedom
MS = mean square
F - Test statistic = between group variability / within group variability
P-value =the level of marginal significance within a statistical hypothesis test, representing the probability of the occurrence of a given event.

TABLE 23
2014 RESULTS OF TWO WAY ANOVA AND ONE WAY ANOVA FOR PEARL DACE FROM THE GRANNY CREEKS AND TRIBUTARY 5A

2 Way ANOVA							
	SS	df	MS	F	P-value	p<0.05	
Location	27.502	2	13.751	70.816	<0.001	Y	
Ageclass	0.066	2	0.033	0.170	0.844	N	
Location:Ageclass	0.102	1	0.102	0.528	0.470	N	
Residuals	14.369	74	0.194				
1 Way ANOVA (YOY)							*Signficant post-hoc
Source of Variation	SS	df	MS	F	P-value	p<0.05	ST-5A≠NGC
Between Groups	1.242	1	1.242	7.994	0.0179	Y	
Error	1.554	10	0.155				
1 Way ANOVA (Age 1+)							Signficant post-hoc
Source of Variation	SS	df	MS	F	P-value	p<0.05	ST-5A≠NGC
Between Groups	26.340	2	13.170	65.780	<0.001	Y	SGC≠NGC
Error	12.810	64	0.200				ST-5A≠SGC

SS = sum of squares
df = degrees of freedom
MS = mean square
F - Test statistic = between group variability / within group variability
P-value = the level of marginal significance within a statistical hypothesis test, representing the probability of the occurrence of a given event.
p < 0.05 - indicates significance of test for null-hypothesis (equal means) at an alpha of 0.5
Y = Yes, N = No
* Significance based on Tukey HSD at α = 0.05

TABLE 24
RESULTS OF ANCOVA DISPLAYING LS MEANS OF 2014 TOTAL HG ADJUSTED FOR TOTAL LENGTH AND POST HOC COMPARISONS - GRANNY CREEKS AND TRIBUTARY 5A

	Pearl Dace (All ages)				Significant post-hoc comparisons
Area	**SGC**	**NGC**	**ST-5A**		
LS Mean	0.2980	0.1384	0.0738		NGC ≠ SGC
SE	0.0294	0.0351	0.0166		ST-5A ≠ SGC

Only significant post hoc comparisons are shown in table (≠)
≠ describes area comparisons that are not equal
* Significance based on Tukey Post Hoc at α = 0.05
LS Mean = least squared mean
SE = standard error of mean

TABLE 25
RESULTS OF ANCOVA DISPLAYING LS MEANS OF 2014 TOTAL HG ADJUSTED FOR AGE AND POST HOC COMPARISONS - GRANNY CREEKS AND TRIBUTARY 5A

	Pearl Dace (Age 1+)				Significant post-hoc comparisons
Area	**SGC**	**NGC**	**ST-5A**		
LS	0.2967	0.1191	0.0761		NGC ≠ SGC
SE	0.0252	0.0591	0.0164		ST-5A ≠ SGC

Only significant post hoc comparisons are shown in table (≠)
≠ describes area comparisons that are not equal
* Significance based on Tukey Post Hoc at α = 0.05
LS Mean = least squared mean
SE = standard error of mean

TABLE 26
BACI DESIGN ANCOVA RESULTS 2009 VERSUS 2014 BY CONTROL VERSUS IMPACT SITES - GRANNY CREEKS AND TRIBUTARY 5A

Comparison (Period*Site)	Species	n	F-value	P-value	Significant Difference	*Significant Pairwise Comparisons
2009*NGC | 2009*SGC | 2009* ST5A | 2014*NGC | 2014*SGC | 2014* ST5A	Pearl Dace	150	5.1144	0.0072	Yes	2009*NGC versus 2009*SGC 2009*NGC versus 2014*SGC 2009*SGC versus 2009*ST5A 2009*SGC versus 2014*SGC 2009*SGC versus 2014*ST5A 2009*ST5A versus 2014* NGC 2009*ST5A versus 2014*SGC 2014*NGC versus 2014*SGC 2014*NGC versus 2014*ST5A 2014*SGC versus 2014*ST5A

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

Significance is based on α equal to 0.05

* Pairwise comparions based on Tukeys HSD post-hoc at α = 0.05

TABLE 27
SUMMARY OF TROUT PERCH UNIVARIATE STATISTICS BY AGE CLASS FOR 2014

		Age Class														
		YOY Trout Perch					Age ≥1 Trout Perch					Trout Perch All Ages Pooled				
	Area	ATT-NF	ATT-FF	ATT-US	ATT-REF2	NAY-DS6	ATT-NF	ATT-FF	ATT-US	ATT-REF2	NAY-DS6	ATT-NF	ATT-FF	ATT-US	ATT-REF2	NAY-DS6
Total Length (mm)	n	39	27	33	35	21	11	23	17	15	19	50	50	50	50	40
	Mean	44.59	45.44	44.12	46.63	40.00	92.82	90.48	90.76	92.80	75.47	55.2	66.15	59.98	60.48	56.85
	SE	0.75	0.91	1.27	0.77	1.33	3.16	2.14	3.06	2.43	2.65	2.99	3.39	3.42	3.15	3.17
	Median	45.00	46.00	44.00	47.00	39.00	94.00	93.00	90.00	94.00	76.00	46.00	51.50	47.00	49.50	47.50
	Min	36.00	36.00	35.00	37.00	26.00	73.00	75.00	71.00	78.00	45.00	36.00	36.00	35.00	37.00	26.00
	Max	55.00	54.00	73.00	55.00	50.00	110.00	110.00	111.00	109.00	102.00	110.00	110.00	111.00	109.00	102.00
Weight (g)	n	39	27	33	35	21	11	23	17	15	19	50	50	50	50	40
	Mean	0.80	0.89	0.80	0.97	0.64	7.24	6.93	6.86	7.33	4.16	2.22	3.67	2.86	2.88	2.31
	SE	0.04	0.05	0.09	0.05	0.06	0.86	0.53	0.69	0.58	0.43	0.42	0.49	0.47	0.45	0.35
	Median	0.80	0.94	0.74	0.97	0.62	7.06	6.90	6.48	7.35	3.99	0.86	1.30	0.86	1.12	1.07
	Min	0.42	0.33	0.35	0.45	0.16	3.32	3.28	3.26	4.19	0.71	0.42	0.33	0.35	0.45	0.16
	Max	1.30	1.46	3.45	1.63	1.15	14.13	11.88	11.64	12.25	9.59	14.13	11.88	11.64	12.25	9.59
Total Hg (mg/kg)	n	39	27	33	35	21	11	23	17	15	19	50	50	50	50	40
	Mean	0.07	0.05	0.07	0.07	0.07	0.10	0.10	0.11	0.11	0.08	0.08	0.07	0.08	0.08	0.07
	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	0.01	0.01	0.01
	Median	0.07	0.05	0.07	0.06	0.06	0.11	0.09	0.10	0.11	0.08	0.07	0.07	0.08	0.08	0.07
	Min	0.04	0.02	0.04	0.03	0.04	0.02	0.06	0.07	0.07	0.06	0.02	0.02	0.04	0.03	0.04
	Max	0.11	0.09	0.14	0.11	0.13	0.13	0.19	0.20	0.21	0.13	0.13	0.19	0.20	0.21	0.13
Age	n						11	23	17	15	19	50	50	50	50	40
	Mean						1.91	1.61	1.82	1.87	1.11	0.42	0.74	0.62	0.56	0.52
	SE						0.16	0.14	0.20	0.17	0.07	0.12	0.13	0.14	0.13	0.09
	Median						2	2	2	2	1	0	0	0	0	0
	Min						1	1	1	1	1	0	0	0	0	0
	Max						3	3	3	3	2	3	3	3	3	2

TABLE 28
TOTAL LENGTH, WEIGHT AND AGE COMPARISON BY LOCATION FOR 2014 TROUT PERCH IN THE ATTAWAPISKAT RIVER USING ANOVA

Total Length (YOY)						
Source of Variation	SS	df	MS	F	P-value	p<0.05
Between Groups	125.90	3	41.97	1.428	0.238	N
Error	3819.80	130	29.38			
Total Length (Age 1+)						
Source of Variation	SS	df	MS	F	P-value	p<0.05
Between Groups	77.60	3	25.87	0.222	0.8803	N
Error	7204.80	62	116.21			
Weight (YOY)						
Source of Variation	SS	df	MS	F	P-value	p<0.05
Between Groups	0.70	3	0.23	1.936	0.1269	N
Error	15.63	130	0.12			
Weight (Age 1+)						
Source of Variation	SS	df	MS	F	P-value	p<0.05
Between Groups	2.52	3	0.84	0.123	0.9463	N
Error	424.87	62	6.85			
Age (All fish)						
Source of Variation	SS	df	MS	F	P-value	p<0.05
Between Groups	2.66	3	0.89	1.046	0.374	N
Error	165.90	196	0.85			
Age (Age 1+)						
Source of Variation	SS	df	MS	F	P-value	p<0.05
Between Groups	1.00	3	0.33	0.722	0.542	N
Error	28.59	62	0.46			

SS = sum of squares
df = degrees of freedom
MS = mean square
F - Test statistic = between group variability / within group variability
P-value = the level of marginal significance within a statistical hypothesis test, representing the probability of the occurrence of a given event.

TABLE 29
2014 RESULTS OF TWO WAY ANOVA AND ONE WAY ANOVE FOR TROUT PERCH FORM THE ATTAWAPISKAT RIVER

2 Way ANOVA							
	SS	df	MS	F	P-value	p<0.05	
Location	0.630	3	0.210	2.068	0.106	N	
Ageclass	10.145	1	10.145	99.882	<0.001	Y	
Location:Ageclass	0.847	3	0.282	2.779	0.042	Y	
Residuals	19.502	192	0.102				
1 Way ANOVA (YOY)							*Signficant post-hoc
Source of Variation	SS	df	MS	F	P-value	p<0.05	ATT-FF≠ATT-NF
Between Groups	0.006	3	0.002	5.723	0.0010	Y	ATT-FF≠ATT-REF2
Error	0.047	130	0.0003				ATT-FF≠ATT-US
1 Way ANOVA (Age 1+)							Signficant post-hoc
Source of Variation	SS	df	MS	F	P-value	p<0.05	
Between Groups	0.001	3	0.0004	0.417	0.7416	N	
Error	0.063	62	0.001				

SS = sum of squares
df = degrees of freedom
MS = mean square
F - Test statistic = between group variability / within group variability
P-value = the level of marginal significance within a statistical hypothesis test, representing the probability of the occurrence of a given event.
p < 0.05 - indicates significance of test for null-hypothesis (equal means) at an alpha of 0.5
Y = Yes, N = No
* Significance based on Tukey HSD at α = 0.05

TABLE 30
RESULTS OF ANCOVA DISPLAYING LS MEANS OF 2014 TOTAL HG ADJUSTED FOR TOTAL LENGTH AND POST HOC COMPARISONS - ATTAWAPISKAT RIVER

	Trout Perch (All ages)				*Significant post-hoc comparisons
Area	**ATT-NF**	**ATT-FF**	**ATT-REF2**	**ATT-US**	
LS Mean	0.0808	0.0682	0.0797	0.0827	ATT-FF ≠ ATT-NF
SE	0.0033	0.0033	0.0032	0.0032	ATT-FF ≠ ATT-US

Only significant post hoc comparisons are shown in table (≠)
≠ describes area comparisons that are not equal
* Significance based on Tukey Post Hoc at α = 0.05
LS Mean = least squared mean
SE = standard error of mean

TABLE 31
RESULTS OF ANCOVA DISPLAYING LS MEANS OF 2014 TOTAL HG ADJUSTED FOR AGE AND POST HOC COMPARISONS - ATTAWAPISKAT RIVER

	Trout Perch (Age 1+)				* Significant post-hoc comparisons
Area	**ATT-NF**	**ATT-FF**	**ATT-REF2**	**ATT-US**	
LS	0.1007	0.1049	0.1067	0.1045	
SE	0.0071	0.0049	0.0059	0.0056	

Only significant post hoc comparisons are shown in table (≠)
≠ describes area comparisons that are not equal
* Significance based on Tukey Post Hoc at α = 0.05
LS Mean = least squared mean
SE = standard error of mean

TABLE 32
BACI DESIGN ANCOVA RESULTS 2009 VERSUS 2014 BY CONTROL VERSUS IMPACT SITES - ATTAWAPISKAT RIVER

Comparison (Period*Site)	Species	n	F-value	P-value	Significant Difference	*Significant Pairwise Comparisons
2009*ATT-US | 2009*ATT-NF | 2009*ATT-FF | 2014*ATT-US | 2014*ATT-NF | 2014*ATT-FF	Trout Perch	238	12.3679	<0.001	Yes	2009*ATT-FF vs. 2009*ATT-NF 2009*ATT-NF vs. 2009*ATT-US 2009*ATT-NF vs. 2014*ATT-FF 2009*ATT-NF vs. 2014* ATT-NF 2009*ATT-FF vs. 2014*ATT-US

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

Significance is based on α equal to 0.05

* Pairwise comparions based on Tukeys HSD post-hoc at α = 0.05

TABLE 33a
MUSKEG MONITORING PROGRAM - STATISTICAL ANALYSIS OF CLUSTER PEAT HORIZON MERCURY PORE WATERS
ANNUAL SAMPLING PROGRAM 2014 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)
S-1	Peat - Domed Bog	MS-1-D	1.03	0.05
	Peat - Flat Bog	MS-1-F	2.3	0.09
	Peat - Horizontal Fen	MS-1-H	1.18	<0.02
	Peat - Ribbed Fen	MS-1-R	1.84	0.02
S-2	Peat - Domed Bog	MS-2-D	1.82	0.04
	Peat - Flat Bog	MS-2-F	5.17	0.08
	Peat - Ribbed Fen	MS-2-R	2.06	0.10
S-7	Peat - Domed Bog	MS-7-D	0.95	<0.02
	Peat - Flat Bog	MS-7-F	2.36	<0.02
	Peat - Horizontal Fen	MS-7-H	2.06	0.03
	Peat - Ribbed Fen	MS-7-R	1.94	<0.02
S-8	Peat - Domed Bog	MS-8-D	4.18	0.11
	Peat - Flat Bog	MS-8-F	5.44	0.13
	Peat - Horizontal Fen	MS-8-H	3.28	<0.02
	Peat - Ribbed Fen	MS-8-R	1.15	0.06
S-9(1)	Peat - Domed Bog	MS-9(1)-D	3.26	<0.02
	Peat - Flat Bog	MS-9(1)-F	1.44	0.04
	Peat - Horizontal Fen	MS-9(1)-H	0.7	<0.02
	Peat - Ribbed Fen	MS-9(1)-R	0.71	<0.02
S-9(2)	Peat - Domed Bog	MS-9(2)-D	1.17	<0.02
	Peat - Flat Bog	MS-9(2)-F	2.44	0.07
	Peat - Horizontal Fen	MS-9(2)-H	1.51	<0.02
	Peat - Ribbed Fen	MS-9(2)-R	1.75	<0.02
S-13	Peat - Domed Bog	MS-13-D	1.68	0.11
	Peat - Flat Bog	MS-13-F	1.69	0.29
	Peat - Horizontal Fen	MS-13-H	3.12	0.02
	Peat - Ribbed Fen	MS-13-R	0.26	<0.02
S-15	Peat - Domed Bog	MS-15-D	0.41	<0.02
	Peat - Flat Bog	MS-15-F	1.99	0.07
	Peat - Horizontal Fen	MS-15-H	0.37	<0.02
	Peat - Ribbed Fen	MS-15-R	0.22	0.02
S-V1	Peat - Domed Bog	MS-V(1)-D	0.43	<0.02
	Peat - Ribbed Fen	MS-V(1)-R	2.06	0.10
S-V2	Peat - Domed Bog	MS-V(2)-D		
	Peat - Ribbed Fen	MS-V(2)-R	1.13	<0.02
S-V3	Peat - Domed Bog	MS-V(3)-D	1.06	0.03
	Peat - Ribbed Fen	MS-V(3)-R	0.61	<0.02

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-1	Sum r.
D. Bog	1.05	1.03	2.075
F. Bog	1.84	2.3	4.140
H. Fen	1.75	1.18	2.925
R. Fen	0.24	1.84	2.080
Sum c.	4.87	6.350	11.220

Total SS	2.973
Treat SS	0.274
Block SS	1.428
Error SS	1.272

ANOVA Table

Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	7	2.973	-		
Treatment	1	0.274	0.274	**0.65**	10.1
Block	3	1.428	0.476	1.12	9.28
Error	3	1.272	0.424		

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

METHYL MERCURY

Habitat	Control Mean (S13+S15)	S-1	Sum r.
D. Bog	0.07	0.05	0.114
F. Bog	0.18	0.09	0.263
H. Fen	0.02	0.02	0.041
R. Fen	0.02	0.02	0.043
Sum c.	0.2835	0.176	0.460

Total SS	0.020
Treat SS	0.001
Block SS	0.016
Error SS	0.003

ANOVA Table

Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	7	0.020	-		
Treatment	1	0.001	0.001	**1.621**	10.1
Block	3	0.016	0.005	6.09	9.28
Error	3	0.003	0.001		

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

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TABLE 33b
MUSKEG MONITORING PROGRAM - STATISTICAL ANALYSIS OF CLUSTER PEAT HORIZON MERCURY PORE WATERS
ANNUAL SAMPLING PROGRAM 2014 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)
S-1	Peat - Domed Bog	MS-1-D	1.03	0.05
	Peat - Flat Bog	MS-1-F	2.3	0.09
	Peat - Horizontal Fen	MS-1-H	1.18	<0.02
	Peat - Ribbed Fen	MS-1-R	1.84	0.02
S-2	Peat - Domed Bog	MS-2-D	1.82	0.04
	Peat - Flat Bog	MS-2-F	5.17	0.08
	Peat - Ribbed Fen	MS-2-R	2.06	0.10
S-7	Peat - Domed Bog	MS-7-D	0.95	<0.02
	Peat - Flat Bog	MS-7-F	2.36	<0.02
	Peat - Horizontal Fen	MS-7-H	2.06	0.03
	Peat - Ribbed Fen	MS-7-R	1.94	<0.02
S-8	Peat - Domed Bog	MS-8-D	4.18	0.11
	Peat - Flat Bog	MS-8-F	5.44	0.13
	Peat - Horizontal Fen	MS-8-H	3.28	<0.02
	Peat - Ribbed Fen	MS-8-R	1.15	0.06
S-9(1)	Peat - Domed Bog	MS-9(1)-D	3.26	<0.02
	Peat - Flat Bog	MS-9(1)-F	1.44	0.04
	Peat - Horizontal Fen	MS-9(1)-H	0.7	<0.02
	Peat - Ribbed Fen	MS-9(1)-R	0.71	<0.02
S-9(2)	Peat - Domed Bog	MS-9(2)-D	1.17	<0.02
	Peat - Flat Bog	MS-9(2)-F	2.44	0.07
	Peat - Horizontal Fen	MS-9(2)-H	1.51	<0.02
	Peat - Ribbed Fen	MS-9(2)-R	1.75	<0.02
S-13	Peat - Domed Bog	MS-13-D	1.68	0.11
	Peat - Flat Bog	MS-13-F	1.69	0.29
	Peat - Horizontal Fen	MS-13-H	3.12	0.02
	Peat - Ribbed Fen	MS-13-R	0.26	<0.02
S-15	Peat - Domed Bog	MS-15-D	0.41	<0.02
	Peat - Flat Bog	MS-15-F	1.99	0.07
	Peat - Horizontal Fen	MS-15-H	0.37	<0.02
	Peat - Ribbed Fen	MS-15-R	0.22	0.02
S-V1	Peat - Domed Bog	MS-V(1)-D	0.43	<0.02
	Peat - Ribbed Fen	MS-V(1)-R	2.06	0.10
S-V2	Peat - Domed Bog	MS-V(2)-D		
	Peat - Ribbed Fen	MS-V(2)-R	1.13	<0.02
S-V3	Peat - Domed Bog	MS-V(3)-D	1.06	0.03
	Peat - Ribbed Fen	MS-V(3)-R	0.61	<0.02

(Green) 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-2	Sum r.
D. Bog	1.05	1.82	2.865
F. Bog	1.84	5.17	7.010
R. Fen	0.24	2.06	2.300
Sum c.	3.125	9.050	12.175

Total SS	14.115
Treat SS	5.851
Block SS	6.614
Error SS	1.650

ANOVA Table					
Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	5	14.115	-		
Treatment	1	5.851	5.851	**7.09**	18.5
Block	2	6.614	3.307	4.01	19.0
Error	2	1.650	0.825		

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

METHYL MERCURY

Habitat	Control Mean (S13+S15)	S-2	Sum r.
D. Bog	0.07	0.04	0.109
F. Bog	0.18	0.08	0.257
R. Fen	0.02	0.10	0.123
Sum c.	0.263	0.225	0.488

Total SS	0.015
Treat SS	0.000
Block SS	0.007
Error SS	0.008

ANOVA Table					
Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	5	0.015	-		
Treatment	1	0.000	0.000	**0.06**	18.5
Block	2	0.007	0.003	0.85	19.0
Error	2	0.008	0.004		

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

TABLE 33c
MUSKEG MONITORING PROGRAM - STATISTICAL ANALYSIS OF CLUSTER PEAT HORIZON MERCURY PORE WATERS
ANNUAL SAMPLING PROGRAM 2014 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)
S-1	Peat - Domed Bog	MS-1-D	1.03	0.05
	Peat - Flat Bog	MS-1-F	2.3	0.09
	Peat - Horizontal Fen	MS-1-H	1.18	<0.02
	Peat - Ribbed Fen	MS-1-R	1.84	0.02
S-2	Peat - Domed Bog	MS-2-D	1.82	0.04
	Peat - Flat Bog	MS-2-F	5.17	0.08
	Peat - Ribbed Fen	MS-2-R	2.06	0.10
S-7	Peat - Domed Bog	MS-7-D	0.95	<0.02
	Peat - Flat Bog	MS-7-F	2.36	<0.02
	Peat - Horizontal Fen	MS-7-H	2.06	0.03
	Peat - Ribbed Fen	MS-7-R	1.94	<0.02
S-8	Peat - Domed Bog	MS-8-D	4.18	0.11
	Peat - Flat Bog	MS-8-F	5.44	0.13
	Peat - Horizontal Fen	MS-8-H	3.28	<0.02
	Peat - Ribbed Fen	MS-8-R	1.15	0.06
S-9(1)	Peat - Domed Bog	MS-9(1)-D	3.26	<0.02
	Peat - Flat Bog	MS-9(1)-F	1.44	0.04
	Peat - Horizontal Fen	MS-9(1)-H	0.7	<0.02
	Peat - Ribbed Fen	MS-9(1)-R	0.71	<0.02
S-9(2)	Peat - Domed Bog	MS-9(2)-D	1.17	<0.02
	Peat - Flat Bog	MS-9(2)-F	2.44	0.07
	Peat - Horizontal Fen	MS-9(2)-H	1.51	<0.02
	Peat - Ribbed Fen	MS-9(2)-R	1.75	<0.02
S-13	Peat - Domed Bog	MS-13-D	1.68	0.11
	Peat - Flat Bog	MS-13-F	1.69	0.29
	Peat - Horizontal Fen	MS-13-H	3.12	0.02
	Peat - Ribbed Fen	MS-13-R	0.26	<0.02
S-15	Peat - Domed Bog	MS-15-D	0.41	<0.02
	Peat - Flat Bog	MS-15-F	1.99	0.07
	Peat - Horizontal Fen	MS-15-H	0.37	<0.02
	Peat - Ribbed Fen	MS-15-R	0.22	0.02
S-V1	Peat - Domed Bog	MS-V(1)-D	0.43	<0.02
	Peat - Ribbed Fen	MS-V(1)-R	2.06	0.10
S-V2	Peat - Domed Bog	MS-V(2)-D		
	Peat - Ribbed Fen	MS-V(2)-R	1.13	<0.02
S-V3	Peat - Domed Bog	MS-V(3)-D	1.06	0.03
	Peat - Ribbed Fen	MS-V(3)-R	0.61	<0.02

Clusters used for statistical analysis (green)
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	1.05	0.95	1.995
F. Bog	1.84	2.36	4.200
H. Fen	1.75	2.06	3.805
R. Fen	0.24	1.94	2.180
Sum c.	4.87	7.310	12.180

Total SS	3.516
Treat SS	0.744
Block SS	1.881
Error SS	0.890

ANOVA Table

Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	7	3.516	-		
Treatment	1	0.744	0.744	**2.51**	10.1
Block	3	1.881	0.627	2.11	9.28
Error	3	0.890	0.297		

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	0.07	0.02	0.087
F. Bog	0.18	0.02	0.196
H. Fen	0.02	0.03	0.047
R. Fen	0.02	0.02	0.041
Sum c.	0.2835	0.086	0.370

Total SS	0.021
Treat SS	0.005
Block SS	0.008
Error SS	0.008

ANOVA Table

Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	7	0.021	-		
Treatment	1	0.005	0.005	**1.76**	10.1
Block	3	0.008	0.003	0.93	9.28
Error	3	0.008	0.003		

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

TABLE 33d
MUSKEG MONITORING PROGRAM - STATISTICAL ANALYSIS OF CLUSTER PEAT HORIZON MERCURY PORE WATERS
ANNUAL SAMPLING PROGRAM 2014 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)
S-1	Peat - Domed Bog	MS-1-D	1.03	0.05
	Peat - Flat Bog	MS-1-F	2.3	0.09
	Peat - Horizontal Fen	MS-1-H	1.18	<0.02
	Peat - Ribbed Fen	MS-1-R	1.84	0.02
S-2	Peat - Domed Bog	MS-2-D	1.82	0.04
	Peat - Flat Bog	MS-2-F	5.17	0.08
	Peat - Ribbed Fen	MS-2-R	2.06	0.10
S-7	Peat - Domed Bog	MS-7-D	0.95	<0.02
	Peat - Flat Bog	MS-7-F	2.36	<0.02
	Peat - Horizontal Fen	MS-7-H	2.06	0.03
	Peat - Ribbed Fen	MS-7-R	1.94	<0.02
S-8	Peat - Domed Bog	MS-8-D	4.18	0.11
	Peat - Flat Bog	MS-8-F	5.44	0.13
	Peat - Horizontal Fen	MS-8-H	3.28	<0.02
	Peat - Ribbed Fen	MS-8-R	1.15	0.06
S-9(1)	Peat - Domed Bog	MS-9(1)-D	3.26	<0.02
	Peat - Flat Bog	MS-9(1)-F	1.44	0.04
	Peat - Horizontal Fen	MS-9(1)-H	0.7	<0.02
	Peat - Ribbed Fen	MS-9(1)-R	0.71	<0.02
S-9(2)	Peat - Domed Bog	MS-9(2)-D	1.17	<0.02
	Peat - Flat Bog	MS-9(2)-F	2.44	0.07
	Peat - Horizontal Fen	MS-9(2)-H	1.51	<0.02
	Peat - Ribbed Fen	MS-9(2)-R	1.75	<0.02
S-13	Peat - Domed Bog	MS-13-D	1.68	0.11
	Peat - Flat Bog	MS-13-F	1.69	0.29
	Peat - Horizontal Fen	MS-13-H	3.12	0.02
	Peat - Ribbed Fen	MS-13-R	0.26	<0.02
S-15	Peat - Domed Bog	MS-15-D	0.41	<0.02
	Peat - Flat Bog	MS-15-F	1.99	0.07
	Peat - Horizontal Fen	MS-15-H	0.37	<0.02
	Peat - Ribbed Fen	MS-15-R	0.22	0.02
S-V1	Peat - Domed Bog	MS-V(1)-D	0.43	<0.02
	Peat - Ribbed Fen	MS-V(1)-R	2.06	0.10
S-V2	Peat - Domed Bog	MS-V(2)-D		
	Peat - Ribbed Fen	MS-V(2)-R	1.13	<0.02
S-V3	Peat - Domed Bog	MS-V(3)-D	1.06	0.03
	Peat - Ribbed Fen	MS-V(3)-R	0.61	<0.02

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-8	Sum r.
D. Bog	1.05	4.18	5.225
F. Bog	1.84	5.44	7.280
H. Fen	1.75	3.28	5.025
R. Fen	0.24	1.15	1.390
Sum c.	4.87	14.050	18.920

Total SS	21.981
Treat SS	10.534
Block SS	8.995
Error SS	2.452

ANOVA Table

Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	7	21.981	-		
Treatment	1	10.534	10.534	**12.89**	10.1
Block	3	8.995	2.998	3.67	9.28
Error	3	2.452	0.817		

Treatment Effect (i.e., difference between Control and S-8) **Statistically Significant**

METHYL MERCURY

Habitat	Control Mean (S13+S15)	S-8	Sum r.
D. Bog	0.07	0.11	0.177
F. Bog	0.18	0.13	0.301
H. Fen	0.02	0.02	0.041
R. Fen	0.02	0.06	0.079
Sum c.	0.2835	0.313	0.597

Total SS	0.023
Treat SS	0.000
Block SS	0.020
Error SS	0.003

ANOVA Table

Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	7	0.023	-		
Treatment	1	0.000	0.000	**0.12**	10.1
Block	3	0.020	0.007	7.24	9.28
Error	3	0.003	0.001		

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

TABLE 33e
MUSKEG MONITORING PROGRAM - STATISTICAL ANALYSIS OF CLUSTER PEAT HORIZON MERCURY PORE WATERS
ANNUAL SAMPLING PROGRAM 2014 RESULTS - CLUSTER S-9(1)

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

Cluster Location	Substrate/Condition	Well Name	Total Mercury (Filtered)	Methyl Mercury (Filtered)
S-1	Peat - Domed Bog	MS-1-D	1.03	0.05
	Peat - Flat Bog	MS-1-F	2.3	0.09
	Peat - Horizontal Fen	MS-1-H	1.18	<0.02
	Peat - Ribbed Fen	MS-1-R	1.84	0.02
S-2	Peat - Domed Bog	MS-2-D	1.82	0.04
	Peat - Flat Bog	MS-2-F	5.17	0.08
	Peat - Ribbed Fen	MS-2-R	2.06	0.10
S-7	Peat - Domed Bog	MS-7-D	0.95	<0.02
	Peat - Flat Bog	MS-7-F	2.36	<0.02
	Peat - Horizontal Fen	MS-7-H	2.06	0.03
	Peat - Ribbed Fen	MS-7-R	1.94	<0.02
S-8	Peat - Domed Bog	MS-8-D	4.18	0.11
	Peat - Flat Bog	MS-8-F	5.44	0.13
	Peat - Horizontal Fen	MS-8-H	3.28	<0.02
	Peat - Ribbed Fen	MS-8-R	1.15	0.06
S-9(1)	Peat - Domed Bog	MS-9(1)-D	3.26	<0.02
	Peat - Flat Bog	MS-9(1)-F	1.44	0.04
	Peat - Horizontal Fen	MS-9(1)-H	0.7	<0.02
	Peat - Ribbed Fen	MS-9(1)-R	0.71	<0.02
S-9(2)	Peat - Domed Bog	MS-9(2)-D	1.17	<0.02
	Peat - Flat Bog	MS-9(2)-F	2.44	0.07
	Peat - Horizontal Fen	MS-9(2)-H	1.51	<0.02
	Peat - Ribbed Fen	MS-9(2)-R	1.75	<0.02
S-13	Peat - Domed Bog	MS-13-D	1.68	0.11
	Peat - Flat Bog	MS-13-F	1.69	0.29
	Peat - Horizontal Fen	MS-13-H	3.12	0.02
	Peat - Ribbed Fen	MS-13-R	0.26	<0.02
S-15	Peat - Domed Bog	MS-15-D	0.41	<0.02
	Peat - Flat Bog	MS-15-F	1.99	0.07
	Peat - Horizontal Fen	MS-15-H	0.37	<0.02
	Peat - Ribbed Fen	MS-15-R	0.22	0.02
S-V1	Peat - Domed Bog	MS-V(1)-D	0.43	<0.02
	Peat - Ribbed Fen	MS-V(1)-R	2.06	0.10
S-V2	Peat - Domed Bog	MS-V(2)-D		
	Peat - Ribbed Fen	MS-V(2)-R	1.13	<0.02
S-V3	Peat - Domed Bog	MS-V(3)-D	1.06	0.03
	Peat - Ribbed Fen	MS-V(3)-R	0.61	<0.02

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-9(1)	Sum r.
D. Bog	1.05	3.26	4.305
F. Bog	1.84	1.44	3.280
H. Fen	1.75	0.7	2.445
R. Fen	0.24	0.71	0.950
Sum c.	4.87	6.110	10.980

Total SS	6.206
Treat SS	0.192
Block SS	3.016
Error SS	2.997

ANOVA Table					
Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	7	6.206	-		
Treatment	1	0.192	0.192	**0.19**	10.1
Block	3	3.016	1.005	1.01	9.28
Error	3	2.997	0.999		

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	0.07	0.02	0.087
F. Bog	0.18	0.04	0.216
H. Fen	0.02	0.02	0.041
R. Fen	0.02	0.02	0.041
Sum c.	0.2835	0.100	0.384

Total SS	0.021
Treat SS	0.004
Block SS	0.010
Error SS	0.006

ANOVA Table					
Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	7	0.021	-		
Treatment	1	0.004	0.004	**2.08**	10.1
Block	3	0.010	0.003	1.69	9.28
Error	3	0.006	0.002		

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

TABLE 33f
MUSKEG MONITORING PROGRAM - STATISTICAL ANALYSIS OF CLUSTER PEAT HORIZON MERCURY PORE WATERS
ANNUAL SAMPLING PROGRAM 2014 RESULTS - CLUSTER S-9(2)

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

Cluster Location	Substrate/Condition	Well Name	Total Mercury (Filtered)	Methyl Mercury (Filtered)
S-1	Peat - Domed Bog	MS-1-D	1.03	0.05
	Peat - Flat Bog	MS-1-F	2.3	0.09
	Peat - Horizontal Fen	MS-1-H	1.18	<0.02
	Peat - Ribbed Fen	MS-1-R	1.84	0.02
S-2	Peat - Domed Bog	MS-2-D	1.82	0.04
	Peat - Flat Bog	MS-2-F	5.17	0.08
	Peat - Ribbed Fen	MS-2-R	2.06	0.10
S-7	Peat - Domed Bog	MS-7-D	0.95	<0.02
	Peat - Flat Bog	MS-7-F	2.36	<0.02
	Peat - Horizontal Fen	MS-7-H	2.06	0.03
	Peat - Ribbed Fen	MS-7-R	1.94	<0.02
S-8	Peat - Domed Bog	MS-8-D	4.18	0.11
	Peat - Flat Bog	MS-8-F	5.44	0.13
	Peat - Horizontal Fen	MS-8-H	3.28	<0.02
	Peat - Ribbed Fen	MS-8-R	1.15	0.06
S-9(1)	Peat - Domed Bog	MS-9(1)-D	3.26	<0.02
	Peat - Flat Bog	MS-9(1)-F	1.44	0.04
	Peat - Horizontal Fen	MS-9(1)-H	0.7	<0.02
	Peat - Ribbed Fen	MS-9(1)-R	0.71	<0.02
S-9(2)	Peat - Domed Bog	MS-9(2)-D	1.17	<0.02
	Peat - Flat Bog	MS-9(2)-F	2.44	0.07
	Peat - Horizontal Fen	MS-9(2)-H	1.51	<0.02
	Peat - Ribbed Fen	MS-9(2)-R	1.75	<0.02
S-13	Peat - Domed Bog	MS-13-D	1.68	0.11
	Peat - Flat Bog	MS-13-F	1.69	0.29
	Peat - Horizontal Fen	MS-13-H	3.12	0.02
	Peat - Ribbed Fen	MS-13-R	0.26	<0.02
S-15	Peat - Domed Bog	MS-15-D	0.41	<0.02
	Peat - Flat Bog	MS-15-F	1.99	0.07
	Peat - Horizontal Fen	MS-15-H	0.37	<0.02
	Peat - Ribbed Fen	MS-15-R	0.22	0.02
S-V1	Peat - Domed Bog	MS-V(1)-D	0.43	<0.02
	Peat - Ribbed Fen	MS-V(1)-R	2.06	0.10
S-V2	Peat - Domed Bog	MS-V(2)-D		
	Peat - Ribbed Fen	MS-V(2)-R	1.13	<0.02
S-V3	Peat - Domed Bog	MS-V(3)-D	1.06	0.03
	Peat - Ribbed Fen	MS-V(3)-R	0.61	<0.02

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-9(2)	Sum r.
D. Bog	1.05	1.17	2.215
F. Bog	1.84	2.44	4.280
H. Fen	1.75	1.51	3.255
R. Fen	0.24	1.75	1.990
Sum c.	4.87	6.870	11.740

Total SS	3.017
Treat SS	0.500
Block SS	1.661
Error SS	0.855

ANOVA Table

Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	7	3.017	-		
Treatment	1	0.500	0.500	**1.75**	10.1
Block	3	1.661	0.554	1.94	9.28
Error	3	0.855	0.285		

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	0.07	0.02	0.087
F. Bog	0.18	0.07	0.242
H. Fen	0.02	0.02	0.041
R. Fen	0.02	0.02	0.041
Sum c.	0.2835	0.126	0.410

Total SS	0.021
Treat SS	0.003
Block SS	0.014
Error SS	0.004

ANOVA Table

Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	7	0.021	-		
Treatment	1	0.003	0.003	**2.33**	10.1
Block	3	0.014	0.005	3.41	9.28
Error	3	0.004	0.001		

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

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TABLE 33g
MUSKEG MONITORING PROGRAM - STATISTICAL ANALYSIS OF CLUSTER PEAT HORIZON MERCURY PORE WATERS
ANNUAL SAMPLING PROGRAM 2014 RESULTS - CLUSTER S-V SERIES

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

Cluster Location	Substrate/Condition	Well Name	Total Mercury (Filtered)	Methyl Mercury (Filtered)
S-1	Peat - Domed Bog	MS-1-D	1.03	0.05
	Peat - Flat Bog	MS-1-F	2.3	0.09
	Peat - Horizontal Fen	MS-1-H	1.18	<0.02
	Peat - Ribbed Fen	MS-1-R	1.84	0.02
S-2	Peat - Domed Bog	MS-2-D	1.82	0.04
	Peat - Flat Bog	MS-2-F	5.17	0.08
	Peat - Ribbed Fen	MS-2-R	2.06	0.10
S-7	Peat - Domed Bog	MS-7-D	0.95	<0.02
	Peat - Flat Bog	MS-7-F	2.36	<0.02
	Peat - Horizontal Fen	MS-7-H	2.06	0.03
	Peat - Ribbed Fen	MS-7-R	1.94	<0.02
S-8	Peat - Domed Bog	MS-8-D	4.18	0.11
	Peat - Flat Bog	MS-8-F	5.44	0.13
	Peat - Horizontal Fen	MS-8-H	3.28	<0.02
	Peat - Ribbed Fen	MS-8-R	1.15	0.06
S-9(1)	Peat - Domed Bog	MS-9(1)-D	3.26	<0.02
	Peat - Flat Bog	MS-9(1)-F	1.44	0.04
	Peat - Horizontal Fen	MS-9(1)-H	0.7	<0.02
	Peat - Ribbed Fen	MS-9(1)-R	0.71	<0.02
S-9(2)	Peat - Domed Bog	MS-9(2)-D	1.17	<0.02
	Peat - Flat Bog	MS-9(2)-F	2.44	0.07
	Peat - Horizontal Fen	MS-9(2)-H	1.51	<0.02
	Peat - Ribbed Fen	MS-9(2)-R	1.75	<0.02
S-13	Peat - Domed Bog	MS-13-D	1.68	0.11
	Peat - Flat Bog	MS-13-F	1.69	0.29
	Peat - Horizontal Fen	MS-13-H	3.12	0.02
	Peat - Ribbed Fen	MS-13-R	0.26	<0.02
S-15	Peat - Domed Bog	MS-15-D	0.41	<0.02
	Peat - Flat Bog	MS-15-F	1.99	0.07
	Peat - Horizontal Fen	MS-15-H	0.37	<0.02
	Peat - Ribbed Fen	MS-15-R	0.22	0.02
S-V1	Peat - Domed Bog	MS-V(1)-D	0.43	<0.02
	Peat - Ribbed Fen	MS-V(1)-R	2.06	0.10
S-V2	Peat - Domed Bog	MS-V(2)-D		
	Peat - Ribbed Fen	MS-V(2)-R	1.13	<0.02
S-V3	Peat - Domed Bog	MS-V(3)-D	1.06	0.03
	Peat - Ribbed Fen	MS-V(3)-R	0.61	<0.02

Clusters used for statistical analysis (green shading)
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-V1	S-V2	S-V3	Sum r.
D. Bog	1.05	0.43	0.00	1.06	2.54
R. Fen	0.24	2.06	1.13	0.61	4.04
Sum c.	1.29	2.49	1.13	1.67	6.58

Total SS	2.947
Treat SS	0.555
Block SS	0.283
Error SS	2.109

ANOVA Table

Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	7	2.947	-		
Treatment	3	0.555	0.185	**0.26**	**9.28**
Block	1	0.283	0.283	0.40	10.1
Error	3	2.109	0.703		

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

METHYL MERCURY

Habitat	Control Mean (S13+S15)	S-V1	S-V2	S-V3	Sum r.
D. Bog	0.07	0.02	0.00	0.03	0.11
R. Fen	0.02	0.10	0.02	0.02	0.16
Sum c.	0.09	0.12	0.02	0.05	0.27

Total SS	0.007
Treat SS	0.003
Block SS	0.000
Error SS	0.004

ANOVA Table

Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	7	0.007	-		
Treatment	3	0.003	0.001	**0.70**	**9.28**
Block	1	0.000	0.000	0.21	10.1
Error	3	0.004	0.001		

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

TABLE 34a
GRANNY CREEK - STATISTICAL ANALYSIS - TOTAL MERCURY - 2014 (Filtered)
(concentrations in ng/L)

NORTH GRANNY CREEK DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Date	US NWF (G1)	DS NEF (G3)	Sum r.
Jan	0.68	0.63	1.31
Feb	0.82	0.8	1.62
Mar	0.7	0.58	1.28
Apr	0.9	0.46	1.36
May	2.19	1.21	3.4
Jun	3.54	3.12	6.66
Jul	1.94	2.07	4.01
Aug	0.99	0.87	1.86
Sep	1.61	2.16	3.77
Oct	4.04	2.67	6.71
Nov	2.84	2.73	5.57
Dec*	1.84	2.02	3.86
Sum c.	22.09	19.32	41.41

Total SS	24.575
Treat SS	0.320
Block SS	22.773
Error SS	1.482

ANOVA Table

Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	23	24.575	-		
Treatment	1	0.320	0.320	**2.37**	**4.84**
Block	11	22.773	2.070	15.37	2.98
Error	11	1.482	0.135		

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

US NWF - Upstream Northwest Fen; DS NEF - Downstream Northeast Fen
r. - rows; c. - columns
* Samples discarded/not obtained due to freezing (annual average substituted)

SOUTH GRANNY CREEK DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Date	US SWF (G5)	DS SWF (G6)	Sum r.
Jan	0.59	0.64	1.23
Feb	0.78	0.85	1.63
Mar	0.31	0.65	0.96
Apr	0.44	0.7	1.14
May	3.27	2.76	6.03
Jun	2.51	2.81	5.32
Jul	1.47	1.99	3.46
Aug	1.13	0.75	1.88
Sep	1.49	1.65	3.14
Oct	3.27	3.19	6.46
Nov	2.68	1.87	4.55
Dec*	1.63	1.62	3.25
Sum c.	19.57	19.48	39.05

Total SS	21.992
Treat SS	0.000
Block SS	21.171
Error SS	0.822

ANOVA Table

Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	23	21.992	-		
Treatment	1	0.000	0.000	**0.005**	**4.84**
Block	11	21.171	1.925	25.77	2.98
Error	11	0.822	0.075		

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

US SWF - Upstream Southwest Fen; DS SWF - Downstream Southwest Fen
r. - rows; c. - columns
* Samples discarded/not obtained due to freezing (annual average substituted)

TABLE 34b
GRANNY CREEK - STATISTICAL ANALYSIS - METHYL MERCURY - 2014 (Filtered)
(concentrations in ng/L)

NORTH GRANNY CREEK DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Habitat	US NWF (G1)	DS NEF (G3)	US CONF (G4)	Sum r.
Jan / Mar	0.03	0.06	0.15	0.24
Apr / May	0.03	0.09	0.03	0.15
Jul	0.12	0.27	0.29	0.68
Oct	0.12	0.13	0.14	0.39
Sum c.	0.30	0.55	0.60	1.45

Total SS	0.082
Treat SS	0.013
Block SS	0.055
Error SS	0.014

ANOVA Table

Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	11	0.082	-		
Treatment	2	0.013	0.006	**2.68**	**5.14**
Block	3	0.055	0.018	7.62	4.76
Error	6	0.014	0.002		

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

US NWF - Upstream Northwest Fen; DS NEF - Downstream Northeast Fen; US CONF - Upstream Confluence
r. - rows; c. - columns

SOUTH GRANNY CREEK DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Habitat	US SWF (G5)	DS SWF (G6)	US CONF (G7)	Sum r.
Jan	0.08	0.02	0.05	0.15
Apr	0.02	0.02	0.03	0.07
Jul	0.15	0.05	1.06	1.26
Oct	0.07	0.03	0.11	0.21
Sum c.	0.32	0.11	1.25	1.68

Total SS	0.941
Treat SS	0.181
Block SS	0.313
Error SS	0.446

ANOVA Table

Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	11	0.941	-		
Treatment	2	0.181	0.091	**1.22**	**5.14**
Block	3	0.313	0.104	1.40	4.76
Error	6	0.446	0.074		

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

US SWF - Upstream Southwest Fen; DS SWF - Downstream Southwest Fen; US CONF - Upstream Confluence
r. - rows; c. - columns

TABLE 34c
NAYSHKOOTAYAOW RIVER - STATISTICAL ANALYSIS - MERCURY - 2014 (Filtered)
(concentrations in ng/L)

TOTAL MERCURY DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Habitat	Nash R. US (N1)	Nash R. M (N2)	Nash R. DS (N3)	Sum r.
Jan / Mar	0.45	0.25	0.19	0.89
Apr / May	0.4	0.5	0.75	1.65
Jun / Jul	1.15	1.03	1.28	3.46
Oct	1.7	2.18	1.56	5.44
Sum c.	3.7	3.96	3.78	11.44

US - Upstream; M - Middle; DS - Downstream
r. - rows; c. - columns

Total SS	4.465
Treat SS	0.009
Block SS	4.120
Error SS	0.336

ANOVA Table

Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	11	4.465	-		
Treatment	2	0.009	0.004	**0.08**	**5.14**
Block	3	4.120	1.373	24.53	4.76
Error	6	0.336	0.056		

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

METHYL MERCURY DATA AND TWO-WAY ANALYSIS OF VARIANCE TABLES

Habitat	Nash R. US (N1)	Nash R. M (N2)	Nash R. DS (N3)	Sum r.
Jan / Mar	0.02	0.03	0.04	0.09
Apr / May	0.02	0.02	0.03	0.07
Jul	<0.02	0.03	0.07	0.12
Oct	0.03	0.03	0.03	0.09
Sum c.	0.09	0.11	0.17	0.37

US - Upstream; M - Middle; DS - Downstream
r. - rows; c. - columns

Total SS	0.002
Treat SS	0.001
Block SS	0.000
Error SS	0.001

ANOVA Table

Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	11	0.002	-		
Treatment	2	0.001	0.000	**3.25**	**5.14**
Block	3	0.000	0.000	1.06	4.76
Error	6	0.001	0.000		

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

TABLE 34d
ATTAWAPISKAT RIVER - STATISTICAL ANALYSIS - MERCURY - 2014 (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	0.38	0.74	0.51	0.45	2.08
Apr	0.7	0.65	0.74	0.92	3.01
Jul	1.75	1.68	1.56	1.73	6.72
Oct	2.1	1.22	1.32	1.98	6.62
Sum c.	4.93	4.29	4.13	5.08	18.43

r. - rows; c. - columns

Total SS	5.105
Treat SS	0.164
Block SS	4.363
Error SS	0.577

ANOVA Table					
Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	15	5.105	-		
Treatment	3	0.164	0.055	**0.85**	**3.86**
Block	3	4.363	1.454	22.67	3.86
Error	9	0.577	0.064		

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	<0.02	<0.02	0.10
Apr	0.02	<0.02	0.02	<0.02	0.08
Jul	0.04	0.03	0.03	0.03	0.13
Oct	0.04	0.03	<0.02	<0.02	0.11
Sum c.	0.13	0.11	0.09	0.09	0.42

r. - rows; c. - columns

Total SS	0.001
Treat SS	0.000
Block SS	0.000
Error SS	0.000

ANOVA Table					
Source V.	d.f.	SS	MS	F_{cal}	F_{tab} 0.05
Total	15	0.001	-		
Treatment	3	0.000	0.000	**4.71**	**3.86**
Block	3	0.000	0.000	5.57	3.86
Error	9	0.000	0.000		

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

TABLE 35
2014 SULPHATE INVESTIGATION RESULTS (mg/L)

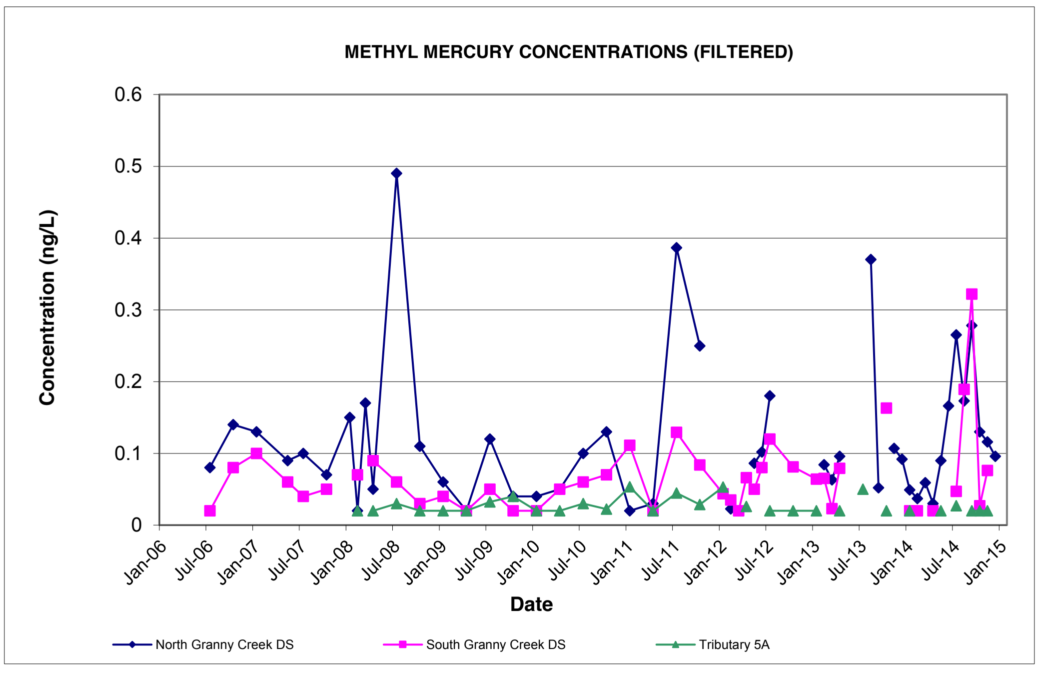
Location	Count	Minimum	Maximum	Average	Period
LG Pond 1	7	68.4	192	150.9	August – October
LG Pond 2	9	5.1	24.8	13.1	August – October
LG Pond 3	9	2.2	17	10.1	August – October
LG Pond 4	9	15.2	35.2	23.8	August – October
E House P1	21	4.2	116	54.7	July – November
NEF – M	112	37.2	287	120.3	January – December
NEF – M^2	23	4.2	113	44.9	May – October
NEF – F	43	12.6	101	60.2	January - December
Phase 1 Ditch	28	2.2	109	70.8	April – November
LF 3	31	3	223	150.0	May – November
LF 4A	6	1.3	2.9	1.7	July – October
LF 4B	7	13.4	61.4	31.8	June – October
LF5	3	1.4	3.1	2.1	June-September

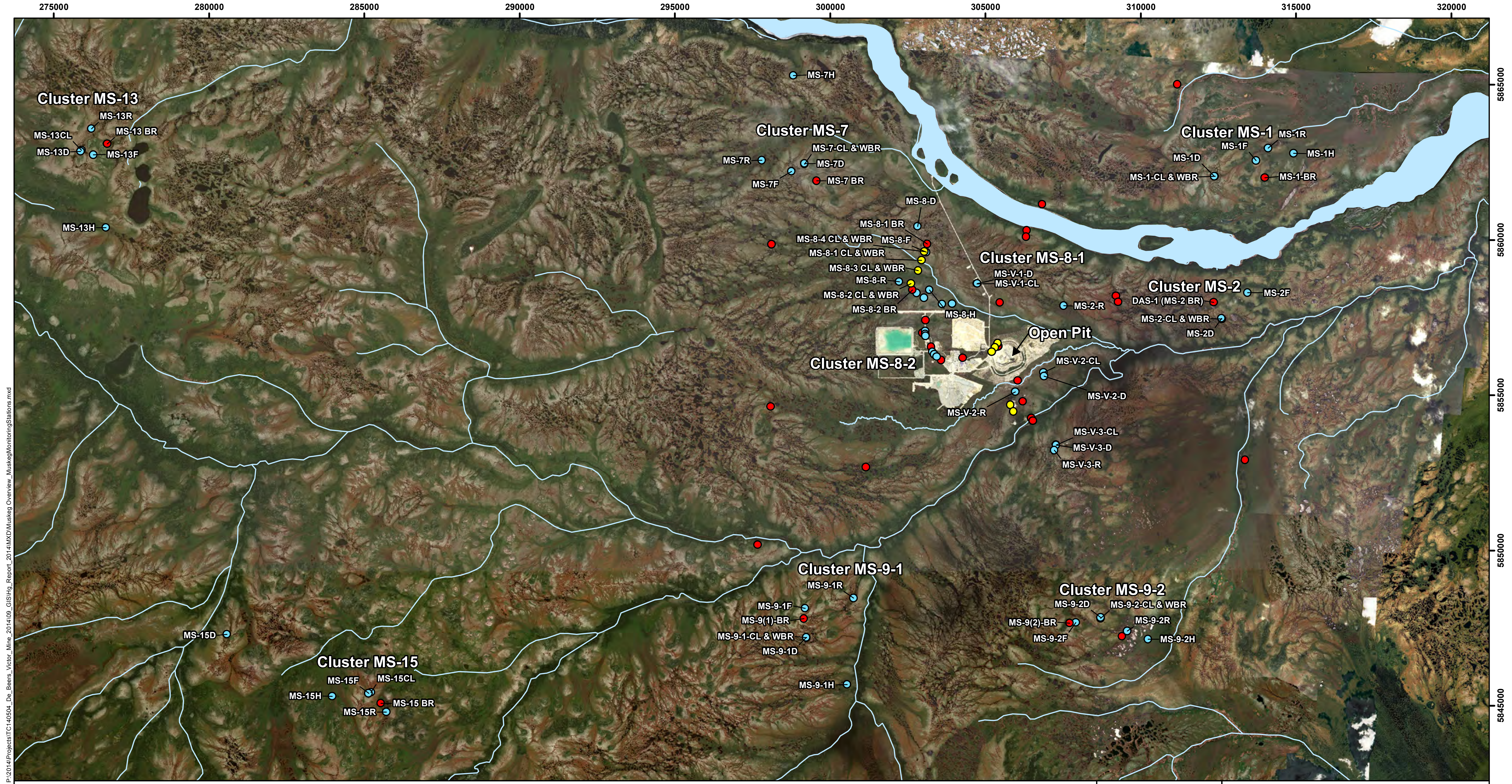
Sample locations are shown in Figure 23
LG – low grade PK stockpile; NEF – Northeast Fen; LF – landfill

TABLE 36
Granny Creek and Tributary 5A Background Methyl Mercury Water Quality (Filtered)
(concentrations in ng/L)

Date	North Granny Creek DS	South Granny Creek DS	Tributary 5A
Jul-06	0.08	0.02	
Oct-06	0.14	0.08	
Jan-07	0.13	0.10	
May-07	0.09	0.06	
Jul-07	0.10	0.04	
Oct-07	0.07	0.05	
Jan-08	0.15		
Feb-08	<0.02	0.07	0.02
Mar-08	0.17		
Apr-08	0.05	0.09	0.02
Jul-08	0.49	0.06	0.03
Oct-08	0.11	0.03	0.02
Jan-09	0.06	0.04	<0.02
Apr-09	<0.02	0.02	0.02
Jul-09	0.12	0.05	0.03
Oct-09	0.04	0.02	0.04
Jan-10	0.04	0.02	0.02
Apr-10	0.05	0.05	0.02
Jul-10	0.10	0.06	0.03
Oct-10	0.13	0.07	0.02
Jan-11	<0.02	0.11	0.05
Apr-11	0.03	<0.02	<0.02
Jul-11	0.39	0.13	0.04
Oct-11	0.25	0.08	0.03
Jan-12		0.04	0.05
Feb-12	0.02	0.04	
Mar-12	<0.02	<0.02	
Apr-12		0.07	0.03
May-12	0.09	0.05	
Jun-12	0.10	0.08	
Jul-12	0.18	0.12	0.02
Oct-12		0.08	<0.02
Jan-13		0.06	<0.02
Feb-13	0.08	0.07	
Mar-13	0.06	0.02	
Apr-13	0.10	0.08	<0.02
May-13			
Jun-13			
Jul-13			0.05
Aug-13	0.37		
Sep-13	0.05		
Oct-13		0.16	<0.02
Nov-13	0.11		
Dec-13	0.09		
Jan-14	0.05	<0.02	<0.02
Feb-14	0.04	<0.02	
Mar-14	0.06		
Apr-14	0.03	<0.02	
May-14	0.09		<0.02
Jun-14	0.17		
Jul-14	0.27	0.05	0.03
Aug-14	0.17	0.19	
Sep-14	0.28	0.32	<0.02
Oct-14	0.13	0.03	<0.02
Nov-14	0.12	0.08	<0.02
Dec-14	0.10		
Average 2008	**<0.17**	**0.06**	**0.02**
Average 2009	**<0.06**	**0.03**	**<0.03**
Average 2010	**0.08**	**0.05**	**0.02**
Average 2011	**<0.17**	**<0.09**	**<0.04**
Average 2012	**<0.08**	**<0.06**	**<0.03**
Average 2013	**0.12**	**0.08**	**<0.03**
Average 2014	**0.12**	**<0.09**	**<0.02**
Average All Years	**<0.12**	**<0.07**	**<0.03**

Blank cells indicate concentration was not determined.
MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury), as per Section 1.
CEQG for Protection of Aquatic Life; 4 ng/L (unfiltered)





LEGEND

Muskeg Monitoring Stations

- Bedrock Monitoring Well
- Clay/Peat/Bedrock Piezometer
- Clay/Peat Piezometer

NOTES:
- Mine site features current as of September 7, 2014 (Pleides satellite platform)
- Area surrounding mine site features current as of September 20, 2012 (GeoEye-1 satellite platform)

Datum: NAD83
Projection: UTM Zone 17N

N E S W

0 3.25 6.5 13 19.5 26 32.5 Kilometres

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VICTOR DIAMOND MINE

Muskeg Monitoring Locations

PROJECT N°: TC140504	FIGURE: 1
SCALE: 1:115,000	DATE: June 2015

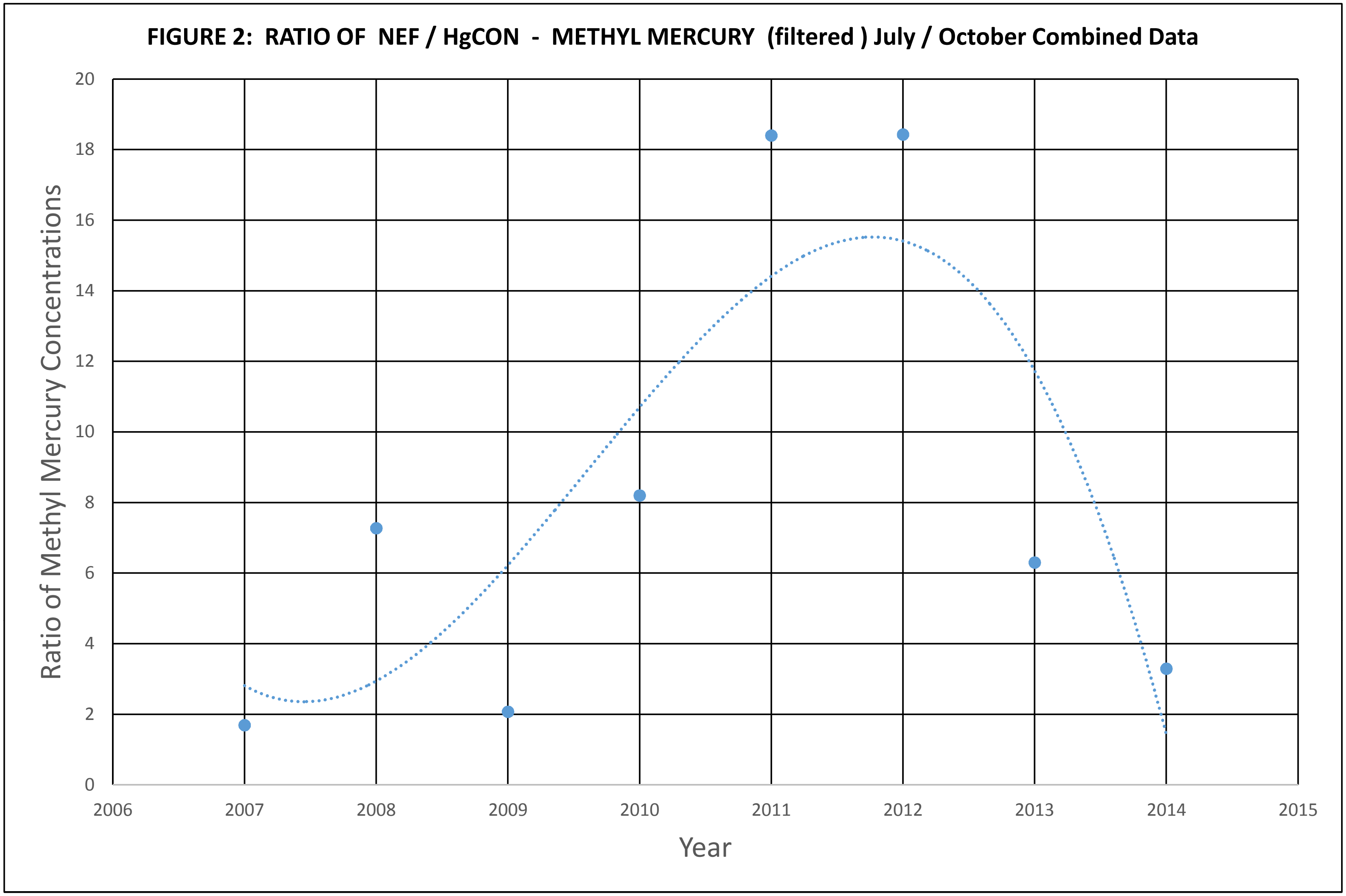
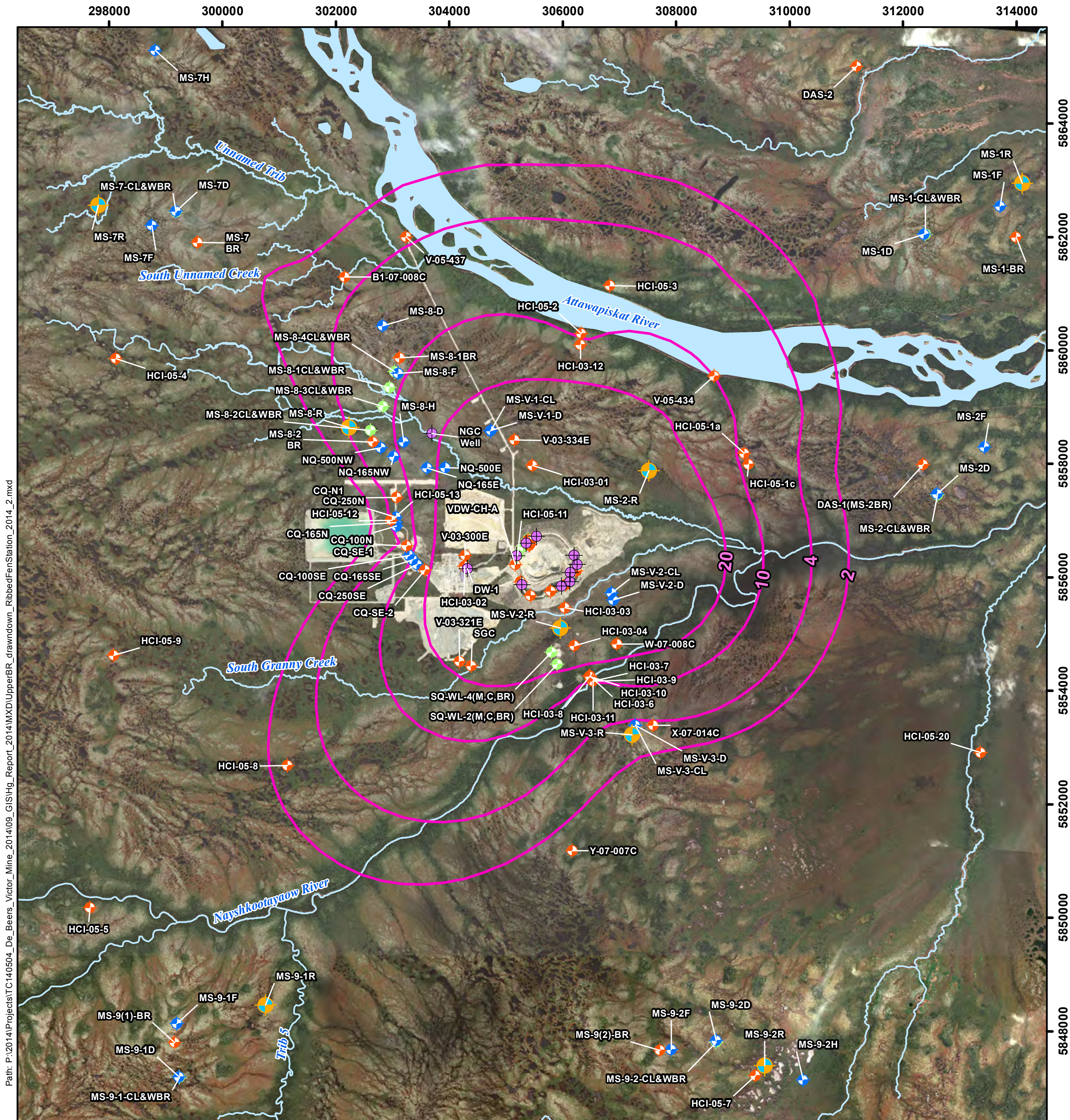


FIGURE 2: RATIO OF NEF / HgCON - METHYL MERCURY (filtered) July / October Combined Data
Ratio of Methyl Mercury Concentrations
20
18
16
14
12
10
8
6
4
2
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Year



LEGEND

Drawdown in Upper Bedrock Aquifer Unit (2 m or 10 m Contour Interval)

Ribbed Fen Station (Clay/Peat Piezometer)

Monitoring Locations

- Pumping Wells
- Bedrock Monitoring Well
- Clay/Peat Piezometer
- Clay/Peat/Bedrock Piezometer

0 1 2 4 6 8 Kilometres

NOTES:
- Mine site features current as of September 7, 2014 (Pleides satellite platform)
- Area surrounding mine site features current as of September 20, 2012 (GeoEye-1 satellite platform)

Datum: NAD83
Projection: UTM Zone 17N

N E S W

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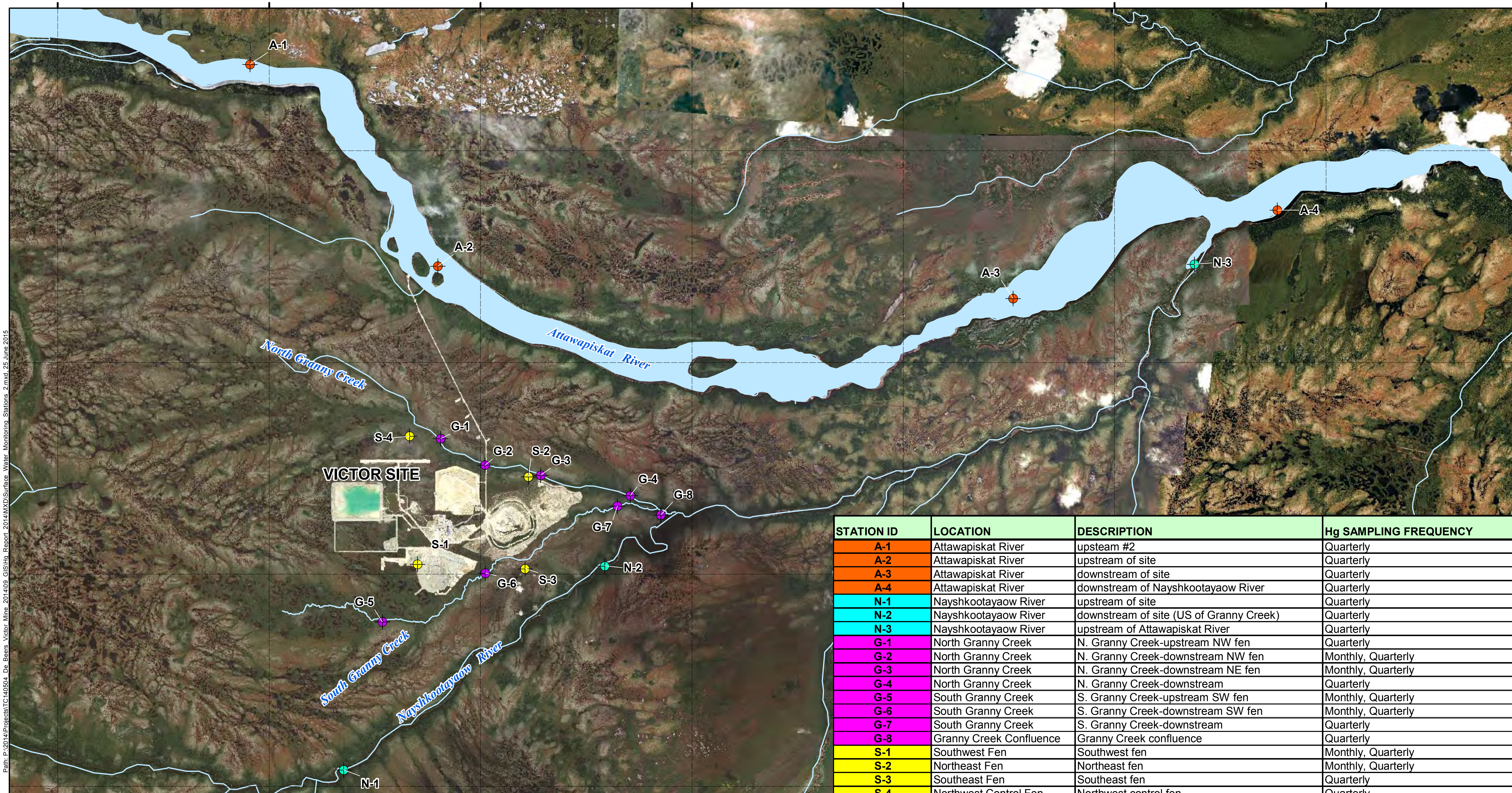
VICTOR DIAMOND MINE

Interpreted Drawdown Contours in Upper Bedrock Aquifer (2014 data)

PROJECT N°: TC140504	FIGURE: 3
SCALE: 1:90,000	DATE: June 2015



STATION ID	LOCATION	DESCRIPTION	Hg SAMPLING FREQUENCY
A-1	Attawapiskat River	upsteam #2	Quarterly
A-2	Attawapiskat River	upstream of site	Quarterly
A-3	Attawapiskat River	downstream of site	Quarterly
A-4	Attawapiskat River	downstream of Nayshkootayaow River	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
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	Monthly, Quarterly
S-2	Northeast Fen	Northeast fen	Monthly, Quarterly
S-3	Southeast Fen	Southeast fen	Quarterly
S-4	Northwest Control Fen	Northwest control fen	Quarterly

Path: P:\2014\Projects\TC140504 De Beers Victor Mine 2014\09 GIS\Hg Report 2014\MXD\Surface Water Monitoring Stations 2.mxd 25 June 2015

LEGEND

Surface Water Monitoring Station Location

- **Attawapiskat River**
- **Nayshkootayaow River**
- **Granny Creek**
- **Fens**

NOTES:
- Mine site features current as of September 7, 2014 (Pleides satellite platform)
- Area surrounding mine site features current as of September 20, 2012 (GeoEye-1 satellite platform)

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VICTOR DIAMOND MINE

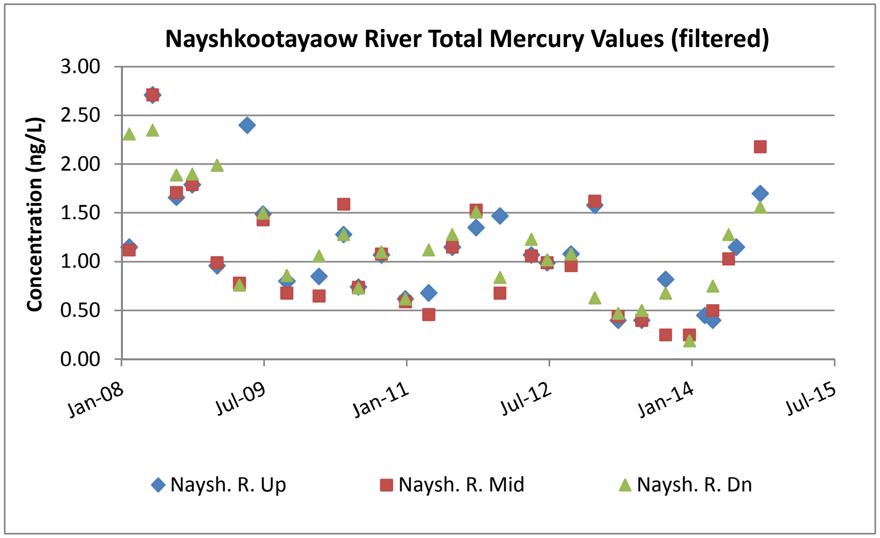
Surface Water Monitoring Stations

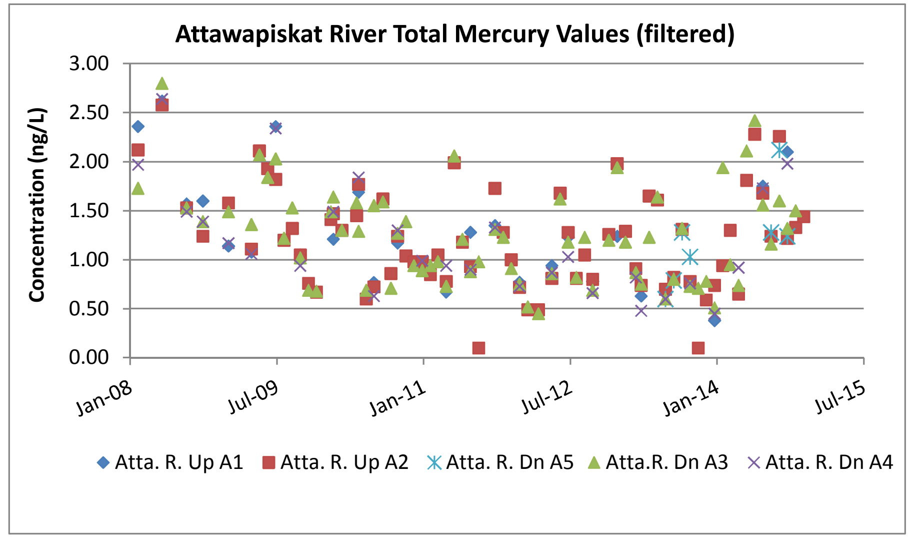
Datum: NAD83
Projection: UTM Zone 17N

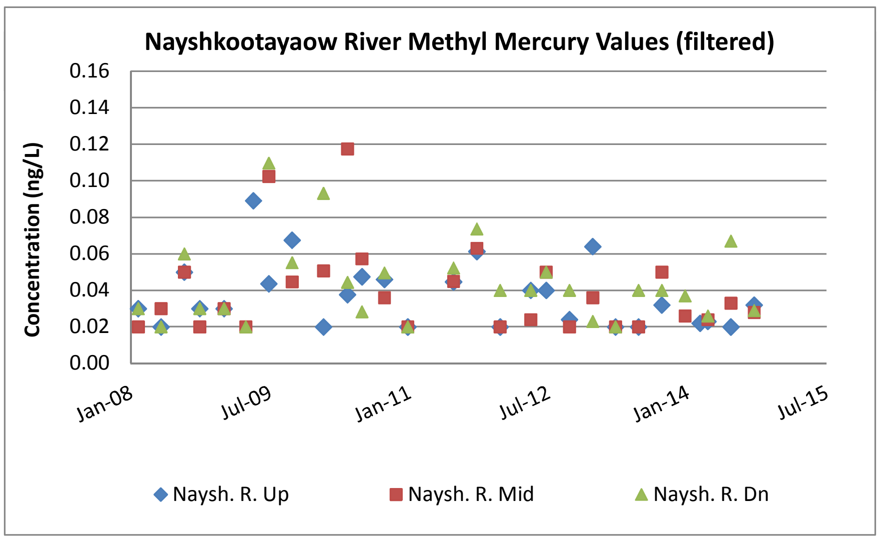
PROJECT Nº: TC140504 | **FIGURE: 4**
SCALE: 1:86,000 | DATE: June 2015

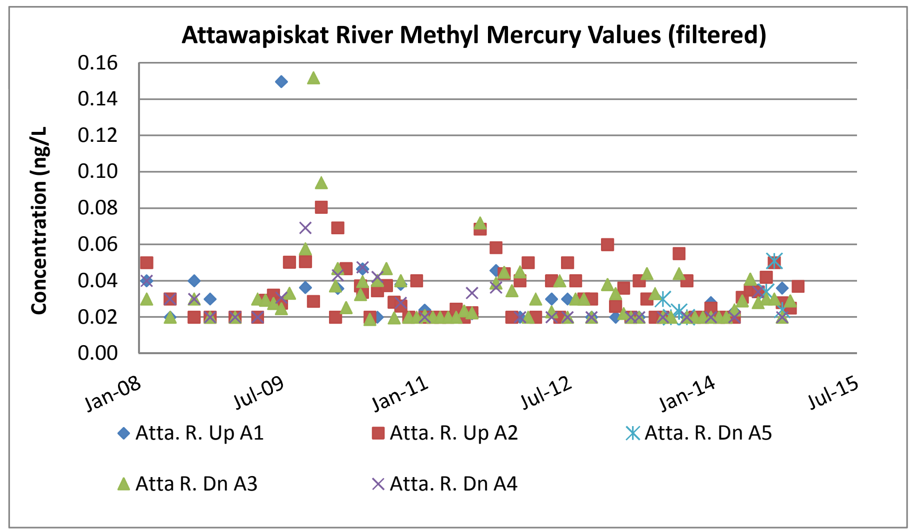
0 3 6 9 12 15 Km

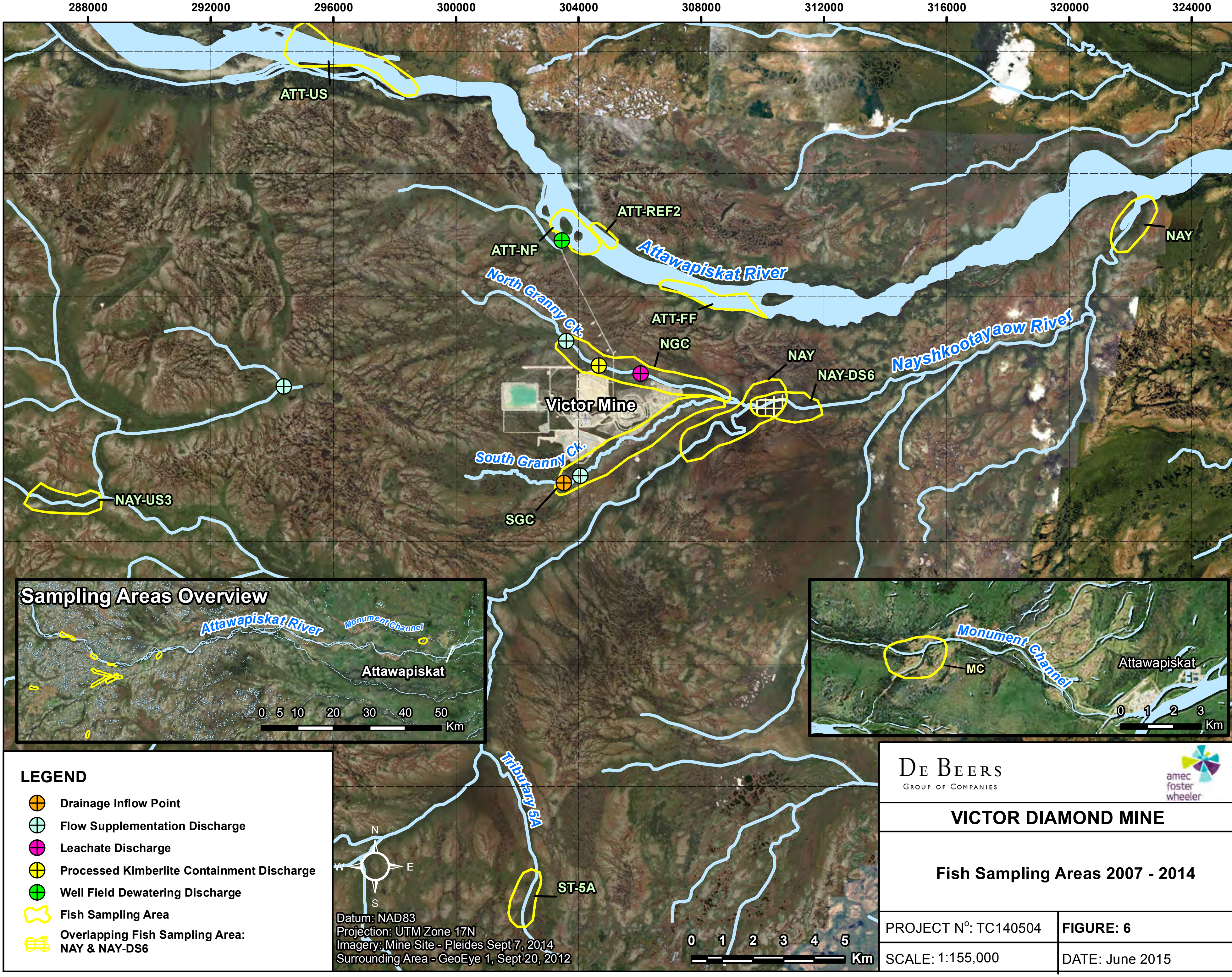
FIGURE 5
NAYSHKOOTAYAOW AND ATTAWAPISKAT RIVER TOTAL AND METHYL MERCURY TRENDS (filtered values)





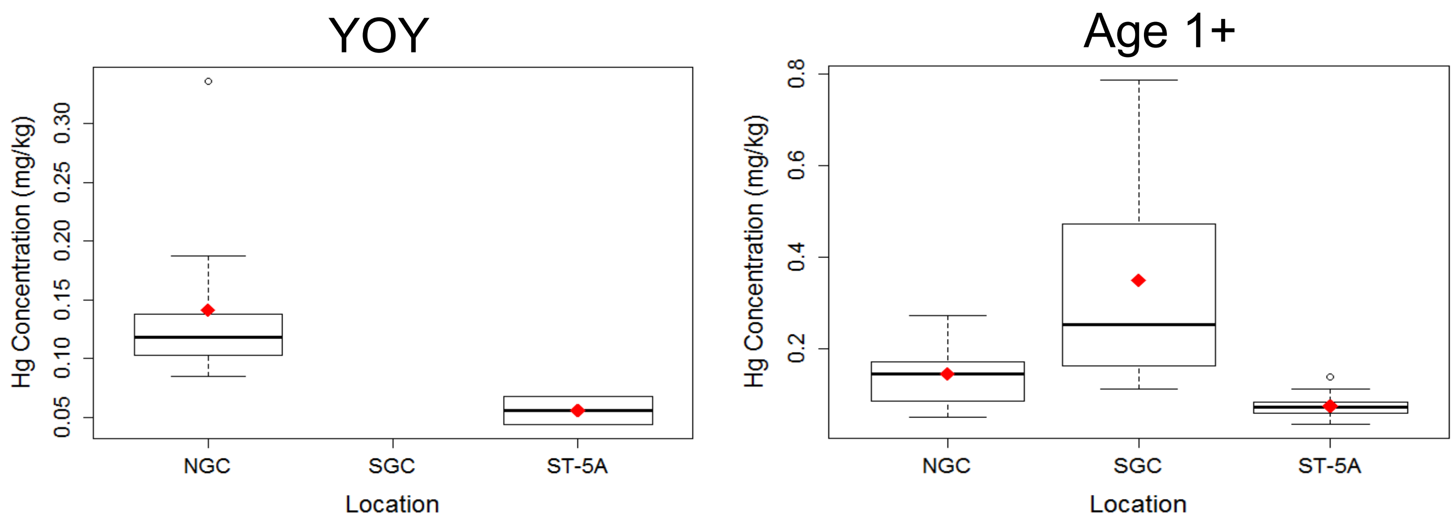






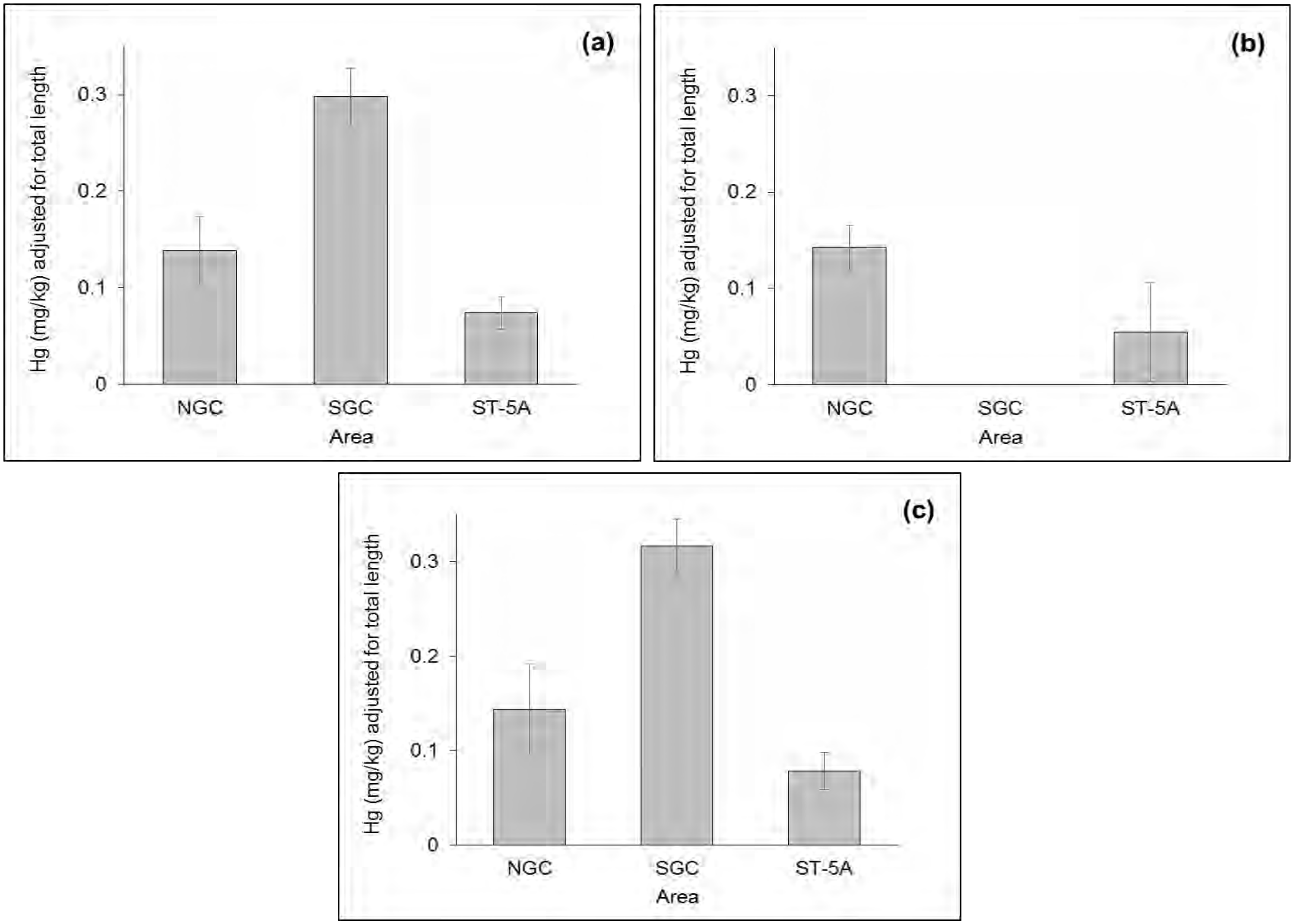
Path: P:\2014\Projects\TC140504_De_Beers_Victor_Mine_2014\09_GIS\Hg_Report_2014\MXD\Fish_Sampling_Mercury_2.mxd

FIGURE 7
TOTAL MERCURY VERSUS FISH AGE - GRANNY CREEKS AND TRIBUTARY 5A



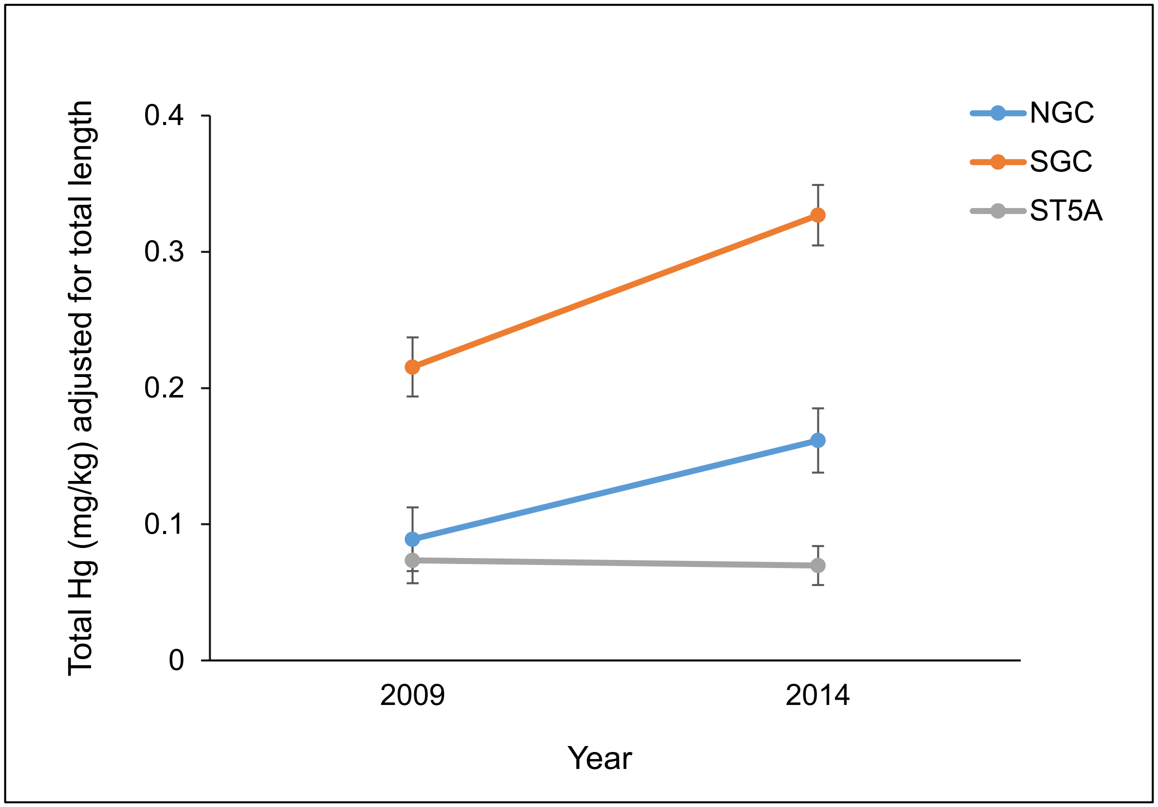
Comparison of total Hg levels (mg/kg) for YOY and aged 1+ Pearl Dace in NGC, SGC and ST-5A. Each box shows the first quartile, median, and third quartile. Whiskers show minimum and maximum values. Open circles represent outliers. Red boxes represent mean Hg values.

FIGURE 8
STASTICAL HISTOGRAMS OF TOTAL MERCURY - GRANNY CREEKS AND TRIBUTARY 5A



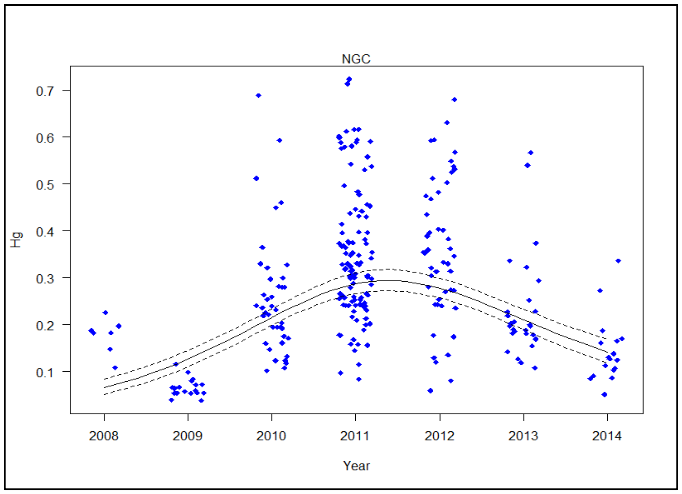
Histograms of least square means and standard errors for total mercury adjusted for total length in Pearl Dace from Granny Creeks and Tributary 5A for (a) all fish pooled, (b) young of the year (YOY), and (c) fish aged 1+

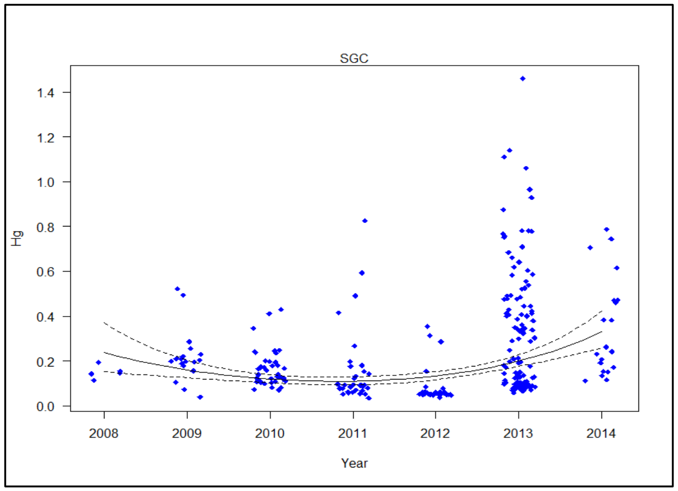
FIGURE 9
LEAST SQUARE PLOTS OF TOTAL MERCURY - GRANNY CREEKS AND TRIBUTARY 5A

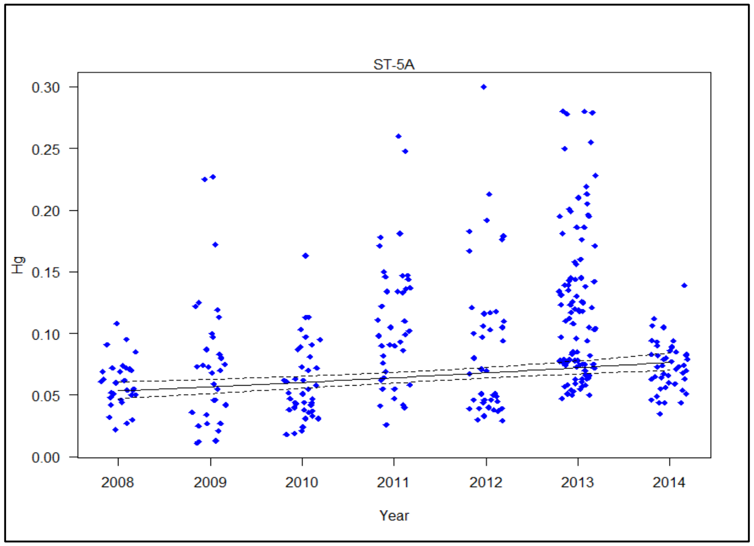


Plot of least square means of total mercury adjusted for total length year and area comparisons for Pearl Dace from Granny Creeks and Tributary 5A

FIGURE 10
TOTAL MERCURY ADDITIVE MODEL - GRANNY CREEKS AND TRIBUTARY 5A

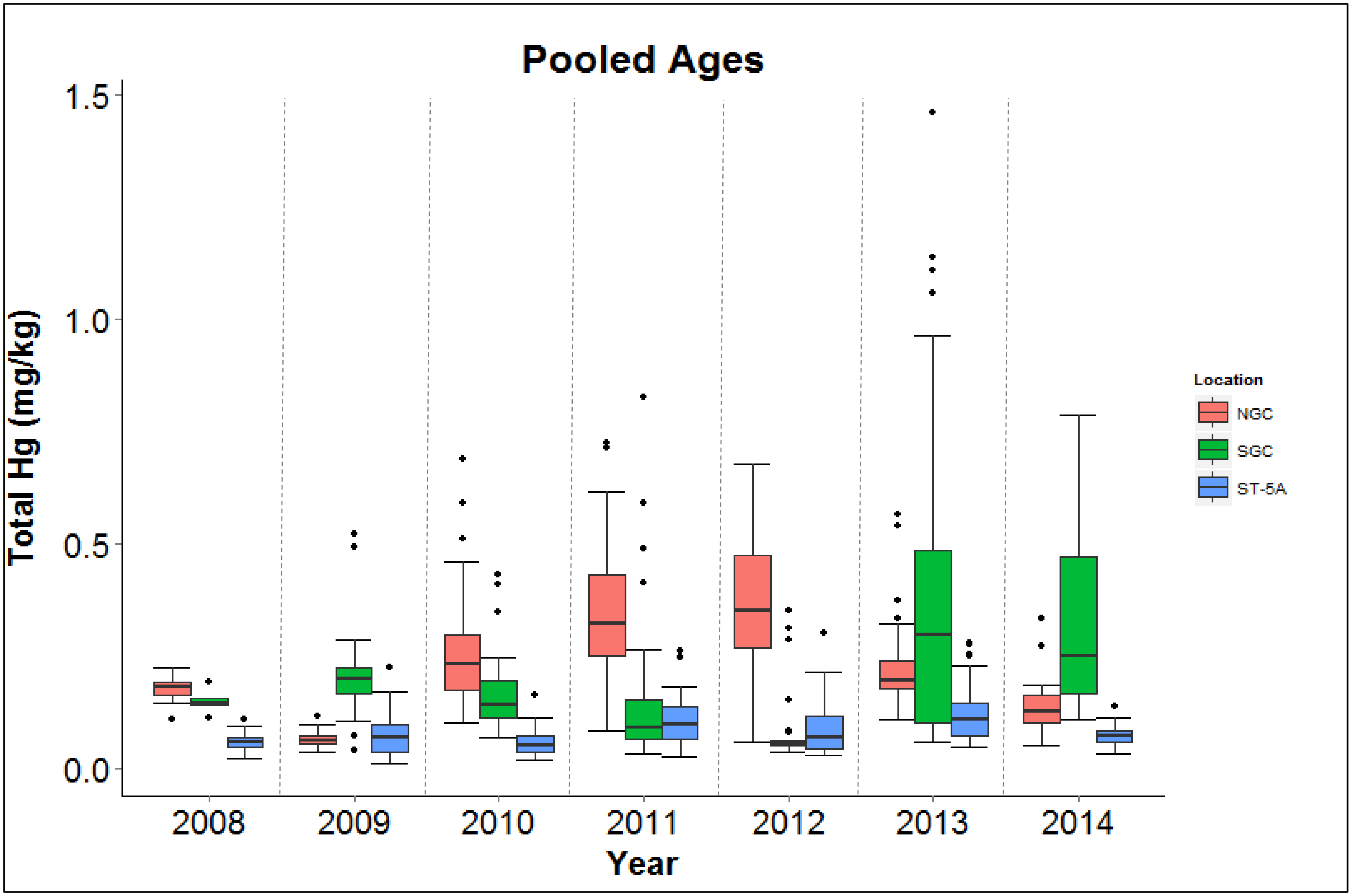






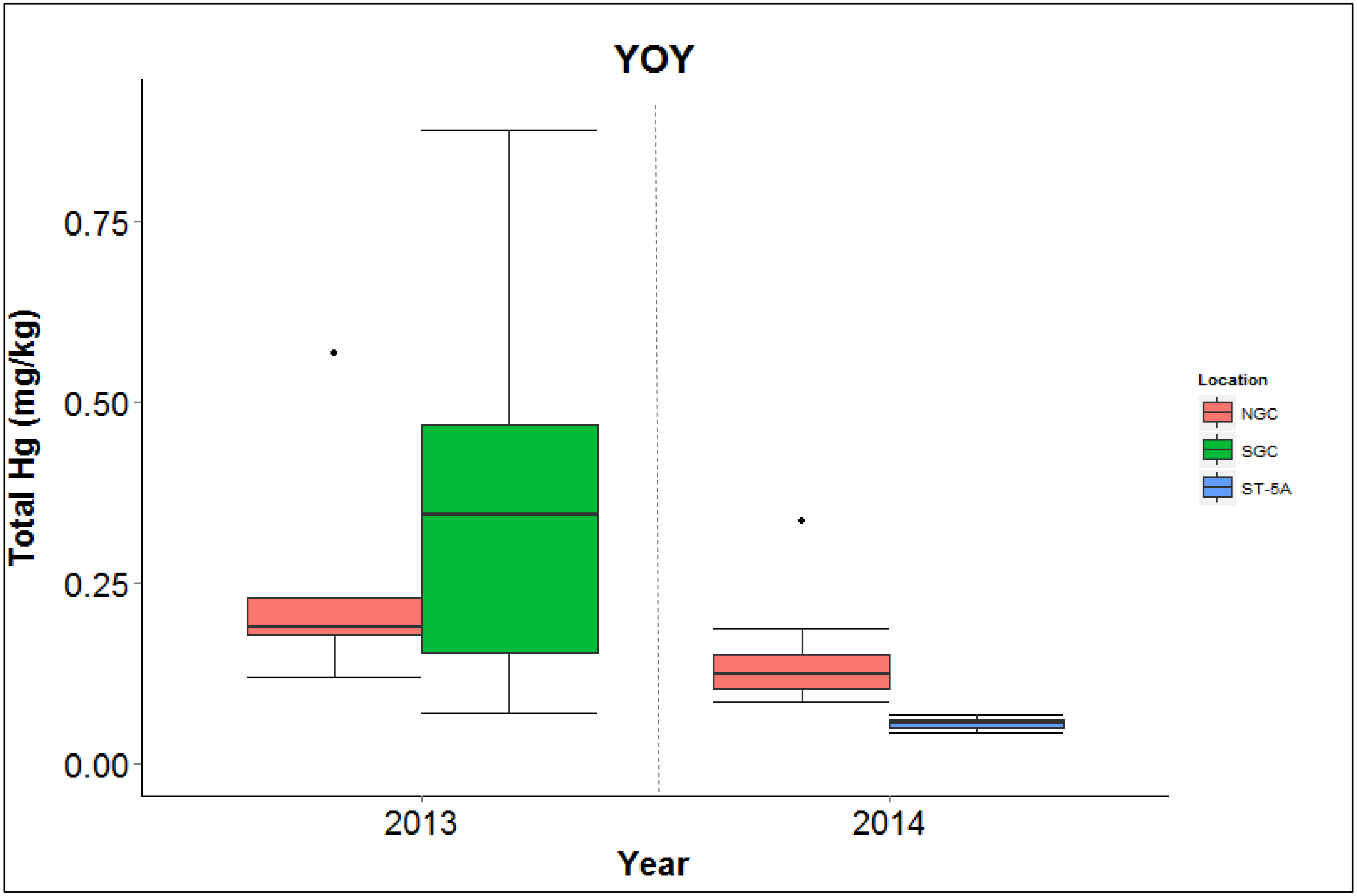
General additive model plot of total mercury over time for Pearl Dace from South Granny Creek, North Granny Creek and Tributary 5A

FIGURE 11
COMPARISON OF TOTAL MERCURY IN ALL PEARL DACE - GRANNY CREEKS AND TRIBUTARY 5A



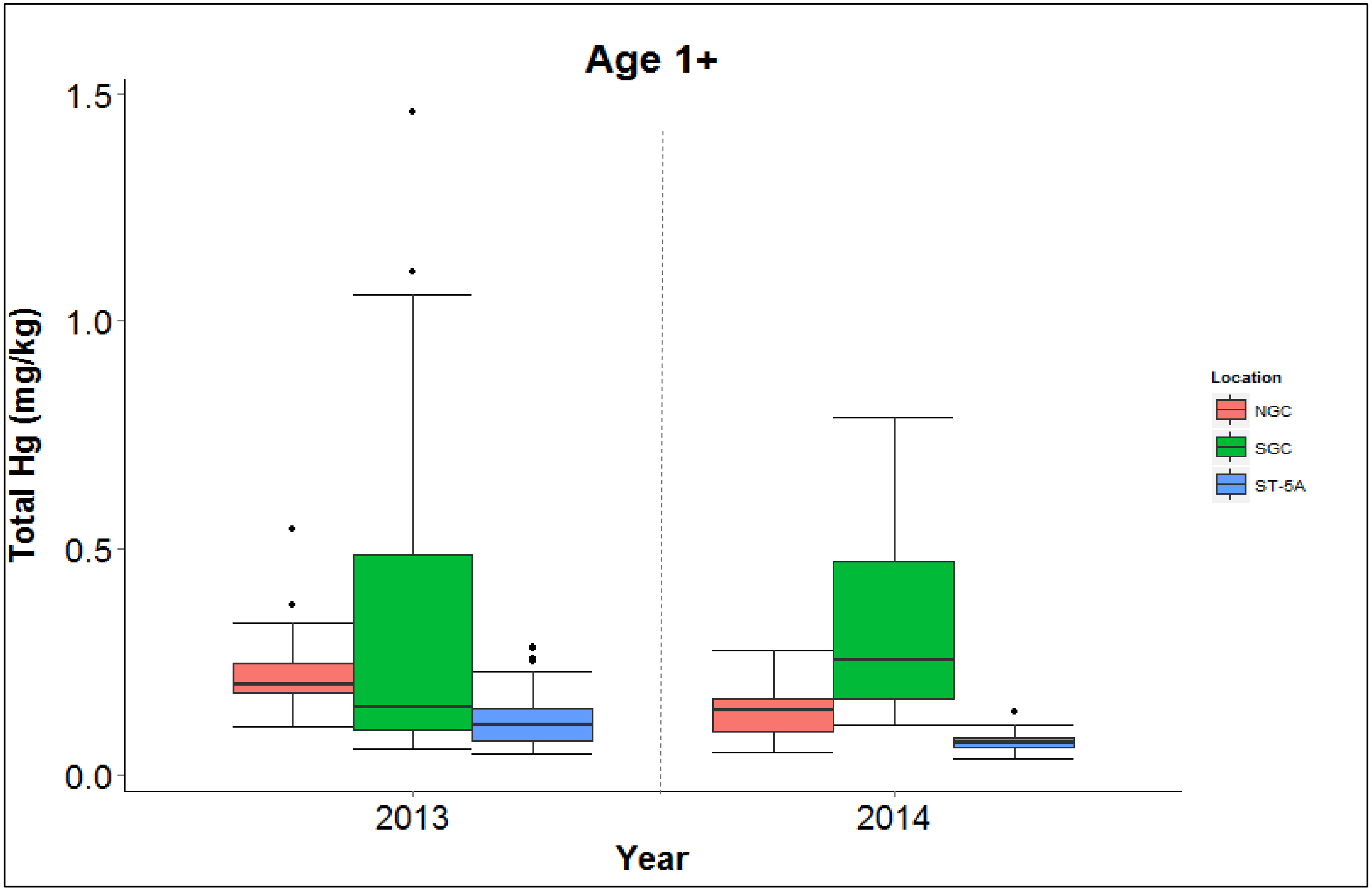
Comparison of total Hg levels (mg/kg) for all caught Pearl Dace in North Granny Creek, South Granny Creek and Tribuutary 5A from 2008 to 2014. Each box shows the first quartile, median and third quartile. Whiskers show minimum and maximum values. Black dots represent outliers.

FIGURE 12
COMPARISON OF TOTAL MERCURY IN YOY PEARL DACE - GRANNY CREEKS AND TRIBUTARY 5A



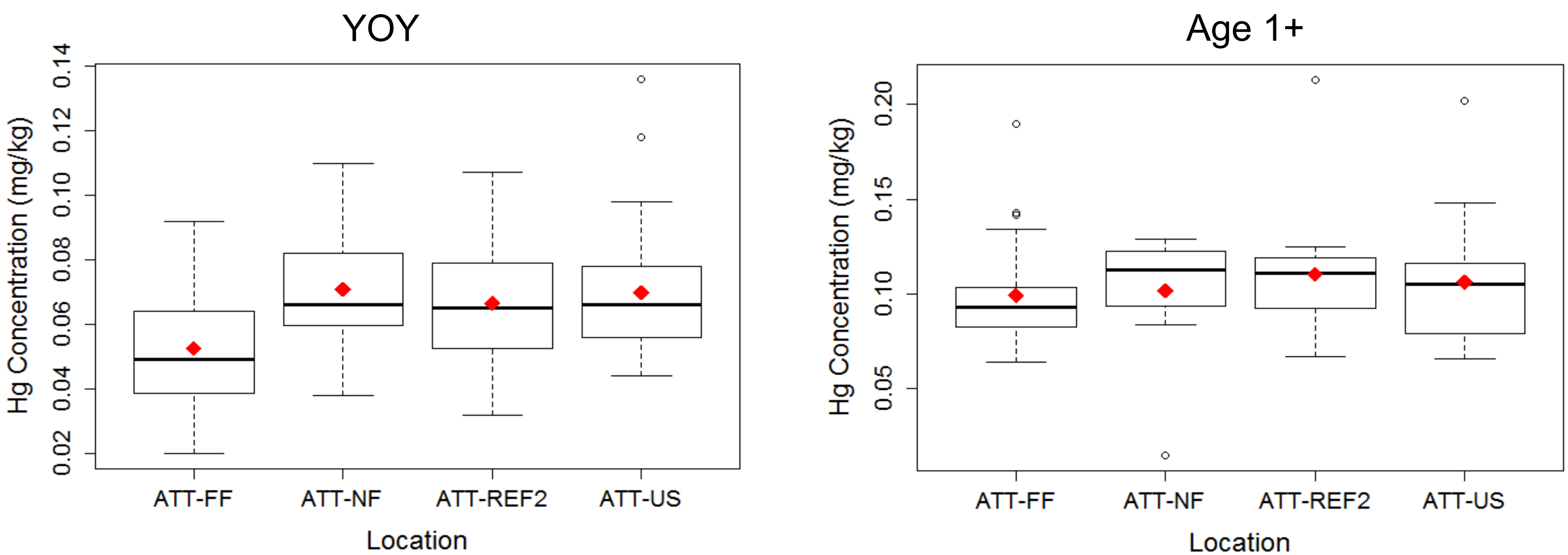
Comparison of total Hg levels (mg/kg) for YOY Pearl Dace in North Granny Creek, South Granny Creek and Tributary 5A from years with age data from otolith aging structures. Each box shows the first quartile, median and third quartile. Whiskers show minimum and maximum values. Black dots represent outliers. No YOY Pearl Dace captured from Tributary 5A in 2013 or South Granny Creek in 2014.

FIGURE 13
COMPARISON OF TOTAL MERCURY IN AGE 1+ PEARL DACE - GRANNY CREEKS AND TRIBUTARY 5A



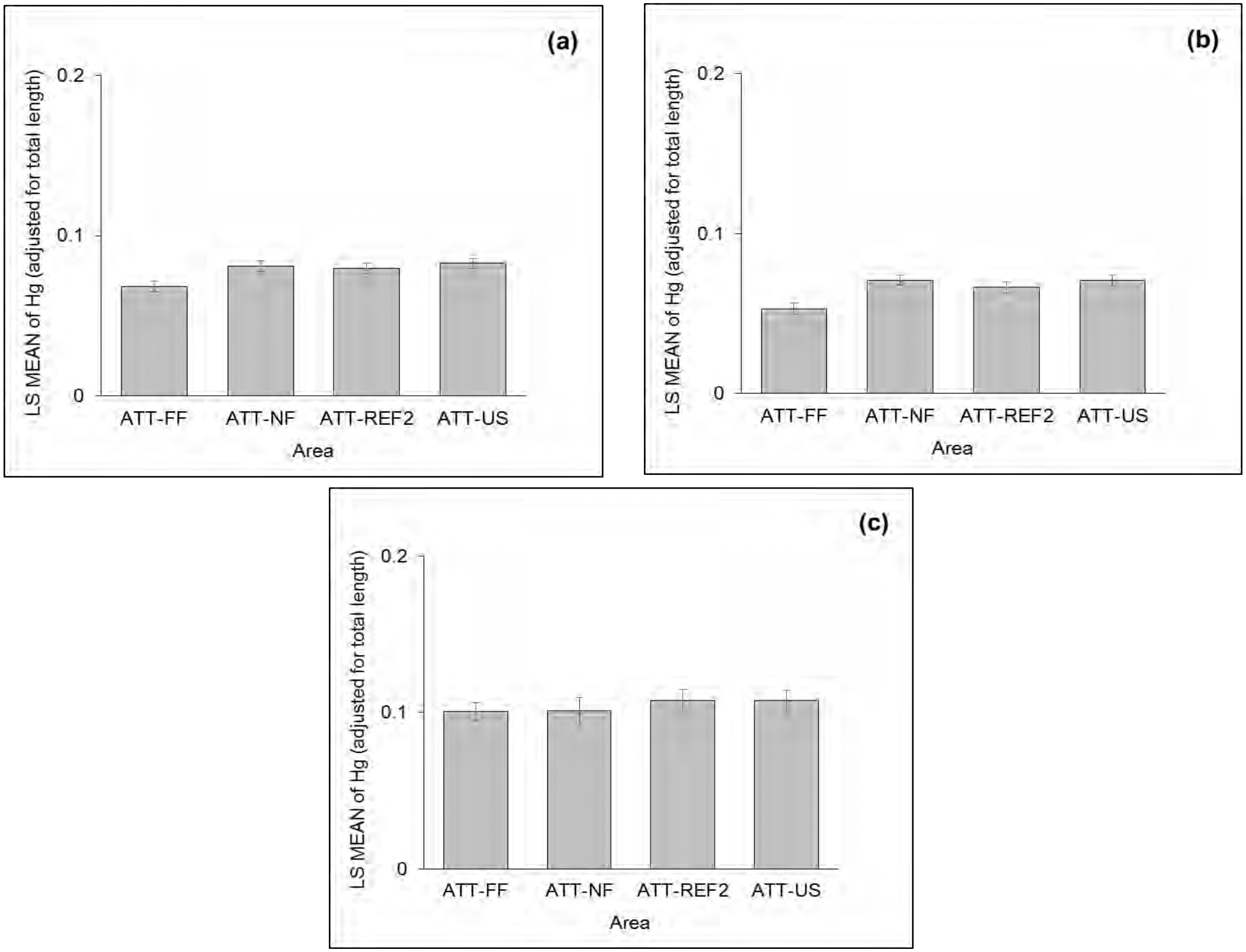
Comparison of total Hg levels (mg/kg) for Age 1+ Pearl Dace in North Granny Creek, South Granny Creek and Tributary 5A from years with age data from otolith aging structures. Each box shows the first quartile, median and third quartile. Whiskers show minimum and maximum values. Black dots represent outliers.

FIGURE 14
TOTAL MERCURY VERSUS FISH AGE - ATTAWAPISKAT RIVER



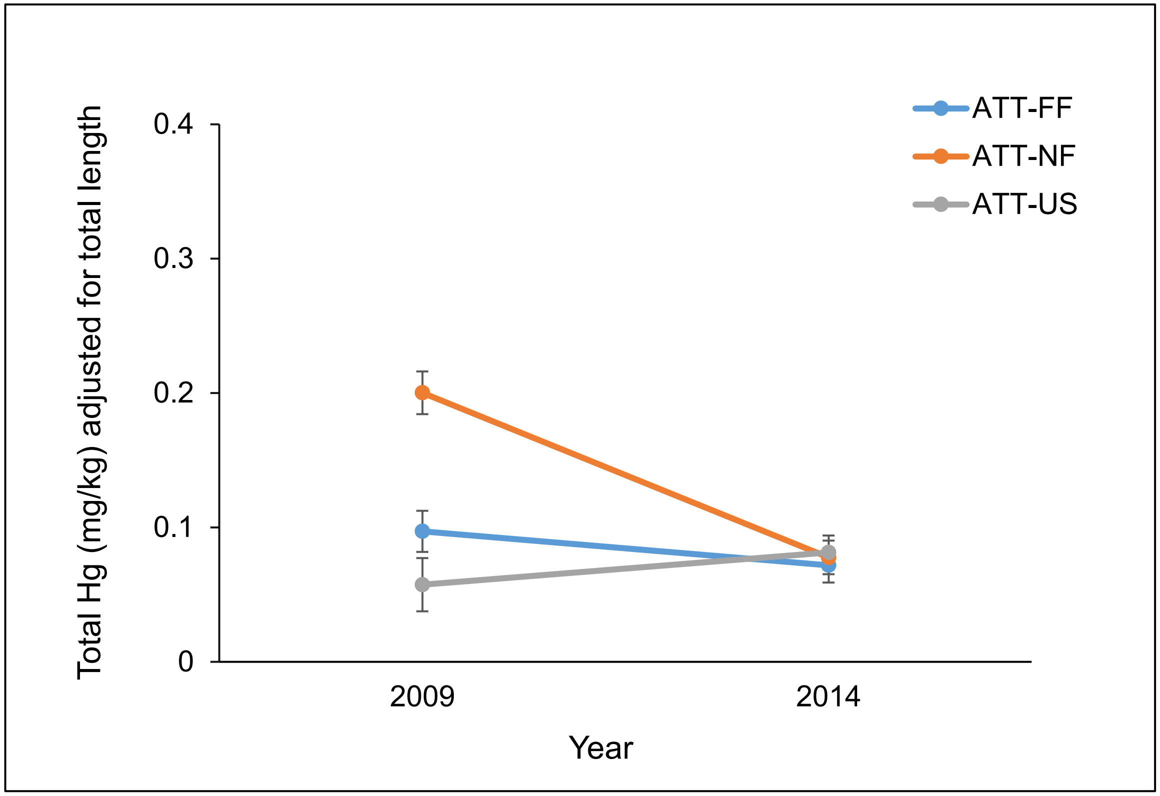
Comparison of total Hg levels (mg/kg) for YOY and aged 1+ Trout Perch in Attawapiskat River locations. Each box shows the first quartile, median and third quartile. Whiskers show minimum and maximum values. Open circles represent outliers. Red boxes represent mean Hg values.

FIGURE 15
STATISTICAL HISTOGRAMS OF TOTAL MERCURY - ATTAWAPISKAT RIVER



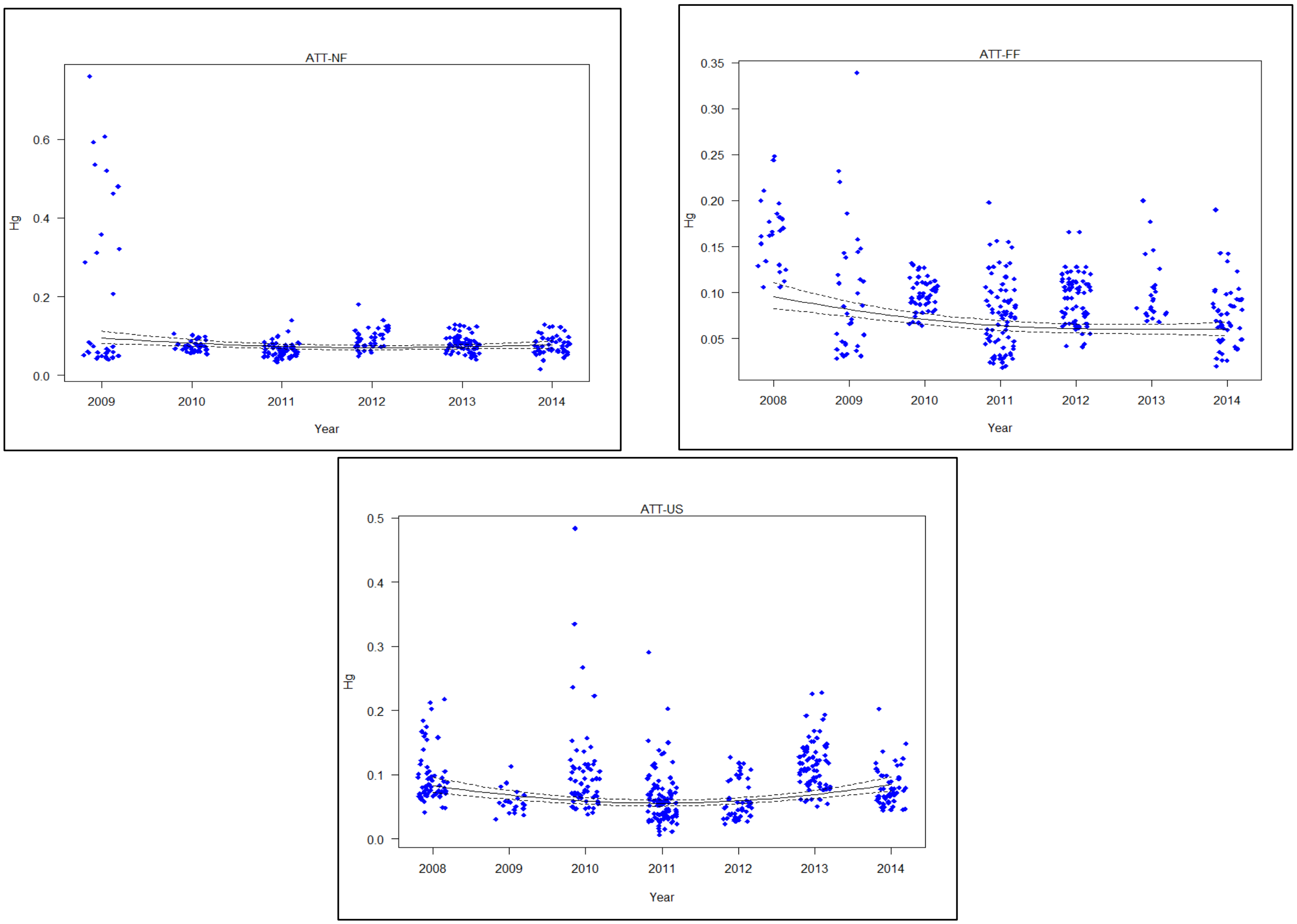
Histograms of least square means and standard errors for total mercury adjusted for total length in Trout Perch from the Attawapiskat River for (a) all fish pooled, (b) young of the year, and (c) fish aged 1+.

FIGURE 16
LEAST SQUARE PLOTS OF TOTAL MERCURY - ATTAWAPISKAT RIVER



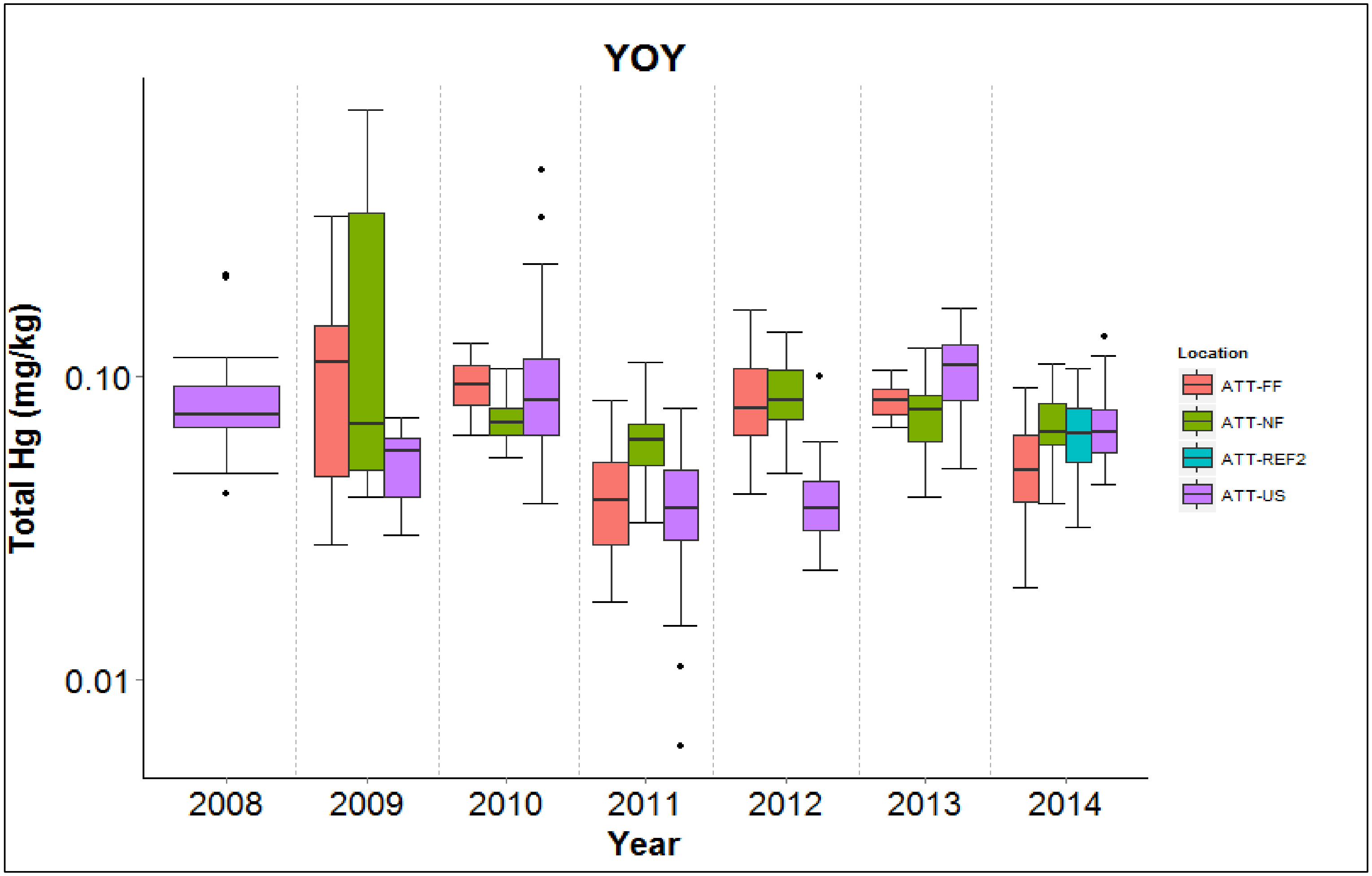
Plot of least square means of total mercury adjusted for length year and area comparisons for Trout Perch from the Attawapiskat River.

FIGURE 17
TOTAL MERCURY ADDITIVE MODEL - ATTAWAPISKAT RIVER



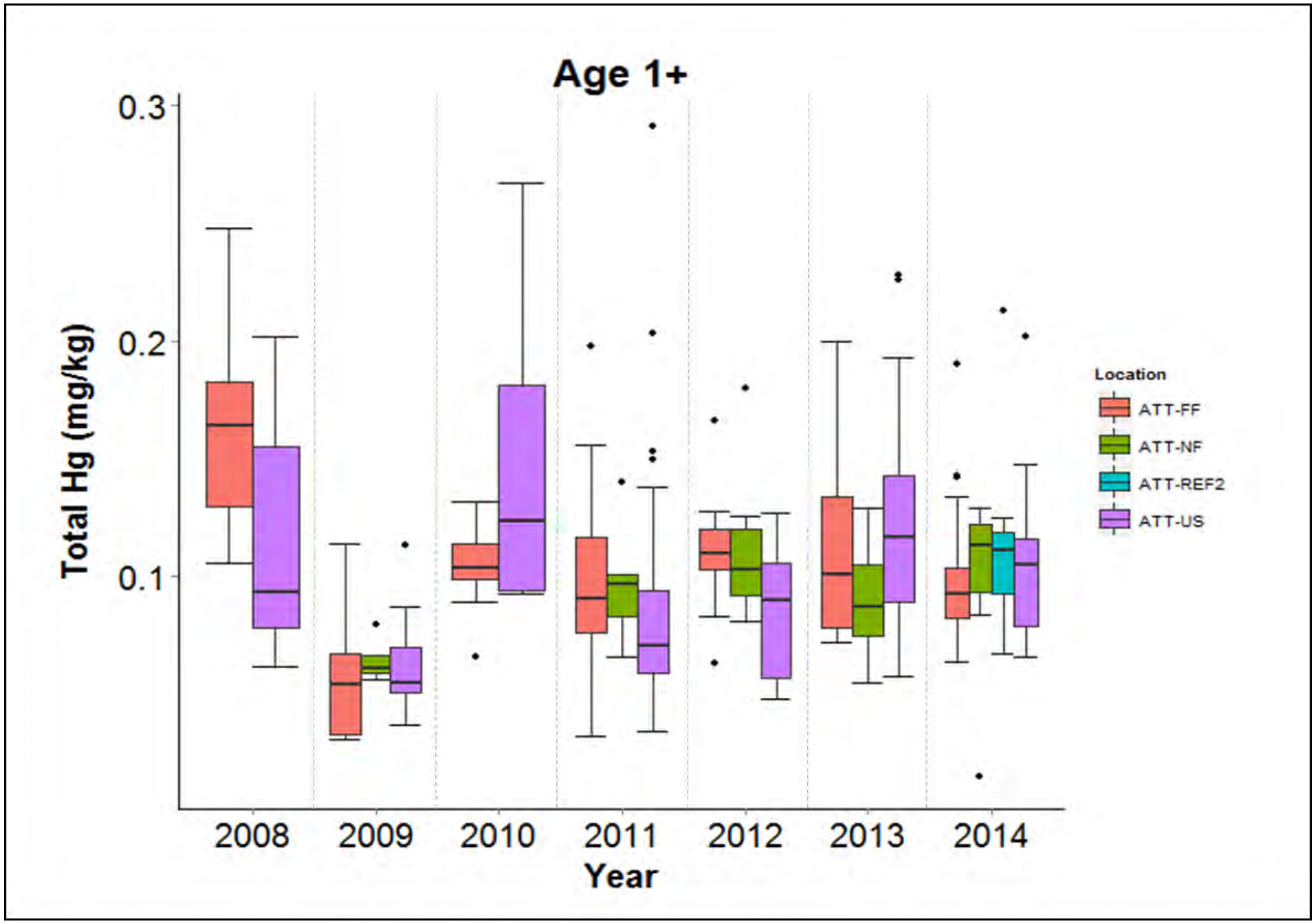
General additive model plot of total mercury over time for Trout Perch from the Attawapiskat River

FIGURE 18
COMPARISON OF TOTAL MERCURY IN YOY TROUT PERCH - ATTAWAPISKAT RIVER



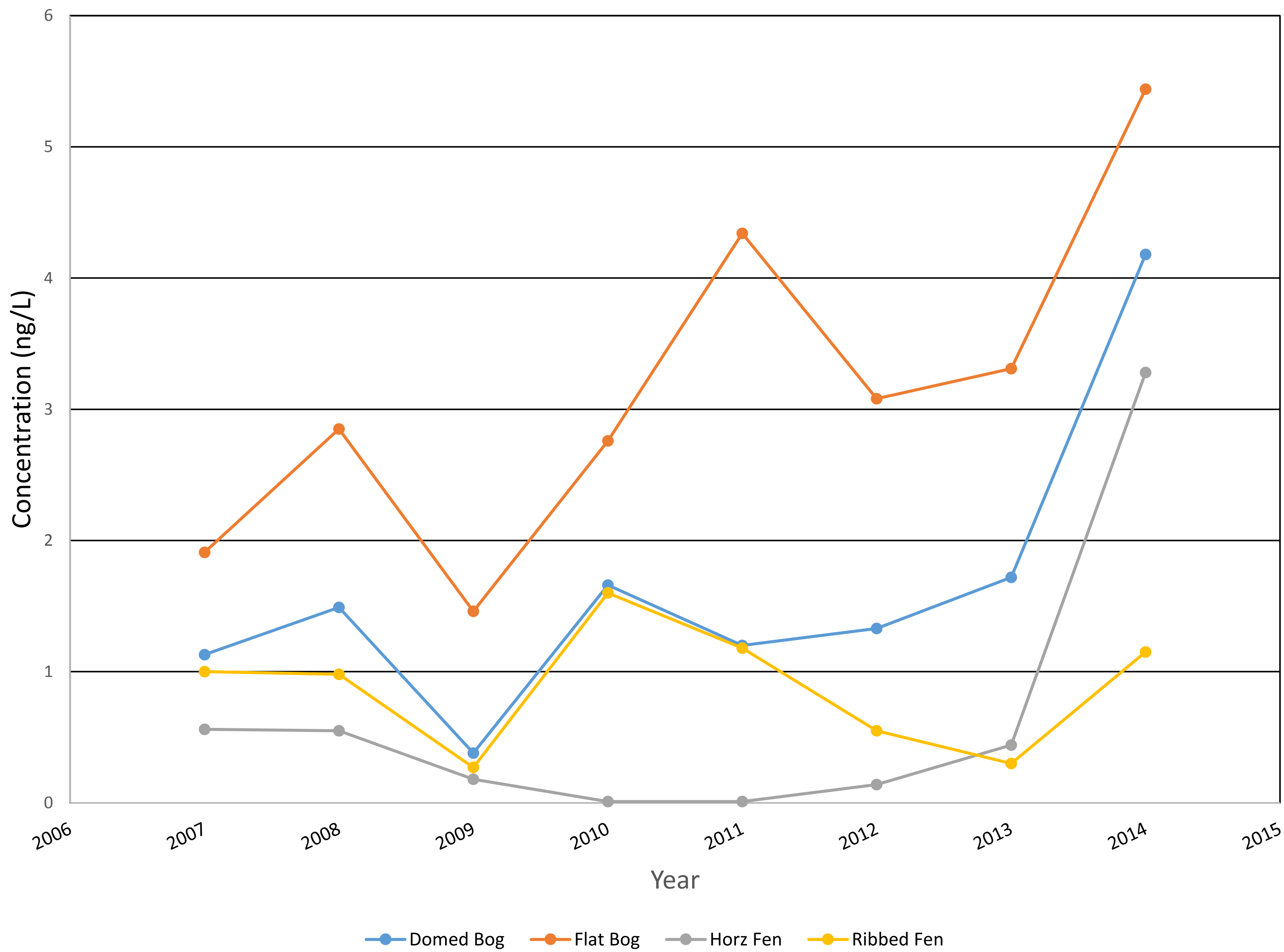
Comparison of total Hg levels (mg/kg) for YOY Trout Perch in the Attawapiskat River from 2008 to 2014. Age class was determined by otolith aging structures in 2001, 2013 and 2014, and length frequency distributions from 2008-2010 and 2012. Each box shows the first quartile, median and third quartile. Whiskers show minimum and maximum values. Black dots represent outliers. Y-axis is log transformed.

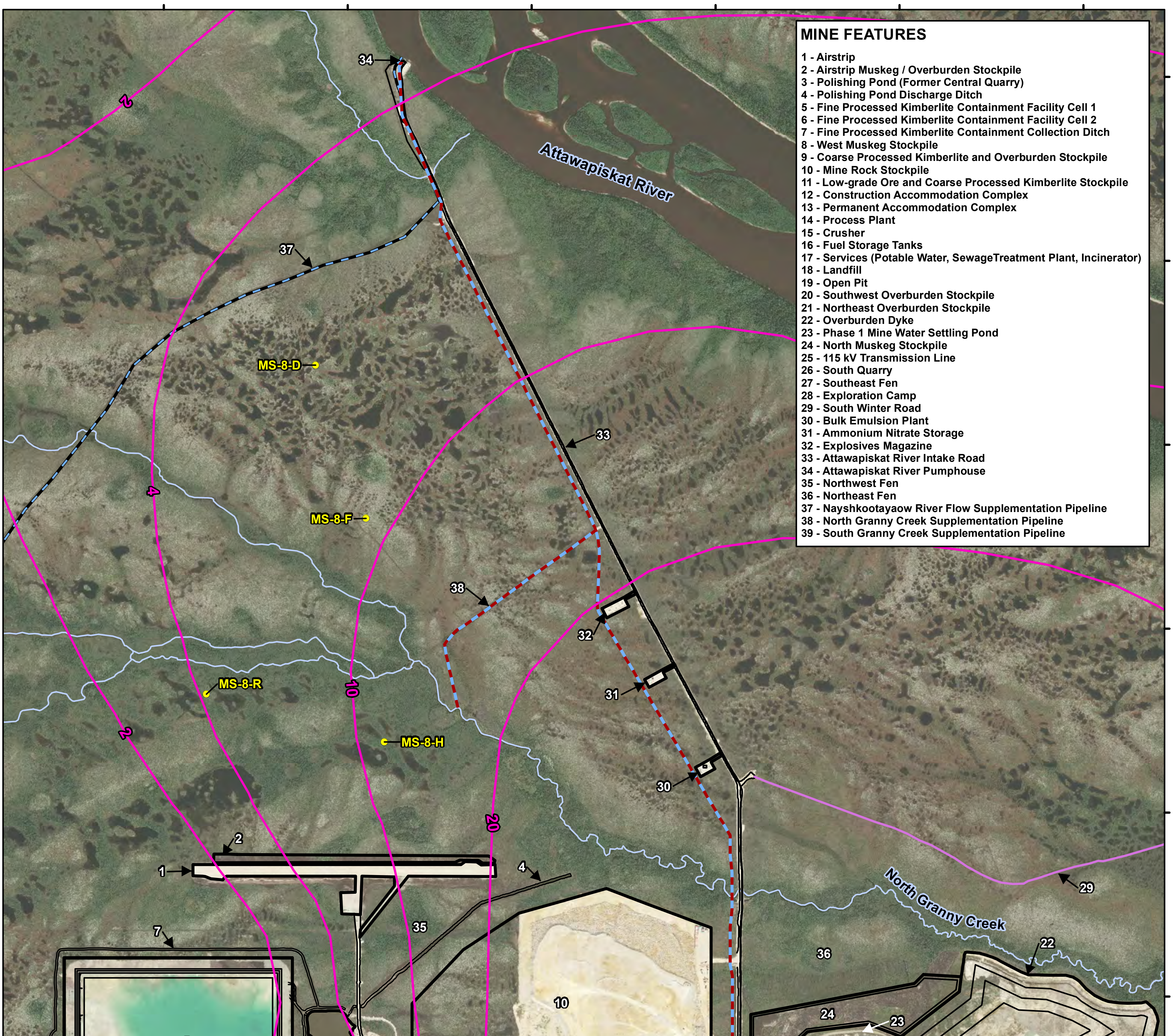
FIGURE 19
COMPARISON OF TOTAL MERCURY IN AGE 1+ TROUT PERCH - ATTAWAPISKAT RIVER



Comparison of total Hg levels (mg/kg) for age 1+ Trout Perch in the Attawapiskat River from 2008 to 2014. Age class was determined by otolith aging structures in 2001, 2013 and 2014, and length frequency distributions from 2008-2010 and 2012. Each box shows the first quartile, median, and third quartile. Whiskers show minimum and maximum values. Black dots represent outliers.

FIGURE 20
MS-8 PIEZOMETER TRENDS IN TOTAL MERCURY CONCENTRATIONS (2007 - 2014)





LEGEND

- Mine Feature
- 2014 Drawdown in Upper Bedrock Aquifer Unit (2 m or 10 m Contour Interval)
- Watercourse

Muskeg Monitoring Stations

- Clay/Peat Piezometer

0 0.25 0.5 1 1.5 2 Kilometres

NOTES:
- Site plan extracted from as built De Beers CAD drawing 130916
- Pleides Satellite imagery scene date is September 2014

Datum: NAD83
Projection: UTM Zone 17N

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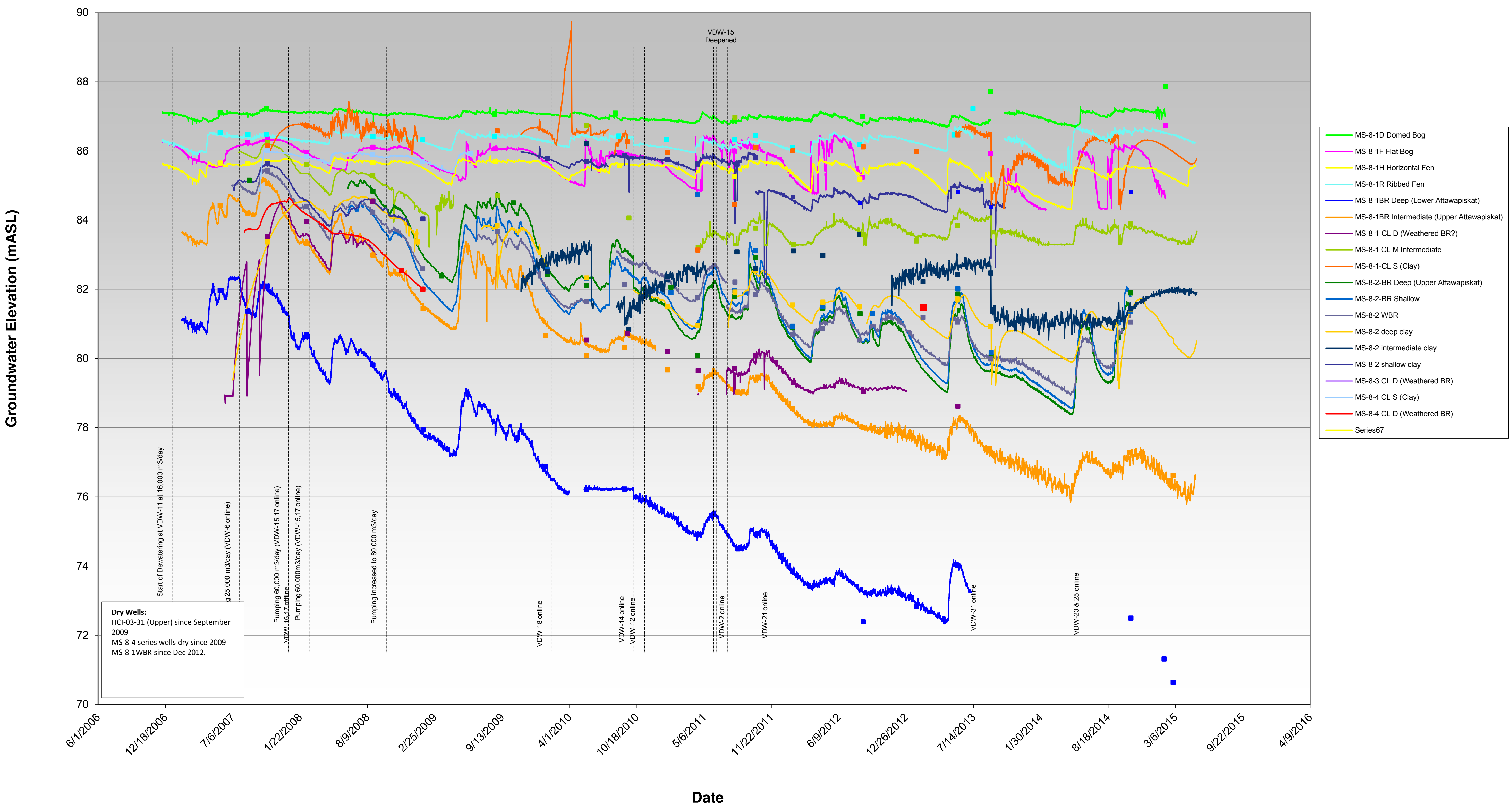
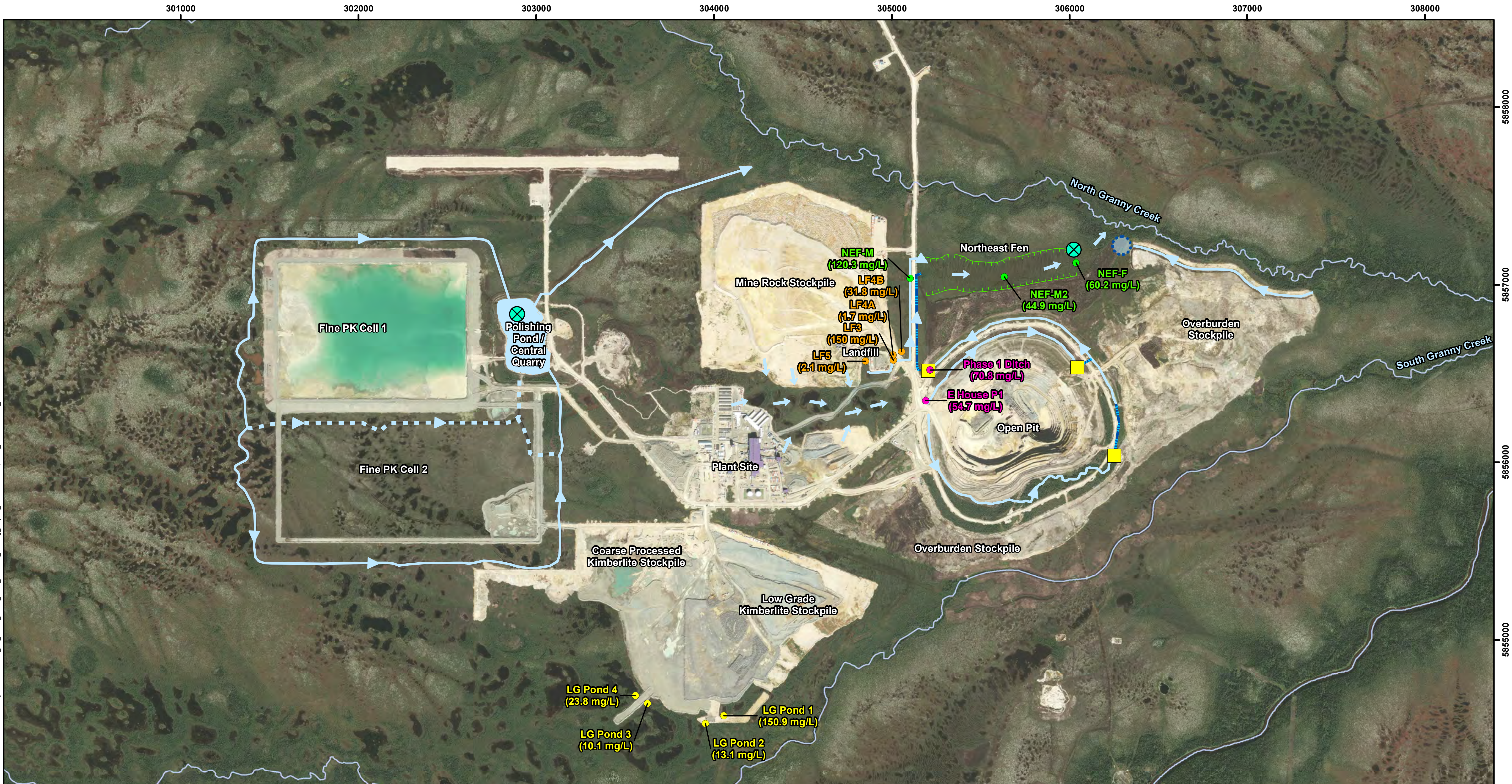
VICTOR DIAMOND MINE

MS-8 Piezometer Locations

PROJECT Nº: TC140504	FIGURE: 21
SCALE: 1:24,000	DATE: June 2015

Figure 22: Groundwater Elevations at Muskeg Monitoring Site MS-8





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LEGEND

- Pump
- Final Discharge Point
- Boundary of Northeast Fen
- Proposed Pond Location
- Drainage Ditch (approx.)
- Historical Drainage Ditch (approx.)
- Pumped Drainage (approx.)
- Flow Direction (approx.)

Sulphate Monitoring Locations (Labeled with ID and average concentration)

- Additional Sites (Surface water)
- Landfill Piezometer Sites
- Low Grade Kimberlite Stockpile Sites (Surface water)
- Northeast Fen Sites (Surface water)

NOTES:
- Satellite imagery current as of September 7, 2014 (Pleides platform)

Datum: NAD83
Projection: UTM Zone 17N

0 0.5 1 2 3 4 5 Kilometres

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Average Annual Sulphate Concentration at Selected Monitoring Locations (2014 Data)

PROJECT N°: TC140504	**FIGURE: 23**
SCALE: 1:20,300	DATE: June 2015