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3 November 2015

Via electronic mail

Carroll Leith
District Supervisor
Ontario Ministry of Environment and Climate Change
PO Bag 3080
South Porcupine, Ontario P0N 1H0

Re: **Victor Mine - Response to mercury monitoring program comments by Wildlands League**

Dear Carroll,

We are writing to clarify the nature and scope of reporting that De Beers Canada conducts for the Victor mine related to mercury monitoring. Specifically, we wish to provide context for recent reports in the on-line edition of the Toronto Star of October 10, 2015 which were attributed to Mr. Trevor Hesselink and / or Ms. Anna Baggio of the Wildlands League (WL) as follows:

> *"None of the required annual mercury performance monitoring reports from 2008 to 2014 contained data from two specific monitoring stations — one being the ultimate downstream station from the mine, according to freedom of information documents and De Beers' annual reports. This means that for six years, Ontario was not given all the information the province required concerning water samples, Hesselink says."* http://www.thestar.com/news/insight/2015/10/10/cree-community-looks-on-warily-as-de-beers-eyes-new-diamond-mine.html

Similar remarks are posted on that organization's website:

> *"… Wildlands League has been investigating the long term environmental consequences of the De Beers' Victor Diamond Mine. Among many issues we uncovered … the company failed to report on 5 out of 9 surface water monitoring stations for 7 years and the Ministry of Environment and Climate Change didn't notice. We are calling for independent monitoring and reporting because in our view the company does not seem to be taking its reporting obligations seriously…"* http://wildlandsleague.org

De Beers and AMEC Foster Wheeler (AMEC) have looked into the allegations made by Wildlands League (Wildlands). We respectfully suggest that their allegations are by no means an accurate depiction of our monitoring programs.

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**Comprehensive Mercury Monitoring and Research Programs**

De Beers has implemented an extensive mercury monitoring program as required by the mine dewatering Permit to Take Water (PTTW #1201-9HHJ5G and its predecessors) and the related Certificate of Approval (C of A #39060-7Q4K2G and its predecessors). Monitoring programs related to mercury dynamics and mine dewatering include some 200 groundwater monitoring wells, and 15 or more surface water monitoring locations.

De Beers takes our environmental obligations very seriously. Each year we conduct more than 3,600 surface or ground water sampling events, for a broad range of parameters at each monitoring location. Beyond this there are extensive monitoring programs for fish and other aquatic biota, terrestrial wildlife, vegetation, birds, etc. These programs are driven by more than 30 environmental permits and licences, and by the Follow-Up Program Agreement (FUPA) that derived from the federal environmental assessment for the Victor mine. We employ more than a dozen full-time environmental staff at the mine site, as well as a number of professional consulting companies to assist with the more specialized monitoring, data analysis and reporting tasks. Environmental monitoring results are voluminous and must be managed through a specialized digital database program (EQWIN).

In preparing the extensive annual reports on these monitoring programs, decisions must necessarily be made as to which data are most meaningful to summarize, analyse and discuss. We recognize that there are differences of opinion as to relative priorities on to how to present the data, and over the years have made numerous adjustments based on feedback from reviewers. These include comments from the Ministry of Environment and Climate Change, Environment Canada, the Attawapiskat First Nation and their technical consultants, community members and environmental groups. These reports are in many ways "living documents", but unfortunately on occasion some of the data is not given as high a profile as some people might wish.

With specific respect to mercury, De Beers would like to point out that due to public interest in the subject, we have since 2007, sponsored independent research at the Victor mine and its environs through the Natural Sciences and Engineering Research Council of Canada (NSERC). This has been conducted by leading scientists including Dr. Jonathan Price of Waterloo University and Dr. Brian Branfireun of Western, amongst many others, encompassing the subject of mercury, surface water and groundwater dynamics in the James Bay Lowland and how these might interact with the operation of the Victor mine (see http://muskegresearch.ca/our-research ).

The Victor mine continues to provide financial and in-kind support for a larger and ongoing research partnership related to mercury dynamics in the region. This initiative is the NSERC-funded Canadian Network for Aquatic Ecosystem Services (CNAES http://www.cnaes.ca/ ). The latter partnership involves researchers from many universities as well as the governments of Canada, Ontario, Quebec and Alberta. The Victor mine serves as a base of operations for several of their research programs.

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**Monitoring and Reporting on Surface Water Stations for Mercury**

The Wildlands League comments focus on the Granny Creek watershed and we will respond to those aspects of the mercury monitoring program, setting aside for the moment the extensive programs on the Nayshkootayaow and Attawapiskat Rivers, and the groundwater and wetland monitoring programs.

In brief, Wildlands contends that no mercury data has been reported for an intermediate sampling location on North Granny Creek referred to as G2, located downstream of the point where in some years water is discharged from the Fine Processed Kimberlite containment system under C of A #6909-76ZGYP, and upstream of the discharge of the North East Fen (NEF) treatment system (C of A #4056-6W8QBU). Wildlands also noted that mercury monitoring data was apparently not reported for Granny Creek station G8, located immediately downstream of the confluence of North Granny Creek and South Granny Creek. These locations are shown on the attached map, Figure 1 (Figure 4 in the annual report). Finally, they take exception to the focus on statistical analysis of dissolved methyl mercury in the annual mercury report, accusing De Beers of failing to also monitor and report unfiltered methyl mercury and Total mercury data.

Our responses to these specific points are as follows:

The statements above only discuss the reporting of all required locations, and not the monitoring…

1. Contrary to Wildlands' statements, De Beers have monitored all the required locations in the subject creeks. However they are correct that not all data has been reported in the annual mercury summary reports. The G2 location downstream of the Fine Processed Kimberlite containment (FPK) discharge, but upstream of the NE Fen discharge and the road culvert crossing, was originally established as an undisturbed upstream reference site early in the history of the Victor mine. As site development progressed, G2 was no longer suited for that purpose so the G1 site, upstream of any development, was instead established. The G1 location is upstream of where the NW Fen treatment system was expected to discharge water to the creek from the airstrip excavation, although it never did so. Data from G1 has since been used as the reference site for statistical analyses of North Granny Creek data in the annual mercury monitoring report.

2. The G2 station data has always been tabulated and reported in the annual Fine Processed Kimberlite containment system (FPK) compliance reports under C of A #6909-76ZGYP, as part of an upstream / downstream comparison for that intermittent discharge. That annual reporting included both filtered and unfiltered analyses for both Methyl Mercury and Total Mercury. This data has been summarized again in the attached updated Table 12 and graphed in Figures 2 and 3, respectively. Figure 2 includes notes about the mine operational activities. As noted in that trend graph, there were only significant discharges from the FPK system in 2011 and 2015 so there should have been no effect from that source on mercury in Granny Creek in the preceding or intervening years. For completeness, De Beers will revise future annual mercury summary reports to include data from station G2, and will continue to include this data in the annual FPK reports as has been accepted practice to date.

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3. Through an oversight, the G8 station mercury data does not appear to have been reported until now. This station, below the confluence of North Granny Creek and South Granny Creek, was not deemed a particularly useful location for statistical analysis. It has been much more meaningful to analyse the upstream / downstream data for the individual branches of the creek, a few hundred metres upstream of the G8 station. The watershed of each branch is different in size and they include different inputs from the mine site, so impact vs. reference sites are best done separately for each tributary. Logically the G8 data should simply represent an average of the two branches, which is what appears in the updated copy of Table 12 attached, and as graphed in Figures 4 and 5, respectively, for Methyl Mercury and Total Mercury. These figures compare G8 data to the individual creeks (G4 is the North branch, G7 is the South). In most years this station shows less methyl mercury than either of the tributary branches. Although not particularly meaningful, this data will be reported in future annual mercury summary reports.

4. Wildlands complains that we tend to do our trend graphs and statistical analyses based on filtered samples. We do check that the results for unfiltered samples are similar, but this is done so as not to confound the data with highly variable suspended sediment loads due to seasonally high stream flows or when sampling under thick ice stirs up bottom sediments. It is also because the reference guidelines (e.g. USEPA guideline for the protection of wildlife) are stated in terms of Filtered Methyl Mercury. A review of the tabulated data indicates that the greatest differences between filtered and unfiltered results for both Total Mercury and Methyl Mercury tend to occur during the spring freshet in May, and in the January – April period when there is effectively no surface discharge from the mine to the creek - and water clarity should be at its maximum (until disturbed by auguring a sampling hole through thick ice). During the summer and autumn open-water season the filtered and unfiltered results are much more similar. Figures 3 and 5 attached are graphs of the Filtered Total Mercury results for North Granny Creek stations, and comparing the two branches to the confluence of this creek. Total Mercury in Figure 3 is quite consistent throughout the length of North Granny Creek, including the G1 reference station located upstream of all mine inputs. Figure 5 shows that the confluence data is remarkably similar to both individual branches.

5. A new Table 37 has been compiled and will be updated in future annual mercury reports. This provides data from the Tributary 5A reference site for all forms of mercury monitored, in addition to what was previously reported in Table 36. Graphs are included to illustrate the significant natural variation between seasons and years at this natural reference site, located approximately 12 km South of the Victor mine, outside the potential zone of influence of the mine.

**Observations**

In reviewing the data from Station G2 a few observations have been noted, which to some extent contradict previous thinking that the sulphate-enriched NE Fen was the most probable cause of the periodically elevated values for methyl mercury observed in North Granny Creek at station G3. The investigation of sulphate in the NE Fen continues. As noted in Figure 2 and discussed below, there is not a clear correlation between mine development and operational activities and the observed pattern of methyl mercury in North Granny Creek.

While the filtered methyl mercury values at both G2 and G3 have been elevated in warm weather seasons from 2011 onwards, this was also the case in 2008 before there was any discharge from mine development or operational activities to North Granny Creek upstream of the NE Fen, which would be captured at the G2 site. This suggests that the low mercury values seen in 2009 and 2010 may have been natural variation (wet or dry years, or driven by natural discharges of sulphate enriched groundwater into the creek). Strengthening this idea is that Methyl Mercury in 2014 at the G1 upstream reference site was just as high as the "impact" sites, further suggesting that there is significant natural variation at play. Dr. Branfireun and his research team have noted significant natural variation in methyl mercury between wet and dry years.

Flow supplementation of North Granny Creek during summer months could conceivably cause increased methylation in the creek due to inundation of muskeg, if the additional water was larger than losses from the watershed due to mine dewatering. During winter, this is less likely to be the case when cold water temperatures inhibit the natural bacterial activity causing mercury methylation in anoxic organic sediments. This summer flow supplementation started in the unusually dry year of 2010 and has continued each summer since then. Logically, if this was to cause methylation it should have started immediately in 2010. This added water is not a "source" of methyl mercury in the concentrations seen in the creek as the natural background concentration of methyl mercury in the Attawapiskat River is almost always less than <0.05 ng/L (both filtered or unfiltered samples).

The drainage from the Waste Rock Stockpile, which is known to contain elevated sulphate (from the deep groundwater emplaced with the rock), should be captured by the NE Fen treatment system. Thus it would be expected to appear at Station G3 but not at G2. In recent years there is some potential for drainage northwards towards the creek, as this stockpile has enlarged, though this would be hindered to some extent by the "muskeg wave" along the face of the pile, and the overall ground sloping towards the East. This pile was still very small through 2010 and 2011 so should not at that time have had any direct input (of sulphate) to the creek upstream of the G2 location.

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In closing, De Beers regrets that although all of the required data was collected, in seeking to simplify the data analysis for the reader some of the required monitoring locations were not summarized in the annual mercury monitoring reports. We believe that this did not in any way compromise our monitoring program, the validity of the mercury data we have collected, or impacted in any way the conclusions and trends derived from the data. We appreciate review comments received from various parties and would be pleased to respond to any further questions in this matter.

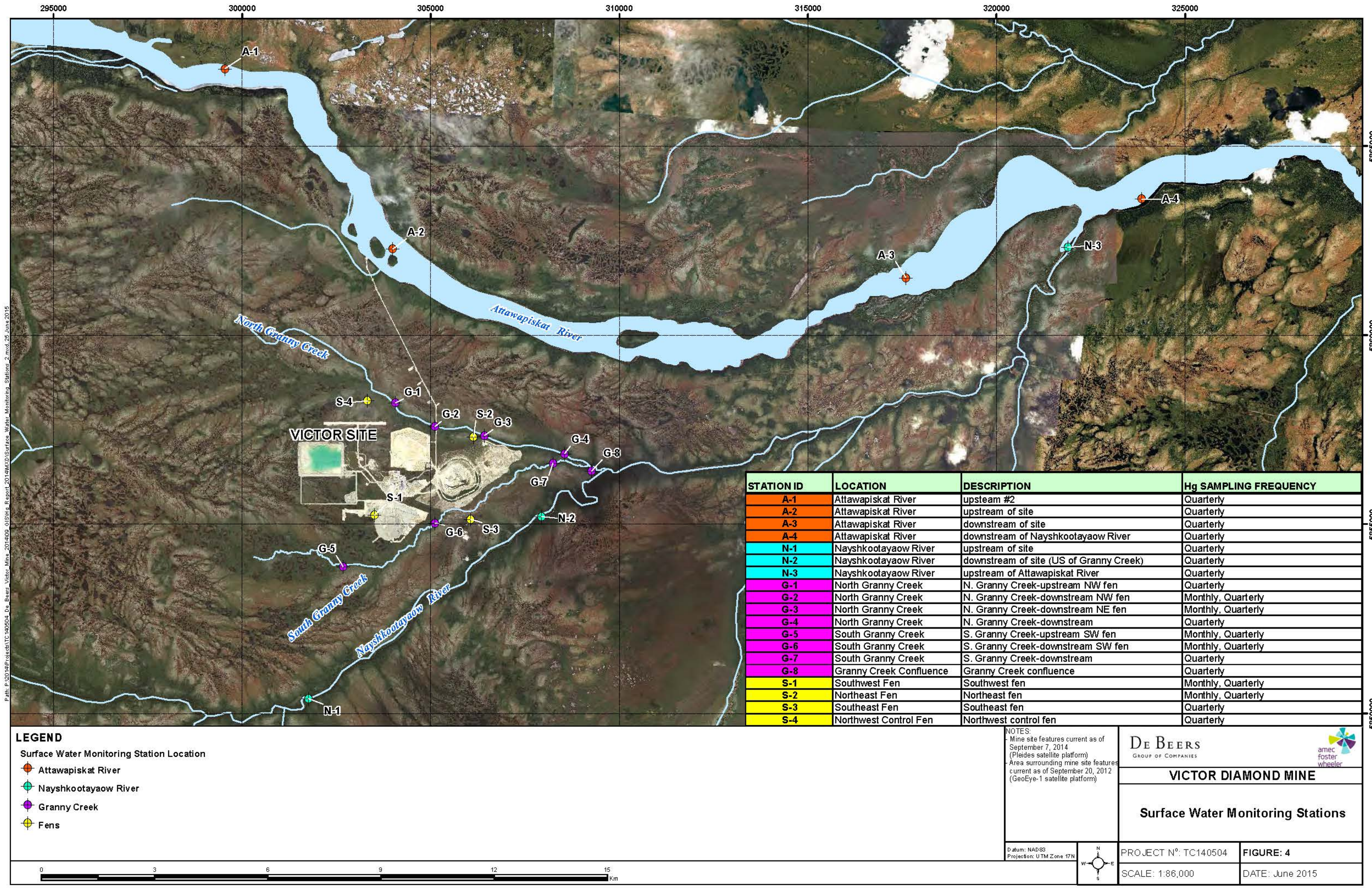
Yours very truly,

Stephen Monninger
Environmental Manager

Brian Steinback
Senior Environmental Engineer

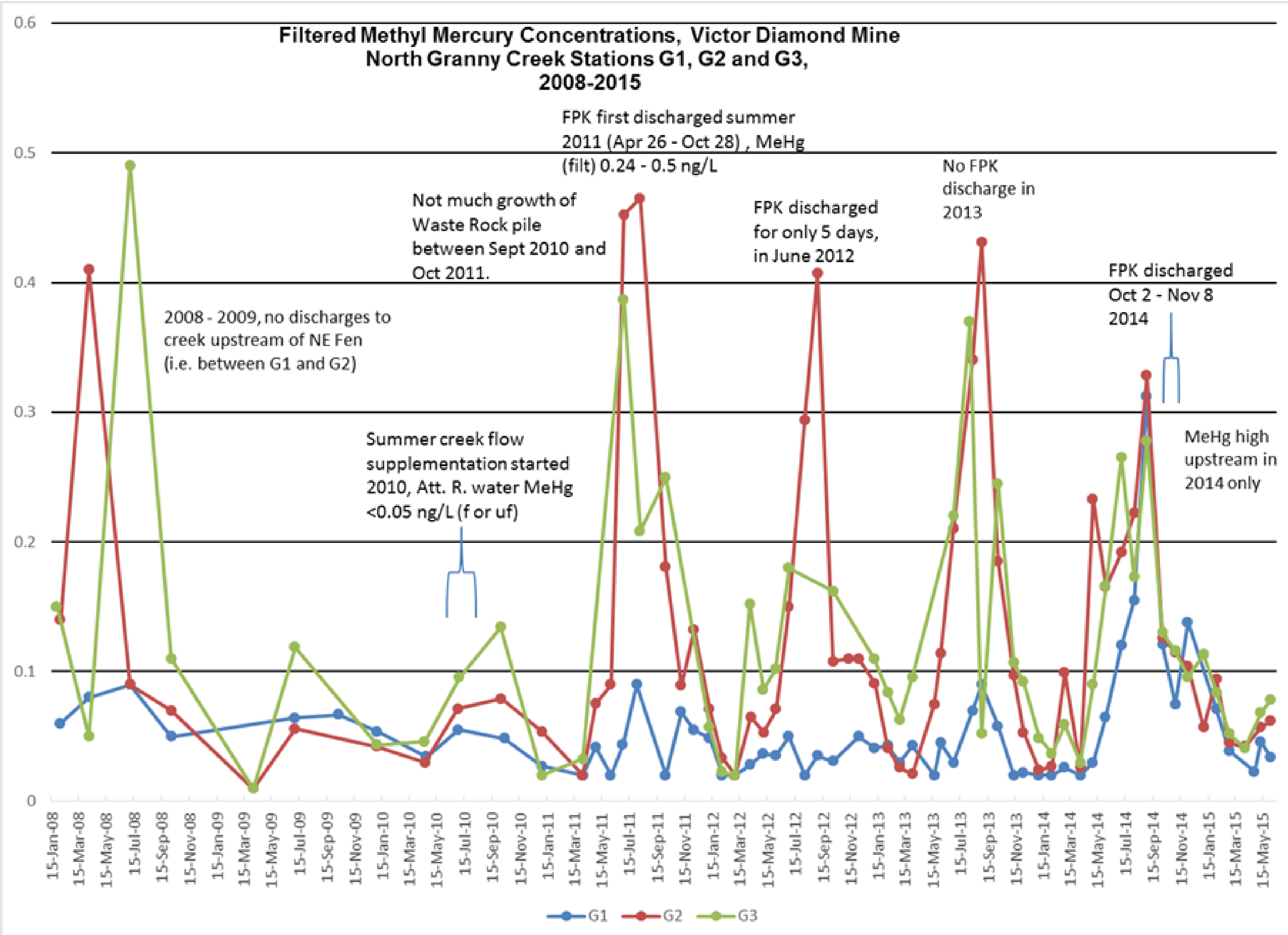
cc: T. Kondrat, L. Lefebvre – MOECC
T. Ormsby, J. Kirby, D. Putnam, B. Steinback, T. Ternes - DBC
Chief B. Shisheesh, J.B. Nakogee - Attawapiskat FN
S. Daniel, D. Simms, L. Lorrimer – AMEC FW

**Figure 1 - Map of Granny Creek Sampling Sites**




| 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 |

### Figure 2 – Chronology of Mine development vs. Filtered Methyl Mercury in North Granny Creek



### Figure 3 – Comparison of Filtered Total Mercury in North Granny Creek

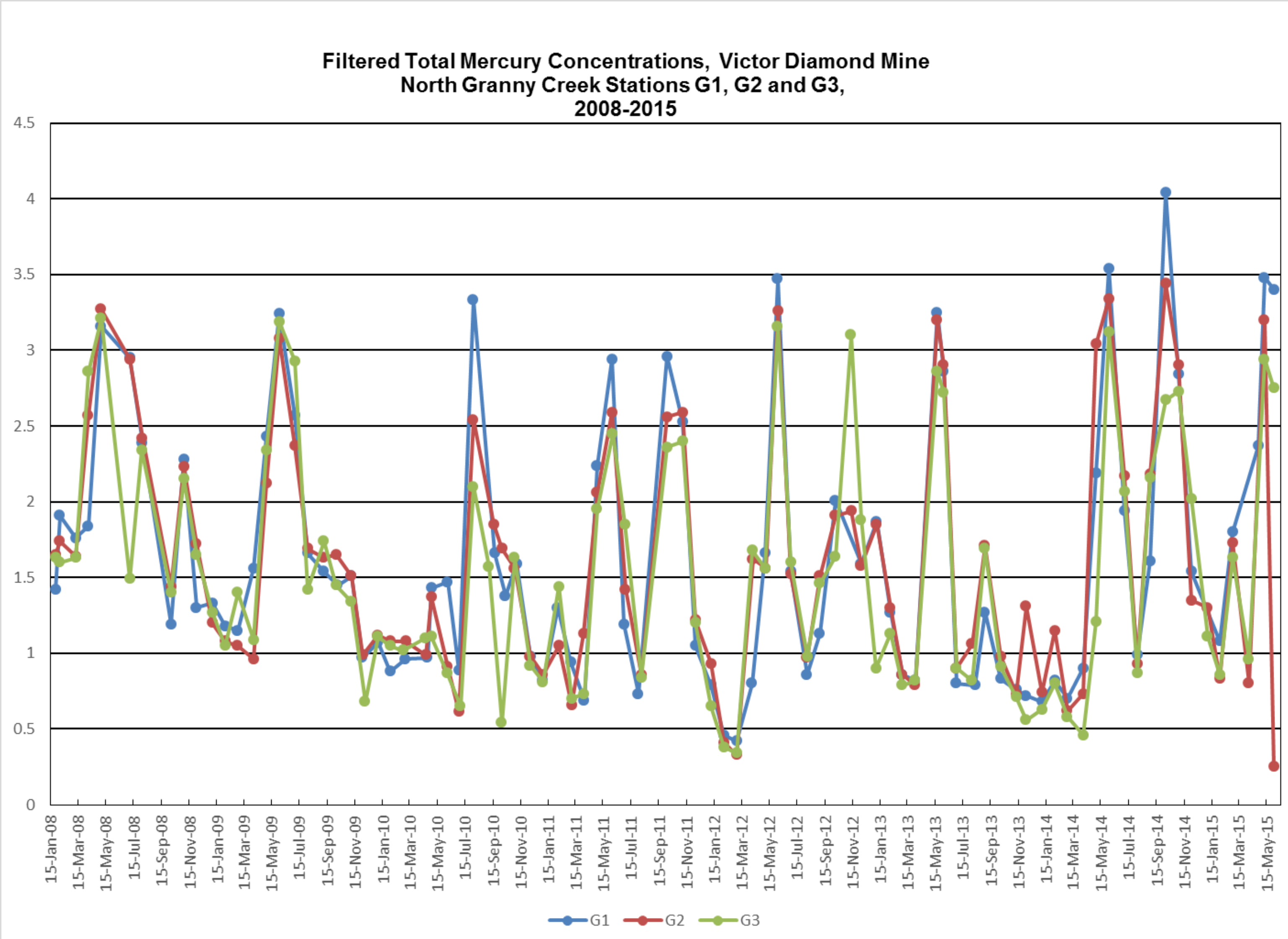


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Figure 4 – Comparison of Filtered Methyl Mercury between North and South Granny Creek and their Confluence

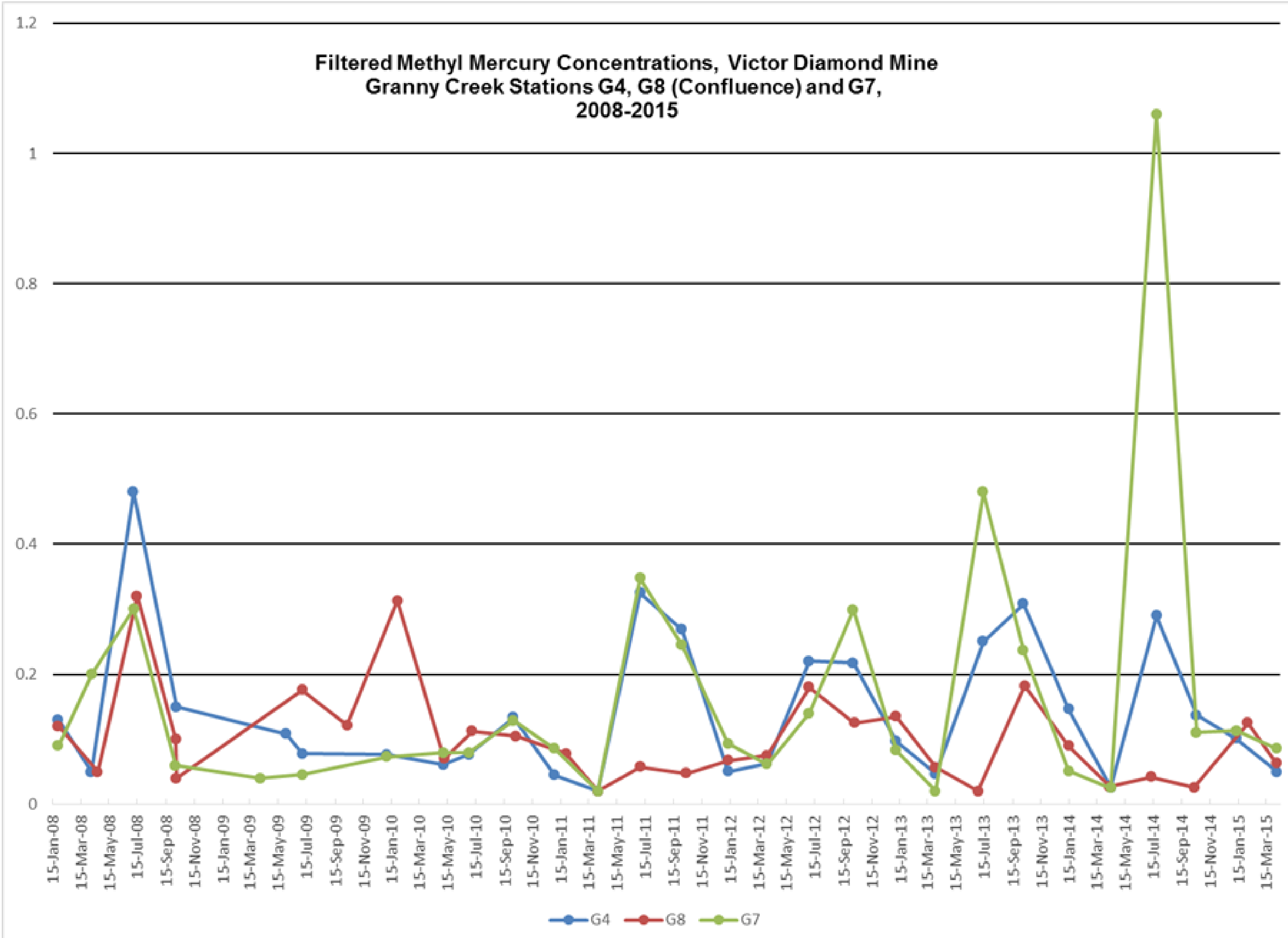
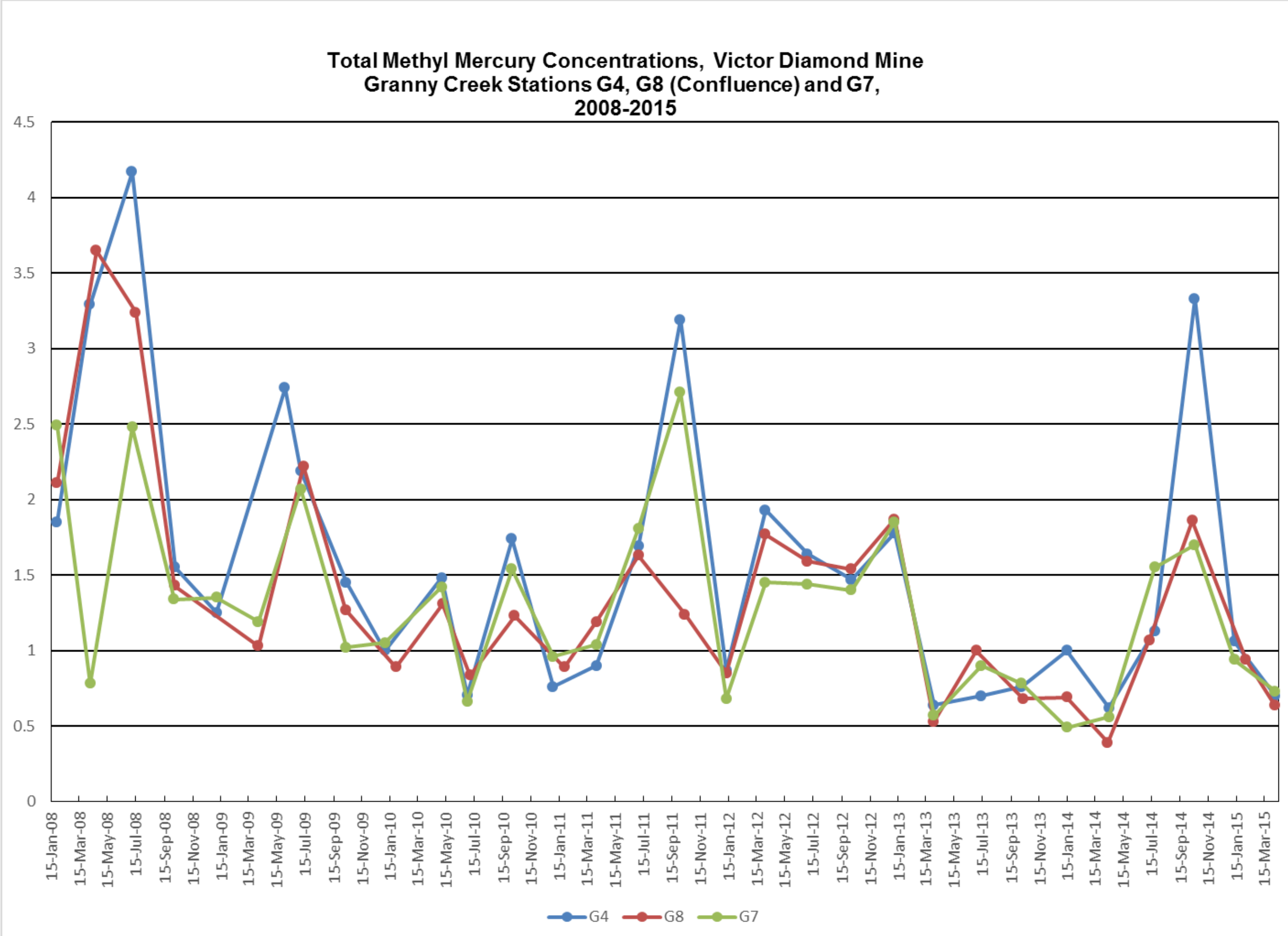


**Figure 5 – Comparison of Filtered Total Mercury between North and South Granny Creek and their Confluence**



# Tables

(Numbering is as per 2014 mercury monitoring report)

**De Beers Canada Inc., Victor Mine**
Mercury Performance Monitoring,
per Certificate of Approval #3960-7Q4K2G, Conditions 7(5) and 7(6)

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

| Monitoring Location Code | G-5 | | G-6 | | G-7 | | G-8 | |
|---|---|---|---|---|---|---|---|---|
| Date | South Granny Creek Upstream SWF SGC/UP/SWF | | South Granny Creek Downstream SWF SGC/DS/SWF | | South Granny Creek Downstream SGC/DS | | Granny Creek Confluence | |
| | US Unfiltered | US Filtered | DS Unfiltered | DS Filtered | DS Unfiltered | DS 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 | | | | |
| Jan-08 | | | | | 0.17 | 0.09 | 0.15 | 0.12 |
| Feb-08 | 0.17 | 0.10 | 0.11 | 0.07 | | | | |
| Apr-08 | 0.06 | 0.04 | 0.15 | 0.09 | 0.35 | 0.20 | 0.11 | 0.05 |
| Jul-08 | 0.06 | 0.04 | 0.07 | 0.06 | 0.26 | 0.30 | 0.33 | 0.32 |
| Oct-08 | 0.02 | 0.02 | 0.04 | 0.03 | 0.10 | 0.06 | 0.14 | 0.10 |
| Jan-09 | <0.02 | 0.06 | 0.06 | 0.04 | | | | |
| Apr-09 | 0.08 | 0.02 | 0.06 | 0.02 | 0.04 | 0.04 | 0.04 | 0.04 |
| Jul-09 | <0.02 | 0.04 | 0.05 | 0.05 | 0.03 | 0.05 | 0.07 | 0.18 |
| Oct-09 | 0.02 | 0.05 | <0.02 | 0.02 | | | <0.12 | 0.12 |
| Jan-10 | 0.06 | 0.04 | 0.07 | 0.02 | 0.11 | 0.07 | 0.09 | 0.31 |
| Apr-10 | 0.05 | 0.04 | 0.08 | 0.05 | | | | |
| May-10 | | | | | 0.11 | 0.08 | 0.09 | 0.07 |
| Jul-10 | 0.06 | 0.02 | 0.08 | 0.06 | 0.09 | 0.08 | 0.15 | 0.11 |
| Oct-10 | 0.04 | 0.04 | 0.07 | 0.07 | 0.15 | 0.13 | 0.14 | 0.10 |
| Jan-11 | 0.03 | 0.03 | 0.17 | 0.11 | 0.11 | 0.09 | 0.16 | 0.08 |
| Apr-11 | 0.09 | 0.04 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 |
| Jul-11 | 0.05 | 0.05 | 0.14 | 0.11 | 0.46 | 0.35 | 0.39 | 0.06 |
| Oct-11 | 0.04 | <0.02 | 0.23 | 0.08 | 0.03 | 0.24 | | 0.05 |
| Jan-12 | 0.25 | 0.10 | 0.07 | 0.04 | 0.10 | 0.09 | 0.17 | 0.07 |
| Apr-12 | 0.08 | 0.03 | 0.07 | 0.07 | 0.08 | 0.06 | 0.12 | 0.08 |
| Jul-12 | 0.07 | 0.05 | 0.17 | 0.12 | 0.19 | 0.14 | 0.27 | 0.18 |
| Oct-12 | 0.03 | 0.03 | 0.09 | 0.08 | 0.37 | 0.30 | 0.18 | 0.13 |
| Jan-13 | 0.06 | 0.04 | 0.08 | 0.06 | 0.09 | 0.08 | 0.07 | 0.14 |
| Apr-13 | 0.09 | 0.03 | 0.10 | 0.08 | 0.05 | <0.02 | 0.10 | 0.06 |
| Jul-13 | 0.08 | 0.05 | 0.49 | 0.33 | 0.67 | 0.48 | 0.27 | <0.02 |
| Oct-13 | 0.06 | 0.05 | 0.25 | 0.16 | 0.33 | 0.24 | 0.27 | 0.18 |
| Jan-14 | 0.11 | 0.08 | 0.06 | <0.02 | 0.13 | 0.05 | 0.13 | 0.09 |
| Apr-14 | 0.08 | <0.02 | 0.03 | <0.02 | 0.08 | 0.03 | 0.03 | 0.03 |
| Jul-14 | 0.19 | 0.15 | 0.06 | 0.05 | 1.26 | 1.06 | 0.07 | 0.04 |
| Oct-14 | 0.14 | 0.07 | 0.04 | 0.03 | 0.23 | 0.11 | 0.04 | 0.03 |
| 2009 Average | <0.03 | 0.04 | <0.05 | 0.03 | 0.04 | 0.04 | <0.07 | 0.11 |
| 2010 Average | 0.05 | 0.04 | 0.08 | 0.05 | 0.12 | 0.09 | 0.12 | 0.15 |
| 2011 Average | 0.05 | <0.03 | <0.14 | <0.08 | <0.15 | <0.17 | <0.19 | <0.05 |
| 2012 Average | 0.11 | 0.05 | 0.10 | 0.08 | 0.18 | 0.15 | 0.18 | 0.11 |
| 2013 Average | 0.07 | 0.04 | 0.23 | 0.16 | 0.29 | <0.20 | 0.18 | <0.10 |
| 2014 Average | 0.13 | <0.08 | 0.05 | <0.03 | 0.42 | 0.31 | 0.07 | 0.05 |
| Average All Years | <0.07 | <0.05 | <0.10 | <0.07 | <0.22 | <0.17 | <0.14 | <0.10 |

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).

Highlighted data has been added to tables from 2014 mercury summary report

**De Beers Canada Inc., Victor Mine**
Mercury Performance Monitoring,
per Certificate of Approval #3960-7Q4K2G, Conditions 7(5) and 7(6)

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

| Monitoring Location Code | G-1 | | G-2*** | | G-3 | | G-4 | | G-8 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date | N. Granny Creek Upstream NWF (NGC/UP/NWF) | | N. Granny Creek Downstream NWF (NGC/DN/NWF) | | N. Granny Creek Downstream NEF (NGC/DN/NEF) | | N. Granny Creek Downstream (NGC-DS) | | Granny Creek Confluence | |
| | Unfiltered | Filtered | Unfiltered | Filtered | Unfiltered | Filtered | Unfiltered | Filtered | Unfiltered | 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 | | | 0.15 | 0.12 |
| Feb-08 | 0.09 | 0.06 | 0.47 | 0.14 | <0.02 | <0.02 | 0.24 | 0.13 | | |
| Mar-08 | <0.02 | <0.02 | | | 0.29 | 0.17 | | | | |
| Apr-08 | 0.44 | 0.08 | 1.44 | 0.41 | 0.13 | 0.05 | 0.15 | 0.05 | 0.11 | 0.05 |
| Jul-08 | 0.09 | 0.09 | 0.09 | 0.09 | 0.52 | 0.49 | 0.52 | 0.48 | 0.33 | 0.32 |
| Oct-08 | 0.04 | 0.05 | 0.07 | 0.07 | 0.11 | 0.11 | 0.18 | 0.15 | 0.14 | 0.10 |
| Jan-09 | 0.04 | 0.03 | | | 0.08 | 0.06 | | | | |
| Apr-09 | 0.04 | 0.02 | 0.02 | <0.02 | <0.02 | <0.02 | | | 0.04 | 0.04 |
| Jun-09 | | | | | | | 0.03 | 0.11 | | |
| Jul-09 | 0.06 | 0.06 | 0.02 | 0.06 | 0.02 | 0.12 | <0.02 | 0.08 | 0.07 | 0.18 |
| Oct-09 | <0.02 | 0.04 | | | 0.07 | 0.04 | | | 0.12 | 0.12 |
| Jan-10 | 0.19 | 0.05 | 0.11 | 0.04 | 0.11 | 0.04 | 0.14 | 0.08 | 0.09 | 0.31 |
| Apr-10 | 0.06 | 0.03 | 0.10 | 0.03 | 0.10 | 0.05 | | | | |
| May-10 | | | | | | | 0.03 | 0.06 | 0.09 | 0.07 |
| Jul-10 | 0.06 | 0.05 | 0.04 | 0.07 | 0.19 | 0.10 | 0.09 | 0.08 | 0.15 | 0.11 |
| Oct-10 | 0.07 | 0.05 | 0.12 | 0.08 | 0.16 | 0.13 | 0.19 | 0.13 | 0.14 | 0.10 |
| Jan-11 | 0.07 | 0.03 | 0.07 | 0.05 | 0.09 | <0.02 | 0.11 | 0.04 | 0.16 | 0.08 |
| Apr-11 | <0.02 | <0.02 | <0.02 | <0.02 | 0.06 | 0.03 | <0.02 | <0.02 | <0.02 | <0.02 |
| May-11 | 0.05 | 0.04 | 0.13 | 0.08 | | | | | | |
| Jun-11 | 0.07 | <0.02 | 0.11 | 0.09 | | | | | | |
| Jul-11 | 0.06 | 0.04 | 0.21 | 0.45 | 0.35 | 0.39 | 0.48 | 0.32 | 0.39 | 0.06 |
| Aug-11 | 0.10 | 0.09 | 0.56 | 0.46 | 0.53 | 0.21 | | | | |
| Oct-11 | <0.02 | <0.02 | 0.21 | 0.18 | | 0.18 | 0.30 | 0.27 | | 0.05 |
| Nov-11 | 0.11 | 0.07 | 0.16 | 0.09 | | | | | | |
| Dec-11 | 0.08 | 0.05 | 0.17 | 0.13 | | | | | | |
| Jan-12 | | | 0.09 | 0.07 | 0.18 | 0.06 | 0.08 | 0.05 | 0.17 | 0.07 |
| Feb-12 | 0.03 | <0.02 | 0.08 | 0.03 | 0.07 | 0.02 | | | | |
| Mar-12 | 0.03 | <0.02 | 0.05 | <0.02 | 0.04 | <0.02 | | | | |
| Apr-12 | | | 0.07 | 0.07 | 0.22 | 0.15 | 0.08 | 0.06 | 0.12 | 0.08 |
| May-12 | 0.05 | 0.04 | 0.09 | 0.05 | 0.11 | 0.09 | | | | |
| Jun-12 | 0.05 | 0.04 | 0.10 | 0.07 | 0.12 | 0.10 | | | | |
| Jul-12 | 0.06 | 0.05 | 0.20 | 0.15 | 0.24 | 0.18 | 0.28 | 0.22 | 0.27 | 0.18 |
| Aug-12 | 0.02 | <0.02 | 0.40 | 0.29 | | | | | | |
| Sep-12 | 0.07 | 0.04 | 0.47 | 0.41 | | | | | | |
| Oct-12 | | | 0.16 | 0.11 | 0.19 | 0.16 | 0.27 | 0.22 | 0.18 | 0.13 |
| Nov-12 | | | 1.58 | 0.11 | | | | | | |
| Dec-12 | 0.12 | 0.05 | 0.13 | 0.11 | | | | | | |
| Jan-13 | | | 0.03 | 0.09 | | | 0.11 | 0.10 | 0.07 | 0.14 |
| Feb-13 | 0.04 | 0.04 | 0.06 | 0.04 | 0.09 | 0.08 | | | | |
| Mar-13 | 0.04 | 0.03 | 0.04 | 0.03 | 0.09 | 0.06 | | | | |
| Apr-13 | 0.11 | 0.04 | 0.06 | 0.02 | 0.14 | 0.10 | 0.08 | 0.05 | 0.10 | 0.06 |
| May-13 | 0.06 | <0.02 | 0.09 | 0.08 | | | | | | |
| Jun-13 | 0.06 | 0.05 | 0.13 | 0.11 | | | | | | |
| Jul-13 | 0.07 | 0.03 | 0.27 | 0.21 | 0.30 | 0.22 | 0.28 | 0.25 | 0.27 | <0.02 |
| Aug-13 | 0.08 | 0.07 | 0.43 | 0.34 | 0.52 | 0.37 | | | | |
| Sep-13 | 0.14 | 0.09 | 0.49 | 0.43 | 0.43 | 0.05 | | | | |
| Oct-13 | 0.22 | 0.06 | 0.39 | 0.19 | 0.30 | 0.25 | 0.47 | 0.31 | 0.27 | 0.18 |
| Nov-13 | 0.05 | <0.02 | 0.12 | 0.10 | 0.16 | 0.11 | | | | |
| Dec-13 | 0.03 | 0.02 | 0.09 | 0.05 | 0.14 | 0.09 | | | | |
| Jan-14 | <0.02 | <0.02 | 0.06 | 0.02 | 0.11 | 0.05 | 0.11 | 0.15 | 0.13 | 0.09 |
| Feb-14 | 0.05 | <0.02 | 0.06 | 0.03 | 0.05 | 0.04 | | | | |
| Mar-14 | 0.05 | 0.03 | 0.17 | 0.10 | 0.08 | 0.06 | | | | |
| Apr-14 | 0.15 | <0.02 | 0.06 | 0.03 | 0.05 | 0.03 | 0.13 | 0.03 | 0.03 | 0.03 |
| May-14 | 0.10 | 0.03 | 0.44 | 0.23 | 0.26 | 0.09 | | | | |
| Jun-14 | 0.08 | 0.07 | 0.18 | 0.17 | 0.18 | 0.17 | | | | |
| Jul-14 | 0.17 | 0.12 | 0.29 | 0.19 | 0.31 | 0.27 | 0.36 | 0.29 | 0.07 | 0.04 |
| Aug-14 | 0.32 | 0.16 | 0.25 | 0.22 | 0.24 | 0.17 | | | | |
| Sep-14 | 0.50 | 0.31 | 0.49 | 0.33 | 0.41 | 0.28 | | | | |
| Oct-14 | 0.14 | 0.12 | 0.15 | 0.13 | 0.18 | 0.13 | 0.19 | 0.14 | 0.04 | 0.03 |
| Nov-14 | 0.08 | 0.08 | 0.13 | 0.12 | 0.15 | 0.12 | | | | |
| Dec-14 | | | 0.13 | 0.10 | 0.13 | 0.10 | | | | |
| 2009 Average | <0.04 | 0.04 | 0.02 | <0.04 | <0.05 | <0.06 | <0.03 | 0.09 | 0.07 | 0.11 |
| 2010 Average | 0.09 | 0.04 | 0.09 | 0.06 | 0.14 | 0.08 | 0.11 | 0.09 | 0.12 | 0.15 |
| 2011 Average | <0.06 | <0.04 | <0.18 | <0.17 | 0.26 | <0.17 | <0.23 | <0.16 | <0.19 | <0.05 |
| 2012 Average | 0.05 | <0.03 | 0.30 | <0.13 | 0.14 | <0.10 | 0.21 | 0.17 | 0.18 | 0.11 |
| 2013 Average | 0.08 | <0.04 | 0.18 | 0.14 | 0.24 | 0.15 | 0.24 | 0.18 | 0.18 | 0.10 |
| 2014 Average | <0.15 | <0.09 | 0.20 | 0.14 | 0.18 | 0.12 | 0.20 | 0.15 | 0.07 | 0.05 |
| Average All Years | <0.09 | <0.05 | <0.22 | <0.13 | <0.18 | <0.12 | <0.19 | <0.15 | <0.14 | <0.10 |

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).
*** Previously reported in annual report for FPK under C of A #6909-76ZGYP
Blank cells indicate concentration was not determined.

Highlighted data has been added to tables from 2014 mercury summary report

**De Beers Canada Inc., Victor Mine**
Mercury Performance Monitoring,
per Certificate of Approval #3960-7Q4K2G, Conditions 7(5) and 7(6)

### TABLE 37 (new)
### Mercury at Tributary 5A Reference Site
### (concentrations in ng/L)

| Date | Methyl Mercury (filtered) | Methyl Mercury (unfiltered) | Total Mercury (filtered) | Total Mercury (unfiltered) |
|---|---|---|---|---|
| | | | | |
| Feb-08 | <0.02 | | 0.73 | 0.96 |
| May-08 | <0.02 | <0.02 | 2.21 | 2.53 |
| Jul-08 | <0.02 | <0.02 | 2.16 | 2.20 |
| Oct-08 | <0.02 | <0.02 | 1.16 | 1.48 |
| Jan-09 | <0.02 | <0.02 | 0.59 | 0.84 |
| Apr-09 | <0.02 | <0.02 | 0.53 | 0.70 |
| Jul-09 | 0.03 | 0.04 | 1.47 | 1.93 |
| Oct-09 | 0.04 | 0.03 | 0.69 | 0.89 |
| Jan-10 | 0.02 | 0.06 | <0.1 | 0.67 |
| Apr-10 | 0.02 | 0.05 | 1.16 | 1.57 |
| Jul-10 | 0.03 | 0.07 | 0.67 | 0.83 |
| Oct-10 | 0.02 | 0.02 | 0.38 | 0.98 |
| Jan-11 | 0.05 | 0.02 | 0.62 | 0.72 |
| Apr-11 | <0.02 | 0.02 | 0.56 | 0.64 |
| Jul-11 | 0.04 | 0.04 | 0.98 | 1.28 |
| Oct-11 | 0.03 | 0.03 | 2.01 | 2.72 |
| Jan-12 | 0.05 | 0.09 | 0.52 | 1.18 |
| Apr-12 | 0.03 | 0.05 | 1.39 | 1.96 |
| Jul-12 | 0.02 | 0.04 | 0.84 | 1.22 |
| Oct-12 | <0.02 | <0.02 | 1.1 | 1.55 |
| Jan-13 | <0.02 | 0.03 | 0.62 | 1.13 |
| Apr-13 | <0.02 | 0.041 | 0.44 | 0.52 |
| Jul-13 | 0.05 | 0.06 | 0.5 | 0.88 |
| Oct-13 | <0.02 | <0.02 | 0.88 | 1.06 |
| Jan-14 | <0.02 | 0.06 | 0.26 | 0.55 |
| May-14 | <0.02 | 0.044 | 2.46 | 4.16 |
| Jul-14 | 0.027 | 0.022 | 1.11 | 1.31 |
| Sep-14 | <0.02 | 0.022 | 1.01 | 1.17 |
| Oct-14 | <0.02 | 0.023 | 1.3 | 1.65 |
| Nov-14 | <0.02 | 0.031 | 1.45 | 2.34 |
| Average 2008 | <0.02 | <0.02 | 1.57 | 1.79 |
| Average 2009 | <0.03 | <0.03 | 0.82 | 1.09 |
| Average 2010 | 0.02 | 0.05 | <0.58 | 1.01 |
| Average 2011 | <0.04 | 0.03 | 1.04 | 1.34 |
| Average 2012 | <0.03 | <0.05 | 0.96 | 1.48 |
| Average 2013 | <0.03 | <0.04 | 0.61 | 0.90 |
| Average 2014 | <0.02 | 0.03 | 1.27 | 1.86 |
| Average All Data | <0.03 | <0.04 | <1.00 | 1.39 |

* 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 total mercury, 4 ng/L methyl mercury
MDLs have been adjusted for all years for uniformity (0.02 ng/L for methyl mercury, 0.1 ng/L for total mercury), as per Section 1.
Blank cells indicate concentration was not determined.