

From: Cooper, Kayla (AADNC/AANDC)
To: [Cooper, Kayla \(AADNC/AANDC\)](#)
Subject: Giant Mine ambient AQMP summary report for the week ending June 9, 2018
Date: June 19, 2018 3:17:46 PM
Attachments: [GIANT - REGULATORY AND MONITORING - AQM WEEKLY SUMMARY - WEEK ENDING IN June 9, 2018.pdf](#)

Good afternoon,

A summary of the Giant Mine ambient air quality monitoring program (AQMP) for the week ending June 9, 2018 is as follows:

Fenceline Network:

- A total of one (1) 15-minute average particulate matter less than 10 microns in diameter (PM₁₀) above the established Risk Based Action Level (RBAL) of 159 µg/m³ was measured at fence line monitoring location Site C-Northwest on June 9, 2018. Elevated concentrations appear to be the result of heavy fog observed in the area of the samplers. No site activities that may have contributed to the measured concentrations were reported during this time period;
 - One (1) 15-minute average PM₁₀ concentration of 182 µg/m³ was measured at Site C-Northwest on June 9, 2018 at 04:00 MST. The average wind speed was 1.4 m/s during this time and the wind direction was from the east-northeast, placing the City of Yellowknife crosswind from Giant Mine;
- A total of sixteen (16) 15-minute average total suspended particulate (TSP) concentrations above the established RBAL of 333 µg/m³ were measured at the fence line monitoring locations on June 9, 2018, six (6) at Site A-North and ten (10) at Site F-Marina. Elevated TSP concentrations below the RBAL were measured at most fenceline locations on that date during the early morning. Elevated concentrations appear to be the result of heavy fog observed in the area of the samplers. No site activities that may have contributed to the measured concentrations were reported during this time period;
 - Six (6) 15-minute average TSP concentrations were measured at Site A-North on June 9, 2018. The concentrations ranged from 431 µg/m³ to 808 µg/m³ and were measured between 02:00 MST and 05:00 MST. During this time the winds were calm, with very light gusts from the east-northeast, placing Yellowknife crosswind from Giant Mine;
 - Ten (10) 15-minute average TSP concentrations were measured at Site F-Marina on June 9, 2018. The concentrations ranged from 575 µg/m³ to 2,984 µg/m³ and were measured between 02:30 MST and 05:00 MST. During this time the winds were calm, with very light gusts from the east-northeast, placing Yellowknife crosswind from Giant Mine;
- Laboratory results for TSP, PM₁₀, and trace metals (including arsenic) analyses from samples collected on May 14, 17, and 20, 2018 at the fence line monitoring locations were less than the analytical detection limit and/or below the referenced

standard. Laboratory analyses of integrated 24-hour arsenic, PM₁₀, and TSP filter samples collected at the fence line sampling locations after May 20, 2018 are pending.

Community Stations:

- No real time PM_{2.5} or PM₁₀ 24-hour average concentrations above the referenced standards for each were measured at any of the community stations during the week.
- Laboratory results from TSP, PM₁₀, and trace metals (including arsenic) samples collected on May 17, 2018 at the NDL community station indicated a measured TSP concentration of 156 µg/m³, which was above the GNWT 24-Hour Standard of 120 µg/m³ and a measured total iron concentration of 4.3 µg/m³, above the Ontario 24-Hour Standard of 4.0 µg/m³.
 - On May 17, 2018 the winds were predominately from the south with an average speed of 3.6 m/s, placing the City of Yellowknife upwind from Giant Mine. Results of the laboratory analysis of the 24-hour integrated filter for TSP and total iron at the NDL community station were 156 µg/m³ and 4.3 µg/m³, respectively. On this day, the NDL community station measured elevated continuous PM₁₀ concentrations below the standard and typical seasonal background concentrations of continuous PM_{2.5}. Also, on this day real time PM₁₀ and TSP fence line concentrations at all sites were typical of seasonal background concentrations throughout the day. No site activities that may have contributed to the measured concentrations were reported during this time period.
- Laboratory results from TSP, PM₁₀, and trace metals (including arsenic) samples collected on May 20, 23, 26, 29 and June 1, 2018 at the community stations were less than the analytical detection limit and/or below the referenced standard. Laboratory analyses of community station filters collected after June 1, 2018 are pending;
- Laboratory results for asbestos analyses from samples collected on May 17, 20, 23, 26, 29 and June 1, 2018 at the community stations were less than the analytical detection limit and/or below the referenced standard. Laboratory analyses of asbestos samples collected at the community stations after June 1, 2018 are pending;
- There were no NO₂ concentrations measured at the Niven Lake community air monitoring station above the NWT Ambient Air Quality 24-Hour Standard of 106 parts per billion (ppb) or the 1-Hour Standard of 213 ppb during the week. Table 1 summarizes the daily hourly maximum concentrations and the daily 24-Hour average concentrations measured at the Niven Lake community station during the week.

Table 1

Niven Lake Community AQM Station NO₂ Concentrations

Date	Maximum One-hour Average (ppb)	24-hour Average (ppb)
June 03, 2018	1.0	0.4
June 04, 2018	1.5	0.2
June 05, 2018	10.0	1.0
June 06, 2018	3.7	1.1
June 07, 2018	2.8	1.1
June 08, 2018	9.2	1.3
June 09, 2018	4.3	2.0

C5-09 Stope Stabilization Program:

- Air quality monitoring specific to the C5-09 stope stabilization program was conducted throughout the week at four locations within the vicinity of UBC Pit, at three locations within the vicinity of the North, Central, and South Tailings Ponds, and one location near the Brock Pit;
- There were no 15-minute average PM₁₀ concentrations above the RBAL of 260 µg/m³ measured at the monitors associated with the C5-09 stope stabilization program during the week;
- Laboratory results for PM₁₀ and arsenic analyses from samples collected on May 14, 17, and 20, 2018 at the C5-09 monitoring locations were less than the analytical detection limit and/or below the referenced standard. Laboratory analyses of C5-09 PM₁₀ and arsenic filter samples collected after May 20, 2018 are pending.

General Operation:

- Data completeness for the reporting period was 99.85% for real time TSP samplers associated with the fence line monitoring network, 100.00% for real time PM₁₀ samplers associated with the fence line monitoring network, and 99.74% for real time PM₁₀ samplers associated with the C5-09 monitoring network;
- The AQM program operated as specified during the week ending June 9, 2018, with the following exceptions:
 - The TSP sampler at fence line monitoring location Site H-Northwest Pond did not collect data from 04:30 MST to 05:30, from 05:45 MST to 06:00 MST, 06:15 to 06:30 MST, and from 07:15 MST to 07:45 MST on June 6, 2018. The overnight power loss and intermittent early morning power losses were due to a loss of battery from lack of solar power. The SLR on site technician replaced the depleted batteries with fully charged batteries upon arriving on site;
 - The PM sampler at C5-09 monitoring location Site T2 - Brock Pit did not

collect data from 08:30 MST to 10:00 MST on June 7, 2018 due to a battery failure. SLR technicians have identified the failed battery and removed it from service;

- The integrated PM₁₀ sample collected on May 14, 2018 at fence line monitoring location Site D-Beach was not analyzed for PM₁₀ particulate due to an error with the laboratory analysis. Integrated arsenic and metals analysis of this filter was not affected.

Thanks,

Kayla Cooper

Administrative Project Coordinator

Giant Mine Remediation Project

Crown-Indigenous Relations and Northern Affairs Canada

(867)669-2425



PO BOX 1500
YELLOWKNIFE NT X1A 2R3

June 19, 2018

Distribution List

RE: Air Quality Reports for the Week of June 9, 2018.

A summary of the Giant Mine ambient air quality monitoring program (AQM) for the week ending June 9, 2018 is as follows:

Fenceline Network:

- A total of one (1) 15-minute average particulate matter less than 10 microns in diameter (PM_{10}) above the established Risk Based Action Level (RBAL) of $159 \mu\text{g}/\text{m}^3$ was measured at fence line monitoring location Site C-Northwest on June 9, 2018. Elevated concentrations appear to be the result of heavy fog observed in the area of the samplers. No site activities that may have contributed to the measured concentrations were reported during this time period;
 - o One (1) 15-minute average PM_{10} concentration of $182 \mu\text{g}/\text{m}^3$ was measured at Site C-Northwest on June 9, 2018 at 04:00 MST. The average wind speed was 1.4 m/s during this time and the wind direction was from the east-northeast, placing the City of Yellowknife crosswind from Giant Mine;
- A total of sixteen (16) 15-minute average total suspended particulate (TSP) concentrations above the established RBAL of $333 \mu\text{g}/\text{m}^3$ were measured at the fence line monitoring locations on June 9, 2018, six (6) at Site A-North and ten (10) at Site F-Marina. Elevated TSP concentrations below the RBAL were measured at most fenceline locations on that date during the early morning. Elevated concentrations appear to be the result of heavy fog observed in the area of the samplers. No site activities that may have contributed to the measured concentrations were reported during this time period;
 - o Six (6) 15-minute average TSP concentrations were measured at Site A-North on June 9, 2018. The concentrations ranged from $431 \mu\text{g}/\text{m}^3$ to $808 \mu\text{g}/\text{m}^3$ and were measured between 02:00 MST and 05:00 MST. During this time the winds were calm, with very light gusts from the east-northeast, placing Yellowknife crosswind

from Giant Mine;

- o Ten (10) 15-minute average TSP concentrations were measured at Site F-Marina on June 9, 2018. The concentrations ranged from 575 $\mu\text{g}/\text{m}^3$ to 2,984 $\mu\text{g}/\text{m}^3$ and were measured between 02:30 MST and 05:00 MST. During this time the winds were calm, with very light gusts from the east-northeast, placing Yellowknife crosswind from Giant Mine;
- Laboratory results for TSP, PM_{10} , and trace metals (including arsenic) analyses from samples collected on May 14, 17, and 20, 2018 at the fence line monitoring locations were less than the analytical detection limit and/or below the referenced standard. Laboratory analyses of integrated 24-hour arsenic, PM_{10} , and TSP filter samples collected at the fence line sampling locations after May 20, 2018 are pending.

Community Stations:

- No real time $\text{PM}_{2.5}$ or PM_{10} 24-hour average concentrations above the referenced standards for each were measured at any of the community stations during the week.
- Laboratory results from TSP, PM_{10} , and trace metals (including arsenic) samples collected on May 17, 2018 at the NDL community station indicated a measured TSP concentration of 156 $\mu\text{g}/\text{m}^3$, which was above the GNWT 24-Hour Standard of 120 $\mu\text{g}/\text{m}^3$ and a measured total iron concentration of 4.3 $\mu\text{g}/\text{m}^3$, above the Ontario 24-Hour Standard of 4.0 $\mu\text{g}/\text{m}^3$.
 - o On May 17, 2018 the winds were predominately from the south with an average speed of 3.6 m/s, placing the City of Yellowknife upwind from Giant Mine. Results of the laboratory analysis of the 24-hour integrated filter for TSP and total iron at the NDL community station were 156 $\mu\text{g}/\text{m}^3$ and 4.3 $\mu\text{g}/\text{m}^3$, respectively. On this day, the NDL community station measured elevated continuous PM_{10} concentrations below the standard and typical seasonal background concentrations of continuous $\text{PM}_{2.5}$. Also, on this day real time PM_{10} and TSP fence line concentrations at all sites were typical of seasonal background concentrations throughout the day. No site activities that may have contributed to the measured concentrations were reported during this time period.
- Laboratory results from TSP, PM_{10} , and trace metals (including arsenic) samples collected on May 20, 23, 26, 29 and June 1, 2018 at the community stations were less than the analytical detection limit and/or below the referenced standard. Laboratory analyses of community station filters collected after June 1, 2018 are pending;

- Laboratory results for asbestos analyses from samples collected on May 17, 20, 23, 26, 29 and June 1, 2018 at the community stations were less than the analytical detection limit and/or below the referenced standard. Laboratory analyses of asbestos samples collected at the community stations after June 1, 2018 are pending;
- There were no NO₂ concentrations measured at the Niven Lake community air monitoring station above the NWT Ambient Air Quality 24-Hour Standard of 106 parts per billion (ppb) or the 1-Hour Standard of 213 ppb during the week. Table 1 summarizes the daily hourly maximum concentrations and the daily 24-Hour average concentrations measured at the Niven Lake community station during the week.

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- Air quality monitoring specific to the C5-09 stope stabilization program was conducted throughout the week at four locations within the vicinity of UBC Pit, at three locations within the vicinity of the North, Central, and South Tailings Ponds, and one location near the Brock Pit;
- There were no 15-minute average PM₁₀ concentrations above the RBAL of 260 µg/m³ measured at the monitors associated with the C5-09 stope stabilization program during the week;
- Laboratory results for PM₁₀ and arsenic analyses from samples collected on May 14, 17, and 20, 2018 at the C5-09 monitoring locations were less than the analytical detection limit and/or below the referenced standard. Laboratory analyses of C5-09 PM₁₀ and arsenic filter samples collected after May 20, 2018 are pending.

General Operation:

- Data completeness for the reporting period was 99.85% for real time TSP samplers associated with the fence line monitoring network, 100.00% for real time PM₁₀ samplers associated with the fence line monitoring network, and 99.74% for real time PM₁₀

samplers associated with the C5-09 monitoring network;

- The AQM program operated as specified during the week ending June 9, 2018, with the following exceptions:
 - o The TSP sampler at fence line monitoring location Site H-Northwest Pond did not collect data from 04:30 MST to 05:30, from 05:45 MST to 06:00 MST, 06:15 to 06:30 MST, and from 07:15 MST to 07:45 MST on June 6, 2018. The overnight power loss and intermittent early morning power losses were due to a loss of battery from lack of solar power. The SLR on site technician replaced the depleted batteries with fully charged batteries upon arriving on site;
 - o The PM₁₀ sampler at C5-09 monitoring location Site T2 - Brock Pit did not collect data from 08:30 MST to 10:00 MST on June 7, 2018 due to a battery failure. SLR technicians have identified the failed battery and removed it from service;
 - o The integrated PM₁₀ sample collected on May 14, 2018 at fence line monitoring location Site D-Beach was not analyzed for PM₁₀ particulate due to an error with the laboratory analysis. Integrated arsenic and metals analysis of this filter was not affected.

Sincerely,



Natalie Plato
Deputy Director
Giant Mine Remediation Project

c.c.: Distribution List