



PO BOX 1500  
YELLOWKNIFE NT X1A 2R3

MV2012L8-0010

**NT 929416**

October 27, 2017

Distribution List

**RE: Air Quality Reports for the Week of October 21, 2017.**

**A summary of the Giant Mine ambient air quality monitoring program (AQM) for the week ending October 21, 2017 is as follows:**

Fenceline Network:

A total of three (3) 15-minute average particulate matter less than 10 microns in diameter ( $PM_{10}$ ) concentrations above the established Risk Based Action Level (RBAL) of  $159 \mu\text{g}/\text{m}^3$  were measured at the fenceline monitoring station H-Northwest on October 20, 2017. Elevated concentrations appear to be the result of observed 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:

- Three (3) 15-minute average  $PM_{10}$  concentrations above the established fenceline RBAL were measured at fenceline monitoring site H-NW Pond on October 20, 2017. The concentrations ranged from  $166 \mu\text{g}/\text{m}^3$  to  $199 \mu\text{g}/\text{m}^3$  and were measured between 21:00 and 22:00 MST. The average wind speed was 1.0 m/s during this time and the wind direction was from the north, placing the City of Yellowknife downwind of Giant Mine.

A total of ten (10) 15-minute average total suspended particulate (TSP) concentrations above the established RBAL ( $333 \mu\text{g}/\text{m}^3$ ) were measured at the fenceline monitoring stations C-NW Pond and H-Northwest on October 20, 2017. Elevated TSP concentrations above typical background concentrations were measured at most fenceline locations on that date during the late evening. 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:

- Five (5) 15-minute average TSP concentrations were measured at Site C-NW Pond on October 20, 2017. The concentrations ranged from  $365 \mu\text{g}/\text{m}^3$  to  $812 \mu\text{g}/\text{m}^3$  and were measured between 22:00 and 23:00 MST. The average wind speed was 1.9 m/s during this time and the wind direction was from the northwest, placing the City of Yellowknife downwind from Giant Mine;

- Five (5) 15-minute average TSP concentrations were measured at Site H-Northwest on October 20, 2017. The concentrations ranged from 346  $\mu\text{g}/\text{m}^3$  to 540  $\mu\text{g}/\text{m}^3$  and were measured between 18:45 and 22:30 MST. The average wind speed was 1.8 m/s during this time and the wind direction was from the north, placing the City of Yellowknife downwind from Giant Mine.

Laboratory results for TSP,  $\text{PM}_{10}$ , and trace metals (including arsenic) analyses from samples collected on September 28, 2017 indicated a nickel concentration of 0.22  $\mu\text{g}/\text{m}^3$  measured above the Ontario 24-Hour Standard of 0.20  $\mu\text{g}/\text{m}^3$  at fenceline TSP sampling location D-Beach. These slight (only 0.02  $\mu\text{g}/\text{m}^3$  above) nickel exceedances have been seen before, likely from vehicle traffic. There is no cause for concern as the standards are very conservative, and nothing was detected at the community stations, suggesting that the exceedance was site specific. The description from SLR also specifies that no RBAL exceedances were recorded, so this was a very localized event. All other sampling locations and analytes were less than their analytical detection limits and/or below the referenced standards. Laboratory analyses of integrated 24-hour arsenic,  $\text{PM}_{10}$ , and TSP filter samples collected at the fenceline sampling locations on September 22, 25, 28, and after October 1, 2017 are pending;

- On September 28, 2017 the winds were predominately from the south-southeast, placing the City of Yellowknife upwind from Giant Mine. The average wind speed was 5.1 m/s. Results from the laboratory analysis for nickel of the 24-hour integrated filter at TSP sampling location D-Beach was 0.22  $\mu\text{g}/\text{m}^3$ . Real time  $\text{PM}_{10}$  and TSP fenceline concentrations at all sites were below the RBAL and typical of seasonal background concentrations throughout the day. Community station  $\text{PM}_{10}$  and  $\text{PM}_{2.5}$  measurements were typically representative of seasonal background concentrations. No site activities that may have contributed to the measured concentrations were reported during this time period.

#### Community Stations:

No 24-hour average concentrations of  $\text{PM}_{2.5}$  and  $\text{PM}_{10}$  were measured above the referenced standards at the community stations during the week.  $\text{PM}_{2.5}$  and  $\text{PM}_{10}$  concentrations during the week were typically representative of seasonal background concentrations;

Laboratory results from TSP,  $\text{PM}_{10}$ , and trace metals (including arsenic) samples collected on September 25, 28, October 1, and 4, 2017 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 October 4, 2017 are pending;

Laboratory results for asbestos analyses from samples collected on October 4, 2017 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 October 4, 2017 are pending;

There were no  $\text{NO}_2$  concentrations measured at the recently established 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 NO<sub>2</sub> Concentrations**

<b>Date</b>	<b>Maximum One-hour Average (ppb)</b>	<b>24-hour Average (ppb)</b>
October 15, 2017	3.6	0.6
October 16, 2017	4.2	0.6
October 17, 2017	1.9	0.0
October 18, 2017	12.6	1.8
October 19, 2017	1.2	0.2
October 20, 2017	3.1	0.7
October 21, 2017	3.2	0.5

General Operation:

The AQM program operated as specified during the week ending October 21, 2017.

Sincerely,



Natalie Plato  
Deputy Director  
Giant Mine Remediation Project

c.c.: Distribution List

**From:** Irwin, Geneva (AADNC/AANDC)  
**Subject:** Air Quality Monitoring Weekly Summary - Week Ending in October 21  
**Date:** October 27, 2017 11:08:48 AM  
**Attachments:** [October 21.pdf](#)

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Good Morning,

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Fenceline Network:

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- Three (3) 15-minute average PM<sub>10</sub> concentrations above the established fenceline RBAL were measured at fenceline monitoring site H-NW Pond on October 20, 2017. The concentrations ranged from 166 µg/m<sup>3</sup> to 199 µg/m<sup>3</sup> and were measured between 21:00 and 22:00 MST. The average wind speed was 1.0 m/s during this time and the wind direction was from the north, placing the City of Yellowknife downwind of Giant Mine.

A total of ten (10) 15-minute average total suspended particulate (TSP) concentrations above the established RBAL (333 µg/m<sup>3</sup>) were measured at the fenceline monitoring stations C-NW Pond and H-Northwest on October 20, 2017. Elevated TSP concentrations above typical background concentrations were measured at most fenceline locations on that date during the late evening. 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:

- Five (5) 15-minute average TSP concentrations were measured at Site C-NW Pond on October 20, 2017. The concentrations ranged from 365 µg/m<sup>3</sup> to 812 µg/m<sup>3</sup> and were measured between 22:00 and 23:00 MST. The average wind speed was 1.9 m/s during this time and the wind direction was from the northwest, placing the City of Yellowknife downwind from Giant Mine;
- Five (5) 15-minute average TSP concentrations were measured at Site H-Northwest on October 20, 2017. The concentrations ranged from 346 µg/m<sup>3</sup> to 540 µg/m<sup>3</sup> and were measured between 18:45 and 22:30 MST. The average wind speed was 1.8 m/s during this time and the wind direction was from the north, placing the City of Yellowknife downwind from Giant Mine.

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fenceline TSP sampling location D-Beach. These slight (only 0.02 ug/m<sup>3</sup> above) nickel exceedances have been seen before, likely from vehicle traffic. There is no cause for concern as the standards are very conservative, and nothing was detected at the community stations, suggesting that the exceedance was site specific. The description from SLR also specifies that no RBAL exceedances were recorded, so this was a very localized event. All other sampling locations and analytes were less than their analytical detection limits and/or below the referenced standards. Laboratory analyses of integrated 24-hour arsenic, PM<sub>10</sub>, and TSP filter samples collected at the fenceline sampling locations on September 22, 25, 28, and after October 1, 2017 are pending;

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