

From: [Irwin, Geneva \(AADNC/AANDC\)](#)
Subject: Air Quality Monitoring Weekly Summary - Week Ending in September 29
Date: October 18, 2018 3:49:50 PM

Good Afternoon,

A summary of the Giant Mine ambient air quality monitoring program (AQM) for the week ending September 29, 2018 is as follows:

Fence Line Network:

- No 15-minute average particulate matter less than 10 microns in diameter (PM₁₀) concentrations above the established Risk Based Action Level (RBAL) of 159 µg/m³ were measured at the fence line monitoring stations during the week. PM₁₀ concentrations measured at the fence line monitoring locations during the week were typical of seasonal background concentrations;
- No 15-minute average total suspended particulate (TSP) concentrations above the established RBAL of 333 µg/m³ were measured at the fence line monitoring stations during the week. TSP concentrations measured the fence line monitoring locations during the week were typical of seasonal background concentrations;
 - One 15-minute average TSP concentration of 252 µg/m³ was measured at monitoring location Site I-South Pond on September 29, 2018 at 02:30 AM MST, and it was higher than the fence line TSP warning level of 220 µg/m³. During this time, wind speeds were 7.03 m/s and were blowing from the north-northwest, placing Yellowknife downwind from Giant Mine;
- Laboratory results for TSP, PM₁₀, and trace metals (including arsenic) analyses from samples collected on September 5, 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 September 11, 2018 are pending;
- Trace metals (including arsenic) laboratory results from the TSP sampler at monitoring location Station I-South Pond collected on September 11, 2018 indicated a measured total arsenic concentration of 0.36 µg/m³ which is above the Ontario 24-Hour Standard of 0.3 µg/m³, and a measured total iron concentration of 7.4 µg/m³ which is above the Ontario 24-Hour Standard of 4.0 µg/m³;
 - On September 11, 2018 the winds were predominately from the northwest with an average speed of 5 m/s, placing the City of Yellowknife downwind from Giant Mine. On this day, all continuous 15-minute average PM₁₀ and TSP concentrations were below the RBAL however, above average concentrations of both PM₁₀ and TSP were measured at monitoring location Site I-South Pond

between 08:00 MST and 11:00 MST, with a maximum PM₁₀ concentration of 61 µg/m³ measured at 09:30 MST and a maximum TSP concentration of 129 µg/m³ measured at 09:15 MST. It was observed that limited activity was occurring on-site. Exposed stockpiles of tailings and crushed rock were observed at the South Pond on that day.

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 August 21, 24, September 5, 8, and 11, 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 September 11, 2018 are pending;
- Laboratory results from asbestos samples collected on September 8, and 11, 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 September 11, 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)
September 23, 2018	5.8	1.6
September 24, 2018	16.3	3.4
September 25, 2018	6.6	2.0
September 26, 2018	1.0	0.4
September 27, 2018	1.9	0.4
September 28, 2018	0.7	0.0
September 29, 2018	1.1	0.3

C5-09 Slope Stabilization Program:

- Air quality monitoring specific to the C5-09 slope stabilization program was conducted throughout the week at four locations within the vicinity of UBC Pit, and at four locations within the vicinity of the North, Central, and South Tailings Ponds;

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 analyses of C5-09 PM₁₀ and arsenic filter samples collected on September 5, 8, and 11, 2018 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 September 11, 2018 are pending.

General Operation:

- Data completeness for the reporting period was 99.95% for real time TSP samplers associated with the fence line monitoring network, 99.98% for real time PM₁₀ samplers associated with the fence line monitoring network, and 99.93% for real time PM₁₀ samplers associated with the C5-09 monitoring network;
- The AQM program operated as specified during the week ending September 29, 2018, with the following exceptions:
 - A total of 0.75 hours of real-time TSP data were invalidated from the fence line sampling locations during maintenance and repair;
 - A total of 0.25 hours of real-time PM₁₀ data were invalidated from the fence line sampling locations during maintenance and repair;
 - A total of 1 hour of real-time PM₁₀ data were invalidated from the C5-09 sampling locations during maintenance and repair.

Best,

Geneva Irwin