From:	Geneva Irwin
Subject:	Air Quality Monitoring Weekly Summary Week ending in July 16
Date:	Friday, July 22, 2016 11:36:52 AM
Attachments:	July 16 AQM.pdf

Good Morning,

A summary of the Giant Mine ambient air quality monitoring program (AQM) for the week ending July 16, 2016 is as follows:

Fenceline Network:

- Seven 15-minute average particulate matter less than 10 microns in diameter (PM_{10}) concentrations equal to or above the established fenceline Risk Based Action Level (RBAL) of 159 $\mu g/m^3$ were measured on July 14 and 15, 2016;
    - On July 14, site D-Beach measured one 15-minute average concentration of 159 $\mu g/m^3$ at 8:15 PM MST.
    - On July 15 at 3:45 PM MST multiple 15-minute average concentrations above the RBAL were measured. Measured concentrations were as follows: site A-North (179 $\mu g/m^3$); site B-Town (160 $\mu g/m^3$); site C-Northwest (172 $\mu g/m^3$); site D-Beach (176 $\mu g/m^3$); site F-Marina (159 $\mu g/m^3$); and site G-West (172 $\mu g/m^3$) Elevated PM_{10} concentrations above typical background concentrations were measured at all fenceline locations throughout the week and were likely caused by smoke from regional forest fires;
- No 15-minute average total suspended particulate (TSP) concentrations above the established fenceline RBAL of 333 $\mu g/m^3$ were measured at the fenceline monitoring stations during the week. Elevated TSP concentrations above typical background concentrations were measured at all fenceline locations during the week and were likely caused by smoke from regional forest fires;
- Laboratory results of arsenic concentrations from samples collected on June 20, 23, 26, 29, and July 2, 2016 at the Fenceline E-Sampler locations were less than the analytical detection limit and/or below the referenced standards. Laboratory analysis of arsenic filter samples collected after July 2, 2016 are pending.

Community Stations:

- Twenty-four hour average concentrations of $PM_{2.5}$ were measured above the referenced standards at the NDL, YCC and NAPS community stations on July 15, 2016. No other days measured twenty-four hour average concentrations of $PM_{2.5}$ or PM_{10} above the referenced standards at the community stations during the week. $PM_{2.5}$ and PM_{10} concentrations during the week were above the normal background and were likely affected by smoke from regional forest fires;

PM 24-hour average concentrations above the referenced standard of 28

2.5
$\mu g/m^3$ were measured at all three community stations on July 15, 2016. Concentrations measured on that day were 32 $\mu g/m^3$ at NDL, 35 $\mu g/m^3$ at NAPS, and 31 $\mu g/m^3$ at YCC. Winds throughout the day were blowing from the north and west, placing the NAPS and YCC stations downwind of Giant Mine, and the NDL station crosswind of Giant Mine. Elevated $PM_{2.5}$ concentrations were observed throughout the day at all stations, however the greatest concentrations were measured at 4:00 PM MST of 142 $\mu g/m^3$ at NDL and 135 $\mu g/m^3$ YCC, and at 6:00 PM MST of 119 $\mu g/m^3$ at NAPS. The higher concentrations coincided with periods of heavy smoke observed throughout the area. Measured elevated $PM_{2.5}$ concentrations appear to be the result of smoke from regional forest fires;

- Laboratory results from TSP, PM_{10}, and trace metals (including arsenic) samples collected on June 20, 23, and 26, 2016 at the community stations were less than the analytical detection limit and/or below the referenced standard. Laboratory analysis of community station filters collected after June 26, 2016 are pending;

- Laboratory results from asbestos samples collected on June 23, 26, 29, and July 2, 2016 at the community stations were less than the analytical detection limit and/or below the referenced standard. Laboratory analysis of asbestos samples collected at the community stations after July 2, 2016 are pending.

<u>Stope Borehole Drilling Program:</u>

- Air quality monitoring specific to the stope borehole drilling program was conducted at three locations within the vicinity of A1 Pit and two locations within the vicinity of A2 Pit near active drilling operations and at four locations at the mine vents and the intake opening;

- There were no 15-minute average PM_{10} concentrations above the surface drilling RBAL of 260 $\mu g/m^3$ measured at the monitors located in the vicinity of drilling operations during the week;

- There were three 15-minute average PM_{10} concentrations above the Underground Vent Monitoring RBAL of 300 $\mu g/m^3$ for PM_{10} measured on July 12, 2016. E06 - UBC Portal measured two 15-minute average delta concentrations; 1,334 $\mu g/m^3$ at 9:30 AM MST, and 365 $\mu g/m^3$ at 10:00 AM MST. E07-138 Portal measured one 15-minute average delta concentrations of 499 $\mu g/m^3$ at 10:45 AM MST. Site investigations indicated that the 15-minute average PM_{10} concentrations above the RBAL were due to underground work crews exiting the mine through the 1-38 Portal and UBC portal. There were no other PM_{10} concentrations measured above the RBAL at vent monitoring sites during the week;

- Laboratory results of arsenic concentrations from samples collected on June 20, 23,

26, 29, and July 2, 2016 at the underground vent monitoring locations and surface drilling monitoring locations were less than the analytical detection limit and/or below the referenced standards. Laboratory analysis of arsenic filter samples collected after July 2, 2016 are pending.

General Operation:

- The AQM program operated as specified during the week ending July 16, 2016 with the following exception:
    - On Friday July 15, 2016 the DustTrak air monitor monitoring fenceline location F-Marina did not record four 15-minute average concentrations from 6:45 PM to 7:45 PM MST due to an area wide power outage.

Sincerely,

Natalie Plato

Indigenous and Northern Affairs Canada
Affaires autochtones et du Nord Canada

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July 22, 2016

Distribution List

RE: Air Quality Reports for the Week of July 16, 2016.

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Community Stations:

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days measured twenty-four hour average concentrations of $PM_{2.5}$ or PM_{10} above the referenced standards at the community stations during the week. $PM_{2.5}$ and PM_{10} concentrations during the week were above the normal background and were likely affected by smoke from regional forest fires;

  - $PM_{2.5}$ 24-hour average concentrations above the referenced standard of 28 $\mu g/m^3$ were measured at all three community stations on July 15, 2016. Concentrations measured on that day were 32 $\mu g/m^3$ at NDL, 35 $\mu g/m^3$ at NAPS, and 31 $\mu g/m^3$ at YCC. Winds throughout the day were blowing from the north and west, placing the NAPS and YCC stations downwind of Giant Mine, and the NDL station crosswind of Giant Mine. Elevated $PM_{2.5}$ concentrations were observed throughout the day at all stations, however the greatest concentrations were measured at 4:00 PM MST of 142 $\mu g/m^3$ at NDL and 135 $\mu g/m^3$ YCC, and at 6:00 PM MST of 119 $\mu g/m^3$ at NAPS. The higher concentrations coincided with periods of heavy smoke observed throughout the area. Measured elevated $PM_{2.5}$ concentrations appear to be the result of smoke from regional forest fires;

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- Laboratory results of arsenic concentrations from samples collected on June 20, 23, 26, 29, and July 2, 2016 at the underground vent monitoring locations and surface drilling

monitoring locations were less than the analytical detection limit and/or below the referenced standards. Laboratory analysis of arsenic filter samples collected after July 2, 2016 are pending.

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Sincerely,

Natalie Plato
Deputy Director
Giant Mine Remediation Project

c.c.: Distribution List