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October 23, 2015

Mr. Willard Hagen, Chair  
Mackenzie Valley Land and Water Board  
7<sup>TH</sup> FLOOR – 4910 50<sup>TH</sup> AVENUE  
YELLOWKNIFE, NT X1A 2P6

Dear Mr. Hagen;

**RE: August 2015 Monthly Report for Water Licence, MV2012L8-0010, Part B, Item 7**

Aboriginal Affairs and Northern Development Canada (AANDC) was issued Water Licence MV2012L8-0010 (the Licence) on March 28, 2013 for water use and waste disposal associated with roaster complex deconstruction and underground stabilization at the Giant Mine. Part B, Item 7 of the Licence requires that the commitments made in the *Communications Plan for Duration of Site Stabilization Activities* (SSP Communications Plan) be fulfilled. One of the commitments in the SSP Communications Plan is to provide monthly updates to the Mackenzie Valley Land and Water Board and identified Parties during active operations.

If you have any questions or concerns, please contact the undersigned at (867)669-2425 or [adrian.paradis@aandc-aadnc.gc.ca](mailto:adrian.paradis@aandc-aadnc.gc.ca).

Sincerely,

Adrian Paradis  
Regulatory Manager  
Giant Mine Remediation Plan

Encl. Monthly Report March 2015

c.c.: AANDC Inspector

**GIANT MINE ROASTER COMPLEX DECONSTRUCTION  
AND UNDERGROUND STABILIZATION**

**WATER LICENCE MV2012L8-0010 – PART B, ITEM 7**

**SSP COMMUNICATIONS PLAN**

**MONTHLY REPORT**

**August 2015**

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## INTRODUCTION

Water Licence MV2012L8-0010 (the Licence) was issued to Aboriginal Affairs and Northern Development Canada (AANDC) on March 28, 2013 for water use and waste disposal associated with roaster complex deconstruction and underground stabilization at the Giant Mine. Part B, Item 7 of the Licence requires that the commitments made in the *Communications Plan for Duration of Site Stabilization Activities* (SSP Communications Plan) be fulfilled. One of the commitments in the SSP Communications Plan is to provide monthly updates to the Mackenzie Valley Land and Water Board (MVLWB) and identified Parties<sup>1</sup> during active operations.

The SSP Communications Plan requires that the monthly updates include the following items:

- Progress/status update of the work;
- Summary of outcomes from environmental and health and safety related inspections;
- Summary of outcomes from air and water quality monitoring.

This report has been prepared for the Licence and describes activities that took place in August 2015.

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<sup>1</sup> Parties identified in the SSP Communications Plan include the following:

Residents of Yellowknife, N'Dilo and Dettah	North Slave Métis Alliance
Yellowknives Dene First Nation	Lutsel K'e First Nation
Giant Mine Advisory Committee	NWT Métis Nation
Tlicho First Nation	City of Yellowknife
Back Bay Community Association	Alternatives North
Ecology North	Workers Safety & Compensation Commission
City Emergency Services	Media
Members of the NWT Legislature	Giant Mine Community Alliance
Federal and territorial government agencies and inspection agencies, including Government of the Northwest Territories, Fisheries and Oceans and Environment Canada	

## REGULATORY MILESTONES

A list of major regulatory milestones and activities is provided in the table below for reference purposes.

**Table 1: Regulatory Milestones during the Reporting Period**

	<ul style="list-style-type: none"><li>○ There are no regulatory milestones to report for August 2015</li></ul>
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## ROASTER COMPLEX DECONSTRUCTION – PROGRESS UPDATE

During the month of August 2015 the following onsite activities occurred:

- Inspections of the Material Storage Area (MSA) on August 4/5, 11/12, 19, and 21;
- August 1 – August 8, container packaging continued, activities included; obtaining daily work permits, hauling bags of arsenic waste and marine shipping containers to MSA, filling marine shipping containers, recording container inventory and stacking containers;
- August 18 – final topography survey of former Roaster Building site;
- Representatives from AANDC, PWGSC, Nuna, Parsons, and AECOM completed final inspection of former Roaster Building site as well as MSA on August 25, 2015.

## UNDERGROUND STABILIZATION – PROGRESS UPDATE

During the month of August 2015 the following onsite activities occurred for the Underground Stabilization:

- As of 31-Aug-15, a cumulative total of 48,357 m<sup>3</sup> (21,442 m<sup>3</sup> in August) of paste was produced and delivered to into stopes B3-06, B3-10mid, A3-70, and B1-18;
- All underground barricades have been constructed, including the last few for stope B1-18;
- As of August, 2015 a cumulative total of 13,750 m<sup>3</sup> (1,760 m<sup>3</sup> in August) of water sourced from the Polishing Pond has been used for dust suppression on tailings stockpiles, as well as for paste production.

## ENGAGEMENT ACTIVITIES

August 2015 activities included:

- one media interaction (Interview/site tour/correspondence);
- one information distribution (meeting/newsletter/website/correspondence).

## **MONITORING and INSPECTIONS**

### **Health and Safety Inspections**

During the month of August 2015 the following health and safety inspections occurred:

- 0 lost time incidents;
- 0 minor first aid incidents.
- 1 property damage incident.
- 0 near misses were reported.

### **Spill Events**

No reportable spills occurred during the month of August 2015.

### **Water Quality Monitoring**

As of August, 2015 a cumulative total of 13,750 m<sup>3</sup> (1,760 m<sup>3</sup> in August) of water sourced from the Polishing Pond has been used for dust suppression on tailings stockpiles, as well as for paste production for the Underground Stabilization work. No water was used for the Roaster Program.

### **Sanitary Waste Management**

The following waste management activities were conducted in the month of August 2015:

- Solid Waste – All solid waste that was generated in the month of August (3 m<sup>3</sup>) was deposited at the Northwest Pond waste disposal facility.
- Sanitary Waste – No sanitary waste was collected at the MSA in August as staff utilized services that were available at C-Dry.

### **Air Quality Monitoring**

A tiered ambient air quality monitoring program made up of three distinct parts has been implemented at the Giant Mine site. The three parts to the air quality program include task specific perimeter monitoring around specific projects, fence line monitoring and community monitoring. Perimeter (fence line) air monitoring includes daily, real-time monitoring for Particulate Matter particulate matter less than 10 microns in diameter (PM<sub>10</sub>) and total suspended particulate (TSP). In addition, real-time monitoring for particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>) and PM<sub>10</sub> as well as integrated 24-hour samples are collected every three days at the Community Stations and analyzed for PM<sub>10</sub>, TSP, trace metals (including arsenic) and asbestos.

Air quality monitoring during the month of August, 2015 is summarized below:

## Fenceline Network:

- Fenceline air quality monitoring started operations at all sites on April 10, 2015 with all monitors running daily from 7 AM to 7 PM local time. On May 31, 2015 fenceline monitors began running 24 hours a day in support of the Interim Underground Stabilization (IUS) activities.
- Multiple 15-minute average particulate matter less than 10 microns in diameter (PM<sub>10</sub>) concentrations above the established Risk Based Action Level (RBAL) criteria (159 µg/m<sup>3</sup>) were measured at the fenceline monitoring stations between 4:00 AM and 8:15 AM (MST) on August 5, 2015 and 12:15 AM and 4:15 AM (MST) on August 9, 2015. Site investigations indicated that PM<sub>10</sub> concentrations above the RBAL were likely influenced by smoke from regional wildfires. Influences from regional wildfires were observed during the same period at all fenceline, community and supplemental monitoring program locations. PM<sub>10</sub> concentrations measured at fenceline locations during the remainder of the month were typical of seasonal background concentrations.
- Elevated TSP concentrations were observed on August 5, 2015 and on August 9, 2015 as a result of smoke from regional wildfires. TSP concentrations measured at fenceline locations during the remainder of the month were typical of seasonal background concentrations.

## Community Stations:

- Continuous 24-hour average concentrations of particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>) and PM<sub>10</sub> are measured at three locations in the community of Yellowknife (YCC, NDL, and NAPS).
- Twenty-four (24) hour average concentrations of PM<sub>2.5</sub> and PM<sub>10</sub> were measured above the referenced criteria at the YCC and NDL community stations on August 5, 2015 and on August 9, 2015. The 24-hour average PM<sub>2.5</sub> and PM<sub>10</sub> concentrations at the NAPS station on August 5, 2015 were missing due to unknown causes. Site visits indicated smoke from regional wildfires was likely the main contributors to the elevated PM<sub>2.5</sub> and PM<sub>10</sub> concentrations on these days. PM<sub>2.5</sub> and PM<sub>10</sub> concentrations were typical of seasonal background concentrations for the remainder of the month.

### TSP, PM<sub>10</sub> and Metals

- Laboratory results from available TSP, PM<sub>10</sub>, and trace metals (including arsenic) samples collected on August 1, 4, 7, 10, 13, 16, 19, 22, 25 and 28, 2015 at the community stations were less than the analytical detection limit and/or below the referenced criteria.

### Asbestos

- Laboratory results from available asbestos samples collected on August 1, 4, 7, 10, 13, 16, 19, 22, 25, 28 and 31, 2015 at the community stations were less than the analytical detection limit and/or below the referenced criteria.

## **Interim Underground Stabilization (tailings work)**

### Mine Vents and Intake Air

Air quality monitoring specific to the IUS program during the month of August was conducted at:

- Four (4) locations within the vicinity of paste fill operations in the B1 and A1 Pits;
- Four (4) locations set on the west, north, and south perimeters of the Central and South Tailings Ponds and;
- Four (4) locations at the mine vents and intake openings.

### Openings

- There was one 15-minute average PM<sub>10</sub> concentration above the underground vent monitoring RBAL (300 µg/m<sup>3</sup>) measured at the monitors located at mine vents and intake openings at 7:00 AM on August 5, 2015. The 15-minute average PM<sub>10</sub> concentration above the RBAL was measured at the 1-38 Portal. Site investigations indicated smoke from wildfires was influencing PM<sub>10</sub> concentrations during this period. Concentrations were similarly high at fenceline, community, and other vent monitoring stations indicating all samplers were equally influenced by regional impacts from wildfires. Concentrations were typical of background levels during the remainder of the month.
- There was one (1) 15-minute average PM<sub>10</sub> concentration above the underground vent monitoring RBAL (300 µg/m<sup>3</sup>) measured at the UBC Portal sampler 10:45 AM MST on August 21, 2015. Site investigations confirmed the elevated concentration was isolated to the UBC Portal when work crews were entering and exiting the portal. Concentrations were typical of background levels at all vent monitoring locations during the remainder of the month.
- Elevated concentrations were observed during the early morning hours on August 9, 2015, consistent with other fenceline, community and E-Sampler monitoring stations. Site investigations indicated smoke from wildfires was influencing PM<sub>10</sub> concentrations during this period.

### Paste Fill Operations

- There were several 15-minute average PM<sub>10</sub> concentrations above the surface drilling RBAL (260 µg/m<sup>3</sup>) measured at the monitors located in the vicinity of paste fill operations on August 2, 4, and 5, 2015 and from 2:30 AM to 5:00 AM MST on August 9, 2015. Site investigations discovered fog and moisture interferences causing the elevated concentrations at Site

PF2. Concentration readings returned to normal following dissipation of the fog. Concentrations were typical of background levels during the remainder of the month. The sampler at PF2 was moved on August 5, 2015 to a location approximately 15 metres south of the original location to reduce interference from fog.

- There were several 15-minute average PM<sub>10</sub> concentrations above the surface drilling RBAL (260 µg/m<sup>3</sup>) measured at all monitors located in the vicinity of paste fill operations from 4:00 AM to 8:00 AM MST on August 5, 2015. Site investigations indicated smoke from regional wildfires was influencing PM<sub>10</sub> concentrations during this period. Concentrations were similarly high at fenceline and community stations indicating all samplers were equally influenced by regional impacts from wildfires.

### Tailings Pond Area

- There were several 15-minute average PM<sub>10</sub> concentrations above the tailings pond work RBAL (180 µg/m<sup>3</sup>) measured at the perimeter of the tailings pond work areas from 4:00 AM to 8:00 AM MST on August 5 and 12:15 AM to 4:45 AM MST on August 9, 2015. Site investigations indicated smoke from regional wildfires was influencing PM<sub>10</sub> concentrations during this period. Concentrations were similarly high at fenceline, community, and tailings pond monitoring stations indicating all samplers were equally influenced by regional impacts from wildfires. Concentrations were typical of background levels during the remainder of the month.
- Laboratory results from available arsenic filter samples collected August 1, 4, 7, 10, 16, 19, 22, 25 and 28, 2015 at the IUS locations were less than the analytical detection limit and/or below the referenced criteria.

## **General Operations:**

The AQM program operated as specified throughout August 2015 with exception to the following:

- BAM samplers at NAPS community station was missing a total of 31 hours of PM<sub>2.5</sub> data and a total of 34 hours of PM<sub>10</sub> data August 5 – 7, 2015 due to unknown causes.
- A total of 23 hours of PM<sub>2.5</sub> BAM data was invalidated at the NDL community station August 13-15, 2015. Data was invalidated due to measured concentration values recorded below instrument detection limits.
- A total of 30 hours of PM<sub>2.5</sub> BAM data was invalidated at the NDL community station August 16-20, 2015. Data was invalidated due to measured concentration values recorded below instrument detection limits. The PM<sub>2.5</sub> BAM sampler at NDL began re-calibration of the lower

detection limit on August 21, 2015. The re-calibration maintenance was completed on August 24, 2015. PM<sub>2.5</sub> Data was unavailable for this period.

- A total of 43 hours of PM<sub>2.5</sub> BAM data was unavailable at the NDL community station August 23-24, 2015. Data was unavailable while the PM<sub>2.5</sub> BAM sampler at NDL completed re-calibration of the lower detection limit set point.
- A total of 55 hours of PM<sub>10</sub> BAM data was invalidated at the NAPS community station August 23-25, 2015 due to sampler malfunction.

### **Wildlife Observations and Follow-Up Actions**

No wildlife observations occurred in active work areas and no nesting or rearing habitat was disturbed in the course of work activities during the month.

There were numerous sightings of wildlife across the rest of the site. Site personnel consulted ENR with respect to the beaver dam on Baker Creek that was discovered in July. In accordance with direction from ENR, no action was taken to clear the dam or to remove the beaver. Site personnel continue to monitor the situation and will consult ENR as necessary.