

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

WATER LICENCE MV2012L8-0010 – SCHEDULE 1, ITEM 1

SEMI-ANNUAL REPORT

November 1, 2016 – April 30, 2017

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INTRODUCTION

Water Licence MV2012L8-0010 (the Licence) was issued to Aboriginal Affairs and Northern Development Canada (AANDC now Indigenous and Northern Affairs Canada [INAC]) on March 28, 2013 for water use and waste disposal associated with roaster complex deconstruction and underground stabilization at the Giant Mine. This Licence has since been extended to January 29, 2019. Part B, Item 1 of the Licence requires semi-annual reports to be filed with the Mackenzie Valley Land and Water Board (MVLWB) as outlined in Table 1.

Table 1: Semi-annual Reporting Periods for MV2012L8-0010

REPORTING PERIOD	SEMI-ANNUAL REPORT SUBMISSION DATE
May 1 – October 31 each year	January 31 each year
November 1 – April 30 each year	July 31 each year

Schedule 1, Item 1 appended to the Licence identifies the information that must be contained within the semi-annual reports. This semi-annual report is for the period November 1st, 2016 to April 30th, 2017 and is structured by topic rather than Water Licence Condition in order to allow grouping of related information (e.g., waste generation and management). Relevant sub-items from Schedule 1, Item 1 for each topic are shown in **blue**.

WATER LICENCING

Although not required by Schedule 1, Item 1, a brief licensing history is provided in the table below for reference purposes.

Table 2: Regulatory Milestones

DATE	DESCRIPTION OF LICENSING ACTIVITY
December 19, 2012	Submission of Water Licence Application to MVLWB
March 28, 2013	MVLWB issues WL2012L8-0010 to INAC
January 29, 2016	Submission to MVLWB of Water Licence MV2012L8-0010 amendment request
March 17, 2016	Amendment request for Water Licence MV2012L8-0010 approved.
January 19, 2019	Water Licence MV2012L8-0010 expiry date.

FRESH WATER USE

Schedule 1, Item 1a – The monthly and semi-annual quantities in cubic metres of fresh water obtained from all sources.

As required by Part C, Item 2 of the Licence, all fresh water used for deconstruction and underground stabilization activities will be obtained from on-site storage tanks filled with City of Yellowknife trucked

water, if required during the reporting period. Table 3 provides the monthly and semi-annual quantities of fresh water used during the reporting period. No fresh water was used during the reporting period.

Table 3: Fresh Water Use for November 1st, 2016 to April 30th, 2017

MONTH	ROASTER COMPLEX DECONSTRUCTION (m ³) <i>COMPLETE</i>	UNDERGROUND STABILIZATION (m ³)	PROJECT TOTAL (m ³)
November	0	0	0
December	0	0	0
January	0	0	0
February	0	0	0
March	0	0	0
April	0	0	0
<i>TOTAL FRESH WATER USE FOR REPORTING PERIOD</i>	0	0	0

m³ = cubic metres.

RECYCLED WATER USE

Schedule 1, Item 1b – The monthly and semi-annual quantities in cubic metres of recycled water obtained from all sources.

Table 4 provides the monthly and semi-annual quantities of recycled water used during the reporting period. As required by Part C, Item 1 and Item 3 of the Licence, respectively, all recycled water used will be obtained from the Polishing Pond and the quantity of treated minewater used for all purposes will not exceed 300 m³ per day. No recycled water was used during the reporting period.

Table 4: Recycled Water Use for November 1st, 2016 to April 30th, 2017

MONTH	ROASTER COMPLEX DECONSTRUCTION (M ³) <i>COMPLETE</i>	UNDERGROUND STABILIZATION (m ³)	PROJECT TOTAL (m ³)
November	0	0	0
December	0	0	0
January	0	0	0
February	0	0	0
March	0	0	0
April	0	0	0
<i>TOTAL RECYCLED WATER USE FOR REPORTING PERIOD</i>	0	0	0

MANAGEMENT PLAN REVISIONS

Schedule 1, Item 1g – A summary of any revisions to the approved General Contingency and Emergency Spill Response Plans.

Schedule 1, Item 1h – A summary of any revisions to the approved Waste Management Plans for Roaster Complex Deconstruction and Underground Stabilization.

Table 5: Management Plan Revisions for November 1st, 2016 to April 30th, 2017

SUBMISSION DATE	MVLWB APPROVAL DATE	RELEVANT PLAN SECTIONS	DESCRIPTION OF REVISIONS
Underground Work Stabilization Plan (Part H, Item 3)			
March 23, 2017	May 4, 2017	All Sections of Stage 4 Plan	Developed Plan for Stage 4 of the Underground Stabilization Plan describing work to be completed for backfilling Stope C5-09.
Underground Stabilization Waste Management Plan (Part D, Item 3)			
No revisions during the reporting period.			
Roaster Complex Detailed Deconstruction Plan (Part H, Item 1)			
No revisions during the reporting period.			
Roaster Complex Deconstruction Waste Management Plan (Part D, Item 2)			
No revisions during the reporting period.			
General Contingency and Emergency Spill Response Plan (Part F, Item 2)			
No revisions during the reporting period.			

ROASTER COMPLEX DECONSTRUCTION – PROGRESS UPDATE

Schedule 1, Item 1i – Details of all work completed on the Roaster Complex including, but not limited to, the actual deconstruction sequence of the associated structures.

The deconstruction work for the Roaster completed was completed in 2014. The remaining work for the Roaster primarily consists of one task related to environmental monitoring, which commenced in March 2014 and continued during the reporting period. The following table identifies milestones reached during the reporting period and any environmental incidents, unexpected circumstances or events and emergencies that occurred during the course of the work.

Table 6: Roaster Complex Deconstruction Milestones from November 1st, 2016 to April 30th 2017

START DATE	END DATE	ACTIVITY DESCRIPTION	ITEMS TO NOTE
Ongoing from previous period	Ongoing into next period	Regular inspection of the Material Storage Area (MSA) for leaks from containers from the Roaster Deconstruction	None

UNDERGROUND STABILIZATION – PROGRESS UPDATE

Schedule 1, Item 1j – Details of all work completed for the Underground Stabilization Work Area.

Schedule 1, Item 1n – Details on the volume of each type of backfill material used in each stope or chamber during the reporting period.

Schedule 1, Item 1o – Completed “As-Built Statement of Risk Mitigation” letters stamped by a professional engineer that confirm the mitigation of risks associated with the Underground Stabilization Work Area.

Table 7 identifies the milestones reached during the reporting period. Table 8 summarizes the volume of each type of backfill material used in each stope or chamber, if applicable. There were no environmental incidents, unexpected circumstances or events and emergencies that occurred during the course of the work. Completed “As-Built Statement of Risk Mitigation” letters as required by Schedule 1 – General Conditions, section 1(o) will be provided when the work has been completed.

Table7: Underground Work Completed from November 1st, 2016 to April 30th, 2017

START DATE	END DATE	ACTIVITY DESCRIPTION	ITEMS TO NOTE
March 23, 2017	May 4, 2017	Submitted the Underground Stabilization Plan – Stage 4 to the Board for approval.	A public meeting was held March 6, 2017. The Board approved the Plan on May 4, 2017. The Plan and stakeholder comments are available on the MVLWB Public Registry.

Table 8: Volumes of Backfill Material Used from November 1st, 2016 to April 30th, 2017

UNDERGROUND ELEMENT	VOLUME OF VOID SPACE (M ³)	BACKFILL MATERIALS (M ³)			
		TAILINGS PASTE	MINE DEVELOPMENT ROCK	SURFACE SOURCED INERT ROCK	OTHER (FOAM)
3-12B (non-arsenic stope)		0	0	0	0
B3-06		0	0	0	0
Arsenic Stope B2-12 / B2-13 / B2-14		0	0	0	0
Arsenic Stope B-208		0	0	0	0
C5-09 (non-arsenic stope) – Lower 20 m		0	0	0	0
B3-10 (non-arsenic stope)		0	0	0	0
C2-18, 2-19 (other area requiring fill)		0	0	0	0

UNDERGROUND ELEMENT	VOLUME OF VOID SPACE (M ³)	BACKFILL MATERIALS (M ³)			
		TAILINGS PASTE	MINE DEVELOPMENT ROCK	SURFACE SOURCED INERT ROCK	OTHER (FOAM)
3-70 (other area requiring fill)		0	0	0	0
1-18 Complex (other area requiring fill)		0	0	0	0
C5-09 (non-arsenic stope) - Upper portion		0	0	0	0
TOTAL VOLUMES (m³)		0	0	0	0

+Appropriate reporting unit is tones for cement.

FORECAST WORK

Schedule 1, Item 1k – Details of any anticipated activities for the upcoming reporting period for the Roaster Complex deconstruction and the Underground Stabilization Work Area, including the proposed sequence in which the structures of the Roaster Complex will be deconstructed.

Table 9 summarizes the work planned for the next reporting period. Changes to this work plan may occur to accommodate unforeseen circumstances or circumstances outside of the Giant Mine Remediation Team's control (e.g., weather delays). Actual work completed will be in future semi-annual reports as required by the Licence.

Table 9: Forecasted Work from May 1st, 2017 to October 31st, 2017

ACTIVITY	TARGET START DATE	TARGET COMPLETION DATE
Underground Stabilization		
Specification Development and Completion of Final Design	Ongoing	August 2017
Contract Award	August 2017	November 2017
Roaster Complex Deconstruction		
MSA Inspections	Ongoing; continuing from previous period	Ongoing; will continue into next period

WASTE MANAGEMENT AND HANDLING

Schedule 1, Item 1c¹ – The monthly and semi-annual quantities in cubic metres of each and all waste discharged, including, but not limited to the total volume of water pumped from the underground workings to the Northwest Tailings Pond each month.

Schedule 1, Item 1l – Details on the types and quantities of hazardous materials removed from the Roaster Complex deconstruction.

Schedule 1, Item 1m – Details on the types and quantities of packaging used for storing waste at the Temporary Waste Storage Area, including non-hazardous and arsenic-containing hazardous waste.

Waste management plans for roaster complex deconstruction and underground stabilization were submitted to the MVLWB for approval in April and May 2013, respectively. In April, 2013 the MVLWB approved the Roaster Complex Deconstruction Waste Management Plan and in September, 2013 the MVLWB approved the Underground Stabilization Waste Management Plan. Waste management has been carried out in accordance with these approved plans with further details on quantities, packaging, and disposal locations provided in Tables 10 and 11.

Table 10: Quantities of Waste Disposed by Month

WASTE TYPE	NOVEMBER (m ³)	DECEMBER (m ³)	JANUARY (m ³)	FEBRUARY (m ³)	MARCH (m ³)	APRIL (m ³)
Underground Stabilization						
Domestic refuse	0	0	0	0	0	0
Sewage and greywater	0	0	0	0	0	0
Mine development rock	0	0	0	0	0	0
Underground Water pumped to Northwest Tailings Pond	0	0	0	0	0	0
Tailings Paste Backflush	0	0	0	0	0	0
Equipment wash water	0	0	0	0	0	0
Spent hazardous consumables (oils, lubricants, solvents, antifreezes and drained chemical containers)	0	0	0	0	0	0
Spent non-hazardous consumables (cement, paper, clean wood, plastics, rubber, clean steel)	0	0	0	0	0	0
Materials exposed during tailings excavation	0	0	0	0	0	0

¹ The wording of Item 1c was formally changed by the MVLWB on April 25, 2013 as described under the Water Licensing section on page 2.

WASTE TYPE		NOVEMBER (m ³)	DECEMBER (m ³)	JANUARY (m ³)	FEBRUARY (m ³)	MARCH (m ³)	APRIL (m ³)
Used oil filters and oily rags		0	0	0	0	0	0
Hydrocarbon contaminated soils resulting from spills		0	0	0	0	0	0
Others		0	0	0	0	0	0
Roaster Complex Deconstruction - Completed 2014							
Domestic refuse		0	0	0	0	0	0
Sewage and greywater		0	0	0	0	0	0
Non-Hazardous wastes		0	0	0	0	0	0
Mineral wastes		0	0	0	0	0	0
Arsenic-containing hazardous waste hauled to MSA							
Waste water trucked to Northwest Tailings Pond		0	0	0	0	0	0
Hydrocarbon residues and hydrocarbon contaminated adsorbent material generated by water treatment at the Roaster Waste Water Treatment Facility		0	0	0	0	0	0
Non-arsenic containing hazardous waste	Asbestos containing wastes	0	0	0	0	0	0
	Sodium cyanide wastes	0	0	0	0	0	0
	Paints	0	0	0	0	0	0
	Aerosols (spray paint)	0	0	0	0	0	0
	De-greasers	0	0	0	0	0	0
	Cleaning Products	0	0	0	0	0	0
	Glue/adhesives	0	0	0	0	0	0
	Mercury containing wastes	0	0	0	0	0	0
	PCB containing wastes	0	0	0	0	0	0
	Granular sulphur	0	0	0	0	0	0
	Sodium hydroxide	0	0	0	0	0	0
	Penetrating asbestos encapsulate	0	0	0	0	0	0

WASTE TYPE		NOVEMBER (m ³)	DECEMBER (m ³)	JANUARY (m ³)	FEBRUARY (m ³)	MARCH (m ³)	APRIL (m ³)
	Antifreezes	0	0	0	0	0	0
	Wastes containing Chlorofluorocarbon/Ozone depleting substances	0	0	0	0	0	0
	Lead acid batteries	0	0	0	0	0	0
	Leachable lead containing wastes	0	0	0	0	0	0
	Used oils / hydrocarbons	0	0	0	0	0	0
	Lab chemicals including silver nitrate, potassium iodide, potassium permanganate, pH buffer solutions)	0	0	0	0	0	0
	Hydrocarbon contaminated soils resulting from spills	0	0	0	0	0	0
	Others	0	0	0	0	0	0

m³ = cubic metres.

Table 11: Waste Packaging, Storage and Disposal

WASTE TYPE		TOTAL SEMI-ANNUAL AMOUNT (m ³)	TYPE OF PACKAGE	SIZE OF PACKAGES (m ³)	NUMBER OF PACKAGES	DISPOSAL/ STORAGE LOCATION
Underground Stabilization						
Domestic refuse		0	0	0	0	0
Sewage and greywater		0	0	0	0	0
Mine development rock		0	0	0	0	0
Underground Water pumped to Northwest Tailings Pond						
Tailings Paste Backflush		0	0	0	0	0
Equipment wash water		0	0	0	0	0
Spent hazardous consumables (oils, lubricants, solvents, antifreezes and drained chemical containers)		0	0	0	0	0
Spent non-hazardous consumables (cement, paper, clean wood, plastics, rubber, clean steel)		0	0	0	0	0
Materials exposed during tailings excavation		0	0	0	0	0
Used oil filters and oily rags		0	0	0	0	0
Hydrocarbon contaminated soils resulting from spills		0	0	0	0	0
Others		0	0	0	0	0
Roaster Complex Deconstruction						
Domestic refuse		0	n/a	n/a	n/a	n/a
Sewage and greywater		0	n/a	n/a	n/a	n/a
Non-Hazardous wastes		0	n/a	n/a	n/a	n/a
Mineral wastes		0	n/a	n/a	n/a	n/a
Arsenic-containing hazardous waste		0	n/a	n/a	n/a	n/a
Waste water trucked to Northwest Tailings Pond		0	n/a	n/a	n/a	n/a
Hydrocarbon residues and hydrocarbon contaminated adsorbent material generated by water treatment at the Roaster Waste Water Treatment Facility		0	n/a	n/a	n/a	n/a
Non-arsenic containing hazardous waste	Asbestos wastes containing wastes	0	n/a	n/a	n/a	n/a
	Sodium cyanide wastes	0	n/a	n/a	n/a	n/a
	Paints	0	n/a	n/a	n/a	n/a
	Aerosols (spray paint)	0	n/a	n/a	n/a	n/a
	De-greasers	0	n/a	n/a	n/a	n/a
	Cleaning Products	0	n/a	n/a	n/a	n/a
	Glue/adhesives	0	n/a	n/a	n/a	n/a
	Mercury containing wastes	0	n/a	n/a	n/a	n/a
PCB containing wastes	0	n/a	n/a	n/a	n/a	

WASTE TYPE	TOTAL SEMI-ANNUAL AMOUNT (m ³)	TYPE OF PACKAGE	SIZE OF PACKAGES (m ³)	NUMBER OF PACKAGES	DISPOSAL/ STORAGE LOCATION
Granular sulphur	0	n/a	n/a	n/a	n/a
Sodium hydroxide	0	n/a	n/a	n/a	n/a
Penetrating asbestos encapsulate	0	n/a	n/a	n/a	n/a
Antifreezes	0	n/a	n/a	n/a	n/a
Wastes containing Chlorofluorocarbon/Ozone depleting substances	0	n/a	n/a	n/a	n/a
Lead acid batteries	0	n/a	n/a	n/a	n/a
Leachable lead containing wastes	0	n/a	n/a	n/a	n/a
Used oils / hydrocarbons (excluding residues from water treatment)	0	n/a	n/a	n/a	n/a
Lab chemicals including silver nitrate, potassium iodide, potassium permanganate, pH buffer solutions)	0	n/a	n/a	n/a	n/a
Hydrocarbon contaminated soils resulting from spills***	0	n/a	n/a	n/a	n/a
Others	0	n/a	n/a	n/a	n/a

m³ = cubic metres.

UNAUTHORIZED DISCHARGES

Schedule 1, Item 1d – A list of unauthorized discharges, including any clean-up actions taken and preventative measures implemented to prevent future discharges.

As required by Part F, Item 1c of the Licence, detailed reports on all unauthorized discharges of waste are provided 30 days after the initial reporting of the event. There were no unauthorized discharges during the reporting period.

SPILL TRAINING AND COMMUNICATIONS EXERCISES

Schedule 1, Item 1e – An outline of any spill training and communications exercises carried out.

Table 12: Training and Communication Exercises

DATE	TRAINEES	DESCRIPTION OF SPILL TRAINING AND COMMUNICATIONS EXERCISES
Underground Stabilization		
April 2017	N/A	The Care and Maintenance contractor conducted an audit and review of their (Det'on Cho/Nuna) industrial hygiene program in place at the Giant Mine. The audit consisted of document review, onsite evaluation, interviews and observations of practices at the Giant Mine and a report of findings and recommendations. The focus of the audit was to evaluate the effectiveness of the Medical Monitoring and Hygiene Program for arsenic trioxide along with a general evaluation of industrial hygiene practices in place at the site.
December 2016	19	All care and maintenance personnel completed spill training in December 2016. No training or communications exercises were carried out specific to underground stabilization work during the reporting period.
Roaster Complex Deconstruction		
No training or communications exercises were carried out during the reporting period as deconstruction is complete.		

ENGAGEMENT ACTIVITIES

Schedule 1, Item 1f – A summary of any engagement and consultation activities completed during the reporting period and an outline of any activities anticipated for the upcoming reporting period.

The approved *Communication Plan for Duration of Site Stabilization Activities* (Part B, Item 7 of the Licence) describes the minimum engagement and communications activities required during roaster complex deconstruction and underground stabilization. Table 13 outlines the engagement activities undertaken during the reporting period. Table 14 includes a summary of engagement and consultation activities associated with roaster complex deconstruction and underground stabilization at Giant Mine. Other topics are included when discussed at the same meeting.

Table 13: Engagement Activities Completed November 1st 2016 - April 30th 2017

DATE	COMMUNICATION TYPE	DISCUSSION TOPICS
March 6, 2017	Public Meeting	Stage 4 of Underground Stabilization, stope C5-09; comments received were incorporated in

Table 14: Summary of Engagement Activities for Roaster Deconstruction and Site Stabilization Work

DATE	COMMUNICATION TYPE	DISCUSSION TOPICS
On-going	Web Updates	Monthly progress report and outcomes of environmental monitoring and inspections.
On-going	Media	As per request.
On-going	e-Newsletter	“What’s Happening at Giant Mine e-newsletter sent to Giant Mine Distribution List
Weekly	Letter and Report	Weekly Air Quality Report sent to Giant Mine Distribution List
Monthly	Letter and Report	Monthly Report for Water Licence MV2012L8-0010
Monthly	Meetings	Meeting with the Giant Mine Working Group of the Parties (Yellowknives Dene First Nation, North Slave Métis Alliance, Alternatives North, City of Yellowknife, Environment Canada, Fisheries and Oceans, Health Canada)
Monthly	Meeting	Meeting with YKDFN Giant Mine Advisory Committee
Monthly	Twitter Updates	Twitter updates on activities at site.
Quarterly	Meeting	Meeting with Giant Mine Community Alliance (North Slave Métis Alliance, Canadian Public Health Association – NWT Chapter, NWT Mining Heritage Society, Yellowknife Chamber of Commerce, City of Yellowknife, Northern Federations of Labour)
Ad Hoc	Meeting	Meeting with interested parties as and when requested to discuss the remediation of Giant Mine.

ANY OTHER DETAILS

Schedule 1, Item 1p – Any other details on Water Use or Waste disposal requested by the Board three months prior to the semi-annual submission date.

No other details were requested by the MVLWB during the reporting period.