

PLAIN LANGUAGE SUMMARY

The 2016-17 Annual Report of the Giant Mine Remediation Project

DATE: May 2018



This is a plain language summary of the second annual report of the Giant Mine Remediation Project (GMRP). This report summarizes the Project team's activities between April 1, 2016 and March 31, 2017. It provides only highlights of the work done over the year. For more detailed information, please refer to the full report.

On Site Activities

Activity	Progress	Comments
Taking down the A-shaft Head Frame and Hoist Room, Assay Lab, and Curling Club	<p>Completed:</p> <ul style="list-style-type: none"> • Took structures apart to remove hazards and lower risks to environment, workers, and the public. • Put a permanent steel cap over the A-Shaft. 	<ul style="list-style-type: none"> • There were no incidents during the work. • Full details can be found in Section 2.1 of the main report.
Communications Upgrades	<p>Underway:</p> <ul style="list-style-type: none"> • Upgrades should be finished in Fall 2017. 	<ul style="list-style-type: none"> • An assessment of the underground communication system showed it was in poor condition. It needed upgrades to make sure it would keep working safely and reliably. • The pre-cut fiber cables were too short when they arrived at site. This caused schedule delays because the team had to wait for more cables to arrive.
B3 Substation Repairs	<p>Completed:</p> <ul style="list-style-type: none"> • The electrical equipment at the B3 substation and supercrest locations needed repairs. 	<ul style="list-style-type: none"> • The equipment repairs were needed to keep the infrastructure working safely. • For full details, see Sections 2.1 and 3.2 of main report.
Underground Electrical Upgrades	<p>Completed:</p> <ul style="list-style-type: none"> • Electrical equipment was replaced in some areas of the mine's underground. 	<ul style="list-style-type: none"> • Repairs were needed to keep the gear working safely. The Workers' Safety and Compensation Committee (WSSC) had concerns about some of the equipment being used. • For full details, see Section 2.1 of main report.
Sand and Gravel Use	<p>Completed:</p> <ul style="list-style-type: none"> • Care and Maintenance work used 7500 tons of 3/4" minus material and 7500 tons of 6" minus material. 	<ul style="list-style-type: none"> • There were no incidents during the work. • For full details, see Section 2.1 of main report.
Underground Stabilization Project	<p>Completed:</p> <ul style="list-style-type: none"> • The last of the stope drilling and void surveys were finished. These provide information about underground mine structures that the workers can't access. <p>Underway:</p> <ul style="list-style-type: none"> • Only one high-risk stope complex (C5-09) still needs to be backfilled. Early design and plans for dealing 	<ul style="list-style-type: none"> • The Project team will use the drilling program and void surveys' findings to fill the gaps about backfilling that will occur as part of the remediation. The remaining stopes on the 1st and 2nd levels will be backfilled. Since they do not pose an immediate risk to public safety or the integrity of the underground, this work can wait until remediation.

Activity	Progress	Comments
	with any difficulties for this stope complex started in 2016/17. Backfilling C5-09 will be completed in 2018.	
Care and Maintenance (C&M)	Ongoing: <ul style="list-style-type: none"> • Care and maintenance work included: <ul style="list-style-type: none"> • Preparing for spring melt. • Managing dust on the site. • Treating and releasing water. • Continuing upgrades to the power system. • Monitoring to meet requirements of former Surveillance Network Program and the current Regulations. • Completing the annual site-wide bird survey. 	<ul style="list-style-type: none"> • Two minor health and safety events occurred. For more information, see Section 4.1 of the full report. • One dust event exceeded the Action Level. For more information, see Section 3.1 of the full report.

Studies

Theme	Study / Report
Design	<ul style="list-style-type: none"> • Supplemental Borrow Source Identification • Underground Disposal Options for Arsenic Waste • Tailings Geotechnical and Geochemical Investigation • Tailings Relocation Options • Tailings Cover Design Options • Surface Design Engagement Options Evaluation
Air	<ul style="list-style-type: none"> • Air quality monitoring
Water	<ul style="list-style-type: none"> • Surveillance Network Program (SNP) • Annual MMER/EEM Effluent and Water Quality Monitoring • ETP Systems Upgrade Study • Present-Day Arsenic Loading to Baker Creek and Yellowknife Bay • Baker Creek Re-Alignment Alternative Evaluation • Baker Creek Site-specific Water Quality Objectives (initiated in 2016)
Land	<ul style="list-style-type: none"> • Assessment of Radiation Hazard Potential of Granodiorite (Pink granite) • Arsenic Characterization (Disturbed and Undisturbed Areas)
Biodiversity	<ul style="list-style-type: none"> • Phase 5 EEM Program – Investigation of Cause Study
Health & Safety	<ul style="list-style-type: none"> • Health Effects Monitoring Program (Health Study) • Human Health and Ecological Risk Assessment (HHERA), including: <ul style="list-style-type: none"> ○ Dietary Survey ○ Voluntary Sampling Program for Country Foods • Human Health Risk Assessment for Workers Exposed to Disturbed Soils at the Giant Mine
Community	<ul style="list-style-type: none"> • Labour Resource Study

Audits

Theme	Audit
Occupational Health and Safety (OHS)	<ul style="list-style-type: none"> An Industrial hygiene audit was undertaken to see if medical monitoring and hygiene program is effective. This program is used to manage workers' exposure to arsenic trioxide.
Environment, Health and Safety (EHS)	<ul style="list-style-type: none"> An EHS and site security audit was undertaken. This was to confirm that the Project is following applicable regulatory requirements.

Inspections

Regulatory Body	Inspection Date	Inspection Type	#of Non-Compliances	Findings / Recommendations
INAC Lands and Economic Development	27-May-16	Inspection-MSA and Baker Cr.	0	<ul style="list-style-type: none"> No concerns
	26-Jul-16	Inspection-Drill Sites and SNP 43-1	0	<ul style="list-style-type: none"> No concerns
	19-Aug-16	Inspection of the UBC Bridge stabilization project in response to NT/NU Spill # 16-299	2	<ul style="list-style-type: none"> Spill 16-299¹ - Non-compliant release to environment.
Environment and Climate Change Canada	3-Aug-16	Inspection-Site & SNP43-1	3	<ul style="list-style-type: none"> A halocarbon leak was not reported in the semi-annual report. Four C-Dry air conditioners do not have logbooks. Environment Emergency Plan testing may not be adequate.
GNWT Environment and Natural Resources	Various	Beaver Dam inspections-over course of summer	1	<ul style="list-style-type: none"> Dam modified without prior consent.
		Bear Trap inspections-over course of summer	0	<ul style="list-style-type: none"> No concerns.

Progress on Environmental Assessment Measures

Measures	Status	Comments
3, 4, 7 & 8	Complete	The Environmental Agreement came into effect in June 2015. The Giant Mine Oversight Board was formed in 2015.
6	Underway	A draft report describing considerations for long-term funding was given to the Giant Mine Working Group for input.
9	Underway	Health Effects Monitoring Program began.

¹ See additional details in Section 3.1

Measures	Status	Comments
10	Underway	Human Health and Ecological Risk Assessment (HHERA) began. It is expected to finish in 2017-18.
11 & 12	Underway	Many engagement activities looking at Baker Creek Options took place over two years.
18	Underway	The Freeze Design Basis Report was finalized and engaged on with the Giant Mine Working Group.

Environment

Component	Activities / Progress	Outcomes	Actions
Air	The Project conducted the air quality monitoring. Results were made public on the GNWT website. The Project team also shared weekly summary reports through its distribution list.	One air quality measurement went over the action level as a result of a dust event at the site. On June 15th, PM ₁₀ levels were above the Risk Based Action Level (RBAL) at two fence-line monitoring stations.	The Project team sent a water truck to wet the areas where higher levels were measured.
	A community monitoring station was fully set up in the Niven Lake Community. It is expected to run starting in 2017. The Project built a new structure to house the Ndilo station.	Not applicable.	Not applicable.
	The Project team evaluated and chose a new product to keep dust levels down.	The Project team will use SoilTac to keep dust levels down.	Activities to keep dust levels down continue on site.
Water	The Effluent Treatment Plant (ETP) continued to operate. (July and August 2016)	183,564 m ³ of treated water was released.	The B3 substation electrical equipment was upgraded to provide safe and reliable power to the ETP and other areas of the mine.
	Annual MMER/EEM effluent and water quality monitoring (July 1 – Aug 19 2016)	Treated mine water meets release requirements.	MMER/EEM information will be used as part of the Human Health and Ecological Risk Assessment (HHERA).
	The Surveillance Network Program (SNP) continued to monitor water quality at the ETP daily. Water was also monitored at six other sites on a weekly or monthly basis throughout the open water season (May-October) and throughout the year at one sampling location.	No levels went over the limits for treated water. Treated water was released to the environment from the Polishing Pond only when it met the treated water quality limits. These limits reflect the former Water Licence and the federal Metal Mining Effluent Regulations (MMER).	Monitoring programs will continue.
	A new outfall location was chosen. The outfall is the area	The Project team chose a general area near the Baker	Not applicable.

Component	Activities / Progress	Outcomes	Actions
	where the treated water from the site will be released. The location for the new ETP was chosen based on feedback during engagement sessions.	Creek outlet for the new outfall. Additional work to identify the exact location is planned for 2017-18	
	The Project continued work to evaluate re-alignment options for Baker Creek.	A recommendation report is being developed. It will be submitted to the Working Group.	Not applicable.
	The Project completed a study of the present-day (2011-2014) arsenic loading to Baker Creek and Yellowknife Bay. This was done using a water quality model.	The total arsenic loads expected by the water quality model are similar to the ones previously reported.	Not applicable.
Land	The Project conducted site stabilization activities described in the Key Operations section.	See the Key Operations section.	Not applicable.
	Waste management involved appropriate care of hazardous and non-hazardous wastes on site.	Some wastes (hazardous and non-hazardous) are stored on site. Some are taken off-site for disposal. All waste, whether stored on or off the site, is handled as required by the appropriate Regulations and guidelines.	Hazardous waste stored on site will be monitored and managed safely until it can be appropriately disposed of, or until full remediation begins.
	Assessed the radiation hazard potential of granodiorite (pink granite).	The radioactive hazard potential from gamma and radon is low in its current state. Applicable guidelines for Naturally Occurring Radioactive Materials (NORM) are unlikely to be exceeded.	
	Characterized arsenic at disturbed and undisturbed areas of the site.	For disturbed sites, there is a connection between higher concentrations of total arsenic and how much biologically available arsenic is in the tailings containment areas. For undisturbed sites, no strong overall connection exists between arsenic speciation results and bioaccessibility data.	Additional work in 2017-18 will assess this further.
Biodiversity	Annual Bird Survey conducted.	The survey resulted in recommendations to lower the risk of migratory birds, their young, eggs and/or nests to arsenic.	Recommendations to be considered by Project team. Plans to deal with identified issues were developed.

Component	Activities / Progress	Outcomes	Actions
	Phase 5 Environmental Effects Monitoring (EEM) Program – Investigation of Cause Study	Assessing cause of confirmed effects in fish and anything living in the water or mud.	EEM information will be used as part of the Human Health and Ecological Risk Assessment (HHERA). EEM information will be used in the future AEMP design.
	Aquatic Effects Monitoring not yet underway.	Not applicable	Project team to develop an Aquatic Effects Monitoring Plan (AEMP) based on the results of previous aquatic assessments. This will confirm the discharge from a relocated ETP discharge point does not have an adverse effect on the receiving environment.

Health and Safety

Component	Activities / Progress	Outcomes	Mitigations / Actions
Occupational Health and Safety	Health and Safety training for all employees and contractors.	2 minor incidents and 179 near misses reported.	Retrained workers and adopted more strict personal protective equipment procedures for certain employees. The new mine manager is working to improve safety culture, resulting in greater reporting of near misses and corrective actions taken in response.
	Urinalysis samples taken from on-site workers to monitor arsenic exposure.	3% of urinalysis samples exceeded Action Level of >35 micrograms of arsenic per litre of urine.	Workers who exceeded were placed on light duty for a short time to reduce their exposure.
	Industrial hygiene audit EHS and site security audit	Recommendations provided for improvements to reduce potential for workers' exposure to arsenic.	N/A
Public Health and Safety	Health Effects Monitoring Program initiated.	No outcomes to report; activity ongoing. Sampling for health effects monitoring program to occur in 2017-18.	N/A
	Human Health and Ecological Risk Assessment (HHERA) undertaken, including dietary survey and voluntary country food sampling program (laboratory analysis of contaminant concentrations	Report on results of HHERA expected in fall 2017-18.	N/A

Component	Activities / Progress	Outcomes	Mitigations / Actions
	in country foods).		
	Stress Assessment postponed. This is now likely to occur in 2018-19. Communications and engagement is ongoing.	Working group approved approach.	N/A

Community

Component	Activities / Progress	Outcomes	Plans for 2017-18
Engagement	External stakeholders continue to meet regularly. The team held 50 engagement events , conducted 25 media interactions, and distributed 7 e-newsletters.	1907* attendees engaged through 50 events. *Some individuals attended multiple engagement events. The total number of unique individuals engaged is fewer than 1907.	Continue to engage through working groups, public forums, established channels, and activity-specific engagement events.
Procurement and Employment	Continued with Procurement Strategy and implementing contracting requirements to increase Indigenous benefits.	Employees and contractors are 23% Northern and 4% Indigenous – down slightly from the previous year. Suppliers are 64% Northern (comparable to 2015-16) and 45% Indigenous (nearly double last year).	Continue with procurement strategy.
	Labour Resource Study undertaken.	Results of labour resource study informed the development of Main Construction Manager RFP documents and processes.	Additional interviews to be conducted and the Labour Resource Study report expanded to address specific training and capacity building opportunities and recommendations.
	Socio-Economic Strategy finalized.	Creation of a new position for a NWT-based resource dedicated to leading the implementation of the socio-economic strategy.	Implement socio-economic strategy.
	Main Construction Manager (MCM) RFP posted, tendering process included engagement and site visit with interested bidders.	MCM proposals received and currently being evaluated.	Issue contract to MCM and bring them on board. Have MCM issue new contracts for C&M and environmental monitoring.
Training	Contractors provided workforce training (e.g. on-site orientation).	230 people trained (comparable to 2015-16); 7760 hours of training (more than three times the training provided in 2015-16).	Workforce training to continue.