



Agenda

Description	Giant Mine Remediation Project Working Group Meeting		
Place	Greenstone Building 2 nd Floor		
Date	Thursday June 9 @ 9 – 12:00pm		
Organizer	Erika Nyyssonen	Telephone No.	1-866-885-0884 #1715

Participants

William Lines	Yellowknives Dene First Nation (YKDFN)
Wenyan Yu	City of Yellowknife (City)
Erica Janes	Alternatives North (AN)
Gordon Hamre	Alternatives North (AN)
Tee Lim	Alternatives North (AN)
Shin Shiga	North Slave Metis Alliance (NSMA)
Thomsen D'hont	North Slave Metis Alliance (NSMA)
Sharon Low	Indigenous and Northern Affairs Canada (INAC)
Bill Slater	(phone)
Erika Nyyssonen	Government of Northwest Territories (GNWT)
Katherine Ross	Indigenous and Northern Affairs Canada (INAC) (phone)
Jane Amphlett	Indigenous and Northern Affairs Canada (INAC) (phone)
Natalie Plato	Indigenous and Northern Affairs Canada (INAC)
Linda Pickett	Public Works and Government Services Canada (PWGSC)
Tara Bortoluzzi	Department of Fisheries and Oceans (phone)
Jody Small	Environment Canada
Secretary: Geneva Irwin	Indigenous and Northern Affairs Canada (INAC)

SCHEDULE

TIME	AGENDA ITEM	Lead
9:00	Approval of Agenda, Minutes and Action Items	Natalie
9:15	Environmental Assessment Measures/Suggestions Status Update	Katherine
9:45	Break	
10:00	Work Plan Summary Table Overview	Jane/Natalie
11:00	Site Update	Natalie/Linda
12:00	Meeting adjourned	

Giant Mine EA Measures Tracking Table- June 6, 2016

#	Measure	Status	Progress in 2015-16	Plans for 2016-17
1	To prevent the significant adverse impacts on environment and the significant public concern from the proposed perpetual timeframe, the Project will proceed only as an interim solution, for a maximum of 100 years.	No Action Required		
2	<p>Every 20 years after the beginning of Project implementation, the Developer will commission an independent review of the Project to evaluate its effectiveness to date, and to decide if a better approach can be identified. This will:</p> <ol style="list-style-type: none"> 1. consider results of the ongoing research 2. be participatory in nature 3. follow the requirements of procedural fairness and be transparent in nature. <p>If the periodic review identifies a better approach that is feasible and cost-effective, the Developer will further study it, and make the study and its results of the study public.</p>	Future action required	Article 8 of the June 9, 2015 Environmental Agreement further formalized the process through which the future Independent Project Review will be conducted.	No action required in 2016-2017
3	<p>To facilitate active research in emerging technologies towards finding a permanent solution for dealing with arsenic at the Giant mine site, the Developer will fund research activity as advised by stakeholders and potentially affected Parties through the Oversight Body. The ongoing funding for this research activity, and additional resources required to manage its coordination, will be negotiated and included as part of the environmental agreement specified in Measure 7 and will make best use of existing research institutions and programs. The Oversight Body will ensure through the research activity that, on a periodic basis:</p> <ol style="list-style-type: none"> 1. reports on relevant emerging technologies are produced; 2. research priorities are identified; 3. research funding is administered; 4. results of research are made public, and 5. results of each cycle are applied to the next cycle of these steps. 	Complete	Articles 7 & 11 of the June 9, 2015 Environmental Agreement provide a commitment of funding for the Oversight Body (which will be known publicly as the Giant Mine Oversight Board, or GMOB) to manage a research program as required by Measure 3. Initial funding will flow for this Measure in 2016-2017 and will be ongoing.	Funding in the amount of \$175,000 (2015 dollars) will be provided to GMOB to commence development of research priorities.
4	The Oversight Body will provide the results of the research funded by the Developer to the periodic reviews of the Project described in Measure 2. If better technological options are identified through the funded research in-between these periodic 20-year reviews, these will be reported publicly by the Oversight Body to the Parties, the Developer and the Canadian public. The Developer will consider these technologies and make decisions regarding their feasibility. The Developer will make any such decisions public.	Complete	Article 8 of the Environmental Agreement further formalized this obligation for the Oversight Body (GMOB).	No action required until closer to the 20 year review date.

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#	Measure	Status	Progress in 2015-16	Plans for 2016-17
5	<p>In order to mitigate significant adverse impacts that are otherwise likely, the Developer will commission an independent quantitative risk assessment to be completed before the Project receives regulatory approvals. This will include:</p> <ol style="list-style-type: none"> 1. explicit acceptability thresholds, determined in consultation with potentially affected communities 2. an examination of risks from a holistic perspective, integrating the combined environmental, social, health and financial consequences. 3. possible events of a worst-case/ low frequency high consequence nature 4. additional considerations specified in Appendix D of the Report of EA <p>From this, the Developer will identify any appropriate Project improvements and identify management responses to avoid or reduce the severity of predicted unacceptable risks.</p>	Future action required.	None anticipated beyond discussion in project planning	Engagement on scope of Measure with stakeholders (WG, GMAC)
6	<p>The Developer will:</p> <ul style="list-style-type: none"> • investigate long-term funding options for the ongoing maintenance of this Project and for contingencies, including a trust fund with multi-year up front funding, • involve stakeholders and the public in discussions on funding options; and, • make public a detailed report within three years that describes its consideration of funding options, providing stakeholders with the opportunity to comment on the report. 	Future action required	The requirement to have long-term funding in place has been included in the overall project schedule for planning purposes.	Options for long term source of funds are being developed for the short term (i.e to the end of active remediation) and long term (i.e – post closure monitoring and maintenance)
7	<p>The Developer will negotiate a legally-binding environmental agreement with, at a minimum, the members of the Oversight Working Group, and other appropriate representative organizations, to create an independent Oversight Body for the Giant Mine Remediation Project. These negotiations will build on the existing discussion paper and draft environmental agreement of the Giant Oversight Working group. This Oversight Body will exist for the life of the Project unless otherwise agreed by the Parties to the Environmental Agreement. Every effort will be made to have the Oversight Body in place as early as possible. The negotiations will make significant progress within six months of the Ministers' environmental assessment decision or proceed to mediation. The Developer will cover any mediation costs. The environmental agreement will include a dispute resolution mechanism to ensure compliance with the agreement and a stable funding mechanism for the Oversight Body.</p>	Complete	The Environmental Agreement came into effect on June 9, 2015	None
8	<p>The activities of the oversight body will include:</p> <ul style="list-style-type: none"> • keeping track of monitoring activities by the Developer and the results of those activities, including water quality and aquatic effects monitoring, health monitoring and other monitoring; • considering the adequacy of funding for the Project and ongoing research; • providing advice to the Developer, regulators and government on ongoing improvements in monitoring and Project management to prevent risks and mitigate any potential impacts; 	Complete	The Environmental Agreement provides for the creation of the Oversight Body (GMOB) and funding to fulfill these obligations going forward.	None.

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	<ul style="list-style-type: none"> sharing the oversight body's conclusions with the general public and potentially affected communities in a culturally appropriate manner 			
9	<p>The Developer will work with other federal and territorial departments as necessary to design and implement a broad health effects monitoring program in N'dilo, Dettah and Yellowknife focusing on arsenic and any other contaminants in people which might result from this Project. This will include studies of baseline health effects of these contaminants and ongoing periodic monitoring. This will be designed with input from:</p> <ul style="list-style-type: none"> Health Canada, GNWT Health and Social Services and the Yellowknife medical community; and The Yellowknives Dene and other potentially affected communities. <p>The organization conducting the monitoring will provide regular plain language explanations of the monitoring results in terms that are understandable to lay people, and communicate this to potentially affected communities in a culturally appropriate manner.</p>	Underway	Approval received from Senior Management to have Dr. Laurie Chan proceed with preparing a proposal to address Measure 9.	Establish an advisory committee, develop a communications plan. Develop scope for the health study with engagement from stakeholders (WG, GMAC)
10	<p>The Developer will commission a comprehensive quantitative human health risk assessment by an independent, qualified human health risk assessor selected in collaboration with Health Canada, the Yellowknives Dene, the City of Yellowknife, and the Developer. This human health risk assessment will be completed before the Project receives regulatory approvals. It will:</p> <ol style="list-style-type: none"> 1. Include a critical review of the 2006 Tier II human health risk assessment and the previous screening reports; 2. Consider additional exposures and thresholds (as specified in Appendix F of the Report of EA); 3. Decide whether a Tier III risk assessment is appropriate; 4. Provide a plain language explanation of the results in terms that are understandable to the general public, and communicate this to potentially affected communities in a culturally appropriate manner; 5. Provide interpretation of results and related guidance; and 6. Inform the broad health effects monitoring program (described in Measure 9 above). <p>The Developer may conduct the human health risk assessment concurrently with the quantitative risk assessment described in Measure 5. Based on the results of this human health risk assessment, and on any existing results of the health effects monitoring program (described in Measure 9 above), the Developer will, if necessary in response to this information, identify, design and implement appropriate design improvements and identify appropriate management responses to avoid or reduce the severity of any predicted unacceptable health risks.</p>	Underway	<p>The Project Team worked with Stantec Environmental to develop a Statement of Work for the HHRA work with input from members of the Giant Mine Working Group. Specifications and evaluation criteria were developed for contracting purposes. Contracting process was initiated prior to year-end. The Project Team began developing an SOW for stress assessment with Dr. Shankardass.</p>	Award of the contract is expected in June 2016, and the contractor to begin conducting HHRA work thereafter. Ongoing and engagement with stakeholders (WG, GMAC)

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	Also, footnote #133 in the Report of EA (Appendix D) is revised to read, in its entirety, "Including inference of causality and pathologies deducted from any available health studies."			
11	<p>The Developer, with meaningful participation from the Oversight Body and other parties, will thoroughly assess options for, and the environmental impacts of, diversion of Baker Creek to a north diversion route previously considered by the Developer or another route that avoids the mine site and is determined appropriate by the Developer. Within one year of the project receiving its water license, a report outlining a comparison of options including the current on-site realignment will be provided to the appropriate regulatory authorities, the Oversight Body and the public.</p> <p>Once informed by the advice of the Oversight Body and regulatory authorities, the Developer will determine and implement the preferred option. In doing so, the Developer will consider the advice of the Oversight Body, regulatory authorities, and the public, and will ensure that the primary considerations in selecting an option are to:</p> <ul style="list-style-type: none"> a) minimize the likelihood of Baker Creek flooding and entering the arsenic chambers, stopes and underground workings, and b) minimize the exposure of fish in Baker Creek to arsenic from existing contaminated sediments on the mine site, surface drainage from the mine site or tailings runoff. If off-site diversion is selected, the Developer will seek required regulatory approvals to implement the diversion within five years of receiving its water license. 	Underway	<p>Baker Creek was a component in the Surface Design Engagement discussions.</p> <p>Further discussions will need to be had with GMOB as to how their participation will be integrated.</p>	<p>Evaluating input from the Surface Design Engagement work. Expert support working group (DFO, EC, HC) to be reinstated. A draft options report is anticipated in February 2017. GMOB is expected to be integrated into the expert support working group, or should provide input to the Project Team on how they will meet the requirement of meaningfully participating.</p>
12	To prevent significant adverse impacts on Great Slave Lake from contaminated surface waters in the existing or former channel of Baker Creek, should it be re-routed to avoid the mine site, the Developer will ensure that water quality at the outlet of Baker Creek channel will meet site-specific water quality objectives based on the CCME <i>Guidance on the Site-Specific Application of Water Quality Guidelines in Canada</i> .	Future action required	Worked on site specific water quality objectives to feed into the SDE process and future expert support working group discussions.	Ongoing work to solidify the site specific water quality objectives
13	<p>The Developer will design and, with the applicable regulators, manage the Project to ensure that, with respect to arsenic and any other contaminants of potential concern, the following water quality objectives are achieved in the vicinity of the outlet of the existing or former channel of Baker Creek, should it be re-routed to avoid the mine, excluding Reach 0:</p> <ul style="list-style-type: none"> a) Water quality changes due to discharge from the former channel of Baker Creek will not reduce benthic invertebrate and plankton abundance or diversity; b) Water quality changes due to discharge from the former channel of Baker Creek will not harm fish health, abundance or diversity; c) Water quality changes due to discharge from the former channel of Baker Creek will not adversely affect areas used as drinking water sources, d) Water quality changes due to discharge from the former channel of Baker Creek will not adversely affect any traditional or recreational users; and, 	Future Action Required	See measures 11&12	See measures 11&12

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	e) There is no increase in arsenic levels in Great Slave Lake due to discharge from the former channel of Baker Creek beyond the parameters described in Measure 12.			
14	The Developer will add an ion exchange process to its proposed water treatment process to produce water treatment plant effluent that at least meets Health Canada drinking water standards (containing no more than 10µg/L of arsenic), to be released using a near shore outfall immediately offshore of the Giant mine site instead of through the proposed diffuser. The Developer will achieve this concentration without adding lake water to dilute effluent in the treatment plant.	Future Action Required	None	To be actioned during design and implementation
15	The Developer and regulators will design and manage the Project so that, with respect to arsenic and any other contaminants of potential concern: <ol style="list-style-type: none"> 1. Water quality at the outfall will meet the Health Canada Guidelines for Canadian Drinking Water Quality; and, 2. The following water quality objectives in the receiving environment are met: <ol style="list-style-type: none"> a) Water quality changes due to effluent discharge will not reduce benthic invertebrate and plankton abundance or diversity at 200 metres from the outfall; b) Water quality changes due to effluent discharge will not harm fish health, abundance or diversity; c) Water quality changes due to effluent discharge will not adversely affect areas used as drinking water sources; and, d) There is no increase in arsenic levels in Yellowknife Bay water at 200 metres from the outfall: and, e) There is no increase in arsenic levels in Yellowknife Bay sediments at 500 metres from the outfall 	Future Action Required	None	Outfall location to be finalized through detailed design discussions and engagement.
16	Before construction, the Developer will model re-suspension of arsenic from sediments and resulting bioavailability in the vicinity of the outfall. If the modeling results indicate that the outfall may resuspend arsenic from sediments, the Developer will modify the outfall design until operation does not cause resuspension of arsenic from sediment.	Future Action Required	None	None anticipated
17	Before operating the outfall, the Developer will design and implement a comprehensive aquatic effects monitoring program that is sufficient to determine if the water quality objectives listed in Measure 15 are being met. This program will: <ol style="list-style-type: none"> 1. at a minimum, be able to identify any accumulation of arsenic over time in the water, sediment or fish in the receiving environment; 2. include appropriate monitoring locations near N'dilo, in Back Bay and in Yellowknife Bay, with a focus on areas in the vicinity of the outfall and areas used by people; 3. include the establishment of a baseline for aquatic effects in Back Bay before beginning Project construction and installation of the outfall; 4. be developed according to AANDC <i>Guidelines for Designing and Implementing Aquatic Effects Monitoring Programs for Development Projects in the Northwest</i> 	Future Action Required	None	Work planned to develop conceptual design of the study including identifying parameters, potential water quality based effluent quality criteria. Timing of the AEMP will be determined.

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	<i>Territories, June 2009</i> , with corresponding action levels and management response framework.			
18	Prior to preparing chambers and stopes for freezing, the Developer will conduct a comprehensive quantitative risk assessment evaluating both wet and dry methods for the initial freezing design, with respect to current risks and implications for future removal. This will include an evaluation of potential effects of the proposed freezing and wetting method on the thawing or frozen excavations, and potential impacts of ongoing design changes prior to implementing the Project. The Developer will release a plain language report to the public describing its considerations and the resulting design.	Underway	Freeze design basis report was finalized and engagement occurred with the Working Group...	Plain language report to be developed and released to the public.
19	Considering the results of the risk assessment described in Measure 18, the Developer will not adopt any method of freezing that significantly reduces opportunities for future arsenic removal or other remediation by future technologies.	Future Action Required	None	None
20	The Developer will conduct all major demolition and construction activities with the potential to release large amounts of dust or contaminants into the air when wind directions will minimize the chances of dust and contaminants blowing into the City of Yellowknife, Dettah and N'dilo.	Future Action Required	None	None anticipated
21	The Developer will collect dust and contaminant level data from soil and vegetation in the vicinity of major reclamation activities before and after major demolition or construction activities to serve as a baseline for any related adaptive management activities that may follow.	Future Action Required	None	None anticipated
22	The Developer will conduct a study to determine appropriate depth of the tailings cap and B1 pit cover, in consultation with Environment Canada and responsible regulators, to verify that the depth proposed will ensure the tailings cap and B1 pit cover are not compromised by vegetation growth. The Developer will provide a report of this study to the Mackenzie Valley Land and Water Board before it issues a water license for the Project.	Future Action Required	Tailings remediation options were discussed as part of the SDE process.	Confirm requirements and objectives of tailings cover.
23	The Developer will work cooperatively with responsible regulatory authorities and interested Parties in the development and submission of a Tailings Monitoring and Management Plan prior to receiving regulatory approvals. This plan will not only identify potential issues for the management of tailings but will also identify mitigation measures to prevent problems related to the tailings cap failure, and will include consideration of the B1 pit cover as applicable.	Future Action Required	None	Further definition of the plan for the remediation of the tailings will need to be advanced before a monitoring and management plan can be developed.
24	The Developer will physically prevent all-terrain vehicle access to the tailings cap and B1 pit cover to prevent the surface from being eroded or otherwise compromised. The Developer will monitor the effectiveness of this prevention, and will take any additional management measures as necessary to prevent all-terrain vehicle access.	Future Action Required	None	None anticipated

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25	The Developer will work cooperatively with responsible regulatory authorities and interested Parties in the development and submission of an Air Quality Management Plan which incorporates an ongoing air quality monitoring program. This ongoing monitoring program will include all previously identified on-site air quality monitoring stations and one off-site air quality monitoring station near Niven Lake. At a minimum, ambient concentrations of NO2 and PM2.5 will be monitored at the Niven lake site. Total suspended particulate and metal concentrations will be monitoring at the on-site locations. This air quality monitoring program will identify action levels and trigger additional management and mitigation activities, if required.	Future Action Required	Air Quality program is underway, and the Niven Station was put in place, however additional engagement on the exact location is ongoing with nearby homeowners.	The final location for the Niven Air station will be determined and the station is expected to be fully functional by Fall of 2016. An Air Quality Management Plan will be submitted as part of the Water License Package.
26	In conjunction with Measure 10 above, the Developer will consider the results of the comprehensive human health risk assessment, and consult with the YKDFN and City of Yellowknife when determining suitable end uses of the site, to ensure that those proposed uses do not pose a health risk to people, including toddlers.	Future Action Required	HHRA work was put out for tender. Consultation was ongoing through regular meetings with GMAC, Working group, City of Yellowknife, and through the Surface Design Engagement Process.	The HHRA to be contracted and conducted. Ongoing engagement.

Giant Mine Remediation Project 2016-2017 Workplan Summary for Working Group Meeting June 9, 2016

WBS	Status	Work Package Project Plan	Scope 16/17	Proposed Schedule 16/17
Care and Maintenance – Immediate Risk Mitigation				
2.1	Final	Base Care and Maintenance	<ul style="list-style-type: none"> • Site monitoring and management • Water Management and Treatment • Dust management • Environmental Monitoring and Reporting • Waste management (Roaster) 	<ul style="list-style-type: none"> • Ongoing
2.5.5	Final	Underground Utility Improvements	<ul style="list-style-type: none"> • Repair/replace existing compressed air and water pipe services related to C5-09 investigation and the remainder of stope drilling 	<ul style="list-style-type: none"> • Complete installation of air and water services by March 2017
2.5.3.3	Final	Underground Power Distribution Upgrades	<ul style="list-style-type: none"> • Electrical Construction for installation of new equipment and connection of loads, commissioning/test and decommissioning of old equipment 	<ul style="list-style-type: none"> • Contractor work completion- July 2016
2.5.1.1.2	Final	Options Analysis and Pumping System Upgrades	<ul style="list-style-type: none"> • Complete design of pump and piping modifications and electrical modifications 	<ul style="list-style-type: none"> • February 2017
2.3.6	Final	Site Security Upgrades	<ul style="list-style-type: none"> • Additional signage • Implementation of security assessment (improve security) • Full time security at gate house 	<ul style="list-style-type: none"> • September 2016 • Implementation of assessment July 31, 2016
2.3.7	Final	Deteriorating Infrastructure Action Plan	<ul style="list-style-type: none"> • Implementation of recommended treatments for “higher risk structures’(e.g. erecting safety perimeter) • Complete annual inspections on “higher risk structures’ • Complete 90% design for demo of 7 buildings. 	<ul style="list-style-type: none"> • Inspection Summary Report November 2016 • Treatment Option Implementation October 2016
2.6.1.1	Final	Interim Dust Management Options Assessment	<ul style="list-style-type: none"> • Development of specification for the construction/implementation of management option • Monitoring of dust management option 	<ul style="list-style-type: none"> • Construction and implementation Fall 2016 • Complete monitoring July 2017
2.5.3.1	Final	Site Wide Electrical B3 Substation Reconfiguration	<ul style="list-style-type: none"> • Increase electrical system reliability/safety 	<ul style="list-style-type: none"> • Commissioning and Testing – July 2016 • Lessons Learned Evaluation Session- October 2015

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WBS	Status	Work Package Project Plan	Scope 16/17	Proposed Schedule 16/17
3.1.2.3	Final	Health and Safety Advisory Services	<ul style="list-style-type: none"> Contract with an industrial hygienist to participate in required meetings, assessment of reports/results, provide advice on development of procedures/policies etc. 	<ul style="list-style-type: none"> On-going
2.5.7	Final	Borrow Development Support Site C&M	<ul style="list-style-type: none"> Extension of lay down area Production of 5000m3 of 150mm minus granular materials Production of 5000m3 of 20mm minus 	<ul style="list-style-type: none"> Production and Stockpile of Materials August 2016
2.3.9.1	Final	Building Deconstruction-A-Shaft and Curling Club Deconstruction	<ul style="list-style-type: none"> Hazardous material removal and demolition of A-shaft Headframe, Hoist Room, Curling Club, Assay Lab Bird/animal survey prior to work start 	<ul style="list-style-type: none"> Quality Assurance contract-June 2016 Hazardous Materials Abatement and Demolition Contract-June 2016 Completion of Work and demob-November 2016
2.4.4	Final	Air Quality Monitoring Program	<ul style="list-style-type: none"> Ambient air quality fence line and community monitoring Internal lessons learned Placement and operation of revised Ndilo and new Niven stations 	<ul style="list-style-type: none"> On-going Final Report Lessons Learned September 2016 Annual Program Report November 2016 Installation of Ndilo Station August 2016 Niven Station operational Fall 2016
2.5.8	Final	UBC Bridge Reconstruction	<ul style="list-style-type: none"> Further investigation and analysis of former bridge structure Detailed design and specs package 	<ul style="list-style-type: none"> Geotechnical Investigations and Reporting July 2016 Bridge Design and Specs-September 30, 2016

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Site Stabilization				
2.3.2.3	Final	C5-09 Stope Stabilization	<ul style="list-style-type: none"> • Develop technical specification package • Develop Terms of Reference (TOR) for specific air monitoring • Develop ToR for the Quality Assurance consultant • Develop past backfill design mix 	<ul style="list-style-type: none"> • Award C5-09 backfill contract • Completion of backfill operations- December, 2018
3.3.2.1	Final	Underground Stabilization-Remainder of Stope Drilling	<ul style="list-style-type: none"> • Geotechnical Drilling Program Procurement and Program Execution (including air quality monitoring) • Complete drilling program 	<ul style="list-style-type: none"> • Drilling activities May-September • Completion of geotech drilling- September 2016
3.3.2.2	Final	Underground Stabilization-Mine Water Management	<ul style="list-style-type: none"> • Development of a conceptual plan for mine-water management 	<ul style="list-style-type: none"> • Development of a conceptual plan June-December 2016
Work Packages Addressed Through Surface Design Engagement (SDE) Process				
1.3.4	Final	Surface Design Engagement	<ul style="list-style-type: none"> • Incorporate stakeholder comments on draft SDE Options Evaluation Workshop report • Finalize SDE Options Evaluation Workshop report • Consultant support and advice (SRK) for follow-up with stakeholders on project decisions 	<ul style="list-style-type: none"> • Stakeholder meetings on Draft Report - June 2016 • Finalize SDE report - August 2016 • Stakeholder meetings on project decisions for surface design - September-November 2016
3.3.3.3	Final	Baker Creek-Development and Selection of Alignment Options	<ul style="list-style-type: none"> • Comprehensive Options Analysis/Alignment Selection and Report • Baker Creek Working Group with expert support departments (DFO, EC, HC, GNWT) to discuss, clarify and resolve any technical issues • LiDAR requirements 	<ul style="list-style-type: none"> • Draft Baker Options Report for review by stakeholders – February 2017 • Selection of Baker Creek alignment- September 2017

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WBS	Status	Work Package Project Plan	Scope 16/17	Proposed Schedule 16/17
3.3.3.1	Final	Baker Creek-Development of Site Specific Water Quality Objectives (SSWQO)	<ul style="list-style-type: none"> Refine parameters of Potential concern (POPC) Screening Site Specific Water Quality Objectives Derivation Determine Regional Background concentrations Water Quality Modeling and Predictions 	Final SSWQO Report – Jan 2018
3.3.9.1	Final	Surface Water Management-Arsenic Loading Study	<ul style="list-style-type: none"> Update arsenic loadings Map based on 2014/15/16 information Updates to surface water management hydrology to consider water volumes and seasonality of flows 	<ul style="list-style-type: none"> Arsenic loadings report - October 2016 Surface water mgmt. report - December 2016
3.3.4.2	Final	New Effluent Treatment Plant-Near-Shore Outfall Conceptual Design/Consultation	<ul style="list-style-type: none"> Identify near shore effluent discharge location and conceptual design of associated structures Consultant participation in engagement sessions to identify acceptable outfall locations Develop outfall option evaluation criteria, and present evaluation process to stakeholders Preparation of report detailing potential locations, evaluation and recommended locations 	<ul style="list-style-type: none"> Engagement with Working Group/GMAC on potential outfall locations and criteria - August 2016 Development of evaluation criteria- September 2016 Conceptual Design- November 2016 Engagement on potential locations with public - Winter 2016/17 Final report –March 2017
3.3.4.3	Final	New Effluent Treatment Plant-Baseline Aquatic Assessment	<ul style="list-style-type: none"> Background information review Project Requirements Definition (Terms of Reference for outfall baseline aquatic assessment study) 	<ul style="list-style-type: none"> Complete background review - December 2016 Procurement award March 2017 Development of ToR January 2017 Award contract to consultant March 2017

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3.3.4.4	Final	New Effluent Treatment Plant-Pilot Effluent Treatment System	<ul style="list-style-type: none"> Develop Terms of Reference for consultant Define objectives and requirements for Pilot Plant Design of Pilot Plant 	<ul style="list-style-type: none"> Issue contract December 2016 Objectives January 2017 Pilot Plant design June 2017
3.3.8.1	Final	Tailings Rehabilitation	<ul style="list-style-type: none"> Tailings Investigation and Reporting – feasibility of using tailings as backfill for open pits Design objectives/Conceptual Cover Design (reflect results of the HHRA, SDE) 	<ul style="list-style-type: none"> Tailings Investigation and pit filling feasibility report - October 2016
3.3.5.1	Final	Contaminated Soil-Arsenic Characterization	<ul style="list-style-type: none"> Finalize Technical Report sampling program and analysis of soil samples and archived soil samples in undisturbed areas carried out in 2015 Finalize Technical Report of sampling program and analysis of soil samples in disturbed areas carried out in 2015 	<ul style="list-style-type: none"> Finalize 2015 soil reports - July 2016
3.3.5.3	Final	Contaminated Soil Design	<ul style="list-style-type: none"> Additional soil investigations in core, north pond tailings spill, townsite and shoreline areas. Remedial plan for removing and transporting contaminated sediments from Baker Creek 	<ul style="list-style-type: none"> Additional soil investigation draft reports – April 2017 Remedial plan Baker Sediments – Sept 2017
3.3.11.2	Final	Non-hazardous Waste Disposal Options	<ul style="list-style-type: none"> Physical investigations and detailed topographic survey to assess the selected landfill location Preliminary waste diversion study to assess requirements for composting/salvaging options 	<ul style="list-style-type: none"> Non-hazardous landfill location engagement Fall 2016
3.3.11.3	Final	Non-arsenic Hazardous Waste Disposal Options	<ul style="list-style-type: none"> Investigation work in support of the design/cost estimate: review of existing info re: building haz materials, field sampling and inspection program for inventory and final inventory, regulatory assessment of existing waste disposal cells 	<ul style="list-style-type: none"> Review of existing information 2016/17 Draft Hazardous Waste Inventory Report January 2018
3.3.14	Final	Closure and Reclamation Plan	<ul style="list-style-type: none"> Gap Analysis to identify any investigation or study requirements 	<ul style="list-style-type: none"> March 2017

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WBS	Status	Work Package Project Plan	Scope 16/17	Proposed Schedule 16/17
2.4.1	Final	Long Term Environmental Monitoring Plan (LTEMP)	<ul style="list-style-type: none"> • Successfully implement the Surveillance Network Program (SNP) / Operational Monitoring Program (OMP) and air quality monitoring program (AQMP) • Long Term Environmental Monitoring Program (LTEMP) management (standardize processes) • Standardize data management process • Mining Metal Effluent Regulations (MMER) / Environmental Effects Monitoring (EEM) Implementation • Begin development on Aquatic Effects Monitoring Program conceptual design plan and necessary baseline work • Task specific Bird Survey 	<ul style="list-style-type: none"> • Ongoing • Bird Survey-August 2016
Work Packages addressing other EA Measures				
3.2.1	Final	Human Health Risk Assessment (HHRA)	<ul style="list-style-type: none"> • Independent HHRA consultant conduct background information review • HHRA Study Design (including engagement identify data gaps, and linkage to indirect stress effects assessment) • HHRA execution which includes problem formulation, exposure assessment, toxicity assessment and risk characterization • HHRA Technical Report with detailed interpretation of the results, conclusions, recommendations for the management of issues, further studies • Stress assessment (literature review, consultation, scope of work) 	<ul style="list-style-type: none"> • Award HHRA contract June 2016 • HHRA Study Design and engagement - July /August 2016 • HHRA Engagement and Traditional knowledge - October 2016 • HHRA implementation -July 2016- January 2017 • Stakeholder Review of Draft HHRA Report - February-April 2017 • Final HHRA Report – June 2017 • Stress Assessment engagement – Fall 2016 • Stress Assessment scope of work – Winter 2016
3.2.3	Final	Quantitative Risk Assessment	<ul style="list-style-type: none"> • Address measure 5, and examine the remediation project risks as they pertain to environmental, social, health and 	<ul style="list-style-type: none"> • Engagement on scope – December 2016

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WBS	Status	Work Package Project Plan	Scope 16/17	Proposed Schedule 16/17
			financial impacts.	
3.2.2	Final	Human Health Monitoring Program	<ul style="list-style-type: none"> • Establish Advisory Committee • Detailed Program Proposal (Dr Laurie Chan) • Communication Strategy/Plan • Sampling Plan • Research/Ethics Permits 	<ul style="list-style-type: none"> • September 2016 • October 2016 • October 2016 • December 2016 • March 2017
Freeze				
3.3.1.2	Final	Freeze Program-Gap Analysis, Background Information Review and Preliminary Design	<ul style="list-style-type: none"> • Comprehensive review of DBR by design engineers (AECOM) • Background info review and gap analysis by design engineers (AECOM) • Plain language report on Freeze (Measure 18) • Handover of Engineer of Record of Freeze Program from SRK to AECOM 	<ul style="list-style-type: none"> • Engineer of Record handover June 2016 • Completion of review of background information (including Design Basis Memorandum) and submission of the Design Gap Analysis Report December 2016 • Plain language report – November 2016
3.3.1.1	Draft	Freeze Program-FOS Management	<ul style="list-style-type: none"> • Develop, maintain and update the FOS study Management Plan • Analyze and report on data form the FOS relative to the FOS management 	<ul style="list-style-type: none"> • Implementation of the FOS Management Plan July 2016
Other				
1.5.1	Final	Data Management	<ul style="list-style-type: none"> • Procure a business analyst to define business needs and define options for info mgmt. • Maintain access to GMRP SharePoint 	2016/17

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