

Public Works and Government Services Canada

Issued for Tender

Specifications for

Diamond Core Drilling

**Giant Mine, Northwest Territories
Project No.: R.014204.330**

Prepared for:

Public Works and Government Services Canada

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March 10, 2015

AECOM Project Number: 60336220

Document Number: 330-Risk Drilling-28-SPEC-0001-Rev2_2015310

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PART 1 GENERAL

1.1 Precedence

- .1 Division 1 Sections take precedence over technical specification sections in other Divisions.

1.2 Background Information

- .1 Giant Mine was a large-scale gold mine that operated from 1945 to 2004 under a series of different owners. The most recent owners of the mine were assigned to bankruptcy in 2005 and responsibility for this site has since been assigned to Aboriginal Affairs and Northern Development Canada (AANDC). Since 2005, the required Care and Maintenance of the Giant Mine Site, including environmental management activities, have been contracted out by AANDC and Public Works and Government Services Canada (PWGSC).
- .2 The Giant Mine site is located within the city limits of Yellowknife, Northwest Territories (NWT), Canada, approximately 5 km north of the city centre. The Giant Mine site lies within the area traditionally used by the Yellowknife Dene First Nation.
- .3 Several underground features at the Giant Mine site require further investigation to assess risk associated with failure of the bulkheads and stopes. Drilling programs to investigate these features have been completed previously.
- .4 The Work required by these Specifications form a portion of the overall Giant Mite Site remediation project. Numerous other parties will be using the Site concurrently and all parties are to act cooperatively.
- .5 Hazards at the Giant Mine Site that the Contractor should be aware of include, but are not limited to, the following:
 - .1 Tailings (both in-place and windblown) containing silica, arsenic and other mine ore processing by-products in concentrations sufficiently high to require Personal Protective Equipment (PPE) or other controls to limit worker exposure.
 - .2 Reagents including acids and lime.
 - .3 Fuels and lubrication fluids.
 - .4 Process chemicals and mill dust.
 - .5 Electrical hazards - high AC voltages.
 - .6 Physical hazards of dilapidated and/or unstable structures.
 - .7 Physical hazards of unstable crown pillars.
 - .8 Mine openings.
 - .9 Assay chemicals.
 - .10 Wildlife (including bears).
 - .11 Asbestos.
 - .12 Arsenic Trioxide Dust.
 - .13 Contaminated Water.
 - .14 Mine workings such as waste rock, open pits, open stopes, and underground chambers.
 - .15 Physical hazards of water bodies such as tailings ponds and Baker Creek.
 - .16 Traffic along site roads.
 - .17 Working in congested sites.
 - .18 Extreme cold and exposure.
 - .19 Isolated locations.

1.3 Supporting Documents

- .1 The information presented on the Drawings and in the Specifications that describes the surface and subsurface conditions is based upon information provided by AANDC personnel, AECOM, Golder and other site investigations. The investigation and assessment reports are available under separate cover from the Contract Tender package upon request and include the following:
 - .1 Golder 2012, Review and Update of Arsenic Slope and Chamber Stability Information, AECOM Document # 313-UG-13-RPT-004-Rev3, 2012 10 05.
 - .2 Golder 2012, Review and Update of Near Surface Non-Arsenic Slope Stability Assessment, AECOM Document #313-UG-13-RPT0005-Rev1, 2012 11 02.
 - .3 Golder 2012, Baker Creek Geotechnical Investigation-Factual Data Report.
- .2 Other supporting documents pertaining to the site include, but are not limited to, the following:
 - .1 Mine Manager's Site Specific Health and Safety Program
 - .2 Environmental Management Plan

1.4 Definitions

- .1 Departmental Representative (DR): Within the context of these Specifications, the term Departmental Representative refers to the person exercising the roles and attributes of Canada under the contract.
- .2 Departmental Representative's Authorized Personnel: Within the context of these Specifications, the term Departmental Representative's Authorized Personnel refers to personnel appointed or authorized by the Departmental Representative. Departmental Representative's Authorized Personnel provide recommendations and technical guidance to Departmental Representative as required, for the enforcement of these Specifications.
- .3 Contractor: The contractor procured to undertake Work under the Contract to which these Specifications apply.
- .4 Mine Manager: A contract, separate from the Contract to which these Specifications apply, will be in place to fulfill the role of Mine Manager under the NWT Mine Health and Safety Act for the overall Giant Mine Site. The Mine Manager will be responsible for all site Health and Safety on the Giant Mine Site. The existing Care and Maintenance (C&M) Contractor is currently acting as Mine Manager.
- .5 Contractor's Site Superintendent: Contractor's resident site representative who is authorized to make decisions on behalf of the Contractor and who assumes the role and responsibility of a Level 2 Supervisor under the Mine Health and Safety Act for the Project Work Area.
- .6 Authority Having Jurisdiction (AHJ): Governmental agency or sub-agency that regulates the codes and standards that are to be met during the execution of the Work.
- .7 Work: The remediation activities conducted to complete the requirements of these Specifications.

1.5 Description of Work

- .1 The Work under this Contract is being completed as part of a risk assessment of the underground workings at the Giant Mine Site. The intent of the site stabilization work is to assess the risk associated with failures of underground stopes that could result in physical instability of above ground features.

- .2 Work under this Contract comprises the supply of all labour, equipment and materials required to complete a diamond core drilling program that will investigate the geotechnical stability of stopes B1-43 and the A2-01 area. The items required to complete Work includes, but is not limited to, the following:
- .1 Development of a Drilling Plan for the completion of the Work.
 - .2 Development of a Site Specific Health and Safety Plan for the activities associated with the Drilling program.
 - .3 Supply, mobilization and demobilization of all personnel, equipment, support facilities and materials required to complete the Work.
 - .4 Maintenance and management of Contractor equipment and materials, as required to complete the Work.
 - .5 Production and execution of an Environmental Protection Plan including dust management activities.
 - .6 Establishment of temporary construction facilities including, but not limited to Contractors office space, core shack, sanitary facilities, wastewater collection and temporary enclosures required to carry out the Work.
 - .7 Construction and maintenance of accesses for drilling equipment and drill pads, including the supply and placement of aggregate material, as required.
 - .8 Development and execution of a comprehensive Quality Control program including topographic surveys and down-the-hole instrument surveys using a multi-shot tool.
 - .9 Diamond drilling, coring and completion of the specified Boreholes as indicated on the Drawings and installation of sealable steel surface conductor casings through the Overburden, grouted into bedrock.
 - .10 The supply and installation of grouted steel surface conductor casing, steel lockable cap and permanent identification label at all completed boreholes.
 - .11 The collection, transport and on-site disposal of all drilling fluids, equipment cleaning wastewater and drill cuttings.
 - .12 The supply of core boxes and supply and installation of core storage racks.
 - .13 Liaison and Coordination of work activities with Mine Manager.
 - .14 Removal of all personnel, equipment and materials used during the Work, at the completion of Work.
- .3 Provide supplementary information to the Departmental Representative, as required, to support the Land Use Permit and its' conditions.
- .4 Carry out Work in a manner that satisfies the AHJ, so as to protect the environment, the health and safety of workers and the general public.
- 1.6 Priority of Work
- .1 Boreholes located within Area B1-43 are to be completed prior to Boreholes within Area A2-01.
 - .2 The Departmental Representative will determine when the Work is substantially completed.
- 1.7 Submittals
- .1 All submittals to be in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit requests for payment to Departmental Representative for review.
 - .3 Submit requests for interpretation of Contract Documents, and obtain instructions through Departmental Representative.
 - .4 Submit and process substitutions through Departmental Representative.

1.8 On-Site Documents

- .1 Maintain at job site, one copy each of the following:
 - .1 Contract drawings.
 - .2 Specifications.
 - .3 Requests for Clarification and responses.
 - .4 Addenda.
 - .5 Change Orders.
 - .6 Reviewed shop drawings.
 - .7 Other modifications to Contract.
 - .8 Compiled sampling, analytical data, and quality control data.
 - .9 Copy of approved Work Schedule.
 - .10 All applicable Material and Safety Data Sheets.
 - .11 Site Specific Health and Safety Plan including:
 - .1 Fire Safety Plan.
 - .2 Emergency Response Plan.
 - .12 Drilling Plan
 - .13 Spill Contingency Plan.
 - .14 Environmental Protection Plan.
 - .15 All applicable Territorial permits and licenses, including the Land Use Permit, extended hours work permit and the Mine Manager Work Permit.
 - .16 All applicable Federal permits and licenses.
 - .17 Workers' Safety and Compensation Commission (WSCC) Notification of Project.
 - .18 Worker training records.
 - .19 Copies of manifests and bills of landing.
 - .20 Other documents as specified.

1.9 Work Schedule

- .1 Provide and maintain a Work Schedule in accordance with Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.
- .2 Keep the Departmental Representative advised of planned Work activities in accordance with Section 01 33 00 – Submittal Procedures.
- .3 All Work under this Contract shall be completed by June 30, 2015.

1.10 Work by Others

- .1 Care and Maintenance for the entire Giant Mine Site is being carried out under a separate contract.

1.11 Contractor Use of Premises

- .1 Contractor has use of the Giant Mine Remediation Project (GMRP) site for the performance of the Work, subject to restrictions established by the Departmental Representative, Mine Manager and AHJ.
- .2 Coordinate use of and access to Site areas with the Departmental Representative and Mine Manager, for the following work activities, or as directed by the Departmental Representative:
 - .1 Site preparation activities, including but not limited to hauling and placement of Aggregate Materials for the construction of accesses and/or drill pads and the installation of monitoring equipment.
 - .2 Movement of drilling rigs, heavy equipment and support vehicles through the Giant Mine site.
 - .3 Waste transport throughout the Site.

- .4 Traffic or worker access restrictions during Work activities.
 - .3 Do not unreasonably encumber Site with materials or equipment.
 - .4 Move stored products or equipment which interfere with operations of Departmental Representative or Mine Manager.
 - .5 Use of Site shall comply with the environmental protection requirements of Section 01 35 43 - Environmental Procedures and Environmental Management Plan.
 - .6 Consideration will be given to activities of others around the Site, including vehicle access and travel through the Contractor Work area.
- 1.12 Departmental Representative Furnished Items
- .1 Departmental Representative will arrange for the following for Contractor's use during the Work:
 - .1 Provision of a Site Specific Health and Safety Orientation for the overall Giant Mine Site, prepared by the Mine Manager. All Contractor employees working at the site will be required to participate in the orientation provided by the Mine Manager.
- 1.13 Permits and Licenses
- .1 Work activities of this Contract, will operate under provisions of a Land Use Permit. The Land Use Permit has been issued and is included in Appendix B. The Contractor shall provide any supplementary information requested by the Departmental Representative in an expedient manner to support issuance of any amendments to the Land Use Permit and to satisfy the conditions of operation. Supplementary information may include, but not be limited to submittals included in Table 01 33 00-1 – Contractor Submittal Schedule in Section 01 33 00 – Submittal Procedures.
 - .2 All restrictions and requirements of the Land Use Permit apply to Contractor.
 - .3 Register, obtain and pay for all required licenses and permits for individual tradesmen employed for Work.
 - .4 Provide supplemental information to the regulators for any necessary license amendments or reporting requirements.
 - .5 Pay all costs associated with complying with the requirements for the permits and licenses noted in the above clauses.
- 1.14 Site Supervision
- .1 Designate Contractor's Site Superintendent or back-up to be on site at all times during site operations, to have full authority to make decisions for Contractor, to be knowledgeable of the requirements of the Contract, and to act upon Departmental Representative's instructions. The Site Superintendent must fulfill the requirements of the NWT Mine Health and Safety Act and associated Regulations Level 2 Supervisor.
 - .2 Departmental Representative may engage an independent engineering consultant or other specialists and technicians to provide Quality Assurance inspection and testing services for on-going verification of Contractor's compliance with project specifications and required work procedures.

1.15 Worker Orientation Seminar

- .1 Develop, prior to the start of the Work, course material for a Worker Orientation Seminar for Contractor's employees. The intent is to describe the drilling activities at the site, and provide instruction for the applicable health, safety, and environmental policies and regulations as related to Site Work activities. Course material will be prepared in English and presented in the English language and the local dialect, if required.
- .2 Submit one electronic copy of the Worker Orientation Seminar course material to Departmental Representative for review at least fifteen (15) days prior to mobilization. Include information describing the facility to be used for conducting the seminars.
- .3 The Orientation Course will address, but not necessarily be limited to, the following topics:
 - .1 Project Communication.
 - .1 Roles of Departmental Representative and Departmental Representative's Authorized Personnel.
 - .2 Roles of Contractor and Contractor's authorized representatives.
 - .3 Roles of Mine Manager.
 - .4 Lines of Project Communication.
 - .5 Coordination and provision of access for work by others.
 - .2 Scope of Work.
 - .1 Construction of drill pads and accesses.
 - .2 Drilling and casing through overburden.
 - .3 Drilling and coring through bedrock.
 - .4 Borehole surveys and testing.
 - .5 Borehole completion or abandonment.
 - .3 Regional Overview of the Giant Mine Area
 - .1 Land use of area.
 - .2 Location of site relative to communities.
 - .3 Wildlife.
 - .4 Geology and hydrology.
 - .5 Flora and fauna.
 - .4 Environmental Issues and Protection Procedures.
 - .1 Climate.
 - .2 Land use.
 - .3 Water resources/fisheries.
 - .4 Terrestrial resources.
 - .5 Heritage resources.
 - .6 Spill contingency plans/procedures.
 - .7 Training activities.
 - .5 Project Organization/Schedule/Administration.
 - .1 Personnel policies.
 - .2 Supervisory reporting relationships.
 - .3 Communication.
 - .4 Payroll and banking procedures.
 - .5 Work Schedules and hours.

- .6 General Site Specific Health and Safety.
 - .1 Team Work.
 - .2 Work attitudes/productivity.
 - .3 Anti-Harassment Policy.
 - .4 First aid procedures.
 - .5 Protective equipment and clothing.
 - .6 Safe operation of equipment and tools.
 - .7 WHMIS requirements.
 - .8 Wildlife awareness.
 - .9 No smoking regulations.
 - .10 Firearms.
 - .11 Fit for duty requirements.
 - .12 Drug and Alcohol Policy.
- .7 Work Specific Task Requirements.
 - .1 Preparation of drilling areas.
 - .2 Occupational and air quality monitoring.
 - .3 Transportation of Dangerous Goods (TDG).
 - .4 Environmental mitigation procedures.
 - .5 Emergency response procedures.
 - .6 Other work items detailed in the Contractor's Drilling Plan.
- .4 Prior to the start of Work, conduct Worker Orientation Seminars for all supervisors, foremen, Contractor's general workforce, Departmental Representative and Departmental Representative's Authorized Personnel staff based on the course material reviewed by Departmental Representative.
- .5 Require each attendee to sign a record of attendance upon completion of the seminar. Retain, for Departmental Representative's review at any time, this record of attendance.

1.16 Measurement of Payment

- .1 Work under this Contract will be paid for as follows:
 - .1 Lump sum payment items will be paid at the lump sum price tendered for each lump sum item listed in the Basis of Payment Schedule.
 - .2 Unit price items will be paid at the unit price tendered for each unit price item listed in the Basis of Payment Schedule.
 - .3 Indirect project costs will be paid at the lump sum price tendered for "Balance of Project Costs" (BOPC) in the Basis of Payment Schedule.
- .2 Unit price items and lump sum items will be paid under the Basis of Pricing, which will form the Basis of Payment Schedule of the proposed contract. All other items, whether specifically defined in the specific sections of the Specifications or not, will be paid under Payment Item BOPC-1, Balance of Project Costs, in the Basis of Payment Schedule.
- .3 Direct costs include all costs directly attributable to a particular pay item including equipment, operators, materials, etc. All direct costs for lump sum and unit price items are to be included in the appropriate price item in the Basis of Payment Schedule.
- .4 Indirect costs include all costs not directly attributable to the pay items including profit, supervision, overhead, administration, CGL Insurance, WCB, allowances for equipment maintenance and depreciation, repairs and any other relevant costs. All indirect costs associated with specific unit price or lump sum items will be included in Payment Item BOPC-1, Balance of Project Costs, in the Basis of Payment Schedule.

- .5 Include costs for work, goods or services required in this section that are not covered by appropriate payment clauses in other sections in Payment Item BOPC-1, Balance of Project Costs, in the Basis of Payment Schedule.
- .6 Notify Departmental Representative of planned Work activities in accordance with requirements of Section 01 33 00 - Submittal Procedures, and at least three (3) days in advance of operations to permit required measurements for payment.
- .7 All direct costs for the preparation of the Worker Orientation Seminar Material, including conducting the seminars and preparation of meeting room facilities, as required, are to be included in the lump sum price for Worker Orientation Seminar, Item 01 11 00-1, Worker Orientation Seminar, as indicated in the Basis of Payment Schedule.
- .8 Except as indicated above, Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this Work as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

END OF SECTION

PART 1 GENERAL

1.1 Definitions

- .1 Project Start-Up Teleconference: conference call to be held within ten (10) days after Contract Award and to include the Contractor and Departmental Representatives from AANDC and PWGSC.
- .2 Pre-Construction Meeting: meeting to be held in Yellowknife prior to Contractor Mobilization to Giant Mine and to include the Contractor and Departmental Representatives from AANDC and PWGSC.
- .3 Monthly Progress Meeting: meeting to be on-site at monthly intervals during the construction season and to include the Contractor, the Mine Manager, and Departmental Representatives from AANDC and PWGSC.
- .4 Weekly Construction Meeting: meeting to be held on-site at weekly intervals during the construction season and to include the Contractor's Site Superintendent, foremen as necessary, the Mine Manager, and Departmental Representative.
- .5 Tailgate Meeting: meeting to be held on-site daily during the construction season and to include Contractor, all on-site staff, and on-site Departmental Representative and Departmental Representative's Authorized Personnel.

1.2 Administrative

- .1 Responsibilities of Departmental Representative:
 - .1 Schedule and administer Project meetings throughout the progress of the Work.
 - .2 Prepare agenda for meetings unless otherwise specified.
 - .3 Distribute written notice of each meeting five (5) days in advance of meeting date to required attendees.
 - .4 Preside at meetings unless otherwise specified.
 - .5 Record the meeting minutes unless otherwise specified.
 - .6 Reproduce and distribute copies of minutes within three (3) days after meetings and transmit to meeting participants and affected parties not in attendance.
- .2 Responsibilities of Contractor:
 - .1 Provide physical space and make arrangements for meetings.
 - .2 Representatives of Contractor, Sub-Contractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.3 Project Start-up Teleconference

- .1 Within ten (10) days after award of Contract, request a meeting of parties in Contract to discuss and resolve administrative procedures and responsibilities. The meeting will be in the form of a teleconference for all parties involved.
- .2 Departmental Representatives from AANDC and PWGSC, Departmental Representative's Authorized Personnel, Contractor, major Sub-Contractors, field inspectors and supervisors will be in attendance.
- .3 Establish date and time of the teleconference and notify parties concerned a minimum of five (5) days before meeting.
- .4 Departmental Representative or designate will chair the meeting and take minutes. Meeting will be informal and agenda to include the following:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Preliminary Schedule of Work.

- .3 Preliminary Schedule of submission of Site Specific Health and Safety Plan, Environmental Protection Plan, Drilling Plan, Quality Control Plan, Cost Breakdown and other submissions.
- .4 Requirements for temporary facilities, site security and office facilities (as required), equipment and proposed methods of mobilization and demobilization.
- .5 Set-up of Pre-Construction Meeting.

1.4 Pre-construction Meeting

- .1 Request a face-to-face meeting of parties in contract to discuss and resolve administrative procedures and responsibilities. The meeting is to take place in Yellowknife, NT.
- .2 Provide and pay for a meeting space.
- .3 Departmental Representatives from AANDC and PWGSC, Departmental Representative's Authorized Personnel, Contractor, major Sub-Contractors, field inspectors and supervisors will be in attendance.
- .4 Establish time and location of meeting in Yellowknife and notify parties concerned a minimum of five (5) days before meeting.
- .5 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
- .6 Agenda may include:
 - .1 Confirmation of official representative of participants in the Work.
 - .2 Schedule of Work: in accordance with Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.
 - .3 Schedule of submission in accordance with Section 01 33 00 - Submittal Procedures including, but not limited to:
 - .1 Site Specific Health and Safety Plan including:
 - .1 Fire Safety Plan.
 - .2 Site Contingency and Emergency Response Plan.
 - .2 Drilling Plan.
 - .3 Insurances and transcripts.
 - .4 Equipment to be used by Contractor.
 - .5 Environmental Protection Plan.
 - .6 Location of equipment and proposed methods for mobilization and demobilization.
 - .7 Requirements and location for temporary construction facilities, in accordance with Section 01 52 00 - Construction Facilities.
 - .8 Delivery Schedule of specified equipment.
 - .9 Site security in accordance with Section 01 35 32 - Site Specific Health and Safety Plan.
 - .10 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
 - .11 Departmental Representative provided products.
 - .12 Record drawings and information in accordance with Section 01 33 00 - Submittal Procedures.
 - .13 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.
 - .14 Monthly progress claims, administrative procedures, photographs, hold backs.
 - .15 Appointment of inspection and testing agencies or firms.
 - .16 Signing and execution of construction Contract.
 - .17 Weekly and monthly reporting templates.

- .18 Regulatory Issues.
- .19 Project photographs requirements.

1.5 Monthly Progress Meetings

- .1 Departmental Representative will schedule Progress Meetings once per month to be held on site.
- .2 Departmental Representative, Contractor, AANDC, major Sub-Contractors, field inspectors and supervisors, and Mine Manager will be in attendance.
- .3 Departmental Representative will notify parties five (5) days prior to meetings.
- .4 Departmental Representative will record minutes of meetings and circulate to attending parties and affected parties not in attendance within three (3) days after meeting.
- .5 Agenda is to include, but is not limited to:
 - .1 Summary of the previous period's site activities.
 - .2 Comparison of progress achieved with the Project Schedule.
 - .3 Schedules and actions Contractor plans to take to get back on Schedule, if required.
 - .4 Confirmation of quantities.
 - .5 Contemplated change notices and change orders.
 - .6 Health, safety and security issues.
 - .7 Site wide air quality monitoring results.
 - .8 Summary of interactions with Authorities Having Jurisdiction (AHJ).
 - .9 Work plan for the following month, if any.
 - .10 Site facilities and co-ordination requirements.
 - .11 Other business, including resolution of outstanding issues and efficiency strategies.
- .6 Departmental Representative will record minutes of meetings and circulate to attending parties and affected parties not in attendance within seven (7) days after meeting.

1.6 Weekly Construction Meetings

- .1 During the course of the Work, Departmental Representative will schedule construction meetings weekly.
- .2 Contractor, major Sub-Contractors involved in Work, Mine Manager, and Departmental Representative are to be in attendance.
- .3 Departmental Representative to notify parties minimum five (5) days prior to meetings.
- .4 Departmental Representative to record minutes of meetings and circulate to attending parties and affected parties not in attendance within three (3) days after meeting.
- .5 Agenda to include the following:
 - .1 Review and approval of minutes of previous meeting.
 - .2 Review of Work progress since previous meeting, using Contractor's Weekly Report.
 - .3 Field observations, problems, conflicts.
 - .4 Problems which impede construction Schedule.
 - .5 Review of Project Schedule, identifying activities that are behind Schedule and corrective measures to regain slippage.
 - .6 Review of Submittals, with expediting as required.
 - .7 Review of proposed changes for impact on construction Schedule.
 - .8 Health, Safety and Security issues.
 - .9 Site wide air quality monitoring results.
 - .10 Correspondence from, or expected visits, from AHJ.

- .11 Site facilities requirements.
- .12 Co-ordination requirements with Mine Manager.
- .13 Regulatory compliances issues and other business.

.6 Provide written explanations on activities which are overrunning the estimated time. Indicate what corrective action will be taken to bring them back on Schedule.

1.7 Tailgate Meeting

- .1 Hold daily tailgate meetings with all construction staff and on-site Departmental Representative and Departmental Representative's Authorized Personnel, and document minutes with daily reporting requirements to Departmental Representative.

1.8 Submittals

- .1 Submit requests for payment for review, and for transmittal to Departmental Representative.
- .2 Submit requests for interpretation of Contract Documents, and obtain instructions through Departmental Representative.
- .3 Submit and process substitutions through Departmental Representative.

1.9 Measurement of Payment

- .1 All direct costs for the Pre-Construction Meeting specified in this section are to be included in the lump sum price bid for Pre-Construction Meeting, Item 01 31 19-1, as indicated in Basis of Payment Schedule.
- .2 All direct costs for the Monthly Progress Meetings as specified in this section are to be paid under the unit rate item Monthly Progress Meetings, Item 01 31 19-2, as indicated in the Basis of Payment Schedule.
- .3 Except as otherwise indicated herein, Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this Work as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

END OF SECTION

PART 1 GENERAL

1.1 Definitions

- .1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Bar Chart (Gantt chart): graphic display of Schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.
- .3 Baseline: original approved plan (for Project, Work package, or activity), plus or minus approved scope changes.
- .4 Construction Work Week: Sunday to Saturday, inclusive, seven (7) day Work week. Present scheduled working days as part of Bar (GANTT) Chart submission.
- .5 Duration: number of Work periods (not including holidays or other nonworking periods) required to complete activity or other Project element, usually expressed as workdays or workweeks.
- .6 Milestone: significant event in Project, usually completion of major deliverable.
- .7 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout Project life cycle.

1.2 Requirements

- .1 Schedule is to be practical and to remain within specified Contract duration with completion of all Work and Final Inspection by June 30, 2015.
- .2 Plan to complete Work in accordance with prescribed milestones and time frame.
- .3 Provide and maintain a work schedule showing anticipated progress stages and final completion of Work by June 30, 2015.
- .4 Time is of the essence to this Contract.
- .5 Limit activity durations to a maximum of ten (10) working days, to allow for progress reporting.
- .6 Prepare the schedule using critical path analysis techniques, showing resource loading. Identify tasks that lie on the critical path. Show total float for all activities.

1.3 Submittals

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit Preliminary Project Schedule to Departmental Representative within seven (7) working days of contract award.
- .3 Submit Project Schedule to Departmental Representative within five (5) working days of receipt of acceptance of Preliminary Project Schedule.
- .4 Submit formal revised project schedule every month reflecting activity changes and completions, as well as activities in progress. Update schedule to show completed tasks or percent complete.

- .5 Submit weekly schedule summary report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation. Include information required for permit reporting.
- .6 Submit the Contract Work Breakdown Structure (CWBS) within seven (7) days following contract award date.
- .7 Contractor must not commence Work on the Giant Mine Site until all relevant pre-commencement submittals have been finalized with the Departmental Representative.

1.4 Project Milestones

- .1 Project milestones form the interim targets for the Project Schedule and include the following:
 - .1 Mobilization to be completed within fifteen (15) days of contract award.
 - .2 Site Activities and demobilization to be completed by June 30, 2015.
 - .3 Closeout submittals to be completed thirty (30) days following demobilization from site.

1.5 Project Schedule

- .1 Develop detailed Project Schedule.
- .2 Ensure detailed Project Schedule includes as minimum, milestone and activity types as follows:
 - .1 Award.
 - .2 Start-up Meeting.
 - .3 Shop Drawings, Samples.
 - .4 Submittals.
 - .5 Permits required by Departmental Representative.
 - .6 Permits required by Contractor.
 - .7 Mobilization.
 - .8 Site Activities (expand as required to suit Contractor's task breakdown).
 - .9 Interim Certificate of Completion.
 - .10 Demobilization.
 - .11 Closeout Submittals.
 - .12 Final Certificate of Completion.
- .3 Submit Preliminary Project Schedule in accordance with Section 01 33 00 - Submittal Procedures to Departmental Representative coordinated with Departmental Representative's Project Schedule.
- .4 After review, revise and resubmit Schedule to comply with revised Project Schedule.
- .5 During progress of Work revise, update and resubmit the Project Schedule on a monthly basis, or as directed by Departmental Representative. Provide the revised Project Schedule a minimum of three (3) days prior to scheduled monthly progress meetings, or as directed by Departmental Representative.

1.6 Project Meetings

- .1 Discuss Project Schedule at regular meetings, identify activities that are behind Schedule and provide measures to regain slippage. Activities considered behind Schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.

- .2 Weather related delays will be discussed at regular meetings and the Contractor will provide a plan to mitigate weather related risks.

1.7 Cost and Quantity Control

- .1 Provide a CWBS based on Contractor's Cost Breakdown and any modifications requested by Departmental Representative as follows:
 - .1 CWBS to be an organization of the Work to be performed, services to be provided and data to be submitted by Contractor, as well as payments to be made to Contractor under the terms of the Contract.
 - .2 The CWBS to clearly define the Work elements of each item of the CWBS.
 - .3 All unit price and lump sum items included in the Basis of Payment Schedule to also be included in the CWBS.
 - .4 The CWBS to include a breakdown of pay items included under Item BOPC -1, Balance of Project Costs in the Basis of Payment Schedule.
 - .5 Prepare the CWBS in computerized spreadsheet format compatible with the most recent release of Microsoft Excel software. Provide CWBS in hard copy and electronic format.
 - .6 Submit the CWBS within seven (7) days following contract award date.
 - .7 Submit, as part of monthly schedule update, an Excel format spreadsheet showing the value of work completed, as per CWBS, and forecasted value of work for each remaining month of the contract duration.
- .2 Equipment and Material Control:
 - .1 Record data on status of construction material and equipment and report upon Departmental Representative's request.

1.8 Measurement of Payment

- .1 Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this Work as a separate line item in the CWBS specified in this section.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

END OF SECTION

PART 1 GENERAL

1.1 Administrative

- .1 Submit to Departmental Representative submittals, as listed in Table 01 33 00-1 at the end of this section, for review. Submit with reasonable promptness, no later than the date specified, and in orderly sequence so as to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Work affected by submittal shall not proceed until review and acceptance is completed by Departmental Representative.
- .3 Contractor must submit and have accepted by the Departmental Representative the Site Specific Health and Safety Plan, Environmental Protection Plan and Drilling Plan prior to commencing work on the GMRP site.
- .4 Present product data in SI Metric units.
- .5 Where items or information is not produced in SI Metric units, converted values are acceptable.
- .6 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-coordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and shall be considered rejected.
- .7 Notify Departmental Representative, in writing at time of submission, of any deviations from requirements of Contract Documents, stating reasons for deviations.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review and acceptance of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review or acceptance.
- .10 Keep one reviewed copy of each submission on Site.
- .11 All submittals must be up to date at the time of monthly invoice submission. No invoice will be approved for payment if submittals are not up to date.

1.2 Product and Material Data

- .1 Submit product and material data to the Departmental Representative upon request. Product and material data submissions may include product or material's intended use, quantity on site, manufacturer's product specifications and instructions for installation or use.
- .2 Accompany submissions with transmittal letter containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification of each product and material included in submission.
 - .5 Other pertinent data.
- .3 Submissions shall include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of Subcontractor.

- .4 Where specified, the stamp of a qualified Professional Engineer registered in the Northwest Territories and the Permit to Practice in the Northwest Territories of his/her firm certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .4 Provide details of appropriate portions of Work as applicable:
 - .1 Standards.
 - .2 Relationship to adjacent work.
- .5 After Departmental Representative's review and acceptance, distribute copies.
- .6 Unless otherwise specified, submit one (1) electronic copy of product and material data (pdf) for each requirement requested in these Specifications and as requested by the Departmental Representative.
- .7 Delete information not applicable to project.
- .8 Supplement standard information to provide details applicable to project.
- .9 If submissions are rejected, a noted copy will be returned and re-submission of corrected submissions through same procedure indicated above, must be performed before use of products and materials may proceed.
- .10 The review and acceptance of submissions by Departmental Representative is for sole purpose of checking conformance with general concept and Specifications.
 - .1 This review does not constitute Departmental Representative approval of detailed design or direction to the Contractor and such review does not relieve Contractor of responsibility for errors or omissions or of responsibility for meeting all requirements of Contract Documents.
 - .2 Contractor is responsible for thoroughness of required work and for co-ordination of all activities.
- .11 All drilling products including drilling fluids, muds and additives require Land Use regulatory approval in writing prior to use on site as detailed in Section 02 02 00.

1.3 Photographs

- .1 Provide date-marked digital photos in "Joint Photographic Experts Group" (.jpg) format for Photographs.
- .2 Digital photographs to have a minimum of 2,592 x 1,944 pixel (5 Megapixel) resolution.
- .3 Quantity: Provide sufficient number of photographs to adequately describe the Work activities.
- .4 Submit progress photographs with Weekly Progress Report or as directed by the Departmental Representative.

1.4 Weekly Progress Reports

- .1 Submit weekly reports within 48 hours of the end of the reporting week period. Weekly reports are to include, but are not limited to, the following:
 - .1 Details of work completed since the last weekly report including drilling progress in meters.
 - .2 Compiled Contractor Daily Work Activity Reports as described in Section 02 02 00 – Drilling.
 - .3 An assessment of weekly production and potential impact to the schedule.
 - .4 Any delay, including but not limited to, the supply of materials, equipment, or labour that will impact the schedule.

- .5 An updated list of health, safety or environment incidents for the project, with incidents still requiring follow-up actions identified.
- .6 The installation, maintenance and monitoring of any sediment and erosion control measures.
- .7 Summary of temporarily stored waste and wastewater including volumes and locations.
- .8 Summary of waste disposal in the Northwest Pond.
- .9 Compiled daily tailgate meeting minutes, daily safety meeting minutes and records of Worker Orientation Seminar Attendance.
- .10 A summary of any wildlife sightings at the Contractor's work area, and any mitigative measures taken to limit wildlife disturbances.

1.5 Measurement of Payment

- .1 The preparation and submission of the Weekly Progress Reports will be measured for payment by each report submitted to the Departmental Representative within 48 hours of week end. Weekly Progress Reports will be paid under Payment Item 01 33 00-1 in the Basis of Payment Schedule.
- .2 Except as detailed above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this Work as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

END OF SECTION

**TABLE 01 33 00-1
 CONTRACTOR SUBMITTAL SCHEDULE**

Specification	Description	Date
Section		
01 11 00	Worker Orientation Seminar Course Material	Fifteen (15) days prior to mobilization
01 32 18	Preliminary Project Schedule	Seven (7) days after contract award
01 32 18	Project Schedule	Five (5) days after acceptance of preliminary schedule
01 32 18	Contract Work Breakdown Structure (CWBS)	Seven (7) days following contract award date
01 32 18	Updated Schedule and CWBS	Monthly
01 32 18	Weekly Schedule Summary Report	Upon request of Departmental Representative
01 32 18	Performance Measures	Monthly
01 33 00	Product and Material Data	Upon request of Departmental Representative
01 33 00	Progress Photographs	Weekly with weekly progress report
01 33 00	Weekly Progress Reports	Within forty-eight (48) hours of the end of the reporting week period
01 35 32	Draft Site Specific Health and Safety Plan	Fifteen (15) days following contract award date
01 35 32	Site Specific Health and Safety Plan	Seven (7) days prior to commencing work
01 35 32	Inventory of Health, Safety, Medical and First Aid Equipment	Ten (10) days following mobilization
01 35 32	Safety Training Certificates	With the SSHASP
01 35 32	Proof of PPE Fit Testing for Personnel	Prior to commencing work
01 35 32	Fuel Management Plan	With Health and Safety Plan
01 35 32	Health and Safety Incident and Accident Reports	Immediate verbal report, written report within 24 hours
01 35 32	Fire Safety Program	With Health and Safety Plan
01 35 43	Environmental Protection Plan	Seven (7) days prior to start of work activities
01 35 43	Spill Contingency Plan	With Environmental Protection Plan
01 41 00	Permit for Extended Hours for Labour Services	Upon request of Departmental Representative
01 45 00	Methodology of Contractor's Quality Control Program	Seven (7) days prior to start of work activities
01 52 00	Construction Facility Plans	Fifteen (15) days following contract award date
01 52 00	Updated Construction Facility Plans	Seven (7) days after mobilization
01 52 00	Field Drawings	When required by Departmental Representative
01 53 00	Mobilization Demobilization Plan	Seven (7) days after contract award
01 71 01	Survey Methodologies, Equipment and Surveyors Qualifications	With Drilling Plan
01 71 01	Survey Documentation	Upon request of Departmental Representative
01 71 01	Certificate of Completed Survey Work	Seven (7) days prior to requested final inspection

**TABLE 01 33 00-1
 CONTRACTOR SUBMITTAL SCHEDULE**

Specification	Description	Date
Section		
01 71 00	Request for Final Inspection	Following completion of the work
01 77 00	Completion Certificate	Seven (7) days prior to requested final inspection
01 78 00	Project Record Documents	Thirty (30) days after project completion
01 78 00	Record Drawings	Thirty (30) days after project completion
01 78 00	Permit Reporting	Thirty (30) days after project completion
02 02 00	Workers Compensation Board Status and Transcription of Insurance	Prior to start of work activities
02 02 00	Drilling Plan	Seven (7) days prior to start of work activities
02 02 00	Daily Report	Daily

END OF SECTION

PART 1 GENERAL

1.1 Definitions

- .1 Wastewater: wash water, rinse water, drilling fluid, water from equipment cleaning, water from dewatering work areas, and/or any other liquid effluent stream created or encountered during Work activities. Does not include sewage water from sanitary facilities.

1.2 Regulatory Requirements

- .1 Refer to Section 01 41 00 - Regulatory Requirements.

1.3 Submittals

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.4 Water Sources

- .1 Obtain all water for use in drilling operations and equipment cleaning from Contractor's sources outside of the Giant Mine Remediation Project (GMRP) Site.
- .2 Potable water sources are not available on-site. Obtain water for use in office facilities and sanitary facilities from Contractor's sources outside of the GMRP site.
- .3 No water is to be taken from on-site surface water bodies.
- .4 Sanitary sewage disposal is not available on-site. Dispose of sanitary sewage at Contractor's chosen location outside of the GMRP site.

1.5 Wastewater

- .1 Collect all Wastewater generated from Work unless otherwise indicated. Transport and dispose of Wastewater in the Northwest Pond Hazardous Materials Area. Record waste type and volumes of wastewater discharged and include in the Weekly Report.
- .2 Provide, operate, and maintain tanks for the collection of Wastewater. Wastewater storage ponds meeting all requirements of Authorities Having Jurisdiction (AHJ) are permitted.
- .3 Support tanks on temporary above ground foundations.
- .4 Sewage water from sanitary facilities is to be disposed of off-site in accordance with AHJs.

1.6 Vehicular Access and Parking

- .1 Prevent contamination of access and site roads by Contractor's Work activities. Immediately remove debris or material deposited by Contractor on access roads which is suspected to be contaminated as determined by Departmental Representative; containerize, transport and dispose at no cost to the Departmental Representative.
- .2 Departmental Representative may collect soil samples for chemical analyses from the travelling surfaces of existing access routes prior to, during, and upon completion of Work. Excavate and dispose of clean soil contaminated by Contractor's activities at no additional cost.

1.7 Dust and Particulate Control

- .1 Execute Work by methods that minimize dust generated from operations, in accordance with the Environment Management Plan and the Contractors accepted Environmental Protection Plan, detailed in Section 01 35 43 – Environmental Procedures.

- .2 Water for dust and particulate control is to be obtained from Contractor sources located outside of the GMRP Site.

1.8 Equipment Cleaning

- .1 Clean all equipment, tools, and materials prior to demobilization from the GMRP site.
- .2 Cleaning of equipment is to be performed at B1 Pit or as directed by the Departmental Representative.
- .3 Capturing wastewater generated from cleaning of equipment performed in the B1 Pit will not be required.
- .4 Notify Departmental Representative for inspection after cleaning of equipment and prior to removal from site. Departmental Representative will have right to require additional cleaning to be completed, if deemed necessary.

1.9 Progress Cleaning

- .1 Maintain cleanliness of Project Work Area to comply with federal, provincial/territorial, and local fire and safety laws, ordinances, codes, and regulations.
- .2 Coordinate cleaning operations with storage operations to prevent accumulation of dust, dirt, debris, rubbish, and waste materials.

1.10 Removal

- .1 Do not bury rubbish and waste materials on site.
- .2 Do not discharge wastes into streams or waterways.

1.11 Measurement of Payment

- .1 Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this Work as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

END OF SECTION

PART 1 **GENERAL**

1.1 **Definitions**

- .1 Project Work Area: Area directly affected by the Work under these Specifications and within which the Contractor supervises and directs Work.
- .2 Contractor's Site Superintendent: Contractor's resident site representative who is authorized to make decisions on behalf of the Contractor and who assumes the role and responsibility of a Level 2 Supervisor under the NWT Mine Health and Safety Act for the Project Work Area.
- .3 Contractor's Site Specific Health and Safety Plan (SSHASP): the Site Specific Health and Safety Plan, prepared by the Contractor and reviewed and accepted by the Departmental Representative and the Mine Manager; that applies only to the Work of this Contract and within the Project Work Area. Unless otherwise specified, all references to a SSHASP in this section apply to the Contractor's SSHASP.
- .4 Mine Manager's Site Specific Health and Safety Plan: the Site Specific Health and Safety Plan, prepared by the Mine Manager, with which the Contractor's SSHASP must comply, and that applies to the GMRP Site.

1.2 **Site Specific Health and Safety Plan Requirements**

- .1 Comply with the Mine Manager's health and safety requirements. The Mine Manager's Site Specific Health and Safety Plan is included as a supporting document to these specifications.
- .2 Develop a SSHASP for the specified Work that satisfies all Authorities Having Jurisdiction (AHJ) and complies with Mine Manager's SSHASP.
- .3 Develop a SSHASP for the Work that complies with the most stringent requirements of regulations from AHJ, Canada Labour Code, and NWT Mine Health and Safety Act.
- .4 Maintain and complete all health and safety, fire safety, and environmental compliance activities in accordance with applicable sections and AHJ.

1.3 **Submittals**

- .1 All submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit Draft SSHASP no later than fifteen (15) days after contract award to the Department Representative, Mine Manager and AHJ to review all the elements required by the Mine Manager's SSHASP, NWT Mine Health and Safety Act, OSHA Regulations, other AHJ, and Contract Specifications have been addressed. Any items which are identified as missing or requiring modification will be added and the plan revised, so as to incorporate the additional items. Submit the Final SSHASP seven (7) days prior to commencing work. The Final SSHASP to be submitted to Departmental Representative, Mine Manager, and AHJ to ensure all the elements required by the Mine Manager's SSHASP, NWT Mine Health and Safety Act, OSHA Regulations, other AHJ, and Contract Specifications have been addressed.
- .3 The SSHASP will include, but not be limited to the following sections:
 - .1 A Statement of Contractor's Safety Policy.
 - .2 Name and telephone number of Contractor's corporate Safety Officer and on-site Safety Representative.
 - .3 Safety Responsibilities of all on-site personnel.
 - .4 Drug and Alcohol Policy.
 - .5 Anti-Harassment Policy.
 - .6 Safe Work Practices and/or Job Procedures.

- .7 Requirements for safety meetings and documentation.
 - .8 Safety Inspection Plan.
 - .9 First Aid Locations.
 - .10 Results of safety and health risk or hazard analysis for Work area and activities.
 - .11 Procedures for, but not limited to:
 - .1 General worker health and safety.
 - .2 Cold weather survival.
 - .3 Heat stress.
 - .4 Working at heights.
 - .5 Confined spaces.
 - .6 Working with the hazard and health risk items identified during the health risk and hazard analysis.
 - .7 Identification of previously unidentified suspected hazardous materials.
 - .8 Lockout/Tagout procedures for equipment that could become energized.
 - .9 Working around mine openings.
 - .10 Emergency site communications.
 - .12 Workplace Hazardous Materials Information System (WHMIS) and Material Safety Data Sheet (MSDS) records.
 - .13 Personnel hygiene.
 - .14 Personal Protection Equipment (PPE) Program.
 - .15 Access restrictions and control zone, entering and existing procedures for the Project Work Area.
 - .16 Traffic control.
 - .17 Working around mine openings.
 - .18 Site Contingency and Emergency Response Plan.
 - .19 Fuel Management Plan.
 - .20 Fire Safety Plan.
 - .21 Dust and Particulate Management Plan including but not limited to dust minimization and control methods, PPE required for protection from dusty conditions and air quality monitoring.
- .4 The Site Contingency and Emergency Response Plan is to address standard operating procedures to be implemented during emergency situations.
- .1 Prepare and coordinate a Contingency and Emergency Response Plan with contributions from the Mine Manager, appropriate authorities including the Northwest Territories Mine Health and Safety Act, Stanton Hospital, RCMP, Ministry of Transportation, and the Yellowknife Fire Department.
 - .2 Plan will identify off-site Emergency Response Coordinator through whom all information and coordination will flow in the event of an incident and coordination with Mine Manager.
 - .3 This plan is to include, but is not limited to, an evacuation plan in the event of accident, power failure, or any other event that may require modification of Work area isolation procedures.
 - .4 The plan is to address limitations to emergency response capabilities of the City of Yellowknife.
 - .5 Other details to include in the Site Contingency and Emergency Response Plan are:
 - .1 A description of pre-emergency planning.
 - .2 Personnel roles, lines of authority and communication, emergency phone numbers.
 - .3 Emergency alerting and response procedures.
 - .4 Evacuation routes and procedures, safe distances and places of refuge.
 - .5 Directions/methods of getting to nearest medical facility.

- .6 Emergency decontamination procedures.
 - .7 Emergency medical treatment and First-Aid.
 - .8 Emergency protective equipment: Including, at minimum, clothing, protective suits, respirators, etc. in accordance with NIOSH guidelines.
 - .9 Procedures for reporting incidents.
- .5 The PPE Program is to include, but is not limited to, the following.
- .1 Donning and doffing procedures.
 - .2 PPE Selection based upon site hazards.
 - .3 PPE use and limitations of equipment.
 - .4 Work mission duration, PPE maintenance and storage.
 - .5 PPE decontamination and disposal.
 - .6 PPE inspection procedures prior to, during, and after use.
 - .7 Evaluation of effectiveness of PPE program and limitations during temperature extremes, and other appropriate medical considerations.
 - .8 Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used, including methods of maintenance and calibration of monitoring and sampling equipment.
 - .9 Contaminated site working procedures for both personnel and equipment.
 - .10 Written respiratory protection program for project activities.
- .6 Complete an inventory of Contractor's health, safety, medical and first aid equipment and supplies on-site to assess compliance with AHJ requirements. Submit the inventory to Departmental Representative within ten (10) days of mobilization. Include a schedule for upgrading deficiencies to meet requirements of AHJ.
- .7 Submit relevant safety training certifications to the Departmental Representative with the Site Specific Health and Safety Plan including, but not limited to, First Aid and CPR certifications and WHMIS training certifications.

1.4 Construction Safety Measures

- .1 Designate a resident Health and Safety Officer to oversee Contractor's SSHASP with the authority to enforce policies and procedures set out in the SSHASP. Health and Safety Officer to have a minimum of three (3) years' acceptable experience in administering on-site construction health and safety programs.
- .2 Observe and enforce construction safety measures required by the latest revisions of: Canada Labour Code, National Building Code of Canada, National Fire Code of Canada, Northwest Territories Workers' Safety and Compensation Commission, the applicable Occupational Health and Safety Regulations, and Territorial and local statutes and AHJ.
- .3 In the event of discrepancies between any requirements of the above listed authorities, the more stringent requirements will govern.
- .4 Arrange regular safety meetings, as specified in Section 01 31 19 – Project Meetings.
- .5 Provide all workers with suitable safety clothing, equipment and protection appropriate to the potential types and levels of exposure encountered in accordance with the Site Specific Health and Safety Plan and Section 01 35 32 - Site Specific Health and Safety Plan.
- .6 Workers are to also be educated as to risks, and be trained in safe work practices.
- .7 Departmental Representative and Mine Manager have the authority to stop Work on the contract if, in his/her opinion, the Work is being performed in an unsafe manner as required by the applicable safety legislation.

- .8 Coordinate and verify with Mine Manager that emergency procedures including appropriate First Aid facilities and First Aid personnel are in place at the Work Site. First Aid facilities and First Aid personnel must be in compliance with the *NWT Mine Health and Safety Act*.
- .9 Verify that procedures meet the AHJ requirements.
- .10 Immediately stop Work and notify Departmental Representative for further instructions when Hazardous or suspected Hazardous Materials are encountered during course of Work.

1.5 Filing of Notice

- .1 File Notice of Project with AHJ prior to commencement of Work.
- .2 Provide copy of Notice of Project to Departmental Representative.

1.6 Regulatory Requirements

- .1 Comply with specified standards, regulations and orders of AHJ to ensure safe operations in the vicinity of hazardous or toxic materials and other hazards (such as wildlife encounters, falls, etc.).
- .2 All equipment brought to the site must meet the *Mine Health and Safety Act*; equipment must have rotating beacons and vehicles should have beacons and buggy whips.

1.7 Responsibility

- .1 Be responsible for safety of persons and property on the site and for protection of the environment to extent that they may be affected by the conduct of Work.
- .2 The health and safety of personnel and the public takes precedence.
- .3 Control access to the Project Work area. Persons with business at the Project Work Area and who are not Contractor's employees must be briefed on health and safety issues, and provided with a copy of the SSHASP.
- .4 Contractor may refuse access to the Project Work Area to any person not complying with site specific health and safety standards.
- .5 Where required, control traffic around Project Work Area. Coordinate traffic control with Departmental Representative and Mine Manager, and local AHJ as required.
- .6 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, territorial, and local statutes, regulations, and ordinances, Mine Manager's SSHASP, and with Contractor's SSHASP:
 - .1 Conduct appropriate safety training for all personnel working on the site.
 - .2 Conduct Work place safety inspections for all Work activities.
 - .3 Maintain a log of first aid and safety supplies and notify appropriate personnel for restocking after each incident, and periodical restocking to replace outdated or consumable (headache medicines, band-aids) products.
 - .4 Conduct Job Safety/Hazard Assessment prior to commencing new Work activity not already documented in a Safe Work Plan or a Standard Operating Procedure.

1.8 Hazard Communication Requirements

- .1 Comply with Work Site Hazardous Materials Information System Regulations of the AHJ.
- .2 Provide Departmental Representative and Mine Manager with up to date Material Safety Data Sheets (MSDS) and documentation on any "hazardous" chemical that Contractor or Contractor Representatives plan to bring onto site; bound in one place and stored in accordance with the Site Specific Health and Safety.

1.9 Unforeseen Hazards

- .1 Should any unforeseen safety related factor, hazard, or condition become evident, stop Work, assess, take steps to mitigate if necessary at that time and immediately advise Departmental Representative verbally and in writing.
- .2 Monitor potential low oxygen and Lower Explosive Limits areas with oxygen/LEL monitor when working in confined spaces. These areas include, but are not limited to, tanks, sewage vaults, excavations and areas near machinery exhaust.

1.10 Safety and Hygiene

- .1 Provide appropriate training for all persons entering the site in accordance with specified personnel training requirements, maintain log of who was trained, what training was provided and by whom the training was conducted. Provide proof of training to the Departmental Representative prior to commencing work and update submission when new personnel are added to Work or when new Work activities occur.
- .2 Personal Protective Equipment (PPE):
 - .1 Furnish site personnel with appropriate PPE as required by AHJ.
 - .2 Verify that safety equipment and protective clothing is kept clean, is used and well maintained, and treated as per manufacturer's recommendations.
 - .3 All clothing and personal protective equipment used for Work must remain on site, to be either decontaminated or disposed of. No Work clothing is to leave the contaminated Work site without having been properly decontaminated. This includes, but is not limited to working coveralls.
 - .4 Outline and designate PPE for each site and Work activity in accordance with AHJ.
- .3 Develop written PPE care and use procedures to be included in the SSHASP and verify that procedures are strictly followed by site personnel including, but not limited to, the following:
 - .1 Provisions for prescription eyeglasses with side shields worn as safety glasses, and any restrictions to the wearing of contact lenses.
 - .2 The use of eyeglass inserts for workers wearing full-face respirators.
 - .3 Provisions for steel toed safety shoes or boots covered by overshoes when entering or working in potentially contaminated Work areas.
 - .4 Discard disposable PPE worn on site at end of each Workday.
- .4 Develop a written Respiratory Protection program if required as part of the PPE Program to be strictly followed by site personnel, which includes the following procedures at minimum:
 - .1 Provide site personnel with training in accordance with regulations.
 - .2 Monitor, evaluate, and provide appropriate respiratory protection for site personnel.
 - .3 Verify that levels of protection as listed have been chosen to be consistent with site specific potential airborne hazards associated with major contaminants identified on site, and detailed in the Environmental Management Plan and Specifications.

- .4 Immediately notify Departmental Representative when level of required respiratory protection increases.
 - .5 Verify that appropriate respiratory protection during Work activities is available and readily accessible; all personnel entering potentially contaminated or hazardous Work areas will be supplied with and use appropriate respiratory protection.
 - .6 Assess ability for site personnel to wear respiratory protection.
- .5 Heat Stress/Cold Stress: Implement heat stress and cold stress monitoring program as applicable and include in the SSHASP.
 - .6 Personnel Hygiene and Personnel Decontamination Procedures to include the following as a minimum:
 - .1 Provision of containers for storage and disposal of contaminated PPE.
 - .2 Potable water and suitable sanitation facility.

1.11 Site Communication

- .1 Post emergency numbers near site telephones and provide each worker with a copy to be accessible at all times when on site. Update emergency numbers as required.
- .2 Train personnel in the use of "buddy" system.
- .3 Provide alarm system to notify employees of site emergency situations or to stop Work activities if necessary. Identify emergency stations and Muster Points. Test alarm system regularly and train personnel to use alarm system as required.
- .4 All equipment must have operational two-way radio communication while in operation.

1.12 Safety Meetings

- .1 Conduct task specific safety meetings as per Work requirements, requirements of Mine Manager, and as directed by Departmental Representative.
- .2 Conduct safety meetings with all Workers. Workers must be instructed on the dangers inherent with winter conditions, and hazard avoidance procedures.
- .3 Conduct mandatory daily safety meetings, which can be completed in conjunction with daily Tailgate Meetings as specified in Section 01 31 19 – Project Meetings, and additionally as required by special or Work related conditions or AHJ. Special or work related conditions that may require additional safety meetings include, but is not limited to, the following:
 - .1 Refresher training for existing equipment and protocols.
 - .2 Ongoing safety issues and protocols.
 - .3 New site conditions as encountered.

1.13 Storage and Handling of Fuel

- .1 There will be no fuel storage area available on site for this Work.
- .2 Heavy machinery and equipment are to be fueled directly by commercial fuel delivery truck or portable service tanks located in the back of pick-ups or light vehicles.
- .3 Provide a Fuel Management Plan that includes but is not limited to:
 - .1 Information related to transport, supply, delivery and handling.
 - .2 Spill response plan including supplies and equipment available in the event of a spill or incident.

- .3 The refueling of all vehicles and equipment by appropriately trained personnel, using the proper PPE and drip pans, in a manner which meets or exceeds regulatory requirements.
- .4 The recording of fuel usage by activity.
- .4 Treat all waste petroleum products, including used oil filters, as hazardous materials. Collect, store and dispose of off-site as required.
- .5 Conduct regular inspections of all machinery hydraulic, fuel and cooling systems. Repair leaks immediately.
- .6 Pre-assemble and maintain emergency spill equipment with all mobile fuelling containers.
- .7 Submit the Fuel Management Plan with the Site Specific Health and Safety Plan.

1.14 Vehicle and Equipment Usage

- .1 Traffic control within the Giant Mine Site is to be coordinated with the Mine Manager based on the traffic control requirements outlined in the Contractor's accepted Drilling Plan.
- .2 Provide, install and remove all traffic control signage as directed by the Mine Manager.
- .3 Seatbelts must be worn at all times vehicle is in operation.
- .4 Speed limits set by the Mine Manager must be obeyed at all times.
- .5 If road conditions are unsafe or marginally unsafe, inform Departmental Representative and Mine Manager so that roads may be maintained to acceptable standards. Do not risk property damage or injury.
- .6 Vehicles are to not be idled for longer than 10 minutes (warm up) unless explicitly used as a place of refuge during animal encounters or for personnel working outdoors during winter operations. Exceptions are to be made in consultation with Departmental Representative.
- .7 Perform vehicle maintenance and lubrication of equipment in a manner that avoids spillage of fuels, oils, grease and coolants. Refuel equipment as per the Fuel Management Plan.
- .8 Place drip pans under stationary equipment with potential leaks.
- .9 All mobile light equipment brought to the site must have rotating beacons, audible backup alarms, wheel chocks and buggy whips.
- .10 Dispose of used oil, grease and coolants from Contractor's Equipment maintenance activities at the Contractors cost.
- .11 Helmets must be worn at all times when operating ATV's.

1.15 Flammable Liquids

- .1 The handling, storage and use of flammable liquids will be governed by the current National Fire Code of Canada.
- .2 Flammable liquids such as gasoline, kerosene and naphtha may be kept for ready use in quantities not exceeding forty five (45) litres provided they are stored in approved safety cans bearing the Underwriter's Laboratory of Canada or Factory Mutual seal of approval. Storage of quantities of flammable liquids exceeding 45 litres for Work purposes, requires permission of the permitting authority.
- .3 Do not transfer flammable liquids in the vicinity of open flames or any type of heat-producing devices.

- .4 Do not use flammable liquids having a flash point below 38°C such as naphtha or gasoline as solvents or cleaning agents.
- .5 Store flammable waste liquids, for disposal, in approved containers located in a safe ventilated area. Quantities are to be kept to a minimum and Departmental Representative is to be notified when disposal is required.
- .6 Dispose of all flammable liquids in accordance with all applicable environmental regulations.

1.16 Medical

- .1 Provide and maintain first aid facilities for all Workers as required by AHJ, Human Resources and Social Development Canada and the statutes of the *NWT Safety Act*. Provide first aid personnel, as required by the statutes of the *NWT Mine Health and Safety Act*. Include personnel first aid training in the SSHASP.
- .2 Provide the appropriate NWT First Aid kit, based on the number of Workers, in accordance with AHJ and the *NWT Safety Act*.
- .3 Establish a medical emergency evacuation (medevac) plan acceptable to the AHJ for the removal of any injured person to medical facilities or a doctor's care in accordance with applicable legislative and regulatory requirements.
- .4 Emergency and First Aid Equipment:
 - .1 Locate and maintain emergency and first aid equipment in appropriate location at Project Work Area including first aid kit to accommodate number of site personnel; portable emergency eye wash and fire protection equipment as required by *NWT Mine Health and Safety Act*.
 - .2 Locate sufficient self-contained breathing apparatus units; blankets and towels; stretcher; and one (1) hand held emergency siren in all confined and hazardous access locations.
 - .3 Provide a health and safety designate on site at all times when Work activities are in progress. The designate is to have the authority to enforce policies and procedures set out in the Health and Safety Plan.
 - .4 At a minimum, the health and safety designate is to hold a valid Standard First Aid and CPR certification.

1.17 Health and Safety Incidents and Accident Reports

- .1 Immediately report, verbally, followed by a written incident report submitted within twenty four (24) hours, to AHJ and Departmental Representative and Mine Manager, all significant accidents arising out of or in connection with the performance of the Work, giving full details and statements of witnesses. If death or serious injuries or damages are caused, report the accident promptly to Departmental Representative verbally, by telephone or e-mail in addition to any report required under federal and territorial laws and regulations.
- .2 If a claim is made by anyone against Contractor or Sub-Contractor on account of any incident or accident, promptly report the facts in writing to Departmental Representative, giving full details of the claim.

1.18 Fire Safety

- .1 Provide for all fire prevention, fire protection and fire-fighting needs for the Project Work Area.

- .2 Implement a fire safety program that is co-ordinated with the Mine Manager's fire safety program, and includes fire prevention, fire protection and fire-fighting requirements. Submit details of the fire safety program with the SSHASP. Such review does not relieve Contractor from any obligations or responsibilities required by the Contract.
- .3 All Sub-Contractors and Contractor personnel on Project Work Area must be briefed on fire safety requirements and familiar with the fire prevention, fire protection and fire-fighting program.
- .4 The fire safety program to meet or exceed the most recent editions of the following codes and standards:
 - .1 NWT Mine Health and Safety Act.
 - .2 National Fire Code of Canada.
 - .3 Canada Labour Code.
- .5 Personnel designated for fire-fighting services must be provided with training for any special hazards that may be present. These personnel must also be provided with PPE as required by AHJ and the Canada Labour Code.
- .6 Departmental Representative is to be advised, and a "Hot Work" permit issued by Contractor's designated representative in all cases involving welding, burning or the use of blow torches. Special precautions are necessary to safeguard life and property from damage by fire or explosives.
- .7 Wherever Work is being carried out in dangerous or hazardous areas involving the use of heat, fire watchers equipped with sufficient fire extinguishers, are to be provided. The determination of dangerous or hazardous areas along with the level of precaution necessary for Fire Watch is to be at the discretion of Contractor. Notify Departmental Representative prior to that determination.
- .8 Provide proper ventilation and eliminate all sources of ignition where flammable liquids are used.

1.19 Reporting Fires

- .1 A person discovering a fire and all fire related incidents will report immediately, by fastest available means, to Departmental Representative, Site Superintendent, and Care and Maintenance Site Superintendent.
- .2 A person discovering a fire will if possible, remain in the vicinity to direct fire-fighting personnel to the location of the fire.

1.20 Fire Extinguishers

- .1 Provide and maintain fire extinguishers in sufficient quantity and size to protect, in an emergency, the Work in progress and personnel on site.

1.21 Smoking Precautions

- .1 Abide by applicable AHJ smoking regulations or the requirements of this Section, whichever are more stringent.
- .2 Do not permit smoking in asbestos and arsenic areas. Exercise care in the use of smoking materials in non-restricted areas.
- .3 Smoking is prohibited within 7.5 metres of fuel dispensing facilities, flammable liquids or chemical storage areas.

1.22 Rubbish and Waste Materials

- .1 Rubbish and waste materials are to be kept to a minimum.
- .2 Extreme care is required where it is necessary to store oily waste in Work areas for maximum possible cleanliness and safety.

1.23 Hazardous Substances

- .1 All Work entailing the use of, or exposure to, toxic or hazardous materials or chemicals, or creating a hazard to life, safety or health, is to be in accordance with the National Fire Code of Canada, Occupational Health and Safety Legislation, and WHMIS.

1.24 Hazards

- .1 A list of hazards at the Giant Mine site is included in Section 01 11 00 – Summary of Work.

1.25 Ambient Air Quality Monitoring

- .1 A site-wide ambient air monitoring program is undertaken by an independent air quality consultant to monitor air quality at the Giant Mine site boundary. The Contractor may be requested to provide information regarding construction activities. Work activities may also be stopped if site-wide action levels are triggered.

1.26 Measurement of Payment

- .1 All costs for the preparation and completion of the Site Specific Health and Safety Plan are to be included in the Lump Sum price for Payment Item 01 35 32-1- Site Specific Health and Safety Plan, as indicated in the Basis of Payment Schedule.
- .2 Except as otherwise indicated herein, Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this Work as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not Used.

END OF SECTION

PART 1 GENERAL

1.1 Definitions

- .1 Environmental Management Plan (EMP): Plan provided by the Owner that details the objectives and requirement for activities related to the maintenance, protection, monitoring, reporting and assessment of physical and biological values on the Giant Mine site. The Environment Management Plan is included as a supporting document to these specifications.
- .2 Environmental Pollution and Damage: Presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.
- .3 Environmental Protection: Prevention/control of pollution and habitat or environment disruption during site remediation activities. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

1.2 Regulatory Overview

- .1 Comply with all applicable environmental laws, regulations and requirements of Federal, Territorial and other regional authorities including, but not limited to those listed in Section 01 41 00 – Regulatory Requirements.
- .2 Acquire and comply with such permits, approvals and authorizations as may be required.
- .3 Comply with, and be subject to, those permits and approvals obtained from Departmental Representative to conduct the Work.

1.3 Submittals

- .1 All submittals to be in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit all required Contractor submittals to satisfy environmental requirements directly to the responsible agency and AHJ.
- .3 Submit an Environmental Protection Plan to Departmental Representative for review seven (7) days prior to commencing Work activities. Environmental Protection Plan is to encompass the requirements and guidelines presented in the Specifications.
- .4 The Environmental Protection Plan is to include, but not be limited to, the following:
 - .1 Spill Contingency Plan including, but not limited to:
 - .1 An inventory of response and clean-up equipment and supplies.
 - .2 Containment and clean-up procedures for all materials that could potentially be spilled.
 - .3 Procedures for reporting spills to the Departmental Representative and the NT-NU 24-hour Spill Report Line.
 - .4 The name, job title and 24-hour telephone number of person(s) responsible for activating the Spill Contingency Plan.
 - .2 Wildlife Management Plan including, but not limited to:
 - .1 Measures for avoidance of active animal dens and nests.
 - .2 Access restrictions and timing to minimize disturbance of animals.
 - .3 Procedures for reporting wildlife encounters.

- .3 Erosion and Sediment Control Plan.
 - .1 Surface drainage control measures for drill pads and access roads.
 - .2 Inventory of erosion and sediment control materials.
 - .3 Maintenance and monitoring of all erosion control works.
- .5 Submit one (1) complete copy of all submittals and agency approvals to Departmental Representative.
- .6 Include the following information in the Weekly Progress Reports, as detailed in Section 01 33 00 – Submittal Procedures:
 - .1 A summary of any wildlife sightings at the Contractor's work area, and any mitigative measures taken to limit wildlife disturbances.
 - .2 Details of all spills and environmental incidents including Contractor response, containment, clean-up and third-party reporting.
- 1.4 Fires
 - .1 Unless otherwise specified and authorized in writing by the Departmental Representative, fires and burning of rubbish on site are not permitted.
- 1.5 Erosion and Sediment Control
 - .1 Plan and use construction methods to control surface drainage from constructed pads, constructed access roads, stockpiles, staging areas and other Work areas. Prevent erosion and sedimentation.
 - .2 Provide and maintain temporary measures which may include, but are not limited to, silt fences, ditches, geotextiles or temporary drainage pipes. Make sediment control measures available during construction. Place silt fencing in ditches to prevent migration of sediment.
 - .3 Periodically inspect constructed pads and accesses for evidence of erosion and sedimentation and promptly apply corrective measures.
 - .4 If standing water is accumulating in low areas, ditches or other areas where, in the Departmental Representative's determination, it is undesirable, remove accumulated water and restore drainage.
 - .1 Do not pump water containing suspended materials into waterways or drainage systems.
 - .2 Control disposal or runoff of water containing suspended materials in accordance with local authority requirements.
- 1.6 Dust and Particulate Control
 - .1 Execute Work using methods that minimize dust generation.
 - .2 Provide positive means to prevent airborne dust from dispersing into the atmosphere. The use of oil for dust control is prohibited.
 - .3 A site-wide ambient air monitoring program is undertaken by an independent air quality consultant to monitor air quality at the Giant Mine site boundary. The Contractor may be requested to provide information regarding construction activities. Work activities may also be stopped if site-wide action levels are triggered.

1.7 Water Control

- .1 Water supply for drilling activities to be obtained from Contractor's sources outside of the GMRP site. Water is not to be obtained from on-site surface water bodies.
- .2 Collect, transport, and discharge wastewater and sewage as per Section 01 35 15 – Special Project Procedures for Contaminated Sites.

1.8 Pollution Control

- .1 Provide pollution control as specified and as detailed in the EMP, listed as a supporting document to these specifications.
- .2 Control emissions from equipment and Work activities so as to comply with the local authority's emission requirements and requirements of this Specification.

1.9 Notification

- .1 Departmental Representative will notify Contractor verbally and in writing of observed non-compliance with Federal, Territorial or Municipal environmental laws or regulations, permits and other elements of Contractor's Environmental Protection plan.
- .2 Contractor will, after receipt of such notice, inform Departmental Representative of proposed corrective action and take such action to the satisfaction of Departmental Representative.
- .3 Departmental Representative may issue stop Work order until satisfactory corrective action has been taken.
- .4 No time extensions granted or financial adjustments allowed to Contractor for such suspensions.

1.10 Measurement of Payment

- .1 All costs for the preparation and completion of the Environmental Protection Plan are to be included in the Lump Sum for Payment Item 01 35 43-1 Environmental Protection Plan, as indicated in the Basis of Payment Schedule.
- .2 Except as otherwise indicated herein, Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this Work as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

END OF SECTION

PART 1 GENERAL

1.1 References and Codes

- .1 Perform Work in accordance with all permits and licenses acquired for this Project including those from the Mackenzie Valley Land and Water Board, the City of Yellowknife, AANDC, Canada Labour Code and Fisheries and Oceans Canada (DFO) including all amendments and other National codes. If there is a conflict or discrepancy, the more stringent requirements apply.
- .2 Meet or exceed the requirements of:
 - .1 Contract documents.
 - .2 Specified standards, codes and referenced documents.
 - .3 Authorities Having Jurisdiction (AHJ).
- .3 Perform work in accordance with the Specifications and meet or exceed all codes, standards and regulations applicable to the Work and issued under the authority of the Government of Canada, the Government of the NWT, and the City of Yellowknife. Use latest version of all specified standards, codes and referenced documents. Most stringent requirements will apply to any case of conflict between requirements listed in acts, codes, standards or regulations to Work described herein.

1.2 References and Codes - Federal

- .1 Meet or exceed the most recent amendments or revisions to the governing codes, standards and guidelines, and regulations applicable to Work and issued under the authority of the Government of Canada including, but not limited to:
 - .1 Canada Labour Code Part II - Occupational Health and Safety (R.S. 1985, c.L-2).
 - .2 Northwest Territories and Nunavut Mining Regulations (C.R.C., c. 1516).
 - .3 Canada Occupational Health and Safety Regulations (SOR/86-304).
 - .4 Canadian Environmental Protection Act, S.C. 1999 (S.C. 1999, c.33).
 - .5 Controlled Products Regulations (SOR/88-66).
 - .6 Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (EIHWRMR) (SOR/2005-149).
 - .7 Inter-provincial Movement of Hazardous Waste Regulations (SOR/2002-301).
 - .8 National Fire Code of Canada, 2010.
 - .9 Ozone Depleting Substances Regulations, 1998 (SOR/99-7).
 - .10 Transportation of Dangerous Goods Act, 1992 (S.C. 1992, c.34).
 - .11 Transportation of Dangerous Goods Regulations (SOR/2001-286).
 - .12 MacKenzie Valley Land Use Regulations (SOR/98-429).
 - .13 Migratory Birds Convention Act, 1994 (S.C. 1994, c.22).
 - .14 Northwest Territories Waters Act (S.C. 1992, c.39).
 - .15 Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (SOR/2008-197).

1.3 References and Codes - Northwest Territories

- .1 Meet or exceed the most recent amendments or revisions to the governing codes, standards and guidelines, and regulations applicable to Work and issued under the authority of the Government of the Northwest Territories including, but not limited to:
 - .1 Environmental Protection Act (R.S.N.W.T. 1988, c. E-7).
 - .2 Labour Standards Act (R.S.N.W.T. 1988, c.L-1).
 - .3 Public Health Act (R.S.N.W.T. 1988, c.P-12).
 - .4 Spill Contingency Planning and Reporting Regulations (R-068-93).
 - .5 Fire Prevention Act (R.S.N.W.T. 1988, c.F-6).
 - .6 Transportation of Dangerous Goods Act (S.N.W.T. 1990, c.36).
 - .7 Used Oil and Waste Fuel Management Regulations (R-064-2003).
 - .8 Work Site Hazardous Materials Information System Regulations (R.R.N.W.T. 1990, c.S-2).
 - .9 Mine Health and Safety Act (S.N.W.T. 1994, c.25).
 - .10 Asbestos Safety Regulations (R-016-92).

1.4 References and Codes – City of Yellowknife

- .1 Meet or exceed the most recent amendments or revisions to the governing codes, standards and guidelines, and regulations applicable to Work and issued under the authority of the City of Yellowknife including, but not limited to:
 - .1 Water and Sewer Services By-law No. 4663.
 - .2 Building By-law No. 4469.
 - .3 Emergency Response and Fire Protection Services By-law No. 4502.

1.5 Extended Work Hours

- .1 If applicable, apply and obtain a permit for Extended Hours from Labour Services, Justice Department of the Northwest Territories. Submit a copy to the Departmental Representative upon request.

1.6 Work Permits

- .1 Contractors must apply for and obtain a safe work permit from the Mine Manager prior to commencing work on the site.

1.7 Standard and Guidelines

- .1 Meet or exceed the most recent amendments or revisions to the governing standards, guidelines, and policies applicable to the Work, including, but not limited to:
 - .1 Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products, CCME, 2003.
 - .2 Guidelines for Canadian Drinking Water Quality, Health Canada, August 2012.
 - .3 Guidelines for Effluent Quality and Wastewater Treatment at Federal Establishments, Environment Canada, April 1976.
 - .4 Guidelines for the Management of Waste Batteries, GNWT ENR, September 1998.
 - .5 Guidelines for the Management of Waste Lead and Lead Paint, GNWT ENR, April 2004.
 - .6 Guideline for the Management of Waste Solvents, GNWT ENR, September 1998.
 - .7 Guideline for Contaminated Site Remediation, GNWT ENR, November 2003.
 - .8 Guideline for Ambient Air Quality Standards in the Northwest Territories, GNWT ENR, January 2011.

- .9 Guideline for Dust Suppression, GNWT ENR, February 1998.
- .10 Guideline for the General Management of Hazardous Waste in the NWT, GNWT ENR, February 1998.
- .11 Environmental Guideline for Ozone Depleting Substances (ODS) and Halocarbon Alternatives, GNWT ENR, August 2007.
- .12 Environmental Health and Safety Management Systems Manual, AANDC March 2008.
- .13 AANDC Standard Operating Procedures.
- .14 Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, CCME, 1999.
- .15 Canadian Water Quality Guidelines for the Protection of Aquatic Life, CCME, 1999.
- .16 Contaminated Sites Management Policy, AANDC, 2002.
- .17 A Federal Approach to Contaminated Sites, CSMWG, 2002.
- .18 Risk Management Guidance Document, AANDC, 2006.
- .19 Contaminated Sites Cost Estimating Guide, AANDC, 2006.
- .20 Treasury Board Policy on Management of Real Property, TB, 2007.
- .21 Risk Management Tool & Reporting Tool User Guide, AANDC, 2007.
- .22 Environment, Health & Safety Standard Operating Procedures Manual, AANDC, 2008.
- .23 Environment, Health & Safety Control Framework, Northern Contaminated Sites Program, AANDC, 2008.
- .24 Environment, Health & Safety Audit Program Guide, AANDC, 2008.
- .25 Construction Project Safety Management Guide, 5th Edition, PWGSC, 2008.
- .26 Abandoned Military Site Remediation Protocol, AANDC, 2008.
- .27 General Guidelines Asbestos Removal and Disposal, GNWT 2010.
- .28 Northwest Territories and Nunavut Code of Practice Asbestos Abatement, Workers' Safety & Compensation Commission, 2012.

1.8 Operational Statements

- .1 Aboriginal Affairs and Northern Development Canada (AANDC), Northern Affairs Program, Contaminated Sites Program, Environment, Health and Safety Standard Operating Procedures Manual applicable to the Work includes, but is not limited to, the following:
 - .1 SOP-017(A), Wildlife Safety, September 27, 2006.
 - .2 SOP-017(B), Bear Safety, August 28, 2008.

1.9 Hazardous Material Discovery

- .1 Stop Work activity immediately and notify Departmental Representative upon discovery of the following materials during course of work:
 - .1 Hazardous Materials such as PCB's, asbestos, arsenic, tailings and mercury not described in Contract Specifications, Drawings or Appendices.

1.10 WHMIS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling and storage of hazardous materials; and regarding labeling and provision of material safety data sheets acceptable to AHJ including Labour Canada and Health and Welfare Canada.
- .2 Deliver copies of Material Safety Data Sheets data sheets to Departmental Representative upon delivery of materials.

1.11 Submittals

- .1 All submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.12 Measurement of Payment

- .1 Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this Work as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

END OF SECTION

PART 1 **GENERAL**

1.1 **Inspection**

- .1 Allow Departmental Representative access to Work. If part of Work preparation occurs at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection, if Work is designated for special tests, inspections or approvals by Departmental Representative.
- .3 If Contractor covers, or permits to be covered, Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4 Departmental Representative may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such Work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Departmental Representative shall pay cost of examination and replacement.

1.2 **Submittals**

- .1 All submittals in accordance with Section 01 33 00 – Submittal Procedures.

1.3 **Contractor Quality Control**

- .1 Submit methodology, details and equipment to be used in the Contractor's Quality Control program in accordance with Section 02 02 00 – Drilling seven (7) days prior to commencing work.

1.4 **Independent Inspection Agencies**

- .1 Independent Inspection/Testing Agencies may be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative.
- .2 Provide equipment required for executing inspection and testing by appointed agencies.
- .3 Employment of inspection/testing agencies does not relax Contractor's responsibility to perform Work in accordance with Contract Documents.
- .4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Pay costs for re-testing and re-inspection.

1.5 **Departmental Representative Inspection and Quality Assurance**

- .1 Allow and enable safe access for Departmental Representative to conduct Quality Assurance inspections, surveys, tests and measurements including but not limited to the following:
 - .1 Borehole video surveys to record borehole lengths and Sealable Casing depths.
 - .2 Overburden water inflow testing for select Boreholes.
 - .3 Down-the-Hole instrument surveys to verify borehole orientation and deviation from design.
 - .4 Topographic surveys to verify borehole collar location and orientation.
 - .5 All other inspection or testing requirements requested by the Departmental Representative.

- .2 Costs to complete Departmental Representative inspection and testing and Contractor's costs for the standby of drilling equipment and personnel will be borne by Departmental Representative.
 - .3 Quality Assurance inspections and testing by the Departmental Representatives does not relax Contractor's responsibility to perform Work in accordance with Contract Documents and Contractor's Quality Control Plan.
 - .4 If defects are revealed during inspection and/or testing, correct defects and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Standby costs for re-testing and re-inspection will be the responsibility of the Contractor.
- 1.6 Access to Work
- .1 Allow inspection/testing agencies and Departmental Representatives access to Work.
 - .2 Provide reasonable facilities for such access.
- 1.7 Procedures
- .1 Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
 - .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.
 - .3 Provide labour and facilities to obtain and handle samples and materials on site.
- 1.8 Rejected Work
- .1 Correct defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
 - .2 Make good other Contractor's Work damaged by such removals or replacements promptly.
 - .3 If, in opinion of Departmental Representative, it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Departmental Representative may deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which to be determined by Departmental Representative.
- 1.9 Measurement of Payment
- .1 All direct costs for the standby of Contractor's drilling equipment and personnel during completion of Departmental Representative Quality Assurance testing and surveys will be measured for payment on the number of standby hours, as accepted and verified by the Departmental Representative, and will be considered for payment under Item 02 02 00-3 – Standby Time Drilling Equipment in the Basis of Payment Schedule. Payment under Item 02 02 00-3 is described in Section 02 02 00 – Drilling.
 - .2 All other Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this Work as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

.1 Not used.

PART 3 EXECUTION

.1 Not used.

END OF SECTION

PART 1 **GENERAL**

1.1 **Installation and Removal**

- .1 During Work, coordinate use of site and facilities with Departmental Representative and Mine Manager.
- .2 Parking is permitted at the Giant Mine Site for vehicles forming a part of the Work and for vehicles required to transport personnel to the place of Work; no other vehicle parking is permitted.
- .3 Do not unreasonably encumber premises with products.

1.2 **Existing Services**

- .1 The location of equipment and utility services specified or indicated on the Drawings is to be considered as approximate.
- .2 Before commencing Work, establish location and extent of services in area of Work and notify Departmental Representative of findings.
- .3 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
- .4 Repair and replace services or facilities damaged as a result of Contractor's operations at own cost.

1.3 **Water Supply**

- .1 There is no active water supply available for Contractor's use. Obtain potable water and water for construction use from Contractor's sources outside the GMRP site. Operate and maintain supply system and carry out testing and reporting in accordance with Authorities Having Jurisdiction (AHJ).
- .2 Provide, maintain and operate equipment required to transport and store water for use at Work Area.
- .3 Adhere to discharge requirements as described in Section 01 35 15 – Special Project Procedures for Contaminated Sites.

1.4 **Temporary Power and Light**

- .1 Install temporary facilities as necessary for power distribution or supply. Erect safety barriers as necessary around the facilities and any ground cables.
- .2 Provide and maintain temporary lighting throughout project.

1.5 **Temporary Heating and Ventilation**

- .1 Provide, operate and maintain equipment necessary to provide temporary heating required during Work period.
- .2 Provide temporary heat and ventilation as required to facilitate progress of Work. Ventilation is to meet health regulations for safe working environment.
- .3 Maintain temperatures as required by Labour Code and AHJ in areas where Work is in progress.
- .4 Maintain strict supervision of operation of temporary heating and ventilating equipment to conform with requirements of AHJ.
- .5 Be responsible for damage to Work due to failure in providing adequate heat and protection.

1.6 Communication Facilities

- .1 There are currently three (3) communication systems available to the Contractor for Mine site coverage:
 - .1 FM surface radio and repeaters for two-way communications.
 - .2 Shaft communication radio and signaling system.
 - .3 Cellular telephone coverage is available on some networks.

1.7 Fire Protection

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by governing codes and regulations.

1.8 Signs and Notices

- .1 Safety and Instruction Signs and Notices:
 - .1 Signs and Notices for safety and instruction to be in English.
- .2 Maintenance of Site Signs:
 - .1 Maintain approved Signs and Notices for duration of Project and dispose of on completion of the Project or earlier if directed by the Departmental Representative.

1.9 Measurement of Payment

- .1 Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this Work as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

END OF SECTION

PART 1 **GENERAL**

1.1 **Description of Work**

- .1 Source, supply, construct, erect, operate, maintain and decommission Site Construction Facilities required to perform the Work.

1.2 **Definitions**

- .1 Construction Facilities: Temporary structures, services, or equipment erected and used on-site to support Contractor's operations for completion of Work.
- .2 Core Shack: A temporary building used for the geotechnical assessment of drilled cores.

1.3 **Installation and Removal**

- .1 Provide Construction Facilities in order to execute Work expeditiously.
- .2 Design, supply, construct, maintain, operate, and decommission all Construction Facilities required to support the Work.
- .3 Provide Construction Facilities as specified at the Work site, and any other location where Construction Facilities are essential to the Work.
- .4 Construction Facilities to meet requirements of applicable permits, Federal, Territorial and local Authorities Having Jurisdiction (AHJ), and are to comply with the requirements of Section 01 35 43 - Environmental Procedures and Section 01 35 15 – Special Procedures for Contaminated Sites.

1.4 **Submittals**

- .1 All submittals in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Submit Construction Facility Plan within fifteen days (15) days following contract award. The Construction Facility Plan is to include:
 - .1 Proposed locations, dimensions, and types of Work area enclosures, including avenues of ingress/egress. Work area enclosures may include Contractor's office facilities, maintenance facilities, storage facilities and equipment laydown area.
 - .2 Proposed location, dimensions and details of the core shack facility.
 - .3 Proposed location and dimensions of any other required Construction Facilities.
- .3 Update Construction Facility Plan within seven (7) days of mobilization to site with final locations of all Construction Facilities.

1.5 **Location of Equipment and Fixtures**

- .1 Locations of equipment indicated or specified are to be considered as approximate.
- .2 Inform Departmental Representative of impending installation and obtain approval for actual location if deviation from specified location is contemplated.
- .3 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

1.6 **Snow Removal and Dust Control**

- .1 Provide and maintain adequate access, including snow removal, at Work locations. Mine Manager is responsible for road maintenance and snow removal throughout overall site. Inform Departmental Representative of any access restrictions due to Mine Manager operations.

- .2 Control Work operations to eliminate all excessive dust-creating activities, or as directed by Departmental Representative. The use of oil for dust control is prohibited.
- .3 Contractor is responsible for snow removal and dust control on all drilling access roads and pads.
- .4 Dust control activities to be performed in accordance with Section 01 35 32 – Site Specific Health and Safety for Contaminated Sites and Section 01 35 43 – Environmental Procedures.

1.7 Site Storage/Loading

- .1 Confine Work and operations of employees to portions of the Site directly impacted by drilling activities. Do not unreasonably encumber premises with products.
- .2 Do not load or permit to load any part of Work with a weight or force that will endanger the Work.

1.8 Mine Openings

- .1 Comply with requirements of *NWT Mine Health and Safety Act* when working in proximity to mine openings.
- .2 Immediately inform Departmental Representative upon identification of previously unidentified mine openings and restrict access to area until health and safety requirements are met.

1.9 Vehicles

- .1 There is no requirement to provide vehicles for Departmental Representative or the Departmental Representative's Authorized Personnel use.

1.10 Camp Facilities

- .1 Contractor accommodation camp facilities are not permitted within the Site.

1.11 Office Facilities

- .1 Contractor to provide own on-site office facilities.

1.12 Core Shack

- .1 Provide a core shack for two Departmental Representatives and Departmental Representatives Authorized Personnel. The core shack is to be insulated and will include:
 - .1 A minimum floor space of 15 m².
 - .2 Work table a minimum of 4 m in length and 1 m in width, capable of accommodating a minimum of two core boxes placed end-to-end. The surface of the work table is to be 1.0 to 1.2 m above the floor and angled at 20 to 30 degrees towards the working side of the table.
 - .3 One desk and two chairs suitable for use by two people.
 - .4 Lighting, 110 volt electrical power supply and heating with temperature control ability to maintain environmentally controlled conditions between 20 and 22 degrees Celsius.
- .2 The core shack may be an insulated soft sided structure.
- .3 Locate the core shack in an area approved by the Departmental Representative.

- .4 The Core shack and the contents are to remain the property of the Contractor at the conclusion of the Contract.

1.13 Sanitary Facilities

- .1 Subject to existing occupancy by Site Care and Maintenance staff, the shower, locker and person equipment storage baskets of the existing 'C-Dry' building on Site is available to Contractor.
- .2 Provide and operate sanitary facilities for Work force and dispose of waste in accordance with AHJ.
- .3 Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.14 Construction Signage

- .1 Maintain approved signs and notices in good condition for duration of Project, and dispose of off-site on completion of Project or earlier if directed by Departmental Representative.

1.15 Fire Routes

- .1 Maintain access to property, including overhead clearance, for use by emergency response vehicles.

1.16 Protection for Off-Site and Public Property

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

1.17 Accommodation

- .1 Accommodation for Contractors personnel and Work crews is not available on Site.
- .2 Source and provide off-Site accommodation for Contractors personnel and Work crews.

1.18 Traffic Control

- .1 Traffic control within the Giant Mine Site is to be coordinated with the Mine Manager based on the traffic control requirements outlined in the Contractor's accepted Drilling Plan.
- .2 Provide, install and remove all traffic control signage as directed by the Mine Manager.
- .3 Traffic control on public roads must be coordinated with the Government of the Northwest Territories Department of Transportation and is the responsibility of the Contractor.

1.19 Measurement of Payment

- .1 Include all direct costs for Design, supply, operation and maintenance of Contractor Site Facilities under Lump Sum Payment Item 01 52 00-1, Contractor Site Facilities, in the Basis of Payment schedule.
- .2 Include all direct costs for supply, operation and maintenance of the Core Shack under Lump Sum Payment Item 01 52 00-2, Departmental Representative Site Facilities, in the Basis of Payment schedule.

- .3 Include all direct costs for accommodation of all Contractors personnel during drilling activities under Lump Sum Payment Items 01 52 00-3, Crew Accommodation During Drilling Activities, in the Basis of Payment Schedule.
- .4 Except as indicated above, Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this Work as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not Used.

END OF SECTION

PART 1 GENERAL

1.1 Mobilization and Demobilization

- .1 Commencement of mobilization constitutes acceptance of existing conditions.
- .2 Provide all labour, equipment and materials to perform all Work necessary for mobilization to and demobilization from Site.
- .3 Mobilization to include transportation to site of Contractor's labour, equipment, materials, and assembling, erecting, and preparing site in readiness to start Work, all in accordance with Contractor's Schedule.
- .4 Demobilization is to include dismantling and removal from Site, of all Contractor's facilities, equipment, materials, waste resulting from Work activities and transportation of labour from Site.
- .5 Demobilization from Giant Mine site is to be initiated five days after completion of work, and completed in a maximum of 14 days.
- .6 Decontaminate and clean all equipment used on the Project prior to demobilization according to Section 01 35 15 – Special Procedures for Contaminated Sites.
- .7 Give five (5) days advance notice in writing to Departmental Representative prior to mobilizing to Site.
- .8 Summarize the proposed timing, mode, route, equipment, labour and all other requirements for the mobilization and demobilization of all required permits, equipment, materials, waste and personnel to complete the Work, as indicated in these specifications, in a Mobilization and Demobilization Plan.
- .9 All mobilization and demobilization methods to comply with the requirements of all applicable codes, standards, guidelines and permits.
- .10 All personnel supervising or operating equipment via overland or marine routes to be properly certified.
- .11 A post-Demobilization site visit will be required as part of the Post-Demobilization Inspection as per Section 01 77 00 – Closeout Procedures.

1.2 Submittals

- .1 Submit Mobilization and Demobilization Plan in accordance with Section 01 33 00 - Submittal Procedures to the Departmental Representative within seven (7) days after contract award.

1.3 Measurement of Payment

- .1 All costs for mobilization of equipment and materials, including the submission of the Mobilization and Demobilization Plan, are to be included in the lump sum price for payment Item 01 53 00-1 - Mobilization to Giant Mine Site, as indicated in the Basis of Payment Schedule. The lump sum price for mobilization is to include labour, equipment, materials, supplies, meals, accommodation, flights and any other costs necessary to undertake Work required.

- .2 All costs for demobilization of Contractor equipment and materials are to be included in the lump sum price for payment item 01 53 00–2, Demobilization from Giant Mine Site, as indicated in the Basis of Payment Schedule. The lump sum price for demobilization is to include all labour, equipment, materials, meals, accommodation, flights and any other cost necessary to undertake the Work required. Payment for demobilization will be made after satisfactory restoration of disturbed site areas, removal from the site of all equipment and submission to the Departmental Representative of all Contractor submittals as per Section 01 78 00 – Closeout Submittals.
- .3 Except as otherwise indicated herein, Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this Work as a separate line item in the cost breakdown specified in Section 01 32 18 - Construction Progress Schedules.

PART 2 PRODUCTS

.1 Not used.

PART 3 EXECUTION

.1 Not used.

END OF SECTION

PART 1 **GENERAL**

1.1 **Qualifications of Surveyors**

- .1 Qualified surveyor(s) responsible for the completion of topographic surveys are to have a minimum of five (5) years of surveying experience, acceptable to Departmental Representative.
- .2 Qualified persons(s) responsible for the completion of down-the-hole instrument surveys are to have a minimum of five (5) years of down-the-hole surveying experience, acceptable to Departmental Representative.

1.2 **References**

- .1 Departmental Representative's identification of existing survey control points and property limits.

1.3 **Survey Reference Points**

- .1 Existing GMRP survey control points and related information are presented on the Drawings.
- .2 Locate, confirm and protect survey control points prior to starting site Work. Preserve permanent reference points during construction. Condition and accuracy of control points is unknown, Contractor to re-establish local survey control points where required.
- .3 Confirm that measurements of survey control points match existing site plans and drawings, or account for any difference between current and previous measurements from control points.
- .4 Make no changes or relocations without prior written notice and approval from the Departmental Representative.
- .5 Report to Departmental Representative when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
- .6 Replace survey control points in accordance with the GMRP Site Survey Control.

1.4 **Survey Requirements**

- .1 Establish stable temporary survey control points for use in laying out work as required.
- .2 Establish lines and levels, locate and lay out, by instrumentation.
- .3 Conduct surveys required to lay out the Work, progress the Work and to prepare As-built drawings and records at the completion of work activities.
- .4 Survey as-drilled Borehole collar locations and Borehole end-of-hole depths, orientation and accuracy.

1.5 **Survey Equipment**

- .1 Supply and operate adequate topographic survey equipment to complete and record the work as specified. Maintain topographical accuracy to a minimum of 0.01 m vertically and 0.01 m horizontally.
- .2 Supply and operate Down-the-Hole Instrument Survey equipment to accurately assess borehole accuracy while drilling and at completion of drilling to within a 3D spatial accuracy of 1% whether drill rods are present in the borehole or not.

1.6 Survey Markers

- .1 Provide all survey markers and other items required to complete Work as specified, including, but not limited to:
 - .1 Pointed stakes (minimum 1.2 m in length, 12 mm thick, 38 mm wide).
 - .2 Pointed hubs (minimum 0.5 m in length, 20 mm thick, 38 mm wide).
 - .3 Nails (100 mm long), spikes (250 mm long), pins (1 m long), etc.
 - .4 Fluorescent paint, flagging, etc.
 - .5 Felt markers, chalk, wax pens, etc.
- .2 Maintain supply of survey markers for Departmental Representative's use.

1.7 Records

- .1 Maintain a complete, accurate record of all survey Work.

1.8 Submittals

- .1 Upon request of Departmental Representative, submit documentation to verify accuracy of field Work. Submit data in Giant Mine Remediation Project Coordinate System.
- .2 Provide survey data in all of the following formats or in equivalent formats accepted by the Departmental Representative prior to completion of surveys:
 - .1 Point file in Comma Separated Value (.csv) format, Excel format (.xls) or ASCII file.
 - .2 AutoCAD file (.dxf or .dwg).
 - .3 Survey field book or field book file (.fbk format).
- .3 Submit raw topographic survey data in electronic form containing (at minimum):
 - .1 Survey Company Name.
 - .2 Name of Surveyor.
 - .3 Survey Coordinate System Used.
 - .4 Date of survey.
 - .5 Name of survey file, including description of survey feature/ purpose.
 - .6 Point numbers, Northing, Easting, elevation, description.
- .4 Submit the record survey data file as the latest as-constructed information.
- .5 At completion of all Work, submit certificate signed by surveyor certifying and noting those elevations and locations of completed Work that conform and do not conform with Contract Documents. Submit certificate of completed survey work seven (7) days prior to requested final inspection.
- .6 Submit all drawings electronically in accordance with PWGSC protocols for AutoCAD drawings, and by hard copy.
- .7 Include in the Drilling Plan details of the methodology, equipment and frequency of Down-the-Hole Instrument Surveys, including proof of qualifications and experience of the surveyor(s).
- .8 Include in the Drilling Plan details of the methodology, equipment and frequency of topographic surveys, including proof of qualifications and experience of the surveyor(s).

1.9 Measurement for Payment

- .1 All direct costs for the provision of topographic surveys and down-the-hole instrument surveys will be considered for payment as described in Section 02 02 00 – Drilling.
- .2 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate cost of the work of this section as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

3.1 Survey Methodology

- .1 Complete topographic surveys and borehole Down-the-Hole Instrument Surveys as per the specifications and as detailed in the Contractor's accepted Drilling and Quality Control Plans.

END OF SECTION

PART 1 GENERAL

1.1 Closeout Procedures

- .1 Notify Departmental Representative when Work is considered ready for substantial performance completion inspection.
- .2 Accompany Departmental Representative on preliminary inspection to determine items listed for completion or correction.
- .3 Comply with Departmental Representative's instructions for correction of items of Work listed in executed Certificate of Substantial Completion.
- .4 Notify Departmental Representative of instructions for completion of items of Work determined in Departmental Representative's final inspection.

1.2 Inspection and Declaration

- .1 Contractor's Inspection: Contractor and all Subcontractors to conduct an inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
 - .2 Request Departmental Representative's Inspection.
- .2 Departmental Representative's Inspection: Departmental Representative and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor to correct Work accordingly.
- .3 Completion: submit written Request for Final Inspection, including certification that the following have been performed:
 - .1 Work has been completed and inspected for compliance with Contract Documents.
 - .2 Defects have been corrected and deficiencies have been completed.
 - .3 Work is complete and ready for Final Inspection.
- .4 Submit written completion certificate to Departmental Representative seven (7) days prior to the requested final inspection.
- .5 Final Inspection: when items noted above are completed, request final inspection of Work by Departmental Representative and Contractor. If Work is deemed incomplete by Departmental Representative, complete outstanding items and request re-inspection.
- .6 Post-Demobilization Inspection: once demobilization is completed, Departmental Representative will request a Post-Demobilization inspection of Work completed by Departmental Representative and Contractor. If Work is deemed incomplete by Departmental Representative, complete outstanding items and request re-inspection by Departmental Representative.

1.3 Measurement of Payment

- .1 All direct costs for the Post Demobilization Inspection are to be included in the lump sum price for Post Demobilization Inspection, Item 01 77 00 - 1, as indicated in Basis of Payment Schedule.
- .2 Except as indicated above, Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this Work as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

END OF SECTION

PART 1 GENERAL

1.1 Format

- .1 Organize data in the form of an instructional manual, called Project Record Documents.
- .2 Binders: vinyl, hard covered, 3 "D: ring, loose leaf 219 mm x 279 mm with spine and face pockets.
- .3 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.
- .4 Cover: Identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5 Arrange content by systems, under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7 Text: Manufacturer's printed data, or typewritten data.
- .8 Provide a CD with an electronic version of the report in pdf format. Provide CAD files in AutoCAD 2007 format on CD.

1.2 Submittal

- .1 Provide to the Departmental Representative the Project Record Documents within thirty (30) days of project completion.
- .2 Submit Project Record Documents in accordance with Section 01 33 00 – Submittal Procedures.

1.3 Project Record Documents Contents

- .1 The Project Record Documents include:
 - .1 Date of submission and names.
 - .2 Addresses and telephone numbers of Contractor with name of responsible parties.
 - .3 Schedule of products and systems, indexed to content of volume.
 - .4 Summary of Health and Safety issues and Environmental issues.
 - .5 Copies of all permits and documents obtained by the Contractor.
 - .6 Consolidated results of all testing carried out by the Contractor.
 - .7 Project photographs.
 - .8 Consolidated weekly reports.
 - .9 Information on the state of temporary facilities used in this Contract.
 - .10 As-built topographic surveys of completed boreholes, as-built Down-the-Hole Instrument Surveys and as-built drawings.
 - .11 Any other pertinent information.

1.4 Final Survey

- .1 Submit final site survey certificate in accordance with Section 01 71 01 – Survey Requirements, certifying that elevations and locations of completed Work are in conformance or non-conformance with Contract Documents.

1.5 Record Documents

- .1 In addition to requirements in General Conditions, maintain at the site for Departmental Representative one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Change Orders and other modifications to the Contract.
 - .5 Reviewed shop drawings and product data.
 - .6 Field test records.
 - .7 Inspection certificates.
 - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of the Project Record Documents. Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.
- .6 Include Record Documents within the Project Record Documents to be submitted as specified in this section.

1.6 Recording Actual Site Conditions

- .1 Record information on set of drawings, and in copy of Project Record Documents, provided to Departmental Representative as specified in this section.
- .2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: legibly mark each item to record actual construction, including:
 - .1 Field changes of dimension and detail.
 - .2 Changes made by change orders.
 - .3 Details not on original Contract Drawings.
- .5 References to related shop drawings and modifications.
 - .1 Field changes of dimension and detail.
 - .2 Changes made by Change Order or Field Order.
- .6 Specifications: legibly mark each item to record actual construction, including:
 - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
 - .2 Changes made by Addenda and change orders.

- .7 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

1.7 Record Drawings

- .1 Departmental Representative will provide to Contractor CAD electronic drawing file (.dwg or compatible) of site for record drawing purposes.
- .2 Document Project record information in electronic format (.dwg or compatible).
- .3 Prepare Record Drawings showing areas where Work was undertaken.
- .4 Submit Record Drawings to Departmental Representative thirty (30) days after project completion. Drawings to be submitted in CAD electronic drawing (.dwg or compatible).

1.8 Permit Reporting

- .1 Thirty (30) days after the completion of Work submit the following to the Departmental Representative:
 - .1 Copies of all documents and permits obtained by the Contractor.
 - .2 Results of all testing carried out by the Contractor.
 - .3 Any other pertinent information.
 - .4 Copies of all shipping documents identifying the shipper, the receiver and all carriers involved in the transport of materials.
 - .5 Information as required by the Land Use Permit.
 - .6 Information as required by all other applicable regulatory bodies and Authorities Having Jurisdiction (AHJ).
 - .7 Copies of all Transportation of Dangerous Goods documentation.
- .2 Consolidate the above information in the Project Record Document and submit to the Departmental Representative as described in this section.

1.9 Measurement of Payment

- .1 Include all direct costs for the preparation and completion of the Project Record Documents in the lump sum price for Project Record Documents, Item 01 78 00-1, as indicated in Basis of Payment Schedule. The lump sum price for the Project Record Documents will be paid after a satisfactory Project Record Documents has been submitted to Departmental Representative.
- .2 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this Work as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

END OF SECTION

PART 1 GENERAL

1.1 Description of Work

- .1 Completion of Boreholes from surface locations to meet conditions of the Specifications, Contractors Drilling Plan, Environmental Protection Plan and the Site Specific Health and Safety Plan.
- .2 Provision of diamond core drilling equipment capable of completing HQ3 sized boreholes and triple tube coring techniques for vertical and angled drill holes as specified.
- .3 Provision of equipment and labour necessary to install surface casing through the overburden for all boreholes.
- .4 Development and implementation of the Contractor Drilling Plan and Quality Control Plan.
- .5 Construction of access roads required to access surface Borehole locations where current access is non-existing or inadequate for Contractor's equipment including the removal or restoration of constructed access roads as required.
- .6 Construction of drill pads required for the completion of Boreholes in accordance with the Specifications and Contractors Drilling Plan including the removal or restoration of constructed drill pads as required.
- .7 The temporary removal and repair, as required, of existing fencing to enable Contractor access to the Borehole locations.
- .8 Collection, transport and on-site disposal of all drilling fluids and wastewater generated from Contractor equipment cleaning.
- .9 Completion of topographic surveys for setting out the work, quality control and as-built purposes.
- .10 Completion of borehole Down-the-Hole instrument surveys during Borehole progression and for as-built purposes.
- .11 Installation of grouted and sealed steel casing through the overburden to prevent the inflow of sub-surface water or loose soil materials into the Borehole annulus, including completion of Overburden Water Inflow Testing.
- .12 Supply and installation of a lockable steel cap with a keyed-alike lock and permanent identification label on the casing at each completed borehole.
- .13 The supply of core boxes and supply and installation of core storage racks to remain on site.
- .14 On-site transportation of core boxes to the designated site locations.

1.2 Definitions:

- .1 Borehole: Diamond core drill hole for the purposes of providing subsurface bedrock samples and investigation.
- .2 Borehole Deviation: The percentage measurement of Borehole accuracy determined by the measure of the length of a straight line vector between the design End of Hole (EOH) and as-drilled EOH divided by the Borehole length.
- .3 Overburden: Natural or fill soils or Aggregate Materials located between the ground surface and underlying bedrock.

- .4 Overburden Water Inflow Test: Quality Control and Quality Assurance test to demonstrate that the installed sealable casing limits the inflow of overburden groundwater into the Borehole to a value of one (1) litre per hour or less.
- .5 Competent Bedrock: Rock free of micro fractures, non-friable and contains fewer than 5 natural discontinuities over 1 metre in length.
- .6 Drill Cuttings: Rock and soil carried to the surface during the drilling process.
- .7 Drilling Fluids: Water, mud and chemical additive mixture pumped down the drill pipe to lubricate and cool the drilling bit, flush out the cuttings and to strengthen the sides of the Borehole.
- .8 Down-the-Hole Instrument Survey: Instrument survey during Borehole drilling and completion utilizing a suitable single or multi-shot tool for determination, monitoring and as-built of Borehole orientation, deviation and accuracy.
- .9 Drilling Plan: The Contractor created and Departmental Representative accepted document outlining Work activities methodology, details and procedures.

1.3 Departmental Representative Inspection and Quality Assurance

- .1 Allow and enable safe access for Departmental Representative to conduct Quality Assurance inspections, surveys, tests and measurements as indicated in Section 01 45 00 – Quality Assurance and Quality Control, including but not limited to the following:
 - .1 Borehole video surveys to record borehole lengths and Sealable Casing depths.
 - .2 Overburden Water Inflow Test testing for select Boreholes.
 - .3 Down-the-Hole Instrument surveys to verify borehole orientation and deviation from design.
 - .4 Topographic surveys to verify borehole collar location and orientation.

1.4 Related Information:

- .1 Section 01 01 00 – Summary of Work.
- .2 Section 01 71 01 - Survey Requirements.
- .3 Section 01 45 00 - Quality Control and Quality Assurance.
- .4 Section 31 05 16 - Aggregate Materials.

1.5 Existing Conditions:

- .1 The information presented on the Drawings and in the Specifications that describes the surface and subsurface conditions is based upon information provided by AANDC personnel, AECOM, Golder and other site investigations. The investigation and assessment reports are available under separate cover from the Contract Tender package upon request and include the following:
 - .1 Golder 2012, Review and Update of Arsenic Slope and Chamber Stability Information, AECOM Document # 313-UG-13-RPT-004-Rev3, 2012 10 05.
 - .2 Golder 2012, Review and Update of Near Surface Non-Arsenic Slope Stability Assessment, AECOM Document #313-UG-13-RPT0005-Rev1, 2012 11 02.
 - .3 Golder 2012, Baker Creek Geotechnical Investigation-Factual Data Report.

- .2 The proposed Boreholes are within altered volcanic rocks of the Yellowknife Greenstone Belt. Most boreholes are anticipated to be drilled in Strong, Fair to Good quality rock. Rock types anticipated are massive and pillowed mafic volcanic rock. Foliation of varying orientations could be encountered. Shear systems and steeply dipping faults are pervasive throughout the Giant Mine Remediation Project (GMRP) Site. It is not anticipated that the regional West Bay Fault would be intersected during drilling.
- .3 Drilling will occur on top of, or near historical mining areas. Open voids, backfill, ground support (such as timbers and rock bolts) and loose ground may be encountered. Backfill is expected to consist of cobble and gravel size particles and overburden.
- .4 The GMRP Site is within a zone of discontinuous permafrost and frozen ground conditions may be encountered during drilling.
- .5 The lithological units have generally low conductivity; however drilling return will be lost if and when underground voids are intersected.
- .6 Potable water sources and sanitary sewage disposal are not available on site. Potable water and sanitary sewage disposal is to be obtained from Contractor's sources outside of the GMRP site.
- .7 Water for drilling operations including drilling and equipment decontamination is to be obtained from Contractor's sources outside of the GMRP Site.

1.6 Qualifications

- .1 Be thoroughly familiar with, and knowledgeable about, existing site conditions, scope of work and requirements of this Specification.
- .2 Designate Contractor's Site Superintendent or back-up to be on site at all times during site operations, to have full authority to make decisions for the Contractor, to be knowledgeable of the requirements of the Specifications and act upon the requests of the Departmental Representative.
- .3 The designated Site Superintendent and back-up must fulfill the requirements of the NWT Mine and Health and Safety Act and associated Regulations Level 2 Supervisor responsible for the work. They must have a minimum of five (5) years of supervisory experience in hard rock, diamond core drilling operations.
- .4 The designated Driller(s) must have a minimum of five (5) years of experience as a driller in hard rock, diamond core drilling operations.
- .5 Written documentation of the qualifications, training and experience of the Contractor's designated Site Superintendent and backup and designated Driller(s) must be included in the Contractor Drilling Plan.
- .6 All Contractor's field personnel working on the site will be required to complete the three hour GMRP Site Orientation provided by the Mine Manager upon first access to the site prior to commencing Work. All on-site personnel must comply with the site GMRP Site rules and requirements.

1.7 Environmental Protection

- .1 Implement environmental protection measures in accordance with Section 01 35 43 - Environmental Procedures and as detailed in the Contractors Environmental Protection Plan.
- .2 Install temporary erosion, sediment and drainage controls prior to drilling activities in accordance with the Environmental Protection Plan.
- .3 Comply with the Environmental Protection Plan and Drilling Plan at all times.

- .4 Suspend operations whenever climatic conditions are unsatisfactory for drilling to conform to this Specification or Contractors Drilling Plan.

1.8 Safety and Personnel Protection

- .1 The Contractor must have Standard Operating Procedures (SOPs), physical guarding/protective systems, controls on drilling equipment and safety procedures in place to protect workers and the environment. These must be detailed or referenced in the Contractor's Site Specific Health and Safety Plan, Drilling Plan and Environmental Protection Plan.
- .2 Unless otherwise specified, complete Work in accordance with this Section, Section 01 11 00 – Summary of Work and Section 01 35 32 – Site Specific Health and Safety Plan.

1.9 Permits

- .1 Comply with the requirements of the Land Use Permit and/or other requirements of Authorities Having Jurisdiction (AHJ).
- .2 All drilling products including drilling fluids, muds and additives require regulatory approval by the Land and Water Board in writing prior to use on site. A list of drilling products that were approved by the Land and Water Board for previously completed drilling programs is included in Appendix C.
- .3 Provide the information for permit reporting requirements as requested by the Departmental Representative.
- .4 The Contractor will be responsible for obtaining the following permits or approvals to complete the Work:
 - .1 Government of Northwest Territories (GNWT) Department of Transport (DoT) permit to drill with the roadway right-of-way of Highway 4 (Ingraham Trail).
 - .2 Utility locates and crossing agreements from all utility owners within 20 metres of any borehole location. Work near on site utilities is to be approved by and coordinated with the Mine Manager.

1.10 Submittals

- .1 Submit product and material data in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Prior to commencing work on the site, the Contractor must submit and have accepted by the Department Representative the Site Specific Health and Safety Plan, Environmental Protection Plan and Drilling Plan.
- .3 Submit Territorial and/or local requirements for Notice of Project Form in accordance with Section 01 33 00 – Submittal Procedures.
- .4 Submit Worker's Compensation Board and Northwest Territories WSCC status and transcription of insurance prior to commencing Work.
- .5 Submit a detailed Drilling Plan to the Departmental Representative seven (7) days prior to commencing Work. Submit Clarifications to the Drilling Plan, as requested by the Departmental Representative and/or AHJ. The Drilling Plan must describe in detail the drilling program and associated work activities and is to include but not limited to, the following:

- .1 The personnel, methodology, equipment and materials proposed for diamond drilling and coring including installation of the surface casing to the bedrock/overburden contact. This must include sufficient supporting documentation to demonstrate the drilling equipment has adequate capacity to complete the boreholes to the specified orientation, accuracy and depth and written documentation of the Superintendent and Driller(s) qualifications, training and experience.
- .2 The identification, detailed description, sequence and duration of Drilling Work activities.
- .3 An assessment of the potential risks to workers from drilling methods and/or activities and mitigation measures to address these risks, including but not limited to, the potential exposure of hazardous substances to Contractor's personnel. The risk assessment should reference and be further detailed in the Contractor's Site Specific Health and Safety Plan.
- .4 An assessment of the potential risks to the environment from drilling methods and/or activities and mitigation measures to address these risks including but not limited to, the potential release of hazardous substances. The risk assessment should reference and be further detailed in the Contractor's Environmental Protection Plan.
- .5 The identification of all equipment, materials and products to be utilized to complete the Work. All drilling products including drilling fluids, muds and additives require approval from the Departmental Representative and the Land and Water Board in writing prior to use. Product specifications and MSDS are to be included when applicable.
- .6 Methodology and product details for installation of steel casing through overburden including permanent identification marker and cap.
- .7 Methodology and details for Borehole abandonment for boreholes abandoned by the Contractor.
- .8 Details for access restrictions and traffic control during Drilling Work, including but not limited to the installation and maintenance of flagpersons, safety barriers and signage.
- .9 The design and construction of all temporary structures.
- .10 The design and construction of core storage racks and specifications for core boxes.
- .11 The methodology and details for design and construction of access roads and drill pads, including, but not limited to granular sources, specifications and sampling and testing results.
- .12 Fuel supply, fuel delivery systems and emergency response equipment and supplies at the Borehole location in the event of a spill or incident. Fuel supply, delivery plans and spill response procedures to be referenced to the Fuel Management Plan as described in Section 01 35 32 – Site Specific Health and Safety Plan.
- .13 Methodology and details for the collection, handling, on-site transport and disposal of all drill cuttings including anticipated waste volume to be generated.
- .14 Methodology and details for the recycling (if applicable), collection, handling and storage, on-site transport and disposal of all drilling and decontamination water including anticipated waste volume.
- .15 Details for the collection, storage and disposal of all waste materials generated from the Work, including sewage effluent.
- .16 Potable water sources, storage and anticipated requirements.
- .17 Methodology, details and equipment to be used of the Contractor's Quality Control program including, but not limited to:
 - .1 Site topographic surveys.
 - .2 Borehole orientation.
 - .3 Overburden Water Inflow Test of the surface casing.

- .4 Borehole accuracy down-the hole-instrument surveys.
 - .5 Qualifications and experience of the surveyors.
 - .6 Methodology of topographic and Down-the-Hole instrument surveys.
 - .7 Manufacture information and specifications of the proposed survey instrument(s).
 - .8 Sequence and frequency of surveys during set-up, Borehole advancement and as-built.
 - .18 Methodology and details for realigning or redirecting the Borehole in the event that Down-the-Hole instrument surveys indicate borehole accuracy is non-compliant with the Specifications.
- .6 Submit daily to the Departmental Representative a Contractors Daily Report that includes but is not limited to, the following:
- .1 A brief summary of the Contractor's daily work activities on the site that includes recorded hours for labour and equipment for each work activity and Driller's Daily Drilling Record.
 - .2 Drilling and coring results including production rate, percentage of drill core recovery per drilling interval and depth of the Borehole to the nearest 0.01 metres including the reference point used to calculate.
 - .3 The reliability of the borehole orientation, including the results of Down-the-Hole instrument surveys completed and deviation from the specified accuracy.
 - .4 Drilling fluid gain or loss.
 - .5 Daily water consumption.
 - .6 Safety and Environmental near misses, observations and/or incidents.
 - .7 A statement on daily production and potential impact to schedule.
 - .8 Issues of concern or potential concern.

1.11 Reporting Requirements

- .1 Provide all notification of planned and completed Work activities in accordance with the requirements of this Specification.
- .2 In the event of an environmental incident notify the Departmental Representative and applicable AHJ as described in Section 01 35 32 – Site Specific Health and Safety and Section 01 35 43 – Environmental Procedures.

1.12 Measurement of Payment

- .1 All direct costs for the Drilling of Boreholes through Overburden will be measured for payment by the number of lineal metres of drilling and will be paid under Item 02 02 00-1 Drilling - Overburden in the Basis of Payment Schedule. Payment under Item 02 02 00-1 will include the following work items:
 - .1 Provision of all associated equipment, labour, materials, products and supplies required to complete the work as specified.
 - .2 Contractor Quality Control program including topographic surveys, Overburden Water Inflow Tests demonstrating the installed sealable casing limits overburden water inflow and Down-the-Hole instrument testing and measurements for Borehole accuracy.
 - .3 The collection, handling, storage and disposal of all drill cuttings and waste drilling fluids.
 - .4 The supply and installation of surface casing including lockable caps and permanent identification label.

- .2 Payment under Item 02 02 00-1 will not be accepted for review until all required submittals have been received and accepted including, but not limited to:
 - .1 All Daily Reports and Weekly Progress Reports.
 - .2 Contractor Quality Control topographic surveys, Down-the-Hole instrument surveys, measurements and accuracy testing results.
 - .3 Departmental Representatives Quality Assurance inspection, testing and measurements.
 - .4 Demonstration to the Departmental Representative that the Boreholes are in compliance with the Specifications.

- .3 All direct costs for the Drilling and Coring of Boreholes through bedrock will be measured for payment on the number of lineal metres of core drilling and will be paid under Payment Item 02 02 00-2 – Drilling and Coring of Boreholes in the Basis of Payment Schedule. Payment under Item 02 02 00-2 will include the following work items:
 - .1 Provision of all associated equipment, labour, materials, products and supplies required to complete the work as specified.
 - .2 Contractor Quality Control program including topographic surveying and Down-the-Hole instrument monitoring, testing and measurements for Borehole accuracy.
 - .3 The collection, handling, temporary storage and disposal of all drill cuttings and drilling fluids.
 - .4 The transportation of core from the drill site to the core shack.
 - .5 The supply of core boxes including the handling and on-site transport of the full core boxes to the core racks located at the Departmental Representative designated site location.
 - .6 The supply and installation of core storage racks on site at the Departmental Representative designated site location.

- .4 Payment under Item 02 02 00-2 will not be accepted for review until all required submittals have been received and accepted including, but not limited to:
 - .1 All Daily Reports and Weekly Progress Reports.
 - .2 Contractor Quality Control topographic surveys, Overburden Water Inflow Test, Down-the-Hole instrument surveys, measurements and testing results for borehole accuracy.
 - .3 Departmental Representatives Quality Assurance inspection, testing and measurements.
 - .4 Demonstration to the Departmental Representative that Boreholes are in compliance with the Specifications.

- .5 The following will not be considered for payment under Payment Items 02 02 00-1 through 02 02 00-2:
 - .1 Boreholes abandoned by the Contractor prior to completion and Department Representative acceptance.
 - .2 Boreholes that do not comply with the Specifications including non-compliance with the specified locations, accuracies, alignments and depths.
 - .3 Drilling intervals with a drill core recovery rate through bedrock of less than 95 per cent if determined by the Departmental Representative to be the result of Contractor drilling practices.
 - .4 Costs associated with remediation and decontamination following the spillage or release of all hazardous or potentially hazardous substance including drilling cuttings and drilling fluids.

- .6 All direct costs for the standby of Contractors drilling equipment and personnel during completion of Departmental Representative Quality Assurance testing and surveys will be measured for payment on the number of standby hours, as accepted and verified by the Departmental Representative, and will be paid under Item 02 02 00-3 – Standby Time Drilling Equipment in the Basis of Payment Schedule. Payment under Item 02 02 00-3 will include standby time for the following items:
- .1 Borehole video surveys to record borehole lengths and Sealable Casing depths.
 - .2 Overburden Water Inflow Test to determine casing leakage.
 - .3 Down-the-Hole instrument surveys to verify Borehole orientation and accuracy with the specified design.
 - .4 Topographic surveys to verify borehole collar location.
 - .5 All other Quality Assurance testing and survey deemed necessary by the Departmental Representative.
- .7 Include all direct costs for Submission of and Clarifications to the Contractor's Drilling Plan in the Lump Sum Price for Item 02 02 00-4 Drilling Plan in the Basis for Payment Schedule. Payment under Item 02 02 00-4 will be accepted upon acceptance of the Drilling Plan.
- .8 Include all direct costs for construction of temporary access roads and drill pads including the supply, stockpiling, placement and compaction of aggregate materials and necessary removal or restoration in the Lump Sum Price for Item 02 02 00-5 Construction of Temporary Access Roads and Drill Pads in the Basis of Payment Schedule. The following items are to be included in Item 02 02 00-5:
- .1 Costs associated with the temporary removal and repair, as required, of existing fencing to enable Contractor access to the Borehole locations.
 - .2 Costs associated with obtaining and complying with permits and approvals identified within this Section.
- .9 Include all costs for other elements of the Work not specifically described herein in the appropriate cost items described above.
- .10 Except as indicated above, Work described in this Section will not be measured. Include all indirect costs including supervision, overhead, profit etc. in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this Work as a separate line item in the cost breakdown specified in Section 01 32 18 – Construction Progress Schedules – Bar (GANTT) Chart.
- .11 Costs to complete additional investigation and confirmation drilling activities, if required and as requested by the Departmental Representative will be negotiated as a change to the contract.

PART 2 PRODUCTS

2.1 General

- .1 All materials, supplies and equipment to be as indicated in the Contractors Drilling Plan, unless authorized in writing by Departmental Representative.

2.2 Drilling Equipment

- .1 Diamond core drilling equipment with sufficient capability to complete the Work as specified.
- .2 Drill bit selection should take into account the bedrock quality and additional types should be readily available if stronger or weaker rock is encountered.

2.3 Aggregate Material

- .1 Sources of Aggregate Materials are not available on the GMRP Site. All aggregate materials are to be obtained from Contractor's sources outside of the GMRP Site as per Section 31 05 16 - Aggregate Materials.

2.4 Surface Casing

- .1 HW steel flush joint casing, outside diameter 114.3 mm.
- .2 Lockable steel cap affixed to the top of casing with keyed-alike locks for all boreholes.
- .3 Permanent Borehole identification label affixed above ground level to the Borehole casing.

2.5 Grout

- .1 Cementitious, low temperature substrate grout, suitable for winter installation.

2.6 Core Boxes

- .1 Standard HQ sized, flat, rectangular wooden box with full height segment dividers, wooden lid.
- .2 Rectangular wooden core marking blocks.

2.7 Core Storage Racks

- .1 Modular free standing constructed with heavy gauge galvanized steel pipe, pressure treated lumber and plywood.

PART 3 EXECUTION

3.1 General

- .1 Layout and complete boreholes in accordance with the locations and design provided in the Drawings and Specifications.
- .2 Borehole design information is included on the Drawings.
- .3 Conduct Work in accordance with Authorities Having Jurisdiction (AHJ) and Land Use Permit and comply with the requirements of Section 01 35 43 – Environmental Procedures.
- .4 Work must not commence on site until the Departmental Representative has reviewed and accepted the Site Specific Health and Safety Plan, Environmental Protection Plan and Drilling Plan and are provided written notification to proceed.
- .5 Provide diamond core drilling equipment of sufficient capacity capable of completing HQ3 sized drilling and coring of vertical and angled drill holes and installing sealable surface casing through the overburden as specified.
- .6 Boreholes are to be drilled using drilling methods and experienced drilling personnel capable of the drilling accuracy and drill core recovery rate in conformance with the Specifications and Drilling Plan.
- .7 Boreholes must have an End of Hole (EOH) accuracy, dependent on borehole location, as specified. The EOH design accuracy required for each Borehole location is indicated on the Drawings.

- .1 The Contractor must complete Borehole Down-the-Hole instrument surveys to determine drilling accuracy during Borehole advancement and after completion. All survey results are to be submitted to the Departmental Representative for verification of Borehole drilling accuracy.
- .2 The Borehole deviation Down-the-Hole instrument surveys are to be completed in accordance with the Contractor Quality Control Program as detailed in the Drilling Plan. The Contractor must implement and complete the Quality Control Program as detailed in the Contractor's Drilling Plan.
- .3 There will be no payment for Boreholes abandoned by the Contractor prior to completion and Department Representative acceptance. The Contractor must complete a replacement Borehole and will be responsible for abandonment including all costs for abandonment and reclamation of the abandoned Borehole.
- .4 There will be no payment for Boreholes that do not comply with the specified accuracy and testing requirements. The Contractor will be responsible for completion of a replacement Borehole and all costs for abandonment and reclamation of the non-compliant installation.
- .8 The Departmental Representative will assess Borehole drilling accuracy by interpreting the Contractor's instrument survey results using the following methodology:
 - .1 Each instrument survey result will be plotted and compared against previous surveys for repeatability.
 - .2 The manufacturer's reported accuracy of the survey tool will be plotted as error bars onto the survey points and a largest diameter circle drawn around the error bars.
 - .3 The overlap of the best fit circle, with that of specified accuracy will provide an interpretation of borehole deviation and accuracy.
- .9 The Departmental Representative will complete Quality Assurance inspections, surveys and testing to verify the Contractor's Quality Control testing results and compliance with the Specifications.

3.2 Access Roads and Drill Pads

- .1 Comply with the requirements in Section 31 05 16 – Aggregate Materials.
- .2 Construct temporary access roads to Borehole locations where access is non-existing or is not adequate for Contractor's equipment. Provide in the Contractor's Drilling Plan details of the design and construction of all access roads and drill pads.
- .3 Existing fencing in the A2-01 area may require temporary removal and subsequent repair of existing fencing to enable Contractor access to Borehole locations as indicated on the Drawings. Any existing fencing removed or altered is to be repaired upon completion of the Work.
- .4 Limit the development or disturbance of natural ground areas. Existing surface water drainage is to remain free of obstruction.
- .5 Identify with readily visible markings in the field the proposed route for all access roads to be constructed or upgraded to allow for inspection by the Departmental Representative. Do not commence construction until the Departmental Representative provides written notification to proceed.
- .6 Construct access roads and drill pads of a size sufficient for safe operation of the Contractor's drilling and ancillary/support equipment and supplies.
- .7 Drill pads will be free draining and have sufficient bearing capacity and stability for safe operation of Contractor's drilling equipment.

- .8 Install and maintain appropriate safety signage and barriers at the access roads and drill sites.
- .9 Reclaim or remove constructed access roads and drill pads as required.

3.3 Boreholes within Overburden

- .1 Prior to commencing Borehole drilling, verify through survey that the Borehole collar location and orientation is correct. Provide written confirmation of the verification and results to the Departmental Representative.
- .2 Organize and arrange drilling equipment and materials so as to not impede or prevent movement of other Work on site.
- .3 Verify the borehole accuracy using topographic survey and Down-the-Hole instrument survey methodology as detailed in the Contractor's Drilling Plan.
- .4 Provide advance notice as specified to the Departmental Representative for the commencement and completion of each borehole and a Daily Report of drilling progress in compliance with this Section.
- .5 All Boreholes are to have sealable steel casing installed through Overburden to prevent surface water flows from entering the Borehole. Casing is to:
 - .1 Connect to surrounding bedrock from surface for entire overburden interval with cementitious grout.
 - .2 Extend a minimum of 1.0 m into competent bedrock.
 - .3 Project a minimum 0.4 m and maximum of 1.0 m above the drill pad surface.
 - .4 Have a lockable steel cap with a keyed-alike lock and permanent identification label above the existing ground surface.
 - .5 Be left in place upon completion of the Borehole.
- .6 Contractor will complete a Quality Control Overburden Water Inflow Test to demonstrate that the installed sealable casings limit the inflow of overburden groundwater into the Borehole to a value of 1 litre per hour or less. The methodology is as follows:
 - .1 Drill and case through overburden and 1.0 m into competent bedrock.
 - .2 Pull steel casing back approximately 0.5 m.
 - .3 Fill borehole with grout to a depth of 1 m from hole bottom.
 - .4 Provide a sample of the grout to the Departmental Representative.
 - .5 Push casing back to bottom of hole and allow grout to set.
 - .6 After grout sets, drill through cured grout and 0.1 m into bedrock.
 - .7 Complete Overburden Water Inflow Test.
- .7 Upon completion Boreholes are to be secured at the collar with a lockable steel cap with a keyed-alike lock.
- .8 Install a permanent Borehole identification label affixed to the borehole casing.

3.4 Boreholes within Bedrock

- .1 Complete HQ3 triple tube sized diamond core Boreholes through the entire bedrock section to the specified design and minimum drill core recovery rate.
- .2 Bedrock core is to be placed in core boxes in sequence with depth intervals below ground surface clearly indicated with core marking blocks. Core intervals with lost core or poor core recovery should be clearly identified.

- .3 Full core boxes are to securely closed with lid prior to transport. Clearly identify, with permanent marker, on the lid and one end of each full core tray the borehole identification number, core depth interval, individual sequential core box number and drilling date(s).
 - .4 Transport full core boxes to the Departmental Representative designated site location.
- 3.5 Boreholes - Abandonment
- .1 Grout the entire column of all abandoned boreholes from completion depth to surface, with cementitious grout.
 - .2 Cut off and remove casing within 300 mm of the ground surface or remove casing column completely.
- 3.6 Boreholes – At Completion
- .1 Remove all Contractor's equipment, supplies and wastes from borehole locations, abandoned and completed.
 - .2 Leave drill pad and access road surfaces smooth and free draining.
 - .3 Remove all survey stakes, safety signage and barriers at the drill sites and access roads.
 - .4 Reclaim or remove constructed access roads or drill pads as required.
- 3.7 Core Storage Racks
- .1 Construct core storage racks to the Departmental Representative designated site location.
 - .2 Core storage racks are to be constructed on stable, level, ground that is free draining.
- 3.8 Drill Core
- .1 Drill core is to be handled in accordance with ASTM D2113 Rock Core Drilling and ASTM D2114-Sampling of Rock for Site Exploration.

END OF SECTION

PART 1 GENERAL

1.1 Description

- .1 This Section specifies general requirements for the supply of Aggregate Material to be incorporated into the Work for the following:
 - .1 Construction and maintenance of Borehole drill pads.
 - .2 Construction, upgrade or repairs to Borehole access roads.
 - .3 All other Contractor aggregate requirements for completion of the Contractors Drilling Plan.
- .2 Aggregate Materials used on Site are to be sourced and processed sufficiently that placed Aggregate Materials do not leach or cause deleterious runoff that enter watercourses or extends greater than 1m from the placement area.

1.2 Definitions

- .1 Aggregate Materials; Course grained, non-metal leaching, Non-acid generating or Potentially Acid Generating (PAG), non-Tailings earth materials blended as required to meet requirements of Specifications and Contractors Drilling Plan.
- .2 Site: The extents of the Giant Mine Site.

1.3 Aggregate Material Source

- .1 Abide by conditions of the Land Use Permit and/or other requirements of Authorities Having Jurisdiction (AHJ).
- .2 Aggregate Materials are to be sourced from Contractor locations outside of the GMRP site. There are no locations on the Site available for extraction or generation of Aggregate Materials.
- .3 The source(s), specifications and sampling and testing results of Aggregate Materials, including acid-base accounting (ABA), to be incorporated into work is to be detailed in the Contractors Drilling Plan.
- .4 Contractor's analytical testing laboratory responsible for providing testing results of Aggregate Materials is to have CALA Laboratory Certification and ISO 17025 Certifications for the analytical testing performed.
- .5 Information on acid-base accounting (ABA) sampling and testing conducted on the Aggregate Material source and products to be included in the Contractors Drilling Plan. Sampling is to be completed according to BC Ministry of Transport (BC MOT) Technical Circular T-10/04 ARD Testing at Quarry and Rock Cut Sites, November 2004 or equivalent industry standard for that material. Equivalency to be judged and accepted by Departmental Representative.
- .6 If, in the opinion of Departmental Representative, materials from the proposed source do not meet, or cannot reasonably be processed to meet specified requirements, locate an alternative source or demonstrate that material from source in question can be processed to meet specified requirements.
- .7 Should a change of material source be proposed during work, provide Departmental Representative with completed Drilling Plan Change Document detailing the proposed change a minimum of one (1) week prior to change. Details of the new source, specifications and sampling and testing results, including acid-base accounting (ABA) sampling, is required to accompany the Drilling Plan Change Document.

- .8 Acceptance of Aggregate Material at source does not preclude future rejection if it is subsequently found to vary spatially, or if it fails to conform to requirements specified, or if its field performance is found to be unsatisfactory.

1.4 Quality Assurance Sampling and Testing

- .1 Provide Departmental Representative with access to sources, processed and placed material for inspection, sampling and testing.

1.5 Related Information:

- .1 Section 01 45 00 Quality Control and Quality Assurance.
- .2 Section 02 02 00 Drilling.

1.6 Measurement of Payment

- .1 The supply, placement and compaction of Aggregate Materials including stripping, handling, stockpiling, installation and maintenance of erosion, sediment and drainage controls, replacement of organics, restoration (if required) and dust control measures will be considered for payment as described in Section 02 02 00 - Drilling.
- .2 Except as indicated above, work under this section will not be measures. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate cost of the work of this section as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.
- .3

PART 2 PRODUCTS

2.1 Aggregate Materials

- .1 Aggregate Material quality: sound, hard, durable material free from soft particles, organic material or other deleterious substances.
- .2 Aggregate Materials classified as unsuitable will include:
 - .1 Earth Materials containing organic material, snow, ice or other deleterious material.
 - .2 Metal leaching, Acid Generating or Potentially Acid Generating earth materials.

PART 3 EXECUTION

3.1 Environmental Protection

- .1 Comply with requirements of Section 01 35 42 - Environmental Procedures and the Contractor Environmental Protection Plan.
- .2 Install and maintain dust, erosion, sediment and drainage controls as required.

3.2 Obtaining Aggregate Materials

- .1 Obtain from own sources, located outside of the Giant Mine Site extent all required Aggregate Materials.
- .2 Transport Aggregate Materials to the work areas via existing access routes where available. Maintain access routes and provide for dust control to the work areas, as required.

3.3 Handling

- .1 Handle and transport Aggregate Materials to avoid segregation, contamination and degradation.

3.4 Stockpiling

- .1 If required, stockpile Aggregate Materials on the Site in locations approved by Departmental Representative. Stockpiles are to not be located on undisturbed natural ground surfaces.
- .2 Stockpiling sites are to be level, well drained, and of adequate bearing capacity and stability to support stockpiled materials and handling equipment. Avoid areas with soft, fine-grained soils that may contaminate stockpiled materials. Do not impede surface water drainage.
- .3 Except where stockpiled on stabilized areas acceptable to Departmental Representative, provide compacted aggregate base of not less than 300 mm in depth to prevent contamination of the Aggregate Materials, or stockpile Aggregate Materials on the ground but do not incorporate bottom 300 mm of the stockpile into the Work.
- .4 Stockpile Aggregate Materials in uniform layers of one (1) metre maximum thickness.
- .5 Complete each layer over the entire stockpile area before beginning next layer.
- .6 Uniformly spot-dump Aggregate Materials delivered to stockpile in trucks and build up stockpile as specified.
- .7 During snowy conditions, prevent ice and snow from becoming mixed into stockpile.
- .8 When work is complete, remove excess stockpiled material from Site or leave stockpile area as indicated by Departmental Representative.

END OF SECTION

APPENDIX A
SITE PHOTOGRAPHS



B143_HR_01

CLIENT
 PUBLIC WORKS GOVERNMENT SERVICES CANADA
 YELLOWKNIFE, N.W.T.

PROJECT
 GIANT MINE REMEDIATION PROJECT
 HIGH RISK DRILLING

CONSULTANT



YYYY-MM-DD	2014-01-22
PREPARED	MBP
DESIGN	MBP
REVIEW	ALP
APPROVED	DTK

TITLE
BOREHOLE ID: B143_HR_01
PHOTO LOOKING EAST

PROJECT No.	PHASE No.	Rev.	FIGURE
13-1427-0004	13000	0	1-1



B143_HR_02

CLIENT
 PUBLIC WORKS GOVERNMENT SERVICES CANADA
 YELLOWKNIFE, N.W.T.

PROJECT
 GIANT MINE REMEDIATION PROJECT
 HIGH RISK DRILLING

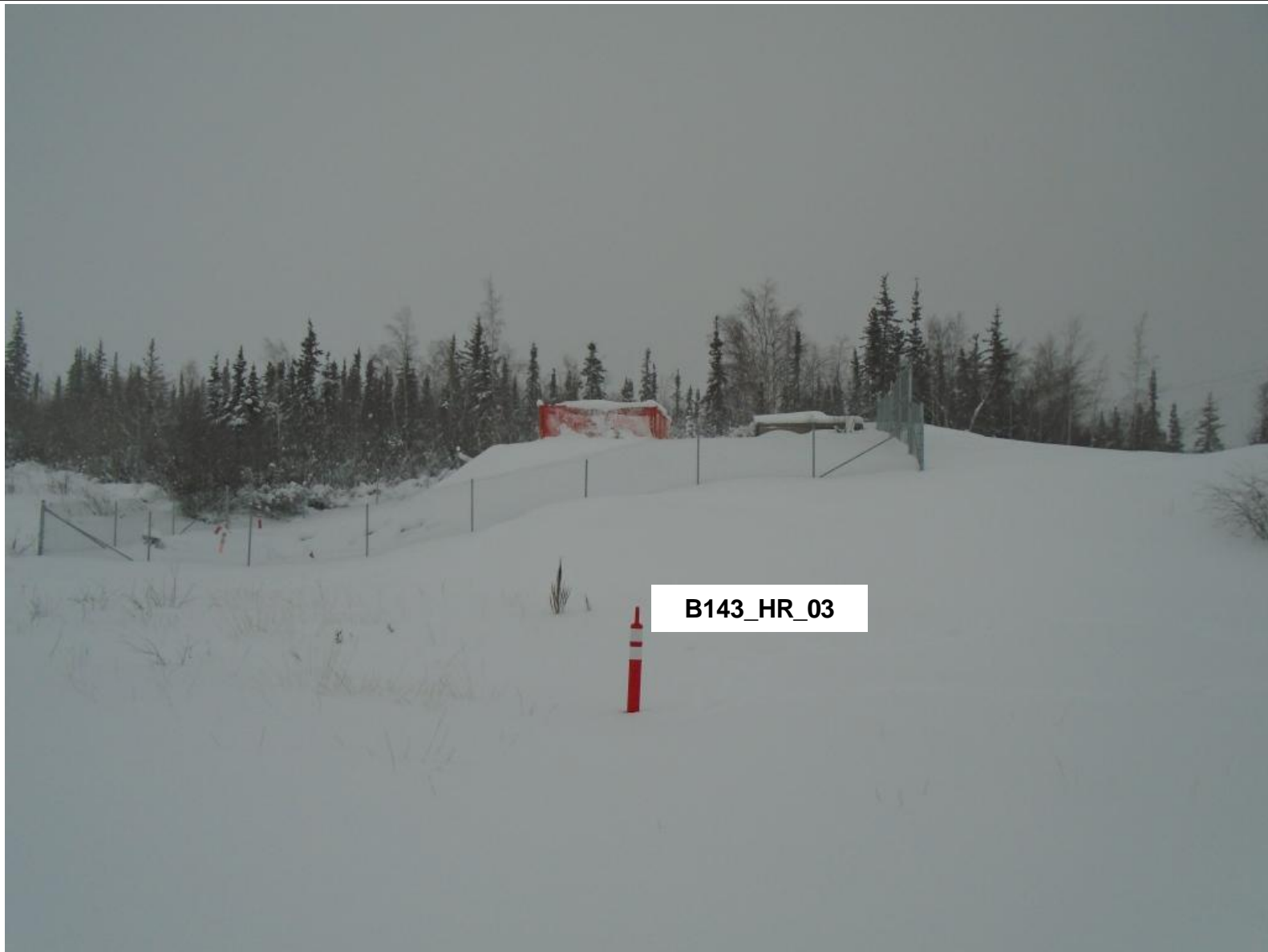
CONSULTANT



YYYY-MM-DD	2014-01-22
PREPARED	MBP
DESIGN	MBP
REVIEW	ALP
APPROVED	DTK

TITLE
BOREHOLE ID: B143_HR_02
PHOTO LOOKING EAST

PROJECT No.	PHASE No.	Rev.	FIGURE
13-1427-0004	13000	0	1-2



B143_HR_03

CLIENT
PUBLIC WORKS GOVERNMENT SERVICES CANADA
YELLOWKNIFE, N.W.T.

PROJECT
GIANT MINE REMEDIATION PROJECT
HIGH RISK DRILLING

CONSULTANT



YYYY-MM-DD 2014-01-22
PREPARED MBP
DESIGN MBP
REVIEW ALP
APPROVED DTK

TITLE
BOREHOLE ID: B143_HR_03
PHOTO LOOKING NORTH

PROJECT No. 13-1427-0004 PHASE No. 13000 Rev. 0 FIGURE 1-3



B143_HR_04

CLIENT
PUBLIC WORKS GOVERNMENT SERVICES CANADA
YELLOWKNIFE, N.W.T.

PROJECT
GIANT MINE REMEDIATION PROJECT
HIGH RISK DRILLING

CONSULTANT



YYYY-MM-DD 2014-01-22
PREPARED MBP
DESIGN MBP
REVIEW ALP
APPROVED DTK

TITLE
BOREHOLE ID: B143_HR_04
PHOTO LOOKING EAST

PROJECT No. 13-1427-0004 PHASE No. 13000 Rev. 0 FIGURE 1-4



B143_HR_05

CLIENT
PUBLIC WORKS GOVERNMENT SERVICES CANADA
YELLOWKNIFE, N.W.T.

PROJECT
GIANT MINE REMEDIATION PROJECT
HIGH RISK DRILLING

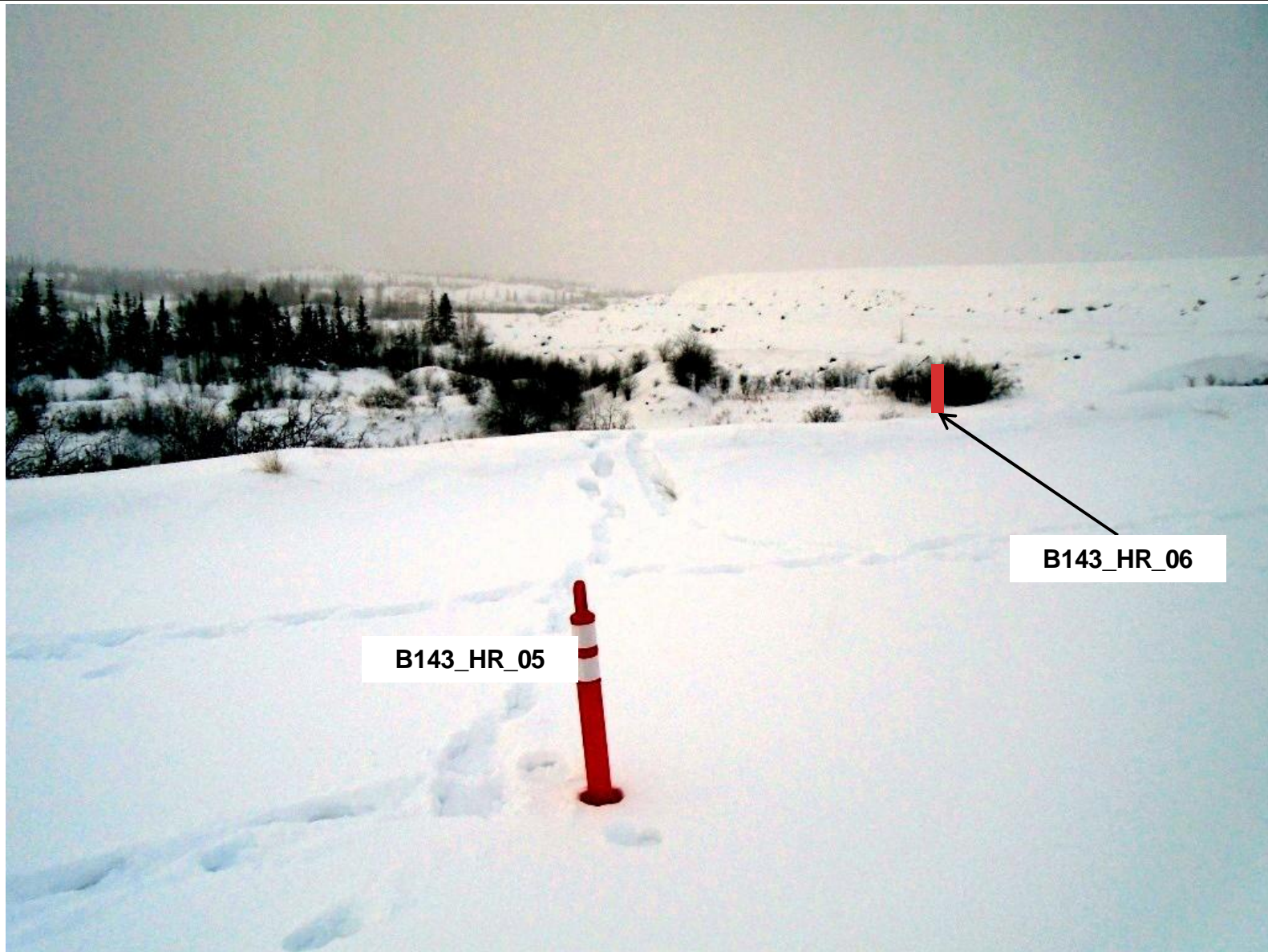
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YYYY-MM-DD	2014-01-22
PREPARED	MBP
DESIGN	MBP
REVIEW	ALP
APPROVED	DTK

TITLE
BOREHOLE ID: B143_HR_05
PHOTO LOOKING SOUTH

PROJECT No.	PHASE No.	Rev.	FIGURE
13-1427-0004	13000	0	1-5



CLIENT
PUBLIC WORKS GOVERNMENT SERVICES CANADA
YELLOWKNIFE, N.W.T.

PROJECT
GIANT MINE REMEDIATION PROJECT
HIGH RISK DRILLING

CONSULTANT

YYYY-MM-DD 2014-01-22

PREPARED MBP

DESIGN MBP

REVIEW ALP

APPROVED DTK

TITLE

BOREHOLE ID: B143_HR_06
PHOTO LOOKING WEST



PROJECT No.
13-1427-0004

PHASE No.
13000

Rev.
0

FIGURE
1-6



CLIENT
PUBLIC WORKS GOVERNMENT SERVICES CANADA
YELLOWKNIFE, N.W.T.

PROJECT
GIANT MINE REMEDIATION PROJECT
HIGH RISK DRILLING

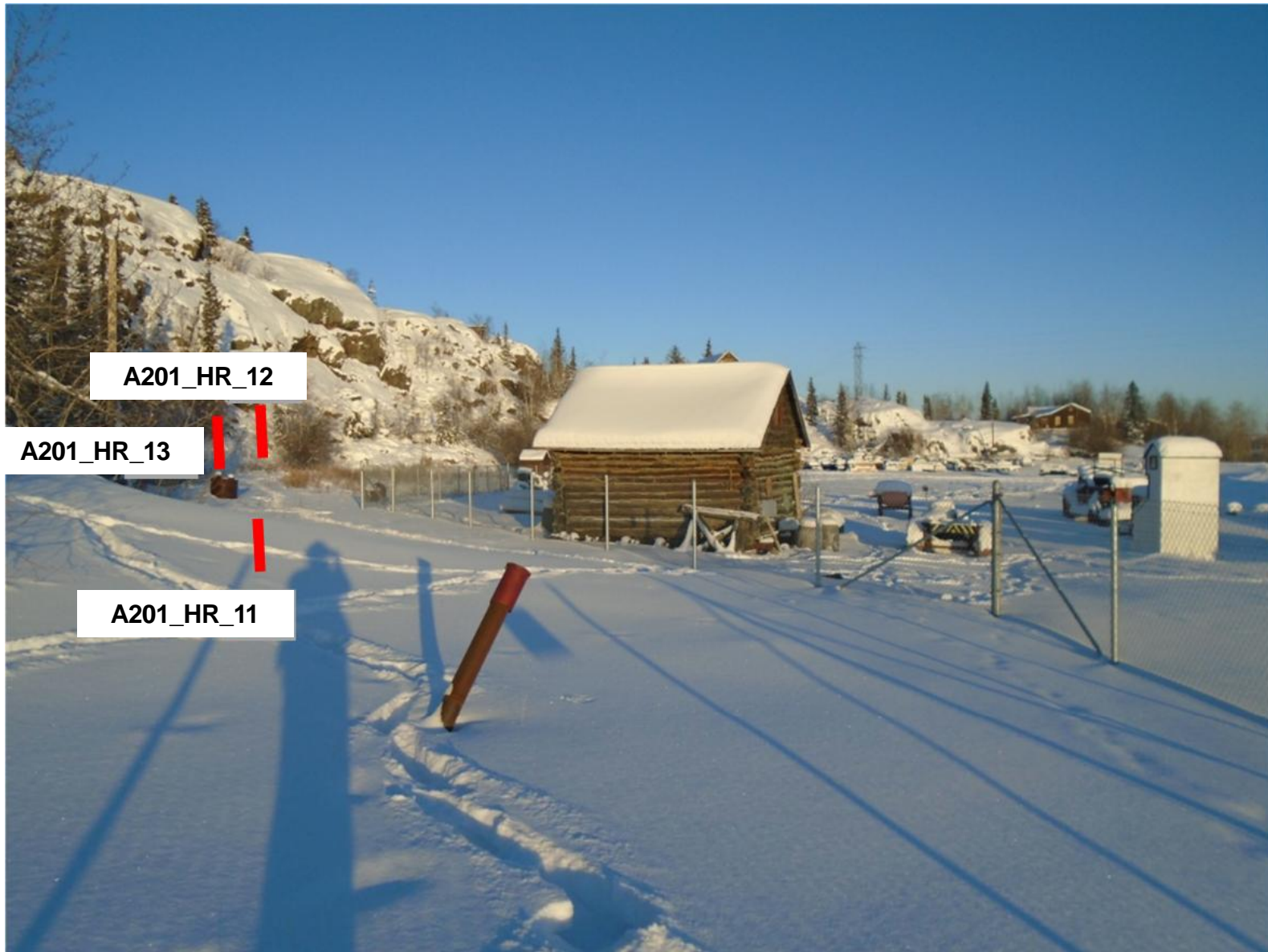
CONSULTANT



YYYY-MM-DD	2014-01-22
PREPARED	MBP
DESIGN	MBP
REVIEW	ALP
APPROVED	DTK

TITLE
BOREHOLE ID: B143_HR_07
PHOTO LOOKING EAST

PROJECT No.	PHASE No.	Rev.	FIGURE
13-1427-0004	13000	0	1-7



CLIENT
PUBLIC WORKS GOVERNMENT SERVICES CANADA
YELLOWKNIFE, N.W.T.

PROJECT
GIANT MINE REMEDIATION PROJECT
HIGH RISK DRILLING

CONSULTANT

YYYY-MM-DD 2014-01-22

PREPARED MBP

DESIGN MBP

REVIEW ALP

APPROVED DTK

TITLE

**OVERVIEW OF A201 BOREHOLE LOCATIONS
PHOTO LOOKING EAST**

PROJECT No.
13-1427-0004

PHASE No.
13000

Rev.
0

FIGURE
1-8





A201_HR_11

CLIENT
PUBLIC WORKS GOVERNMENT SERVICES CANADA
YELLOWKNIFE, N.W.T.

PROJECT
GIANT MINE REMEDIATION PROJECT
HIGH RISK DRILLING

CONSULTANT



YYYY-MM-DD 2014-01-22
PREPARED MBP
DESIGN MBP
REVIEW ALP
APPROVED DTK

TITLE
BOREHOLE ID: A201_HR_11
PHOTO LOOKING NORTH

PROJECT No.
13-1427-0004

PHASE No.
13000

Rev.
0

FIGURE
1-9



A201_HR_12

CLIENT
 PUBLIC WORKS GOVERNMENT SERVICES CANADA
 YELLOWKNIFE, N.W.T.

PROJECT
 GIANT MINE REMEDIATION PROJECT
 HIGH RISK DRILLING

CONSULTANT

YYYY-MM-DD 2014-01-22

PREPARED MBP

DESIGN MBP

REVIEW ALP

APPROVED DTK

TITLE

BOREHOLE ID: A201_HR_12
PHOTO LOOKING EAST



PROJECT No.
13-1427-0004

PHASE No.
13000

Rev.
0

FIGURE
1-10



A201_HR_13

CLIENT
PUBLIC WORKS GOVERNMENT SERVICES CANADA
YELLOWKNIFE, N.W.T.

PROJECT
GIANT MINE REMEDIATION PROJECT
HIGH RISK DRILLING

CONSULTANT



YYYY-MM-DD 2014-01-22
PREPARED MBP
DESIGN MBP
REVIEW ALP
APPROVED DTK

TITLE
BOREHOLE ID: A201_HR_13
PHOTO LOOKING WEST

PROJECT No.
13-1427-0004

PHASE No.
13000

Rev.
0

FIGURE
1-11

**APPENDIX B
LICENSES AND PERMITS**



Mackenzie Valley Land and Water Board

7th Floor - 4910 50th Avenue • P.O. Box 2130
YELLOWKNIFE, NT X1A 2P6
Phone (867) 669-0506 • FAX (867) 873-6610

September 13, 2012

File: MV2012S0019

Mr. Adrian Paradis
Acting Manager, Giant Mine Remediation Project
Aboriginal Affairs and Northern Development Canada
Contaminants and Remediation Directorate
YELLOWKNIFE NT X1A 2R3 Email: Adrian.Paradis@aandc-aadnc.gc.ca

Dear Mr. Paradis:

**Issuance of Type A Land Use Permit
Drilling & Soils Testing, Giant Mine Site, NT**

Attached is Land Use Permit MV2012S0019 granted by the Mackenzie Valley Land and Water Board (MVLWB) in accordance with the *Mackenzie Valley Resource Management Act*. This Permit has been approved for a period of five years commencing September 13, 2012 and expiring September 12, 2017.

A copy of all related correspondence and documents has been filed on the Public Registry at the office of the MVLWB. Please be advised that this letter, with its attached procedures, inspection reports, and related correspondence is part of the Public Registry and is intended to keep all interested parties informed of the manner in which the Permit's requirements are being met. All Public Registry material will be considered if an amendment to the Permit is requested.

The full cooperation of AANDC is anticipated and appreciated. If you have any questions or concerns, please contact Lynn Boettger at (867) 766-7461 or email lboettger@mvlwb.com.

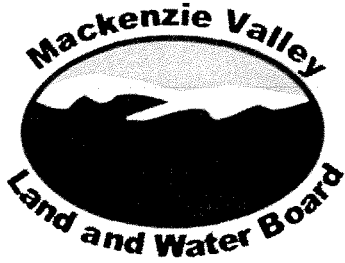
Yours sincerely,

A handwritten signature in black ink, appearing to read "Willard Hagen". The signature is written over a vertical line that extends from the "Yours sincerely," text.

Willard Hagen
Chair

Copied to: Distribution List
Lynn Boettger, Regulatory Officer, MVLWB

Attachments:



Land Use Permit

Permit Class	Permit No	Amendment No
A	MV2012S0019	

Subject to the Mackenzie Valley Land Use Regulations and the terms and conditions in this Permit, authority is hereby granted to:

Aboriginal Affairs and Northern Development Canada –
Contaminants and Remediation Directorate

Permittee

to proceed with the land use operation described in the application of:

Signature Mr. Adrian Paradis	Date July 18, 2012
Type of Land Use Operation Drilling and Soils Testing Program	
Location Giant Mine Site, Northwest Territories	

This Permit may be assigned, extended, discontinued, suspended, or cancelled pursuant to the Mackenzie Valley Land Use Regulations.

Dated at Yellowknife this 13 day of September, 2012

Signature Chair

Signature Witness

Commencement Date

September 13, 2012

Expiry Date

September 12, 2017

ATTENTION

It is a condition of this Permit that the Permittee comply with the provisions of the *Mackenzie Valley Resource Management Act* and Regulations and the terms and conditions set out herein. A failure to comply may result in suspension or cancellation of this Permit.

Conditions Annexed to and Forming Part of Land Use Permit # MV2012S0019

Part A: Scope of Permit

1. This Permit entitles Aboriginal Affairs and Northern Development Canada to conduct a drilling and soils testing investigation program on the Giant Mine property. All activities are to take place within the following area:
62° 28' 54" N, 114° 19' 12" W and 62° 32' 38" N, 114° 22' 34" W
2. The Permit is issued subject to the conditions contained herein with respect to the use of land for the activities and area identified in Part A, Item 1 of this Permit.
3. Compliance with the terms and conditions of this Permit does not absolve the Permittee from the responsibility for compliance with the requirements of all applicable federal, territorial, and municipal legislation.

Part B: Definitions

“**Act**” means the *Mackenzie Valley Resource Management Act*.

“**Board**” means the Mackenzie Valley Land and Water Board established under Part 4 of the *Mackenzie Valley Resource Management Act*.

“**Drill Waste**” means all materials or chemicals, solid or liquid, associated with the drilling of boreholes and includes borehole cuttings.

“**Inspector**” means an Inspector designated by the Minister under the *Mackenzie Valley Resource Management Act*.

“**Watercourse**” means a natural body of flowing or standing water or an area occupied by water during part of the year, and includes streams, swamps and gulches but does not include groundwater.

Part C: Conditions Applying to All Activities (the headings correspond to subsection 26(1) of the Mackenzie Valley Land Use Regulations)

26(1)(a) Location and area

- | | | |
|----|--|------------------------|
| 1. | The Permittee shall not conduct this land use operation on any lands not designated in the accepted application. | LOCATION OF ACTIVITIES |
| 2. | The Permittee shall submit drill targets and soils testing locations to an Inspector and the Board on a monthly basis during any periods of active drilling or soil test pitting. | DRILL LOCATIONS |
| 3. | The Permittee shall employ a recirculating drill when drilling within 100 metres of the ordinary high water mark of a Watercourse and ensure that cuttings do not enter any Watercourse. | TYPE OF DRILL |

26(1)(b) Time

4. The Permittee shall provide in writing to an Inspector, at least 48 hours prior to commencement of this land use operation, the following information: IDENTIFY AGENT
- (a) person, or persons, in charge of the field operation;
 - (b) alternates; and
 - (c) all methods for contacting the above person(s).
5. The Permittee shall advise an Inspector at least ten days prior to the completion of the land use operation of: (a) the plan for removal or storage of equipment and materials, and (b) when final clean-up and reclamation of the land used will be completed. REPORTS BEFORE REMOVAL

26(1)(c) Type and size of equipment

6. The Permittee shall not use any equipment except of a similar type, size, and number listed in the accepted application. ONLY APPROVED EQUIPMENT

26(1)(d) Methods and techniques

7. The Permittee shall not clear areas larger than identified in the accepted application dated. MINIMIZE AREA CLEARED
8. The Permittee shall plug all boreholes as the land use operation progresses unless otherwise authorized in writing by an Inspector. PLUG HOLES
9. The Permittee shall cap each drill casing immediately upon completion of drilling, unless delayed capping of the drill casing is authorized in writing by an Inspector. SEALING OF DRILL CASINGS
10. The Permittee shall replace all excavated material from any test pits prior to the expiry of this Permit, unless otherwise authorized in writing by an Inspector. TEST PITS

26(1)(e) Type, location, capacity, and operation of all facilities

11. The Permittee shall ensure that the land use area is kept clean at all times. CLEAN WORK AREA

26(1)(f) Control or prevention of ponding of water, flooding, erosion, slides, and subsidence of land

12. The land use operation shall not cause obstruction to any natural drainage. NATURAL DRAINAGE

- | | | |
|---|--|---|
| 13. | The Permittee shall, where flowing water from bore holes is encountered, (1) plug the bore hole in such a manner as to permanently prevent any further outflow of water; and (2) report the artesian occurrence to the Inspector immediately. | PLUG ARTESIAN
WELLS |
| 14. | The Permittee shall not remove vegetation or soil, or operate heavy equipment within 100 meters of any Watercourse, except as described in the accepted application, unless otherwise authorized in writing by the Inspector. | HABITAT
DAMAGE |
| 15. | The Permittee shall prepare all drill sites on undisturbed native soils in such a manner to prevent rutting on the ground surface. | PREVENTION OF
RUTTING |
| 16. | The Permittee shall implement erosion control measures as the land use operation progresses. | PROGRESSIVE
EROSION
CONTROL |
| 26(1)(g) Use, storage, handling, and ultimate disposal of any chemical or toxic material | | |
| 17. | The Permittee shall not use any drilling fluids, muds, or additives that were not identified in the accepted application, unless the MSDS sheets are provided to the Board and usage of the chemical(s) is authorized in writing by the Board. | APPROVAL OF
CHEMICALS -
DRILLING |
| 18. | The Permittee shall dispose of all drill waste containing TOXIC or persistent chemical additives as described in the approved Waste Management Plan. | DRILL WASTE
DISPOSAL |
| 19. | The Permittee shall not allow any drilling waste to spread to the surrounding lands or watercourses. | DRILL WASTE
CONTAINMENT |
| 20. | The Permittee shall report all spills immediately to the 24 hour Spill Report Line (867) 920-8130 in accordance with instructions contained in "NT-NU Spill Report" form. | REPORT
CHEMICAL AND
PETROLEUM
SPILLS |
| 21. | The Permittee shall dispose of all toxic or persistent substances as described in the approved Waste Management Plan. | WASTE
CHEMICAL
DISPOSAL |
| 22. | The Permittee shall dispose of all waste petroleum products as described in the approved Waste Management Plan. | WASTE
PETROLEUM
DISPOSAL |
| 26(1)(h) Wildlife and fish habitat | | |
| 23. | The Permittee shall take all reasonable measures to prevent damage to wildlife and fish habitat during this land use operation. | HABITAT
DAMAGE |
| 24. | The Permittee shall use food handling and garbage disposal procedures that do not attract wildlife. | WILDLIFE/
HUMAN
CONFLICT |

25. The Permittee shall not obstruct the movement of fish while conducting this land use operation. FREE FISH MOVEMENT

26(1)(j) Storage, handling, and disposal of refuse or Sewage

26. The Permittee shall dispose of all garbage, waste, and debris as described in the approved Waste Management Plan, unless otherwise authorized in writing by an Inspector. REMOVE GARBAGE

27. The Permittee shall adhere to the approved Waste Management Plan and shall annually review the Plan and make any necessary revisions to reflect changes in operations, technology, chemicals or fuels. Revisions to the Plan shall be submitted to the Board for approval. WASTE MANAGEMENT

26(1)(j) Protection of historical, archaeological, and burial sites

28. The Permittee shall not knowingly remove, disturb, or displace any archaeological specimen or site. SITE DISTURBANCE

29. The Permittee shall, where a suspected archaeological or historical site, or burial ground is discovered: (1) immediately suspend operations on the site; and (2) notify the Board at (867) 669-0506 or an Inspector at (867) 669-2768, and the Prince of Wales Northern Heritage Centre at (867) 920-6182 or 873-7688. SITE DISCOVERY AND NOTIFICATION

26(1)(k) Objects and places of recreational, scenic, and ecological value.

Intentionally left blank

26(1)(l) Security deposit

30. All costs to remediate the area under this permit are the responsibility of the Permittee. RESPONSIBILITY FOR REMEDIATION COSTS

26(1)(m) Fuel storage

31. The Permittee shall not allow petroleum products to spread to surrounding lands or Watercourses. FUEL CONTAINMENT

32. The Permittee shall adhere to the approved Spill Contingency Plan and shall annually review the Plan and make any necessary revisions to reflect changes in operations, technology, chemicals or fuels. Revisions to the Plan shall be submitted to the Board for approval. SPILL CONTINGENCY PLAN

33. The Permittee shall ensure that spill-response equipment is in place, prior to commencement of operations, to respond to any potential spills. SPILL RESPONSE

26(1)(n) Methods and techniques for debris and brush removal

- | | | |
|-----|---|-------------------------|
| 34. | The Permittee shall progressively dispose of all brush and trees, and shall complete all disposals prior to the expiry date of this permit. | BRUSH
DISPOSAL/ TIME |
|-----|---|-------------------------|

26(1)(o) Restoration of the lands

- | | | |
|-----|--|--------------------------------------|
| 35. | The Permittee shall carry out progressive reclamation of disturbed areas as soon as practical. | PROGRESSIVE
RECLAMATION |
| 36. | The Permittee shall complete all clean-up and restoration of the lands used prior to the expiry date of this Permit. | FINAL CLEAN UP
AND
RESTORATION |

26(1)(p) Display of permits and permit numbers

- | | | |
|-----|---|-------------------|
| 37. | The Permittee shall keep on hand, at all times during this land use operation, a copy of the Land Use Permit. | COPY OF
PERMIT |
|-----|---|-------------------|

26(1)(q) Matters not inconsistent with the regulations

- | | | |
|-----|---|---|
| 38. | The Permittee shall ensure that all persons working under the authority of this Permit are aware of and will adhere to the conditions as stated in this Permit. | NOTIFICATION
TO ALL
EMPLOYEES/
CONTRACTORS |
|-----|---|---|



Mackenzie Valley Land and Water Board
7th Floor - 4910 50th Avenue
P.O. Box 2130
YELLOWKNIFE NT X1A 2P6
Phone (867) 669-0506
FAX (867) 873-6610

Reasons for Decision

Issued pursuant to paragraph 40(2)(c) of the *Mackenzie Valley Land Use Regulations* (MVLUR) and section 121 of the *Mackenzie Valley Resource Management Act* (MVRMA)

Land Use Permit Application	
Preliminary Screener	MVLWB
Reference/File Number	MV2012S0019
Applicant	Aboriginal Affairs and Northern Development Canada – Contaminants and Remediation Directorate (AANDC-CARD)
Project	Drilling and Soils Testing Program, Giant Mine, NT

**Decision from Mackenzie Valley Land and Water Board
Meeting of**

September 13, 2012

With respect to this application, notice was given in accordance with sections 63 and 64 of the MVRMA. There was no public hearing held in association with this application.

Background

This application is for a land-based drilling program at the Giant Mine site in Yellowknife, NT. The proposed work consists of drilling up to 135 holes using mud rotary, diamond drilling and down-the-hole drilling methodologies, boring up to 45 holes using an auger, excavating 100 soil test pits, and associated activities for four programs (Freeze optimization study, design support drilling and soils testing, A1, B1 and C1 pit stability, and underground stability).

The application was submitted on July 25, 2012 and then sent for review and comment. No significant issues were raised with the proposed activities.

Decision

The Board is satisfied that:

- The development has been screened pursuant to the MVRMA
- Any potential adverse environmental effects are insignificant or mitigable with known technology; and

- There is no likelihood that the proposed development might be a cause of public concern.

After reviewing the submission of the Applicant, the written comments received by the Board and the Staff Report prepared for the Board, the Board, having due regard to the facts and circumstances, the merits of the submissions made to it, and to the purpose, scope, and intent of the MVRMA and Regulations made thereunder, has determined that:

Land Use Permit MV2012S0019 be issued subject to the terms and conditions contained therein.

The Board's reasons for this decision are as follows:

- The Board is satisfied that adequate consultation has been conducted, and that advice has been sought and considered, in accordance with sections 63 and 64 of the MVRMA.
- It is the opinion of the Board that the terms and conditions attached to MV2012S0019, pursuant to the MVRMA, will reduce the potential environmental impacts resulting from the project.
- The use of land proposed by the Applicant is of a nature contemplated by the MVRMA.
- The Board has notified the Applicant, through a statement included in the scope of this Permit, that compliance with the terms and conditions of this Permit does not absolve the Permittee from responsibility for compliance with the requirements of any other legislation.
- The operation will likely contribute to the socio-economic well-being and economic development of the region.
- The Board has reviewed the information contained in the Staff Report dated September 13, 2012 regarding environmental impacts and/or public concerns.

Land Use Permit MV2012S0019 contains provisions that the Board feels necessary to ensure and monitor compliance with the MVRMA and the Regulations made thereunder and to provide appropriate safeguards in respect of the Applicant's use of the land affected by the Permit. The Board will provide additional referenced material or documents if requested in writing to do so.

SIGNATURE

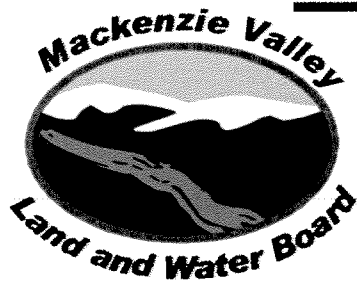
Mackenzie Valley Land and Water Board

Chair

Date

Witness

Date



Mackenzie Valley Land and Water Board
7th Floor - 4910 50th Avenue
P.O. Box 2130
YELLOWKNIFE NT X1A 2P6
Phone (867) 669-0506
FAX (867) 873-6610

FILE NUMBER MV2012S0019

Date: September 13, 2012

To: Mr. Adrian Paradis

Organization: AANDC – CARD – Giant Mine Remediation Project

Email: adrian.paradis@aandc.gc.ca

Copied To: Distribution List

From: Amanda for Willard Hagen, Chair

Number of pages including cover 14

Remarks:

Please see attached

- Enclosures
- For your information
- For your comment
- For your action
- For your approval

<u>Delivered by</u>	<u>Date</u>
<input type="checkbox"/> Mail	_____
<input checked="" type="checkbox"/> Email/Fax	<u>Sept 13, 2012</u>
<input type="checkbox"/> Hand Delivered	_____
Sent by:	<u>AG</u>

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AKAITCHO REGION DISTRIBUTION LIST

Organization	Contact Name	Contact Position/Title	Email/Fax
Akaitcho Screening Board	Stephanie Poole	Screening Officer	screeningofficer@eastarm.com ;
Akaitcho Screening Board	Stephen Ellis	IMA Implementation Officer	scellis@eastarm.com ;
City of Yellowknife	Gordon Van Tighem, c/o Judy Brennan	Mayor, c/o Executive Secretary	jbrennan@yellowknife.ca ;
City of Yellowknife	Robert Long	City Administrator	rlong@yellowknife.ca ;
Dene Nation	Lee Mandeville	Lands Program Coordinator	lmandeville@denenation.com ;
Deninoo Community Council	Carol Collins	Lands Officer	Carolc.lands@gmail.com ;
Deninu K'ue First Nation	Emile Bjornson	IMA Coordinator	ima_dkfn@northwestel.net ;
Deninu K'ue First Nation	Chief Balsillie	Chief	admin_dkfn@northwestel.net ;
DFO	Rick Walbourne	Habitat Biologist	Rick.Walbourne@dfo-mpo.gc.ca ;
DFO	Lorraine Sawdon	Senior Habitat Biologist	Lorraine.Sawdon@dfo-mpo.gc.ca ;
Enterprise Settlement Corporation	Mike St. Amour	Mayor	Sao_enterprise@northwestel.net ;
Environment Canada	Not applicable	Central email	ec.ea.nwt@ec.gc.ca ;
Fort Resolution Métis Council	Gary Bailey	President	Frmc53@yahoo.ca ;
Hamlet of Fort Resolution	Carol Collins	Lands Officer	Carolc.lands@gmail.com ;
Fort Smith Métis Council	Ken Hudson	President	fortsmithmetisCouncil@northwestel.net ;
Fort Smith Métis Council			rcc.nwtmn@northwestel.net ;
Fort Resolution Métis Council	Trudy King		(867)394-3322;
GNWT	Not applicable	Central email	Gnwt_ea@gov.nt.ca ;
GNWT – DOT	Rhonda Batchelor	Environmental Affairs Analyst	Rhonda_Batchelor@gov.nt.ca ;
GNWT – ENR	Patrick Clancy	Environmental Regulatory Analyst	Patrick_Clancy@gov.nt.ca ;
GNWT – HEALTH	Duane Fleming	Chief Environmental Health Officer	Duane_Fleming@gov.nt.ca ;
GNWT – ITI	Amy Lizotte	Senior Analyst	Amy_Lizotte@gov.nt.ca ;
GNWT – ITI	Russell Teed	Mineral and Petroleum Development Impact Analyst	Russell_Teed@gov.nt.ca ;
GNWT – MACA	Mark Davy	Senior Environmental Planner	Mark_Davy@gov.nt.ca ;
GNWT – PWNHC	Glen Mackay	Assessment Archaeologist	Glen_Mackay@gov.nt.ca ;
Hay River Métis Government Council	George Lafferty		hrmc@northwestel.net
Hay River Metis Council	Paul Harrington	President	(867)874-4472; hrmc@northwestel.net ;
AANDC – Intergovernmental Affairs	Not applicable	Central email	intergov@aandc.gc.ca ;
AANDC – Mineral & Petroleum Resources			MDD@aandc.gc.ca ; PDD@aandc.gc.ca ;

Organization	Contact Name	Contact Position/Title	Email/Fax
Directorate			
AANDC – Aboriginal and Territorial Relations	Not applicable	Central email	consultationsupportunit@aandc.gc.ca ;
AANDC – Aboriginal and Territorial Relations			
INAC – CARD – Giant Mine	Mark Palmer	Executive Director	Mark.Palmer@aandc.gc.ca ;
INAC – CARD – Giant Mine	Adrian Paradis	Head, Tech. and Env. Services	Adrian.Paradis@aandc.gc.ca ;
AANDC – Environment and Conservation	Julian Kanigan Krystal Thompson	A/Head, Environmental Assessment and Agreement	Julian.Kanigan@aandc.gc.ca ; Krystal.Thompson@aandc.gc.ca ;
AANDC – Environment and Conservation	Charlotte Henry	Renewable Resources and Environment Division	Charlotte.Henry@aandc.gc.ca ;
AANDC – South Mackenzie District Office	Scott Stewart – Email only	District Manager	Scott.Stewart@aandc.gc.ca ;
AANDC – South Mackenzie District Office	Charlene Coe – Email only	Land Use Administrator	Charlene.Coe@aandc.gc.ca ;
AANDC- RSA Section	Nathen Richea	A/Head	Nathen.Richea@aandc.gc.ca ;
AANDC	Not applicable		CAU-UCA@aandc.gc.ca ;
Katlodeeche First Nation	Roy Fabian c/o Victoria St. Jean	Chief c/o Lands and Resources Manager	landsnresources@katlodeeche.com ;
Kevin O'Reilly	Kevin O'Reilly		kor@theedge.ca ;
Lutselk'e Dene First Nation	Antoine Michel	Chief	lkdfn.executiveChiefandCouncil@gmail.com ; saolkdfn@gmail.com ;
Lutselk'e Dene First Nation	Mike Tollis	Lands Manager	lkdfnlands@gmail.com ;
MVEIRB	Vern Christensen	Executive Director	vchristensen@reviewboard.ca ;
MVLWB Public Registry	Not applicable	Registry Clerk	permits@mvlwb.com ;
North Slave Métis Alliance	Bill Enge c/o Sheryl Grieve	President c/o Environment Manager	enviomgr@nsma.net ;
Northern Projects Management Office	Matthew Spence	Senior Project Coordinator	Matthew.Spence@cannor.gc.ca ;
Northern Projects Management Office	Kate Witherly	Project Officer	Kate.Witherly@cannor.gc.ca ;
Northwest Territory Métis Nation	Tim Heron	NWTMN IMA Coordinator	(867)872-2772; rcc.nwtmn@northwestel.net ;
Senes Consultants	Sarah Baines	Consultant	sbaines@senes.ca ;
INAC – CARD – Giant Mine	Adrian Paradis	Head, Tech. and Env. Services	Adrian.Paradis@aandc.gc.ca ;
Salt River First Nations	David poitras	Chief	ceo@srfn195.com ;
Smith Landing First Nation	Cheyeanne Paulette	Chief	(867)872-5154;
Smith Landing First Nation	Cec Heron	Lands & Resources Manager	c_heron@smithlanding.com ;
Tlicho Government - Lands Protection Department	Karri Garner	Lands Manager	kerrigarner@tlicho.com ;
Town of Fort Smith	Dwayne Woodward	A/Senior Administrative Officer	dwoodward@fortsmith.ca ;

Organization	Contact Name	Contact Position/Title	Email/Fax
Town of Hay River	Michael Richardson	Senior Administrative Officer	mrichardson@hayriver.com ;
WSCC – Employer Services	Susan Abernethy	Manager	Susan.Abernethy@wscc.nt.ca ;
West Point First Nation	Gwen Cayen	Chief	(867)874-2486; wpfn@northwestel.net ;
Yellowknives Dene First Nation	Not applicable	Central email	environment@ykdene.com ;
Yellowknives Dene First Nation	Todd Slack	Lands and Environment Office	tslack@ykdene.com ;
Yellowknives Dene First Nation (Dettah)	Eddie Sangris	Chief	(867)873-5969; esangris@ykdene.com ;
Yellowknives Dene First Nation (Ndilo)	Ted Tsetta	Chief	(867)873-8545; ttsetta@ykdene.com ;

Fax Broadcast Report

Date/Time : SEP-13-2012 03:29PM THU
Fax Number : 8678736610
Fax Name : MVLWB YK
Model Name : Phaser 3635MFP

Total Pages Scanned: 13

No.	Remote Station	Start Time	Duration	Page	Mode	Job Type	Result
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004	18678725154	09-13 03:16PM	02' 06	013/013	EC	HS	CP
005	18678722772	09-13 03:19PM	00' 00	000/013	EC	HS	FA
006	18678744472	09-13 03:20PM	01' 57	013/013	EC	HS	CP
007	18673943322	09-13 03:22PM	02' 42	013/013	EC	HS	CP
008	8738545	09-13 03:26PM	00' 47	002/013	EC	HS	CP
009	18678722772	09-13 03:27PM	00' 00	000/013	EC	HS	FA
010	18678722772	09-13 03:28PM	00' 00	000/013	EC	HS	FA

Abbreviations:

HS: Host Send
HR: Host Receive
MS: Mailbox Save
MP: Mailbox Print

PL: Polled Local
PR: Polled Remote
WS: Waiting To Send
EC: Error Correct

CP: Completed
FA: Fail
RP: Report

TS: Terminated by System
TU: Terminated by User
G3: Group3

Amanda Gauthier - MVLWB

From: Amanda Gauthier - MVLWB [agauthier@mvlwb.com]
Sent: Friday, September 14, 2012 2:27 PM
To: 'screeningofficer@eastarm.com'; 'scellis@eastarm.com'; 'jbrennan@yellowknife.ca'; 'rlong@yellowknife.ca'; 'lmandeville@denenation.com'; 'Carolc.lands@gmail.com'; 'ima_dkfn@northwestel.net'; 'admin_dkfn@northwestel.net'; 'Rick.Walbourne@dfo-mpo.gc.ca'; 'Lorraine.Sawdon@dfo-mpo.gc.ca'; 'Sao_enterprise@northwestel.net'; 'ec.ea.nwt@ec.gc.ca'; 'Frmc53@yahoo.ca'; 'Carolc.lands@gmail.com'; 'fortsmithmetiscouncil@northwestel.net'; 'rcc.nwtmn@northwestel.net'; 'Gnwt_ea@gov.nt.ca'; 'Rhonda_Batchelor@gov.nt.ca'; 'Patrick_Clancy@gov.nt.ca'; 'Duane_Fleming@gov.nt.ca'; 'Amy_Lizotte@gov.nt.ca'; 'Russell_Teed@gov.nt.ca'; 'Mark_Davy@gov.nt.ca'; 'Glen_Mackay@gov.nt.ca'; 'hrmc@northwestel.net'; 'hrmc@northwestel.net'; 'intergov@aandc.gc.ca'; 'MDD@aandc.gc.ca'; 'PDD@aandc.gc.ca'; 'consultationsupportunit@aandc.gc.ca'; 'Mark.Palmer@aandc.gc.ca'; 'Adrian.Paradis@aandc.gc.ca'; 'Julian.Kanigan@aandc.gc.ca'; 'Krystal.Thompson@aandc.gc.ca'; 'Charlotte.Henry@aandc.gc.ca'; 'Scott.Stewart@aandc.gc.ca'; 'Charlene.Coe@aandc.gc.ca'; 'Nathen.Richea@aandc.gc.ca'; 'CAU-UCA@aandc.gc.ca'; 'landsnresources@katlodeeche.com'; 'kor@theedge.ca'; 'lkdfn.executiveChiefandCouncil@gmail.com'; 'saolkdfn@gmail.com'; 'lkdfnlands@gmail.com'; 'vchristensen@reviewboard.ca'; 'permits@mvlwb.com'; 'enviomgr@nsma.net'; 'Matthew.Spence@cannor.gc.ca'; 'Kate.Witherly@cannor.gc.ca'; 'rcc.nwtmn@northwestel.net'; 'sbaines@senes.ca'; 'Adrian.Paradis@aandc.gc.ca'; 'ceo@srfn195.com'; 'c_heron@smithlanding.com'; 'kerrigarner@tlicho.com'; 'dwoodward@fortsmith.ca'; 'mrichardson@hayriver.com'; 'Susan.Abernethy@wscc.nt.ca'; 'wpfn@northwestel.net'; 'environment@ykdene.com'; 'tslack@ykdene.com'; 'esangris@ykdene.com'; 'ttsetta@ykdene.com'
Cc: Lynn
Subject: MV2012S0019 - AANDC - CARD - Giant Mine Remediation Project - issuance - Type A Land Use Permit
Attachments: MV2012S0019 - AANDC - CARD - Giant Mine Remediation Project - Issuance - Type A Land Use Permit.pdf

Good day,

Please see the attached documents. If you have any questions, please contact Lynn Boettger at (867) 766-7461 or email lboettger@mvlwb.com.

Regards,

Amanda Gauthier

Executive Coordinator

Mackenzie Valley Land and Water Board

7th Floor, 4922 48th St. | PO Box 2130 | Yellowknife NT | X1A 2P6

ph 867.766.7460 | mobile 867.444.9822 | fax 867.873.6610

agauthier@mvlwb.com | www.mvlwb.com

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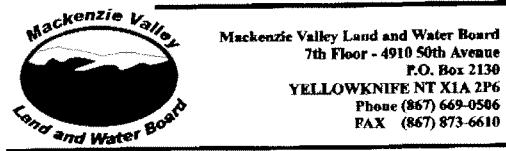
Fax Confirmation Report

Date/Time : SEP-14-2012 01:36PM FRI
 Fax Number : 8678736610
 Fax Name : MVLWB YK
 Model Name : Phaser 3635MFP

No.	Remote Station	Start Time	Duration	Page	Mode	Job Type	Result
001	18678722772	09-14 01:35PM	00'00	000/013	EC	HS	FA

Abbreviations:

HS: Host Send	PL: Polled Local	CP: Completed	TS: Terminated by System
HR: Host Receive	PR: Polled Remote	FA: Fail	TU: Terminated by User
MS: Mailbox Save	WS: Waiting To Send	RP: Report	G3: Group3
MP: Mailbox Print	EC: Error Correct		



FILE NUMBER MV2012S0019

Date: September 13, 2012

To: Mr. Adrian Paradis

Organization: AANDC - CARD - Giant Mine Remediation Project

Email: adrian.paradis@aaandc.gc.ca

Copied To: Distribution List

From: Amanda for Willard Hagen, Chair

Number of pages including cover 14

Remarks:

Please see attached

- Enclosures
- For your information
- For your comment
- For your action
- For your approval

<u>Delivered by</u>	<u>Date</u>
<input type="checkbox"/> Mail	_____
<input checked="" type="checkbox"/> Email/Fax	<u>Sept 13, 2012</u>
<input type="checkbox"/> Hand Delivered	_____
Sent by:	<u>AG</u>

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APPENDIX C
PREVIOUSLY APPROVED DRILLING PRODUCTS

List of Previously Approved Drilling Products

Product Name	Purpose
Extreme Clay Seam	Specialty clay dispersant
Extreme Linseed Lube	Lubricating compound
Extreme Number One	Drilling fluid additive
Extreme Rod Grease	Thick composition industrial lubricant
Extreme Stop	Lost circulation material
Extreme Super-G Blue	Drilling mud additive
Extreme Super-G Gold	Drilling mud additive

MATERIAL SAFETY DATA SHEET



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Tel: 604-535-6699 Fax: 604-535-5493 e-mail: extreme.ron@telus.net

EXTREME CLAY SEAM

EMERGENCY PHONE NO. (604) 535-6699

PAGE 1 OF 4

WHMIS HAZARD INDEX:

DEGREE OF HAZARD:

HEALTH 1
FIRE 1
REACTIVITY 0
OTHER: B (GLASSES & GLOVES)

HAZARD RATING:

0 LEAST
1 SLIGHT
2 MODERATE
3 HIGH
4 EXTREME

SECTION 1

PRODUCT IDENTIFICATION

PRODUCT NAME: EXTREME CLAY SEAM
CHEMICAL IDENTIFICATION: Polyacrylic Acid
MATERIAL USE: Specialty Clay Dispersant
WHMIS CLASSIFICATION: Class D-2B
WORK PLACE HAZARD: Skin, Eye Irritant

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION: Not Dangerous Goods
PACKAGE GROUP: Not Applicable
CAS NUMBER: 9003-01-4:2
MSDS CODE: Not Applicable

SECTION 2

HAZARDOUS INGREDIENTS

INGREDIENT: Polyacrylic Acid
PERCENTAGE: 30 - 60%
CAS NUMBER: 9003-01-4:2
LD (50): Not Available
LC (50): Not Available

EXTREME CLAY SEAM

MATERIAL SAFETY DATA SHEET**SECTION 3****PHYSICAL DATA**

APPEARANCE AND ODOUR:	Liquid, water white to straw colour, mild odour
DENSITY (SPECIFIC GRAVITY):	1.3
BOILING POINT:	> 100°C
MELTING POINT:	Not Applicable
SOLUBILITY:	Soluble
EVAPORATION RATE: (EE=1):	Slower than butyl acetate
VAPOUR PRESSURE: (MM HG):	< 17.5
VAPOUR DENSITY: (AIR = 1):	Same as air
pH:	5.0 - 7.0

SECTION 4**FIRE AND EXPLOSION**

FLASHPOINT:	> 100°C PMCC
FLAMMABLE LIMIT:	Not available
AUTO IGNITION TEMP:	No data
EXTINGUISHING MEDIA:	Dry chemical, carbon dioxide, foam, water spray
SPECIAL FIRE FIGHTING PROCEDURES:	Self-contained respirators for fire fighting personnel.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	Acrid smoke may be generated while burning. carbon monoxide, carbon dioxide, and other oxides may be generated as products of combustion.

SECTION 5**REACTIVITY DATA**

STABILITY (THERMAL, LIGHT, ETC.):	Stable
INCOMPATIBILITY (CONDITIONS TO AVOID):	Strong oxidizing agents and reducing agents, contamination with reactive substances, excessive heat
HAZARDOUS POLYMERIZATION:	Will not occur
HAZARDOUS DECOMPOSITION PRODUCTS:	Acrid smoke, fumes when heated to decomposition. Oxides of carbon.

EXTREME CLAY SEAM

MATERIAL SAFETY DATA SHEET**SECTION 6****HEALTH HAZARDS**

ROUTE OF ENTRY:

(X) SKIN

(X) EYE CONTACT

(X) INHALATION

(X) INGESTION

SKIN CONTACT:

May be minimally irritating to sensitive skin upon prolonged direct contact.

EYE CONTACT:

May be minimally irritating to eyes upon direct contact.

INHALATION:

Product has low vapour pressure and is not expected to present a hazard at ambient temperatures. Caution should be taken to avoid misting.

INGESTION:

Product is practically non toxic by ingestion.

SECTION 7**PREVENTATIVE MEASURES**

SKIN PROTECTION:

Impervious gloves, protective clothing as required

EYE PROTECTION:

Chemical goggles.

VENTILATION:

None required for normal use. Adequate ventilation required if mist is generated.

RESPIRATORY PROTECTION:

Use NIOSH - Approved air-purifying respirator if vapours are generated.

LEAK & SPILL PROCEDURE:

Absorb with earth or sand and dispose of with solid waste. Wash site after spilled material has been collected.

WASTE DISPOSAL:

Dispose in compliance with government regulations and local requirements.

STORAGE REQUIREMENTS:

Cool, dry area, away from sources of heat, alkalis, oxidizing and reducing agents. Keep containers closed when not in use.

EXTREME CLAY SEAM

MATERIAL SAFETY DATA SHEET

SECTION 8

FIRST AID MEASURES

SKIN:

Wash thoroughly with soap and warm water

EYE:

Flush with water for at least 15 minutes.

INHALATION:

Vapour pressure is negligible. Remove victim from further exposure.

INGESTION:

Do not induce vomiting. If conscious, dilute by giving two glasses of water. Seek medical attention.

SECTION 9

PREPARATION DATE

DATE ISSUED:

AUGUST 20, 1996

BY:

PRODUCT SAFETY COMMITTEE

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DATE REVISED:

AUGUST 20, 2004

MATERIAL SAFETY DATA SHEET



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EXTREME LINSEED LUBE

EMERGENCY PHONE NO. (604) 535-6699

PAGE 1 OF 4

WHMIS HAZARD INDEX:

DEGREE OF HAZARD:

HEALTH 1
FIRE 1
REACTIVITY 0
OTHER: B (GLASSES & GLOVES)

HAZARD RATING:

0 LEAST
1 SLIGHT
2 MODERATE
3 HIGH
4 EXTREME

SECTION 1

PRODUCT IDENTIFICATION

PRODUCT NAME: EXTREME LINSEED LUBE
CHEMICAL IDENTIFICATION: Linseed Soap
MATERIAL USE: Lubricating Compound
WHMIS CLASSIFICATION: N/A
WORK PLACE HAZARD: N/A

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION: Not Dangerous Goods
PACKAGE GROUP: N/A
CAS NUMBER: N/A
MSDS CODE: N/A

SECTION 2

HAZARDOUS INGREDIENTS

INGREDIENT: Linseed Soap
PERCENTAGE: 100%
CAS NUMBER: Mixture
LD (50):
LC (50):

EXTREME LINSEED LUBE

MATERIAL SAFETY DATA SHEET**SECTION 3****PHYSICAL DATA**

APPEARANCE AND ODOUR:	Brown Colour, Semi-Solid Grease, Slight Hydrocarbon Odour.
DENSITY (SPECIFIC GRAVITY):	1.0
BOILING POINT:	100°C
MELTING POINT:	Not Available
SOLUBILITY:	Soluble
EVAPORATION RATE: (EE=1):	Not Available
VAPOUR PRESSURE: (MM HG):	Not Available
VAPOUR DENSITY: (AIR = 1):	Not Available

SECTION 4**FIRE AND EXPLOSION**

FLASHPOINT:	222°C
FLAMMABLE LIMIT:	Not Available
AUTO IGNITION TEMP:	343°C
EXTINGUISHING MEDIA:	Dry Chemical, Foam, Water Fog, CO ₂
SPECIAL FIRE FIGHTING PROCEDURES:	No special requirements. Caution, Spilled Material is slippery.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	None currently known.

SECTION 5**REACTIVITY DATA**

STABILITY (THERMAL, LIGHT, ETC.):	No Data
INCOMPATIBILITY (CONDITIONS TO AVOID):	Not Available
HAZARDOUS POLYMERIZATION:	Will not occur
HAZARDOUS DECOMPOSITION PRODUCTS:	No Data

EXTREME LINSEED LUBE

MATERIAL SAFETY DATA SHEET

SECTION 6**HEALTH HAZARDS**

ROUTE OF ENTRY:

(X) SKIN

(X) EYE CONTACT

(X) INHALATION

(X) INGESTION

SKIN CONTACT:

Prolonged and repeated contact may cause drying of skin resulting in irritation and dermatitis.

EYE CONTACT:

May cause eye irritation.

INHALATION:

Oil mist or vapours from hot grease may cause irritation of upper respiratory tract.

INGESTION:

Harmful if swallowed.

SECTION 7**PREVENTATIVE MEASURES**

SKIN PROTECTION:

Impervious gloves and protective clothing as required.

EYE PROTECTION:

No special requirements under normal conditions.

VENTILATION:

No special requirements under normal conditions.

RESPIRATORY PROTECTION:

None required under normal use. Otherwise use self-contained respirator if conditions of oil mist exist.

LEAK & SPILL PROCEDURE:

Contain and gather up with use of absorbent material.

WASTE DISPOSAL:

Dispose of in compliance with local and government regulations.

STORAGE REQUIREMENTS:

Store in a cool, dry area. Keep containers closed when not in use.

EXTREME LINSEED LUBE

MATERIAL SAFETY DATA SHEET

SECTION 8

FIRST AID MEASURES

SKIN:	Wipe excess from skin. Wash with mild soap and water. Remove contaminated clothing.
EYE:	Flush with water for at least 15 minutes.
INHALATION:	Not ordinarily required under normal conditions. Remove victim from further exposure.
INGESTION:	Do not induce vomiting. Obtain medical attention immediately.

SECTION 9

PREPARATION DATE

DATE ISSUED:	AUGUST 20, 1996
BY:	PRODUCT SAFETY COMMITTEE

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EXTREME NUMBER ONE

EMERGENCY PHONE NO. (604) 535-6699

PAGE 1 OF 5

WHMIS HAZARD INDEX:

DEGREE OF HAZARD:

HEALTH 1
FIRE 0
REACTIVITY 0
OTHER: B (GLASSES & GLOVES)

HAZARD RATING:

0 LEAST
1 SLIGHT
2 MODERATE
3 HIGH
4 EXTREME

SECTION 1

PRODUCT IDENTIFICATION

PRODUCT NAME: EXTREME NUMBER ONE
CHEMICAL IDENTIFICATION: Acrylamide, Acrylate Copolymer
MATERIAL USE: Drilling Fluid Additive
WHMIS CLASSIFICATION: Not Regulated
WORK PLACE HAZARD: Not Applicable

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION: Not Dangerous Goods
PACKAGE GROUP: Not Applicable
CAS NUMBER: Not Applicable
MSDS CODE: Not Applicable

SECTION 2

HAZARDOUS INGREDIENTS

INGREDIENT: None Considered Hazardous
PERCENTAGE: Not Available
CAS NUMBER: Not Available
LD (50): Not Available
LC (50): Not Available

EXTREME NUMBER ONE

MATERIAL SAFETY DATA SHEET**SECTION 3****PHYSICAL DATA**

APPEARANCE AND ODOUR:	Slight, mild odour, white, granular solid
DENSITY (SPECIFIC GRAVITY):	.80
BOILING POINT:	Not Available
MELTING POINT:	Not Available
SOLUBILITY:	Soluble
EVAPORATION RATE: (EE=1):	Not Available
VAPOUR PRESSURE: (MM HG):	Not Available
VAPOUR DENSITY: (AIR = 1):	Not Available

SECTION 4**FIRE AND EXPLOSION**

FLASHPOINT:	Not Applicable
FLAMMABLE LIMIT:	Not Available
AUTO IGNITION TEMP:	No Data
EXTINGUISHING MEDIA:	Dry Chemical, Carbon Dioxide, Foam
SPECIAL FIRE FIGHTING PROCEDURES:	Self-Contained Respirators For Fire Fighting Personnel.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	Products of incomplete combustion and oxides of nitrogen and carbon.

SECTION 5**REACTIVITY DATA**

STABILITY (THERMAL, LIGHT, ETC.):	Stable
INCOMPATIBILITY (CONDITIONS TO AVOID):	Strong oxidizing agents and highly alkaline solutions
HAZARDOUS POLYMERIZATION:	Will not occur
HAZARDOUS DECOMPOSITION PRODUCTS:	None

EXTREME NUMBER ONE

MATERIAL SAFETY DATA SHEET**SECTION 6****HEALTH HAZARDS**

ROUTE OF ENTRY:

 SKIN EYE CONTACT INHALATION INGESTION

SKIN CONTACT:

May be minimally irritating to sensitive skin upon prolonged direct contact.

EYE CONTACT:

May be minimally irritating to eyes upon direct contact.

INHALATION:

May cause irritation to nose and throat.

SECTION 7**PREVENTATIVE MEASURES**

SKIN PROTECTION:

Impervious gloves, protective clothing as required
Goggles.

EYE PROTECTION:

General mechanical; 10 changes per hour.

VENTILATION:

Approved dust mask; MESA type

RESPIRATORY PROTECTION:

Ventilate area, wear rubber boots, gloves and a self-contained respirator if ventilation inadequate.

LEAK & SPILL PROCEDURE:

Collect into waste container. wash site after pick up. Water solutions extremely slippery.

WASTE DISPOSAL:

Dispose in compliance with government regulations and local requirements.

STORAGE REQUIREMENTS:

Cool, dry area, away from oxidizing and reducing agents. Keep containers closed when not in use. Avoid prolonged contact when handling. Do not inhale dust.

EXTREME NUMBER ONE

MATERIAL SAFETY DATA SHEET

SECTION 8

FIRST AID MEASURES

SKIN:

Wash thoroughly with soap and warm water

EYE:

Flush with water for at least 15 minutes. Seek medical attention.

INHALATION:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention.

INGESTION:

Do not induce vomiting. If conscious, dilute by giving two glasses of water. Seek medical attention.

SECTION 9

PREPARATION DATE

DATE ISSUED:

AUGUST 20, 1996

BY:

PRODUCT SAFETY COMMITTEE

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DATE REVISED:

AUGUST 20, 2004

EXTREME NUMBER ONE

MATERIAL SAFETY DATA SHEET

ADDENDUM

SECTION 10ECOLOGICAL INFORMATION

ACUTE TOXICITY:

- Oral: LD50/oral/rat > 5000 mg/kg
- Dermal: The results of lab testing showed this material to be non-toxic even at high dose levels.
- Inhalation: The product is not expected to be toxic by inhalation.

IRRITATION:

- Skin: The results of lab testing showed this material to be non-irritating to the skin.
- Eyes: Testing conducted according to the Draize technique showed the material produces no corneal or iridial effects and only slight transitory conjunctival effects similar to those which all granular materials have no conjunctivae.

SENSITIZATION:

The results of lab testing showed this material to be non-sensitizing.

CHRONIC TOXICITY:

The results of extensive lab testing did not reveal adverse health effects.

ECOTOXICITY

- Fish: LC50 / Fathead minnows / 96 hours > 1000 mg/l
- Algae: EC50 / Selenastrum capricornutum > 96 hours > 500 mg/l

Bioaccumulation:

The product is not expected to bioaccumulate.

Persistence / degradability:

Not readily biodegradable.

MATERIAL SAFETY DATA SHEET



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EXTREME ROD GREASE

EMERGENCY PHONE NO. (604) 535-6699

PAGE 1 OF 4

WHMIS HAZARD INDEX:

DEGREE OF HAZARD:

HEALTH 0
FIRE 1
REACTIVITY 0
OTHER: A (GLASSES & GLOVES)

HAZARD RATING:

0 LEAST
1 SLIGHT
2 MODERATE
3 HIGH
4 EXTREME

SECTION 1

PRODUCT IDENTIFICATION

PRODUCT NAME: EXTREME ROD GREASE
CHEMICAL IDENTIFICATION: Petroleum Hydrocarbon
MATERIAL USE: Thick composition, industrial lubricant
WHMIS CLASSIFICATION: Not controlled
WORK PLACE HAZARD: Not applicable

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION: Not dangerous goods
PACKAGE GROUP: Not applicable
CAS NUMBER: Not applicable
MSDS CODE: Not applicable

SECTION 2

HAZARDOUS INGREDIENTS

INGREDIENT: Mixture of hydrotreated neutral base oil and additives
PERCENTAGE: 100%
CAS NUMBER: Not applicable
LD (50): Acute oral toxicity (Rat): 5000 Mg/Kg
LC (50): Not determined
TLV-TWA: 5 Mg/m³ (Oil Mist)

EXTREME ROD GREASE

MATERIAL SAFETY DATA SHEET**SECTION 3****PHYSICAL DATA**

APPEARANCE AND ODOUR:	Long fibered grease, greenish brown colour, mild grease like odour.
DENSITY (SPECIFIC GRAVITY):	.89
BOILING POINT:	260°C
MELTING POINT:	Not available
SOLUBILITY:	Insoluble in cold water, soluble in non-polar hydrocarbon solvents.
EVAPORATION RATE: (EE=1):	Not available
VAPOUR PRESSURE: (MM HG):	0.0075 @ 20°C
VAPOUR DENSITY: (AIR = 1):	Not available

SECTION 4**FIRE AND EXPLOSION**

FLASHPOINT:	252°C
FLAMMABLE LIMIT:	Not available
AUTO IGNITION TEMP:	316°C
EXTINGUISHING MEDIA:	Dry chemical, foam, CO ₂ , water spray, fog
SPECIAL FIRE FIGHTING PROCEDURES:	None required
UNUSUAL FIRE AND EXPLOSION HAZARDS:	None

SECTION 5**REACTIVITY DATA**

STABILITY (THERMAL, LIGHT, ETC.):	Stable
INCOMPATIBILITY (CONDITIONS TO AVOID):	Avoid excessive heat, highly reactive with oxidizing agents.
HAZARDOUS POLYMERIZATION:	Will not occur
HAZARDOUS DECOMPOSITION PRODUCTS:	Oxides of carbon and nitrogen, irritating fumes and smoke as products of incomplete combustion.

EXTREME ROD GREASE

MATERIAL SAFETY DATA SHEET

SECTION 6**HEALTH HAZARDS**

ROUTE OF ENTRY:

 SKIN EYE CONTACT INHALATION INGESTION

SKIN CONTACT:

EYE CONTACT:

INHALATION:

INGESTION:

Non-irritating; for prolonged exposure wear gloves.

May irritate the eyes

Low vapour pressure, not expected to present inhalation exposure under normal conditions.

Low toxicity on ingestion; has laxative effect and rapidly eliminated.

SECTION 7**PREVENTATIVE MEASURES**

SKIN PROTECTION:

None normally required. Personal preference suggest gloves, boots and long sleeved clothing.

EYE PROTECTION:

Wear safety glasses/goggles.

VENTILATION:

No special ventilation required for normal conditions.

RESPIRATORY PROTECTION:

None normally required. If mist generated by heating or spraying wear an organic vapour respirator with mist filter.

LEAK & SPILL PROCEDURE:

Contain spill. Use appropriate tools to place spilled material in a container for reclaiming or disposal.

WASTE DISPOSAL:

Dispose of in compliance with local and government regulations.

STORAGE REQUIREMENTS:

Store in cool, dry area away from oxidizing agents. Keep containers tightly closed when not in use.

EXTREME ROD GREASE

MATERIAL SAFETY DATA SHEET

SECTION 8

FIRST AID MEASURES

SKIN: Wash gently and thoroughly with mild soap and water. Remove and launder contaminated clothes.

EYE: Immediately flush eyes with running water for at least 15 minutes. Keep eyelids open. Do not use an eye ointment. Seek medical attention if irritation persists.

INHALATION: Not expected under normal conditions. Remove victim to safe area, perform mouth to mouth resuscitation if victim is not breathing. Seek medical attention.

INGESTION: Do not induce vomiting. Has laxative effect; rapidly eliminated. Medical assessment advised.

SECTION 9

PREPARATION DATE

DATE ISSUED: AUGUST 20, 1996

BY: PRODUCT SAFETY COMMITTEE

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DATE REVISED: AUGUST 20, 2004

MATERIAL SAFETY DATA SHEET



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EXTREME STOP

EMERGENCY PHONE NO. (604) 535-6699

PAGE 1 OF 4

WHMIS HAZARD INDEX:

DEGREE OF HAZARD:

HEALTH 0
FIRE 0
REACTIVITY 0
OTHER: 0

HAZARD RATING:

0 LEAST
1 SLIGHT
2 MODERATE
3 HIGH
4 EXTREME

SECTION 1

PRODUCT IDENTIFICATION

PRODUCT NAME: EXTREME STOP
CHEMICAL IDENTIFICATION: Acrylamide Copolymer
MATERIAL USE: Lost Circulation Material
WHMIS CLASSIFICATION: Non Hazardous
WORK PLACE HAZARD: Not Applicable

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION: Not Dangerous Goods
PACKAGE GROUP: N/A
CAS NUMBER: N/A
MSDS CODE: N/A

SECTION 2

HAZARDOUS INGREDIENTS

INGREDIENT: None Considered Hazardous
PERCENTAGE: N/A
CAS NUMBER: N/A
LD (50):
LC (50):

EXTREME STOP

MATERIAL SAFETY DATA SHEET**SECTION 3****PHYSICAL DATA**

APPEARANCE AND ODOUR:	White Freeflowing Granules, very mild odour.
DENSITY (SPECIFIC GRAVITY):	1.05
BOILING POINT:	N/A
MELTING POINT:	N/A
SOLUBILITY:	>60%
EVAPORATION RATE: (EE=1):	N/A
VAPOUR PRESSURE: (MM HG):	N/A
VAPOUR DENSITY: (AIR = 1):	N/A

SECTION 4**FIRE AND EXPLOSION**

FLASHPOINT:	No Data
FLAMMABLE LIMIT:	Not Determined
AUTO IGNITION TEMP:	No Data
EXTINGUISHING MEDIA:	Dry chemical, foam, water fog, CO ₂
SPECIAL FIRE FIGHTING PROCEDURES:	None
UNUSUAL FIRE AND EXPLOSION HAZARDS:	None

SECTION 5**REACTIVITY DATA**

STABILITY (THERMAL, LIGHT, ETC.):	Stable
INCOMPATIBILITY (CONDITIONS TO AVOID):	Oxidizing Agents
HAZARDOUS POLYMERIZATION:	Will not occur
HAZARDOUS DECOMPOSITION PRODUCTS:	Oxides of Carbon as products of combustion.

EXTREME STOP

MATERIAL SAFETY DATA SHEET

SECTION 6

HEALTH HAZARDS

ROUTE OF ENTRY:

SKIN EYE CONTACT INHALATION INGESTION

SKIN CONTACT:

N/A

EYE CONTACT:

N/A

INHALATION:

N/A

INGESTION:

N/A

SECTION 7

PREVENTATIVE MEASURES

SKIN PROTECTION:

No special requirements.

EYE PROTECTION:

Goggles, may be nuisance dust.

VENTILATION:

No special requirements.

RESPIRATORY PROTECTION:

If nuisance dust use dust mask.

LEAK & SPILL PROCEDURE:

Collect in container. Dispose with solid waste. Non hazardous.

WASTE DISPOSAL:

Dispose of in compliance with local and government regulations.

STORAGE REQUIREMENTS:

Store in a cool, dry area, away from oxidizing agents. Keep containers closed when not in use.

EXTREME STOP**MATERIAL SAFETY DATA SHEET****SECTION 8****FIRST AID MEASURES**

SKIN:	N/A
EYE:	N/A
INHALATION:	N/A
INGESTION:	N/A

SECTION 9**PREPARATION DATE**

DATE ISSUED:	AUGUST 20, 1996
BY:	PRODUCT SAFETY COMMITTEE

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EXTREME SUPER-G BLUE

WHMIS HAZARD INDEX:

DEGREE OF HAZARD:

HEALTH 1
FIRE 2
REACTIVITY 0
OTHER: B (GLASSES & GLOVES)

HAZARD RATING:

0 LEAST
1 SLIGHT
2 MODERATE
3 HIGH
4 EXTREME

SECTION 1

PRODUCT IDENTIFICATION

PRODUCT NAME: EXTREME SUPER-G BLUE
CHEMICAL IDENTIFICATION: Anionic polyacrylamides in water oil emulsion
MATERIAL USE: Drilling mud additive
WHMIS CLASSIFICATION: B3, D2B
WORK PLACE HAZARD: Combustible liquid; skin & eye irritant

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION: Not dangerous goods
PACKAGE GROUP: NA
CAS NUMBER: NA
MSDS CODE: NA

SECTION 2

HAZARDOUS INGREDIENTS

INGREDIENT:	<u>Mineral spirits</u>	<u>Alkyl Phenol Ethoxylate</u>	<u>Ethoxylated C12-15 Alcohol</u>
PERCENTAGE:	30-60	3-7	0.5-1.5
CAS NUMBER:	64742-47-8	68412-54-4	68131-39-5
LD (50):	>5 g/kg	3 g/kg	>3200 mg/kg
LC (50):	Undetermined	Undetermined	Undetermined

EXTREME SUPER-G BLUE

MATERIAL SAFETY DATA SHEET**SECTION 3****PHYSICAL DATA**

APPEARANCE AND ODOUR:	Blue liquid emulsion, slight odour
DENSITY (SPECIFIC GRAVITY):	NA
BOILING POINT:	NA
MELTING POINT:	NA
SOLUBILITY:	Forms gel
EVAPORATION RATE: (EE=1):	NA
VAPOUR PRESSURE: (MM HG):	NA
VAPOUR DENSITY: (AIR = 1):	NA

SECTION 4**FIRE AND EXPLOSION**

FLASHPOINT:	65°C (TCC)
FLAMMABLE LIMIT:	Undetermined
AUTO IGNITION TEMP:	Undetermined
EXTINGUISHING MEDIA:	Water spray, foam, dry chemical & CO ₂
SPECIAL FIRE FIGHTING PROCEDURES:	Self-contained respirators required for firefighting personnel
UNUSUAL FIRE AND EXPLOSION HAZARDS:	Water may cause slipperiness. Sensitivity to static discharge

SECTION 5**REACTIVITY DATA**

STABILITY (THERMAL, LIGHT, ETC.):	Stable
INCOMPATIBILITY (CONDITIONS TO AVOID):	Strong oxidizing agents, strong reducing agents
HAZARDOUS POLYMERIZATION:	Will not occur
HAZARDOUS DECOMPOSITION PRODUCTS:	NO _x , CO _x

EXTREME SUPER-G BLUE

MATERIAL SAFETY DATA SHEET**SECTION 6****HEALTH HAZARDS**

ROUTE OF ENTRY:

(XX) SKIN (XX) EYE CONTACT () INHALATION (XX) INGESTION

SKIN CONTACT:

Irritant. Can cause redness, inflammation and irritation on prolonged contact

EYE CONTACT:

Severe irritant. Can cause redness, tissue destruction and irritation

INHALATION:

Unlikely

INGESTION:

May cause nausea, diarrhea and abdominal cramps

SECTION 7**PREVENTATIVE MEASURES**

SKIN PROTECTION:

Chemically resistant gloves

EYE PROTECTION:

Safety glasses

VENTILATION:

General mechanical

RESPIRATORY PROTECTION:

NIOSH approved organic vapour cartridge respirator if exposure is excessive

LEAK & SPILL PROCEDURE:

Small spills: soak up with absorbent material
Large spills: dike to contain spill to prevent water pollution. Recover diked material

WASTE DISPOSAL:

Incinerate/dispose of in accordance with local regulations

STORAGE REQUIREMENTS:

Store in a cool, well-ventilated area

EXTREME SUPER-G BLUE

MATERIAL SAFETY DATA SHEET

SECTION 8

FIRST AID MEASURES

SKIN: Wash exposed area with soap & water. If irritation or abnormalities persist seek medical attention. Remove contaminated clothing and launder prior to re-use

EYE: Immediately flush eyes with water for 15 mins and seek medical attention

INHALATION: Remove to fresh air. If irritation continues, seek medical attention

INGESTION: If conscious & alert, give 1-2 glasses water. Never give anything by mouth to an unconscious person. Seek medical attention; do not leave unconscious person unattended. Do not induce vomiting

SECTION 9

PREPARATION DATE

DATE ISSUED: AUGUST 20, 1996

BY: PRODUCT SAFETY COMMITTEE

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EXTREME SUPER-G GOLD

WHMIS HAZARD INDEX:

DEGREE OF HAZARD:

HEALTH 1
FIRE 0
REACTIVITY 0
OTHER: B (GLASSES & GLOVES)

HAZARD RATING:

0 LEAST
1 SLIGHT
2 MODERATE
3 HIGH
4 EXTREME

SECTION 1

PRODUCT IDENTIFICATION

PRODUCT NAME: EXTREME SUPER-G GOLD
CHEMICAL IDENTIFICATION: Polysaccharide suspension
MATERIAL USE: Drilling mud additive
WHMIS CLASSIFICATION: D2B
WORK PLACE HAZARD: Skin & eye irritant

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION: Not dangerous goods
PACKAGE GROUP: NA
CAS NUMBER: NA
MSDS CODE: NA

SECTION 2

HAZARDOUS INGREDIENTS

INGREDIENT: Ethoxylated nonyl phenol
PERCENTAGE: 1-5
CAS NUMBER: 9016-45-9
LD (50): 5100mg/kg
LC (50):

EXTREME SUPER-G GOLD

MATERIAL SAFETY DATA SHEET**SECTION 3****PHYSICAL DATA**

APPEARANCE AND ODOUR:	Opaque dark yellow to beige liquid – little odour
DENSITY (SPECIFIC GRAVITY):	1.078
BOILING POINT:	Undetermined
MELTING POINT:	Undetermined
SOLUBILITY:	Dispersible
EVAPORATION RATE: (EE=1):	Undetermined
VAPOUR PRESSURE: (MM HG):	Undetermined
VAPOUR DENSITY: (AIR = 1):	Undetermined

SECTION 4**FIRE AND EXPLOSION**

FLASHPOINT:	Not flammable
FLAMMABLE LIMIT:	Undetermined
AUTO IGNITION TEMP:	NA
EXTINGUISHING MEDIA:	CO ₂ ; Foam; Dry Chemical; Water Spray
SPECIAL FIRE FIGHTING PROCEDURES:	NA
UNUSUAL FIRE AND EXPLOSION HAZARDS:	Forms slippery mixture with water

SECTION 5**REACTIVITY DATA**

STABILITY (THERMAL, LIGHT, ETC.):	Stable
INCOMPATIBILITY (CONDITIONS TO AVOID):	Strong Oxidizers & acids
HAZARDOUS POLYMERIZATION:	Will not occur
HAZARDOUS DECOMPOSITION PRODUCTS:	CO ₂ , smoke on combustion

EXTREME SUPER-G GOLD

MATERIAL SAFETY DATA SHEET**SECTION 6****HEALTH HAZARDS**

ROUTE OF ENTRY:

(XX) SKIN (XX) EYE CONTACT () INHALATION (XX) INGESTION

SKIN CONTACT:

Irritant. Can cause redness & irritation

EYE CONTACT:

Severe irritant. Can cause redness & irritation

INHALATION:

Unlikely. May cause upper respiratory tract irritation

INGESTION:

May cause nausea, diarrhea and/ or abdominal cramps

SECTION 7**PREVENTATIVE MEASURES**

SKIN PROTECTION:

Chemically resistant gloves

EYE PROTECTION:

Safety glasses

VENTILATION:

General mechanical

RESPIRATORY PROTECTION:

NIOSH approved organic respirator if ventilation inadequate

LEAK & SPILL PROCEDURE:

Small spills: soak up with absorbent material
Large spills: dike to contain spill to prevent water pollution. Water will cause extreme slipperiness

WASTE DISPOSAL:

Incinerate/dispose of in accordance with local disposal regulations

STORAGE REQUIREMENTS:

Store in a cool, well-ventilated area

EXTREME SUPER-G GOLD

MATERIAL SAFETY DATA SHEET**SECTION 8****FIRST AID MEASURES**

SKIN:	Immediately wash with soap & water for 5 mins. Seek medical help if irritation develops/persists
EYE:	Hold eyelids open & flush with a steady stream of water for 15 mins. Seek medical attention
INHALATION:	Unlikely. If respiratory irritation occurs, move to fresh air. If symptoms continue, seek medical help
INGESTION:	If conscious & alert, give 2 glasses water. Never give unconscious person anything by mouth. Seek medical help; do not leave unconscious person unattended. Do not induce vomiting

SECTION 9**PREPARATION DATE**

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