

# Environmental Management Plan for the Giant Mine Interim Underground Stabilization Activities

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**Interim Underground Stabilization  
Activities EMP**

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## **1 DEFINITIONS**

Definitions have the same meaning as set out in the Interim Underground Stabilization Activities specifications. Definitions specific to this document are as follows:

Environmental Management Plan (EMP): This document, which forms an appendix to the specification package. In general this document provides guidance for the Contractor to develop the Environmental Protection Plan (EPP).

Environmental Protection Plan (EPP): The EPP is a submittal prepared by the Contractor and submitted as specified in Section 01 35 43 – Environmental Procedures. The framework for the EPP is included in this EMP. Specific requirements of the submitted EPP under the Contract are outlined in this EMP and in the specifications.

## **2 PURPOSE**

This Environmental Management Plan (EMP) establishes performance-based and where appropriate, specific environmental requirements, for Interim Underground Stabilization Activities related to the maintenance, protection, monitoring, reporting and assessment of physical and biological values on the Giant Mine site (site). This EMP describes the environmental risks that will be appropriately managed by the Contractor and, in the event of an incident, environmental emergency response procedures and reporting protocols.

The EMP describes environmental monitoring and reporting that the Contractor will complete during the period of the project. The EMP and EPP will be used to evaluate and report on the effectiveness of work practices, systems, procedures and environmental regulatory compliance measures. It is the responsibility of the project contractor (Contractor) and its subcontractors to comply with the practices and procedures set out in this EMP and the accepted EPP.

In general, this EMP addresses the requirements for monitoring and reporting to ensure that discharges to receiving waters, ground and air meet the standards set out in the Water Licence, federal and territorial regulations, the project specifications and as set out herein.

## **3 OBJECTIVES**

Subject to the requirements for work set out in the project specifications the Contractor's activities on the site shall be undertaken to:

- prevent pollution of surface and ground waters, soil and air;
- avoid mobilisation of contaminants;
- prevent disturbance to cultural heritage sites;
- maintain and preserve existing areas of vegetation;
- prevent disturbance to wildlife;
- maintain compliance with regulatory requirements;
- conform to environmental management subsections; and
- include the principles of sustainability in the design and execution of works.

#### **4 ENVIRONMENTAL DUE DILIGENCE ASSURANCE**

The Contractor is to abide by the following environmental due diligence measures:

- Environmental responsibilities - the Contractor shall assign responsibilities to an Environmental Coordinator and necessary supporting personnel for completing the requirements of the accepted EPP and environmental protection components of the project specifications.
- Competent workforce - the Contractor shall ensure that all applicable personnel are appropriately trained and have received all required orientation(s) regarding the environmental requirements of the work as specified in Section 01 11 00 – Summary of Work and Section 01 35 32 – Site Specific Health and Safety Plan.
- Proper environmental communication - the Contractor shall maintain communication procedures and reporting protocols to effectively communicate to PWGSC the results of monitoring, emerging issues and emergencies and for communicating with the Mine Manager on the coordination of environmental management as specified in Section 01 11 00 – Summary of Work and Section 01 35 32 – Site Specific Health and Safety Plan.
- Environmentally sound work procedures - the Contractor shall implement instructions and controls for preventing and/or reducing potential environmental impacts.
- Monitoring of environmental performance - the Contractor shall undertake frequent inspections, reviews and monitoring programs for evaluating the adherence to the EMP and the accepted EPP requirements, regulations and guidelines. In addition, inspection of the site will be carried out by PWGSC's Representative inspectors, AANDC inspectors, authorities having jurisdiction (AHJ) and others as required.
- Corrective and preventative measures - the Contractor shall respond to non-conformances to the accepted EPP, regulations and guidelines as well as complete and verify related corrective and preventative measures.
- The Contractor shall demonstrate that sufficient resources will be allocated to develop and maintain procedures and protocols necessary for environmental management.
- PWGSC reserves the right to audit the Contractor to verify these requirements are met. The Contractor will be responsible to participate in these audits as required.

#### **5 APPLICABILITY**

##### **Scope of this EMP**

This EMP covers activities associated with environmental compliance, maintenance, protection, monitoring, reporting and assessment, as required by the project specifications, federal and territorial regulations and guidelines applicable to operations on the site.

This EMP and the accepted EPP apply to all Contractor employees and sub-contractors whose work may create an impact on the environment.

This EMP outlines the key actions to be taken by all Contractor personnel and sub-contractors to manage the environmental hazards and risks associated with project

activities to effectively minimise the potential for environmental harm. All Contractor and sub-contractor personnel engaged in project activities will be required to comply fully with the requirements of this EMP and the accepted EPP to limit the potential for environmental harm and regulatory non-compliance.

Project work will be directed by the Contractor with responsibilities for the following, which have the potential to have environmental effects:

- Contractor's work area control, including environmental controls;
- design, construction, operation and modification of works for the formation, distribution and use of paste;
- excavation and handling of tailings to produce paste;
- underground backfilling using paste;
- on-site traffic movement; and,
- the handling and storage of hazardous materials and fuels.

Project activities have the potential to affect a number of biophysical and social resources adjacent to and in the Contractor's work area, including surface resources. The key resources that may be affected include, but are not limited to:

- fish and invertebrates;
- birds and mammals;
- vegetation;
- water quality;
- air quality;
- archaeological and cultural resources; and,
- infrastructure and utilities.

This EMP has been prepared to provide performance-based requirements and, where appropriate, specific environmental requirements, such that all reasonable measures are taken to avoid, or minimize, potential impacts to biophysical and social resources during the conduct of underground stabilization activities.

## **6 RELATIONSHIP TO THE WATER LICENCE**

The project will operate under Water Licence MV2012L8-0010 granted by the Mackenzie Valley Land and Water Board. This licence shall be taken as a performance standard document for the underground stabilization work project.

## **7 ENVIRONMENTAL TRAINING**

It is the responsibility of the Contractor to ensure that its' staff is appropriately trained and competent to implement the requirements of this EMP. The Contractor's staff will require an environmental orientation to key environmental factors in compliance with the Worker Orientation Seminar requirements as specified in Section 01 11 00 – Summary of Work and Section 01 35 32 – Site Specific Health and Safety Plan.

Training records will be retained and will be available to PWGSC as set out in Section 01 35 32 - Site Specific Health and Safety Plan of the specifications.

## 8 ACTIVITY DESCRIPTION

This EMP is focused on the delivery of a program of actions, inspection and reporting in support of environmental regulatory compliance and environmental protection related to the project. The Description of the work is set out in Section 01 11 00 – Summary of Work in the specifications.

The Contractor will develop the EPP to include all the sections listed below. The EPP will provide specifics, including means and methods, about how the Contractor will meet the requirements listed in this EMP.

Primary Environmental Protection activities are set out in Table 1 below.

**Table 1: Primary Activities**

Activity	Description
<b>Surface Site Water and Sediment Management</b>	<ul style="list-style-type: none"> <li>• Construction, repair and operation of controls for the management of supply and wastewater.</li> <li>• Establishing, maintaining and operating controls to minimise sediment transport and the release of sediment to receiving waters.</li> </ul>
<b>Dust Control</b>	<ul style="list-style-type: none"> <li>• In addition to controls and monitoring for worker health and safety set out in the project specifications, establishing, maintaining and operating controls to minimise the creation of dust that may be of public concern.</li> <li>• Review and understand the site wide air quality monitoring program (controlled and implemented by a third party)</li> </ul>
<b>Materials Handling</b>	<ul style="list-style-type: none"> <li>• Handling and storage of hazardous materials and fuel.</li> <li>• Managing solid waste.</li> </ul>
<b>Site Control</b>	<ul style="list-style-type: none"> <li>• Coordination with the Mine Manager to restrict access to potentially harmful environments.</li> <li>• Protection of areas of cultural heritage.</li> <li>• Protection of environmentally sensitive areas.</li> </ul>
<b>Monitoring, Sampling, Inspection, and Reporting</b>	<ul style="list-style-type: none"> <li>• Maintaining a monitoring and reporting program for the project in conformance with the requirements of the Water Licence.</li> <li>• Monitoring including but not limited to input and output water quantity from the paste formation and application process.</li> <li>• Respond to any concerns raised through the site wide air quality monitoring program as communicated by the Departmental Representative.</li> <li>• Provide environmental monitoring and compliance reports in accordance with this EMP, the project specifications and the Water Licence.</li> <li>• Environmental reporting to be delivered to the</li> </ul>

	Departmental Representative using the standardized tools as provided.
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**9 ENVIRONMENTAL MANAGEMENT SUBSECTIONS**

The environmental management subsections set out in Sections 9.1 to 9.8 of this EMP specify the environmental requirements and safeguards for the various environmental components. The Contractor must address all of the responsibilities and activities outlined in this EMP within their submitted EPP.

**9.1 Water Management**

While managing water at the site, the Contractor will abide by the Water Licence.

As per Section 01 51 00 – Temporary Utilities of the specifications, water necessary for the formation of paste and other processes will be drawn from the polishing pond. Potable water will be obtained from the City of Yellowknife.

Any wastewater will be collected and transported for treatment and disposal as per Section 01 35 15 – Special Project Procedures for Contaminated Sites of the project specifications.

Use of water is further governed by the conditions of the Water Licence.

**9.1.1 Conditions Applying to Modifications**

Any deviation from the requirements of the specifications requires a formal change order as specified in the Contract documents.

**9.1.2 Water Licence Monitoring Program**

The Contractor is to track the use of water for this project as specified in Section 01 33 00 – Submittal Procedures.

**9.1.3 Water Diversions and Poned Water**

Water diversions will be constructed as necessary to prevent contaminated water from flowing into receiving environments as specified in Section 01 35 15 – Special Project Procedures for Contaminated Sites.

**9.1.4 Water Management and Treatment**

Water management and treatment objectives, criteria, operational controls, monitoring and corrective action requirements have been set out in Table 2 below, which are to be included in the EPP and adhered to by the Contractor. All wastewater that is collected will be assumed to be contaminated and will be dealt with as specified in Section 01 35 15 – Special Project Procedures for Contaminated Sites.

**Table 2: Water Management**

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<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Manage all water resources required for project execution effectively and in accordance with the Water Licence</li> <li>• Maintain the integrity of water impoundment structures.</li> <li>• Maintain the integrity of water movement equipment, including pumps and lines.</li> <li>• Collect, transport, treat and dispose of process water off-site as required by the project specifications and AHJ.</li> </ul>
<b>Statutory Requirements</b>	<ul style="list-style-type: none"> <li>• Water Licence (MV2012L8-0010)</li> </ul>
<b>Performance Criteria</b>	<ul style="list-style-type: none"> <li>• Compliant with Water Licence conditions.</li> <li>• Compliant with project specification requirements.</li> <li>• No discharge into streams or waterways.</li> </ul>
<b>Operational Controls to Include</b>	<ul style="list-style-type: none"> <li>• Water supply for Work activities to be obtained from the Polishing Pond. No water to be obtained from other on-site surface water bodies.</li> <li>• Capture and transport for treatment and/or disposal of wastewater as set out in the project specifications. <ul style="list-style-type: none"> <li>○ Any bleedwater will be captured.</li> </ul> </li> <li>• Collection of pooled wastewater used for dust and particulate control.</li> <li>• Collection of wastewater generated during equipment decontamination and progress cleaning.</li> <li>• No discharge of wastewater into streams or waterways.</li> <li>• Collection of all wastewater for transport, treatment and disposal off-site, unless otherwise authorized by PWGSC's Representative.</li> <li>• Compliance with monitoring as required by the Water Licence.</li> <li>• Weekly inspection of water diversion, control and pumping installations and after rain events.</li> </ul>
<b>Monitoring &amp; Sampling</b>	<ul style="list-style-type: none"> <li>• Monitoring as per the project specifications.</li> </ul>
<b>Reporting</b>	<ul style="list-style-type: none"> <li>• Record volume of water collected from all activities on a daily basis.</li> <li>• Report quantities as specified in Section 01 33 00 – Submittal Procedures.</li> <li>• Water quality monitoring as required under the Water Licence in conformance with operating procedures and protocols as may be prescribed by PWGSC.</li> </ul>
<b>Corrective Actions</b>	<ul style="list-style-type: none"> <li>• In the event of a failure to comply with the requirements of this EMP and the accepted EPP, project specifications, regulations or guidelines resulting in the release of contaminants to the environment the Contractor will: <ul style="list-style-type: none"> <li>○ stop the discharge;</li> </ul> </li> </ul>



	<ul style="list-style-type: none"> <li>○ undertake an investigation to determine the cause of the problem;</li> <li>○ modify any work practices, systems or water treatment management procedures as necessary to improve water quality;</li> <li>○ amend control plans and train personnel as appropriate; and,</li> <li>○ report the results of the investigation to PWGSC's Representative.</li> </ul>
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## 9.2 Erosion and Sediment Management

Water quality and sediment impacts associated with the project are to be managed to prevent releases of toxic or otherwise harmful material to receiving environments that result in either environmental violations or additional costs for management and treatment. The potential impacts of poor surface water and sediment management may include:

- sediment runoff and siltation of nearby water bodies; and
- localised ponding or run-off of site water resulting in non-compliant or otherwise harmful releases to the environment.

To manage sediment objectives, criteria, operational controls, monitoring and corrective action requirements for the project have been set out in Table 3 below, which are to be adhered to by the Contractor. The Contractor will develop the EPP to include all the sections listed below. The EPP will provide specifics, including means and methods, about how the Contractor will meet the requirements listed in this EMP.

**Table 3: Erosion and Sediment Management**

<b>Objectives</b>	<ul style="list-style-type: none"> <li>● To prevent the deleterious discharge of sediment.</li> <li>● To minimise soil erosion and discharge of sediment and other pollutants to lands and/or waters.</li> </ul>
<b>Statutory Requirements and Guidelines</b>	<ul style="list-style-type: none"> <li>● Federal Fisheries Act</li> <li>● Canadian Environmental Protection Act</li> <li>● NWT Environmental Protection Act</li> <li>● Water Licence</li> </ul>
<b>Performance Criteria</b>	<ul style="list-style-type: none"> <li>● Adherence to relevant legislation.</li> <li>● Adherence to the requirements of the Water Licence.</li> <li>● Adherence to specifications.</li> </ul>
<b>Operational Controls to Include</b>	<ul style="list-style-type: none"> <li>● Maintenance and inspection of sediment controls weekly and after rain events.</li> <li>● Drainage, erosion, and sediment control, including, but not limited to:</li> </ul>

- Details of grading Work to prevent surface drainage into or out of Work areas.
- Details of erosion control works and materials to be used for specific Work activities, including the deployment of silt fencing during Work activities.
- The treatment of site runoff to prevent siltation of watercourses.
- Methods for collection of wastewater derived from decontamination activities.
- Maintenance and monitoring of control works.
- Use of suitable erosion control measures where earth moving activities require the stockpiling of soil piles.
- Maintenance of temporary erosion and pollution control features installed under this contract.
- Daily monitoring of all water draining from active work areas during work periods when water is flowing. Measures will include standard operational practices to control erosion and sedimentation. Typical practices include:
  - when carrying out earthwork or vegetation clearing activities in the vicinity of a drainage course or a body of water, silt fences will be used, as appropriate, to prevent the release of sediment into water.
  - areas subject to potential erosion will remain open for the minimum period necessary to implement the required work.
  - work will be avoided during wet and rainy periods in areas where sedimentation poses a problem.
  - stock-piled material and spoil piles will be properly contained and stabilized to prevent sediment from entering any water body.
- Maintenance of erosion, sediment and drainage controls during all stages of work, including regular inspection and repair of any damage that occurs.
- Any constructed facilities that are eroded are immediately brought to PWGSC's Representative's attention.

Work Adjacent to Water bodies and courses

- Do not operate construction equipment in waterways.
- Do not dump excavated fill, waste material or debris in water bodies.
- Do not refuel equipment within thirty (30) meters of water bodies or on ice.
- Do not use shoreline grounds (at least thirty (30) meters from edge of water bodies) as staging area, equipment/vehicle maintenance or overnight parking, or for stockpiling of rock/earth and other deleterious material storage

<b>Monitoring</b>	<ul style="list-style-type: none"> <li>• The effectiveness of sediment and erosion control systems will be monitored by daily inspections.</li> <li>• The project work areas will be regularly assessed for the presence of ponding water. Areas of ponding water that pose a risk of release into a receiving water body will be pumped and treated as wastewater.</li> <li>• Monitoring (and inspection) requirements will be established and conducted in accordance with developed site plans.</li> <li>• Additional monitoring will be carried out through the Contractor and detailed in the EPP to ensure that objectives and performance standards are being met.</li> </ul>
<b>Reporting</b>	<ul style="list-style-type: none"> <li>• Reporting on wastewater infrastructure, sediment controls and management of surface water will be included in Weekly reporting.</li> <li>• Inspections of infrastructure such as ponds and pumping systems that indicate potential for full or partial failure shall be immediately reported to PWGSC.</li> </ul>
<b>Corrective Actions</b>	<ul style="list-style-type: none"> <li>• In the event of a failure to comply with the requirements of this EMP and the accepted EPP, project specifications, regulations or guidelines resulting in ineffectively minimising sediment movement or allowing the release of contaminated water to receiving environments the Contractor will: <ul style="list-style-type: none"> <li>○ undertake an investigation to determine the cause of the problem;</li> <li>○ modify any work practices, systems or sediment and water management procedures as necessary to improve sediment and water management; and</li> <li>○ report the results of the investigation to PWGSC's Representative.</li> </ul> </li> <li>• Response to inspections indicating concerns with water control, treatment and movement infrastructure shall be made in consultation with PWGSC's Representative.</li> </ul>

### 9.3 Dust Management

Management of dust will address the timing and methods of dust abatement consistent with the project specifications. Dust emissions will be controlled following the NWT Guideline for Dust Suppression. Oil is not to be used for dust suppression.

Underground stabilisation works have the potential to generate dust from:

- Excavation and transport of tailings for the production of paste.
- Production of paste.
- Backfilling voids that may result in dust releases through existing drill holes or other pathways to surface.
- Equipment and vehicle transport.

The Contractor will develop dust control and protection methods that will include, but are not limited to, the following requirements:

- Activity sequencing management to limit dust generation.
- Dust Control measures to be undertaken by Contractor, including initial means on dust control and supplemental control measures which can be implemented if required.
- PPE and personnel work plans to limit dust exposure as per the specification.
- In addition to the OHS monitoring conducted by the contractor, dust management measures and efforts will be measured and assessed as part of the on-going ambient air monitoring conducted by the Departmental Representative.
- If the ambient air monitoring targets are exceeded, the Departmental Representative will enforce the required actions as listed in the specification Section 01.35.32 Part 3 - Execution until the Contractor can demonstrate effective dust control.
- The Contractor is to designate a person as the key contact for the Departmental Representative for air quality issues and dust mitigation planning and implementation.
- Contingency plans if dust measures are above ambient air quality monitoring action levels.

The details of the Contractor methods for dust suppression required under this EMP are to be included in the EPP submitted by the Contractor.

In addition to the worker protection-focused procedures, controls and monitoring set out in the project specifications, dust management objectives, criteria, operational controls, monitoring and corrective action requirements related public concern have been set out in Table 4 below which must be adhered to by the Contractor.

**Table 4: Dust Management**

<b>Objectives</b>	<ul style="list-style-type: none"> <li>• To conduct work in a manner that minimises dust generation, including windblown, from underground and traffic-generated dust.</li> <li>• To undertake all activities with the objective of preventing the visible emissions of dust from the site.</li> <li>• To identify and implement all practicable dust mitigation measures, including suspending works, as appropriate, such that emissions of visible dust cease.</li> <li>• To prevent the degradation of ambient air quality.</li> </ul>
<b>Statutory Requirements and Guidelines</b>	<ul style="list-style-type: none"> <li>• NWT Environmental Protection Act</li> <li>• Guideline for Ambient Air Quality Standards in the Northwest Territories</li> <li>• NWT Guideline for Dust Suppression</li> </ul>

<b>Performance Criteria</b>	<ul style="list-style-type: none"> <li>• Conformance with the Guideline for Ambient Air Quality Standards in the Northwest Territories and the NWT Guideline for Dust Suppression.</li> <li>• No significant quantities of visible dust blowing off-site.</li> <li>• No public complaints.</li> </ul>
<b>Operational Controls to Include</b>	<ul style="list-style-type: none"> <li>• Appropriate use of dust control measures in the project work areas to minimise exposure.</li> <li>• Conduct work in a manner that minimizes and adequately controls the risk to workers and others.</li> <li>• Workers to use appropriate engineering controls and wear the necessary PPE.</li> <li>• Works involving potential dust generating activities will be scheduled to avoid strong wind forces when possible.</li> <li>• Restriction of vehicle and machinery movements during the project works to designated areas.</li> <li>• Observance of vehicle speed limits as set by the mine manager.</li> <li>• Use of dust covers while transporting tailings and on non-actively worked tailings stockpiles</li> <li>• Direction to cease or modify work should visible dust emissions occur at any time.</li> <li>• Additional monitoring if so directed by PWGSC's representative.</li> </ul>
<b>Monitoring</b>	<ul style="list-style-type: none"> <li>• Respond to the air monitoring results, and adjust work as required.</li> <li>• Visual surveillance of dust emissions, dust controls.</li> <li>• Weather and physical parameters such as wind speed, rain temperature, and humidity will be utilized to assist in carrying out activities related to underground stabilization works.</li> </ul>
<b>Corrective Actions</b>	<ul style="list-style-type: none"> <li>• In the event of a failure to comply with the requirements of this EMP and the accepted EPP, project specifications, regulations or guidelines resulting in ineffective management of dust the Contractor will: <ul style="list-style-type: none"> <li>○ undertake an investigation to determine the cause of the problem;</li> <li>○ modify any work practices, systems or dust management procedures as necessary to improve air quality; and,</li> </ul> </li> <li>• Report the results of the investigation to PWGSC's Representative.</li> </ul>

#### 9.4 Hazardous Materials Management

Storage and handling of all hazardous materials, fuels and flammable liquids will be managed in conformance with the requirements outlined in the specifications (Section 01 35 32 – Site Specific Health and Safety Plan). In addition, the Contractor is to adhere to

the Hazardous Material objectives, criteria, operational controls, monitoring and corrective action requirements set out in Table 5.

The Contractor will develop the EPP to include all the sections listed below. The EPP will provide specifics, including means and methods, about how the Contractor will meet the requirements listed in this EMP.

**Table 5: Hazardous Materials Management**

<b>Objectives</b>	<ul style="list-style-type: none"> <li>• To minimise the potential for environmental incidents to occur.</li> <li>• To enable effective rapid response in the event of incidents</li> </ul>
<b>Statutory Requirements</b>	<ul style="list-style-type: none"> <li>• Federal Transportation of Dangerous Goods Act</li> <li>• Federal Hazardous Products Act</li> <li>• Controlled Products Regulation (WHMIS)</li> <li>• National Fire Code</li> </ul>
<b>Performance Criteria</b>	<ul style="list-style-type: none"> <li>• No incidents (no injuries, property damage, environmental, incidents).</li> <li>• All personnel trained in hazardous materials handling and emergency response procedures.</li> </ul>
<b>Operational Controls to Include</b>	<ul style="list-style-type: none"> <li>• Transportation of Dangerous Goods controlled hazardous substances require PWGSC approval prior to being brought on to or removed from Site.</li> <li>• Inventory control measures including:             <ul style="list-style-type: none"> <li>○ An inventory list of hazardous chemicals and all MSDSs prior to bringing chemicals on site to be provided to the Departmental Representative.</li> <li>○ MSDSs to be retained for all hazmat / chemicals brought to site.</li> <li>○ MSDS, inventory and copy of Emergency Response Plan be held at each storage area.</li> </ul> </li> <li>• All non-arsenic containing hazardous materials are to be removed from site</li> <li>• Materials to be stored and handled in accordance with regulations.</li> <li>• Clear labelling and signage for all fuel, oils and dangerous goods and storage areas.</li> <li>• Transfer of bulk fuel and handling of hazardous chemicals to be conducted only by appropriately trained personnel.</li> <li>• Spill response kits including appropriate quantities and types of absorbent materials will be kept at each storage area.</li> <li>• All temporary fuel, oil, or chemical storage areas shall be contained as per regulations and have appropriate procedures for spill containment and clean up with equipment stored in close proximity ready for immediate use.</li> <li>• Operational procedures for bulk oil or chemical handling, delivery,</li> </ul>

	<p>and disposal shall be documented and shall be in accordance with the relevant regulations.</p> <ul style="list-style-type: none"> <li>• Use of trained, and where required by regulations, certified personnel to supervise the loading and unloading of bulk oil and chemicals.</li> <li>• Appropriate quantities of spill response material shall be available for immediate use (see Emergency Response Plan).</li> </ul>
<b>Monitoring</b>	<ul style="list-style-type: none"> <li>• Monitoring and inspection of activities, handling practices, and storage areas shall be undertaken regularly to ensure conformance with regulations.</li> </ul>
<b>Reporting</b>	<ul style="list-style-type: none"> <li>• Immediate reporting to the PWGSC's Representative of any hazardous materials incident that may affect the environment or human health or safety.</li> <li>• Reporting of incidents as part of monthly reporting.</li> </ul>
<b>Corrective Actions</b>	<ul style="list-style-type: none"> <li>• In the event of a failure to comply with the requirements of this EMP and the accepted EPP, project specifications, regulations or guidelines resulting in ineffective dangerous goods handling or management the Contractor will: <ul style="list-style-type: none"> <li>• Undertake an investigation to determine the cause of the problem;</li> <li>• Modify any work practices, systems or procedures as necessary to improve dangerous goods handling and management; and</li> <li>• Formally report the outcomes of the investigation to PWGSC's Representative.</li> </ul> </li> </ul>

## 9.5 Waste Management

Management of waste generated during underground stabilization works must meet the requirements of the project specifications, and the table below which identifies the requirements for:

- waste handling and storage;
- disposal of wastes; and
- specific details for wastes segregation as per the project specifications.

Waste material will be disposed of in manner and in areas of the site in conformance with the specifications.

Waste objectives, criteria, operational controls, monitoring and corrective action requirements have been set out in Table 6 below which are to be adhered to by the Contractor.

The Contractor will develop the EPP to include all the sections listed below. The EPP will provide specifics, including means and methods, about how the Contractor will meet the requirements listed in this EMP.

**Table 6: Waste Management**

<b>Objectives</b>	<ul style="list-style-type: none"> <li>• To prevent or minimise any adverse environmental impacts from wastes.</li> <li>• To ensure the safe and lawful disposal of all waste.</li> </ul>
<b>Statutory Requirements and Guidelines</b>	<ul style="list-style-type: none"> <li>• Canadian Environmental Protection Act</li> <li>• Export and Import of Hazardous Wastes and Hazardous Recyclables Materials Regulation (CEPA)</li> <li>• PCB Regulations (CEPA)</li> <li>• Federal Fisheries Act</li> <li>• Public Health Act</li> <li>• General Sanitation Regulations</li> <li>• Commissioner’s Lands Act</li> <li>• Environmental Information Guide for Industrial Projects on Commissioner’s Land</li> <li>• NWT Environmental Protection Act</li> <li>• Guideline for the General Management of Hazardous Waste in the NWT</li> <li>• Used Oil and Waste Fuel Management Regulations</li> <li>• NWT Fire Protection Act and Regulations</li> <li>• TDG Act and Regulations</li> <li>• NWT Guideline for the Management of Waste Asbestos</li> </ul>
<b>Performance Criteria</b>	<ul style="list-style-type: none"> <li>• Waste to be disposed of lawfully.</li> <li>• Conformance with the specifications.</li> <li>• No complaints received in relation to waste management practices.</li> </ul>
<b>Operational Controls to Include</b>	<ul style="list-style-type: none"> <li>• All hazardous or contaminated waste that may be encountered or generated on site will be stored and managed in a manner that minimises the impacts of the waste on the environment, including appropriate segregation for storage and disposal as set out in the project specifications.</li> <li>• Do not bury or dispose of waste materials on site unless approved by Departmental Representative.</li> <li>• Do not dispose of waste materials in ditches or into waterways.</li> <li>• Where underground stabilization activities require the decontamination of equipment and infrastructure, wastewater will be captured and moved off-site for disposal.</li> </ul>
<b>Monitoring</b>	<ul style="list-style-type: none"> <li>• All wastes will be segregated according to the project specifications (Sections 02.41.23 and 31.23.10).</li> <li>• All waste disposed of will be recorded by, location, type and volume and date of disposal.</li> </ul>



	<ul style="list-style-type: none"> <li>• Waste manifests will be generated as required.</li> </ul>
<b>Reporting</b>	<ul style="list-style-type: none"> <li>• Any incident which causes or threatens to cause harm or breaches approval requirements is to be reported to PWGSC.</li> <li>• All waste disposals will be tracked.</li> <li>• Activities related to the management of waste will be included in monthly reporting, at a minimum.</li> </ul>
<b>Corrective Actions</b>	<ul style="list-style-type: none"> <li>• In the event of a failure to comply with the requirements of this EMP and the accepted EPP, project specifications, regulations or guidelines the Contractor will: <ul style="list-style-type: none"> <li>○ undertake an investigation to determine the cause of the problem;</li> <li>○ modify any work practices, systems or waste management procedures as necessary to improve waste management; and,</li> <li>○ report the results of the investigation to PWGSC's Representative.</li> </ul> </li> </ul>

## 9.6 Ecological Management

### 9.6.1 Aquatic/Wildlife Resources

The Contractor shall complete all work in accordance with the working windows described in this EMP, and as specified in environmental permits and approvals issued by Canadian and territorial regulatory departments/agencies having jurisdiction.

The Work must be undertaken and completed in such a manner so as to prevent the release of substances deleterious to fish and other aquatic life, mammals and birds.

Due diligence is required at all times to prevent deleterious releases, and adherence to the terms and conditions of environmental specifications does not of itself relieve the Contractor of this ongoing obligation.

### 9.6.2 Species at Risk

Although no species at risk have been identified on the mine site, the Contractor shall note that legal and regulatory requirements, including limits of work windows, may require the Contractor to change their proposed work methods, activities, and schedule to protect populations and/or individuals of protected species and their habitat.

It is not envisioned that Underground Stabilization works will require significant clearing of vegetation.

To manage ecological values objectives, criteria, operational controls, monitoring and corrective action requirements have been set out in Table 7 below which are to be adhered to by the Contractor.

The Contractor will develop the EPP to include all the sections listed below. The EPP will provide specifics, including means and methods, about how the Contractor will meet the requirements listed in this EMP.

**Table 7: Ecological Management**

<b>Objectives</b>	<ul style="list-style-type: none"> <li>• To prevent disturbance or damage to the terrestrial habitat.</li> <li>• To prevent disruption or impact to any wildlife resource, either wildlife populations or individuals.</li> </ul>
<b>Statutory Requirements and Guidelines</b>	<ul style="list-style-type: none"> <li>• Federal Fisheries Act</li> <li>• Federal Species at Risk Act</li> <li>• Federal Migratory Bird Convention Act</li> <li>• Species at Risk (NWT) Act.</li> <li>• NWT Wildlife Act</li> <li>• NWT Environmental Protection Act</li> </ul>
<b>Performance Criteria</b>	<ul style="list-style-type: none"> <li>• Compliance with relevant requirements of applicable legislation.</li> <li>• Compliance with any mitigation measures identified through the ongoing breeding birds and Species At Risk survey (at the direction of the Departmental Representative).</li> </ul>
<b>Operational Controls</b>	<ul style="list-style-type: none"> <li>• Contractor will observe and report any wildlife encounters with Contractor's personnel to the PWGSC's representative.</li> <li>• Contractor will work with Departmental Representative to ensure no impact to any identified resource.</li> <li>• Wildlife protection including, but not limited to:             <ul style="list-style-type: none"> <li>○ avoidance of active animal dens.</li> <li>○ avoidance of active nests</li> </ul> </li> <li>• Minimise impact upon any areas of significant vegetation which have been identified in the vegetation survey(s) provided by PWGSC.</li> </ul>
<b>Monitoring &amp; Reporting</b>	<ul style="list-style-type: none"> <li>• Any fauna species encountered will be observed and reported upon as part of monthly project reporting, at minimum.</li> </ul>
<b>Corrective Actions</b>	<ul style="list-style-type: none"> <li>• In the event of a failure to comply with the requirements of this EMP and the accepted EPP, project specifications, regulations or guidelines resulting in harm to wildlife the Contractor will:             <ul style="list-style-type: none"> <li>○ Undertake an investigation to determine the cause of the problem;</li> <li>○ Modify any work practices, systems or wildlife management procedures as necessary to limit harm to wildlife; and,</li> <li>○ Report the results of the investigation to PWGSC's Representative.</li> </ul> </li> </ul>

## 9.7 Heritage Protection

PWGSC will notify the Contractor of any known cultural resource sites and their locations.

Identified sites shall be avoided to fullest extent possible.

The Contractor shall halt work immediately upon discovery of cultural site/artefacts and promptly notify PWGSC's Representative.

To manage heritage resources objectives, criteria, operational controls, monitoring and corrective action requirements have been set out in Table 8 below which are to be adhered to by the Contractor.

The Contractor will develop the EPP to include all the sections listed below. The EPP will provide specifics, including means and methods, about how the Contractor will meet the requirements listed in this EMP.

**Table 8: Heritage Protection Management**

<b>Objectives</b>	<ul style="list-style-type: none"><li>To prevent disturbance or damage to heritage structures during underground stabilization works.</li></ul>
<b>Statutory Requirements and Guidelines</b>	<ul style="list-style-type: none"><li>Archaeological Sites Regulations (NWT) pursuant to the Northwest Territories Act</li><li>Territorial Land Use Regulations (NWT)</li><li>Federal Cultural Property Export and Import Act</li></ul>
<b>Performance</b>	<ul style="list-style-type: none"><li>No unauthorised disturbance to cultural heritage material.</li></ul>
<b>Criteria</b>	<ul style="list-style-type: none"><li>No contravention of protocols set out in relation to cultural heritage.</li><li>No contravention of relevant Territorial or Federal Legislation.</li></ul>
<b>Operational Controls to Include</b>	<ul style="list-style-type: none"><li>Requirement to stop work immediately if suspected culturally significant material is found within the vicinity of activities related to underground stabilization work, take steps to prevent further disturbance, and notify the PWGSC Representative, who will obtain expert advice from an appropriate qualified professional.</li><li>Requirement to establish and clearly mark exclusion zones where culturally significant items are found in or adjacent to project work areas.</li></ul>
<b>Monitoring</b>	<ul style="list-style-type: none"><li>The Contractor is required to monitor areas and activities under its control.</li><li>Daily inspections of heritage protection items and protective fencing will be conducted by the Contractor when underground</li></ul>

	<p>stabilization works are being carried out adjacent.</p> <ul style="list-style-type: none"> <li>• During excavations in areas of identified archaeological potential monitoring by YKDFN elders/Environmental Monitors will be incorporated into the monitoring program.</li> </ul>
<b>Reporting</b>	<ul style="list-style-type: none"> <li>• The discovery of possible archaeological or heritage material will be reported to the PWGSC Representative who will obtain expert advice from an appropriate qualified professional.</li> </ul>
<b>Corrective Actions</b>	<ul style="list-style-type: none"> <li>• In the event of a failure to comply with the requirements of this EMP and the accepted EPP, project specifications, regulations or guidelines resulting in harm to cultural resources the Contractor will: <ul style="list-style-type: none"> <li>○ undertake an investigation to determine the cause of the problem;</li> <li>○ modify any work practices, systems or cultural resource management procedures as necessary to improve the protection of cultural resources; and,</li> <li>○ report the results of the investigation to PWGSC's Representative.</li> </ul> </li> </ul>

### **9.8 Traffic Management**

Underground stabilization activities will generate traffic within the site, including:

- equipment delivery;
- movement of earthmoving and underground stabilization equipment on site; and
- staff transport

Traffic Management will conform to the requirements stated in the specification (Section 01 35 32 – Site Specific Health and Safety Plan).

Vehicle and equipment movement will conform to relevant permits, license conditions and established site restrictions.

Prevent vehicles and equipment from tracking waste or debris beyond the immediate work area.

## **10 ENVIRONMENTAL EMERGENCY PREPAREDNESS AND RESPONSE**

In addition to the requirements for emergency preparedness and response set out in the project specifications, objectives, criteria, operational controls, monitoring and corrective action requirements for environmental emergency preparedness and response have been set out in Table 9 below which are to be adhered to by the Contractor.

The Contractor will develop the EPP to include all the sections listed below. The EPP will provide specifics, including means and methods, about how the Contractor will meet the requirements listed in this EMP.

Include details of the Contractor's spill contingency plan in the Environmental Protection Plan (EPP). The spill contingency plan must include:

- An inventory of response and clean-up equipment.
- A site map with the location of storage facilities and the location of emergency equipment with spill response and clean-up equipment.
- A cover page that clearly identifies the NT-NU 24-hour Spill Report Line and the name, job title and 24-hour telephone number for person(s) responsible for activating the Spill Contingency Plan.

**Table 9: Emergency Response**

<b>Objectives</b>	<ul style="list-style-type: none"> <li>• The overall objective is to provide for an effective rapid response to control the incident and minimise its environmental impact and the potential for any long-term negative outcomes.</li> </ul>
<b>Statutory Requirements</b>	<ul style="list-style-type: none"> <li>• Federal Environmental Emergency Regulations (CEPA)</li> <li>• Federal Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (CEPA)</li> <li>• NWT Spill Contingency Planning and Reporting Regulations</li> </ul>
<b>Performance Criteria</b>	<ul style="list-style-type: none"> <li>• No incidents (no injuries, property damage, environmental, incidents).</li> <li>• All personnel trained in emergency response procedures.</li> </ul>
<b>Operational Controls to Include</b>	<ul style="list-style-type: none"> <li>• Implementation of the Project Emergency Response procedures detailed in a Contractor developed Site Specific Health and Safety Plan (SSHASP).</li> <li>• Orientation training for all employees including training in the Project emergency response and hazardous substances procedures.</li> <li>• Maintenance of hazardous material inventories and Material Safety Data Sheets accessible at the site office for all hazardous materials bought onto the site.</li> <li>• Adequate supply of spill containment materials such as booms and absorbent materials to be available in proximity to relevant work storage areas with routine checks of inventory conducted to ensure they are properly located and maintained.</li> <li>• Appropriately designed and sealed storage and equipment maintenance areas to contain spills.</li> <li>• Establishment of a central control point for emergency situations.</li> <li>• Emergency contact phone numbers for emergency services and key Site personnel shall be displayed in all office areas.</li> <li>• Spill reporting procedures.</li> <li>• Limiting or containing spills using sand bags, absorbent material, temporary sealing of cracks or leaks in containers, use of geotextile or silt fencing.</li> </ul>

	<ul style="list-style-type: none"> <li>Coordinate response, clean up and disposal of material to approved site in accordance with environmental regulations and manufacturers suppliers recommendations contained on MSDS documentation.</li> </ul>
<b>Monitoring</b>	<ul style="list-style-type: none"> <li>Monitoring of environmental compliance performance shall be undertaken regularly in conformance with regulations.</li> </ul>
<b>Reporting</b>	<ul style="list-style-type: none"> <li>Project incident reporting and investigation procedures as detailed in the Contractor's SSHASP shall be used for all environmental incidents. Under the SSHASP the Contractor will be required to immediately notify the PWGSC's Representative of any environmental incident that may occur in order to ensure the incident is dealt with effectively and limit the potential for significant environmental harm.</li> </ul>
<b>Corrective Actions</b>	<ul style="list-style-type: none"> <li>In the event of a failure to comply with the requirements of this EMP and the accepted EPP, project specifications, regulations or guidelines resulting in ineffective emergency response the Contractor will: <ul style="list-style-type: none"> <li>undertake an investigation to determine the cause of the problem;</li> <li>modify any work practices, systems or procedures as necessary to improve emergency response and management; and</li> <li>formally report the outcomes of the investigation to PWGSC's Representative.</li> </ul> </li> </ul>

### 10.1 Reporting Environmental Emergencies

All environmental emergencies will be reported immediately, following the guidelines provided below in Table 10.

**Table 10 - Reporting Environmental Emergencies**

Type of Emergency	Reporting Order	Required Action
Hazardous Material Spill	<ul style="list-style-type: none"> <li>Emergency contacts as identified in the Emergency Response Plan</li> <li>PWGSC's Representative</li> <li>Mine Manager or designate</li> <li>GNWT spill line / Regulators as required (depending on volume)</li> </ul>	<ul style="list-style-type: none"> <li>Implement procedures as per Spill Prevention and Emergency Response Plan (to be prepared by the Contractor and included in the EPP)</li> <li>Shut down job activities if necessary</li> <li>Obtain soil/water quality samples for chemical analysis if necessary</li> </ul>
Emergency Affecting Water	<ul style="list-style-type: none"> <li>"Person in Charge" e.g.</li> </ul>	<ul style="list-style-type: none"> <li>Shut down job activities</li> </ul>

Quality	site superintendent <ul style="list-style-type: none"> <li>• Mine Manager or designate</li> <li>• Emergency contacts</li> <li>• PWGSC's Representative</li> </ul>	if necessary <ul style="list-style-type: none"> <li>• Obtain water quality samples for chemical analysis</li> <li>• Follow reporting requirements</li> </ul>
Other Environmental Emergency	<ul style="list-style-type: none"> <li>• "Person in Charge" e.g. site superintendent</li> <li>• Emergency contacts</li> <li>• Mine Manager or designate</li> <li>• PWGSC's Representative</li> </ul>	<ul style="list-style-type: none"> <li>• Shut down job activities if necessary</li> </ul>

## **11 AUDITING, MONITORING, REPORTING AND REVIEW**

### **11.1 Environmental Monitoring Program**

Scheduled monitoring of environmental performance and will be conducted throughout the term of the underground stabilization contract. This will enable the overall effectiveness of established environmental controls and compliance procedures to be assessed, and allow areas of underperformance to be identified so corrective actions can to be taken to strengthen environmental safeguards or improve outcomes.

The environmental monitoring program proposed under this EMP incorporates daily, weekly and event based inspections and associated reports.

External consultants will conduct monitoring when required to further strengthen the monitoring program.

## **12 AUDITING AND INSPECTIONS**

The Contractor may be required to participate in environmental audits and regulatory inspections that incorporate the project work areas.

## **13 RECORD KEEPING REQUIREMENTS**

The Contractor shall maintain copies of all records related to environmental management and QA/QC and the sampling, recording, analysis and reporting of regulatory compliance.

Data related to all sampling, monitoring and environmental management shall be provided to PWGSC as set out in the specifications.

All records are to be available to PWGSC for inspection upon request.

All water sampling data that may be required under the Water Licence shall be uploaded by the Contractor to a data management system prescribed by PWGSC.

#### **14 REPORTING**

Conduct required activities and file reporting on activities as set out in sections above.

#### **15 COMPLIANCE DOCUMENTATION**

All underground stabilization work shall be undertaken with the appropriate regulatory approvals, or permits in place and shall comply with applicable environmental regulatory and legislative requirements.

#### **16 SUB-CONTRACTORS TO THE CONTRACTOR**

The Contractor will establish communications and verifications mechanisms to inform sub-contractors of the applicable requirements of this EMP and the accepted EPP and their responsibilities for compliance.