Affaires autochtones et Développement du Nord Canada

Aboriginal Affairs and Northern Development Canada

Environment, Health and Safety Management System Manual

Revision 0

Northwest Territories Region

Canada

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LIST OF APPENDICES

REVISION HISTORY

Date	Section	Summary
April 1, 2013	All	Original

GLOSSARY

Term	Definition
AANDC	Aboriginal Affairs and Northern Development Canada
ADM	Assistant Deputy Minister
ADM-NAO	Assistant Deputy Minister - Northern Affairs Organization
AOC	Aboriginal Opportunity Consideration
AR	Annual Reporting
AHJ	Authority Having Jurisdiction
CCME	Canadian Council of Ministers of the Environment
CEAP	Canadian Economic Action Plan
CFO	Chief Financial Officer
CLCA	Comprehensive Land Claims Agreement
CS	Contaminated Sites
CSMP	Contaminated Sites Management Plan
CSMWG	Contaminated Sites Management Working Group
CSP	Contaminated Sites Program
CSP MS	Contaminated Sites Program Management System
CSR	Contaminated Sites Report
DEW	Distant Early Warning
DG	Director General
DGIOC	Director-General Implementation and Operations Committee
DG - NRE	Director General - Northern Resources and Environment
DWP	Detailed Work Plan
DR	Departmental Representative
EBP	Employee Benefit Plan
EC	Environment Canada
EHS	Environment, Health & Safety
EHS WG	Environment, Health & Safety Working Group
EPA	Effective Project Approval
ERE	Ecological Risk Evaluation
ESA	Environmental Site Assessment
FCS	Federal Contaminated Sites
FCSAP	Federal Contaminated Sites Action Plan
FCSI	Federal Contaminated Sites Identifier
FCSI	Federal Contaminated Sites Inventory
FMC	Financial Management Committee
FSR	Financial Status Report
G&C	Grants and Contributions
HHPQRA	Human Health Preliminary Quantitative Risk Assessment
HQ	Headquarters
IDEA	Interdepartmental Data Exchange Application
IEMS	Integrated Environmental Management System
INAC	Indian and Northern Affairs Canada

Term	Definition
IRS	Internal Responsibility System
NAO	Northern Affairs Organization
NCSCS	National Classification System for Contaminated Sites
NCSP	Northern Contaminated Sites Program
NMB	Northern Management Board
NOTAM	Notices to Air Men
O&M	Operations and Maintenance
OASIS	Office Automation Systems and Information Services AANDC departmental financial system
OPMCA	Organizational Project Management Capacity Assessment
PCRA	Project Complexity and Risk Assessment
PMTAC	Project Management and Technical Advisory Committee
PPA	Preliminary Project Approval
PWGSC	Public Works and Government Services Canada
QR	Quarterly Reporting
R/RM/C&M	Remediation/Risk Management/Care and Maintenance
RAP	Remedial Action Plan
RCM	Responsibility Centre Manager
RDG	Regional Director General
RE	Resident Engineer
RFP	Request for Proposal
RM	Risk Management
SLA	Service Level Agreement
SOPs	Standard Operating Procedures
SSA	Specific Services Agreement
TB	Treasury Board
TBAS	Treasury Board Accounting Standard
TBS	Treasury Board Secretariat
VE	Value Engineering exercise

INTRODUCTION

Purpose

This section introduces the Environment, Health and Safety Management System (EHS MS) of the Northwest Territories (NT) Region Contaminated Sites Program.

Scope

The NT Region EHS MS is applicable to all NT Region sites that are currently being remediated and those in the future to be developed. The EHS MS is applicable to on-site operations and activities and off-site administration and engineering activities.

Organizational Overview

The Organizational structure for the sites will vary depending upon the parties involved. The parties involved could include Public Works Government Services of Canada (PWGSC), local community groups, and other contractors.

Requirement

NT Region shall develop and implement an EHS MS that applies to all NT Region operations and activities. This EHS MS specifies EHS requirements at the regional level. These requirements shall be amplified at the project level as required.

Requirements for an EHS MS

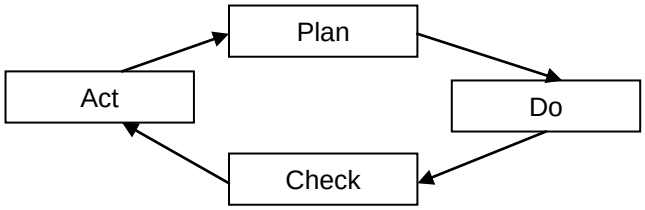
The NAO NCSP EHS MS was developed in August 2006.This provides the overall direction for the EHS MS. The NT Region has developed an EHS MS to provide direction and ensure consistent implementation of the policy and compliance with all legislative and other requirements across the region.

ISO 14001 Standard OHSAS 18001 Standard

The ISO 14001:2004 and OHSAS 18001:2007 standards were selected as the framework for the development of the NT Region EHS MS. ISO 14001:2004 is the recognized standard for Environment management systems, OHSAS 18001:2007 is the international standard for health and safety management systems. The two standards are compatible and many elements are similar.

The ISO 14001/OHSAS 18001 models are based on the well known “plan-do-check-act” model.

Figure 1: Plan-Do-Check-Act



The ISO 14001/OHSAS 18001 framework of the EHS MS is made up of the following five core sections:

1. EHS Policy
2. Planning
3. Implementation and Operation
4. Checking and
5. Management Review

Purpose of the EHS MS

The EHS MS is designed to enable the NT Region management team to:

- Identify and assess the significance of EHS aspects and hazards and potential impacts and risks associated with their plans, activities and operations;
- Identify and keep up to date with legal and other requirements;
- Focus management priorities on setting EHS objectives and targets;
- Establish management programs to achieve EHS objectives and targets;
- Establish roles, responsibilities and authorities to meet EHS objectives and targets;
- Establish effective internal and external communication methods regarding EHS management;
- Develop documentation, document control and records management practices;
- Ensure conformance with EHS requirement through monitoring and measurement, audits, non conformance and accident/incident investigations and effective corrective actions; and
- Conduct regular management review to assess EHS performance and performance of the Management System.

Document Structure of the EHS MS

The EHS MS is a set of processes to manage EHS performance within the NT Region. The EHS MS is documented in a series of controlled documents in the following hierarchy:

- **EHS Policy,** the overall guiding policy for EHS, reproduced in the document.
- **EHS MS Policy Manual,** this document, that is developed at the regional level for the NT Region and includes all the system level procedures
- **EHS MS Project Policy Manual,** the next tier EHS MS to be developed by specific projects to amplify the direction of the regional EHS MS.
- **EHS Operational Requirements Manual,** regional work instructions to meet the requirements of the EHS MS.
- **EHS MS Documents,** official records for the EHS MS

Reference Documentation

- CAN/CSA-ISO 14001:2004 Environmental management systems – Requirements with guidance for use
- OHSAS 18001:2007 Occupational health and safety management systems - Requirements

1. PART 1 – EHS POLICY

The NT Region EHS policy sets the NT Region CSP's over arching commitments and intentions as it relates to EHS management and performance.

1.1 EHS POLICY

The environment, health and safety (EHS) Policy of the Northern Affairs Organization's (NAO's) Northern Contaminated Sites Program (NCSP) provides guidance to the organization in meeting the requirements of the Canada Labour Code; applicable EHS legislation, regulations and policies; and related policies of the Treasury Board. The NCSP EHS policy is a program-wide policy that is applicable to all NCSP activities and operations. It provides the framework for program-wide EHS management, including the development of regional-level EHS management systems and related initiatives.

1.1.1 Purpose and Scope

The purpose of the NCSP EHS policy is to ensure that all NCSP activities meet applicable legal and other requirements for EHS management, and to ensure that NCSP staff, contractors, visitors, and local communities are not adversely affected by EHS risks associated with contaminated sites. The NCSP EHS policy is applicable to the execution of all NCSP operations and activities, including planning, engineering, and administrative functions performed by federal employees, consultants, contractors or others.

1.1.2 Requirements

The NCSP EHS policy documents AANDC's commitment to the protection of the environment and health and safety of workers at contaminated sites. It forms the basis for developing the EHS MS at the corporate-, regional- and project-levels and establishes the framework for setting and reviewing EHS objectives and targets.

1.1.3 Procedure

The Northwest Territories Regional Contaminated Sites Program (NT Region CSP) adopts the NCSP EHS policy for all NT Region CSP activities and operations in the Northwest Territories.

The EHS Policy shall be communicated to employees, contractors and interested parties. This can be accomplished in a variety of ways:

- EHS MS policy posted at relevant locations
- EHS MS documentations

- EHS Awareness training program
- Brochures, newsletters and other publications
- NT Region website
- Contract documents
- Contractor bidder meetings
- Contractor start up meetings
- Daily safety tailgate meetings
- Staff meetings
- E-mails

As part of the EHS policy communication methodology, a sign off between NT Region and the contractor is required. A Public Works Government Services of Canada (PWGSC) sign off is provided in Appendix A. A project level EHS Policy sign off is provided in Appendix A.

The applicability of using the NCSP EHS Policy for all NT Region CSP activities is reviewed annually and revised, if necessary, as part of the Management Review process.

The NCSP EHS Policy will be maintained as part of the master controlled copy of the EHS MS Manual.

The NCSP EHS policy which the NT Region has adopted is found in Appendix A.

2. PART 2 – PLANNING

2.1 EHS ASPECTS AND HAZARDS

The NT Region has established a procedure to ensure the identification, disclosure and mitigation of all EHS aspects and hazards on its contaminated sites through the implementation and maintenance of an effective EHS management system. This procedure is located on the following pages. The procedure documents how to identify the EHS aspects and hazards for a site and to determine the significance or risk of the aspect/hazard. An aspect/risk register has been created identifying potential aspects/risks for a variety of scenarios this register can be used when creating a project specific register. This register is located in Appendix B.

EHS Management System Level Procedure

1. Purpose

The purpose of this document is to define the process to identify the environmental aspects and occupational health and safety hazards of the activities, products and services within the scope of the NT Region EHS MS, and to determine which aspects and hazards are significant. It also describes how the aspects and hazards are evaluated, assessed and integrated into the EHS MS.

2. Requirements

The NT Region shall conduct regular analyses and implement appropriate measures to identify significant EHS aspects and hazards as changes to the activities of the projects occur.

3. Responsibilities

- Regional EGS Representative
  - Ensure significant EHS aspects and hazards are identified and taken into account in establishing EHS objectives, targets, programs and operational controls.
  - Approve required actions and resources for managing and minimizing the risks identified in the EHS aspects and hazard review.
- Project Manager
  - Establish, implement and maintain a procedure to identify EHS aspects and hazards associated with the Project and evaluate their significance.
  - Co-lead a small team of individuals familiar with the Project's activities and regulatory and other requirements in conducting an EHS aspects and hazards review.
  - Document and maintain a list of EHS aspects, hazards, impacts and their significance, proposed management options and other information resulting from the EHS aspects, hazards review.
  - Present management options resulting from the EHS aspects, hazards review to the Project Manager for approval.
- Site Management
  - Assemble and co-lead a small team of individuals familiar with the Project's activities and regulatory and other requirements in conducting an EHS aspects, hazards review.
  - Implement approved risk management actions for tasks and activities conducted at the site.
  - Assign responsibility for managing risks associated with specific tasks and activities at the site to appropriate individuals.

- Monitor risk management actions for tasks and activities conducted at the site identify and report any problems or areas for improvement to the Project Management Team.

- Management Rep
  - Ensure significant EHS aspects, hazards are identified and taken into account when establishing Work Plans, EHS objectives, targets and programmes, operational controls and safety procedures.

4. Procedure

- Identifying Aspects:
  - The Site Management and the aspects/hazards team shall use the NT Region EHS Risk Register as a source of potential aspects and hazards for the activities to occur at the site. Additional aspects/hazards can be identified based upon the experiences of the project team. The team will select the appropriate activities and associated EHS aspects/hazard and the potential impact from the Register. This listing should be reviewed as processes change in order to determine if any aspects/hazards have changed and require updating.
  - The list shall be based primarily on the following risk categories: human health and safety, environmental impact, and legal obligations.
- Determining Significance
  - Once all the aspects/hazards have been identified the significance shall be determined. Significance is determined by the severity of the impact and the likelihood that the activity will result in the pre-determined impact. Severity of the impact takes into consideration environmental impact, including local wildlife, migratory patterns, endangered species), First Nations concerns, legislative and regulatory requirements, cost, public concerns and health and safety of personnel. Each area of severity is evaluated and the highest ranking number is used to calculate the ranking.
  - Risk Ranking = Severity + Liklihood
  - All EHS aspects and hazards ranked as ‘Moderate Risk’ or higher shall be considered significant for the purposes of the EHSMS Specific definitions for determining significance and likelihood listed in the tables below.

Table 1: Definitions of Severity

Consequence Category	Low	Minor	Moderate	Major	Critical
1. Environmental Impact	No Impact	Minor localized or short term impacts	Significant impact on valued ecosystem component	Significant impact on valued ecosystem component and medium -term impairment of ecosystem function.	Serious long-term impairment of ecosystem function.
2. Special Considerations	Some disturbance but no impact to traditional land use	Minor perceived impact to traditional land use	Some mitigable impact to traditional land use	Significant temporary impact to traditional land use	Significant permanent impact to traditional land use
3. Legal and other Obligations	No non-compliance but lack of conformance with departmental policy requirement. Informal advice from regulatory agency. No land claim or other agreement.	Technical/Administrative non-compliance with permit, approval or regulatory requirement Warning letter issued. Land claim or other agreement requires the Crown to satisfy administrative obligations (e.g. notification)	Breach of regulation, permits or approvals (e.g. one day violation of discharge limits) Order or direction issued Land claim or other agreement requires the Crown to respond but no time frame is specified	Substantive breach of regulation, permits or approvals (e.g. multi-day violation of discharge limits) Prosecution Land claim or other agreement requires the Crown to exercise its obligations within a specified time frame (i.e. two-five years)	Major breach of regulation – willful violation Court order issued Land claim or other agreement requires the Crown to exercise its obligations within a specified short time frame (i.e. one-two years).
4. Consequence Costs	< $100,000	$100,000 - $500,000	$ 500,000 - $2.5 Million	$2.5 - $10 Million	>$10 Million
5. Community / Media / Reputation	Local concerns, but no local complaints or adverse press coverage	Public concern restricted to local complaints or local adverse press coverage	Heightened concern by local community, criticism by NGOs or adverse local / regional media attention	Significant adverse national public, NGO or media attention	Serious public outcry / demonstrations or adverse international NGO attention or media coverage
6. Human Health and Safety	Low-level short term subjective symptoms / No measurable physical effect / No medical treatment	Objective but reversible disability / impairment and / or medical treatment injuries requiring hospitalization	Moderate irreversible disability or impairment to one or more people	Single fatality and / or severe irreversible disability or impairment to one or more people	Multiple fatalities

Table 2: Definitions of Likelihood

Assigned Likelihood	Descriptive	Health Events Only	Frequency of Occurrence for Other Events
Almost Certain	Happens often	1 case / 100 person years	High frequency (more than once per year)
Likely	Could easily happen	1 case / 1,000 person-years	Event does occur, has a history, once every 1-10 years
Possible	Could happen and has happened elsewhere	1 case / 10,000 person-years	Occurs once every 10-100 years
Unlikely	Hasn't happened yet but could	1 case / 100,000 person-years	Occurs once every 100-1000 years
Very Unlikely	Conceivable, but only in extreme circumstances	1 case / 1,000,000 person-years	Occurs once every 1000-10,000 years

Table 3: Risk Matrix

Likelihood	Consequence Severity				
	Low	Minor	Moderate	Major	Critical
Almost Certain	Moderate	Moderately High	High	Very High	Very High
Likely	Moderate	Moderate	Moderately High	High	Very High
Possible	Low	Moderate	Moderately High	High	High
Unlikely	Low	Low	Moderate	Moderately High	Moderately High
Very Unlikely	Low	Low	Low	Moderate	Moderately High

- Operational Controls, Monitoring and Measurement Activities The Project Manager shall document and maintain the EHS aspects and hazards in the EHS Aspects and Hazards Register. They will determine the ability of the operation to control or influence the impacts, and identify the appropriate option for managing each aspect (e.g., EHS Management Program, work procedures, monitoring, staff training) and document in a register of aspects with reference to the applicable program, procedure or policy.
- The Project Manager shall prepare a summary analysis of the EHS Aspects and Hazards Register in January of each year and provide recommendations related to the management of program-level aspects and hazards to the Director – NCSP HQ, which will be considered in annual work planning.
- Regional Directors, with support from the Project Manager shall analyse EHS Aspects/hazards, assign actions related to the management of regional aspects and hazards to appropriate individuals, provide these individuals with the necessary resources and monitor progress as part of the general operation of this EHS MS. Project Managers will analyse EHS aspects/hazards risks, assign actions related to the management of project aspects and hazards to appropriate individuals, provide these individuals with the necessary resources and monitor progress as part of the general operation of this EHS MS. Project staff are required to communicate to their supervisors any EHS aspects/hazards risks that are not covered by the EHS MS.
- A hazard assessment is required before commencing any project. Project specific job /task hazards will be identified by the site supervisor (or the Project Manager if no supervisor is assigned for a site) and addressed using the job safety analysis procedure found in the Standard Operating Procedures (SOP) Manual. Results of the hazard assessment are to be communicated to the appropriate staff.
- Known hazards at non-active sites (i.e., those awaiting assessment, remediation or monitoring) shall be included in the Regional EHS aspects and hazards register to ensure such hazards are managed.

5. References

Northern Contaminated Sites Program Risk Management Guidance Document Version 2 (2006)

6. Related documents and procedures

NT Region EHS Risk Register

7. Revision History

Rev.	Date	Section	Purpose of the modification

2.2 LEGAL AND OTHER REQUIREMENTS

The NT Region has established a procedure to ensure the implementation and maintenance of EHS legal and other requirements. This procedure is located on the following pages. The procedure documents how to identify the EHS legal and other requirements that are associated with the aspects and hazards for a site. A legal and other requirements reference list has been created identifying potential legal and other requirements this reference list can be used when creating a project specific list. This legal listing is located in Appendix C.

EHS Management System Level Procedure

1. Purpose

The purpose of this document is to describe the process by which legal and other requirements are identified. Legal and other requirements include, but are not limited to, federal and territorial legislation, municipal bylaws, regulations, permits, licences and approvals, corporate policies and industry codes of practice applicable to NT Region activities.

2. Requirements

The applicable Federal and Territorial legal, policy and other requirements shall be tracked so that NT Region can comply with the EHS Policy of meeting all legal requirements, as a minimum. For the purposes of the EHS MS, only federal legal requirements shall be identified at the Program level. Regional legal requirements are identified in this Regional amplification of the EHS MS. Where federal and territorial legal requirements overlap, the more stringent requirements shall be met.

3. Responsibilities

- **Regional EHS Coordinator**
  - Identify EHS legal, policy and other requirements pertaining to the Project activities, in conjunction with the Site Manager and assisted from time to time by the Legal Counsel.
  - Track and maintain an up to date register of regulatory and other requirements That apply to the Project.
  - Communicate changes in regulatory and other requirements to the Site Manager/workers in the form of memos or procedure.
  - Communicate requests for amendments relating to water licenses and land use permits for site activities to applicable organizations.

- Communicate required reports and notifications to applicable authorities relating to water licenses, land use permits, and occupational health and safety requirements (e.g. asbestos abatement).
- Liaise with regulatory agencies with respect to specific site activities in the form of meetings, letters or e-mails, and the provision of photographs, sample data or any other requested information.
- Maintain an up-to-date register of federal laws, regulations, policies and other requirements that apply to the NT Region in the Regulatory Summary.

- **Site Management**
  - Ensure site operations are conducted in compliance with legal and other requirements.
- **Management Rep**
  - Incorporate regulatory and other requirements into program guidelines and procedures.
- **Management Representative**
  - Incorporate regulatory and other requirements into the EHS MS documentation.

4. Procedure

The Regional EHS Coordinator shall maintain an up-to-date register of federal laws, regulations, policies and other requirements that apply to the NT Region in the Regulatory Summary (see NCSP LEGAL REQUIREMENTS REFERENCE LIST). Legal and other requirements will be reviewed annually and when new or amendments to legislation or other requirements are introduced, the list will be updated. Sources of relevant information include:

- The Canada Gazette.
- The Canadian Department of Justice.
- The Canadian Legal Information Institute.
- GNWT Department of Justice
- Regulatory Boards

- **Compliance Pro or similar software**
  - Regional Directors, with support from the Regional EHS Coordinator and Project Managers, shall maintain an up-to-date register of applicable territorial laws, regulations, licences, policies and other requirements as applicable in the Regulatory Summary.
  - Applicable territorial laws and regulations, licences, policies and other requirements vary between sites and within sites, depending on type of site and the phase and nature of the work (e.g., assessment and monitoring vs. active remediation). NT Region shall classify sites into two categories – assessment and remediation – and follow the sections of regulations applicable to sites of these two types (e.g., Part XV

"Exploration" of the NWT Mine Health and Safety Act and Regulations could be followed in the case of assessment projects; other sections to remediation projects). Integration of legal, policy and other requirements into business plans and operational procedures is mandatory.

- The Regional EHS Cooridinator will provide proponents of new tasks, activities or work methods (e.g., consultants, contractors) with a copy of the register and ensure that the proponents identify any additional EHS legal, policy or other requirements. These additional requirements shall be included in the EHS MS Operational Requirements Manual.
- Compliance with legal and other requirements will be monitored as per the procedures provided in section 4.1 Monitoring and Measurement of this manual.

1. References

Northern Contaminated Sites Program Environment, Health and Safety Management System Manual (Revision 2)

2. Related documents and procedures

Northern Contaminated Sites Program Legal Requirements Reference List

7. Revision History

Rev.	Date	Section	Purpose of the modification

2.3 OBJECTIVES, TARGETS AND PROGRAMS

The NT Region has established a procedure to ensure the implementation and maintenance of EHS objectives and targets. This procedure is located on the following pages. The procedure documents how to identify the EHS objectives, targets and programs.

EHS Management System Level Procedure

1. Purpose

This section describes how the NT Region sets EHS objectives and targets.

2. Requirements

EHS objectives, which take into account the NCSP EHS policy, aspects, and legal, and operational requirements, shall be established to provide overall direction for all AANDC employees, contractors, and their staff. The objectives are to be measured by establishing metrics, and achieved by, among other means, the implementation of EHS programs.

By meeting established EHS objectives NT Region will demonstrate commitment to NCSP EHS policy and adherence to the requirements of the system level procedures including:

2.1 EHS Aspects and Hazards which includes the identification of environmental aspects and health and safety hazards over which NT Region has control and influence.

2.2 Legal and Other Requirements which includes maintaining an up to date register of EHS legislation.

3.6.1 Project Planning and 3.6.2 Procurement Management which manage the impacts of supplier and contractor activities.

4.1 Monitoring and Measurement and 4.2. Non-conformity, Corrective and Preventive Action and 4.2.1 Accident/Incident Investigation contribute to the prevention of pollution, lost time injuries and contractor activities.

4.4 EHS Audit and 5.1 Management Review which provide a process for continual EHS improvement.

3. Responsibilities

Senior Management Team (includes Regional Director, Project Manager, Regional EHS Coordinator, Project Officer, Program Leader)

- Establish EHS objectives and targets within each department and ensure they are incorporated into their respective departmental plans.
- Ensure there is adequate resources (financial and human) to implement EHS objectives and targets within each department.
- Approve the Project's overall EHS objectives, targets and performance indicators.
- Approve time frame for achieving program-specific EHS objectives and targets.
- Monitor the performance of the department's EHS objectives and targets.
- Review EHS objectives and targets as part of the annual management review or as changes in conditions, regulatory or other requirements warrant.

EHS Regional Coordinator

- Ensuring appropriate amplification of the EHS MS at the regional-level (including but not limited to the identification of legal and other requirements; objectives, targets and management programs; roles and responsibilities; training requirements; EHS communications; Standard Operating Procedures; environmental emergency response; and regional MS review)

- Providing resources for regional EHS MS training and awareness;
- Conducting the annual Management Review of the EHS MS;
- Providing input into the annual audit plan (e.g., selection of sites, scheduling);
- Reviewing the EHS audit report for audits in their region;
- Approving and monitoring implementation of Corrective and Preventive Action Plans;
- Reviewing Corrective and Preventive Action Plans implementation and/or close-out; and
- PWGSC (includes PM and EHS staff for PWGSC-managed project sites)
- Prepare specification and incorporate all relevant EHS requirements;
- Highlight EHS requirements at contractor bidders' conferences;
- Provide the SOP Manual to the contractors for guidance and as minimum requirements;
- Forward project-specific EHS plan submittals to qualified professional for review;
- Communicate known site hazards to contractor;
- Participating in start-up meetings prior to initiation of site work that explicitly address EHS requirements;
- Reviewing EHS practices relative to specification during each site visit; NAO - NCSP
- Reviewing contractor's and Crown representative's inspection reports;
- Reviewing incident reports;
- Managing and implementing the EHS audit program for AANDC NCSP sites;
- Approving Corrective and Preventive Action Plans to respond to EHS audits;
- Monitoring Corrective and Preventive Action Plan implementation and/or close-out; and
- Providing monthly reports that include EHS data, summary of inspection results and incident reports, and Corrective and Preventive Action Plan status to AANDC PM.

Project Managers

- Establish departmental EHS objectives and targets.
- Approve program-specific EHS objectives, targets and performance indicators for their department.
- Incorporate EHS objectives, targets and performance indicators into all departmental plans.
- Approve time frame for achieving program-specific EHS objectives and targets.
- Monitor and report to Senior Management the performance of the department's EHS objectives and targets.
- Review EHS objectives and targets as part of the annual management review or as changes in conditions, regulatory or other requirements warrant.

Program/Task Leaders

- Establish program-specific EHS objectives, targets and performance indicators, in-line with the department's overall EHS objectives and targets.

Supervisors

- Provide input for establishing program-specific objectives, targets and performance indicators.
- Assign specific tasks for achieving site objectives and targets to appropriate individuals.
- Report on program-specific performance of objectives and targets, any problems encountered or proposed revisions to the Management.

Workers

- Recognize that EHS is a part of every individual's job description, and work in a safe manner and report any EHS infractions of which he/she is aware.
- Provide input for establishing program-specific objectives, targets and performance indicators.
- Report on program-specific performance of objectives and targets to his/her Supervisor and/or Manager.

4. Procedure

- Establish objectives, measures and targets at least annually as part of the budget/work planning cycle.
- Objectives and targets will be set taking into consideration:
  - legal and other requirements;
  - significant EHS aspects;
  - the EHS policy and the commitment to the prevention of pollution and continual improvement of the EHS MS are considered;
  - interests of stakeholders;
  - business, operational and financial requirements;
  - technological options
- Objectives, measures and targets will be documented in the EHS Operational Requirements Manual.
- Performance against objectives, measures and targets will be monitored as part of regular Project Management Team meetings. Significant deviations from the plan will be reported to the Senior Management team promptly and approval requested to revise targets.
- Objectives and targets will be reviewed and updated, as required, at least annually during the Management Review process and when legal and other requirements change or there are major changes to contracts or activities.

5. References

- NAP CSP – EHS MS Manual, March 2008
- Environment, Health and Safety Standard Operating Procedures Manual, Northern Affairs Organization – Contaminated Sites Program INAC, March 31, 2008

6. Related documents and procedures

- NT Region EHS MS SLP 4.2 Non Conformance CAR PAR
- NT Region EHS MS SLP 3.1 Resources, Roles and Responsibilities

7. Revision History

Rev.	Date	Section	Purpose of the modification
0	1-Apr-13		Original

3. PART 3 – IMPLEMENTATION AND OPERATION

3.1 RESOURCES, ROLES AND RESPONSIBILITY, ACCOUNTABILITIES AND AUTHORITIES

The NT Region has established a procedure to define, document and communicate the roles and responsibilities, accountabilities and authorities for all staff in the NT Region. This procedure is located on the following pages. A table identifying responsibilities, accountabilities and authorities is located within this procedure.

EHS Management System Level Procedure

1. Purpose

This procedure describes the roles, responsibilities and authorities of personnel who are involved in the implementation and operation of the EHS MS for NT Region.

This procedure ensures the availability of the necessary resources to establish, implement, maintain and improvement the EHS MS. Resources include human resources, specialized skills, organizational infrastructure, technology and financial resources.

2. Requirements

Responsibilities and authorities shall be assigned to ensure the EHS MS functions effectively. The following expands on the requirements within the EHS Policy. This document provides overall roles and responsibilities within the EHS MS, more detailed roles and responsibilities are identified within specific procedures.

Resources such as infrastructure, technology and financial resources for the NT Region sites shall be identified as part of the project planning process.

3. Roles and Responsibilities

Position	EHS Responsibilities, Accountabilities, Authorities
Regional Director	• Ensuring appropriate amplification of the EHS MS at the regional-level (including but not limited to the identification of legal and other requirements; objectives, targets and management programs; roles and responsibilities; training requirements; EHS communications; Standard Operating Procedures; environmental emergency response; and regional MS review); • Providing resources for regional EHS MS training and awareness; • Conducting the annual Management Review of the EHS MS; • Providing input into the annual audit plan (e.g., selection of sites, scheduling); • Reviewing the EHS audit report for audits in their region; • Approving and monitoring implementation of Corrective and Preventive Action Plans; • Reviewing Corrective and Preventive Action Plans implementation and/or close-out; and; • Reviewing the EHS component of quarterly reports.
Regional EHS Coordinator	• Ensuring the EHS MS is developed, implemented and maintained • Maintain the Registers of NT Region Environmental aspects, health and safety hazards and regulatory requirements. • Collect and maintain EHS documentation, including EHS files, templates, forms, records, training records • Control all NT Region EHS MS document, records and data • Respond to EHS inquiries from HQ and regional employees • Develop and implement processes for identifying, reporting and following up on non conformities within the EHS MS • Report to Top Management on the performance of the EHS MS • Maintain and track EHS training matrix requirements including identification of participants and tracking training completion

Position	EHS Responsibilities, Accountabilities, Authorities
Project Managers / Contaminated Sites Specialists	• PWGSC, site operators, consultants, contractors, and visitors) are aware of and comply with the EHS Policy and associated MS requirements; • Identifying project EHS aspects and hazards and developing project-level procedures and programs for all EHS aspects and hazards not covered by corporate or regional procedures, as required (i.e., amplifying the SOP Manual); • Coordinating the communication of the EHS Policy to project staff; • Ensuring all AANDC employees involved in the project understand the EHS MS Manual and SOP Manual and conduct their activities to ensure compliance with these requirements – including EHS training and Job Safety Analysis completion; • Ensuring the requirements of the EHS Policy, EHS MS Manual and SOP Manual are transferred to non-AANDC project participants (e.g., PWGSC, contractors and consultants) as minimum requirements, through Specific Service Agreements or contracts; • Requesting and reviewing site specific EHS Plans to ensure EHS requirements are documented, and inspecting project activities and operations to ensure site activities conform to requirements; • Communicating known site EHS aspects and hazards to PWGSC project managers; • Participating with PWGSC project managers in start-up meetings that discuss EHS requirements prior to initiation of site work; and • Reviewing EHS practices of PWGSC and contractors during each site visit.
PWGSC (includes PM and EHS staff for PWGSC-managed project sites)	• Prepare specification and incorporate all relevant EHS requirements; • Highlight EHS requirements at contractor bidders' conferences; • Provide the SOP Manual to the contractors for guidance and as minimum requirements; • Forward project-specific EHS plan submittals to qualified professional for review; • Communicate known site hazards to contractor; • Participating in start-up meetings prior to initiation of site work that explicitly address EHS requirements; • Reviewing EHS practices relative to specification during each site visit; • Reviewing contractor's and Crown representative's inspection reports; • Reviewing incident reports; • Managing and implementing the EHS audit program for AANDC NCSP sites; • Approving Corrective and Preventive Action Plans to respond to EHS audits; • Monitoring Corrective and Preventive Action Plan implementation and/or close-out; and • Providing monthly reports that include EHS data, summary of inspection results and incident reports, and Corrective and Preventive Action Plan status to AANDC PM.
Site Staff	• Be aware of and understand the EHS Policy and procedures; and • Perform work activities in conformance with the EHS Policy and procedures.
Site Visitors	• Be aware of and understand the EHS Policy and procedures through a site orientation upon arrival at the site.

4. Procedure

- Responsibilities for development, implementation and management of the EHS MS shall be shared among the different organizational levels, including:
  - Regions: have responsibility for monitoring implementation of the EHS Policy, with an emphasis on implementation and monitoring of the EHS MS, and have a significant oversight role in monitoring compliance with EHS legislative and contractual requirements.
  - Projects: have responsibility for on-site legislative, contractual and project- specific controls and adherence to EHS MS minimum requirements.
- The roles, responsibilities and authorities of key personnel involved in a Project will be specified by the appropriate management level within the agencies involved (e.g., AANDC, Regional Stakeholders, PWGSC, Prime Contractor, Consultants, other Contractors, etc.)
- Roles, responsibilities and authorities must be clearly communicated and understood. Roles and responsibilities will be communicated to personnel, contractors and consultants through EHS MS training programs, on the job training and project meetings.
- Overall EHS MS roles and responsibilities will be reviewed during the Management Review process and modifications made as required.
- A register of roles, responsibilities and authorities for the Project will be maintained by the Regional EHS Coordinator.
- All parties are responsible for reporting any incidents of non-compliance with the EHS Policy, MS Manual, or SOP Manual to their immediate supervisor.
- Resources including infrastructure, technology and financial resources will be identified and managed as per the NT Region EHS MS SLP 3.6.1 Project Planning procedure.

4. References

Northern Contaminated Sites Program Environment, Health and Safety Management System Manual (Revision 2); and
NRO-CSP Environment, Health & Safety Management Manual (March 31, 2012).

5. Related documents and procedures

NT Region EHS MS SLP 3.6.1 Project Planning

6. Revision History

Rev.	Date	Section	Purpose of the modification

3.2 COMPETENCE, TRAINING AND AWARENESS

The NT Region has established a procedure to ensure that NT Region personnel receive proper, adequate and appropriate training from qualified training providers with respect to the EHS MS. This procedure is located on the following pages. An EHS training matrix identifying potential training requirements is located in Appendix D. This reference matrix can be used when creating a project specific training list.

EHS Management System Level Procedure

1. Purpose

This section outlines the process by which NT Region personnel receive proper, adequate and appropriate awareness training regarding the EHS Policy and the processes and requirements of the EHS MS.

2. Requirements

All parties involved in NT Region operations, including AANDC employees, PWGSC employees, students, site operators, contractors, subcontractors, consultants, etc., shall receive awareness training on the EHS Policy and other requirements of this EHS MS. Individuals in various positions shall receive training appropriate to their duties. No person shall occupy a position for which he or she does not have the appropriate level of competency.

3. Responsibilities

Regional EHS Regional Coordinator

- **Project Manager**
  - Approve the development and delivery of EHS training programs.
  - Assign responsibility and approve resources required for EHS training.
- **Management Representative**
  - Develop an EHS MS awareness-training package for use in communicating, as a minimum: the policy; objectives, targets and performance indicators; legal, policy and other requirements; roles, responsibilities and authorities; compliance, including consequence of non-compliance; and due diligence, significant EHS aspects and hazards for the job site.
  - Advise Program/Task Leaders on the development and delivery of EHS program-specific training, as it relates to the EHS aspects and hazards, risks, legal and operational control requirements of the site..
  - Deliver EHS MS awareness training and assist in the delivery of program specific training as appropriate.

- **Program/Task Leaders**
  - Manage the development and delivery of issue-specific EHS training programs.
  - Select qualified trainers.
  - Identify job/task positions requiring program-specific training, in conjunction with the Site Manager, Training Leader and the Management Representative.
- **Regional EHS Coordinator**
  - Maintain a master copy of training requirements, training plans and status for each worker.
  - Maintain master copies of training materials.
  - Schedule workers for training.
  - Assist in the delivery of training programs as required.
  - Maintain individual training certificates, attendance rosters and competency assessment as required.
- **Site Management**
  - Identify EHS training requirements for individual workers under their authority in conjunction with the Program/Task Leaders, Training Leader and Management Representative.
  - Ensure workers under their authority receive appropriate EHS training/retraining required for the work activities they perform.
  - Ensure all site personnel performing tasks that have the potential to cause significant EHS impacts are competent on the basis of education, training or experience.
  - Issue training certificates
  - Document and track training (completion and renewal) and provide training stats
- **Workers**
  - Obtain training and qualifications required to perform activities and tasks.

4. Procedure

- The EHS Regional Coordinator shall adapt the NCSP EHS MS awareness training package to communicate, as a minimum, the following: the EHS Policy, the process required to identify EHS aspects and hazards of contaminated work sites; the significant EHS aspects and hazards of the site; the EHS objectives, targets, and performance measures of the NT Region; roles, responsibilities, and authorities of everyone involved with NT Region sites; legal compliance requirements and the consequences of non-compliance; the Internal Responsibility System (IRS); and due diligence.
- The EHS Regional Coordinator shall ensure the EHS MS awareness-training package is delivered to all employees, and to new employees, students, consultants and contractors as part of a new job / site orientation, and afterwards as circumstances require.
- Everyone must be aware of:
  - The importance of conforming to the EHS Policy;
  - The significant aspects and hazards of their work at the site;

  - Their roles and responsibilities for achieving compliance with the EHS MS
  - within the IRS framework; and
  - The potential impacts of non-conformance with EHS Policy and procedures as described in 4.2 *Non-Conformance and Corrective and Preventive Action.*

- The EHS Regional Coordinator shall adapt the NCSP training package on the Standard Operating Procedures Manual to support EHS programs and provide NT Region personnel with the knowledge required to mitigate EHS risks, hazards, and impacts. This training will be provided to AANDC staff involved in operational activities and will be refreshed on a regular basis and whenever circumstances require retraining. Regional Directors are responsible to ensure that training is delivered as required.
- The EHS Regional Coordinator shall annually assess the effectiveness and delivery of the EHS MS training package and specific training programs. They shall ensure these programs are modified as required to meet specific training needs. Individual employee responsibilities, abilities, and risk factors of the work sites shall be used as criteria to assess training needs.
- The EHS Regional Coordinator shall review the job descriptions or other suitable vehicles for AANDC project managers, field supervisors and field workers as new positions are created or before existing ones are posted for existence of EHS requirements, and shall recommend modifications where necessary to assure the appropriate EHS qualification.
- Project Managers shall ensure that contract documents contain specifications regarding EHS competencies of key site personnel (e.g., site manager, EHS site supervisor) and that contractors are selected with due regard for the EHS competencies of the proposed teams.
- Training records for all EHS training sessions and site orientations delivered by AANDC personnel shall be maintained on file at the appropriate location (i.e., project site, regional office, or HQ) for a minimum of five years. The party responsible for overseeing delivery of the program (i.e. EHS Regional Coordinator or Project Manager) is responsible for ensuring training records are maintained.
- In addition to EHS MS awareness packages, specific training programs will be developed to support EHS programs and provide personnel with the knowledge to mitigate EHS impacts. Specific training needs and competency levels required for each position will be identified and documented along with the frequency of training required in the NT Region EHS MS Training Matrix (Appendix E).
- The Management Representative, working with the Site Manager and Program/Task Leaders will maintain a register of awareness and training activities and employee training records (EHS MS Register of Awareness and Training Activities) using the template specified in Appendix E.

5. References

Northern Contaminated Sites Program Environment, Health and Safety Management System Manual (Revision 2).

6. Related documents and procedures

NT Region EHS Management System Training Matrix

7. Revision History

Rev.	Date	Section	Purpose of the modification

3.3 COMMUNICATION, PARTICIPATION AND CONSULTATION

The NT Region has established a procedure to ensure that the EHS MS is communicated both internally and externally. This procedure is located on the following pages.

The NT Region has decided to communicate externally about its significant aspects. This information (often in form of the project risk register) will be shared when enquiries are made to the NT Region.

EHS Management System Level Procedure

1. Purpose

This section describes the process for NT Region to internally and externally communicate information about the EHS MS. This includes contractors, consultants and appropriate regulatory agencies and communities. Internal communication includes participation by and consultation with NT region staff.

2. Requirements

Processes will be developed and followed to ensure that information, including EHS MS performance, is properly transferred to both internal and appropriate external parties.

3. Responsibilities

Regional Director

- Hold monthly meetings with the Project Management Team that includes sharing of information regarding the performances of the NT Region EHS MS.

Regional EHS Coordinator

- Acts upon required changes, resulting from internal or external communication, to NT Region EHS MS including amplification of SOPs.

Project Managers

- Establish, implement and maintain a procedure for internal communication between the various levels and functions of the Project and external communication to appropriate parties.
- Approve external communication.
- Ensure effective internal communication and consultation at all levels regarding the development, implementation and review of the EHS MS.
- Communicate EHS MS objectives, targets, performance and proposed EHS MS changes to Senior Management.

Management Representative

- Coordinate the internal communication of EHS MS requirements, procedures and guidelines for managing risk and performance reports.
- Maintain a register of EHS MS reporting responsibilities and procedures.
- Maintain documentation on internal communications and consultation regarding EHS MS management reviews, proposed revisions, approvals and performance reports.
- Act as the main contact for receiving and forwarding responses to external parties, with the exception of spill reports which are handled directly by the Project Manager. Maintain original copies of all external communications.

4. Procedure

- The Management Representative will prepare, maintain and distribute to project members a register of reporting requirements (EHS MS Reporting Requirements).
- Responsibility for preparing reports within specified dates rests with the individuals identified in the register. These individuals will prepare drafts for review by the PMT and finals for approval by Project Managers.
- Project Managers will distribute final copies of reports to the distribution list and make copies available to project members for their information and reference.
- The Management Representative will prepare, maintain and distribute to project members a record of communications, including internal reviews and distributions, external communications and queries, EHS MS distribution sheet sign offs, and suggestions and responses, (EHS MS Communications Register).

Internal

- The Regional Director will hold meetings of the Project Management Team at least monthly and use these meeting to:
  - Share information on the performance of the EHS MS (e.g., performance against objectives and targets), non-conformances, EHS incidents and concerns;
  - Receive and discuss progress reports on EHS programs; and
  - Report on EHS audits and management review.
- The Project Manager will use one of the Senior Management Team meetings to carry out an annual Management Review of the Project.
- The meetings of the Project Management Team will be open and minutes of the Project Management Team and Senior Management Team meetings will be made available to employees.
- The Project Manager will inform and seek suggestions from employees and other project personnel regarding the preparation of the annual work program, policy and procedural development, and budget. Draft and final copies of these documents will be made available to employees.
- The EHS MS awareness-training will be delivered to all employees andhandouts provided to each employee for reference.
- Draft and final project reports will be made available to employees for review as appropriate and for information.
- Employees will be consulted concerning hazard identification, incident investigation and changes to the EHS MS.
- Communicate significant changes to the EHS MS objectives and targets, programs, procedures and responsibilities internally to appropriate personnel. Methods for communication include e-mails, postings on an intranet site and bulletin boards, awareness training sessions and staff meetings.
- Required changes to regional amplification of SOPs identified by regional staff shall be communicated to the Regional Director and acted upon by the regional EHS Coordinator.
- Communication with Contractors:
  - Contractor requirements will be documented in the contract documents. Start-up meetings will be held with contractors to review the work requirements prior to starting work. In addition, the contractor will communicate their progress through progress reports via e-mail, progress meetings and/or conference calls on a monthly or other appropriate time frame.
  - When Contractor’s activities result in an infraction of the EHS Policy or procedure communication will follow the Contractor Escalation process that is identified in procedure NT Region EHS MS SLP 4.2 Nonconformance and Preventive/Corrective Action.

External

- The Regional EHS Coordinator working with the Communications group and others, will produce and distribute as appropriate brochures, fact sheets, videos, web page and other materials describing the Project.
- Project Managers will provide AANDC-HQ with an annual Project Progress Report containing the necessary information for inclusion in the Annual Contaminated Sites Progress Report.
- Project staff will prepare and deliver presentations on the Project to external audiences as appropriate.
- Communications with the media will be by media spokespersons and follow established Regional procedures.
- AANDC or the Contractor will provide the necessary regulatory reporting at the commencement of work, in the case of an accident or a spill.
- AANDC or the Contractor will provide SSHASPS, Assurance of Voluntary Compliance (AVC), accident and spill reports.

5. References

Northern Contaminated Sites Program Environment, Health and Safety Management System Manual (Revision 2)

6. Related documents and procedures

NT Region EHS Communications Register

7. Revision History

Rev.	Date	Section	Purpose of the modification

3.4 EHS MS DOCUMENTATION

The NT Region EHS MS is documented with the NT Region EHS MS manual. The EHS MS documentation includes the EHS policy (section 1.1), objectives and targets (section 2.2). The description of the main elements of the EHS MS, their interaction and reference to related documents is documented in the EHS MS Manual.

Document control, document security and personnel confidentiality are described in the Control of Documents procedure. (section 3.5).

The scope of the EHS MS is documented in the EHS MS Manual in the introduction.

All documents and records required by the EHS MS are identified under the appropriate element in the EHS MS Manual.

3.5 CONTROL OF DOCUMENTS

The NT Region has established a procedure to ensure the implementation and maintenance of EHS MS documents. This procedure is located on the following pages. The procedure documents how documents are approved, reviewed, updated and to ensure that the relevant versions of documents are available and documents remain legible and readily identifiable.

EHS Management System Level Procedure

1. Purpose

The purpose of this document is to define how the documents and records of the NT Region EHS MS are controlled. In addition this procedure ensures that records are maintained in an orderly manner and retained for the required period of time.

2. Requirements

The NT Region shall ensure that the documents required by the EHS MS are controlled.

Records are a special type of document and must be controlled. Management of records shall be consistent with AANDC records management procedures. Examples of EHS records include risk registers, management review meeting minutes, performance reports, audit reports, non-conformance and non-compliance reports, corrective action reports, training records and safety meeting records and accident/incident and investigation reports.

3. Responsibilities

Regional EHS Coordinator

- Develop and implement specific procedures for controlling documents and records.
- Develop and implement specific procedures for managing and retaining records.
- Maintain a master controlled original copy of the EHS MS Manual and supporting documents, including signed, approval originals.
- Distributes controlled copies of the EHS MS Manual and supporting documents and maintain a distribution list for individuals that receive the controlled copies.
- Ensure obsolete copies of the EHS MS Manual and supporting documents are destroyed.

Project Manager

- Shall approve the EHS MS documentation.
- Ensure an effective process for records management is established and maintained.
- Maintain program/task related records.

Site Management

- Have the responsibility to request changes to documents as deemed necessary.
- Maintain site operation records

* Specific responsibilities for maintaining training, monitoring, EHS MS performance, permit and compliance records, audit, incident reporting and other Project records are provided in corresponding sections of the EHS MS manual.

4. Procedure

Document Control

- All NT Region documents will contain standard identification on each page, specifically a header or footer identifying the following items:
  - Title
  - Procedure Number
  - Issue Date
  - Revision Date
  - Revision Number
  - File Number
  - Document Owner
  - Page Number and
  - Total Number of Pages
- All NT Region documents are reviewed by the management representative and approved by the project manager prior to being released and distributed.
- All EHS MS documents shall be reviewed periodically, or as indicated during annual management reviews.
- When changes are made to controlled documents they shall be reviewed and re-approved. The revision level is changed when the documents are changed. A description of the revision is included in the revision table at the end of the procedure.
- Only controlled current versions of the EHS MS documents shall be used for guidance by staff.
- If necessary, uncontrolled documents shall be clearly identified as uncontrolled and can be provided to individuals not on the distribution list (including the general public) if requested. These individuals are responsible for obtaining updates.
- The Management representative shall assign a control number and provide a distribution list for any external document that they determine is necessary for the planning and operation of the EHS MS.

- All NT Region EHS MS documents shall be legible.
- All electronic documents shall be protected so that they are accessed as read only. Write access is only provided to staff that must review and approve the documents.
- Obsolete electronic documents shall be kept in a separate file location and at least one previous obsolete version is kept.
- All documents deemed obsolete by the Regional EHS Coordinator shall be labeled with a watermark stating 'OBSOLETE'. These obsolete documents shall be retained for seven (7) years and kept in a separate file from all active EHS MS documents.
- All EHS MS documents shall be retained until they are revised, unless otherwise specified.
- All EHS MS documents shall be kept electronically in CIDMS and in hard copy.

Record Control

- An EHS MS filing system (file numbers, retention time) shall be established and maintained, that is consistent with AANDC records management requirements, including retention times.
- All records shall be readily accessible, legible and traceable to program activities.
- All records shall be protected from damage, retrievable.
- Records can be stored either electronically or as hard copies.
- Necessary records are listed on the Record retention table located in Appendix.
- All incident reports shall be briefly summarized to include incident date and incident type and recorded in the log sheet that is kept electronically on the CIDMS. Hard copies of these incident reports shall be filed in a secured location designated by the Regional EHS Coordinator in order to maintain the confidentiality of those involved in such incidents.

5. References

Environment, Health and Safety Management System Manual (Revision 2), Northern Affairs Program – Contaminated Sites Program Indian and Northern Affairs Canada (March 31, 2008)

6. Related documents and procedures

NT Region EHS 4.3 Record control retention time table

7. Revision History

Rev.	Date	Section	Purpose of the modification

3.6 OPERATIONAL CONTROL

The NT Region has established a procedure to ensure the implementation and maintenance of controls for activities or situations where their absence could result in a deviation from the EHS policy, objectives and targets. There are three procedures identified within this section: Operational Control, Procurement Management and Project Planning. These procedures are available on the following pages.

The Operational Control procedure identifies the need and methodology for identifying operational controls for EHS aspects/hazards. Specific procedures for EHS aspects/hazards controls will be created as required and will be located in a Regional Operational Manual (as required) to supplement the existing NAO CSP EHS Standard Operating Procedures Manual.

The Procurement Management procedure identifies how NT Regional EHS policy and procedures are communicated to contractors throughout the life of a project.

The Project Planning procedure identifies how NT Regional EHS policy and procedures are incorporated within the project planning process.

EHS Management System Level Procedure

1. Purpose

The purpose of this document is to define how the NT Region ensures that controls are in place to manage the significant aspects and hazards.

2. Requirements

Operational controls shall be established and maintained in order to achieve conformance with the EHS MS Policy, the EHS MS Manual and the SOP Manual.

3. Responsibilities

Project Manager

- Ensure that effective controls are in place to mitigate potential EHS aspects/ hazards associated with the site operations.
- Approve the necessary resources and equipment required to effectively manage potential EHS aspects/hazards on site.

Program / Task Leaders

- Develop, implement and maintain procedures for operational controls for significant aspects/hazards.
- Develop, implement and maintain procedures for operational controls for legal requirements.
- Communicate the procedures and controls to the Site Management.

Site Management

- Ensure that the operational control procedures are communicated to the site staff.
- Ensure that the Operational Control procedures are followed and that activities associated with the significant EHS aspects/hazards are carried out under the specified conditions.
- Identify and report to the Program/Task Leaders any problems identified with the operational controls and procedures and make recommendations for improvement.

EHS Management Representative

- Ensure that each operational control sufficiently meets the operational requirement.

Site Staff

- Comply with operational controls and procedures.
- Report any problems identified with the effectiveness of controls and procedures to Site Management and make recommendations for improvement.

4. Procedure

Developing Standard Operating Procedures

- The operational controls shall control particular tasks or activities in order to mitigate any potential EHS aspects/hazards and meet all legal requirements.
- When there are 2 or more legal requirements, the most stringent will apply.
- The controls put in place shall assist in ensuring the EHS objectives and targets are met. Standard operating procedures (SOP) from the NAO CSP Environment, Health and Safety SOP Manual will be used to establish suitable controls (e.g. Section 6 Job Safety Analysis and associated EHS Form-11: JSA-Job Safety Analysis Form).
- The controls should control the situations where their absence could lead to deviation from the EHS Policy, objectives and targets.
- The SOPs shall be combined together into an Operational Manual.

New Activities

- When new activities are introduced to the site a risk assessment must be conducted and additional operational control SOPs developed as required.

Purchasing

- Procurement activities associated with the engineering design and specification shall follow the Procurement Management procedure.
- Purchased items used at the site shall meet the requirements of the EHS Policy and procedures.

Contractors

- Contractors associated with the engineering design and specification are managed according to the Procurement Management procedure
- All subcontractors shall be provided the EHS Policy and procedures, which they must review and sign up stating that they are aware of the EHS requirements.
- All subcontractors are required to attend daily EHS meetings to discuss the EHS aspects/hazards for the day.
- When a contractor's activities result deviate from following the project charter or the EHS policy, a non conformance will be issued and a 3 step escalation process will be followed, as outlined in the Non Conformance CAR PAR procedure.

5. References

EHS Management System Manual, Northern Affairs Program – Contaminated Sites Program Indian and Northern Affairs Canada (March 31, 2008)
NAO CSP Environment, Health and Safety Standard Operating Procedures (2008)

6. Related documents and procedures

NT Region EHS 2.1 EHS Aspects and Hazards
NT Region EHS Aspects and Hazards Risk Matrix
NT Region EHS 3.5 Document and Record Control
NT Region EHS 3.6.1 Project Planning
NT Region EHS 3.6.2 Procurement Management
EHS Form-11: JSA-Job Safety Analysis Form

7. Revision History

Rev.	Date	Section	Purpose of the modification

3.6.1 Operational Control – EHS Project Planning

EHS Management System Level Procedure

1. Purpose

The purpose of this document is to define the process to ensure the EHS MS requirements are applied to all projects.

2. Requirements

This procedure is applicable throughout the life of a project.

3. Responsibilities

Site Owner

- Identify the objectives of the project including EHS requirements.

Project Manager

- Ensure that the Detailed Work Plan (DWP) for the project has been completed
- Ensure that the DWP is being updated on an annual basis
- Ensure that all potential areas of concern have been identified for the project.

EHS Management Representative

- Ensure that a risk register is completed for the project
- Ensure that an EHS MS is developed for the project

4. Procedure

Site Identification

Specific contaminated sites are identified for further review and are assessed to determine who is responsible for the site and whether further assessment of the site is required.

Project Initiation

When a Phase II Environmental Site assessment has been completed for the contaminated site a project detailed work plan (DWP) shall be created.
The DWP includes the following information:

- A clearly defined scope for the project
- A description of the project activities

- An estimated budget for the project
- A planned schedule for the project
- Project approval documents for the Assistant Deputy Minister – Northern Affairs
- Input document for treasury board preliminary project approval, treasury board project complexity and risk assessment
- List of project risks and estimated site liabilities
- Tracking for project history, project performance and adherence to objectives established in the project remedial action plan.

DWP's are updated on an annual basis and can be used as the input to the Project planning stage.

Project Planning

The Project Manager will identify the potential areas of concern and develop a conceptual site model.

Potential areas of concern may include:

- Logistics to site (air, marine or overland travel)
- Contaminated soil, sediment, groundwater or surface water
- Weak or variable ice conditions
- Safety issues resulting from infrastructure at the site (e.g. abandoned buildings or structures, asbestos)
- Waste stored at the site (e.g. drums or tanks or fuel or hazardous materials)
- Third party activity (exploration, traditional land use) in and around site

Based upon the DWP an engineering design and specification will be created if the DWP is recommended to move forward. This specification shall provide sufficient detail on known and potential site hazards and clearly identify EHS management system requirements.

As part of the EHS MS the design and remediation specification should provide sufficient incentive to the remediation contract to optimize the salvage of site infrastructure and scrap metals. This supports the 3Rs philosophy in the specified order or reduce, reuse and recycle.

Project Execution

- The Project Manager shall update the project risk assessment and the risk register following NT Region EHS MS SLP 2.1 EHS Aspects and Hazards and utilizing the NT Region EHS Aspects and Hazards Risk Matrix.
- An EHS MS policy shall be developed for the project.

- Project objectives, targets and programmes shall be developed for the site.
- An EHS Manual and accompanying procedures shall be developed for site, including operational control procedures.

5. References

NAP CSP – EHS MS Manual, March 2008
Environment, Health and Safety Standard Operating Procedures Manual, Northern Affairs Organization – Contaminated Sites Program INAC, March 31, 2008

6. Related documents and procedures

NT Region EHS MS SLP 2.1 EHS Aspects and Hazards
NT Region EHS Aspects and Hazards Risk Matrix
NT Region EHS MS SLP 3.6.2 Procurement Management

7. Revision History

Rev.	Date	Section	Purpose of the modification
0	1-Apr-13		Original

3.6.2 Operational Control – EHS Procurement Management

EHS Management System Level Procedure

1. Purpose

The purpose of this document is to define the process to ensure that contractors working on a site are aware of the EHS aspects, hazards and associated risks at the site. This document will also describe the contractor's responsibilities of minimizing their impact of their aspects/risks.

2. Requirements

This procedure is applicable throughout the life of a contract.

3. Responsibilities

The Site Owner is responsible to identify the objectives of the project including EHS requirements.

The Owner's Agent is responsible for hiring the contractors, managing the contracts on behalf of the Owner. The Owner's agent is responsible to ensure that the site owner's EHS requirements

are met. The Owner's agent can include additional EHS requirements as part of their EHS system.

Contractors are responsible to be aware of and understand and follow the EHS Policy and procedures through a site orientation upon arrival at the site. They are responsible for reporting any incidents that may occur to their site contact, perform EHS checks prior to starting the work.

The Project Manager is responsible to provide the EHS requirements identified within the contract document to the contractors.

The Site Manager is responsible to ensure that the EHS meetings are held and documentation received from contractors. Provide the necessary EHS training to contractor's staff while on site. The Site Manager is responsible to create and administer the site specific safety plan.

All personnel on site are responsible to be aware of, understand and follow the Site Specific Safety Plan.

4. Procedure

Pre-Award

All known or potential site hazards and EHS requirements shall be documented within the RFP and tender document. EHS requirements are further disclosed during the bidder conference. Proposal Evaluation shall include assessment of past contract performance, EHS team capacity, safety records and Certificate of Recognition (CoR).

Post-award

The contract will describe all known or potential site hazards and contain required EHS language.The Project Manager will provide the EHS Policy and procedures to the contractor after the contract is awarded. The contractor will be required to review the policy and procedures and sign off stating that they are aware of the EHS requirements.

A post-award meeting (project initiation or kick off) will be held with the successful contractor reiterating all known or potential site hazards and project EHS requirements, and the documentation requirements. This will be an opportunity for the contractor to ask questions or provide additional information concerning their own EHS policy and procedures.

Project Management

EHS Policy Development and Communication

For the initial start up of a new site project, the Project Manager, in consultation with other managers shall develop an EHS policy statement specific to the project. The policy will be periodically reviewed and updated as changes occur.

The EHS policy shall meet the requirements of ISO 14001 and OHSAS 18001, and as such will be appropriate to the nature, scale and EHS impacts of the specific project. The policy needs to include a commitment to:

- Continual improvement
- Prevention of pollution
- Prevention of injury and ill health
- Comply with the policies and other requirements of the NT region
- Comply with all relevant EHS legislative, regulatory and other requirements
- Provide a framework for setting objectives and targets for the site.
- Document and communicate the policy
- Ensure the policy is available to the public

The EHS policy will be shared with all members of the project and they are responsible to be review, understand and follow the requirements of the policy.

The EHS policy shall be signed by the Project Manager and maintained as a controlled document.

Operational Considerations

Start up meetings are held with contractors to review the work requirements, including health, safety and environmental protection requirements prior to starting work.

Weekly toolbox (tailgate) EHS meetings are to be held once a week to advise workers of the hazards.

An EHS Site plan must be created by either the project manager or the contractor to ensure there is a suitable level of protection provided to staff and to the environment.

Contractors are required to discuss EHS concerns as part of the Daily Task assignment. All environmental, health and safety issues should be discussed and questions should be asked and answered prior to starting work. Workers must sign off on the daily task form after each meeting.

Contractors will issue progress reports including EHS reporting via e-mail progress meetings or conference calls. The project manager and contractor will determine the appropriate communication time frame.

As part of the contractor's evaluation they will be evaluated on the contractors impact to the site, the number of Health and Safety incidents and their response to emergencies.

5. References

NAP CSP – EHS MS Manual, March 2008
Environment, Health and Safety Standard Operating Procedures Manual, Northern Affairs Organization – Contaminated Sites Program INAC, March 31, 2008

6. Related documents and procedures

Daily task meeting minutes
EHS weekly toolbox meeting form
Site EHS Plan

7. Revision History

Rev.	Date	Section	Purpose of the modification
0	1-Apr-13		Original

3.7 EMERGENCY PREPAREDNESS AND RESPONSE

The NT Region has established a procedure to ensure the implementation and maintenance of control measures and effective response to potential emergency situations and potential accidents and incidents. This procedure is available on the following pages.

EHS Management System Level Procedure

1. PURPOSE

This document describes the procedures and processes (Site Specific Health & Safety Plan and Spill Contingency Plan) that are in place to respond to potential or actual EHS emergencies.

2. REQUIREMENTS

Potential emergency and accident conditions will be identified and emergency response procedures developed for handling such situations. The emergency procedures set out in the Site Environment, Health and Safety Plan shall be communicated to employees.

3. RESPONSIBILITIES

Project Manager

- Assign responsibilities for emergency response (i.e. notification, response and reporting).
- Approve resources and equipment required to respond to emergency situations and accidents.
- Ensure emergency situations and accidents are reported and responded to promptly and appropriately (and in accordance with regulatory requirements) to remedy health, safety and environmental impacts.
- Ensure that clear, concise notification, response and reporting procedures (SOPs) are established and followed.

EHS Management Representative

- Develop and maintain an EHS emergency response plan for the site, in consultation with the Site Manager and Program/Task Leaders.
- Coordinate emergency response mock training drills and table top exercises regularly, to test the emergency response plan and revise the plan as required.

Site Manager

- Purchase, install and maintain spill contingency and emergency response equipment and ensure workers are fully aware of their location and trained in their proper use.
- Ensure that copies of the EHS MS Policy Manual, EHS MS Operational Requirements Manual and up-to-date Spill Contingency Plan are available at the site.
- Is fully aware of the policy and operational requirements of each document, and ensures that site workers comply with these requirements.
- Plan and conduct emergency response drills and exercises with the EHS Management Representative.

4. PROCEDURE

The Project Manager shall ensure specific emergency preparedness and response procedures are developed for all sites/projects based on the identification of potential emergency situations. The emergency response procedures will take into account the needs of relevant interested parties such as emergency services organizations and neighboring communities. Emergency response scenarios include but are not limited to contaminants released to the environment in excess of regulatory guidelines, fire or explosion, adverse impacts to wildlife due to contaminant release, worker exposure to a hazardous material causing illness or injury, worker injured while operating equipment or machinery requiring med-evac, air or marine accident, missing employee, hostile/violent employee, wildlife attack, forest fire requiring site evacuation, extreme weather and employees stranded at site or fatality.

The Project Manager shall ensure that staff is trained in their roles in responding to emergency situations, in order to minimize any adverse OH&S consequences and to minimize the impact to the environment.

Each Project Manager shall ensure that health, safety and spill contingency emergency procedures for their sites are tested periodically through either mock incidents or drills, or tabletop exercises. The results of these exercises shall be documented and maintained on file as an EHS MS record. When an actual incident occurs, this can be used in place of test.

When a critical Health and Safety or Environmental incident occurs such as a workplace fatality, the process outlined in the CARD Health and Safety Incident Management Communications Guide will be used for communications and management of the incident. If a serious long-term impairment of ecosystem function occurs due to spill or release of a contaminant, the procedure outlined in NAO CSP EHS MS SOP 038 Spill Prevention and Response will be followed.

Critical incident recovery plans will be developed and implemented for identified potential emergency situations. Consideration will be given to assets such as machines, equipment, hardware/software, or office space critical to sustaining the mission of the project; human resources (administrative, technical, managerial); information resources (reports, databases, spreadsheets, telephone lists, etc.); services and/or procedures to provide these services.

After the occurrence of accidents and emergency situations, the Project Manager shall ensure that emergency procedures are reviewed and revised, where necessary. A record of the critical review of each situation, and the identified corrective and preventive action, shall be maintained on file as an EHS MS record.

5. References

Northern Contaminated Sites Program Environment, Health and Safety Management System Manual (Revision 2)

Northern Affairs Organization – Contaminated Sites Program, Environment, Health and Safety Standard Operating Procedures Manual, March 31, 2008.

6. Related documents and procedures

Emergency Response Plan Form

Critical Incident Management Form

4.2.1. SLP Accident/Incident Investigation and Reporting

CARD Health and Safety Incident Management Communications Guide

NAO CSP EHS MS SOP 038 Spill Prevention and Response

7. Revision History

Rev.	Date	Section	Purpose of the modification

4. PART 4 – CHECKING

4.1 MONITORING AND MEASUREMENT

The NT Region has established a procedure to ensure the implementation and maintenance of monitoring and measuring of the significant aspects and hazards and the objectives and targets for NT Region. This procedure also identifies the requirement for calibration and verification of monitoring and measurement equipment. Evaluation of compliance for the NT Region is also included within the Monitoring and Measurement procedure.

This procedure is available on the following pages.

EHS Management System Level Procedure

1. Purpose

The purpose of this document is to define how the NT Region ensures that significant aspects and hazards of the site and operations are measured and monitored.

2. Requirements

The NT Region shall regularly monitor the significant EHS aspects and hazards and the progress towards achieving the objectives and targets.

3. Responsibilities

Project Manager

- Ensure that a system is in place to monitor and measure the key characteristics of the operations and activities associated with the significant aspects and hazards
- Approve the purchase of monitoring equipment.
- Ensure the implementation of monitoring procedures for the key characteristics.

Program/Task Leaders

- Develop specific criteria to monitor and measure activities associated with significant EHS aspects and hazards.
- Determine exposure limits and monitoring frequency for the activities.
- Ensure that the monitoring criteria meet any legal requirements.
- Establish processes to ensure the reliability of data, such as calibration.
- Maintain records of monitoring.

Site Management

- Ensure that compliance inspections are completed.
- Ensure that monitoring equipment is maintained in good condition and calibrated.
- Maintain records of inspections and calibration records.

4. Procedure

Monitoring significant aspects/hazards

- The Project Manager will review the ranking completed on the risk matrix and confirm the significant aspects/hazards for the project.
- The Program leaders for the activities will determine what criteria shall be used to monitor and measure the activities associated with the significant aspects/hazards.
- The monitoring criteria should include employee exposure limits, monitoring frequency and encompass any legal requirements that have been identified during the development of the engineering design and specification.
- The Program leaders shall regularly monitor the significant aspects/hazards.

Monitoring EHS MS Performance

- The EHS MS performance for the site will be monitored and measured through:
  - Regular monitoring and reporting
  - Audits and inspections
  - Management review of major investments
  - Management review of annual business plans

Reporting on EHS MS Performance

- The Project Manager, Site Manager and contractors shall develop procedures that describe how processes and work activities are monitored and controlled.
- The procedures should include an evaluation of the effectiveness of the controls.
- The Site Manager shall prepare quarterly EHS statistic. This information can include the following:
  - # of Major incidents
  - # of Moderate incidents

  - # of Minor incidents
  - # of Near Misses
  - # of Environmental Incidents, including volume in Litres spilled
  - # of External inspections/audits, the number of non compliances issued, the number of closed/addressed non-compliances
  - # of Internal inspections/audits, the number of non-compliances issued and the number of closed/addressed non-compliances
- The Project Manager will prepare quarterly project reports that report the progress towards achieving the objective and targets for the site. The information reported can include the following:
  - Lost time accidents
  - Days since lost time accident
  - Near misses
  - Significant environmental incidents
  - Incident trend analysis
  - Compliance status
  - Workplace H&S Committee and regulatory inspection results
  - Audit results
  - Environment, Health and Safety training
  - Other corrective actions

Calibration of Monitoring Equipment

- The Site Manager and contractors shall develop procedures for the calibration and maintenance of the monitoring equipment (in accordance with manufacturer's technical recommendations and industry best practices) to ensure that it is functioning correctly.
- Program/task lead shall assist with, and provide oversight on, the development of procedures for the calibration and maintenance of environmental monitoring equipment to ensure that it is functioning correctly. The frequency of the calibration will be determined as per the manufacturer's recommendation.
- If equipment must be sent off site for calibration a back up monitoring device shall be provided.
- Where practical, calibration stickers should be attached to the equipment.
- The calibration records shall be maintained as per the Record Control Procedure.

Evaluation of Compliance

- Site Management shall determine the frequency of compliance inspections in order to evaluate the level of compliance at the site.
- Site Management in cooperation with regulatory agencies and contractors shall complete regular inspections.
- Any non compliant findings shall be reported and completed as per the CPAP procedure.

5. References

Northern Affairs Program – Contaminated Sites Program Indian and Northern Affairs Canada (March 31, 2008)

6. Related documents and procedures

NT Region EHS 2.1 EHS Aspects and Hazards
NT Region EHS Aspects and Hazards Risk Matrix
NT Region EHS 4.3 Record Control
NT Region EHS 2.2 Legal and Other Requirements
NT Region EHS 4.2 Non Conformance CPAP

7. Revision History

Rev.	Date	Section	Purpose of the modification

4.2 INCIDENT INVESTIGATION, NON-COMPLIANCE, NON-CONFORMITY, CORRECTIVE / PREVENTIVE ACTION

The NT Region has established a procedure to ensure the implementation and maintenance of nonconformities, corrective and preventive action. The NT Region has also established a procedure to ensure the implementation and maintenance of the investigation of accidents and incidents. These procedures are available on the following pages.

EHS Management System Level Procedure

1. Purpose

The purpose of this document is to define the process describing how the NT Region EHS MS:

- Identifies, investigates, reports and follows up on EHS MS non-compliances, non conformances and potential nonconformances
- Identifies, investigates, reports and follows up on project management (project charter and 5 point agreement with PWGSC) non-conformances
- Takes actions to change the EHS MS documentation in support of the nonconformances and potential nonconformances
- Assesses the effectiveness of corrective and preventive actions that have been implemented

2. Requirements

The NT Region shall ensure that there is a procedure for identifying, reporting and following up on non-conformances and potential non-conformances within the EHS MS and taking effective corrective action.

3. Responsibilities

Regional EHS Coordinator

- Shall ensure the process for investigating and completing nonconformances and potential nonconformances is followed.
- Shall conduct root cause analysis for nonconformances and prepare corrective and preventive action plans
- Follow up and report on the status of corrective and preventive actions to the Project Manager.
- Ensure that any required documentation changes are completed and the revised documents are distributed as per procedure 3.5 Control of Documentation.

Project Manager

- Shall report non-conformance situations and corrective and preventive actions to the Project Management Team and Senior Management Team quarterly.
- Approve the implementation of the corrective and preventive actions, in consultation with the Project Management Team and Senior Management Team.
- Participate in the EHS escalation process as required.

Site Management

- Participate in the root cause analysis and investigations into the non-conformances and potential nonconformances as required
- Recommend, implement and monitor corrective and preventive action.
- Participate in the EHS escalation process as required.

Site Safety Personnel

- Participate in the EHS escalation process as required.

4. Definitions

- Non-compliance – a non-fulfillment of a legislative or regulatory requirement
- Nonconformity – a non-fulfillment of an EHS MS requirement or a non-fulfillment of a project management requirement
- Corrective Action – action to eliminate the cause of a detected (actual) nonconformity
- Corrective and Preventive Action Plan (CPAP)

- Preventive Action – action to prevent a potential nonconformity from occurring, before it actually occurs.
- Escalation Process -: addresses non-conformity issues with contractors
- Work shutdown – work on a project is ceased until completion of a Critical Incidence report is completed
- Work resumption/continuity - work continues on a project upon completion of a Critical Incidence Report

5. Procedure

Nonconformances and potential nonconformances can be identified by:

- External agency reviews (regulatory audits)
- Regulatory inspections
- Monitoring and reporting of EHS performance
- Internal Audits
- Monthly safety inspections
- Accident/Incident investigations
- Complaints
- Staff suggestions
- Management Review

A root cause analysis shall be conducted. Root cause analysis can utilize techniques such as the “5-why” techniques, Ishikawa (fish-bone) diagram analysis in order to determine the cause of the nonconformance or potential nonconformance.

Corrective and Preventive Action Plan

A corrective or preventive action plan shall be created and assigned to the relevant staff that can implement the action plan. The corrective/preventive action should be completed such that the nonconformance will not reoccur.
All sections of the Corrective and Preventive Action Plan (CPAP) shall be completed. Once completed the approver for the Corrective and Preventive Action Plan (CPAP) will verify the implementation of the actions.

The Management Representative shall track the status of the Corrective and Preventive Action Plan (CPAP) and provide the status update to Management Review.

The effectiveness of the corrective actions will be reviewed as part of the internal audit process.

Contractor Escalation Process

When an EHS Policy and procedure infraction occurs by personnel work on the project it will be dealt with through a 3-step escalation process.

- Verbal warnings/reminders are issued to personnel when their actions demonstrate a nonconformance with the EHS policy or procedures by the appropriate Program/Task Leader or Site Safety personnel.
- A written warning is issued is the nonconformance situation continues. The written warning is issued by the appropriate Program/Task Leader or Site Safety personnel. The Site Management will maintain a record of the warning.
- A second written warning will trigger the review of the relevant EHS policy or procedure by the Management representative. Results of the review will be provided to the Project Manager.
- A third written warning will trigger a review of the position by the Project Manager, Site Management, the Management Representative and the Program or Task Leader. An action plan will be developed that may include additional safety training or the revocation of site privileges.
- When there is a major EHS infraction the Program/Task leader or Site Safety personnel shall consult with the Project Manager or Site Management and suspend work until a review is conducted and a Critical Incidence Report is completed.

6. References

Northern Affairs Program – Contaminated Sites Program Indian and Northern Affairs Canada (March 31, 2008)

3. Related documents and procedures

NT Region EHS 3.5 Document Control Procedure
NT Region EHS CPAP Form
NT Region EHS 4.4 EHS Audit Procedure

8. Revision History

Rev.	Date	Section	Purpose of the modification

4.2.1 Accident/Incident Investigation and Reporting

EHS Management System Level Procedure

1. PURPOSE

This purpose of this document is to define the process for reporting, investigating and tracking incidents and trends, including corrective and preventive actions.

2. REQUIREMENTS

An accident is an event resulting in health and safety impacts, environmental impacts, regulatory non-compliance, property damage, or loss of process. The term "accident" can be defined as an unplanned event that interrupts the completion of an activity, and that may (or may not) include injury or property damage. An incident is a near miss that could have had one or several of the impacts described above. An incident usually refers to an unexpected event that did not cause injury or damage this time but had the potential. The terms “near miss” and “dangerous occurrence are used to describe and event that could have caused harm but did not. A “critical incident” refers to a fatality or major property loss (other examples are given in the consequence table below).

Please note: The term incident is used in some situations and jurisdictions to cover both an "accident" and "incident". It is argued that the word "accident" implies that the event was related to fate or chance. When the root cause is determined, it is usually found that many events were predictable and could have been prevented if the right actions were taken -- making the event not one of fate or chance (thus, the word incident is used).

All accidents and incidents must be investigated for root causes, including the reporting and follow-up of any corrective or preventive actions. Representative employees from all levels within the organization should be involved in these investigations.

3. RESPONSIBILITIES

Senior Management /Regional Director

- Participate in major incident investigations.
- Review and sign-off on corrective actions for major and serious incidents.
- Approve major funding and resources required (i.e. > $25,000) to implement corrective and preventive actions identified in incident investigations.

Site Management

- Notify Regional Director of incidents.
  Communicate investigation results, corrective and preventive action plans, effectiveness of actions taken and report on incident statistics.
- Participate in major and serious incident investigations.
- Approve corrective and preventive action plans developed by the investigation team. Present action plans for major and serious incidents to Senior Management for their review and sign-off.
- Approve funding and resources required (up to $25,000) to implement corrective and preventive actions identified in incident investigations.
- Critical Incident Management Plan

Regional EHS Coordinator

- Maintain and distribute incident reports and statistical summaries.
- Participate in incident investigations, document and maintain investigation reports and corrective and preventive action plans.
- Record any changes in written operating procedures resulting from investigations.
- Monitor and report to the Manager on the status and effectiveness of corrective and preventive actions.

Project Manager

- Initiate the internal notification process and notify regulatory authorities where required by regulations.
- Write and maintain incident reports.
- Participate in incident investigations when required.
- Implement and monitor corrective and preventive actions.
- Submit written incident and follow-up reports to regulatory authorities as required.
- Activate Emergency Response Plan when required

Program/Task Lead

- Report incidents to the Project Manager.
- Participate in incident investigations.
- Implement and monitor corrective and preventive actions.
- Communicate any changes in operating procedures and other corrective and preventive actions to workers and monitor for compliance.

Site Management

- Report incidents to the Project Manager.
- Participate in incident investigations.

- Conduct comprehensive Root Cause Analysis
- Assist with the implementation and monitoring of corrective and preventive actions.

4. PROCEDURE

Accident/Incident Categories

An incident is categorized as major, serious or minor based on its known or potential severity level. Incident categories and criteria are provided in the Severity/Nature of Consequence Table below (ref: EHS Aspects Review). The category of an incident determines the level of reporting required, activation of emergency response measures, and personnel required for the investigation team and approved corrective and preventive action plans.

Consequence Categories	Low	Minor	Moderate	Major	Critical
Environmental Impact	Release with no measurable impact	Minor localize or short-term impacts	Significant impact on valued ecosystem component	Significant impact on valued ecosystem component and/or medium-term impairment of ecosystem function	Serious long-term impairment of ecosystem function
Human Health and Safety	Low-level short-term subjective symptoms No measurable physical effect No medical treatment	Objective but reversible disability/ impairment and / or injury Onsite medical treatment required not requiring lost time	Moderate irreversible disability, impairment, or injury requiring offsite medical treatment	Severe irreversible disability, impairment or injury to one or more people	Fatalities
Special Considerations	Some disturbance but no impact to traditional land use	Minor or perceived impact to traditional land use	Some mitigatable impact to traditional land use	Significant temporary impact to traditional land use	Significant permanent impact on traditional land use

Consequence Categories	Low	Minor	Moderate	Major	Critical
Legal and other Obligations	No non-compliance but lack of conformance with departmental policy requirement Informal advice from a regulatory agency No land claim or other agreement	Technical/ Administrative non-compliance with permit, approval or regulatory requirement Land claim or other agreement requires the Crown to satisfy administrative obligations (e.g. notification)	Breach of regulations, permits, or approvals (e.g. 1 day violation of discharge limits) Order or direction or Warning letter issued Land claim or other agreement requires the Crown to respond, but no time frame is specified	Substantive breach of regulations, permits or approvals (e.g. multiday violation of discharge limits) Prosecution Land claim or other agreement requires the Crown to exercise its obligations within a specified time frame (i.e. 2-5 years)	Major breach of regulation – willful violation Court order issued Land claim or other agreement requires the Crown to exercise its obligations within a specified short time frame (i.e. 1-2 years)
Consequence Costs	< $1000	$1,000-$5,000	$ 5,000-$50,000	$50,000-$250,000	>$250,000
Community/ Media/ Reputation	Local concerns, but no local complaints or adverse press coverage	Public concern restricted to local complaints or local adverse press coverage	Heightened concern by local community, criticism by NGOs or adverse local /regional media attention	Significant adverse national public, NGO or media attention	Serious public outcry/ demonstrations or adverse International NGO attention or media coverage

Overview of Incident Reporting, Investigation and Corrective/Preventive Action Steps

STEP 1 – Immediate Reporting

All employees, staff and contractors must report **ALL** incidents **IMMEDIATELY** to the Supervisor as soon as it is safe to do so.

STEP 2 – Secure the scene

Cordon off the area and do not disturb scene until investigation is complete. Access to area is by authorized personnel only.

STEP 3 – Internal Notification

Site Management will initiate the internal notification process (verbal reports) to Site Safety and other personnel, as well as management (PWGSC Project Manager for contracts managed by PWGSC, the AANDC Project Manager otherwise; where a PWGSC project manager is involved, that person will immediately inform the AANDC counterpart). The level of notification required and the activation of the emergency response will depend on the known or potential severity of the accident/incident:

- *Critical or Major Accidents/Incidents*: must be verbally reported immediately to the AANDC Project Manager who reports immediately within the Region – Director, copy to the EHS Regional Coordinator, RDG, EHS Committee – and HQ – CSP Director, copy to the EHS HQ Coordinator. A written report must follow within 24-h of the occurrence.
- *Moderate Accidents/Incidents*: must be verbally reported within 24-h to the AANDC Project Manager who report immediately within the Region – Director, copy to the EHS Regional Coordinator, EHS Committee – and HQ – CSP Director, copy to the EHS HQ Coordinator. A written report shall follow within 5 working days of the occurrence.
- *Minor Accidents/Incidents*: must be verbally reported within 48-hours to the AANDC Project Manager. The Project Manager shall verbally notify the Regional Director, copy to EHS Regional Coordinator, and EHS Committee within 5 working days. Written documentation shall be through the weekly, monthly and quarterly reporting processes.
- *Low Accident*/*Incidents*: must be reported in writing to the AANDC Project Manager and others within AANDC through the weekly, monthly and quarterly reporting processes.

STEP 4 - External Notification

In situations where the site is managed by a contractor hired by AANDC or PWGSC, that contractor, as the Site Manager, shall report the accident/incident to Authorities Having Jurisdiction in the format and time specified by those authorities. Where AANDC is the Site Manager or when federal workers are involved, the AANDC Project Manager will determine if the accident/incident meets additional External Reporting Criteria, and if so, will report the accident / incident to other appropriate regulatory authorities immediately.

Specific jurisdictional legislation governs the reporting and investigating of accidents, occupational diseases and other hazardous occurrences affecting an employer's employees.

Occupational health and safety (OHS) hazardous occurrence reporting requirements are separate and distinct from workers compensation reporting requirements. Some confusion exists because of the overlap of these two reports. The workers compensation report is generated for compensation purposes and is injury oriented. Legislated OHS reports detail accident causes and recommendations for corrective action to make the workplace safer.

AANDC will designate a media spokesperson in the event that the accident/incident escalates to the involvement of media coverage.

STEP 5 - Reporting

Details of the accident/incident and investigation results are recorded on the Incident Report Form by the Supervisor. The Supervisor will submit a copy of the completed incident form within 72 hours to the EHS Management Representative. All accident/incident reports will be kept on file in the Incident Report Database.

All incident reports shall be briefly summarized to include incident date and incident type and recorded in the log sheet that is kept electronically on the CIDMS. Hard copies of these incident reports shall be filed in a secured location designated by the Regional EHS Coordinator in order to maintain the confidentiality of those involved in such incidents.

The initial details of the accident/incident report will be completed within 24 hours and maintained up to date as additional information on the incident and follow-up actions becomes available.

The Supervisor will also be responsible for submitting accident/incident reports to regulatory authorities. Initial reports will be submitted within 48 hours and follow-up reports will be submitted within a time frame specified by the regulatory authorities.

Accident/Incident statistics will be compiled annually by the EHS Management Representative and compared to previous years. Accident/Incident statistic summaries will be distributed to the Senior Management Team, the Joint Health and Safety Committees, and posted for all personnel to view, with identifying information not included in these statistics.

STEP 6 - Investigations

All accidents and incidents must be investigated. The accident/incident category will determine who should be on the investigation team and who will review and sign-off on the investigation team's recommendations. The following are guidelines for selecting investigation team members and approving action plans. Workers may also be requested to participate in the investigation process. Persons involved in the incident should not be part of the investigation team but must be interviewed by the investigation team.

Position	Investigation Team			Approve Action Plans		
	Major - Critical	Moderate	Low - Minor	Major - Critical	Moderate	Low - Minor
Program/ Task Leaders / Team Leaders	X	X	X			
Site Safety Personnel	X	X	X			
Supervisors	X	X	X			X
Managers	X	X	X	X	X	X
EHS MS Management Representative	X	X	X			
Senior Management	X			X	X	
RCMP, Coroner						
AHJ						

The investigation team will work together to determine the root cause of the incident and recommend corrective and preventive actions to reduce the likelihood of a re-occurrence. A root cause is more than a “basic” cause of an incident.

The results of the investigation will be documented on the Incident Report Form by the Chair of the Investigation Team. Target dates, resources and responsibilities for implementing corrective and preventive actions will be established by the Chair of the Investigation Team and approved by appropriate management personnel.

STEP 7 - Corrective and Preventive Action Plan (CPAP) Implementation and Follow-up

The EHS Management Representative will record and communicate any changes to operating practices and procedures required as a result of the accident/incident investigation.The EHS MS Management Representative will monitor and prepare status reports on CPAPs and their effectiveness.

5. References

- Northern Contaminated Sites Program Environment, Health and Safety Management System Manual (Revision 2)
- Northern Affairs Organization – Contaminated Sites Program, Environment, Health and Safety Standard Operating Procedures Manual, March 31, 2008.

6. Related documents and procedures

EHS Form-1: Accident/Incident Investigation Form
NT Region EHS MS 4.2 EHS Nonconformance and Preventive/Corrective Action

7. Revision History

Rev.	Date	Section	Purpose of the modification

4.3 CONTROL OF RECORDS

The NT Region has established a procedure to ensure the establishment and maintenance of records necessary to demonstrate conformity to the EHS MS. This procedure is combined with procedure 3.5 Document Control. This procedure is located in section 3.5.

4.4 EHS Internal Audits

The NT Region has established a procedure to ensure the implementation and maintenance of the internal audit program. This procedure is located on the following pages. The procedure documents how the internal audit program verifies conformance of the EHS MS to the ISO 14001 and OHSAS 18001 standards and to its own EHS MS.

EHS Management System Level Procedure

1. Purpose

This section documents the process by which the NT Region EHS MS is periodically audited.

2. Requirements

An audit process will be developed to ensure that the EHS MS is consistent with the ISO14001 and OHSAS 18001 Standards, and has been properly implemented and maintained.

3. Responsibilities

Senior Management

- Establish and maintain an EHS MS audit program.
- Ensure there are adequate resources (financial and human) for the EHS program (policies and procedures), including auditing when required.
- Review audit results.
- Ensure management implements corrective actions (CPAP) within the timeline specified. Where actions are not met, initiate “escalation process” through PWGSC.
- Review requests for approval for required major capital additions or modifications.
- Approve corrective actions in consultation with Management Teams.

Management Representative/EHS Regional Coordinator

- Coordinate and schedule audits for the Department.
- Review audit reports and status of corrective actions within the Department.
- Monitor status of corrective actions and report progress to Senior Management.

Program/Task Leaders

- Ensure program documentation and records are available during the audit.
- Identify resources required (equipment, human resources and financial cost estimates) to implement corrective actions, in consultation with the Management Team.
- Implement corrective actions required for specific audit findings within the timeline specified.

Supervisors

- Ensure site records and individuals responsible for activities are available during the audit.
- Implement corrective actions required for site activities and tasks within the timeline specified.

4. Procedure

- An EHS MS auditing program will be developed and conducted to ensure the NT Region EHS MS has been implemented in accordance with the requirements of the NT Region EHS MS Policy Manual (this document), ISO14001 and OHSAS 18001.
- The Senior Management Team will review the need for and scope of the EHS MS audit annually for each department. The frequency of internal audits may be based on: the results of previous audits; public or regulatory concerns and complaints; significant changes to the Project activities or significant aspects; significant changes in regulatory requirements, and increases or decreases in non-conformances and incidents.
- Among other things, the EHS MS audit determines whether the:
  - EHS MS conforms to the ISO 14001 and OHSAS 18001 frameworks;
  - EHS MS has been properly implemented and maintained according to internal standards;
  - Project activities and management systems are conducted in conformance with the elements of the EHS MS Manual;
  - EHS MS is effective in meeting policies and procedures; and
  - EHS MS is effective in meeting objectives and targets.
- Certified professional auditors will conduct the audit in accordance with generally accepted audit principles and practices specified in the Guidelines for Quality and/or Environmental Management System Auditing, ISO 19011 and as outlined in the NCSP EHS Audit Program Guide.

- The audit findings will be documented and considered in management reviews.
- The results of the EHS MS audit will also be communicated to the Project
- Management Team and Senior Management and also to those directly responsible for the activity or area audited.
- Those responsible for the activity or area audited will:
  - Prepare corrective action plans to address any audit findings, for review and approval by the Management Representative, and
  - Report monthly to the Management Representative on the status of implementation of corrective actions.
- The Senior Management or appointed Manager(s) within each department will implement internal checks that support the Project level audit requirements.

5. References

NAP CSP – EHS MS Manual, March 2008
Environment, Health and Safety Standard Operating Procedures Manual, Northern Affairs Organization – Contaminated Sites Program INAC, March 31, 2008
NAP CSP – EHS Audit Program

6. Related documents and procedures

NT Region EHS MS SLP 4.2 Non Conformance CAR PAR
NT Region EHS MS SLP 5.1 Management Review

7. Revision History

Rev.	Date	Section	Purpose of the modification
0	1-Apr-13		Original

5. PART 5 – MANAGEMENT REVIEW

5.1 MANAGEMENT REVIEW

The NT Region has established a procedure to ensure the implementation of the Management Review process. This procedure is located on the following pages. The procedure documents what EHS elements are reviewed as part of the Management Review process, the frequency of the review, and what actions are taken as a result of the Management Review.

EHS Management System Level Procedure

1 Purpose

The purpose of this document is to describe the process by which a system level annual review of the NT Region EHS MS is conducted by Senior Management.

2. Requirements

The NT Region Senior Management team shall review the performance of the EHS MS annually to ensure continual improvement, adequacy and effectiveness. and demonstrate their commitment to and involvement with the EHS MS.

3. Responsibilities

Regional EHS Coordinator

- Establish a process for conducting a management review of the EHS MS.
- Conduct a management review of the EHS policy, objectives, targets, procedures and guidelines at least annually or as changes in conditions or regulatory requirements warrant.
- Report to Senior Management on the performance of the EHS MS and proposed changes required and reasons.

Senior Management

- Participate in the annual Management Review and follow-up on action items

4. Procedure

The EHS MS shall be reviewed annually by the Regional EHS Coordinator to identify areas in need of revision and to summarize performance against EHS objectives and targets. The review shall be included as part of the annual performance report.

Management review occurs annually between the Regional EHS Coordinator and the NT Region Senior Management team. The review shall include, as a minimum the following items:

- An evaluation of the continuing suitability of the EHS Policy
- An evaluation of the suitability and adequacy of the EHS MS Manual;
- Performance relative to the achievement of the EHS objectives and targets;
- EHS performance
- Proposed EHS objectives and targets in consideration of changing program and site conditions, regulatory requirements and other information;

- Any significant incidents and repeated near misses, and the results of investigations, audits and inspections;
- Results of internal audits and evaluations of compliance with applicable legal and other requirements
- Results of site personnel participation and consultation
- Corrective and preventive actions taken as a result of investigations, audits and inspections following significant incidents;
- Consideration of concerns among relevant interested parties.
- Follow up from previous management reviews
- Recommendations for improvement (e.g. employee suggestions)

The results of the review shall be documented by the Regional EHS Coordinator and maintained on file as an EHS MS record. The management review minutes should include any decisions made during the meeting and any actions to be taken for possible changes to the EHS performance, EHS policy and objectives and required resources.

The results of the review, including any changes to be made to the EHS MS and new EHS objectives and targets, shall be communicated to the Program Directors, regional health and safety personnel, and Project Managers.

5. References

Environment, Health and Safety Management System Manual (Revision 2), Northern Affairs Program – Contaminated Sites Program Indian and Northern Affairs Canada (March 31, 2008)

6. Related documents and procedures

NT Region EHS MS SLP 2.3 Objectives and Targets
NT Region EHS MS SLP 4.1 Monitoring and Measurement
NT Region EHS MS SLP 4.2 Non-conformance and Corrective Actions
NT Region EHS MS SLP 4.4 EHS Audit

7. Revision History

Rev.	Date	Section	Purpose of the modification

APPENDIX A

EHS Policy Documents

A.1 NCSP EHS Policy

POLICY STATEMENT

Within the Northern Contaminated Sites Program the health and safety of employees and protection of the environment are an overriding priority. Management is committed to doing everything possible to prevent injuries and to maintain a healthy environment. To this end:

- Senior managers are responsible for ensuring that all the requirements of this EHS Policy are fully implemented.
- All managers and supervisors are responsible for ensuring that their employees are trained in safe work procedures, to undertake their assigned duties without accidents, injuries or harm to the environment, and for ensuring that employees follow safe work methods and all related regulations.
- All personnel are required to support and comply with the EHS program, making safety, health and protection of the environment a part of their daily routine, and ensuring that they follow safe work methods and relevant regulations.
- All personnel will be held accountable for implementing, and adhering to, the requirements of the EHS program.
- All personnel are accountable for reporting to their immediate supervisor any unsafe practices or areas in need of improvement. Personnel are further accountable for bringing such reports to the attention of higher levels in the organization, without fear of reprisal, if the situation is not addressed appropriately.
- All relevant Territorial and Federal laws, regulations and policies, including the requirements of AANDC's NAO Northern Contaminated Sites Program Management Framework, are incorporated into our program as minimum standards.
- Pollution prevention practices and programs to achieve continuous improvement will be implemented as an ongoing requirement of the program.
- Where a conflict arises due to different standards or requirements between different regulations or standards, the more stringent of the two will apply.

GUIDING PRINCIPLES

- The EHS Policy will form the basis upon which an EHS management system is developed.
- The EHS management system will establish the direction and framework for setting and reviewing regional program and project level EHS objectives and targets.
- The EHS management system will document management's commitment to meeting the requirements of this policy.
- The EHS management system will demonstrate the alignment of all contaminated site assessment, remediation and risk management activities with the EHS Policy.
- The EHS management system will be designed to enable regional programs and projects to maintain and improve EHS performance.

REFERENCES

ISO 14001:2004
OHSAS 18001:1999
NAO Northern Contaminated Sites Management Policy

A.2 Public Works and Government Services Canada Support

PWGSC has reviewed this EHS MS and fully endorses and supports the EHS MS and associated activities, recognizes the applicability of the EHS MS to its staff on all sites except for sites with a prime contractor, and will assist NT Region with its implementation.

NT Region CSP and PWGSC have established a 'Five-Point Agreement on EHS:

1. PWGSC will review and consolidate EHS requirements in specifications
2. Highlight EHS requirements at bidders conferences
3. At start-up meetings:
   - It is the Crowns duty to communicate known risks
   - The Crown will provide its EHS MS as an example
   - PWGSC and NT Region CSP will review EHS requirements in contract documents

4 Crown to review the Prime's EHS Plan
   - If issues are identified, work shall be done to resolve the issues
   - If the Crown's issues are not addressed, the authorities having jurisdiction will be informed

5. Both parties will determine and implement site-specific reporting, inspections and auditing requirements

NT Region Contaminated Site Program:

Name	**Title**	Signature	Date

Public Works Government Services Canada:

Name	**Title**	Signature	Date

A.3 Project Level EHS Policy Sign Off:

Preamble:

The insert project name is a partnership of the insert name of organization and NT Region. The partnership is based on mutual respect, consultation and fair and transparent decision-making. The Environment, Health and Safety policy including the policy manual, operational requirements manual and associated procedures and documents are to be considered “Green” documents in that they will be subject to continuous review, revision and growth.

Policy:

Within the insert project name the health and safety of employees and protection of the environment come first. Management is committed to doing everything possible to prevent injuries and to maintain a healthy environment.

To this end:
All supervisors are responsible to ensure that their employees are trained in approved work procedures, to obtain optimal output without accidents, injuries or harm to the environment, and to ensure that employees follow safe work methods and all related regulations.
All personnel are required to support the EHS program, making safety, health and protection of the environment as part of their daily routine, and ensuring that they follow safe work methods and relevant regulations.

All personnel will be held accountable for implementing, and adhering to, this program.

All personnel are accountable for reporting to their immediate supervisor any unsafe practices or areas in need of improvement. Personnel are further accountable for bringing such reports to the attention of higher levels in the organization, without fear or reprisal if the situation is not addressed appropriately.

All relevant Territorial and Federal laws, regulations and policies, including the requirements of NT Region’s Contaminated Sites Program Management Framework, are incorporated in our program as minimum standards. We will further practice pollution prevention and implement programs to achieve continuous improvement.

Director- NT Region	Insert signing authority of organization
Date:	Date

APPENDIX B

NT Region EHS Aspects/Risks Register

NT Region - EHS Aspects and Hazards and Risk Matrix

ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
				Environmental Impact	Special Considerations	Legal and Other Obligations	Consequence Costs	Community/Media/Reputation	Human Health and Safety			Likelihood + Severity = Risk Rank	under 7 is permitted	Required 0ver 7
Mine Sites														
1.0 Dams														
1.1 Seepage														
1.1.1	Permafrost Degradation	Increased seepage to environment; Deterioration of integrity of dam due to incompetent permafrost	Seepage impacts to adjacent surface water and soil: downgradient erosion; possible dam failure											
1.1.2	Increased seepage from dam	Increased seepage to environment	Seepage impacts to adjacent surface water and soil, downgradient erosior											
1.1.3	Seepage from collection pond (sump)	Increased seepage to environment	Seepage impacts to adjacent surface water and soil, downgradient erosior											
1.2 Failure (static, seismic, flood)														
1.2.1	Blocked Spillway due to ice or debris	Increased seepage to environment; Tailings release to environment;	Impacts to downgradient surface water and soil; downgradient erosion; health and safety risk to personnel clearing debris or ice											
1.2.2	Piping through foundation or dam	Water seepage around piping leads to dam degradation; Seepage and tailings release to environment	Impacts to downgradient surface water and soil; downgradient erosion;											
1.2.3	Earthquake/Seismic Activity	Seismic activity degrades structural integrity of dam; Causes liquification of tailings slurries	Impacts to downgradient surface water and soil; downgradient erosion;											
1.2.4	Overtopping of Dam	Water level rises so that water flows over the crest of the dam, eroding the embankment leading to failure	Impacts to downgradient surface water and soil; downgradient erosion; wave action due to high levels degrades integrity of dam and tailings containment area											
1.2.5	Weak dam foundation	Soil or rock cannot support dam resulting in a failure plane; Permafrost degradation beneath ponds allows infiltration	Partial or complete failure of dam; Release of tailing and tailings water to environment; Health and safety of workers downstream of failure											
1.2.6	High Phreatic Surface	Storm event or high discharge to the pond causes the phreatic surface to rise, putting pressure on the toe of the dam and leading to collapse.	Partial or complete failure of dam; Release of tailing and tailings water to environment; Health and safety of workers downstream of failure											

NT Region - EHS Aspects and Hazards and Risk Matrix

ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
1.3	Failure due to Overtopping													
1.3.1	Heavy rain or snowmelt event increases water level in Tailings Pond	Water runs over crest of dam, eroding the embankment and causing dam to fail	Impacts to downgradient surface water and soil; downgradient erosion; wave action due to high levels degrades integrity of dam and tailings containment area											
1.3.2	High winds cause wave action that allows water to run over crest of dam.	Water runs over crest of dam, eroding the embankment and causing dam to fail	Impacts to downgradient surface water and soil; downgradient erosion; wave action due to high levels degrades integrity of dam and tailings containment area											
1.3.3	Seismic event causes shockwaves that allow water to run over crest of dam.	Water runs over crest of dam, eroding the embankment and causing dam to fail	Impacts to downgradient surface water and soil; downgradient erosion; wave action from seismic degrades integrity of dam and tailings containment area											
1.3.4	Heavy rain or snowmelt causes spillway failure	Failure of spillway allows for high phreatic surface resulting in the failure of the dam.	Impacts to downgradient surface water and soil; downgradient erosion;											
1.4	New Dam Construction													
1.4.1	Dam construction is delayed.	Project schedule is delayed	Costs more to keep employees on site longer; Impacts other tasks in project that hinge on dam construction											
1.4.2	Cold weather construction delays prevent timely completion	Permafrost degradation occurs due to increased time with excavations open and requires permafrost remedial work	Increased construction costs; Degradation of tailings pond foundation increases potential for failure;											
1.4.3	Interim tailings management inadequate	Tailings are released onto land or into receiving water during spillway construction	Impacts to downgradient surface water and soil;											
1.4.4	Construction equipment roll-over	Equipment rolls over during construction and releases hydraulic oil, lube oil and fuel	Injury/fatality; contamination of surface water and soil; increased cost to repair/replace machinery at remote site											
1.5	H&S Falling													
1.5.1	Personnel are required to navigate tailings containment area to perform maintenance	Personnel lose their footing and fall down embankment; Possible drowning; Failure to lock-out prior to maintenance (tailings pumps, electrical hazards); Personnel lose footing and fall into pond area	Injury to site personnel; Possible drowning; Personnel too injured to get help											
1.6	H&S water safety													
1.6.1	Personnel fall into tailings pond during routine maintenance	Possible drowning of personnel; Failure to lock-out prior to maintenance (tailings pumps, electrical hazards); Hypothermia in cold weather conditions;	Injury to site personnel; Possible drowning; Personnel too injured to get help											
1.7	Public Safety													
1.7.1	Local residents gain access to tailings dam	Inadequate signage or physical barriers leads to local residents injuring themselves on the dam.	Injury to public; possible drowning/death											
1.7.2	Failure of dam impacts local residents	Impacts to downgradient surface water bodies may reduce traditional land use in area	Impacts to local fishing/hunting in the area; reduced habitat for local wildlife; impacts to health of wildlife											
1.7.3	Seepage from dam alarms local residents	Local residents question integrity of tailings management system	Increased public concern over health and safety and environmental impacts associated with Tailings Management											

NT Region - EHS Aspects and Hazards and Risk Matrix

ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
1.8	Diversions													
1.8.1	Failure to control diversions leads to flooding	Addition of water to Tailings Containment area results could result in tailings wash out, contaminated water release, over topping of pit	Additional treatment of water required; impact to downgradient surface water; degradation of physical integrity of structures											
1.8.2	Extreme run off event (i.e. storm or snowmelt)	Water management on site requires additional personnel and equipment to prevent additional water entering containment area.	Additional costs to the project; additional personnel hours required; impacts to integrity of current containment system											
1.8.3	Diversion creates high water levels downstream of site	Fast moving water downstream erodes banks and possibly floods property	Health and safety of residents down stream; damage to property; damage to wildlife habitat;											
1.8.4	Water diverted to receiving water body contains high concentration of suspended solids	Solids could contain contaminants and impact water quality down stream	High sediment loads in stream could affect aquatic life											
2.0	Tailings and Sediments													
2.1	Contaminant release/migration													
2.1.1	Seepage of low pH/contaminated water into receiving water or land	Impacts to water quality to downgradient surface water or contamination of downgradient land	Impact to ecological receptors downstream; Damages public image; Possible remediation required which increases project costs											
2.1.2	Tailings become windblown	Aesthetic impact to site as well as potential environmental impact to land and water downwind	Impact to ecological receptors downstream; Damages public image; Possible remediation required which increases project costs											
2.1.3	Tailings pond shore areas erode and release tailings into receiving water	Impacts to water quality to downgradient surface water and aesthetic impact	Impact to ecological receptors downstream; Damages public image; Possible remediation required which increases project costs											
2.1.4	Deep rooted vegetative growth on cap leads to ingress of water	More boils appear in cap, seepage increases and metals are taken up in vegetation	Exposure of ecological receptors to contaminated vegetation and water; Increased maintenance costs to repair boils;											
2.2	Construction/Remediation													
2.2.1	Tailings boils present	Increased seepage of tailings water and presence of tailings at surface	Impact to ecological receptors downstream; Damages public image; Possible remediation required which increases project costs											
2.2.2	Vehicle traffic on tailings cover	Traffic results in damage to the cover and repairs are required	Increased maintenance costs; Schedule impact; Potential seepage to downgradient receptors due to damage											
2.2.3	Cover construction	Poor quality material available on site and wet conditions	Impact to schedule as construction takes longer; Possible requirement to find alternative borrow material; Incompetent cover results in release of seepage to downgradient receptors											
2.2.4	Higher volumes of tailings are recovered than anticipated	Current tailings structure cannot accommodate increased quantity	Impacts to schedule; Impacts to overall costs due to need for additional construction; Public image damaged as design was not sufficient to meet needs at the site											
2.2.5	Tailings pond monitoring indicates high contaminant levels	Further remediation is required as pond is not meeting criteria it was designed for.	Increased remediation costs; Additional work after completion of remediation damages public image; Impacts to ecological and surface water receptors downstream											
2.2.6	Spilled tailings are present on steep slops and between rocks	Removal of tailings is not feasible due to limited access and inability to move rock.	Public concern over visible tailings left at site; Possible exposure or receptors to tailings											

NT Region - EHS Aspects and Hazards and Risk Matrix

ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
2.3	H&S Worker Exposure													
2.3.1	Workers are exposed to tailings dust	Inhalation of dust due to improper PPE use during construction	Impacts to worker health; Public concern over worker health on site; Possible legal action											
2.3.2	Worker falls into tailings pond during construction	Exposure to contaminant water and possible drowning	Impacts to worker health; Public concern over worker safety on site; Possible legal action											
2.4	H&S Public Access													
2.4.1	Member of public falls down steep slope	Injury of member of public	Injury and possibly death of member of the public; Legal action due to injury; Public concern over site safety											
2.4.2	Member of public falls into tailings pond	Exposure to contaminant water and possible drowning	Injury and possibly death of member of the public; Exposure to contaminated water; Legal action due to injury; Public concern over site safety											
2.4.3	Members of public drive on tailings pond with all terrain vehicles	Damage to tailings cover	Increased maintenance costs; Schedule impact; Potential seepage to downgradient receptors due to damage											
2.5	Ecological hazards													
2.5.1	Use of tailings area by land animals	Animals native to the site such as caribou, muskoxen and small mammals ingest tailings.	Health impacts to wildlife due to ingestion of contamination; Public concerns over wildlife health; Potential impacts to hunting and consumption of country foods											
2.5.2	Use of tailings area by birds	Birds land in tailings pond and ingest contaminated materials and or vegetation	Health impacts to wildlife due to ingestion of contamination; Public concerns over wildlife health; Potential impacts to hunting and consumption of country foods											
2.5.3	Traditional migration of land animals is disrupted due to activities on site.	Herds of caribou or muskoxen are forced further away from nearby communities impacted access to country foods.	Public concern over hunting opportunities and increased costs due to further distance to travel to the herd											

NT Region - EHS Aspects and Hazards and Risk Matrix

ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
3.0 Open Pits														
3.1 Human Impacts														
3.1.1	Members of public have access to pit	Public access results in injury or fatality due to falling into the pit	Health and safety of public; Legal action due to injury; Public concern over health and safety on site											
3.1.2	Warning signs and berms become covered by snow during winter	Snow machine operators do not see warning signs due to snow cover and crash into pit.	Injury and possibly death of member of public; Health and safety of public; Legal action due to injury; Public concern over health and safety on site											
3.1.3	Thin ice on water in pit	Worker falls through ice while sampling pit water	Health and safety of workers compromised; Possible drowning of worker and/or hypothermia; Public concern over worker safety; Legal action due to injury or death											
3.1.4	Loose rock and or boulders fall into the pit during site work	Worker in pit is injured or killed	Health and safety of workers compromised; Public concern over worker safety; Legal action due to injury or death											
3.2 Ecological Impacts														
3.2.1	Wildlife chased into pit by predators	Wildlife are injured when chased into pit by predators	Public concern for wildlife safety; Impacts to wildlife population											
3.3 Contaminant Release														
3.3.1	Pit wall failure	Contaminated water in pit is no longer contained and is released to the environment	Discharge of contaminated water to downgradient ecological and surface water receptors; Potential erosion and damage to downgradient structures due to water release; Public concern over leaking water											
3.3.2	Improper treatment of pit water	Treatment option used in pit does not meet discharge criteria but water is released as planned	Increased project costs to remedy treatment issue; Discharge of contaminated water to downgradient ecological and surface water receptors; Schedule delays as additional work required on pit water treatment											
3.3.3	Pit used as landfill	Leachate from landfill in pit is not contained within the pit and enters adjacent water body	Impacts to downgradient ecological and surface water receptors; Leachate collection and treatment system increases project costs; Public concern about leaking of landfill leachate											
4.0 Underground Workings														
4.1 Human Hazards														
4.1.1	Historical mine openings are not clearly marked at surface and are obscured by material and/or vegetation	Visitors to site fall into openings and sustain serious or fatal injuries	Public concern over health and safety; Legal action due to injury or death of member of public;											
4.1.2	Crown pillar of historical workings collapses due to activities on surface	Visitors to site walk and or drive on land above crown pillar causing a collapse. Visitors sustain serious or fatal injuries	Public concern over health and safety; Legal action due to injury or death of member of public;											
4.1.3	Local residents regularly visit an abandoned mine site	Falling rocks, collapses and falling hazards are present during public access to the site and can result in serious or fatal injuries	Public concern over health and safety; Legal action due to injury or death of member of public; Exposure of visitors to contaminants associated with historical mining operations											
4.1.4	Bootleg holes from historical exploration work are present at surface.	Visitors to the site may trip and fall into uneven ground around the bootleg holes	Public concern over health and safety; Legal action due to injury;											

NT Region - EHS Aspects and Hazards and Risk Matrix

ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
4.2 Remediation/Construction														
4.2.1	Instability of ground around mine openings leads to collapse or falling rocks	Workers are injured and equipment is damaged	Health and safety of workers is compromised; Public concern over health and safety; Legal action due to injury or death; Cost of fixing/replacing equipment; Delay in project schedule											
4.2.2	Oxygen deficient, toxic or explosive gases are present in underground workings	Workers entering the underground workings may be subject to an oxygen deficient or toxic environment. Excavation in the workings may cause a spark which could ignite explosive gases. Confined Space Entry and air monitoring procedures not followed prior to entry.	Injury and/or death of remediation workers; Public concern over health and safety; Legal action due to injury/death											
4.2.3	Improper material for capping/plugging is present at site	Caps and plugs cannot be installed with local materials and an additional borrow source needs to be identified.	Additional project costs; Delay in project schedule; Design changes required to securely cap openings;											
4.2.4	Movement of ground around openings damages plugs and caps over time	Damage results in improper capping and plugging of openings.	Public health and safety as access to these openings is not prevented; Additional project costs to fix; Public concern for health and safety											
4.2.5	Explosive and blast materials used during historical mining are present in and around underground workings that are undergoing remediation	Movement of rock or use of heavy equipment in the vicinity of these explosive materials may cause ignition and explosion.	Health and safety of workers is compromised; Public concern over health and safety; Legal action due to injury or death; Cost of fixing/replacing equipment; Delay in project schedule											
4.3 Contaminant Release														
4.3.1	Hazardous materials are stored underground at the site	Seepage from these materials may enter downgradient surface water bodies	Impacts to ecological and human receptors downstream; Public concern about safety of materials storage at site; Immediate impacts to ecological and human health due to catastrophic discharge; Lawsuits due to damages from release; Increased remedial costs;											
4.3.2	Water in underground workings is flowing at surface	Release of contaminants to downgradient surface water bodies and potential erosion of downgradient areas	Impacts to ecological and human receptors downstream; Instability of downgradient land and possible damage to site infrastructure; Public concern about discharge of contaminants to surface											
4.3.3	Failure of bulkhead leads to release of mine water into unflooded underground areas	Results in discharge of contaminated water at surface, increased instability in underground workings that could lead to collapse and potential injury to construction/remedial workers in area	Impacts to ecological and human receptors downstream; Public concern about discharge of contaminants to surface and risks to workers on site; Increase remediation costs due to additional work required to address current site condition; Delayed project schedule											
5.0 Waste Rock Dumps														
5.1 Human Impacts														
5.1.1	Visitors to site are walking and climbing on waste rock piles	Rough footings and loose rock results in a fall and possible injury	Public concern about health and safety at site; Legal action due to injury											

NT Region - EHS Aspects and Hazards and Risk Matrix

ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
5.2 Environmental Impacts														
5.2.1	Waste rock may be acid generating and uncovering historical deposits increases acid generation	Seepage from waste rock pile enters downgradient surface water receptors and causing staining of soils, rock and sediments in the area.	Impact to ecological receptors downstream; Damages public image; Possible remediation required which increases project costs											
5.3 Remediation/Construction														
5.3.1	Waste rock requiring removal is located on steep slope and access by heavy machinery is difficult	Heavy equipment rolls over on steep incline while accessing waste rock.	Health and safety of equipment operators and nearby labourers; Delay in remediation of site;											
5.3.2	Acid generating rock has contaminated fine material located beneath waste rock	Additional remedial work is required in waste rock area	Increased project costs; Schedule impacts;											
6.0 Contaminated Water Treatment														
6.1 Human Hazards														
6.1.1	Operator and/or visitors gain access to treatment ponds	Fall into pond resulting in injury and/or death	Health and safety of visitors to the site; Public perception of safety of the site; Legal action due to injury											
6.1.2	Snowmobile/ATV collides with plant infrastructure while covered in snow	Injury to ATV/snowmobile operator and damage to plant	Health and safety of visitors to the site; Public perception of safety of the site; Legal action due to injury											
6.2 Contaminant Release/Migration														
6.2.1	Distribution line/pump failure within the treatment system	Untreated water is discharged to surface and migrates to downgradient receptors	Discharge of contaminated water to downgradient ecological and surface water receptors; Potential erosion and damage to downgradient structures due to water release; Public concern over leaking water											
6.2.2	Chemical dosing is not sufficient during treatment	Water released to environment does not meet discharge criteria for the site	Discharge of contaminated water to downgradient ecological and surface water receptors; Fines for not meeting discharge requirements											
6.2.3	Increased volume of water requiring treatment results in bypass of untreated water	Untreated water is discharged to surface and migrates to downgradient receptors	Discharge of contaminated water to downgradient ecological and surface water receptors; Potential erosion and damage to downgradient structures due to water release; Fines for not meeting discharge requirements											
6.3 Treatment Plant Operations														
6.3.1	Night shift treatment plant operation	Wildlife monitor rotations and safety check-ins are not monitored regularly through the night.	Health and safety of operator											
6.3.2	Treatment plant ergonomics	Set-up of plant results in repetitive stress injury of operator	Health and safety of operator											
6.3.3	Operator spills chemicals used in treatment plant.	Operator is burned by chemicals; Chemicals released to environment	Health and safety of operator; Environmental impact of chemical release											
6.3.4	Chemical batching and mixing	Operator is exposed to high concentrations of chemicals during batching and mixing operations	Health and safety of operator;											
6.3.5	Cold weather conditions	Increased risk of slips due to ice build-up around operations areas during cold weather	Health and safety of operator;											

NT Region - EHS Aspects and Hazards and Risk Matrix

ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
7.0	Infrastructure - Roads													
7.1	Road Rehabilitation and Constructior													
7.1.1	Available on-site borrow material for road rehabilitation	Quantity and quality of borrow material is not sufficient to rehabilitate roads for heavy equipment use. Fewer roads will be able to be used to transport materials during site remediation	Delay of project schedule; Increase project costs to bring material from further sources;											
7.1.2	Culvert failure	Culverts are unable to accommodate spring run-off/storm event causing washout in road	Delay of project schedule; Increased project costs to repair road; Possible health and safety issue for operators using road											
7.1.3	Wet conditions on site roads	Heavy machinery is becoming stuck in muddy and wet sections of road	Delay of project schedule; Increased project costs to repair road; Possible health and safety issue for operators using road											
7.2	Ice Roads													
7.2.1	Equipment mobilization to site via ice roads	Poor ice conditions result in vehicle going through ice	Health and safety of equipment operators; Loss of equipment and/or equipment damage; Delay in project schedule; Environmental release of materials being transported to site; Possible fatality;											
7.2.2	Limited use of ice road due to warm temperatures	Warm weather conditions reduce the time that the ice road is open and reduce the amount of equipment that is able to be mobilized via ice road	Increased shipping costs; Delay in project schedule;											
8.0	Infrastructure - Airstrip													
8.1	Rehabilitation and Construction													
8.1.1	Available on-site borrow material for airstrip rehabilitation/construction	Quantity and quality of borrow material is not sufficient to rehabilitate airstrip for larger cargo aircraft use.	Delay of project schedule; Increased project costs to bring cargo and personnel in on smaller aircraft;											
8.1.2	Refuelling of aircraft	Fuel is spilled onto ground during refuelling of aircraft and operator is exposed to fumes and fuel itself	Environmental release of fuel into environment; Impacts to shallow groundwater and downgradient surface water; Remediation costs to project; Health and safety of operator;											
8.2	Historical Airstrips													
8.2.1	Historical fuel storage areas are present on the airstrip apron	Fuel contamination of soil adjacent to the airstrip is identified	Impacts to shallow groundwater and downgradient surface water; Impacts to ecological receptors; Remediation costs											
8.2.2	Historical airstrip used as emergency landing area and shelter	Local residents use airstrip and buildings for emergency landing areas and building as emergency shelter. Request that building not be demolished and that airstrip remain.	Liability associated with use of airstrip and building after site remediation; Potential for hazardous substances in infrastructure; Poor public perception if request denied;											
8.3	Ice Strips													
8.3.1	Equipment mobilization to site using an ice strip	Poor ice conditions result in aircraft getting stuck in snow/ice	Health and safety of equipment operators; Loss of equipment and/or equipment damage; Delay in project schedule; Environmental release of materials being transported to site											
8.3.2	Limited use of ice strip due to warm temperatures	Warm weather conditions reduce the time that aircraft are able to land on lake	Increased shipping costs; Delay in project schedule;											

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ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
9.0	Infrastructure - Docks													
9.1	Float Plane Docks													
9.1.1	Aircraft use of float plane docks	Aircraft impacts dock when taxiing resulting in damage to aircraft and potential injuries to passengers	Environmental release of materials into lake; Health and safety of personnel; Repair/replacement of damaged equipment and infrastructure											
9.1.2	Refuelling of aircraft at dock	Fuel is spilled into lake during refuelling of aircraft.	Environmental release of fuel into lake; Environmental safety concerns from public; Regulatory obligations to deal with spill;											
9.2	Barge Docking Facilities													
9.2.1	Tidal fluctuations and barge docking	Tidal fluctuations/low water levels limit the use of docking facilities for barge used to mobilize equipment and ship materials from the site	Delay of project schedule; Increased project costs to transport materials by air as an alternative;											
9.2.2	Cargo loss during loading of barge	Materials being loaded onto barge fall over edge into marine environment	Environmental release of materials into the marine environment; Possible fines; Public perception of environmental safety of project; Health and safety of personnel loading and unloading barges											
9.3	Historical Docks													
9.3.1	Remediation project includes removal of all visible debris in the marine environment	Dock pilings and associated structures and debris in marine environment require removal to remediate site and are only accessible from barges and boats	Environmental release of materials into the marine environment; Health and safety of remediation workers of removing structures while working from barges and boats; Increased project costs for removal;											
10.0	Infrastructure - Site Buildings													
10.1	Former Accommodations and Office Buildings													
10.1.1	Integrity of infrastructure	Infrastructure is not structurally sound and collapses during demolition work at the site	Health and safety of workers compromised; Public concern over worker safety; Legal action due to injury or death Damage to equipment;											
10.1.2	Presence of hazardous materials	Infrastructure could contain asbestos containing materials, lead-based or PCB-based paints or mould that could create a health hazard.	Risk to health and safety of workers; Increased remediation costs to characterize and dispose of materials; Public perception of hazardous materials if site used historically by local residents											
10.1.3	Vandalism and arson	Historical buildings containing hazardous materials are damaged and deliberately set fire.	Public concern over release of contaminants during fire; Increased remediation costs: Risk to health and safety of site users											
10.2	Former Warehouse/Storage Facilities													
10.2.1	Integrity of infrastructure	Infrastructure is not structurally sound and collapses during demolition work at the site	Health and safety of workers compromised; Public concern over worker safety; Legal action due to injury or death Damage to equipment;											
10.2.2	Presence of hazardous materials	Infrastructure could contain asbestos containing materials, lead-based or PCB-based paints or mould that could create a health hazard.	Risk to health and safety of workers; Increased remediation costs to characterize and dispose of materials; Public perception of hazardous materials if site used historically by local residents											
10.2.3	Historical storage of hazardous materials	Historical storage of hazardous materials may have impacted concrete pads, nearby soil and downgradient surface water	Risk to downgradient surface water and ecological receptors; Increased remediation costs to characterize and disposal of impacted material											

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ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
10.3	Former Assay Labs													
10.3.1	Integrity of infrastructure	Infrastructure is not structurally sound and collapses during demolition work at the site	Health and safety of workers compromised; Public concern over worker safety; Legal action due to injury or death Damage to equipment;											
10.3.2	Presence of hazardous materials	Infrastructure could contain asbestos containing materials, lead-based or PCB-based paints or mould that could create a health hazard.	Risk to health and safety of workers; Increased remediation costs to characterize and dispose of materials; Public perception of hazardous materials if site used historically by local residents											
10.3.3	Core dumps	Waste core may contain high concentrations of chemicals that could be a hazard to workers (i.e. high Uranium concentrations)	Risk to health and safety of workers; Risk to visitors/local land users health and safety;											
10.3.4	Historical storage of hazardous materials and chemicals	Historical storage of hazardous materials and chemicals may have impacted concrete pads, nearby soil and downgradient surface water	Risk to downgradient surface water and ecological receptors; Increased remediation costs to characterize and disposal of impacted material											
10.4	Former Mine Operations Infrastructure (i.e. mills, head frames													
10.4.1	Integrity of infrastructure	Infrastructure is not structurally sound and collapses during demolition work at the site.	Health and safety of workers compromised; Public concern over worker safety; Legal action due to injury or death Damage to equipment;											
10.4.2	Presence of hazardous materials	Infrastructure could contain asbestos containing materials, lead-based or PCB-based paints or mould that could create a health hazard.	Risk to health and safety of workers; Increased remediation costs to characterize and dispose of materials; Public perception of hazardous materials if site used historically by local residents											
10.4.3	Fine waste material present within around the foundation of former operations infrastructure	Fine material located around the foundation of infrastructure is found to be contaminated and requires remediation. Requires removal of coarse rock to access.	Increased remediation costs; Delay of project schedule; Risk to downgradient surface water and ecological receptors											
11.0	Infrastructure - Tanks & Pipelines													
11.1	Bulk Fuel Storage Tanks													
11.1.1	Presence of hazardous materials	Tanks could be painted with Pb or PCB amended paints that will require stripping before metal can be disposed of	Risk to health and safety of workers; Increased remediation costs to characterize and dispose of materials; Public perception of hazardous materials if site used historically by local residents											
11.1.2	Fuel vapours within tank during demolition	Sparks during cutting ignite vapours and cause explosion	Risk to health and safety of workers; Legal action due to injury/death of workers; Public concern for worker safety											
11.1.3	Residual gases in tank have created an oxygen-deprived environment	Confined space entry protocol not followed and worker is injured during remediation	Risk to health and safety of workers; Possible charges, legal action due to injury/death of workers; Public concern for worker safety											
11.1.4	Exposure to lead and BTEX	Workers may be exposed to high concentrations of lead (leaded fuel) and BTEX during work around these historical tanks	Risk to health and safety of workers;											
11.1.5	Tanks have rusted out and valves may have been leaking historically	Fuel contamination may be present beneath the tank and downgradient creating additional remediation work.	Risk to downgradient ecological and surface water receptors; Increased remediation costs to characterize and dispose of materials											

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ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
11.2	Chemical and Waste Storage Tanks													
11.2.1	Presence of hazardous materials	Tanks could be paint with Pb or PCB amended paints that will require stripping before metal can be disposed of.	Risk to health and safety of workers; Increased remediation costs to characterize and dispose of materials; Public perception of hazardous materials if site used historically by local residents											
11.2.2	Tanks have rusted out and valves may have been leaking historically	Contamination may be present beneath the tank and downgradient creating additional remediation work.	Risk to downgradient ecological and surface water receptors; Increased remediation costs to characterize and dispose of materials											
11.2.3	Residual gases in tank have created an oxygen-deprived environment	Confined space entry protocol not followed and worker is injured during remediation	Risk to health and safety of workers; Legal action due to injury/death of workers; Public concern for worker safety											
11.3	Potable Water Storage Tanks													
11.3.1	Residual gases in tank have created an oxygen-deprived environment	Confined space entry protocol not followed and worker is injured during remediation	Risk to health and safety of workers; Possible charges, legal action due to injury/death of workers; Public concern for worker safety											
11.4	Septic Tanks													
11.4.1	Residual gases in tank have created an oxygen-deprived environment	Confined space entry protocol not followed and worker is injured during remediation	Risk to health and safety of workers; Possible charges, legal action due to injury/death of workers; Public concern for worker safety											
11.5	Pipelines - Fuel													
11.5.1	Pipeline valves and fittings have rusted out and valves may have been leaking historically	Contamination may be present beneath the pipeline and downgradient creating additional remediation work.	Risk to downgradient ecological and surface water receptors; Increased remediation costs to characterize and dispose of materials											
11.5.2	Fuel vapours within pipeline during removal.	Sparks from grinder used to cut pipes may ignite vapours and cause explosion	Risk to health and safety of workers; Legal action due to injury/death of workers; Public concern for worker safety											
11.5.3	Exposure to lead and BTEX	Workers may be exposed to high concentrations of lead (leaded fuel) and BTEX during work around these historical tanks	Risk to health and safety of workers;											
11.5.4	Historical pipeline is overgrown by vegetation	Historical pipeline is located in areas where vegetation has re-grown and removal will disturb natural environment around pipeline. Heavy machinery access to areas is limited.	Impacts to vegetation and tundra around pipeline if removed; Increased project costs to remove; Public concern for disruption of natural environment											
11.5.5	Historical pipeline is adjacent to archaeological feature	Archaeological feature of significance is identified adjacent to historical pipeline route requiring removal. Negotiations with Aboriginal Stakeholders and regulators required.	Increased project costs; Delay of project schedule; Public concern of disturbance of archaeological site;											

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ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
11.6	Pipelines - Mine Materials (i.e. tailings, slurries													
11.6.1	Pipeline valves and fittings may have been leaking mine materials historically	Contamination may be present beneath the pipeline and downgradient creating additional remediation work.	Risk to downgradient ecological and surface water receptors; Increased remediation costs to characterize and dispose of materials											
11.6.2	Historical pipeline is overgrown by vegetation	Historical pipeline is located in areas where vegetation has re-grown and removal will disturb natural environment around pipeline. Heavy machinery access to areas is limited.	Impacts to vegetation and tundra around pipeline if removed; Increased project costs to remove; Public concern for disruption of natural environment											
11.6.3	Historical pipeline is adjacent to archaeological feature	Archaeological feature of significance is identified adjacent to historical pipeline route requiring removal. Negotiations with Aboriginal Stakeholders and regulators required.	Increased project costs; Delay of project schedule; Public concern of disturbance of archaeological site;											
12.0	Infrastructure - Abandoned Mine Equipmen													
12.1	Machinery and Vehicles													
12.1.1	Presence of hazardous materials	Machinery may still contain residual fluids that could leak or may require hazardous waste disposal. Paint on vehicles may contain lead or PCBs.	Risk to health and safety of workers; Increased remediation costs to characterize and dispose of materials;											
12.1.2	Removal of old machinery and vehicles	Removing machinery and vehicles that have been abandoned may be difficult and could require towing of equipment. Sudden movement of equipment could result in injury of workers.	Risk to health and safety of workers; Increased project costs; Project schedule impacts											
12.2	Electrical Equipment													
12.2.1	Presence of hazardous materials	Electrical equipment may still contain residual fluids and other components that may require hazardous waste disposal.	Risk to health and safety of workers; Increased remediation costs to characterize and dispose of materials;											
12.3	Power Generation Equipment													
12.3.1	Contamination associated with historical generator use.	Generators may have used PCB contaminated oil that could be disposed of in the vicinity of the gen set. Soil and concrete around generators may be contaminated. Historical hydrocarbon contamination may also be present.	Risk to downgradient ecological and surface water receptors; Increased remediation costs to characterize and dispose of materials'; Public perception of hazardous materials present on site.											

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ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
13.0 Infrastructure - Waste Disposal														
13.1 Landfills and Dumps														
13.1.1	Excavation of former landfill uncovers drums containing liquids	Liquids in buried drums may contain substances such as petroleum hydrocarbons, pesticides or PCBs. Additional characterization of barrel contents and impacts of adjacent soil is required.	Risk to health and safety of workers; Increased remediation costs to characterize and dispose of materials; Public perception of hazardous materials if site used historically by local residents											
13.1.2	Excavation of former landfill extends into permafrost	Excavation of materials in former landfill damages permafrost creating a slump.	Increased project costs; Delay in project schedule											
13.1.3	Excavator hits buried debris	Buried debris includes pressurized drums, causing an explosion and injures a worker.	Risk to health and safety of workers; Legal action due to injury/death of workers; Public concern for worker safety											
13.1.4	Seepage from toe of former landfill observed	Landfill seepage is observed to be migrating to downgradient surface water receptors.	Seepage impacts to adjacent surface water and soil; Potential for downgradient erosion; Impacts to ecological receptors; Increased project costs											
13.1.5	Available on-site borrow material for landfill backfilling	Extent of historical landfill is greater than expected. Quantity and quality of borrow material at the site is not sufficient to backfill landfill. Additional borrow sources are required.	Delay of project schedule; Increase project costs to bring material from further sources;											
13.1.6	Historical debris scattered throughout the site	Visitors to the site are injured by site debris	Risk to health and safety of visitors; Potential for legal action; Public concern for safety of site;											
13.2 Incinerators														
13.2.1	Historical operation of incinerator results in contaminated soils	Soils in the vicinity of historical incinerators are found to be contaminated with dioxins and furans. Soil requires characterization for disposal.	Risk to health and safety of workers; Increased remediation costs to characterize and dispose of materials;											
14.0 Site Administration														
14.1 Contracting Issues - Interna														
14.1.1	Contracting Procedure changes mid project	Changes in contracting results in few contracts being awarded to local and aboriginal companies.	Public concern over economic benefit											
14.1.2	Project requires coordination between multiple government departments	Differences in contracting policies between departments lead to project delays	Increased project costs for contract administration; Project delays due to negotiations											
14.1.3	Program funding is reduced mid-way through project	Availability of funding is reduced and scope of project requires adjustment unless other funding sources can be identified	Delay of project schedule; Public perception of incomplete project;											
14.1.4	Legislative changes impacting clean-up regulations	Legislative changes pertaining to clean-up criteria change mid-project resulting in more material requiring disposal off-site.	Delay of project schedule; Increased remediation costs; Public perception of change to more stringent clean-up criteria											

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ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
14.2	Contracting Issues - Subcontractors													
14.2.1	Subcontractors are not updating costs on a frequent basis	Subcontractor is not invoicing properly or on a frequent enough basis. Increased communications between financial parties. Creating conflicts between subcontractors on site over delays in payment	Increased project management costs; Public perception of government not paying promptly; Impact to relationships between stakeholders											
14.2.2	Subcontractor voids contract mid-way through project and will not complete work	Project needs to go to Tender again mid-project. Information transfer to new subcontractor.	Increased project management costs; Additional contracting requirements to set up new subcontractor; Loss of corporate knowledge from previous contractor											
14.3	Stakeholder Consultations													
14.3.1	Regional Land & Water Board	Change in jurisdiction from water board to local First Nation results in change in regulatory requirements for project	Increased stakeholder consultation; Change in project scope; Increased project costs											
14.3.2	Aboriginal Stakeholders - First Nations, Inuit and Metis	Land claim agreements and jurisdiction uncertainties lead to delay in start of project.	Project schedule delay; Increased project management costs											
14.3.3	Change in leadership of local aboriginal stakeholders	Negotiations with new leaders required.	Increased stakeholder consultation; Change in project scope; Increased project costs											
14.3.4	Private Sector Collaboration	Remediation project is partnered with private sector organization with connection (past or present) to the site.	Sets precedent for cleaning up liability of private sector stakeholders; Public perception of partnering with polluter; Increased legal consultation and costs											
14.3.5	Mining Interests	Site undergoing assessment/ remediation is under claim by mining company. Negotiations with claim holders required throughout project.	Increased stakeholder consultation; Change in project scope; Increased project costs											
14.3.6	Federal Agency Review	Federal review of remediation plan identifies areas of concern requiring further negotiation	Increased stakeholder consultation; Delay in schedule; Increased project costs											
14.3.7	Transfer of land tenure to Territorial government due to devolution	Transition of land tenure during devolution will increase negotiations and project coordination tasks.	Increased stakeholder consultation; Delay in schedule; Increased project costs											
14.3.8	Historic Site/Preservation Groups	Archaeological assessments and negotiations with groups will delay project.	Increased stakeholder consultation; Delay in schedule; Increased project costs											
14.3.9	Species at Risk Present	Species at Risk are identified to have habitat at the site which will limit the ability to conduct remediation work during migration/nesting periods.	Increased stakeholder consultation; Delays in schedule; Increased project costs; Public perception of disruption of wildlife;											
14.3.10	Public perception of remedial approach	Public perception of remedial approach is negative and public believes that hazardous materials will be left on site	Increased stakeholder consultation; Delay in schedule; Increased project costs											
14.3.11	Off-site source of contamination is identified during remediation	Source of contamination is identified to be located on Aboriginally owned lands, requiring legal reviews and additional stakeholder consultations to determine responsibility for remediation	Increased stakeholder consultation; Delay in project schedule; Increased project costs; Public perception of land tenure issues regarding contamination;											

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ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
14.4	General Site Administration Health and Safety													
14.4.1	Air Travel to Site	Aircraft crashes while travelling between the site and nearest community resulting in loss of life and/or severe injury	Loss of life and severe injury; Public concern for site safety; Disruption in travel delays schedule; Legal action due to injury or death;											
14.4.2	Traditional Land Use	Worker is injured by hunting activities on or adjacent to the site	Loss of life and severe injury; Public concern for site safety; Consultation with traditional land-users over use during remediation work; Legal action due to injury or death											
14.4.3	Winter Site Use	Camp and/or site buildings are used by local residents travelling through the area while site is inactive resulting in damage, vandalism and/or theft	Increased project costs for repair and replacement; Potential liability if residents are injured on site; Increased consultation with local residents;											
14.4.4	Emergency evacuation (i.e. forest fire, large storm event)	Remote site requires evacuation due to a nearby forest fire or other threat, requiring mobilization of additional aircraft to facilitate evacuation	Increased project costs; Public concern for worker health and safety; Delay in project schedule;											
14.5	Project Finances													
14.5.1	Budget Management	Contractor does not provide regular budget updates resulting in an overrun of the project budget	Stop work order for remediation and delay of project schedule; Lack of funding to complete project; Increased negotiations with contractor; Public concern over progress of project											
14.5.2	Project Funding	Project funding is reduced mid-project resulting in a scaling back of the scope of work to complete the project within the new budget	Public perception of reduction in scope of remediation work; Increased consultation with stakeholders to explain scope change;											
14.5.3	Invoicing	Contractor invoices do not meet standards set in contract and are not approved, resulting in frequent edits and delays in payment	Increased consultation with contractor; Public perception of resulting delay in payment of local labour; Sub-contractors forced to carry project costs until invoices are approved; Deterioration in AANDC-Contractor relations											
14.6	Care and Maintenance													
14.6.1	On-going monitoring of site	Degradation of remediation infrastructure is observed during the annual monitoring of the site, including the observation of discharge of contaminants to the environment	Risk to downgradient surface water receptors and wildlife; Additional project costs to repair structures; Public perception of quality of work completed on the site; Additional funding sources required for repairs;											

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14.7	Air Travel & Shipping													
14.7.1	Fixed Wing - Weather	Flights into the site are delayed due to poor weather resulting in delays in receipt of materials and shipping of analytical samples from the site	Delay in project schedule; Inability to meet regulatory analytical requirements; Public concern about difficulty in accessing and supplying camp; Increased project costs for attempted flights;											
14.7.2	Fixed Wing - Payload	Payload of aircraft is not sufficient to accommodate personnel and equipment required at the site	Additional shipping and travel costs; Delay in project schedule due to lack of materials;											
14.7.3	Rotary Aircraft - Slinging	Weather conditions are unable to facilitate the use of helicopters to sling equipment from one area of the site to another resulting in a delay of remediation progress	Delay in project schedule; Increased costs due to weather days;											
14.7.4	Cat Train	Cat Train transport of equipment and trailers to the site breaks down on route and requires additional support to continue trip.	Increased shipping costs; Delay in project schedule; Health and safety of workers;											
14.7.5	Barging	Ice conditions delay the arrival of the barge to the site as scheduled	Delay in project schedule; Increased shipping costs;											
14.8	Human Resources													
14.8.1	Skilled Labour availability	Site is not located adjacent to a community with appropriate skills to work on the site resulting in the import of labour from neighbouring communities in order to achieve aboriginal employment targets	Public concern over use of labour from other communities; Increased consultation with aboriginal stakeholders; Additional training of labour required to meet requirements of project; Increased project costs due to training and travel requirements;											
14.8.2	Training	Site personnel require additional training in order to work at the site (i.e. WHMIS, Asbestos Awareness, First Aid, Confined Space, Lock Out-Tag Out) that is not readily available in their community	Additional training costs to deliver training on-site or in community; Delay in schedule to accommodate additional training requirements;											
14.8.3	Project Manager/Site Engineer leaves team mid-project	Project Manager or Site Engineer leaves the organization before the completion of the project resulting in a loss of corporate knowledge.	Additional training costs for new PM/Site Engineer; Loss of knowledge of the site and project results in breakdown in consultations with stakeholders; Public perception of inconsistent leadership of the project;											
15.0	Remote Site Accommodations													
15.1	Dormitory/Tent Accommodations													
15.1.1	Fire Prevention	Insufficient fire suppression system is present in the camp resulting in the spread of fire resulting in major damage and possible injury or death of workers.	Loss of life and severe injury; Public concern for site safety; Legal action due to injury or death; Delay in project schedule due to disruption;											
15.1.2	Evacuation Procedures	Camp occupants list is not up to date creating confusion at muster point during evacuation of camp resulting in delay of rescuing missing occupant from hazard.	Loss of life and severe injury; Public concern for site safety; Legal action due to injury or death;											
15.1.3	Room Assignments	Insufficient rooms are available to accommodate new arrivals to the site due to requirement for same-gender room mates resulting in need for additional accommodations	Additional costs to the project; Sensitivity of employees who are not able to be accommodated upon arrival;											

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15.2	Wastewater Treatment - Sewage													
15.2.1	Incinerating Toilets	Improper use of incinerating toilets results in increased maintenance and repairs	Additional project cost;											
15.2.2	On-site Sewage Lagoon	Capacity of lagoon is exceeded and water samples do not meet discharge criteria set by regulators	Potential for fines for discharging above limits; Environmental risk to downgradient wildlife and surface water receptors; Public concern over perceived sewage discharge to environment											
15.2.3	Grey Water Treatment	Grey water treatment system is not sufficiently treating water resulting in exceedance of discharge criteria set by regulators	Potential for fines for discharging above limits; Environmental risk to downgradient wildlife and surface water receptors; Public concern over perceived discharge to environment											
15.3	Potable Drinking Water													
15.3.1	Potable water provision	Surface water treatment on site is not sufficient to meet potable water guidelines resulting in the need to provide bottled water for camp operations	Increased project costs; Public perception of unsafe drinking water at the site;											
15.3.2	Contamination in on-site water source	Delays in shipping of weekly water samples off site for analysis results in the consumption of contaminated drinking water by camp occupants	Health and safety of camp occupants; Public perception of unsafe drinking water at the site; Inability to meet sampling and analysis requirements by regulator'											
15.4	Waste Management													
15.4.1	Incineration	Improper separation of hazardous wastes from waste stream results in explosion during camp waste incineration	Loss of life and severe injury; Public concern for site safety; Legal action due to injury or death; Impacts to air quality;											
15.4.2	On-site Landfill	Improper covering of waste attracts wildlife to the area	Increased project costs for wildlife monitoring; Risk to health and safety of personnel; Public perception of disrupting local wildlife;											
15.4.3	Waste storage for shipping off-site	Waste being stockpiled for flights /barges off site attracts wildlife to the area	Increased project costs for wildlife monitoring; Risk to health and safety of personnel; Public perception of disrupting local wildlife;											

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15.5	Camp Wellness (Infections and Outbreaks)													
15.5.1	Influenza or other viral infections due to communal living	Illness spreads within workforce resulting in sick leave of workers	Delay in project schedule; Health and safety impacts to personnel;											
15.5.2	Lice	Head lice spread due to communal living of workforce	Public perception of camp wellness;											
15.6	Remote Site Communications (Satellite Phones, Internet etc.													
15.6.1	Satellite phone communications	Weather conditions disable satellite phone system resulting in limited communications in and out of site	Health and safety risk; Project delays;											
15.6.2	Internet communications	Internet communications are disabled and require the flying in of a technician to repair	Project delays due to decreased communications; Additional project cots for repair											
15.6.3	Contact with air transportation provider	Communication system disruption limits ability to communicate weather conditions at the site to air transportation providers resulting in flights unable to land	Additional project costs for travel; Project delays;											
15.6.4	On-site radios	On-site radios do not have sufficient range to cover all work areas of site resulting in the inability of workers to report wildlife encounters and other emergencies	Health and safety risk to personnel; Public perception of unsafe work site;											
15.7	Weather													
15.7.1	Inclement weather (i.e. fog, blizzard)	Weather conditions deteriorate, limiting visibility for site machinery and aircraft and increasing the potential for collisions	Project delays due to decreased productivity; Increased risk to health and safety of personnel											
15.7.2	Extreme heat	Hot weather conditions increase the risk of heat stroke and heat exhaustion in work force and require more breaks during the work day.	Project delays due to decreased productivity; Increased risk to health and safety of personnel											
15.7.3	Extreme cold	Increased risk of frost bite and hypothermia for workers on site and additional breaks required to warm up.	Project delays due to decreased productivity; Increased risk to health and safety of personnel											
15.8	Decontamination of Worker Equipment													
15.8.1	Segregation of work boots and coveralls in camp	Workers do not take off coveralls and boots before entering the camp resulting in the spread of contamination from the site into the living quarters and dining area	Risk to health and safety of camp occupants; Public perception of camp cleanliness;											
15.8.2	Laundry facilities on site	Workers do not use laundry facilities on site and take soiled work wear to their homes	Risk to health and safety of worker's families by introducing contaminants to home environment;											

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15.9	Wildlife Management													
15.9.1	Bears - Grizzly and Polar	Dangerous encounter with bear results in the potential injury or death of a worker and the shooting of the bear	Risk to health and safety of personnel; Public perception of safety on site; Public perception of risks to wildlife; Additional regulatory requirements due to wildlife shooting;											
15.9.2	Camp attracts nuisance wildlife due to provision of food (i.e. Arctic fox, Sik Siks)	Site personnel feed wildlife increasing wildlife encounters and disruptions by wildlife in camp area	Risk to health and safety of personnel; Public perception of domestication of wildlife;											
15.10	Food Provision													
15.10.1	Safe food handling	Improper food handling in camp results in illness of camp occupants.	Risk to health and safety of personnel; Reduced work force due to illness; Public perception of safety of camp; Cost of increased training for food personnel;											
15.10.2	Provision of supplies	Extended poor weather conditions limit air shipments of food and supplies to the camp	Risk to health and safety of personnel; Public perception of safety of site personnel;											
15.11	Camp Power Generation													
15.11.1	Generator maintenance	Generators are not properly maintained resulting in a disruption of power to the camp.	Risk to health and safety of personnel; Disruption of communications;											
15.11.2	Fuel storage and handling	Fuel is spilled during refuelling of generators.	Risk to downgradient surface water; Increased project costs for clean-up; Public perception of environmental impact to 'clean' area of site;											
15.12	Camp Heating & Cooling													
15.12.1	Furnace maintenance	Furnace is not properly maintained resulting in a disruption in heat in the camp, leading to the freezing of water lines.	Risk to health and safety of personnel; Increased project costs to repair; Public perception of safety of camp;											

NT Region - EHS Aspects and Hazards and Risk Matrix

ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
Military and Other Sites														
16.0	Military Infrastructure - Buildings													
16.1	Module Trains, Garages and Warehouses													
16.1.1	Integrity of infrastructure	Infrastructure is not structurally sound and collapses during demolition work at the site	Health and safety of workers compromised; Public concern over worker safety; Legal action due to injury or death Damage to equipment;											
16.1.2	Presence of hazardous materials	Infrastructure could contain asbestos containing materials, lead-based or PCB-based paints or mould that could create a health hazard.	Risk to health and safety of workers; Increased remediation costs to characterize and dispose of materials; Public perception of hazardous materials if site used historically by local residents											
16.1.3	Vandalism and arson	Historical buildings containing hazardous materials are damaged and deliberately set fire.	Public concern over release of contaminants during fire; Increased remediation costs: Risk to health and safety of site users											
16.2	Antennas, Radomes and Billboards													
16.2.1	Integrity of infrastructure	Infrastructure is not structurally sound and collapses during demolition work at the site	Health and safety of workers compromised; Public concern over worker safety; Legal action due to injury or death Damage to equipment;											
16.2.2	Presence of hazardous materials	Infrastructure could be painted with PCB and lead amended paints	Risk to health and safety of workers; Increased remediation costs to characterize and dispose of materials; Public perception of hazardous materials if site used historically by local residents											
16.2.3	Nesting birds are present in the structures	The presence of nesting birds (potentially species at risk or threatened species) on the infrastructure delays demolition	Risk to safety of wildlife; Delay in project schedule; Increased consultation with stakeholders regarding threatened species; Public perception of interfering with wildlife;											
17.0	Military Infrastructure - Roads													
17.1	Road Rehabilitation and Construction													
17.1.1	Available on-site borrow material for road rehabilitation	Quantity and quality of borrow material is not sufficient to rehabilitate roads for heavy equipment use. Fewer roads will be able to be used to transport materials during site remediation	Delay of project schedule; Increase project costs to bring material from further sources;											
17.1.2	Culvert failure	Culverts are unable to accommodate spring run-off/storm event causing washout in road	Delay of project schedule; Increased project costs to repair road; Possible health and safety issue for operators using road											
17.1.3	Wet conditions on site roads	Heavy machinery is becoming stuck in muddy and wet sections of road	Delay of project schedule; Increased project costs to repair road; Possible health and safety issue for operators using road											
18.0	Military Infrastructure - Airstrip													
18.1	Rehabilitation and Construction													
18.1.1	Available on-site borrow material for airstrip rehabilitation/construction	Quantity and quality of borrow material is not sufficient to rehabilitate airstrip for larger cargo aircraft use.	Delay of project schedule; Increased project costs to bring cargo and personnel in on smaller aircraft;											
18.1.2	Refuelling of aircraft	Fuel is spilled onto ground during refuelling of aircraft	Environmental release of fuel into environment; Impacts to shallow groundwater and downgradient surface water; Remediation costs to project											

NT Region - EHS Aspects and Hazards and Risk Matrix

ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
18.2	Historical Airstrips													
18.2.1	Historical fuel storage areas are present on the airstrip apron	Fuel contamination of soil adjacent to the airstrip is identified	Impacts to shallow groundwater and downgradient surface water; Impacts to ecological receptors; Remediation costs											
18.2.2	Historical airstrip used as emergency landing area and shelter	Local residents use airstrip and buildings for emergency landing areas and building as emergency shelter. Request that building not be demolished and that airstrip remain.	Liability associated with use of airstrip and building after site remediation; Potential for hazardous substances in infrastructure; Poor public perception if request denied;											
18.3	Ice Strips													
18.3.1	Equipment mobilization to site using an ice strip	Poor ice conditions result in aircraft getting stuck in snow/ice	Health and safety of equipment operators; Loss of equipment and/or equipment damage; Delay in project schedule; Environmental release of materials being transported to site											
18.3.2	Limited use of ice strip due to warm temperatures	Warm weather conditions reduce the time that aircraft are able to land on lake	Increased shipping costs; Delay in project schedule;											
19.0	Military Infrastructure - Docks													
19.1	Float Plane Docks													
19.1.1	Aircraft use of float plane docks	Aircraft impacts dock when taxiing resulting in damage to aircraft and potential injuries to passengers	Environmental release of materials into lake; Health and safety of personnel; Repair/replacement of damaged equipment and infrastructure											
19.1.2	Refuelling of aircraft at dock	Fuel is spilled into lake during refuelling of aircraft.	Environmental release of fuel into lake; Environmental safety concerns from public; Regulatory obligations to deal with spill;											
19.2	Barge Docking Facilities													
19.2.1	Tidal fluctuations and barge docking	Tidal fluctuations/low water levels limit the use of docking facilities for barge used to mobilize equipment and ship materials from the site	Delay of project schedule; Increased project costs to transport materials by air as an alternative;											
19.2.2	Cargo loss during loading of barge	Materials being loaded onto barge fall over edge into marine environment	Environmental release of materials into the marine environment; Possible fines; Public perception of environmental safety of project; Health and safety of personnel loading and unloading barges											
19.3	Historical Docks													
19.3.1	Remediation project includes removal of all visible debris in the marine environment	Dock pilings and associated structures and debris in marine environment require removal to remediate site and are only accessible from barges and boats	Environmental release of materials into the marine environment; Health and safety of remediation workers of removing structures while working from barges and boats; Increased project costs for removal;											

NT Region - EHS Aspects and Hazards and Risk Matrix

ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
20.0	Military Infrastructure - Tanks & Pipelines													
20.1	Bulk Fuel Storage Tanks													
20.1.1	Presence of hazardous materials	Tanks could be paint with Pb or PCB amended paints that will require stripping before metal can be disposed of	Risk to health and safety of workers; Increased remediation costs to characterize and dispose of materials; Public perception of hazardous materials if site used historically by local residents											
20.1.2	Fuel vapours within tank during demolition	Sparks during cutting ignite vapours and cause explosion	Risk to health and safety of workers; Legal action due to injury/death of workers; Public concern for worker safety											
20.1.3	Residual gases in tank have created an oxygen-deprived environment	Confined space entry protocol not followed and worker is injured during remediation	Risk to health and safety of workers; Possible charges / compensation costs / legal action/death of workers; Public concern for worker safety											
20.1.4	Tanks have rusted out and valves may have been leaking historically	Fuel contamination may be present beneath the tank and downgradient creating additional remediation work.	Risk to downgradient ecological and surface water receptors; Increased remediation costs to characterize and dispose of materials											
20.2	Potable Water Storage Tanks													
20.2.1	Residual gases in tank have created an oxygen-deprived environment	Confined space entry protocol not followed and worker is injured during remediation	Risk to health and safety of workers; Possible charges / compensation costs / legal action/death of workers; Public concern for worker safety											
20.3	Septic Tanks													
20.3.1	Residual gases in tank have created an oxygen-deprived environment	Confined space entry protocol not followed and worker is injured during remediation	Risk to health and safety of workers; Possible charges / compensation costs / legal action/death of workers; Public concern for worker safety											
20.4	Pipelines - Fuel													
20.4.1	Pipeline valves and fittings have rusted out and valves may have been leaking historically	Contamination may be present beneath the pipeline and downgradient creating additional remediation work.	Risk to downgradient ecological and surface water receptors; Increased remediation costs to characterize and dispose of materials											
20.4.2	Fuel vapours within pipeline during removal.	Sparks from grinder used to cut pipes may ignite vapours and cause explosion	Risk to health and safety of workers; Legal action due to injury/death of workers; Public concern for worker safety											
20.4.3	Historical pipeline is overgrown by vegetation	Historical pipeline is located in areas where vegetation has re-grown and removal will disturb natural environment around pipeline. Heavy machinery access to areas is limited.	Impacts to vegetation and tundra around pipeline if removed; Increased project costs to remove; Stakeholder concern for disruption of natural environment											
20.4.4	Historical pipeline is adjacent to archaeological feature	Archaeological feature of significance is identified adjacent to historical pipeline route requiring removal. Negotiations with Aboriginal Stakeholders and regulators required.	Increased project costs; Delay of project schedule; Public concern of disturbance of archaeological site;											
21.0	Military Infrastructure - Abandoned Equipmen													
21.1	Machinery and Vehicles													
21.1.1	Presence of hazardous materials	Machinery may still contain residual fluids that could leak or may require hazardous waste disposal. Paint on vehicles may contain lead or PCBs.	Risk to health and safety of workers; Increased remediation costs to characterize and dispose of materials;											
21.1.2	Removal of old machinery and vehicles	Removing machinery and vehicles that have been abandoned throughout the site may be difficult and could require towing of equipment. Sudden movement of equipment could result in injury of workers.	Risk to health and safety of workers; Increased project costs; Project schedule impacts											

NT Region - EHS Aspects and Hazards and Risk Matrix

ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
21.2 Electrical and Communications Equipment														
21.1.2	Presence of hazardous materials in electrical and communications equipment	Electrical equipment may still contain residual fluids and other components that may require hazardous waste disposal.	Risk to health and safety of workers; Increased remediation costs to characterize and dispose of materials;											
21.3 Power Generation Equipment														
21.3.1	Contamination associated with historical generator use.	Generators may have used PCB contaminated oil that could be disposed of in the vicinity of the gen set. Soil and concrete around generators may be contaminated. Historical hydrocarbon contamination may also be present.	Risk to downgradient ecological and surface water receptors; Increased remediation costs to characterize and dispose of materials'; Stakeholder perception of hazardous materials present on site.											
22.0 Military Landfills and Waste Management														
22.1 Incinerators														
22.1.1	Historical operation of incinerator results in contaminated soils	Soils in the vicinity of historical incinerators are found to be contaminated with dioxins and furans. Soil requires characterization for disposal.	Risk to health and safety of workers; Increased remediation costs to characterize and dispose of materials;											
22.2 Historical Landfill Excavation														
22.2.1	Excavation of former landfill uncovers drums containing liquids	Liquids in buried drums may contain substances such as petroleum hydrocarbons, pesticides or PCBs. Additional characterization of barrel contents and impacts of adjacent soil is required.	Risk to health and safety of workers; Increased remediation costs to characterize and dispose of materials; Stakeholder perception of risks to local residents who used site historically											
22.2.2	Excavation of former landfill extends into permafrost	Excavation of materials in former landfill damages permafrost creating a slump.	Increased project costs; Delay in project schedule											
22.2.3	Excavator hits buried debris	Excavation of buried debris including pressurized drums which spark when making contact with excavator, causing an explosion and injuring a worker.	Risk to health and safety of workers; Legal action due to injury/death of workers; Public concern for worker safety											
22.2.4	Seepage from toe of former landfill observed	Landfill seepage is observed to be migrating to downgradient surface water receptors.	Seepage impacts to adjacent surface water and soil; Potential for downgradient erosion; Impacts to ecological receptors; Increased project costs											
22.2.5	Available on-site borrow material for landfill backfilling	Extent of historical landfill is greater than expected. Quantity and quality of borrow material at the site is not sufficient to backfill landfill. Additional borrow sources are required.	Delay of project schedule; Increase project costs to bring material from further sources;											
22.2.6	Processing of landfill stockpiles	Labourer gets cut on debris while manually segregating hazardous and non-hazardous debris from a landfill excavation area.	Risk to health and safety of workers;											
22.2.7	UXOs in historical landfill area	Disruption of UXOs with excavator results in explosion and injures/kills workers	Risk to health and safety of workers; Legal action due to injury/death of workers; Public concern for worker safety											

NT Region - EHS Aspects and Hazards and Risk Matrix

ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
22.3	Non-Hazardous Landfill for Remediation													
22.3.1	Disposal of Hazardous Waste in Non-Haz Landfill	An error in analytical result interpretation results in the disposal of contaminated soils in the non-hazardous landfill.	Increased project costs to potential remove material from landfill; Increased analytical costs for re-sampling; Stakeholder concern regarding quality of lab data;											
22.3.2	Archaeological feature is uncovered during excavation of Non-Haz Landfill	Archaeological feature of significance is identified in the landfill location. Negotiations with Aboriginal Stakeholders and regulators required.	Increased project costs; Delay of project schedule; Public concern of disturbance of archaeological site;											
22.3.3	Buried debris present in proposed location	Buried debris is found in the proposed Non-Hazardous landfill location requiring additional sampling, assessment and remediation prior to construction.	Increased project costs; Delay of project schedule;											
22.3.4	Landfill approval is delayed	Approval for landfill construction is delayed due to stakeholder concerns and requires further negotiations	Delay in project schedule; Stakeholder concern regarding presence of contaminated materials on site; Further negotiations with regulators;											
22.4	Tier II Landfill for Remediation													
22.4.1	Deterioration of liner or cap	Deterioration of the liner and/or cap of the landfill results in the seepage of leachate to downgradient receptors	Environmental risk to downgradient receptors; Additional project costs to repair; Stakeholders lose trust in remediation technology;											
22.4.2	Disposal of CEPA level contaminated soil in Tier II landfill	An error in analytical result interpretation results in the disposal of CEPA contaminated soils in the Tier II landfill.	Increased project costs to potential remove material from landfill; Increased analytical costs for re-sampling; Stakeholder concern regarding quality of lab data;											
22.4.3	Landfill approval is delayed	Approval for landfill construction is delayed due to stakeholder concerns and requires further negotiations	Delay in project schedule; Stakeholder concern regarding presence of contaminated materials on site; Further negotiations with regulators;											
23.0	Military Site Debris Areas													
23.1	UXOs (Unexploded Ordnances)													
23.1.1	UXOs present on site	UXOs are disturbed while clearing debris from an area of the site resulting in an explosion and injury/death of site personnel	Risk to health and safety of workers; Public concern for site safety; Legal action over death of worker; Further screening for UXOs required at site;											

NT Region - EHS Aspects and Hazards and Risk Matrix

ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
23.2 Miscellaneous debris														
23.2.1	Historical debris scattered throughout the site	Visitors to the site are injured by site debris	Risk to health and safety of visitors; Potential for legal action; Public concern for safety of site;											
23.2.2	Archaeological feature is discovered in site debris area	Archaeological feature of significance is identified in debris area. Negotiations with Aboriginal Stakeholders and regulators required.	Increased project costs; Delay of project schedule; Public concern of disturbance of archaeological site;											
23.2.3	Batteries	Batteries that have degraded and contaminated adjacent soils are found in the debris area	Increased remediation costs; Increased analytical costs; Delay in project schedule;											
23.2.4	Debris clean-up scope	Project budget does not support the clean-up of all visible debris at site which is perceived to impact traditional land use	Further stakeholder negotiations required; Stakeholder concern over final site condition;											
24.0 Barrels and Barrel Dumps														
24.1 Barrel Content Characterizatior														
24.1.1	Barrel opening	No vapour monitoring is performed and a spark is present when opening a pressurized drum resulting in an explosion	Risk to health and safety of barrel processing personnel; Potential injury or death of personnel; Stakeholder concern for safety of site operations											
24.1.2	Sample collection	PPE worn by barrel sampling personnel is breached resulting in exposure to contaminants	Risk to health and safety of sampling personnel;											
24.1.3	Barrel contents	Barrels contents are characterized and found to contain hazardous compounds requiring shipping off site	Additional project costs to handle and ship hazardous materials from site;											
24.2 Barrel Processing														
24.2.1	Secondary containment breach in barrel processing area	The secondary containment in the barrel processing area is breached and barrel contents are spilled on adjacent ground	Risk to downgradient environmental receptors; Stakeholder concern for further contamination of the site;											
24.2.2	Steam cleaning	High pressured steam used to clean barrels burns operator	Risk to health and safety of personnel											
24.2.3	Barrel processing water	Barrel processing water is discharged to environment without analysis for discharge criteria	Risk to downgradient environmental receptors; Stakeholder concern for further contamination of the site; Regulatory requirements for spill											
25.0 Contaminated Soil														
25.1 Delineation														
25.1.1	Delineation	Soil contamination was not fully delineated, resulting in a larger volume of contaminated soil requiring disposal	Increase project costs; Delay in project schedule;											
25.1.2	Confirmatory sampling	An error in analytical result interpretation results in the backfilling of an excavation that still contains contaminated soils	Increased project costs to potential remove material from landfill; Increased analytical costs for re-sampling; Stakeholder concern regarding quality of lab data;											
25.1.3	Excavation stability	Excavation becomes unstable and collapses onto personnel collecting soil samples	Risk to health and safety of personnel; Injury and/or death of personnel; Public perception of site safety;											
25.1.4	Cross-contamination	Equipment used in excavating contaminated soils in not properly decontaminated and results in the cross contamination of another area of the site	Increased project costs for further assessment and remediation;											
25.1.5	Analytical turn-around time	Analytical turn-around-time is not sufficient to keep up with progress in soil excavation result in a delay in project	Delay in project schedule;											

NT Region - EHS Aspects and Hazards and Risk Matrix

ID#	ACTIVITY	EHS Aspect/Hazard	Potential Impacts	Consequence Category						Severity	Likelihood	Risk Ranking	Permit	Procedures
25.2	Remediation													
25.2.1	Landfarming/In-Situ Remediation	Landfarming or in-situ remediation of contaminated soils does not achieve remediation standards and soil requires disposal in Tier II landfill	Increased Project Costs; Stakeholders lose trust in remediation technology; Delay in project schedule;											
25.2.2	Shipping off-site	Contaminated soils requiring shipping by barge are not completely excavated in time to meet barging schedule delaying the project by another season	Project delay; Increased project costs to mobilize personnel for additional work in the following season; Public perception of soil remaining on site over winter;											

** **Note that sections 15.0 and 16.0 are common to both Mining and Military Sites**

APPENDIX C

NT Region EHS Legal and Other Requirements Listing

Appendix C – Legal and Other Requirements Listing

Legislative Requirement	Jurisdiction	Aspect/Hazard	Revision
Aeronautics Act (R.S. 1985, c. A-2) Canadian Aviation Regulations (SOR/96-433)	Federal	Travel Safety- air transportation	c.A-2 SOR/96-433
Arctic Waters Pollution Prevention Act (R.S.C., 1985, c. A-12) Arctic Waters Pollution Prevention Regulations (C.R.C., c. 354)	Federal	Water Contamination	2009 C.21 SOR/83-229
Canada Labour Code Part II – Occupational Health & Safety Act (R.S. 1985, c.L-2) Canada Occupational Health and Safety Regulations (SOR/86-304)	Federal	Occupational Health and Safety	2005, c.34 2012-271
Canadian Environmental Protection Act**,** S.C. 1999 (S.C. 1999, c.33) a. SOR/2002-318	Federal	General Environment	2012-235
Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations SOR/2005-149	Federal	Hazardous Waste	-2012-99
Federal Mobile PCB Treatment and Destruction Regulations SOR/90-5	Federal	PCBs	2000-105
Federal Halocarbon Regulations, 2003 SOR/2003-289	Federal	Halocarbons	2009-221
PCB Waste Export Regulations, 1996 Storage of PCB Material Regulations SOR/97-109	Federal	PCBs	2000-103
Canadian Species at Risk Act (S.C 2002, c.29)	Federal	Wildlife	2012-07-06
Criminal Code of Canada *(R.S.C. 1985 c. C-46)*	Federal	Quarries	1996 c. 19
Explosives Act (R.S.C., 1985, c. E-17) Explosives Regulations (C.R.C., c. 599)	Federal	Explosives, Unexploded ordinances	2004, c.25 93-439
Fisheries Act (R.S.C. 1985, c.F-14) a.S.C.2000, c.7	Federal	Water Contamination	2012, c.19
Fish Health Protection Regulations (C.R.C. 1978, c. 811)	Federal	Water Contamination	2011-300
Fish Toxicant Regulations (SOR/88-258)	Federal	Water Contamination	2008-99
Metal Mining Effluent Regulations (SOR/2002-222)	Federal	Water Contamination	2012-22
Wastewater Systems Effluent Regulations (SOR/2012-139)	Federal	Water Contamination	2012-139
Indian Act (R.S. 1985, c.I-5) a.R.S., c.I-6, s.1	Federal	General Environmental	2013-03-01
Mackenzie Valley Resource Management Act (1998, c.25) Mackenzie Valley Land Use Regulations (SOR/98-429)	Federal	Land Contamination	2005, c.1 2006-253

Legislative Requirement	Jurisdiction	Aspect/Hazard	Revision
Migratory Birds Convention Act 1994 Migratory Birds Regulations (C.R.C. 1978, c.1035) a.SOR/2002	Federal	Wildlife	2009, c.14 2011-120
National Fire Code of Canada**,** 1995 a. 2002		General Environmental	2010
Navigable Waters Protection Act (R.S.C. 1985, c.N-22), a.1998, c.10 Navigable Waters Works Regulations (C.R.C., c.1232)	Federal	Water Contamination	2009, c.2 95-372
Northwest Territories Waters Act (S.C. 1992, c.39) a.S.C. 2002, c.10 Northwest Territories Waters Regulations (SOR/93-303)	Federal	Water Contamination Drinking Water Safety	2005, c.1 2012-250
Transportation of Dangerous Goods Act, 1992 (S.C. 1992, c.34) a.1999, c.31 Transportation of Dangerous Goods Regulations (SOR/2001-286) a. SOR/2003- 400	Federal	Hazardous Waste	2009, c.9 2012-245
Environmental Protection Act **(**R.S.N.W.T. 1988,c.E-7)	NWT	Spills, Fuel Storage	2011, c.16
Spill Contingency Planning and Reporting Regulations (R-068-93)	NWT	Spills	068-93
Used Oil and Waste Fuel Management Regulations (R-064-2003)	NWT	Fuel Storage	064-2003
Explosives Act **(**R.S.N.W.T. 1988,c.E-10) Explosives Regulations (R.R.N.W.T. 1990,c.E-27)	NWT	Explosives, Unexploded ordinances	2007, c.21 1990
Mine Health and Safety Act **(**S.N.W.T. 1994, c.25) Mine Health and Safety Regulations **(**R-125-95)	NWT	Occupational Health and Safety	2010, c.16 R-008-2003
Safety Act **(**R.S.N.W.T. 1988,c.S-1)	NWT	Occupational Health and Safety	2010, c.16
Asbestos Safety Regulations (R-016-92)	NWT	Occupational Health and Safety	R-016-92
Environmental Tobacco Smoke Work Site Regulations (R-082-2003)	NWT	Occupational Health and Safety	R-082-2003
General Safety Regulations (R.R.N.W.T. 1990,c.S-1)	NWT	Occupational Health and Safety	R-079-2000
Silica Sandblasting Safety Regulations (R-015-92)	NWT	Occupational Health and Safety	R-015-92
Work Site Hazardous Material Information System Regulations (R.R.N.W.T. 1990,c.S-2)	NWT	Occupational Health and Safety	1990, c.S-2
Wildlife Act (*R*.S.N.W.T. 1988,c.W-4)	NWT	Wildlife	009-2009
Birds of Prey Regulations (R-020-92)	NWT	Wildlife	058-99
Critical Wildlife Areas Regulations (R.R.N.W.T. 1990,c.W-3)	NWT	Wildlife	059-99

Legislative Requirement	Jurisdiction	Aspect/Hazard	Revision
Asbestos Abatement Code of Practice – NWT and Nunavut, Workers' Safety and Compensation Commission, 2012	Code of Practice	Occupational Health and Safety	2012
Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials (NORM), October 2000.	Standard & Guideline	Radioactive	2000
Canadian Environmental Quality Guidelines, Canadian Council of Ministers of the Environment 2005	Standard & Guideline	General Environmental	2005
CWS for Petroleum Hydrocarbons in Soil, Canadian Council of Ministers of the Environment	Standard & Guideline	Land Contamination	2008
Code of Practice for Used Oil Management in Canada; CCME-TS/WM-TRE006E, 1989	Standard & Guideline	Hazardous Waste	1989
Dam Safety Guidelines, Canadian Dam Association, 1999	Standard & Guideline	Dam Safety	1999
Environmental Code of Practice for Used Oil Management in Canada, Canadian Council of Ministers of the Environment 1989	Standard & Guideline	Hazardous Waste	1989
Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products	Standard & Guideline CCME	Aboveground/Underground Storage Tanks	2003
Environmental Guideline for Contaminated Site Remediation, 2003	Standard & Guideline	Land Contamination	2003
Environmental Guidelines: Pits and Quarries, DIAND, 1994	Standard & Guideline	Quarries	1994
Environmental Operating Guidelines: **Access Roads and Trails,** DIAND, 1990		Transportation safety	1990
A Framework for Ecological Risk Assessment: General Guidance, Canadian Council of Ministers of the Environment Canadian Council of Ministers of the Environment 1997	Standard & Guideline	Land Contamination	1997
Freshwater Intake End-of-Pipe Fish Screen Guideline, DFO, 1995	Standard & Guideline	Wildlife	1995
Guidance Manual on Sampling, Analysis, and Data Management for Contaminated Sites - **Volume I:** Main Report, Canadian Council of Ministers of the Environment 1993	Standard & Guideline	Land Contamination	1993

Legislative Requirement	Jurisdiction	Aspect/Hazard	Revision
Guidance Manual on Sampling, Analysis, and Data Management for Contaminated Sites, Volume II: Analytical Method Summaries, Canadian Council of Ministers of the Environment 1993			
Guidance Manual for Developing Site-specific Soil Quality Remediation Objectives for Contaminated Sites in Canada, Canadian Council of Ministers of the Environment 1996	Standard & Guideline	Land Contamination	1996
Guidance Document on the Management of Contaminated Sites in Canada, Canadian Council of Ministers of the Environment 1997	Standard & Guideline	Land Contamination	1997
A Guide to the Management of Tailings Facilities, Mining Association of Canada, 1988	Standard & Guideline	Mine Safety	1988
Guideline for Ambient Air Quality, GNWT–RWED, 2002	Standard & Guideline	Occupational Health and Safety	2002
Guideline for Dust Suppression, GNWT–RWED, 1998	Standard & Guideline	Occupational Health and Safety	1998
Guidelines for Effluent Quality and Wastewater Treatment at Federal Est., 1976		Water Contamination	**1976**
Guidelines for Canadian Drinking Water Quality, 2012		Drinking Water Quality	August 2012
Guideline for the Management of Waste Asbestos, GNWT–RWED, 2004	Standard & Guideline	Hazardous Waste	September 1997
Guideline for the Management of Waste Batteries, GNWT–RWED, 1998 **Guideline for the Management of Waste Lead and Lead Paint**, GNWT–RWED, 2004	Standard & Guideline	Hazardous Waste	September 1997
Guidelines for Contingency Planning, NWT Water Board, January 1987	Standard & Guideline	General Environmental	1987
Guideline for the Management of Waste Antifreeze, GNWT–RWED, 1998	Standard & Guideline	Hazardous Waste	September 1997
Guideline for the Management of Waste Solvents, GNWT–RWED, 1998	Standard & Guideline	Hazardous Waste	September 1997
Guideline for the General Management of Hazardous Waste, GNWT–RWED, 1998	Standard & Guideline	Hazardous Waste	February 1998

Legislative Requirement	Jurisdiction	Aspect/Hazard	Revision
Guideline for Ozone Depleting Substances, February 1998	Standard & Guideline	Halocarbons	1998
Mine Reclamation Guidelines for the Northwest Territories and Nunavut, AANDC (2012)	Standard & Guideline	Land Contamination	2012
National Classification System for Contaminated Sites, Canadian Council of Ministers of Environment	Standard & Guideline	Land Contamination	2008
National Guideline for the Landfilling of Hazardous Waste, Canadian Council of Ministers of the Environment, 1991	Standard & Guideline	Hazardous Waste	1991
QA/QC Guidelines for Use by Class "A" Licensees in Meeting SNP Requirements, DIAND, 1996	Standard & Guideline	Occupational Health and Safety	1996
Recommended Principles on Contaminated Sites Liability, Canadian Council of Ministers of the Environment 2006	Standard & Guideline	Land Contamination	2006
Reference Method for the Canada Wide Standard for Petroleum Hydrocarbons in Soil - Tier 1 Method, Canadian Council of Ministers of the Environment 2001	Standard & Guideline	Land Contamination	2001
Risk Management Guidelines for Petroleum Storage Tank Sites, Canadian Council of Ministers of the Environment	Standard & Guideline	Aboveground/Underground Storage Tanks	2003
Subsurface Assessment Handbook for Contaminated Sites, Canadian Council of Ministers of the Environment 1994	Standard & Guideline	Land Contamination	1994
Storage, Handling and Dispensing of Aviation Fuels at Aerodromes, B836-00 (Canadian Standards Association International, 2000)	Standard & Guideline	Fuel Storage	2000
Technical Guidance on the Land Treatment of Petroleum Hydrocarbon Contaminated Soils at Federal Government Facilities on Federal Crown Land	Standard & Guideline	Land Contamination	
Treasury Board Occupational Health Evaluation Standard	Federal Standard	Occupational Health and Safety	

APPENDIX D

NT Region EHS MS Training Matrix

Appendix D: EHS TRAINING MATRIX FOR NORTHWEST TERRITORIES REGION

	TRAINING COURSES OFFERED	Level of Priority		
		High	Med	Low
1	Accident/Incident investigation			
2	Asbestos Identification/Awareness			
3	ATV Safety			
4	Auditor training			
5	Aviation Egress			
6	Backpack electro fishing			
7	Bear/wildlife awareness (BearWise)			
8	Boating safety - pleasure craft certificate			
9	Canada Labour Code Part 2			
10	Canadian Environmental Protection Act			
11	Canadian Firearm Safety Course			
12	Chainsaw use			
13	Conducting hazard assessment			
14	Confined space awareness			
16	Confined space entry			
17	Critical incident/crisis management			
18	EHSMS Orientation (CSP/NT)			
19	Dealing with difficult clients			
20	Defensive driving			
21	Due Diligence, Internal Responsibility System			
22	Electrical Safety			
23	Emergency Preparedness			
24	Ergonomic Training			
25	Explosives Identification			
26	Fall protection			
27	Fire extinguisher use			
28	Firearms use			
29	Flying in fixed wing			
30	Flying in helicopters - helicopter OHS			
31	GNWT Public Health Act			
32	GPS and Navigation			
33	Hazard Analysis/RA and JHA process			
34	Hazardous waste Operator (Hazwoper)			
35	Ice Safety and Rescue			
36	Inspection of work sites			
37	Lab bio safety procedures and practices			
38	Manual lifting and carrying			
39	Material handling			
40	NWT Mine Health and Safety Act and Regulations			
41	Petroleum Storage Tank Regulations			
42	Predator Defence			
43	Radiation Safety			
44	Red Cross swimmming			
45	Rigging			
46	Snow machine use			
47	Spill Response & Prevention			
48	Standard first aid/CPR			
49	Swift Water Rescue			
50	Transport of Dangerous Goods			
51	Use of respiratory protective equipment			
52	Use of satellite phones			
53	Welding and cutting			
54	WHMIS			
55	Wilderness first aid			
56	Wilderness survival			
57	Winch Use			
58	Winter driving			
59	Working on/around unstable ground and slopes			

APPENDIX E

Distribution List

Appendix E – Distribution List

Copy	Holder	Location