



PUBLIC SERVICES AND PROCUREMENT CANADA

Spill Prevention and Response Plan Isachsen High Arctic Weather Station (HAWS), Nunavut

**Prepared for Public Services and Procurement Canada on behalf
of Environment and Climate Change Canada (ECCC)**

DFRP #: 07527

FCSI #: 07525123

Final Report



Operations Building



Waste Fuel Drums

July 2026

July 16, 2026

Environmental Services and Contaminated Management
Public Services and Procurement Canada
9700 Jasper Ave NW, Suite 1000
Edmonton, Alberta T5J 4C3

Attention: Mr. Michael Brownlee
Senior Environmental Specialist

Dear Mr. Brownlee:

Nuqsana-Outcome Joint Venture (NOJV) is pleased to provide Public Services and Procurement Canada (PSPC) with the attached Spill Prevention and Response Plan for Environment and Climate Change Canada's (ECCC's) Isachsen High Arctic Weather Station (HAWS) in Nunavut.

Should you have any further questions or comments, please contact the undersigned at your convenience.

Yours truly,

NUQSANA-OUTCOME JOINT VENTURE



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Senior Environmental Project Manager



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Our File: P2025-05

Public Services and Procurement Canada

Spill Prevention and Response Plan, Isachsen HAWS, NU

July 2026

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Glossary and Acronyms

Acronym	Definition
CARD	Contaminants and Remediation Division
ECCC	Environment and Climate Change Canada
EHS	Environment, Health and Safety
EMT	Emergency Medical Technician
GNWT	Government of the Northwest Territory
NAO	Northern Affairs Organization
NCSP	Northern Contaminated Sites Program
NWB	Nunavut Water Board
PSPC	Public Services and Procurement Canada
the Plan	Spill Prevention and Response Plan
the Project	Isachsen High Arctic Weather Station Incineration
SCBA	Self-Contained Breathing Apparatus
MSDS	Material Safety Data Sheets

Executive Summary

Nuqsana and Outcome Consultants in joint venture (Nuqsana-Outcome or NOJV) have completed a Spill Prevention and Response Plan (“the Plan”) for the waste fuel Incineration project at the Isachsen High Arctic Weather Station (“the Project”) in Nunavut (“the Site”). This Plan is a component of the scope of work included in NOJV’s mandate for the 2025-2026 waste fuel incineration at the Isachsen High Arctic Weather Station.

The purpose of this Plan is to define procedures and practices that will minimize the likelihood of spills occurring and reduce the impact to ground and hence to surface water of any spills that do occur during the Project.

The scope of the Plan includes all work that will be completed and all work areas included in the Project. Spilled fuel can travel and affect sensitive receiving environments, with the potential for ecological harm requiring extensive clean-up. The goal is to prevent spills using best management practices and spill containment equipment.

The Plan set out how spills will be managed during the incineration works including:

- Response actions for potential spills of any size, including a worst-case scenario.
- Key response personnel and their roles and responsibilities in the event of a spill.
- Equipment and other resources that will be available to respond to a spill.
- Spill response procedures that will minimize potential health and safety hazards, environmental damage.

Spill contingency measures are set out in the Plan. These include specific information for the assessment of potential impacts, the installation of specific control measures such as spill kits, booms, and the monitoring and reporting of the effectiveness of these control measures.

1.0

Introduction

1.1

Introduction

This Spill Prevention and Response Plan (“the Plan”) applies to the waste fuel incineration project (“the Project”) being undertaken as part of remediation work being carried out at the Isachsen High Arctic Weather Station (HAWS) in Nunavut (“the Site”). This work is being carried out for Public Services and Procurement Canada (PSPC) under the Standing Offer Agreement #EW699-220414/011/NCS, project number R.125553.001 on behalf of Environment and Climate Change Canada (“ECCC” or “Custodian”). This Plan is being submitted in addition to the Waste Fuel Reduction Plan as per the requirements of the Type “A” Land Use Permit application.

Table 1 provides key project information relating to the project.

Table 1: Key Information related to the Project

Project Name and Location	Waste Fuel Incineration at the Isachsen High Arctic Weather Station, NU
Contracting Authority	Public Services and Procurement Canada (PSPC) Northern Contaminated Sites Program, Western Region 9700 Jasper Ave NW, Suite 1000 Edmonton, Alberta T5J 4C3
Contact	Michael Brownlee (PSPC) Project Manager Michael.Brownlee@tpsgc-pwgsc.gc.ca Cell: 780-720-7748
Consultant	NOJV
Contractor Information	Keelan Veitch, Project Manager, kveitch@outcomeinc.ca , 613-297-0341 (cell)
Consultant Address	200-151 Holland Ave. Ottawa, Ontario, K1Y 0Y2

1.2

Purpose and Scope

The purpose of this Plan is to describe the practices which will be implemented to prevent spills from occurring and to define the response actions for spills of any size, should they occur, including a worst-case scenario. The Plan identifies key response personnel and their roles and responsibilities in the

event of a spill, as well as the equipment and other resources available to respond to a spill. It details spill response procedures that will minimize potential health and safety hazards and environmental damage, and guide the clean-up efforts. The Plan has been prepared to ensure quick access to all the information required in responding to a spill. The scope of the Plan includes all work to be completed in the Project and covers all work areas as part of the project.

Standard Operating Procedures relating to this Plan are included in Appendix A.

1.3 Roles and Responsibilities

Table 2 outlines the roles and responsibilities of people working on the site with respect to the management of the risk posed by potential spills on site.

Table 2: Roles and Responsibilities

Role	Responsibility
Consultant NOJV	Oversee spill contingency measures including transfer of waste fuels, fuel incinerator operations on site and ensure the necessary resources are available to implement fuel transfer tasks.
Site Supervisor from NOJV	Ensure the necessary resources are available to implement this Plan in tandem with ATCO.
	Ensure that monitoring inspections are conducted throughout the day and at the beginning and end of every workday.
	Consult with the NOJV Project Manager and ATCO for mitigation measures in response to potential issues.
	Maintain communications with the NOJV Project Manager to ensure monitoring and responses are appropriate.
Subcontractor ATCO	Company hired with appropriately ticketed trades-people (oil burning mechanics) to execute the Project using a combination of owned and site available equipment. Ensure the necessary resources are available to implement this Plan. Implement and supervise the work at the designated Incineration area as set out in this Plan.

Employees of consultant and subcontractor	Follow the requirements set out in this Plan.
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Employees and subcontractors will be trained on the spill contingency measures outlined in this Plan and will be responsible for actioning the Plan in the event of a spill under instruction of the Site Supervisor.

Visitors to the site who are not either employed by the consultant (NOJV) or the subcontractor (ATCO) or the owner (Government of Canada) will not have any involvement with the Project.

1.4 Contact Information

An immediately reportable spill is defined as a release of a substance that is likely to be an imminent environmental or human health hazard or meets or exceeds the volumes shown in the attached table. These spills must be reported to the Government of Northwest Territories (GNWT) 24-hour Spill Report Line at (867) 920-8130. Table 3 provides key contact information relating to the project

Table 3: Key Contacts

Name	Position	Contact #
Keelan Veitch	Project Manager, Site Supervisor	keelan@outcomeinc.ca Cell: 613-297-0341
Don Plenderleith	Project Director, Site Supervisor	dplenderleith@outcomeinc.ca Cell 613-880-3352
Eric Grimminck	Site Supervisor	egrimminck@outcomeinc.ca Cell: 905-802-3609
Michael Brownlee	PSPC Project Manager (Assessment)	Michael.Brownlee@tpsgc-pwgsc.gc.ca Cell: 780-720-7748
Ryan Breivik	PSPC Project Manager (Remediation)	Ryan.Breivik@tpsgc-pwgsc.gc.ca Cell: 905-691-1574
Owen Wade	ECCC Project Manager	owen.wade@ec.gc.ca Cell: 613-981-8652
Malcolm McLean	Discovery Mining Services – Camp Manager	malcolm.mclean@discoverymining.ca Cell: 867-445-1642
Chris Coventry / Front Desk	ATCO – Resolute Operations	Chris.Coventry@atco.com Cell: 867-686-0594 frontdesk.res@atco.com or 867-252-3737

Name	Position	Contact #
Guy Dorion	ATCO Heavy Duty Mechanic	Guy.Dorion@atco.com Cell: 418-951-4493

External resources for assistance in the event of a spill are listed in Table 4. Assistance from outside the community may not be able to reach the site until at least the next business day.

Table 4: External Resources

Contact	Phone
RB Airport Manager (Nunavut Gov't)	Office: 867-252-3923
Steve Piercy, Hamlet Senior Administrative Officer	867 252 3616
Resolute Bay Health Centre	(867) 252-3844
Qikiqtani General Hospital (Iqaluit)	(867) 975-8600
NT-NU 24-Hour Spill Line	867-920-8130
24-Hour National Spill Response Hotline	1-800-663-3456
GNU Department of Environment, Manager of Environmental Protection	867-975-7748
Environment and Climate Change Canada, Enforcement Branch	867-975-4644
Transport Canada Emergency Response	1-800-889-8852
WSCC 24-Hour Emergency Contact	800-661-0792
GNWT ENR Wildlands Fire	877-698-8473
GNU Fire Marshall Emergency	867-979-6262
GNU Department of Environment, Wildlife Office	867-982-7450
Coast Guard	1-800-267-7270
RCMP – Resolute Bay	867-252-1111 (emergency) 867-252-0123 (non-

	emergency)
Poison Control	867-669-4100
Forest Fire Emergency	877-698-3473

1.5 Plan Development

This Plan has been developed in accordance with the following Water Board guidance documents:

- Guide to the Land Use Permitting Process (MVLWB, 2021a).
- Standard Outline for Management Plans (MVLWB, 2021b).
- Spill Contingency Planning and Reporting Regulations (Government of Nunavut, 2023).

This Plan is effective as of the date of submission and will be adhered to once accepted and finalized. This Plan is a living document additional reviews as warranted may be carried out to reflect changes in operations, technology, chemicals, or fuels, or as directed by the NWB. Any revisions to the Plan will be submitted to the NWB for review and approval. ATCO and NOJV endeavors to take every reasonable precaution toward ensuring the protection and conservation of the natural environment, the safety and health of the employees and (protecting) the community (at large) from any harmful effects of its materials and operations. It should be noted that this Plan is not expected to relate to any other territorial or local community Plan as the project site is remote.

1.6 Environmental, Health and Safety Policy

NOJV's Health and Safety Plan (NOJV 2025) sets out the health and safety procedure that apply to the Project.

1.7 Training

Employees and subcontractors will be trained on the spill contingency measures outlined in this Plan. Employees will also be required to be trained on any safe work procedures associated with spill prevention and response planning. Visitors to the site will be provided with an induction on any specific spill contingency plans relevant to their work. The training program will be developed by NOJV and includes the following key steps:

- All individuals who will access the site will be required to participate in an on-site orientation session. The training will be conducted on an as needed basis for personnel of the consultant or subcontractor entering the site to work on the Project. A hard copy of this Plan and spill kit locations will be kept at the camp in a field procedures binder.

- Specific training, including mock demonstration of spill exercises, for individuals directly involved in handling fuel to ensure they know all steps to be undertaken in handling these materials, as well as the steps involved in the event of a spill or discovered leaking drum, including the proper use of spill kits. This training will be completed within the first week of arrival on site for all individuals.
- All employees and contractors will be required to have their WHMIS training before working on the site.
- Supervisors will be required to have first aid training and an appropriate number of workers will also have first aid training as per the NWT Safety Act.
- In the event of medical and trauma emergencies Discovery Mining Services's Richard Shushack will be the primary First Aider with NOJV individuals as a secondary precaution in responds to emergencies at a pre-hospital setting ("infield") for the purpose of stabilizing a patient's condition before and during transportation to an appropriate medical facility.
- The Site Supervisor or designate will maintain a record of trained individuals and document training dates via the daily report for all personnel entering the site. Depending on the type of work to be conducted, each person will have specific training requirements. Future training requirements will be estimated for planning purposes to avoid potential delays cause by retraining in the overall work schedule.
- Records of will be kept electronically and on-site, and will be provided to appropriate parties as needed. Applicable training will be completed prior to the commencement of work. Training and competency will be reviewed regularly, and refresher training will be provided as required.

1.8 List of Waste Fuels on Site

Table 5 provides an inventory of waste fuel that is included in the Project on site, the type of storage containers, normal and maximum quantities stored and their storage location.

Table 5. Waste Fuel Inventory Subject to the Incineration Plan

Table of Hazardous Materials	Number of Containers	Capacity of Container	Quantity of fuel on site	Proposed Storage or Staging Location*
Diesel	27 Drums 14 ASTs	205 L drums (and large tanks)	52,224 L	Various Drums and large AST tanks
Gasoline	71	205 L drums	4,665L	Various Drums
Aviation Fuel (Includes Jet A, Jet B, Jet N/A, and Kerosene)	183	205 L drums	14,450 L	Various Drums
Hydraulic oil, lubricating oil	13	205 L drums	955 L	New Garage (to be stored for future removal)
Antifreeze	1	205 L drums (once removed from vehicles)	40 L	In Abandoned Vehicles near New Garage (to be stored for future removal)
Wastewater	TBD	205 L drums	~5,302 L	Transferred back into emptied 205L drums (to be stored for future removal)

1.9

Distribution and Storage of Management Plan

This Plan will be distributed to:

- NOJV staff and all subcontractors
- PSPC
- ATCO
- Other applicable parties

A physical copy of this Plan will be kept on site in the camp's main office.

2.0

Site Description

The Isachsen HAWS has a total area of approximately 450 hectares (ha) and is centered at a latitude of 78° 46' 40" N and longitude of 103° 31' 40" W facing Louise Bay, on the west-facing side of Ellef Ringnes Island, NU. The federal land reserve is occupied by approximately 22 permanent structures with associated infrastructure, equipment, and supplies. Other features previously identified at the Site, in addition to the 22 structures, include a 1,500-metre-long runway, former water and sewage infrastructure, fuel storage and distribution facilities, power generation equipment, two on-site waste disposal areas (WDAs), fuels tanks, thousands of empty/partially empty drums, other abandoned equipment, and debris. **Figure 1 (Appendix A)** presents the Site Location.

The supplies for constructing the initial buildings and grading of the runway at Isachsen were mobilized by air and deposited on sea ice between April 3 and 21, 1947. The station operated as one of five Joint (Canadian and American) High Arctic Weather Stations for the purpose of measuring meteorological information and relaying it to weather analysts in the south. One of the weather measurement activities consisted of filling and releasing hydrogen-filled balloons and tracking their movement. The United States left this partnership in 1972. Canada maintained a staffed operation at Isachsen under Transport Canada until 1975 and under Environment Canada until September 1978 when the staffed station was closed.

Since 1978, the weather data collection facilities at Isachsen have been automated and there has been no permanent staff at Isachsen, however the facilities at the Site have been used to support numerous scientific research groups, and for hosting exercises by the Canadian Rangers. The Meteorological Services of Canada Bureau (MSCB) operates an automated weather station at Isachsen which is available at: Isachsen - Past 24-Hour Conditions - Environment Canada (weather.gc.ca).

Access to Isachsen for building materials, equipment and personnel has been exclusively by air including documented access by large transport aircraft (L-382 Hercules) in the past. The only exception to aircraft access to Isachsen occurred in 1995 when it was reached by cat train over ice by a remediation contractor. There is no record of it having been reached by sea and after multiple inquiries, the only service providers of the region Nunavut Eastern Arctic Shipping Group (NEAS) and Nunavut Sealink and Supply Inc (NSSI) indicated that it could not be reached by sealift.

Waste clean-up efforts began in 1996 with drum crushing, fuel incineration and burial of derelict heavy equipment in the West Gully Landfill, but very muddy conditions made the job very difficult.

The Site has been the subject of numerous studies since 1996. Dillon-Outcome Joint Venture (DOJV) completed a Phase III Environmental Site Assessment (ESA) in the 2022 field season (DOJV Phase III ESA, 2023) as well as a Human Health and Ecological Risk Assessment (HHERA) (DOJV, 2023). A Hazardous Building Materials Assessment, Data Gap Analysis and Remedial Options Analysis (ROA) were also

produced in 2023 to further define the required remediation work scopes and preferred approach to dealing with existing waste streams.

NOJV continued remedial design and planning in 2024-2025 with the completion of an Archaeological Impact Assessment, Permitting Requirement and Application Roadmap, Lead Abatement Options Analysis, Fuel Reduction Plan, Borrow Pit Development Plan, Building Demolition and Solid Waste Management Plan, Community Engagement Plan, Permafrost Monitoring and Climate Change Vulnerability Assessment, Environmental Impact Assessment, and Field Summary.

3.0

Spill Prevention

The primary objective during fuel handling for the Project will always be to take actions to prevent spills from occurring. The effort taken in preventing spills, is easier, quicker and less costly than remediating a spill by a factor of 10 to 100. This will be front of mind throughout the Project.

3.1

Preventative Measures

During the Project, approximately 76,200L of waste fuel will be handled and transferred to the incineration area for burning. The following prevention measures will be implemented during loading, transport and unloading of waste fuel:

- Fuel transfer will always be directed and undertaken by a trained ATCO Trade in a manner that prevents uncontrolled release of fuels.
- Fuel drums along the runway will be assessed for integrity before being moved in the slightest way.
 - If drums appear weak or damaged and are on their side, they will be gently rolled onto a portable berm with their main bung at the high point (12 o'clock position). The bung will be opened, and the fuel will be pumped into a 1,000 L mobile tote secured on the loader.
 - If they are up-right, they will have their bung removed and the fuel will be pumped into a 1,000 L tote secured on the loader.
- The loader will take the 1,000 L mobile tote and drive it to the incineration area and place it within a spill berm of 110% capacity of the tote.
- Fuel will be transferred from the mobile tote to into a fuel mixing tanks via pumps situated in the spill berm.
- The fuel mixing tanks for incineration will be stored within contained spill berms having a 110% or greater volume then the tanks themselves.
- The loading and unloading zones will have rig matting to prevent rutting the softer soils.
- Portable spill berms will be used underneath IBC totes/tanks while transferring fuels.
- Shovels and pails will be available for removing small spills and soil at the source. Contaminated soil will be kept in a berm.
- Spill containment berms will be checked daily for damage or wear.
- Drums will not be removed or reorganized until they have been emptied.
- Transport of fuels will be undertaken in a regulated IBC tote/tank for transfer of and secured with secondary and tertiary measures to ensure secure transport.
- Spill kits will be available at the point of transfer and at the designated incineration area in case of a spills.

The following actions illustrate the proactive approach for to environmental protection and spill prevention. These actions minimize the potential for spills during fuel handling, transfer, and storage:

1. Fuel transfer hoses will be wiped down immediately after fuel transfer.
2. Operators will carefully monitor fuel volume in all receiving vessels during transfer.
3. Clean-up of drips and minor spills will be carried out immediately with equipment/materials provided in all spill kits.
4. Drums, tanks, and hoses will be inspected regularly for leaks or potential to leak.
5. All personnel, especially equipment operators, will be trained in proper fuel handling and spill response procedures.

4.0

Spill Response

NOJV will be equipped to respond to potential spills on site. See Spill Materials Inventory (Section 7) below.

4.1

Summary Process

In the event of a spill, the following is the process to be followed:

1. Spill or release is identified
 - a) Assess personal safety and safety of others
 - b) Stop flow of spill if safe to do so
 - c) Identify spilled material if it is safe to do so
2. Notify Site Supervisor who will
 - a. Notify PSPC and ECCC Department Representative
 - b. Notify both Federal and NU Spill Inspectors
 - c. Notify NU spill line, if required
3. Implement Spill response as outline in this Plan
 - a. Contain spill
 - b. Clean up spill
4. Record spill, actions taken and outcomes.

4.2

Spill Reporting Procedures

Spills will be reported immediately to the Site Supervisor, who will notify the NOJV Project Manager, PSPC and ECCC. Together they will determine if the spill is to be reported to the NU 24-Hour Spill Line at 867- 920-8130, based on the reportable quantities for spills in NU (Table 6). Copies of the NU Spill Report form, and the list of contacts will also be available in each spill kit and in Appendix C at the end of this document. The form will be filled out by the Site Supervisor (or designate) and faxed or emailed to the NWT 24-Hour Spill Report Line.

Table 6. Reportable Quantities for Spills in Nunavut

Substance	Reportable Quantity
Explosives Compressed gas (toxic/corrosive) Infectious substances Sewage and Wastewater (unless otherwise authorized) Radioactive materials Unknown substance	Any amount
Compressed gas (Flammable) Compressed gas (non-corrosive, non-flammable)	Any amount of gas from containers with a capacity greater than 100L

Substance	Reportable Quantity
Flammable liquid	≥100 L
Flammable solid Substances liable to spontaneous combustion Water reactant substances	≥ 25 kg
Oxidizing substances	≥ 50 L or 50 kg
Organic peroxides Environmentally hazardous substances intended for disposal	≥1 L or 1 kg
Toxic substances	≥ 5 L or 5 kg
Corrosive substances Miscellaneous products, substances, or organisms	≥ 5 L or 5 kg
PCB mixtures of 5 or more ppm	≥ 0.5 L or 0.5 kg
Other contaminants--for example, crude oil, drilling fluid, produced water, waste or spent chemicals, used or waste oil, vehicle fluids, wastewater.	≥ 100 L or 100 kg
Sour natural gas (i.e., contains H ₂ S) Sweet natural gas	Uncontrolled release or sustained flow of 10 minutes or more
Flammable liquid Vehicle fluid	≥ 20 L When released on a frozen water body that is being used as a working surface
Reported releases or potential releases of any size that: 1. Are near or in an open water body, 2. Are near or in a designated sensitive environment or habitat, 3. Pose an imminent threat to human health or safety, or 4. Pose an imminent threat to a listed species at risk or its critical habitat.	Any amount

4.3 Spill Documentation

Throughout the spill response process, it is important to record relevant information for reporting purposes. Blank copies of the NWT/Nunavut Spill Report form are included in **Appendix D**. The following list includes items that should be recorded by the Site Supervisor, or their designate:

- The date, time, and location of the release.
- The weather at the time of the release and during the response phase.
- The cause of the release.
- The type and estimated quantity of substance(s) involved.

- The type of containment and clean-up techniques used.
- The affected environment and/or properties.
- The parties and/or individuals involved in the response.
- The parties and/or individuals exposed to the substance(s) involved.
- Health and safety concerns.
- Disposal methods used, including quantities and locations.
- Site remediation completed and planned.
- Short and long-term environmental impacts.
- A status of response.
- A log of response action taken including associated times.
- Measures to be implemented to prevent reoccurrence of the incident.

4.4

Procedures for the Protection of Human Health and Safety

Following a spill, the health and safety of workers as well as the public is a priority. Actions taken will depend on the type of spill.

- In the event of a flammable or combustible material spill: Disconnect electrical equipment, evacuate immediate area, and restrict access to the spill area. Only spark-arresting equipment should be used during clean-up of the spill. PPE should also be worn by workers involved in the clean-up.
- Procedures for containing and controlling spills general procedures noted below will be used to contain and control all spills. Specific procedures for spills on land, water, snow, and ice follow.
- First anticipate what will be affected by the spill.
- Assess direction and speed of spill, and any factors that could affect these (water, wind, and slope).
- Determine best location for containing spill, avoiding any water bodies

5.0

Action Plan

5.1

Summary

This section outlines the procedures and steps that would occur in the event of a spill or unauthorized discharge. In all cases, environmental monitoring is a vital and extremely important aspect of any spill or unauthorized discharge. It ensures that the emergency response team has acted correctly and that the action plan has been effective. Sampling of liquid, soil, and vegetation from any seepage or spill area is required to determine contaminant levels, if any. Once a spill is stopped and/or contained, the spill area will be monitored on a regular basis until results demonstrate that levels are below prescribed limits. The Site Supervisor will tabulate results and prepare a detailed spill report within thirty (30) days of any spill. The Site Supervisor will submit the detailed spill report including descriptions of root causes, response actions, etc. to The Government of Nunavut Land Administration.

In the case of any spill or other environmental emergency, it is necessary to react in the most immediate, safe, and environmentally responsible manner. No spill or incident is so minor that it can be ignored.

5.2

Procedures for Initial Actions

The basic steps of the response plan are as follows:

1. Always ensure the safety of all persons.
2. Identify and find the spill substance and its source, and, if possible, stop the process or shut off the source.
3. Inform the immediate supervisor or his/her designate at once, so that he/she may take appropriate action. Appropriate action includes the notification of a government official, if required.
4. Contain the spill or environmental hazard, as per its nature, and as per the advice of the Spill Line as required.
5. Implement any necessary clean-up or remedial action.

5.3

Mitigative Measures

In the event of a spill:

1. Ensure your own safety and that of others around you, beginning with those nearest to the scene.
2. Control danger to human life, if necessary.
3. Identify the source of the spill.
4. Assess whether the spill can be readily stopped.
5. Immediately notify the Site Supervisor.

6. Contain or stop the spill at the source, if possible, by following these actions:
 - a) If transfer of fuels is in progress, STOP AT ONCE.
 - b) Close or shut off valves.
 - c) Place plastic sheeting at the foot of the tank, barrel, or piece of equipment to prevent seepage into the ground or runoff of fuel.
 - d) Use absorbent materials (sheets, pads, booms) to absorb and contain the spill.
 - e) Use a patch kit to seal leaks, if practical to do so.

5.4 Spills on Land

“Land” may be defined as soil, gravel, sand, rock, and vegetation. Advice on spill containment and clean up may be obtained from the 24-Hour Spill Line.

5.4.1 Procedure for Spills on Soil

1. First responder or his designate obtains plastic tarp(s), absorbent sheeting, Multi Sorb or other ultra-dry absorbent and any other necessary spill containment equipment, pump, hoses, etc.
2. A berm of native soil or snow will be constructed down slope of the seepage or spill lined with a tarp.
3. The tarp will be placed in such a way that the fuel can pool for collection and removal (e.g., at the foot of the berm). If there is a large volume of spilled product, pump the liquid into spare empty drums, and dispose of product as advised by the 24-Hour Spill Line.
4. Petroleum-product sheen on vegetation may be controlled by applying a thin dusting of Multi Sorb or other ultra-dry absorbent to the groundcover.
5. Contact the 24-Hour Spill Line. Receive instructions from the appropriate contact agencies regarding collection of the contaminated soil and/or vegetation, its removal and site clean-up/restoration.

5.4.2 Procedure for Spills on Snow

By its nature, snow is absorbent, and fuel spilled on snow can be collected with relative ease, either by shovel, in the case of small-range spills, or by loader, in the case of more extensive spills. Procedure for spills on snow:

1. Assess the nature of the spill. Necessary equipment might include shovels, plastic tarp(s), empty drums, and wheeled equipment.
2. Shovel or scrape contaminated snow and deposit in empty refuge drums. If the spill is more extensive build berms with compacted snow, or other suitable material, covered with plastic around the affected area.
3. Either during or immediately after the incident, notify the 24-Hour Spill Line. Receive instructions on the preferred disposal method (e.g., storage in sealed drums, incineration, or deposit in a designated lined containment area on land) from the appropriate agencies.

5.5 Material-specific Spill Procedures

5.5.1 Procedure for Diesel Fuel Spill

1. Initial Response: The Site Supervisor, or their designate, will be advised of the incident and a response initiated. ELIMINATE ignition sources and any open flame. STOP the flow of product. CONTAIN the flow of spill by berm construction with earth or other barrier, blocking any entry to waterways, construction of an interceptor trench or underflow dam, etc. If any spill has reached natural waters, deploy a containment boom, and apply absorbent materials. The spill report will be filed with the 24-hour Spill Line by the Site Supervisor or their designate.
2. Recovery: Recover as much free product as possible by pumping into drums or portable tanks. Excavate any contaminated soils/snow and containerize for future dispose of at an approved site.
3. Fire Response: Use CO₂, dry chemical, foam, or water spray (fog). Use water to cool tanks. Divert the fuel to a secure area for controlled burning. If diesel fuel is escaping, get it contained as soon as possible.
4. Properties: Chemical composition hydrocarbon C9 to C16. Clear to yellow with hydrocarbon odour. Diesel fuel will float on water. Flash point of diesel fuel is >52°C.
5. Environmental Concerns: Diesel fuel is toxic to fish and other aquatic organisms and harmful to waterfowl. Start as close to the spill as possible and as up-stream as possible to prevent it from reaching streams or ponds or lakes or the ocean.
6. Personal Protection: Wear impervious chemical resistant clothing, gloves, footwear, and goggles. For confined spaces Self-Contained Breathing Apparatus (SCBA) would be required. Avoid contact with strong oxidizers such as sulphuric acid and peroxides.

5.5.2 Procedure for Gasoline Spill

1. Initial Response: The Site Supervisor, or their designate, will be advised of the incident and response initiated. ELIMINATE ignition sources and any open flame. REMOVE all personnel not involved with the incident from the area. STOP the flow of product. CONTAIN the flow of gasoline by berm construction with earth or other barrier, blocking any entry to waterways, construction of an interceptor trench or underflow dam, etc. If spill has reached natural waters, leave to evaporate. Gasoline contains benzene, a suspected carcinogen. Avoid breathing vapours, and if necessary, obtain an organic vapour cartridge full-face piece respirator or wear SCBA. The Spill Report will be filed with the 24-hour Spill Line by the Site Supervisor or his designate.
2. Recovery: Conduct regular explosive atmosphere monitoring with an intrinsically safe instrument. Recover as much free product as possible by pumping into drums or portable tanks.

Free product recovery operation should utilize an explosion proof pump and all equipment involved in the transfer must be properly grounded. Excavate any contaminated soils/snow and dispose of at an approved site. When excavating gasoline-contaminated soils/snow, consider using a layer of compression foam to reduce the potential of explosion arising from sparks caused during excavating.

3. Fire Response: Use CO₂, dry chemical, foam, or water spray (fog). Use water to cool tanks. Divert the gasoline to a secure area for controlled burning (upon approval). If gasoline is escaping, get it contained as soon as possible.
4. Properties: Chemical composition hydrocarbon C4 to C12 range. Light green, clear, amber colour liquid with hydrocarbon odour. Gasoline floats on water. Gasoline has a Flash Point of -40°C. Vapours and product are highly flammable and explosive. Vapours are heavier than air.
5. Environmental Concerns: Gasoline is toxic to fish and other aquatic organisms and harmful to waterfowl. Start as close to the spill as possible and as up-stream as possible to prevent it from reaching streams or ponds or lakes or the ocean.
6. Containers: Gasoline being transported to the sites by air must be in 205 L drums.
7. Personal Protection: Wear impervious chemical resistant clothing, gloves, footwear, and goggles. For confined spaces SCBA will be required. Eliminate all sources of ignition. Restrict access and work upwind from spilled product. Avoid contact with strong oxidizers such as sulphuric acid and peroxides

5.5.3 Procedure for Aviation Fuel Spill

1. Initial Response: The Site Supervisor, or their designate, shall be advised of the incident and response initiated. ELIMINATE ignition sources and any open flame. REMOVE all personnel not involved with the incident from the area. STOP the flow of product. CONTAIN the flow of aviation fuel by berm construction with earth or other barrier, blocking any entry to waterways, construction of an interceptor trench or underflow dam, etc. If spill has reached natural waters, leave to evaporate. Aviation fuel contains naphthalene a suspected carcinogen. Avoid breathing vapours, and if necessary, obtain an organic vapour cartridge full-face piece respirator or wear SCBA. The Spill Report will be filed with the 24-hour Spill Line by the Site Supervisor or his designate.
2. Recovery: Conduct regular explosive atmosphere monitoring with an intrinsically safe instrument. Recover as much free product as possible by pumping into drums or portable tanks. Free product recovery operation should utilize an explosion proof pump and all equipment involved in the transfer must be properly grounded. Excavate any contaminated soils/snow and dispose of at an approved site. If spill has reached natural waters, leave to evaporate. When excavating aviation fuel-contaminated soils/snow, consider using a layer of compression foam to reduce the potential of explosion arising from sparks caused during excavating.

3. Fire Response: Use CO₂, alcohol-resistant foam, dry chemical methods. Use water to cool tanks. Do not allow run-off from firefighting to enter drains or water courses. If aviation fuel is escaping, get it contained as soon as possible.
4. Properties: Chemical composition is primarily kerosene (hydrocarbon C9 to C16 range) and naphthalene. Clear, light yellow coloured liquid with hydrocarbon odour. Aviation fuel floats on water and has a Flash Point of -37.8°C. Vapours and product are highly flammable and explosive. Vapours are heavier than air.
5. Environmental Concerns: Aviation fuel is toxic to fish and other aquatic organisms with long lasting effects and harmful to waterfowl. Start as close to the spill as possible and as up-stream as possible to prevent it from reaching streams or ponds or lakes or the ocean.
6. Containers: Transported to the sites by air and stored in 205 L drums.
7. Personal Protection: Wear impervious chemical resistant clothing, gloves, footwear, and goggles. For confined spaces SCBA will be required. Eliminate all sources of ignition. Restrict access and work upwind from spilled product. Avoid contact with strong oxidizers such as sulphuric acid and peroxides.

5.5.4

Procedure for Lubricating or Hydraulic Oil Spill

1. Initial Response: The Site Supervisor, or their designate, will be advised of the incident and response initiated. ELIMINATE ignition sources and any open flame. STOP the flow of product. CONTAIN the flow of oil by berm construction with earth or other barrier, blocking any entry to waterways, construction of an oil interceptor trench or underflow dam, etc. If spill has reached natural waters, apply oil absorbent materials to the water surface. The spill report will be filed with the 24-hour Spill Line by the Site Supervisor or his designate.
2. Recovery: Recover as much free product as possible by pumping into drums or portable tanks. Excavate any contaminated soils/snow and dispose of at an approved site. Use absorbent pads or granular absorbents for minor spills.
3. Fire Response: Use CO₂ dry chemical, foam, or water spray (fog). Water may spread fire. Use cool water to cool containers. Divert the oil to a secure area and allow to burn under control. If oils are escaping, get it contained as soon as possible. Wear SCBA and eye protection.
4. Properties: Chemical composition mixture of hydrocarbons and conventional industrial oil additives C22 to C61 range. Light and dark amber colours with hydrocarbon odour. Floats on water. Flash Point 190°C to 215°C.
5. Environmental Concerns: Lubricants and hydraulic oil are toxic to fish and other aquatic organisms, harmful to waterfowl. Lubricants and hydraulic oil will foul riverbanks, shorelines, etc.

6. Containers: Transported to the sites in 205 L drums and transferred to the new garage locations at the site.
7. Personal Protection: Wear impervious chemical resistant clothing, gloves, footwear, and goggles. The use of an organic cartridge respirator will not likely be required. Avoid contact with strong oxidizers such as sulphuric acid, bleaches, and peroxides.

5.5.5 Procedure for Waste Oil Spill

1. Initial Response: The Site Supervisor, or their designate, will be advised of the incident and response initiated. ELIMINATE ignition sources and any open flame. STOP the flow of product. CONTAIN the flow of oil by berm construction with earth or other barrier, blocking any entry to waterways, construction of an oil interceptor trench or underflow dam, etc. If spill has reached natural waters, apply oil absorbent materials. The spill report will be filed with the 24-hour Spill Line by the Site Supervisor or his designate.
2. Recovery: Recover as much free product as possible by pumping into drums or portable tanks. Excavate any contaminated soils/snow and dispose of at an approved site. Waste Oil spilled on water will be recovered by using skimmers or absorbent booms. Use absorbent pads or granular absorbents for minor spills.
3. Fire Response: Use CO₂ dry chemical, foam, or water spray (fog). Water may spread fire. Use cool water to cool containers. Divert the oil to a secure area and allow to burn under control. If oils are escaping, get it contained as soon as possible. Wear SCBA and eye protection.
4. Properties: Chemical composition mixture of hydrocarbons and conventional industrial oil additives C22 to C66 range. Black and brown colours with hydrocarbon odours. Waste oil floats on water. Waste oil has a Flash Point of 100°C to 200°C.
5. Environmental Concerns: Waste oil is toxic to fish and other aquatic organisms, harmful to waterfowl. Waste oil will foul riverbanks, shorelines, etc.
6. Containers: Transported by air and transferred to various storage locations at the site. Products stored in various size containers up to 205 L.
7. Personal Protection: Wear impervious chemical resistant clothing, gloves, footwear, and goggles. The use of an organic cartridge respirator will not likely be required. Avoid contact with strong oxidizers such as nitric acid, sulphuric acid, chlorine, and peroxides.

5.5.6 Procedure for Antifreeze Spill

1. Initial Response: The Site Supervisor, or their designate, shall be advised of the incident and response initiated. ELIMINATE ignition sources and any open flame. STOP the flow of product. CONTAIN the flow of antifreeze by berm construction with earth or other barrier, blocking any entry to waterways, construction of a interceptor trench or underflow dam, etc. The spill report will be filed with the 24-hour Spill Line by the Site Supervisor or his designate.

2. Recovery: Small spill or leak: Dilute with water and mop up or absorb with an inert DRY material and place in an appropriate waste disposal container. Large spill or leak: Absorb with an inert material and put the spilled material in an appropriate waste disposal. Dispose of in accordance with regional regulations.
3. Fire Response: While antifreeze isn't highly flammable under normal circumstances, it can be flammable under specific conditions and its components, like ethylene glycol, are combustible. For small fires - use dry chemicals, CO₂, foam, or water spray (fog). Large fires – use water spray, fog, or foam. DO NOT use water jet on large fires. Water may spread fire. Use cool water to cool containers. Divert the oil to a secure area and allow to burn under control. If oils are escaping, get it contained as soon as possible. Wear SCBA and eye protection.
4. Properties: Chemical composition usually a mixture of ethylene glycol and sodium tetraborate pentahydrate. Transparent viscous liquid, coloured. Odourless. Soluble in water. Flash Point 116°C. Reactive with oxidizing agents, acids, and alkalis.
5. Environmental Concerns: Ecological information not available in MSDS, however ethylene glycol is extremely dangerous in case of ingestion in humans, and other animals. Start as close to the spill as possible and as up-stream as possible to prevent it from reaching streams or ponds or lakes or the ocean.
6. Containers: Transported to the sites in drums and transferred to various vehicles at the site. Products stored in various locations.

5.5.7 Procedure for Propane Spill

1. Initial Response: The Site Supervisor, or their designate, shall be advised of the incident and response initiated. IMMEDIATELY EVACUATE all personnel from danger area as propane is extremely flammable in the presence of open flames, sparks, and heat. ELIMINATE ignition sources and any open flame if safe to do so. STOP the flow of product if safe to do so. VENTILATE the area if safe to do so. Wear SCBA if needed. The Spill Report will be filed with the 24-hour Spill Line by the Site Supervisor or his designate.
2. Recovery: N/A. If the gas has not ignited, liquid or vapour may be dispersed by water spray or flooding.
3. Fire Response: Use firefighting measures that are appropriate to the local circumstances and the surrounding environment. CO₂ or dry chemical can be used. Use water to cool cylinders. Do not extinguish fire unless the source of the escaping gas that is fueling the fire can be turned off. If product release cannot be shut off safely, allow the product to burn itself out. Container metal shells require cooling with water to prevent impingement and the weakening of metal. If sufficient water is not available to protect the container shell from weakening, the area will be required to be evacuated.

4. Properties: Colourless liquid and vapour while stored under pressure. Commercial propane has an odourant added which gives an odour like boiling cabbage when in its natural gaseous form. Propane has a flash point of -103.4°C. Vapours and product are extremely flammable and explosive. Vapours are heavier than air. Reactive with oxidizing agents and halogenated compounds.
5. Environmental Concerns: Simply asphyxiant at sufficient concentrations. Otherwise, no data available.
6. Containers: Transported to the site by air and stored in cylinders (100lb).
7. Personal Protection: Wear impervious chemical resistant clothing, insulated gloves, footwear, and goggles. For confined spaces SCBA may be required. Eliminate all sources of ignition. Restrict access and work upwind from spilled product.

6.0

Resource Inventory

6.1

Personal Protective Equipment

All NOJV and ATCO personnel will be supplied with the appropriate Personal Protective Equipment (PPE) for the tasks and duties being performed. Personnel will be trained and competent in the use, maintenance, wearing and inspection of their PPE.

Training for the handling, storage and disposal of contaminated PPE will be delivered on site and documented accordingly. Access to shower facilities, potable water and suitable sanitation facilities will also be addressed on site. Decontamination procedures and training will be established in collaboration with the camp manager.

All personnel working under NOJV and ATCO will, at a minimum, wear the following PPE while onsite (i.e., designated work areas):

- Hard Hat
- Steel Toed Boots
- High Visibility Equipment

The following PPE must be worn for specific tasks (based on hazard assessment and applicable Safe Work Procedures):

- Safety Glasses
- Sturdy Gloves and thin disposable gloves
- Respirator
- Tyvek Suits
- Fall Protection
- Hearing Protection

7.0

Spill Materials Inventory

Spill kits will be located throughout the site. Small spill kits and mobile spill response kits will be located on the heavy equipment and large spill kits will be in the designated incineration area, wastewater storage area and the camp. Spill kit contents and available heavy equipment are listed below.

7.1

Small Spill Response Kits

- 208 L container
- (50) Absorbent Pads (Oil, Gas & Diesel)
- (4) 3" x 12' Absorbent Socks (Oil, Gas & Diesel)
- (8) Absorbent Pillows (Oil, Gas & Diesel)
- (1) Pair of Nitrile Gloves
- (1) Emergency Handbook
- (1) Pair of Goggles
- (5) HD Hazmat Disposal Bags

7.2

Mobile Spill Response Kits

- (1) Shovel, and
- (1) Spill kit (20L)

7.3

Large Spill Response Kit

- 390 L container
- (110) 15" x 19" Absorbent Pads (Oil, Gas & Diesel)
- (12) 3" x 4' Absorbent Socks (Oil, Gas & Diesel)
- (8) 3" x 12' Absorbent Socks (Oil, Gas & Diesel)
- (8) 18" x 18" Oil Absorbent Pillows
- (1) Pair of Nitrile Gloves
- (1) Emergency Handbook
- (1) Pair of Goggles
- (10) HD Hazmat Disposal Bags

7.4

Heavy Equipment Available

- Kubota R520 Loader
- Komatsu WA 180 Loader
- Cat D7 Dozer