

Title: SPILL CONTINGENCY PLAN FOR CAM-3
(Shepherd Bay, Nunavut)

Licensee: Department of National Defence,
Government of Canada

Location: CAM-3 North Warning System Site, Shepherd
Bay, Kitikmeot Region, Nunavut

Water Licence: 3BC-SHE0919 Type “B”

Prepared for: Nunavut Water Board

Date: 04 Nov 2009

Submitted by: Nasittuq Corporation

Executive Summary

The Spill Contingency Plan for CAM-3 (Shepherd Bay, Nunavut) applies to all activities and facilities at the North Warning System (NWS) radar site. Jet A-1 fuel is used at CAM-3 for the operation of the power generation system, aircraft refuelling, vehicles, and furnaces. Because of the large volume on site and its many uses, Jet A-1 fuel poses the greatest risk for potential spills. CAM-3 also has a limited number of hazardous materials (Hazmat).

The North Warning System Office is responsible for ensuring adequate fuel spill detection and response capabilities are in place and monitored for all NWS operations. Nasittuq Corporation is the operations and maintenance (O&M) contractor and is responsible for: maintaining an up-to-date spill plan, practicing spill prevention, maintaining operational competence through staff training, identifying the requirements of sub-contractors in O&M activities, and responding appropriately to spills.

Management of spill risk incorporates three aspects: spill prevention, spill detection, and spill response. Spill prevention for Hazmat includes secure storage areas, labeling, packaging, and training. Spill prevention for fuel includes site condition surveys, preventive maintenance inspections, training of Bulk Fuel Technicians, and safeguards for the fuel systems at unattended sites. Spill detection methods are visual and odour detection, fuel tank dipping, and remote monitoring. Spill response includes spill reporting, dispatching an Emergency Response Team, stopping the leak/flow, containing the spill, cleaning up the spill, properly disposing of the clean-up materials, site remediation, and a final spill report and post-spill review.

The 2009 Spill Contingency Plan for CAM-3 has been updated from the 2008 Plan at the request of the Nunavut Water Board. Changes include:

- a. An executive summary was added in English and Inuktitut (p. 2, 3);
- b. The Plan is in the name of the Licensee;
- c. Figure 1 was reformatted to display all text (p. 9);
- d. Information about the on-site location of MSDSs was added (p. 12);
- e. Figure 2 was updated and reformatted to display all text (p. 16);
- f. The INAC Manager of Field Operations' phone number was added to Appendix 1 under the "Other Important Contacts" heading (p. 27);
- g. Added information in Appendix 4 about spill reporting requirements under the Water Licence and the federal *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations* (p. 33);
- h. The NT-NU Spill Report Form and Guide were added as Appendix 6 (p. 36, 37); and
- i. A topographic site map identifying the hazardous material storage areas, spill kits, site infrastructure, and local waterbodies was added as Appendix 10 (p. 46).

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- a. ዕድሜው ስምንት ዓመት (ሌሊት 2,3);
- b. ርዕሰ ጉዞው 1 ለገደብ ለመገኘት ሲሆን ለገደብ ለመገኘት ሲሆን (ሌሊት 9);
- c. ምድባዊ ጉዞው ለገደብ ለመገኘት ሲሆን ዕድሜው ስምንት ዓመት (ሌሊት 12);
- d. ርዕሰ ጉዞው 2 ለገደብ ለመገኘት ሲሆን ለገደብ ለመገኘት ሲሆን (ሌሊት 16);
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- h. ዕድሜው ስምንት ዓመት ለገደብ ለመገኘት ሲሆን ለገደብ ለመገኘት ሲሆን ለገደብ ለመገኘት ሲሆን (ሌሊት 36, 37);
- i. ለገደብ ለመገኘት ሲሆን ለገደብ ለመገኘት ሲሆን ለገደብ ለመገኘት ሲሆን ለገደብ ለመገኘት ሲሆን ለገደብ ለመገኘት ሲሆን (ሌሊት 46).

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LIST OF ACRONYMS AND ABBREVIATIONS

CMO	Contractor Management Office
DND	Department of National Defence
EMT	Electronics Maintenance Technician
EPM	NWS Environmental Protection Manual
EPP	Environmental Protection Plan
ERT	Emergency Response Team
FMT	Facilities Maintenance Technician
Hazmat	Hazardous Materials
LHCN	Long-Haul Communication Network
LOGS	Logistics Department
LRR	Long Range Radar
LSS	Logistics Support Site
NWS	North Warning System
NWSCC	North Warning System Control Centre
NWSSC	North Warning System Support Centre
NWSO	North Warning System Office
NWT	Northwest Territories
MSDS	Material Safety Data Sheet
O&M	Operation and Maintenance
PCBs	Polychlorinated biphenyls
PGS	Power Generating System
PMI	Preventive Maintenance Inspection
POL	Petroleum, oil and lubricants
PRO	Procedure
SCADA	Supervisory Control and Data Acquisition
SOW	NWS O&M Contract Statement of Work
TDG	Transportation of Dangerous Goods
WHMIS	Workplace Hazardous Materials Information System

1.0 PURPOSE

This plan establishes policy, responsibilities and instructions for response to spills of petroleum, oil and lubricants (POL) and other hazardous materials (Hazmat) which may occur at the North Warning System (NWS) radar site CAM-3 during operations and maintenance (O&M) activities, as defined by the NWS O&M Contract Statement of Work (SOW), and as performed by the contracting agency, the contractor or subcontractors. Full definitions of 'spill' and 'Hazmat' are provided in Section 4.0 below.

The purposes of this plan are to:

- a) provide a clear statement of procedures which will be carried out in response to POL & Hazmat spills;
- b) minimize the environmental impacts of POL & Hazmat spills by establishing pre-determined responses and plans of action;
- c) protect the health and ensure the safety of (i) personnel involved in POL & Hazmat spill response activities and (ii) local communities;
- d) provide a reporting network for POL & Hazmat spills;
- e) ensure site environmental restoration through appropriate remedial activities;
- f) identify the roles and responsibilities of all parties involved in POL & Hazmat spill response activities; and
- g) identify sufficient personnel, materials and equipment needed to make an adequate response to POL & Hazmat spills.

2.0 SCOPE

This plan applies to all activities and facilities pertaining to the NWS radar site CAM-3 (Shepherd Bay). Note that CAM-3 is an unattended site with occasional site visits from CAM-M (Cambridge Bay, Nunavut) personnel; it is ramped up (in attended mode) as required, usually in the summer. Since CAM-3 is in the zone managed by the CAM-M LSS Manager (in Cambridge Bay), this plan refers to the CAM-M LSS Manager where required.

3.0 APPLICABLE DOCUMENTS

This plan is an integral component of Nasittuq's Environmental Protection Plan (EPP), consistent with the requirements and provisions of:

- i) Nasittuq's Corporate Environmental Policy;
- ii) Nasittuq's Corporate Environmental Protection Plan (EPP) for the O&M of the NWS;
- iii) NWS O&M Contract SOW;
- iv) NWS Environmental Protection Manual (EPM); and
- v) Nasittuq's NWS Incident Reporting Procedure, PRO-4.9-37.

4.0 GENERAL

4.1 Spill Definition

A 'spill' is defined as *the accidental and/or unwanted discharge of any volume of POL or Hazmat from its storage container or structure, vehicle, pipe or other container: (a) into the natural environment or (b) within a building.*

This definition covers all discharges including 'leaks' and 'weepage'. The discharged substance can be in solid, liquid or gaseous form. A POL spill involves petroleum, oil or lubricants; a Hazmat spill may involve one or more of the following substances:

- a) polychlorinated biphenyls (e.g. PCB-containing oil or paint);
- b) chlorinated and non-chlorinated solvents (e.g. cleaner-degreasers);
- c) flammable gases (e.g. acetylene);
- d) waste petroleum products (e.g. used engine oil);
- e) corrosives (e.g. battery acid);
- f) glycol (e.g. antifreeze);
- g) asbestos (e.g. pipe insulation);
- h) halocarbons (e.g. FM-200); and/or
- i) other contaminants.

There may be circumstances where the discharge of a substance not on the above list may be considered hazardous by personnel discovering the spill, e.g. large volumes of spilled wastewater. When in doubt, report the spill to the CAM-M LSS Manager, who in turn can seek guidance from the Environmental Services Supervisor. Reporting procedures for Halocarbon release are in the EPP Section 5-XIV, Halocarbon Management Plan.

4.2 Spill Risk

Nasittuq has expended considerable effort to reduce the likelihood and limit the impact of Hazmat spills. For example, only a limited number of Hazmat products may be purchased and stored on NWS sites on approval of Environmental Services.

Except for the large volumes of glycol used in power generation/heating systems, most hazardous products are stored and used in small quantities, e.g. consumer-sized packages/containers such as an aerosol can. Furthermore, it is likely that any Hazmat spill will occur indoors given the controlled storage requirements for these materials.

By far the biggest risk, in terms of likelihood of occurrence and volume of potential spilled material, is that associated with POL spills, particularly Jet A-1 fuel. Millions of litres of fuel are transported, transferred, stored, and consumed annually by the NWS.

In recognition of this risk, the details of this Spill Plan tend to focus on issues related to fuel spills. Nevertheless, the procedures described herein apply to all manner of POL or Hazmat spills. Alternative or additional procedures will be clearly indicated where requirements differ significantly between POL and Hazmat spills (e.g. Spill Crew wearing Personal Protective Equipment when handling toxic substances).

4.3 Bulk Fuel Description and Characteristics

The fuel used for all purposes on the NWS sites is Jet A-1, Arctic Grade, aviation turbine fuel, kerosene type. This fuel type is flammable with a flash point of 38°C. It contains paraffin, olefin, naphthalene and aromatics. The aromatics and naphthalene fractions are both highly volatile and toxic.

Due to its high volatility and low density, Jet A-1 will rapidly disperse on top of a water surface, is easily carried by flowing water, and is visibly detectable as a thin sheen. It will sink rapidly into unfrozen ground and will migrate along the active layer and the permafrost zone.

Land spills of Jet A-1 may cause contamination of soil quality. Water spills of Jet A-1 may cause short-term toxicity to aquatic life forms and potentially long-term physical impairment to aquatic ecosystems.

4.4 POL Bulk Storage and Distribution System

CAM-3 has fuel storage tanks and piping systems for fuel distribution.¹ The main components of the POL bulk storage and distribution system are shown in Figure 1.

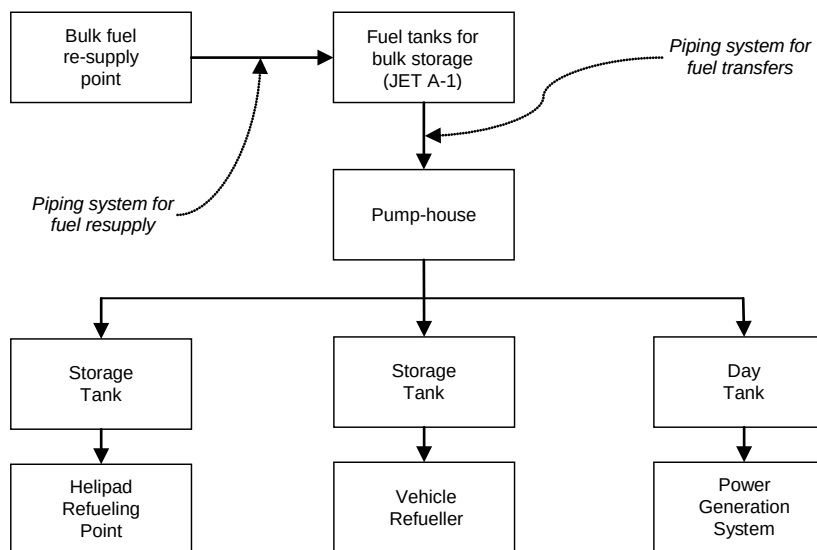


Figure 1. POL storage and distribution system.

¹ “Fuel re-supply” refers to the operation of bringing fuel to the site by ship (sealift) and storing it in primary on-site storage tanks; “fuel transfer” refers to the pumping of fuel from the primary tanks to secondary storage tanks for short-term use.

All fuel tanks are located above ground and range in size from 200-litre capacity to about 208,000 litre capacity. Bulk storage tanks are of vertical or “self-dyked” (i.e. with integral secondary containment) types. Single-walled vertical tanks are located inside earthen containment berms with a geotextile membrane.

Oils and lubricants, used in the operation of power generating systems (PGS) and vehicles, are stored in site specific POL storage areas and in dedicated POL storage sheds. Waste POL products are stored in dedicated areas prior to disposal by retrograde activity.

4.5 Fuel and Use

Bulk fuel re-supply of CAM-3 takes place during the summer season annually. Bulk fuel is transported to CAM-3 by sealift (barges). Contractors and sub-contractors engaged in fuel re-supply operations must have their own POL Spill Contingency Plans to cover their area of responsibility (see Section 5.4, Division of Responsibility). This document will be the source document for contractors and sub-contractors.

Uses of fuel at CAM-3 include: (a) operation of the power generating system, (b) aircraft re-fuelling, (c) vehicles, and (d) furnaces.

5.0 RESPONSIBILITY & AUTHORITY

The contracting agency, the contractor and sub-contractors, where applicable, will be involved in POL and/or Hazmat spill prevention, detection, and response actions during NWS O&M activities. The roles and responsibilities of the parties are described below.

5.1 Nasittuq

As the O&M Contractor, Nasittuq's responsibilities include:

- a) Maintaining an up-to-date Spill Contingency Plan for CAM-3 (this document);
- b) Practicing spill prevention through (i) regular maintenance of all POL systems and (ii) use of proper methods for handling POL and Hazmat products;
- c) Maintaining operational competence through staff training;
- d) Identifying the requirements of sub-contractors involved in NWS O&M activities; and
- e) Responding appropriately to POL and Hazmat spills.

When a POL or Hazmat spill is reported at an NWS site, Nasittuq will mobilize personnel, materials and equipment to respond immediately upon receipt of the spill report or as soon as practicable.

In-house resources will be used for most spills unless the circumstances of the spill are deemed, by the Environmental Services Supervisor, to require external resources (e.g. a very large spill clean-up of particularly toxic materials). Details of individual responsibilities are provided in Section 6.0.

When required, additional assistance will be requested from: (i) other NWS sites, (ii) the Department of National Defence (DND), and/or (iii) the Canadian Coast Guard. Additional assistance may also be hired from: (i) Northern residents, (ii) local communities, and (iii) commercial spill response firms.

Nasittuq will also consider lending assistance to other agencies or local communities when requested.

5.2 North Warning System Office, Department of National Defence

As the contracting agency, the North Warning System Office (NWSO) is responsible for ensuring that adequate POL spill detection and response capabilities are in place and monitored for all NWS operations.

5.3 Fuel Contractors and Sub-Contractors

Responsibilities of contractors and sub-contractors engaged in fuel re-supply activities at NWS sites include:

- a) Provision of a POL Spill Response Plan² which describes:
 - i. spill response action plans for initial response;
 - ii. containment, clean-up, disposal, and site remediation of spills;
 - iii. chain of command and responsibilities of personnel;
 - iv. materials and equipment available for deployment; and
- b) Provision of sufficient personnel, materials and equipment for adequate response to any POL spills which may occur during fuel re-supply operations.

In the event that a spill occurs during fuel re-supply operations, Nasittuq personnel, material and equipment will assist in spill response activities to the fullest extent, when and where possible. Detailed contents of POL Spill Response kits are included in this Plan.

5.4 Division of Responsibility During Re-Supply

The dividing line of responsibility for spill response and reporting between Nasittuq and the sealift/airlift contractors/subcontractors is the pipeline beach head or airlift de-fueling head.

- a) If a fuel spill occurs between the sealift pipeline beach head and the barge, the sealift contractor's POL Spill Contingency Plan is implemented. The sealift contractor assumes the role of Spill Control Manager and reports the spill to the required authorities.

² This document will serve as the source document for all contractor and sub-contractor POL Spill Contingency Plans.

- b) Similarly, if the spill occurs between the airlift de-fueling head and the aircraft tank or bladder, the airlift contractor assumes the role of Spill Control Manager and reports the spill to the required authorities.
- c) In all other instances, the Spill Contingency Plan for CAM-3 (this document) is implemented. The CAM-M LSS Manager becomes the Spill Control Officer; and the CMO Environmental Services Supervisor becomes the Spill Control Manager and reports the spill as per Section 6.3.1 below.
- d) In all instances, the individual discovering the spill must take steps to ensure that personnel on the barge or aircraft are contacted to stop the pumps and close the isolation valves, as applicable.
- e) In all instances, the NWSCC must be informed even if the spill has occurred within the contractor's area of responsibility in order to inform the CAM-M LSS Manager, CMO and NWSO. In cases where the responsibility resides with the contractor, Nasittuq will provide assistance, as requested by the sealift or airlift contractor, in implementing their Spill Contingency Plan.

6.0 PROCEDURE

Nasittuq's management of spill risk incorporates three aspects: (1) spill prevention, (2) spill detection, and (3) spill response. Spill prevention and detection are discussed briefly below, but this document focuses on spill response.

6.1 Spill Prevention

Nasittuq has developed comprehensive programs for reducing the likelihood of POL or Hazmat spills. The following measures are taken to minimize the potential for Hazmat spills:

- a) Establishment of secure storage areas for Hazmat;
- b) Labelling of Hazmat in accordance with Workplace Hazardous Material Information System (WHMIS) legislation;
- c) Transportation of Hazmat in accordance with the Transportation of Dangerous Goods (TDG) Regulations; and
- d) Training of personnel in correct handling, use, and storage of hazardous materials. Part of this training is in WHMIS which includes how to read Material Safety Data Sheets (MSDSs) can be found on site computers.

The following measures are taken to minimize the potential for POL spills:

- a) Annual site conditions surveys to identify items of concern (e.g. bent pipe, damaged pipe supports, rusting);
- b) Preventive Maintenance Inspections (PMIs) of POL system components (e.g. pumps, valves);
- c) regular maintenance of bulk fuel storage tanks (e.g. cleaning, inspection and refurbishment);

- d) training of Bulk Fuel Technicians in standard operating procedures (e.g. fuel transfers, fuel re-supply); and
- e) safeguards for POL systems at unattended sites (e.g. "Time-Outs" for fuel pumps during transfer operations).

The above are enhanced by “in-house” and NWSO audits of NWS operations.

6.2 Spill Detection

Methods employed for detection of POL spills include:

- a) *Visual & odour detection.* The visual method is most successful during summer months when daylight is abundant and there is an absence of snow cover. Snow cover and reduced staffing levels significantly lower the probability of sighting pools of fuel or stained soils. The strong odour of fuel (and other Hazmat) can be an indicator of a spill (but every effort should be taken to limit exposure);
- b) *Fuel tank dipping.* This method of measurement provides data comparing actual with estimated consumption figures, which may indicate a spill occurrence; and
- c) *Remote monitoring.* Alarms are sent to the NWSCC when fuel levels of indoor day tanks vary by more than the expected amount or fuel pumps operate with greater than expected frequency at unattended sites. Remote monitoring of bulk POL storage tanks at NWS sites is limited due to technological limitations; however, additional appropriate technologies for use in the Arctic environment are currently being tested.

6.3 Spill Response

Details of Nasittuq’s spill response procedures are provided below; the flowchart summarizing the procedures is provided in Figure 2.

6.3.1 Spill Reporting

Spill reporting will be in accordance with PRO-4.9-37. All outdoor spills (fuel, glycol, etc.) that occur or are discovered outdoors, regardless of the volume, are to be reported. All spills that occur indoors must also be reported.

The responsibilities of the different levels of reporting hierarchies are outlined below. (Telephone numbers for key individuals are provided in Appendix 1. Emergency Contacts List.) *Subparagraphs. 6.3.1.1, 6.3.1.2, 6.3.1.2.1 6.3.1.3, and 6.3.1.4 appear in a checklist format to facilitate a stepwise verification of the reporting procedures.*

6.3.1.1 Person Discovering the Spill

Identify the spill (in association with the CAM-M LSS Manager whenever possible).

Make immediate verbal report to NWSCC. The report must contain the following information:

- ☐ a) Location of the spill;
- ☐ b) Known or suspected time of the spill;
- ☐ c) Substance spilled;
- ☐ d) Estimated volume spilled³;
- ☐ e) Cause, if readily identifiable;
- ☐ f) Tracking of the spill (movement, speed and direction);
- ☐ g) Size of area contaminated, and depth of contamination, if possible;
- ☐ h) Conditions at the spill site including: (i) weather, (ii) depth of snow cover (if present), (iii) terrain, (iv) proximity of the spill to bodies of water, (v) wind speed and direction, and (vi) wave height (if a marine spill);
- ☐ i) Containment of the spill (none, natural, booms, dykes);
- ☐ j) Actions taken or proposed;
- ☐ k) Hazards to the safety of personnel or property; and
- ☐ l) Hazards to the environment.

Give a sketch map of the spill area, detailing the location and extent of the spill, to the CAM-M LSS Manager.

If the NWSCC operators suspect a spill as a result of SCADA (remote monitoring) inputs, they will advise the CAM-M LSS Manager, the Environmental Services Supervisor, and NWSO via telephone.

³ 'Dip' tanks to calculate current volume and to estimate consumption since last dip/reconciliation to determine amount spilled.

6.3.1.2 NWSCC

Upon being notified as per subparagraph 6.3.1.1, the NWSCC shift technician must:

- ☐ a) Ensure the CAM-M LSS Manager is informed as soon as possible;
- ☐ b) Phone initial contact persons within 30 minutes, i.e. phone one person for each group of the Environmental Incident reporting group (Environmental Services, NWSO, etc.); and
- ☐ c) Prepare a report using the **form B2-A – Incident Initial Notification: *Environmental Spill*** based on the information provided (see Appendix 2 for a sample copy of Form B2-A). E-mail report, within 3 hours of notification, to the designated addressee groups indicated on the form. The addressee groups include the Environmental Services Supervisor and NWSO, as shown in **Figure 2 – Spill reporting and response procedures.**

6.3.1.2.1 Spills reported by the Canadian Rangers/Third Parties

Upon being notified by the Canadian Rangers or third parties, the NWSCC shift technician must immediately proceed with the notification steps outlined above (subparagraph 6.3.1.2).

6.3.1.3 CAM-M LSS Manager

Upon being notified as per subparagraph 6.3.1.1 or 6.3.1.2, the CAM-M LSS Manager must proceed with the reporting procedures as follows:

- ☐ a) Raise Work Order for spill response and clean-up.
- ☐ b) Prepare report using form **C2-A-1 – Incident Follow-Up Internal Report: *Environmental Spill*** (see Appendix 3 for a sample copy of Form C2-A-1). E-mail report to designated addressee groups indicated on the form within 12 hours of the telephone notification from NWSCC. The addressee groups include the Environmental Services Supervisor and NWSCC, as shown in **Figure 2 – Spill reporting and response procedures.**
- ☐ c) Attach or FAX a sketch site plan depicting the contaminated location(s) impacted by the spill to the designated addressee groups outlined above.

Spill Response Flow Chart

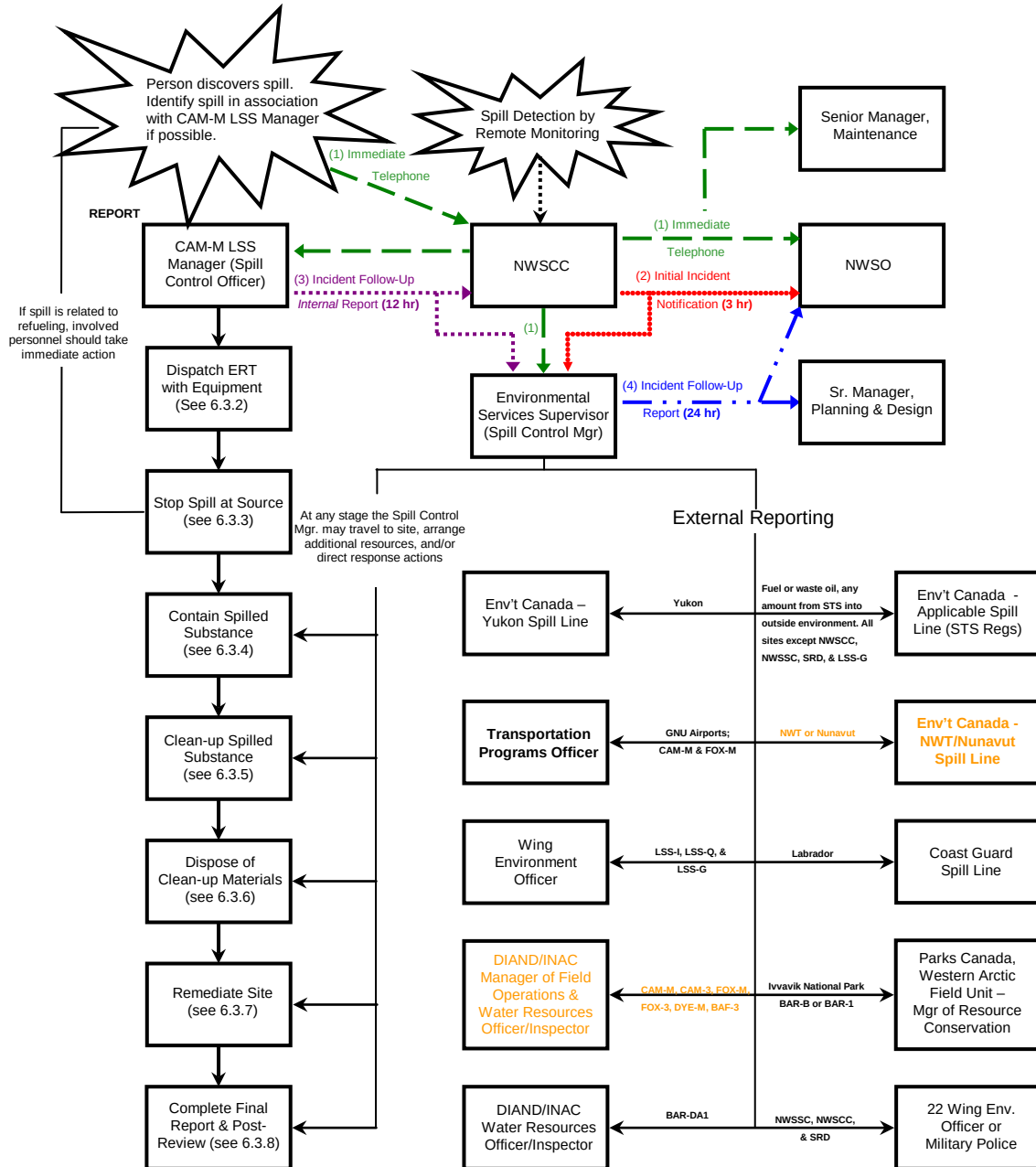


Figure 2. Spill reporting and response procedures; corresponding sections are referenced by their section numbers.

6.3.1.4 Environmental Services Supervisor

Nasittuq's Environmental Services Supervisor will assume the position of Spill Control Manager with authority over all spill response activities as shown in Figure 2.

Upon notification of a spill⁴, the Environment Services Supervisor will proceed with the following steps.

- ☐ a) Prepare a report using the form **C2-A-2 – Incident Follow-Up Report: Environmental Spill** based on the information provided by the CAM-M LSS Manager's report (see 6.3.1.3 and See Appendix 5 for a sample copy of Form C2-A-2). E-mail report to addressee groups indicated on the form within 24 hours of notification. These groups include NWSO and Senior Manager of Planning and Design, as shown in **Figure 2 – Spill reporting and response procedures**.
- ☐ b) Notify Spill Line as required by telephone⁵. Then complete and submit the NT-NU Spill Report (see Appendix 6).
- ☐ c) Maintain regular/daily contact with NWSO on spill status.
- ☐ d) Notify DIAND/INAC Manager of Field Operations and the Water Resources Officer/Inspector for spills at CAM-3 (see Appendix 1).
- ☐ e) Within 30 days, submit a written report to the Water Resources Officer/Inspector that includes: amount and type of spilled product, GPS coordinates of location of spill, and measures taken to contain and clean up the spill site.

6.3.2 Dispatch of Emergency Response Team

Nasittuq's Environmental Services Supervisor will assume the position of Spill Control Manager. The CAM-M LSS Manager will assume the position of Spill Control Officer and have authority over the Emergency Response Team (ERT) activated at, or dispatched to, the spill site. The CAM-M LSS Manager will also raise the appropriate Work Order(s) to identify and track the necessary repairs, clean-up activities, and disposal actions. Communications will be maintained between the ERT and the CAM-M LSS Manager throughout the duration of all spill response. The typical responsibilities and composition of an ERT is presented in Figure 3.

⁴ Given our broad definition of a 'spill' (i.e., a discharge of any volume of POL or Hazmat, inside or outside of a building), the Environmental Services Supervisor must often exercise judgment in determining whether a spill is reportable to external (non-NWS) agencies. All agencies give criteria for reporting POL spills, but only some give criteria for other Hazmat spills (those available are provided in Appendix 4). When in doubt, the Environmental Services Supervisor will contact NWSO for direction.

⁵ The Spill Lines will subsequently contact government departments and agencies, as well as aboriginal groups and organizations (e.g. Inuvialuit Land Administrator).

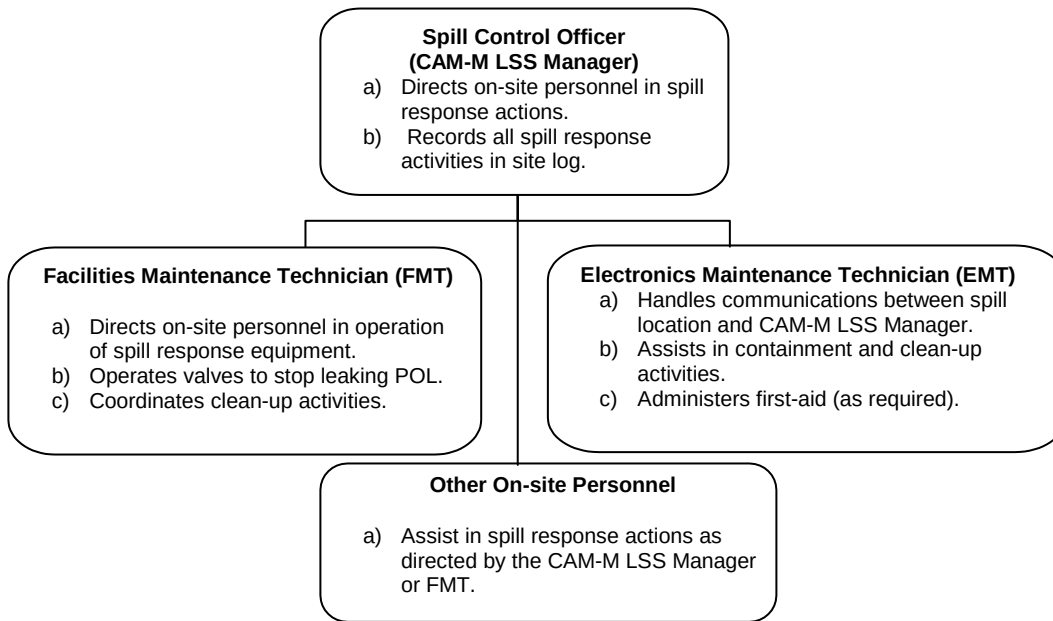


Figure 3. Typical responsibilities and composition of an Emergency Response Team (ERT).

6.3.3 Cessation of Leakage/Flow at Source

If not already completed by the individual discovering and reporting the (fuel) spill, the ERT dispatched by the CAM-M LSS Manager will take measures to stop further spillage. This would include shutting off pumps, closing isolation valves, applying chemical cold patch to tanks, transferring fuel to another tank, attaching a dresser coupling to the pipe or valve, attaching a blind flange or pipe cap, or other appropriate actions, as determined by the Spill Control Officer.

Since sealift and airlift bulk fuel operations involve third-party contractors and subcontractors, responsibility for coordinating response, including stopping the flow, containment, clean-up, remediation and reporting, are shared. The division of responsibility is outlined in Section 5.4.

The ERT will activate measures to stop further fuel flow. This would include closing isolation valves within the POL distribution system, if not already done, and other means as determined by Spill Control Officer.

6.3.4 Spill Containment

The ERT will deploy materials from the on-site spill control kit and use on-site equipment to contain the spill, possibly including the construction of temporary containment berms. In cases where the spill exceeds the capabilities of on-site resources, the Spill Control Manager will make arrangements for additional personnel, equipment and materials from:

- a) other NWS sites;
- b) DND;
- c) the Canadian Coast Guard;
- d) local communities; and
- e) commercial spill response contractors.

Depending on the nature of the spill or as directed by NWSO, the Spill Control Manager may travel to the spill site to supervise response activities.

6.3.5 Clean-Up of Spilled Material

Following successful containment of the spill, the ERT will deploy absorbent materials, salvage drums, POL pumps, slip tanks, the sorbent wringer and other equipment, as available, for recovery of the spilled fuel.

Additional resources may be dispatched to the spill site by the Spill Control Manager in cases where the spill clean up exceeds the capabilities of the on-site resources.

Clean-up actions are identified and tracked through the spill's Work Order. A spill clean-up Work Order cannot be closed until all actions are completed, or the remaining requirements transferred to a separate Work Order.

6.3.6 Disposal of Clean Up Materials

The wastes generated during spill response activities typically include used sorbent materials, POL/water mixtures, contaminated snow and contaminated soil. Each of these wastes has different properties, and although all may be contaminated with the same product, different collection and disposal methods are required. The following procedures are to be implemented by the ERT, in consultation with the Spill Control Manager, following spill clean-up activities.

Used Sorbent Materials

Sorbent materials found on the sites include loose material in plastic bags, individual squares of sheet material, rolls of sheet material, and sock booms. Sorbent materials may be “universal” in that they pick-up all liquids, or specific. Hydrophobic sorbents adsorb organic liquids such as fuel, but not water.⁶

To minimize the amount of used sorbent material requiring disposal, saturated sorbent materials, with the exception of bags of loose sorbent, are to be squeezed through a sorbent wringer and reused. The liquid extracted from the sorbent is to be handled as described below, and the wrung-out sorbent dealt with as detailed below.

- a) All used sorbent materials, regardless of type, are to be placed in salvage drums with secure lid. The contents of the drum are to be marked with permanent marker or spray paint as follows: “Used Sorbent, <substance absorbed (i.e. Jet A1, oil)>, <site>, <date >.”
- b) The waste drums of sorbent material must be marked, labeled and stored as per EPP section 5-XV- Storage and Tracking of Waste Hazmat. They will be retrograded as per EPP section 5-XIX Hazardous Materials Retrograde.
- c) Rinse salvage drums with water three times and strain rinse water through hydrophobic sorbent material. The rinseate is to be captured in a drum(s) and handled according to EPP section 5-XV – Storage and Tracking of Waste Hazmat. The Environmental Services Supervisor will decide the appropriate means of disposal on a case-by case basis. Rinsing

⁶ ‘Adsorption’ means that the liquid attaches to the surface of the sorbent particles, rather than being absorbed into the molecular structure of the sorbent particles.

activities are to take place at least 30 m (100 ft) from any water body. Set drums upside down, allow to drain/air dry, and remove or block out markings.

- d) Return salvage drum(s) to spill site for future use. Notify CAM-M Logistics (LOGS) personnel as to the spill response kit items which were used and require replacement. Items will be restocked in accordance with existing supply procedures.

POL/Water Mixture

POL/water mixtures may be dealt with in-place during the clean-up phase, and/or collected and drummed for treatment/disposal. As decisions regarding clean-up phase activities are at the discretion of the Spill Control Manager, these procedures simply address disposition of collected POL/water mixtures.

As a general rule of thumb, recovery of fuel for reuse is considered practical if more than 200 L of fuel can be collected. Recovered fuel must be dewatered and filtered prior to use, using filter units located on-site, and can only be used for vehicles.

Quantities of fuel of less than 200 L must also be recovered from the environment.

- a) Let mixture sit in 205 L (45 gal) drum(s), allowing mixture to separate into layers. Salvage drums are not to be used, as they are not approved as primary containers for liquids if the drum needs to be transported. Drums are to be placed in a level area at least 30 m (100 ft) from any water body.
- b) Evaluate the POL/water ratio. For instance, coat a dipstick with water indicating paste and insert in drum to determine relative thickness of POL and water layers.
- c) If the POL/water ratio is low, say less than 25 % POL, and the volume of mixture is low, say less than 800 L (i.e., less than four 45 gal drums) then recovery for reuse is not justified. Therefore the POL can be captured and retained with sorbent material.
 - i. Use hydrophobic sorbent sheets to remove as much POL from the top layer of the drum(s) as possible and then strain the mixture through hydrophobic sorbent material. To maximize contact with the surface of the sorbent, coil socks/booms of hydrophobic sorbent material in a drum funnel set over a clean drum or other support, and slowly pour the mixture over the coils. The strained water is to be captured into drums and handled according to EPP section 5-XV – Storage and Tracking of Waste Hazmat. The Environmental Services Supervisor will decide the appropriate means of disposal on a case-by case basis. Straining must be done at least 30 m (100 ft) from any water body.
 - ii. Dispose of used sorbent as discussed in the preceding section.
 - iii. Rinse drums with water three times and strain rinse water through hydrophobic sorbent material. The rinseate is to be captured in a drum(s) and handled according to EPP section 5-XV – Storage and Tracking of Waste Hazmat. The Environmental Services Supervisor will decide the appropriate means of disposal on a case-by case basis. Set clean drums upside down, allow to drain/air dry, remove or block out markings, and return to stockpile. Rinsing activities are to take place at least 30 m (100 ft) from any water body.

- iv. Notify CAM-M Logistics (LOGS) personnel as to the spill response kit items which were used and require replacement. Items will be restocked in accordance with existing supply procedures.
- d) If the POL/water ratio is higher, more than 25% POL, or the volume of mixture is higher, more than 800 L, a fuel/water separator is to be used.
- e) If the POL/water mixture must be stored until separation can be conducted, each drum is to be marked as to its contents with permanent marker or spray paint as follows: “<substance>/water mixture, <site>, <date >”. The drums are also to be labeled and shipped as flammable liquids, as per Transportation of Dangerous Goods (TDG) requirements.
 - i. Pump or pour POL/water mixture from drums into separator. Separation activities are to be conducted on site property, a minimum of 30 m (100 ft) from any water bodies, and 15 m from structures, tanks, or piping.
 - ii. Follow instructions for use included with the separator unit. Designs may vary but most separators are based on separation of the mixture into layers due to differences in fluid density. Water, being “heavier” than POL products, sinks to the bottom and can then be drained off.
 - iii. Slowly drain water from separator, straining it through hydrophobic sorbent material to remove any POL residue prior to discharge. To maximize contact with the surface of the sorbent, coil socks/booms of hydrophobic sorbent material in a drum funnel set over a clean drum, and slowly pour the mixture over the coils. The strained water is to be captured into drums and handled according to EPP section 5-XV – Storage and Tracking of Waste Hazmat. The Environmental Services Supervisor will decide the appropriate means of disposal on a case-by case basis. Straining activities are to take place at least 30 m (100 ft) from any water body. Dispose of used sorbent as discussed in Used Sorbent Materials, above.
 - iv. Drain recovered POL into 205 L (45 gal) drum(s). Each drum is to be marked as to its contents with permanent marker or spray paint as follows: “Recovered <substance>, <site>, <date >”.
- f) If 200 L or more of POL are recovered, the fuel is to be filtered.
- g) Once dewatered and filtered, the fuel is transferred to the vehicle refueller tank. Recovered fuel must not be placed in PGS or aviation fuel tanks.
- h) Rinse drums with water three times and strain rinse water through hydrophobic sorbent material. The rinseate is to be captured in a drum(s) and handled according to EPP section 5-XV – Storage and Tracking of Waste Hazmat. The Environmental Services Supervisor will decide the appropriate means of disposal on a case-by case basis. Set drums upside down, allow to drain/air dry, remove or block out markings, and return to stockpile. Rinsing activities are to take place at least 30 m (100 ft) from any water body. Dispose of used sorbent as discussed Used Sorbent Materials above.

- i) Notify CAM-M Logistics (LOGS) personnel as to the spill response kit items which were used and require replacement. Items will be restocked in accordance with existing supply procedures.

Contaminated Snow

Small volumes of contaminated snow are to be shoveled into an open head drum, along with a hydrophobic sorbent mat, pillow or sock. Each drum is to be marked as to its contents with permanent marker or spray paint as follows: “Snow with <substance>, <site>, <date>.” Drums may be stored in a level area outside to await spring thaw, or moved indoors to speed melting. The melted snow is to be treated as POL/water mixture, as discussed in the preceding section.

Large areas of contaminated snow may be removed/isolated and surrounded with hydrophobic absorbent booms to gradually filter meltwater. Decisions in such a situation will be at the discretion of the Spill Control Manager.

Contaminated Soil

Decisions regarding remediation of contaminated soil must be made by the Spill Control Manager on a case-by-case basis. Commonly, a small area of contaminated soil would be left to aerate at the spill site. The area would be “tilled” by hand and the soil spread out in a thin layer, to maximize evaporation of fuel from the soil. Should contaminated soil need to be excavated and contained, the following points are to be noted:

- a) Do not mix soil with other spill wastes.
- b) Do not overfill open head drums; they may need to be moved without the aid of heavy equipment.
- c) Each drum is to be marked as to its contents with permanent marker or spray paint as follows: “Soil with <substance>, <site>, <date>.”

Reporting Disposal Actions

The CAM-M LSS Manager is to advise the Spill Control Manager of disposal actions taken by the ERT, through e-mail or Internal Spill Report updates.

Spill clean-up Work Orders are to include the removal and disposal actions for spill wastes, the number of drums involved and their contents. A spill clean-up Work Order cannot be closed until the disposal actions are completed, or the remaining requirements are transferred to a separate waste disposal Work Order.

6.3.7 Site Remediation

Site remediation will be undertaken by trained Nasittuq personnel or by experienced commercial spill response firms, as per NWSO’s acceptance.

6.3.8 Final Report and Post-Spill Review

The final report summarizes the following spill information:

- a) Initial report information;
- b) Confirmation of spill volume;
- c) Actions taken;
- d) Future remediation/monitoring requirements; and
- e) Sketch map and/or photographs of spill area.

A joint review of all spill response activities and involved parties will be held by Nasittuq and NWSO in order to:

- a) Document all events from the initial spill report through to site remediation;
- b) Analyze spill response actions taken and their effectiveness in order to:
 - i. Revise action plans as required;
 - ii. Amend spill response procedures as required; and
 - iii. Amend the spill response training program.

A post-spill review will take place for every major spill (e.g. greater than 5000 L) and for any lesser spill (Hazmat or POL) when requested by Nasittuq or NWSO.

6.4 Spill Response - POL Re-Supply Activities

Transport of the bulk POL is performed by contractors and subcontractors who must each possess their own spill contingency plan. The re-supply contractor will be responsible for spill response when the spill originates from the contractor's equipment, i.e. occurs between the vessel and the junction with NWS piping. Response to a spill originating from NWS piping or facilities during re-supply will be the responsibility of Nasittuq, and will be reported and responded to as per this Plan.

Even when the contractor is the responding authority, the NWSCC must be notified as per section 5.4.

6.5 Spill Reporting Exercises

Environmental Services may conduct annual spill reporting exercises at selected radar sites to identify and mitigate deficiencies. Mock spill scenarios assigned to sites should initiate a response consistent with the correct internal spill reporting process. External reporting to spill lines and/or other contacts is not a component of the spill exercise, and all associated verbal or written communications must clearly announce: 'Exercise. Exercise. Exercise.' The reporting procedure will be tracked by Environmental Services and evaluated according to criteria outlined in the Spill Exercise Report Template in Appendix 7.

6.6 Spill Response Training Program

Spill response training (part of job training course JT-63) is provided to all NWS site personnel and all CMO personnel involved in the O&M of NWS sites.

7.0 FORMS & QUALITY RECORDS

Incident Initial Notification (B2-A): Environmental Spill (ILM # 196553)

Incident Internal Follow-Up Report (C2-A-1): Environmental Spill (ILM # 196554)

Incident Follow-Up Report (C2-A-2): Environmental Spill (ILM # 196555).

APPENDIX 1

Emergency Contacts List

Spill Contingency Plan for CAM-3 (Shepherd Bay, Nunavut)

NASITTUQ Emergency Contact List

NWSCC LHCN/Facilities Group (for Zones 1, 2, NWSSC)	(705) 494-6011 ext. 8000
NWSCC Radar/Facilities Group (for Zones 3, 4, 5)	(705) 494-6011 ext. 4000
Barb Thomson, Supervisor, Environmental Services	(613) 831-1844 (H)
Scott Charland, Senior Manager, Planning and Design	(613) 521-4689 (H)
John Boyle, Senior Manager Maintenance, NWS Operations	(705) 498-2918 (Cell)
Peter Lundy, Manager, NWSSC	(705) 498-2633 (H)
Kelly Landon, Senior Manager, Logistics and Program Development	(613) 823-9716 (H)
Frank Carroll, Supervisor, Fire & Safety	(613) 592-6923 (H)

NWSO Emergency Contact List

Kim Kalen, Environmental Officer (R&CS 3-4-3)	(613) 998-8482 (W) (613) 728-9562 (H)
Maj. A. Cameron (R&CS 3-4)	(613) 998-8602 (W)

24 Hour Spill Lines

Northwest Territories/Nunavut	(867) 920-8130
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1 Canadian Air Division Emergency Contact List

<u>Location</u>	<u>Base</u>	<u>Contact</u>	<u>CSN*</u>
LSS-Inuvik	4 Wing Cold Lake, AB	Wing Env. Officer	690-8430
LSS-Iqaluit	3 Wing Bagotville, QC	Wing Env. Officer	661-8711
LSS-Goose Bay	5 Wing Goose Bay, NL	Wing Env. Officer	555-7811
NWSSC, SRD, and NWSCC	22 Wing North Bay, ON	Wing Env. Officer Commercial tel#: Base Military Police	628-2297 705-494-2011 ext. 2297 705-494-3333

* Canadian Switch Network (i.e. from CMO: 70-2136 + number; from Sites: 88-78 + number)

Other Important Contacts

INAC Nunavut Regional Office, Iqaluit	(867) 975-4500
INAC Manager of Field Operations	(867) 975-4295
INAC Water Resources Officer/Inspector, Kitikmeot Region - Kugluktuk (CAM-M, CAM-3)	(867) 982-4308
INAC Water Resources Officer/Inspector, Qikiqtani Region - Iqaluit (FOX-M, FOX-3, DYE-M, BAF-3)	(867) 975-4289
David Roberts, Transportations Programs Officer (North), Dep't of Economic Development and Transportation, GNU	(867) 899-7340 Email: droberts@gov.nu.ca

APPENDIX 2

Initial Incident Notification (B2-A): Environmental Spill

Document Profile is to have:

- a) Title – Initial Incident Report: Environmental
- b) Object Date – Date of Incident/Awareness
- c) Related Info – Zone, Site (I.E. Zone 1, Bar-2)

Submit to NWSO within 3 hours

To: [Incident Reports Enviro-Spill](#)

Subject: ENV / SPILL REPORT - INITIAL NOTIFICATION

Reporting Location: Inuvik
Report Originator:
Report date (dd mmm yyyy):
Report time (Z):
Site Affected:
Location of Spill:
Date (dd mmm yyyy) of incident / awareness:
Time (Z) of incident / awareness:
Reported By (e.g. SCADA or person at site):
Substance spilled:
Leak Status: F4
Action Taken:
SM Section notified:
External Agencies notified:
News media involvement, if known:
Other pertinent information:
NWSCC Tech initials:
This reports ILM #:
Other Incident Reports directly related to this report: ILM #

ENV / SPILL Internal Report (C2-A-1, ILM #196554) to be submitted
to CMO within 12 hours

ENV/SPILL Follow-up Report (C2-A-2, ILM #196555) to be
submitted by CMO Environmental Services to NWSO within 24 hours

APPENDIX 3

Incident Internal Follow-Up Report (C2-A-1): Environmental Spill

SPILL REPORT – INTERNAL ONLY

(To be submitted within 12 hours)

NOTE: * Document Profile is to have: a) Title – Internal Follow-up Incident Report: Environmental b) Object Date – Date of Spill c) Related Info – Zone, Site (I.E. Zone 1, Bar-2) * Send by e-mail as file attachment to: Environmental Distribution with a copy to: Incident Reports NB and Site Managers * Use Mouse or Tab key to move between fields in the form – Mouse or F4 key with up/down arrow keys for selections.			
Report Location: Select		Report Originator:	
Phone No:	Initial Report: ILM #	This Reports ILM #	
Report Date (dd mmm yyyy):		Report Time (Z):	z
Other Incidents directly related to this incident – ILM #			
Site affected:	Location of Spill:		
Date (dd mmm yyyy) spill occurred:		Time (Z) spill occurred:	z
Date (dd mmm yyyy) spill discovered:		Time (Z) spill discovered:	z
Date (dd mmm yyyy) spill stopped:		Time (Z) spill stopped:	z
Substance:			
Flow Direction: Select		Estimated Quantity Spilled:	
Cause:			
Status of Spill: Key F4			
Extent & Depth of Contamination:			
Factors affecting spill or recovery [temp, wind, precipitation (snow, freezing rain, rain), surface conditions (snow, ice)]:			
Containment (none, natural, booms, dykes, etc.):			
Action taken or proposed to contain, recover, cleanup or dispose of substance:			
Assistance required (Suggested form):			
Hazards to persons, property or environment (e.g. Fire, potable water, other water, fish, or wildlife):			
Comments and/or recommendations:			
Sketch map provided by FAX: ☐		Fax Date/time:	
Date (dd mmm yyyy) spill cleaned up:		Time (Z) spill cleaned up:	z
Work Order No:			

ENV/SPILL Follow-up Report (C2-A-2, ILM #196555) to be submitted by
 CMO Environmental Services to NWSO within 24 hours

APPENDIX 4

Reporting Criteria for Spill Lines

Spill Contingency Plan for CAM-3 (Shepherd Bay, Nunavut)

Federal or Aboriginal Land in Canada

Any spill of fuel or waste oil must be reported to Environment Canada through territorial or provincial spill lines. Spills of greater than 100 L require a written report to Environment Canada.⁷

Nunavut and Northwest Territories

Minimum reportable volumes for Hazmat spills⁸

Item No.	TDGA Class	Description of Contaminant	Minimum Reportable Volume
1	1	Explosives	Any amount
2	2.1	Compressed gas (flammable)	Any amount of gas from containers with a capacity greater than 100 L
3	2.2	Compressed gas (non-corrosive, non-flammable)	Any amount of gas from containers with a capacity greater than 100 L
4	2.3	Compressed gas (toxic)	Any amount
5	2.4	Compressed gas (corrosive)	Any amount
6	3.1, 3.2, 3.3	Flammable liquid	100 L
7	4.1	Flammable solid	25 Kg
8	4.2	Spontaneously combustible solids	25 Kg
9	4.3	Water reactant solids	25 Kg
10	5.1	Oxidizing substances	50 L or 50 Kg
11	5.2	Organic peroxides	1 L or 1 Kg
12	6.1	Poisonous substances	5 L or 5 Kg
13	6.2	Infectious substances	Any amount
14	7	Radioactive	Any amount
15	8	Corrosive substances	5 L or 5 Kg
16	9.1 (in part)	Miscellaneous products or substances, excluding PCB mixtures	50 L or 50 Kg
17	9.2	Environmentally hazardous	1 L or 1 kg
18	9.3	Dangerous wastes	5 L or 5 Kg
19	9.1 (in part)	PCB mixtures of 5 or more parts per million	0.5 L or 0.5 Kg
20	none	Other contaminants	100 L or 100 Kg

Nunavut Water Board

Under the Water Licence Part G item 6 and Part A item 2 “waste”, any unauthorized discharge or a foreseeable unauthorized discharge must be reported to the NT-NU Spill line and the DIAND / INAC Water Resources Inspector and INAC Manager of Field Operations.

⁷ From: *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*, SOR/2008-197, Section 41, under the Canadian Environmental Protection Act, 1999.

⁸ From: Schedule B, *Spill Contingency Planning and Reporting Regulations*, N.W.T. Reg. 068-93, under the Environmental Protection Act.

APPENDIX 5

Incident Follow-Up Report (C2-A-2): Environmental Spill

Spill Contingency Plan for CAM-3 (Shepherd Bay, Nunavut)



Environmental Emergency / Spill

Report Follow-Up

Document Profile is to have:

- a) Title – Follow-up Incident Report: Environmental
- b) Object Date – Earliest Date of Occurrence/Discovery
- c) Related Info – Zone, Site (I.E. Zone 1, Bar-2)

CMO Environmental Services (ES) to submit report to NWSO within 24 hours or next business day.

E-mail as ILM reference: TO: Incident Reports Enviro-Spill; KALEN.KE@forces.gc.ca

CC: Incident Reports NB and Site Managers

Date and Time

Date and Time of Occurrence:	Date and Time of Discovery:	
Zulu	Zulu	
Spill Stopped Date and Time:	Spill Cleaned Date and Time:	
Zulu	Zulu	
Reported By (ES Person):	Date:	Report No:
Reference initial report ILM#:		

Spill Information

Material Spilled		
Quantity Spilled:		
Quantity Recovered:		
Location of spill (site and location on site):		
Cause of Spill:		
Status of Spill:		
Environmental Effects:		
Human Health Effects:	Personal Information Recorded on ILM #: (From FOR4937-PI, ILM #397470)	
Action Taken to Mitigate Environ/Human Health Effects:		
Weather Conditions:	Rain ☐	Wind ☐
	Snow/Ice ☐	
Temperature:	°C	Wind Speed: km/hr
Wind Direction:	Direction of Drift:	
Distance from Surface Water:		
Distance from Property Boundary:		

Agencies

Notified Federal Government:	Date:	Time: Zulu	Contact:
Notified Provincial Government:	Date:	Time: Zulu	Contact:
Notification Comments (e.g. Spill Line Report #, Spill Line tel #, co-ordinates of person(s) contacted: name, tel. #, position, gov't dept, city):			

Other

Work Order #:	Spill Closure Date:
Remediation Action Taken:	
Comments:	

APPENDIX 6

NT-NU Spill Report Form and Guide

Spill Contingency Plan for CAM-3 (Shepherd Bay, Nunavut)



Canada

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE

TEL: (867) 920-8130

FAX: (867) 873-6924

EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR		REPORT TIME		☐ ORIGINAL SPILL REPORT, OR ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER _____
	OCCURRENCE DATE: MONTH – DAY – YEAR		OCCURRENCE TIME			
C	LAND USE PERMIT NUMBER (IF APPLICABLE)			WATER LICENCE NUMBER (IF APPLICABLE)		
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION				REGION ☐ NWT ☐ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN	
E	LATITUDE DEGREES MINUTES SECONDS			LONGITUDE DEGREES MINUTES SECONDS		
F	RESPONSIBLE PARTY OR VESSEL NAME		RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION			
G	ANY CONTRACTOR INVOLVED		CONTRACTOR ADDRESS OR OFFICE LOCATION			
H	PRODUCT SPILLED		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES		U.N. NUMBER	
	SECOND PRODUCT SPILLED (IF APPLICABLE)		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES		U.N. NUMBER	
I	SPILL SOURCE		SPILL CAUSE		AREA OF CONTAMINATION IN SQUARE METRES	
J	FACTORS AFFECTING SPILL OR RECOVERY		DESCRIBE ANY ASSISTANCE REQUIRED		HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT	
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS					
L	REPORTED TO SPILL LINE BY	POSITION	EMPLOYER	LOCATION CALLING FROM	TELEPHONE	
M	ANY ALTERNATE CONTACT	POSITION	EMPLOYER	ALTERNATE CONTACT LOCATION	ALTERNATE TELEPHONE	
REPORT LINE USE ONLY						
N	RECEIVED AT SPILL LINE BY	POSITION STATION OPERATOR	EMPLOYER	LOCATION CALLED YELLOWKNIFE, NT	REPORT LINE NUMBER (867) 920-8130	
LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC			SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN		FILE STATUS ☐ OPEN ☐ CLOSED	
AGENCY		CONTACT NAME	CONTACT TIME	REMARKS		
LEAD AGENCY						
FIRST SUPPORT AGENCY						
SECOND SUPPORT AGENCY						
THIRD SUPPORT AGENCY						

PAGE 1 OF _____

Spill Contingency Plan for CAM-3 (Shepherd Bay, Nunavut)

Instructions for Completing the NT-NU Spill Report Form

This form can be filled out electronically and faxed to the spill line at 867-873-6924. Commencing April 1, 2007, the form can also be e-mailed as an attachment to spills@gov.nt.ca. Until further notice, please verify receipt of e-mail transmissions with a follow-up telephone call. Spills can still be phoned in by calling collect at 867-920-8130.

A. Report Date/Time	The actual date and time that the spill was reported to the spill line. If the spill is phoned in, the Spill Line will fill this out. Please do not fill in the Report Number: the spill line will assign a number after the spill is reported.
B. Occurrence Date/Time	Indicate, to the best of your knowledge, the exact date and time that the spill occurred. Not to be confused with the report date and time (see above).
C. Land Use Permit Number /Water Licence Number	This only needs to be filled in if the activity has been licenced by the Nunavut Water Board and/or if a Land Use Permit has been issued. Applies primarily to mines and mineral exploration sites.
D. Geographic Place Name	In most cases, this will be the name of the city or town in which the spill occurred. For remote locations – outside of human habitations – identify the most prominent geographic feature, such as a lake or mountain and/or the distance and direction from the nearest population center. You must include the geographic coordinates (Refer to Section E).
E. Geographic Coordinates	This only needs to be filled out if the spill occurred outside of an established community such as a mine site. Please note that the location should be stated in degrees, minutes and seconds of Latitude and Longitude.
F. Responsible Party Or Vessel Name	This is the person who was in management/control/ownership of the substance at the time that it was spilled. In the case of a spill from a ship/vessel, include the name of the ship/vessel. Please include full address, telephone number and e-mail. Use box K if there is insufficient space. Please note that, the owner of the spilled substance is ultimately responsible for any spills of that substance, regardless of who may have actually caused the spill.
G. Contractor involved?	Were there any other parties/contractors involved? An example would be a construction company who is undertaking work on behalf of the owner of the spilled substance and who may have contributed to, or directly caused the spill and/or is responding to the spill.
H. Product Spilled	Identify the product spilled; most commonly, it is gasoline, diesel fuel or sewage. For other substances, avoid trade names. Wherever possible, use the chemical name of the substance and further, identify the product using the four digit UN number (eg: UN1203 for gasoline; UN1202 for diesel fuel; UN1863 for Jet A & B)
I. Spill Source	Identify the source of the spill: truck, ship, home heating fuel tank and, if known, the cause (eg: fuel tank overflow, leaking tank; ship ran aground; traffic accident, vandalism, storm, etc.). Provide an estimate of the extent of the contaminated/impacted area (eg: 10 m ²)
J. Factors Affecting Spill	Any factors which might make it difficult to clean up the spill: rough terrain, bad weather, remote location, lack of equipment. Do you require advice and/or assistance with the cleanup operation? Identify any hazards to persons, property or equipment: for example, a gasoline spill beside a daycare centre would pose a safety hazard to children. Use box K if there is insufficient space.
K. Additional Information	Provide any additional, pertinent details about the spill, such as any peculiar/unique hazards associated with the spilled material. State what action is being taken towards cleaning up the spill; disposal of spilled material; notification of affected parties. If necessary, append additional sheets to the spill report. Number the pages in the same format found in the lower right hand corner of the spill form: eg. "Page 1 of 2", "Page 2 of 2" etc. Please number the pages to ensure that recipients can be certain that they received all pertinent documents. If only the spill report form was filled out, number the form as "Page 1 of 1".
L. Reported to Spill Line by	Include your full name, employer, contact number and the location from which you are reporting the spill. Use box K if there is insufficient space.
M. Alternate Contact	Identify any alternate contacts. This information assists regulatory agencies to obtain additional information if they cannot reach the individual who reported the spill.
N. Report Line Use Only	Leave Blank. This box is for the Spill Line's use only.

APPENDIX 7

Spill Exercise Report Template



200X Spill Reporting Exercise

Zone X Report

General

Spill reporting exercises were enacted in zone *X* on *Date*. During a spill exercise the respective LSS is required to respond to a mock spill scenario generated by Environmental Services and execute the established internal reporting procedures. In turn, NWSCC and Environmental Services are required to fulfill their respective roles in the spill reporting protocol. The effectiveness of observed spill reporting procedures are evaluated against criteria outlined in the Nasittuq Environmental Protection Plan and Procedure (PRO) 4.9-37. The results section summarizes the values measured during spill reporting exercises.

Spill Scenario: *Insert initial spill scenario*

Report Tracking*

LSS	Date and Date Notified	ES Notification by NWSCC	3-hr Initial Report from NWSCC	12-hr LSS Report Posted	24-hr ES Report Posted
<i>LSS-X</i>	<i>dd-MMM-yy h:mm am/pm</i>	<i>h:mm am/pm contactee</i>	<i>dd-MMM-yy h:mm am/pm</i>	<i>dd-MMM-yy h:mm am/pm</i>	<i>dd-MMM-yy h:mm am/pm</i>

* *all times EST*

APPENDIX 8

Fuel and Chemicals On-Site

Fuel

Jet A1 is the fuel used on-site. Jet A1 fuel tanks and locations are listed below.

For CAM-3 use only				
Tank Size	LOC ID	Actual Capacity*	Location	Type of fuel
246,000L	SHEW22A	208,118L	Summit	Aviation/PGS
246,000L	SHEW22C	208,118L	Beach	Aviation/PGS
246,000L	SHEW22D	208,118L	Beach	Aviation/PGS
75,000L	SHEW22I	70,500L	Power Plant	PGS
75,000L	SHEW22J	70,500L	Power Plant	PGS
50,000L	SHEW22H	47,000L	Power Plant	PGS
50,000L	SHEW20A	47,000L	Helipad	Aviation
SUMMIT TOTAL		443,118L		
BEACH TOTAL		416,236L		
CAM-3 TOTAL:		859,354L		
For CAM-D & CAM-4 use only				
50,000L	SHEW20C	47,000L	Beach	Aviation
50,000L	SHEW20D	47,000L	Beach	Aviation
BEACH TOTAL		94,000L		

The total volume of usable fuel on site is 953,354L.

Sealift delivers the annual fuel re-supply to the beach tanks. Fuel is then pumped to the summit tanks. Trained personnel (Bulk Fuel Technicians) walk the fuel lines before the transfer begins and monitor the transfer until it is finished. Personnel work in pairs and maintain radio communication. For site specific information, a fuel line diagram and valve matrix are posted in the pumphouse. Automatic transfers from summit to day tanks are done on demand by systems under remote control. All trained personnel complete the course JT-16 POL Handling and Aircraft Refueling.

Chemicals are listed on the next page.

Spill Contingency Plan for CAM-3 (Shepherd Bay, Nunavut)

Chemicals

Items such as batteries, aerosols, and cleaning products are stored in the cold storage warehouse and in the buildings where they are used. A limited number of cylinders are stored in the Warehouse as shown in Appendix 10.

As requested in the NWB letter dated 29 Oct 2008 and in the subsequent 06 Nov 2008 telephone conversation with Mr. Deon Bridge, Technical Advisor, drummed chemicals are listed below.

Site Name	Maximo Item #	Description	Container	Location	Quantity
CAM-3	1014001	OIL, ENGINE, SAE 15W40, API SG/CF-4/CE/CD II, 205 L DRUM, LUBRICATING	Drum (205 L)	Warehouse	8
	1018549	OIL, INDUSTRIAL, HYDRAULIC, 20 L, LOW TEMP	Pail (20 L)	Warehouse	2
	2003996	FLUID, TRANSMISSION, 5 GAL PAIL	Pail (5 Gal)	Warehouse	14
	1013378	SOLVENT, DRY CLEANING, 205 L DRUM, LIQUID, (Varsol to clean parts)	Drum (205 L)	Warehouse	1
	1056978	CHEMICAL, SULPHURIC ACID, DILUTED LIQUID, 4.4 GAL (20 L), (for batteries)	Container (20 L)	Warehouse	3
	1071190	COOLANT, ENGINE, ETHYLENE GLYCOL, 205 L DRUM, 100% GLYCOL, BLUE-GREEN COLOR, WITH INHIBITOR, WITH OVERPACK DRUM	Drum (205 L)	Warehouse	3

APPENDIX 9

Spill Kit

Spill Contingency Plan for CAM-3 (Shepherd Bay, Nunavut)

Spill Contingency Plan for CAM-3

Item Description		Quantity	Item Absorbent Capacity
1.	Slip tank, portable, 100 gal.	1	
2.	Absorbent, Material (POL and Water), bags, 25 qt ea, Maximo # 1021477, Item # 48490, can absorb 8 gallons each bag.	20 Bags	726 litres
3.	Absorbent, Material (POL), roll, 3/8" x 36" x 144', Maximo # 1021572, Item # OB300, can absorb 9 times its weight. 1 roll = 36 lbs	10 Rolls	1816 litres
4.	Absorbent, Material (POL), bags, 50 qt ea, Maximo # 1044124, Item # 48230, can absorb 10 gallons each bag.	150 Bags	6810 litres
5.	Absorbent, Sheet (POL): 200 sheets/case: 3/8" x 17" x 19",Maximo # 1021664, Item # OB200, can absorb 9 times its weight. 1 case = 20 lbs	1 Case	101 litres
6.	Boom, Oil: 40' long Maximo # 1059485, Item # OB5M, can absorb 9 times its weight. 1 boom = 5.3 lbs	1 Boom	27 litres
7.	Shovel, Round Mouth	2	
8.	Pitchfork	2	
9.	Rubber Gloves, Lined	20 pairs	
10.	Plastic Bags (3mil) 35" W x 50" H, extra strong	1 box x 100 bags	
11.	Plastic, Polyethylene (6mil), 12' 2" wide 100' long	4 rolls	
12.	Polypropylene Rope, 600'/roll	1	
13.	Safety Goggles	2	
14.	85gal Salvage Drum	2	
15.	Half Mask, Disposable Type	1	
Total Absorption Capacity is			9480 litres

Spill Kit CAM-3

The Spill Kit has the minimum requirements. In addition CAM-3 also has:

1.	Absorbent, Sheet (POL): 200 sheets/case: 3/8" x 17" x 19",Maximo # 1021664, Item # OB200, can absorb 9 times its weight. 1 case = 20 lbs	18 Cases	1414 litres
2.	Shovel, Round Mouth	4	
3.	85gal Salvage Drum	16	
Total Absorption Capacity is			1414 litres
Total Absorption Capacity at CAM-3 is			10894 litres

Spill Contingency Plan for CAM-3

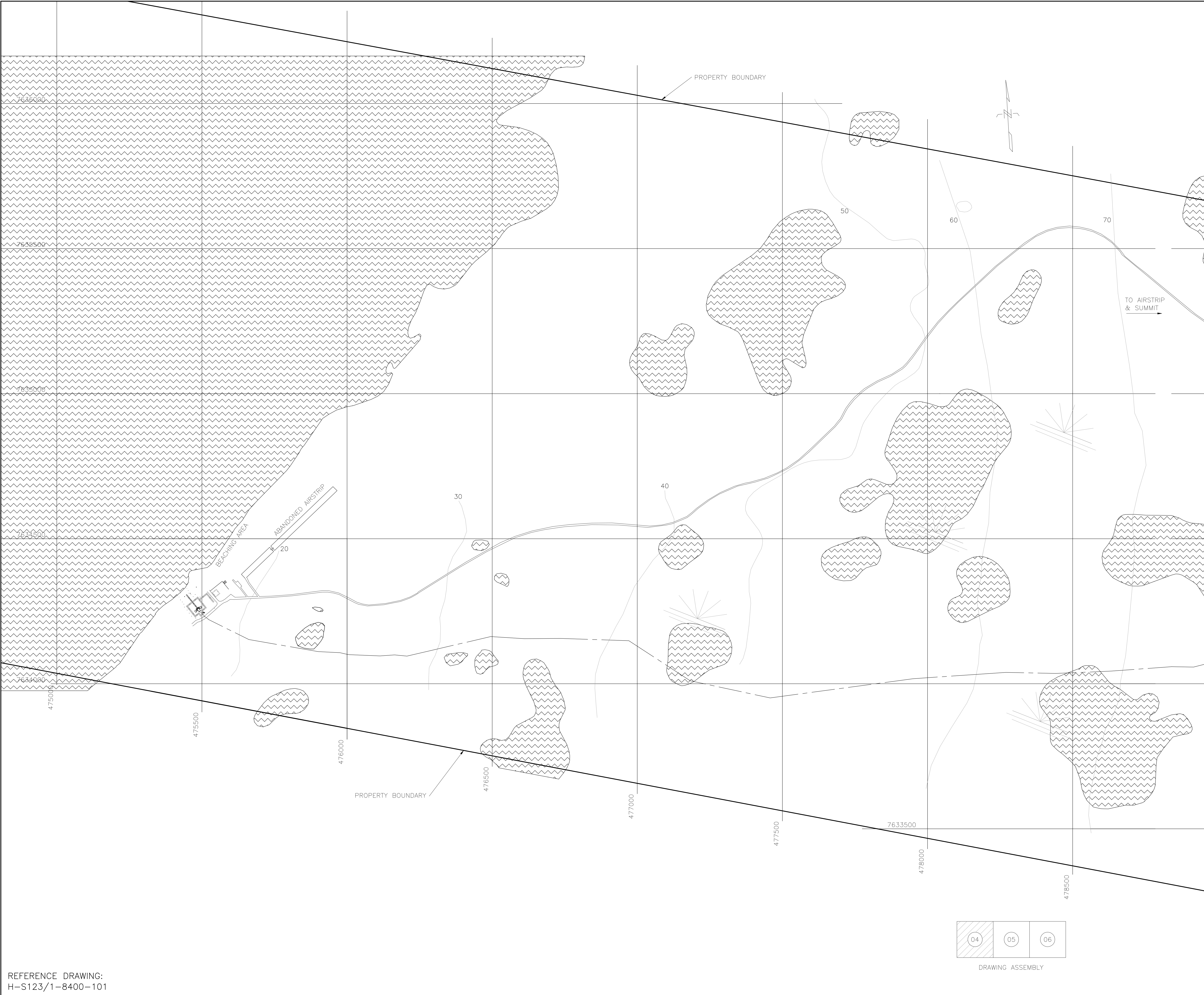
APPENDIX 10

Site Map

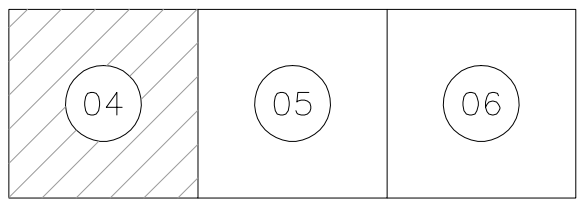
- **SK-04: TOPOGRAPHIC SITE MAP**
- **SK-05: TOPOGRAPHIC SITE MAP**
- **SK-06: TOPOGRAPHIC SITE MAP**
- **SK-07: TOPOGRAPHIC SITE MAP SUMMIT AREA HAZMAT STORAGE &
SPILL KIT LOCATIONS**

SK-04

CAM-3



REFERENCE DRAWING:
H-S123/1-8400-101



DRAWING ASSEMBLY

National
Defence

Défense
nationale

NORTH WARNING SYSTEM OFFICE
Bureau du système d'alerte du Nord

LOCATION

100-170 LAURIER AVE. WEST
OTTAWA, ONTARIO K1P 5V6
TEL.: (613) 234-9033
FAX: (613) 234-3888

NOTES:

1. NASITTUQ HAS CARE CUSTODY OF
ENTIRE PARCEL.
2. CONTOURS ARE IN FEET.

LEGEND:

WATER

P.O.L.

APPROXIMATE LOCATION OF
SWAMPY AREAS

GRAVEL ROADWAY

NO DATA AVAILABLE FOR CONSTRUCTION OF
WIND ROSE INFORMATION.

REDUCED DRAWING FOR
INFORMATION ONLY

SCALE IS REPRESENTATIVE
OF FULL SIZE DRAWING.

1	30 OCT 09	RELEASE FOR NUNAVUT W.B. M.J.		
No.	DATE	REVISION	REVISION	DRN. APPR.

SITE RECORD DRAWING

100 0 100 200 300 400 metres

metres

SCALE - ÉCHELLE

1 : 5000

PROJECT - PROJET

LONG RANGE RADAR SITE

CAM-3

SHEPHERD BAY

TRADE - MÉTIER

SITING

DATE

30 OCT 09

NUNAVUT

SUBJECT - SUJET

TOPOGRAPHIC SITE MAP

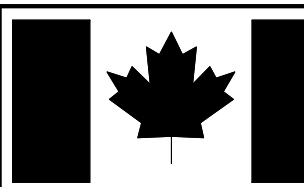
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DRAWN DESSINÉ	M.J.	
CHECKED VÉRIFIÉ	B.T.	NWSO ENGINEERING OFFICER OFFICIER DU GÉNIE BSAN
COORDINATION	NWSO FACILITIES ENGINEER	GÉNIE DES INSTALLATIONS BSAN
DWG. NO. - DESSIN NO. SK-04		

Canada

SK-05

CAM-3

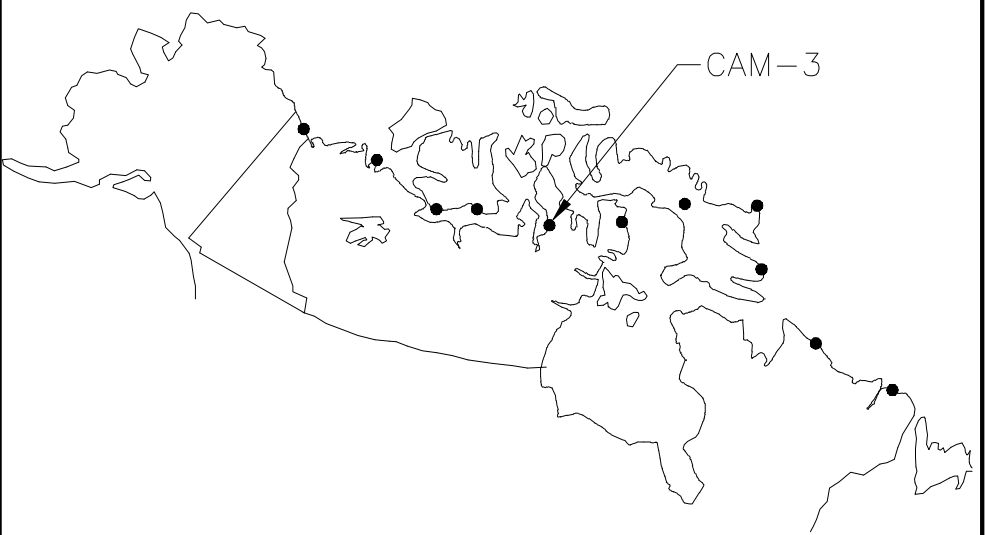




National Defence
Défense nationale

NORTH WARNING SYSTEM OFFICE
Bureau du système d'alerte du Nord

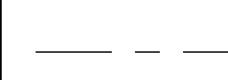
LOCATION





100-170 LAURIER AVE. WEST
OTTAWA, ONTARIO K1P 5V6
TEL.: (613) 234-9033
FAX: (613) 234-3888

NOTES:
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2. CONTOURS ARE IN FEET.

LEGEND:
 WATER
 P.O.L.
 APPROXIMATE LOCATION OF SWAMPY AREAS
 GRAVEL ROADWAY
NO DATA AVAILABLE FOR CONSTRUCTION OF WIND ROSE INFORMATION.

REDUCED DRAWING FOR INFORMATION ONLY

SCALE IS REPRESENTATIVE OF FULL SIZE DRAWING.

No.	DATE	REVISION	REVISION	DRN.	APPR.
1	30 OCT 09	RELEASE FOR NUNAVUT W.B.	M.J.		

SITE RECORD DRAWING

SCALE - ÉCHELLE
1 : 5000

PROJECT - PROJET
LONG RANGE RADAR SITE
CAM-3

SHEPERD BAY
TRADE - MÉTIER
SITING
DATE
30 OCT 09
NUNAVUT

SUBJECT - SUJET
TOPOGRAPHIC SITE MAP

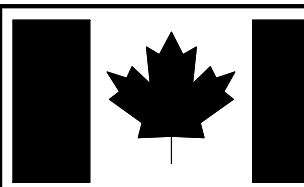
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DRAWN DESSINÉ M.J.		
CHECKED VÉRIFIÉ B.T.	NWSO ENGINEERING OFFICER	OFFICIER DU GENIE BSAN
COORDINATION	NWSO FACILITIES ENGINEER	GENIE DES INSTALLATIONS BSAN
DWG. NO. - DESSIN NO. SK-05		

Canada

REFERENCE DRAWING:
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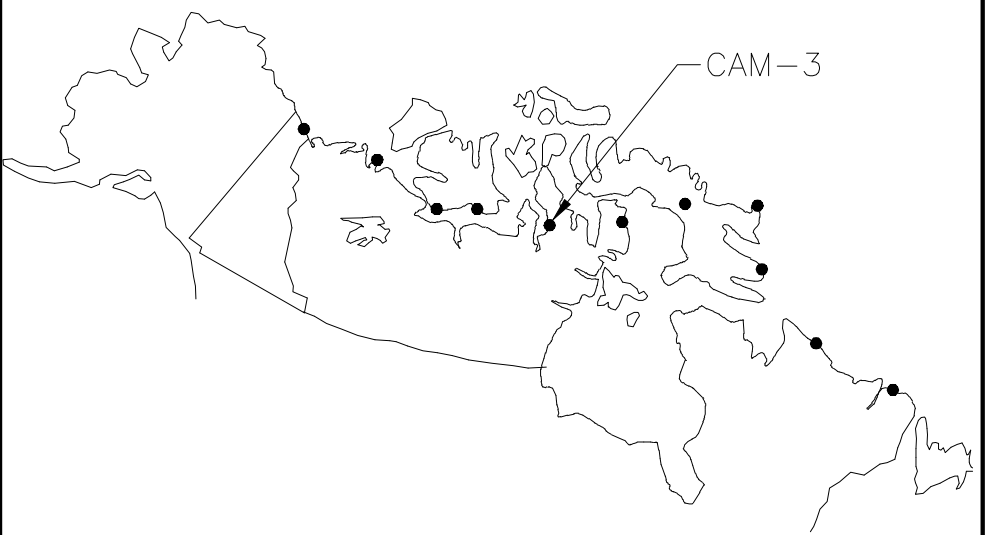
DRAWING ASSEMBLY





National Defence
Défense nationale

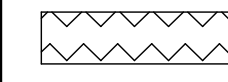
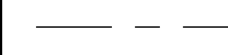
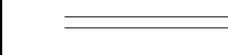
NORTH WARNING SYSTEM OFFICE
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LOCATION



100-170 LAURIER AVE. WEST
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NOTES:
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2. CONTOURS ARE IN FEET.

LEGEND:
 WATER
 P.O.L.
 APPROXIMATE LOCATION OF
SWAMPY AREAS
 GRAVEL ROADWAY

NO DATA AVAILABLE FOR CONSTRUCTION OF
WIND ROSE INFORMATION.

REDUCED DRAWING FOR
INFORMATION ONLY

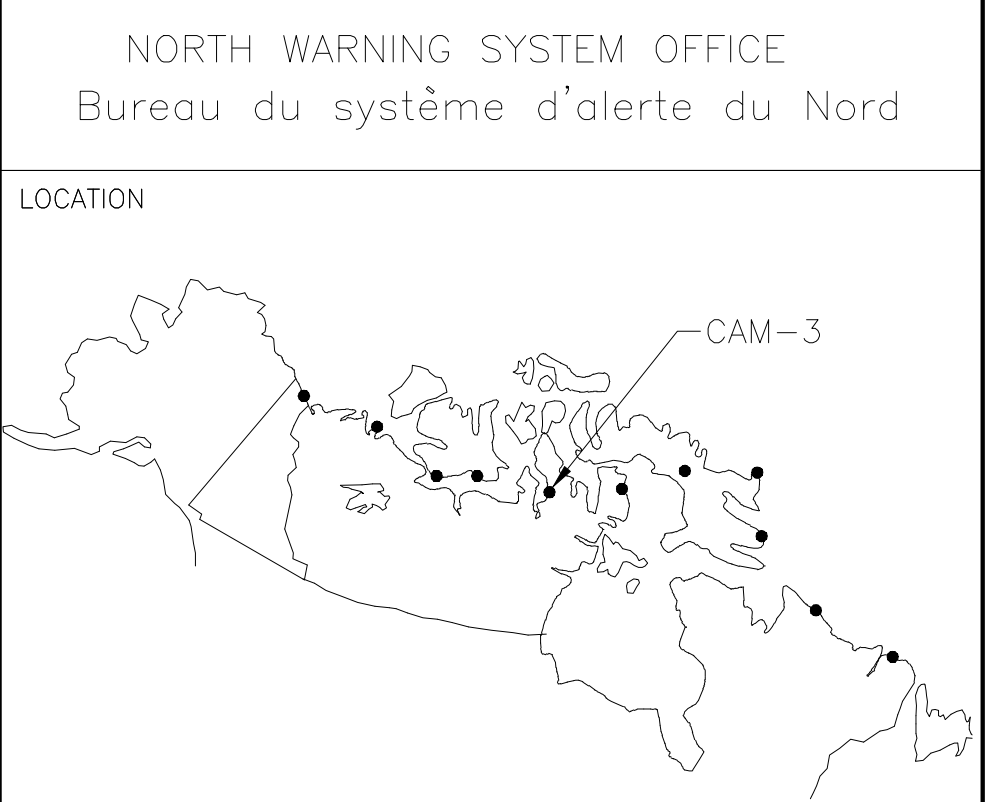
SCALE IS REPRESENTATIVE
OF FULL SIZE DRAWING.

1	30	OCT	09	RELEASE FOR NUNAVUT W.B. M.J.	
No.	DATE	REVISION	REVISION	DRN.	APPR.
SITE RECORD DRAWING					
100 0 100 200 300 400 metres metres					
SCALE - ÉCHELLE					
1 : 5000					
PROJECT - PROJET					
LONG RANGE RADAR SITE					
CAM-3					
SHEPHERD BAY				NUNAVUT	
TRADE - MÉTIER		SITING		DATE	
				30 OCT 09	
SUBJECT - SUJET					
TOPOGRAPHIC SITE MAP					
PRODUCTION		CONCURRENCE - ASSENTIMENT			
DESIGNED ÉTUDIÉ		W.W.		FIRE MARSHAL PRÉVOT DU SERVICE DES INGÉNIEURS	
DRAWN DESSINÉ		M.J.			
CHECKED VÉRIFIÉ		B.T.		NWSO ENGINEERING OFFICER OFFICIER DU GÉNIE BSAN	
COORDINATION				NWSO FACILITIES ENGINEER GÉNIE DES INSTALLATIONS BSAN	
DWG. NO. - DESSIN NO.					
SK-06					



REFERENCE DRAWING:
H-S123/1-8400-104

7633000



NOTES:

1. CONTOURS ARE IN FEET.

LEGEND:

	WATER/LAKE
— — — — —	P.O.L.
— s — s —	SEWAGE LINE
(C)	CHEMICAL SPILL KIT
(H)	HAZMAT STORAGE AREA
(P)	P.O.L. SPILL KIT

1	30 OCT 09	RELEASE FOR NUNAVUT W.B.	M.J.	
No.	DATE	REVISION	RÉVISION	DRN. APPR.



CAM-3

SUBJECT - SUJET

TOPOGRAPHIC SITE PLAN
SUMMIT AREA
HAZMAT STORAGE & SPILL KIT LOCATIONS

Canada 

Spill Contingency Plan for CAM-3