

- a. Maintaining an up-to-date Spill Contingency Plan;
- b. Practicing spill prevention by:
 - i. performance of regular maintenance on all POL systems;
 - ii. employing proper methods for the handling of POL products;
- c. Maintaining operational competence through staff training;
- d. Identifying the requirements of sub-contractors involved in NWS O&M activities; and
- e. Providing the personnel, materials and equipment necessary for adequate response to POL spills.

1.5.2 North Warning System Office

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.

1.5.3 Fuel Resupply Contractors and Sub-Contractors

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

- a. Provision of a POL Spill Response Plan 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; and
 - iv. materials and equipment available for deployment; and
- b. Provision of sufficient personnel, materials and equipment necessary for adequate response to any POL spills which may occur during fuel resupply operations.

In the event a spill occurs during fuel resupply operations, FRONTEC personnel, material and equipment will assist in spill response activities to the fullest extent, when and where possible. Detailed contents of the POL Spill Response kits are listed in Annex C as well as the site specific descriptions located in EPP Part III Annex F.

Note: This document will be the source document for all contractor and all sub-contractor POL Spill Contingency Plans.

1.6 Amendments

This plan will be revised in agreement with changes to federal, provincial and territorial acts, codes and standards. Requests for revisions, submitted by parties associated with or affected by the NWS, will also be reviewed. Provision for incorporation of changes will take the form of amendments to the plan.

1.6.1 Mechanisms

This plan will be amended by the following steps:

a. Initiation:

Requests for amendment of this plan may be initiated by any member or employee of:

- i. FRONT-EC;
- ii. NWSO;
- iii. parties associated with O&M activities; or
- iv. federal, provincial or territorial government agencies.

b. Review:

The Environment Section of the Facilities Engineering Department will review all proposed amendments. Recommended proposals will be presented to the Manager, Facilities Engineering and upon acceptance will be forwarded to the Director of the North Warning System Office (DNWSO) for final approval.

c. Approval:

DNWSO will be the final authority over this document. Upon the Director's instruction, the amendment will be incorporated into this plan and recorded on the Record of Amendments sheet.

1.6.2 Submission of Amendments

Any comments or suggestions regarding this POL Spill Contingency Plan should be forwarded, in writing, to:

FRONT-EC
North Warning System Project
100 - 170 Laurier Avenue West
Ottawa, ON
K1P 5V5
Attention: Environmental Coordinator,
Facilities Engineering Department

2.0 SPILL PLAN ORGANIZATION

This plan provides:

- a. definition of a POL spill and classifications of spills;
- b. an overview of the NWS and descriptions of:
 - i. methods of fuel resupply;
 - ii. POL storage and distribution systems; and
 - iii. roles and responsibilities of NWSO, FRONTEC and sub-contractors.
- c. measures for prevention of spills;
- d. methods of spill detection;
- e. spill reporting procedures and chain of command;
- f. spill response action plans including:
 - i. response capabilities;
 - ii. procedures for spill containment; and
 - iii. procedures for spill clean-up and methods of disposal of wastes;
- g. procedures for remediation of spill affected areas; and
- h. guidelines for post spill response review.

2.1 POL Spill Definition

For the purposes of this plan, a POL spill is the discharge of petroleum, oil or lubricants:

- a. greater than 20 litres in volume;
- b. from a structure, vehicle, pipe or other container;
- c. within a structure; or
- d. into the natural environment.

2.2 Overview of the North Warning System

The NWS consists of:

- a. Eleven Long Range Radar sites designated as:
 - i. Auxiliary unattended sites, located at:

- LAB-2, Saglek Bay;
- LAB-6, Cartwright;
- BAF-3, Brevort Island;
- FOX-3, Dewar Lakes;
- DYE-M, Cape Dyer;
- CAM-3, Shepherd Bay;
- PIN-3, Lady Franklin Point;
- PIN-M, Cape Parry;
- BAR-2, Shingle Point; and

- ii. Main sites, serving also as LSSs, staffed by approximately 15 persons and located at:

- CAM-M, Cambridge Bay; and
- FOX-M, Hall Beach.

In accordance with the Cost Reduction Initiative (CRI) the sites began reduced staffing in October of 1994, with unattended operation of the LRRs beginning in April 1995. Upon completion of the transition, the frequency of site visits will be the same as for the SRR sites. Airstrips exist at all LRR sites but are accessible in summer months only for all but the two main sites. As airstrips at auxiliary sites are no longer actively maintained they are used at the pilot's own risk. A helipad is also located at each auxiliary site. A POL Spill Response Kit is located at each site, the contents of which are listed in Annex C as well as EPP Part III Annex F;

- b. Thirty six Short Range Radar sites which operate unattended and are visited between four and nine times annually for:
 - i. Preventive Maintenance Inspections (PMI);
 - ii. bulk fuel resupply; and
 - iii. security patrols by the Royal Canadian Mounted Police or the Canadian Forces Rangers.

A helipad is located at each SRR. In addition abandoned landing strips may be usable by fixed wing aircraft at various SRR-sites depending on aircraft type and both site and weather conditions. A POL Spill Response Kit is located in the Technical Services Building (TSB) at each site with additional materials available at the host LSS. The contents of the on-site kits are listed in Annex C as well as in EPP Part III Annex F.

- c. There are five Logistics Support Sites whose staff support O&M of the SRR and LRR sites under the authority of the LSS Manager. The LSSs are accessible by commercial air carriers and a helipad is located at each site. The SRR sites in each of the five NWS zones are supported by a host LSS as follows:
- i. Zone 1, Inuvik LSS:
 - BAR-1, Komokuk Beach;
 - BAR-B, Stokes Point;
 - BAR-BA3, Storm Hills;
 - BAR-3, Tuktoyaktuk;
 - BAR-DA1, Liverpool Bay;
 - BAR-4, Nicholson Island;
 - BAR-E, Horton River;
 - PIN-1BD, Keats Point; and
 - PIN-1BG, Croker River;
 - ii. Zone 2, CAM-M LSS:
 - PIN-2A, Harding River;
 - PIN-CB, Bernard Harbour;
 - PIN-DA, Edinburgh Island;
 - PIN-EB, Cape Peel West;
 - CAM-A3A, Sturt Point North;
 - CAM-1A, Jenny Lind Island;
 - CAM-B, Hat Island;
 - CAM-2, Gladman Point; and
 - CAM-CB, Gjoa Haven;
 - iii. Zone 3, FOX-M LSS:
 - CAM-D, Simpson Lake;
 - CAM-4, Pelly Bay;
 - CAM-5A, Cape McLoughlin;
 - CAM-FA, Lailor River;
 - FOX-1, Rowley Island;
 - FOX-A, Bray Island;
 - FOX-2, Longstaff Bluff; and
 - FOX-B, Naduadjuk Lake;
 - iv. Zone 4, Iqaluit LSS:
 - FOX-CA, Kangok Fiord;
 - FOX-4, Cape Hooper;
 - FOX-5, Broughton Island;
 - BAF-2, Cape Mercy;
 - BAF-4A, Loks Land; and
 - BAF-5, Resolution Island;

sites, LSS locations and some LRR sites incorporate an integral, external, secondary containment vessel in their design.

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 incineration or retrograde activity. See site specific maps in EPP Annex F.

2.4 Fuel Resupply and Use

Bulk fuel resupply of all LRR and all SRR sites takes place during the summer season on an annual or bi-annual basis. Bulk fuel is transported to most LRRs and SRRs by seafair, (barges or ships). Some SRR sites receive bulk fuel from tractor trains, and the FOX-3 LRR site and some SRR sites are resupplied by airlift. Contractors and sub-contractors engaged in fuel resupply operations are responsible for providing their own POL Spill Contingency Plans, (see Section 1.5, Roles and Responsibilities). This document will be the source document for contractors and sub-contractors.

Uses of fuel at LRR sites include:

- a. operation of the power generating system;
- b. aircraft/helicopter refuelling;
- c. vehicles;
- d. furnaces and boilers; and
- e. incinerators.

Uses of fuel at LSSs and SRR sites include:

- a. operation of the power generating system;
- b. helicopter refuelling; and
- c. furnaces.

2.5 Bulk Fuel Description and Characteristics

The fuel used for all purposes on the NWS sites is Jet A-1 (3A), Arctic Grade, Aviation turbine fuel, kerosene type. This fuel type is highly 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 high volatility, Jet A-1 exhibits a high evaporation rate. Due to its light density, this fuel 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 short-term 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.

3.0 SPILL RESPONSE REQUIREMENTS

3.1 Spill Classifications

For the purposes of NWS operations, POL spills will be classified by:

- a. Size (volume); and
- b. Type.

The categories of spill size are:

- a. Minor = less than 205 litres (less than 1x45 U.S. gallon drum); or
- b. Medium = 205 litres to 5000 litres (1 to 25 drums); or
- c. Major = more than 5000 litres.

The categories of spill type are:

- a. Land spills; and
- b. Freshwater and marine spills.

3.2 FRONTEC's Spill Response Capability

When a POL spill is reported at an NWS sites, FRONTEC will:

- a. Mobilize personnel, materials and equipment to respond immediately after receipt of the spill report or as soon as practicable. "In-house" resources will be utilized for response to minor and medium size spills and initial response to major spills.

The conditions at a spill site with respect to weather, temperature, season and availability of transportation, may impose significant delays in response times. The O&M contract SOW allows for a maximum response time of forty eight hours in all cases;

- b. Request assistance, if required, from:

- i. other NWS sites;
- ii. DND; and
- iii. the Canadian Coast Guard,

and hire additional assistance, if required, from:

- iv. Northern residents;
- v. local communities; and
- vi. commercial spill response firms.

Acquisition of additional resources may be required to respond to spills which exceed the capabilities of FRONTEC's "in-house" resources; and

- c. Lend assistance to other agencies or local communities when requested.

3.7 Spill Response

Implementation of a POL spill action plan will include the following activities:

- a. Spill reporting;
- b. Stopping the fuel flow;
- c. Containment of the spilled fuel;
- d. Clean up;
- e. Disposal of clean up materials;
- f. Remediation of the spill site;
- g. Final Report; and
- h. Post-spill review

3.7.1 Spill Reporting

Following the report of a POL spill at any NWS site, the LSS Manager will forward the initial site report information in writing to:

- a. The North Warning System Control Centre (NWSCC); and
- b. FRONT-EC's Environmental Coordinator at CMO.

The Environmental Coordinator will assume the position of Spill Control Manager with authority over all spill response activities as shown in Fig. 2, the Spill Response Flow Chart.

The Environmental Coordinator will contact:

- a. NWSO, which will advise on all spill response activities.
The initial reports, verbal and written, will be followed by regular verbal reports as required;
- b. 24 hour spill line for:
 - i. Northwest Territories;
 - ii. Yukon Territory;
 - iii. Canadian Coast Guard; or
 - iv. Ontario

These spill lines often have minimum volumes for reporting, meaning a spill of a given substance, under a given volume need not be reported. The Northwest Territories government lists various classes of hazardous substances with their minimum reporting volumes in the *Spill Contingency Planning and Reporting Regulations* (min. 100 L for flammable liquids). The Yukon follows the quantities listed in the *Federal Transportation of Dangerous Goods Regulations* (min. 200 L for flammable liquids). Spills of gasoline or associated products under 70 L need not be reported in Labrador (*Storage and Handling of Gasoline and Associated Products Regulations*, 1982). In Ontario,