DRDC Northern Watch Technology Demonstration Project

Spill Contingency Plan

The Spill Contingency Plan (SCP) was prepared for the Northern Watch Technology Demonstration (NWTD) project team consisting of Defence R&D Canada (DRDC) members and their support contractors. The SCP is effective as of July 15, 2008, and will be available as a stand-alone document to all team members and will also be posted in the camp.

To request additional information, or additional copies of the SCP, please contact:

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Introduction

The following contingency plan presents the prescribed course of action to be taken in the case of unanticipated spill events during the NWTD project's Arctic field trial on Devon Island (Gascoyne Inlet), Nunavut. The plan will enable persons in a particular situation to maximize the effectiveness of the environmental protection response and meet all regulatory requirements for reporting to the appropriate authorities.

Scope and Purpose

This plan applies to all activities and facilities pertaining to the construction and operational activities at the NWTD camp at Gascoyne Inlet.:

The purpose of the plan is to:

- Provide a clear statement of the procedures to be followed in response to all spills;
- Minimize the potential environmental impact of spills by establishing predetermined action plans;
- Protect the health and ensure the safety of the personnel involved in the Spill Response activities;
- Provide a reporting network for spills;
- Identify the roles and responsibilities of all parties involved in the Spill Response activities; and,
- Identify sufficient personnel, materials, and equipment needed to provide an adequate response to a spill.

Site Information

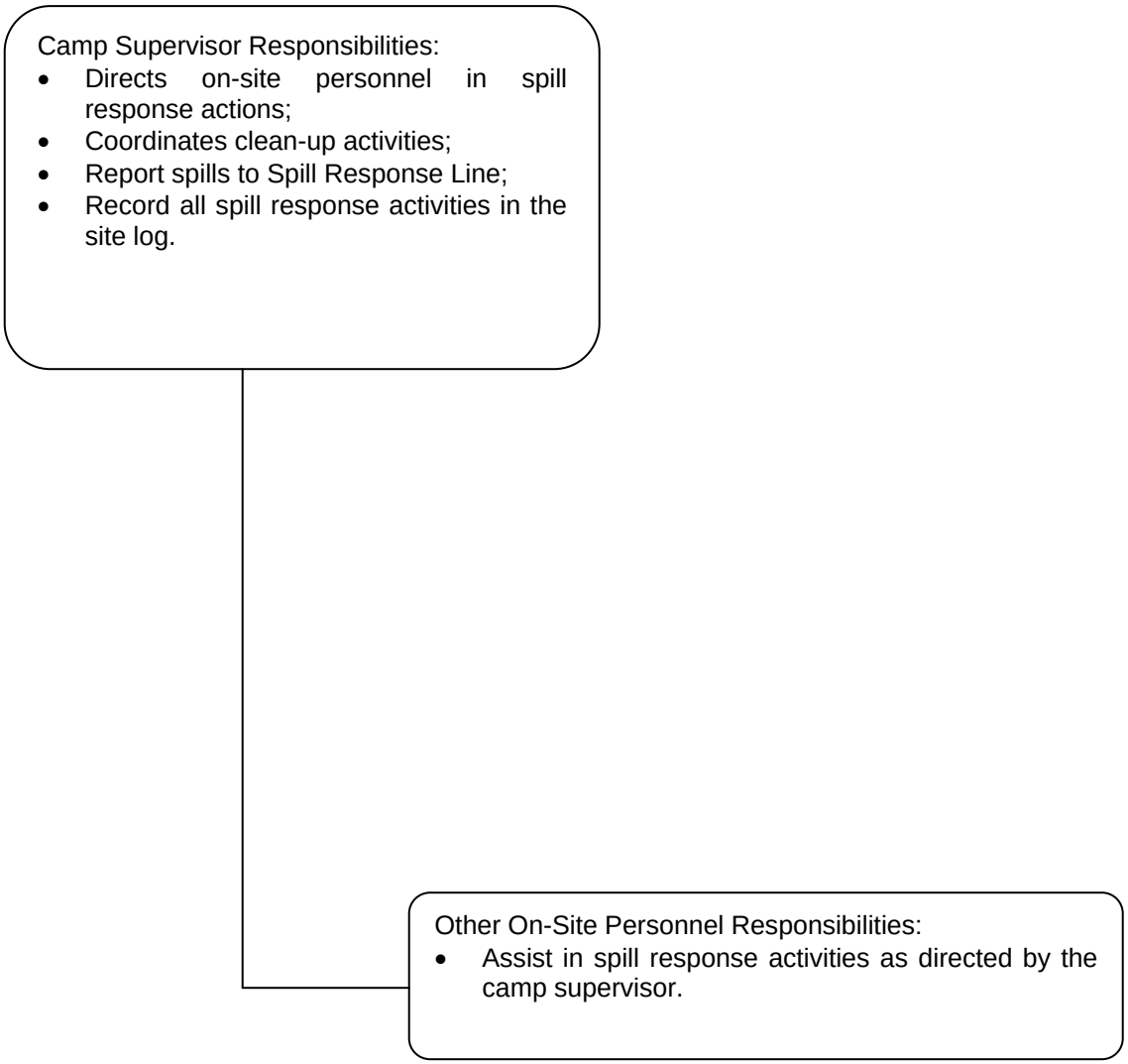
It is estimated that the camp operation will require a combined total of approximately 2050 litres of aviation fuel, 1025 litres of diesel, and 410 litres of gasoline each year. Fuel will be stored in drums, on an impermeable tarpaulin, in a depression, at least 50 metres from any water body or drainage course. Spill kits will be located at the camp's fuel storage/handling area.

Roles and Responsibilities

All on site personnel have the potential to be involved in spill response actions in the event of a spill during NWTD field trials. Their roles and responsibilities are described as follows (and summarized in Figure 1):

- Review proper fuel handling practices and spill response activities with all camp personnel.
- Practise spill prevention by performing regular maintenance on all fuel systems and by using proper methods for handling of fuel products.
- Provide personnel, materials, and equipment necessary for adequate response to fuel spills.
- Establish communications and verbally report all spills to the camp supervisor as soon as practical.
- Isolate and eliminate all ignition sources.
- Ensure safety and security at the spill site.
- Stop or reduce discharge, if it is safe to do so.
- Make every effort to contain the spill by dyking with earth or other barriers on land.
- Assess potential for fuel recovery.
- Use pumps to return spilled fuel to drums.
- Follow all guidelines and regulations for disposal of spilled materials, associated debris, contaminated soil and water as established by appropriate government agencies.
- Assess potential terrain and wildlife disturbance, erosion and archaeological site disturbance in any areas to be affected by clean up operations and contact relevant authorities.
- Document all events/actions.
- Report the spill to the Spill Report Line and follow up with a written spill report. This report shall summarize the initial report information; confirmation of spill volume; actions taken; future remediation/monitoring requirements; and a sketch map and/or photographs of the spill area.

Figure 1: Spill Response Team Organization



Satellite telephone and e-mail are available to on-site personnel to maintain communications with off-site parties. All on-site personnel are provided with two-way radios for all intra-site communications. Table 1 provides all other contact numbers.

Table 1: Spill Contingency Plan - Contact List

Resource	Location	Phone No.
24 Hour Spill Line	NWT/Nunavut	867-920-8130
Environment Canada	Environmental Protection Branch	867-669-4700
Government of Nunavut – Environmental Protection	Iqaluit	867-975-5907
Indian and Northern Affairs Canada – Water Resources Inspector	Nunavut Regional Office	867-975-4550
Indian and Northern Affairs Canada – Land Administration Minister	Nunavut Regional Office	867-975-4280
Department of Fisheries and Oceans	Nunavut Regional Office	867-975-8000
Defence R&D Canada	Gary Fisher, SO Env	902-427-3432

Reporting Procedures

When reporting a spill to the 24 Hour Spill Report Line and completing the Nunavut Spill Report Form, the following information shall be included:

- Date and time of the spill;
- Location of the spill and direction the spill may be moving;
- Name and phone number of a contact person close to the location of the spill;
- Type of contaminant spilled and quantity spilled;
- Cause of the spill;
- Whether the spill is continuing or has stopped;
- Description of the existing containment;
- Action taken to contain, recover, clean up and dispose of spilled material;
- Name, address and phone number of the person reporting the spill; and
- Name of owner or person in charge, management or control of the contaminants at the time of the spill.

The spill report is to be submitted to the INAC Water Resources Officer no later than 30 days after initially reporting the spill to the spill report line. A copy of the NU Spill Report Form and Instruction Sheet are attached to this plan.

Action Plan

The following substances could potentially be spilled at the NWTD site:

- Aviation Fuel
- Diesel fuel
- Gasoline

Initial Action

In the event of a spill, protection of human health and safety is paramount. Contamination of personnel involved in a clean up is a real possibility, as is contamination of the surrounding workplace and environment.

The individual discovering a spill shall:

- Warn the people in the immediate vicinity and evacuate if necessary.
- Isolate or remove any ignition sources.
- Identify the spilled material, if possible, and take all safety precautions before approaching it.
- Locate the source of the spill.
- Attempt to stop the leakage and contain the spill, if safe to do so.
- Assess the likely size, extent and condition of the spill.
- Report to the camp supervisor the spill location, type of material, volume and extent, status of spill (direction of movement), and prevailing meteorological conditions.

Once the Camp Supervisor has been contacted and arrives at the spill site, the following actions are to be taken:

- Assess the severity of the spill via direct observation and/or information from communications.
- Deploy equipment and personnel to initiate containment and clean up.
- Prepare the Nunavut Spill Report Form.
- Notify all other pertinent parties, including other government agencies.

General Procedures

The environmental protection measures outlined in the following sections are to be taken by all workers on-site to reduce the chance of environmental impairment due to a spill, release or other incident. The following general clean up procedures shall apply for all spill areas:

- Wear protective clothing as required for handling spills.
- Contain spills on soil or rock by construction of earthen dykes using available material. If soil is not available, place sorbent material or a boom in the path of the spill. As the sorbent barrier becomes saturated, continually replace it. Fuel or other liquids lying in pools, trenches or in specially constructed troughs are to be removed with pumps, buckets or skimmers.
- If the ground is snow-covered, create snow dykes and line with a chemically compatible liner for containment and recovery of liquid.
- Apply sorbents if necessary.
- Assess potential for disturbance of wildlife, fish and archaeological sites by spill or clean up operations and notify the relevant authorities.
- Notify environmental authorities to discuss disposal and clean up options.
- Conduct required clean up operations.
- Assess and appropriately treat any areas disturbed by clean up activities.

- Ensure the site has been completely restored and leave the site only when all work is finalized.

Fuel Storage Areas

In order to prevent spill or accidents at fuel storage areas, the following procedures apply:

- Avoid sites that slope towards waterways or other environmentally sensitive areas, exhibit ponding or flooding, have high groundwater tables, and/or excessive seepage or ice-rich (thaw sensitive) soils.
- Avoid archaeological resources.
- Conduct fuelling and equipment lubrication in a manner that avoids spillage. When refuelling equipment, operators are to use leak-free containers, reinforced rip and puncture proof hoses and nozzles, and drip trays. Operators are to be in attendance for the duration of the refuelling operation and are to ensure that all storage container outlets are properly sealed after use.
- Smoking is prohibited within 7.5 metres of the fuel storage facility.
- Inspect fuel storage facilities at least once each week for the duration of the project
- All barrels shall be individually identified. The label is to be to industry standards and should provide all information necessary for health and safety, and environmental purposes. Material Safety Data Sheets for all materials maintained in the construction camp will be available for all personnel.
- Conduct regular inspections of all machinery hydraulic, fuel and cooling systems. Repair leaks immediately.
- Pre-assemble and maintain emergency spill response equipment including at least two fuel pumps, empty 200 litre barrels and absorbent materials.
- Remove all barrels, redundant fuel storage sites and associated materials and equipment from the site at the conclusion of the field trials.

Potential Safety Hazards

The most significant potential safety hazard related to a fuel spill at the Gascoyne Inlet site is the possible soil and water contamination from the spill. The fuel storage area is located away from waterbodies and watercourses to avoid this hazard. Although soil contamination is a real potential hazard, the likelihood is small and spill volumes are small.

Equipment Inventory

The following equipment will be onsite during NWTD field trials.

- ATVs (4)
- Diesel Generator (2)
- Hot Water Ice Drill (1)