



Attachment A-9

Spill Contingency Plan

Spill Contingency Plan

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Part 1: Introduction

Spill prevention, reduction and effective clean-up are a priority for Imperial. This Spill Contingency Plan has been developed to meet spill contingency plan guidelines provided by in the 2007 Guidelines for Spill Contingency Planning (Indian and Northern Affairs Canada, 2007). The approach of the Spill Contingency Plan is to promote safe handling of hazardous materials to prevent spills and provide a response system that can be implemented quickly in case of a spill. The Plan also provides the roles and responsibilities of staff on-site, spill reporting protocols, and training provided for staff.

Regulatory Framework

The following guidance/policy documents were used to support the Spill Contingency Plan:

- Guidelines for Spill Contingency Planning developed by Indigenous and Northern Affairs Canada (INAC), April 2007 (INAC 2007)
- GNWT Spill Contingency Planning and Reporting Regulation, March 2011 (GNWT 2011)

Acts and regulations used to support this Spill Contingency Plan are:

- Waters Act (GNWT 2014)
- Fisheries Act (Government of Canada 1985)
- Migratory Birds Convention Act (Government of Canada 1994)
- Transportation of Dangerous Goods Act (Government of Canada 1992)
- NWT Environmental Protection Act (GNWT 1988)
- Canadian Environmental Protection Act (Government of Canada 1999)
- Used Oil and Waste Fuel Management Regulations R-064-2003
- Canada Occupational Health and Safety Regulations (SOR/86-304)
- ECCC Environmental Emergencies Regulations (E2) (SOR/2019-51; Government of Canada 2019)
- Storage Tank Systems for Petroleum Products and Allied Petroleum Regulations (SOR/2008-197)

Project Details

The B-48 well is located near the remote community of Jean Marie River, NWT.

The Site consists of one well, drilled for exploration in 1969.

Company Name:	Imperial Oil Limited.
Site Name:	Cdn-Sup KMG Jean Marie B-48 Well
Site Location:	00/B48 61-30 120-30/0 [NT] Well Centre: NAD83, UTM Zone 10: 6815490m [Northing] 625799m [Easting]
Project Description:	Well Re-abandonment
Site Description:	An exploration well was drilled by Canadian Superior in March of 1969. Once it was determined that the Hume Reef Formation (Horn River Platform) did not have commercially producible hydrocarbons, the well was abandoned. The proposed work is to re-abandon the well as it has been determined that it was leaking.
Nearby Communities:	Jean-Marie River, NWT, located approximately 7km Northwest Fort Simpson, NWT, located approximately 55km Northwest

Project Activities Relevant to the Plan

During the months of December 2021 and January 2022, the well will be re-entered to perform a remediation of the existing abandonment. Monitoring of the well will occur before and after the repair

to determine the success of the re-abandonment. A 2-day scouting trip will occur this fall to gather information on the site, the proposed access, and potential camp locations.

During December 2021, an ice road of sufficient thickness to support the required loads will be constructed. In early January 2021, a suitably sized and equipped drilling rig and supporting equipment and material will be mobilized to the location. A casing bowl and extension will be installed onto the existing casing stub and well control equipment will be installed and tested. The cement plug that is set at surface will be drilled out and the integrity of the existing casing determined by way of casing logging and pressure testing. The remaining two cement plugs in the well will be drilled out. The condition of the wellbore will be assessed by open-hole logging. The well will then be cased with 139.7 mm outside diameter casing. The casing will be cemented full length with oil-well cement suitable for the well condition and temperature.

The wellhead will be secured, then the rig, associated equipment and material will be demobilized. Appropriate heavy equipment will be mobilized to reclaim a portion of the site while leaving enough working space around the wellhead to allow a standalone cased hole logging unit to conduct a cement evaluation log (CEL). The CEL will be run approximately a week after the cementing of the 139.7 mm

Part 2: Response Organization

An immediately reportable spill is defined as a release of a substance that is likely to be an imminent environmental or human health hazard or meets or exceeds the volumes outlined in Appendix B-3 of the Guidelines for Spill Contingency Planning, 2007. It must be reported to the NWT 24-Hour Spill Report Line at 867-920-8130. Any spills less than these quantities do not need to be reported immediately to the spill reporting line. Rather, these minor spills will be tracked and documented by the company and submitted to the appropriate authority either immediately upon request or at a pre-determined reporting interval. If there is any doubt that the quantity spilled exceeds reportable levels, the spill will be reported to the NWT 24-Hour Spill Report Line.

Emergency satellite phones will be in the office and at the camp. In the event of a spill involving danger to human life these phones will be used to contact emergency response personnel. In addition, all employees and contractors carry two-way radios for communication with the site supervisor and other staff on site.

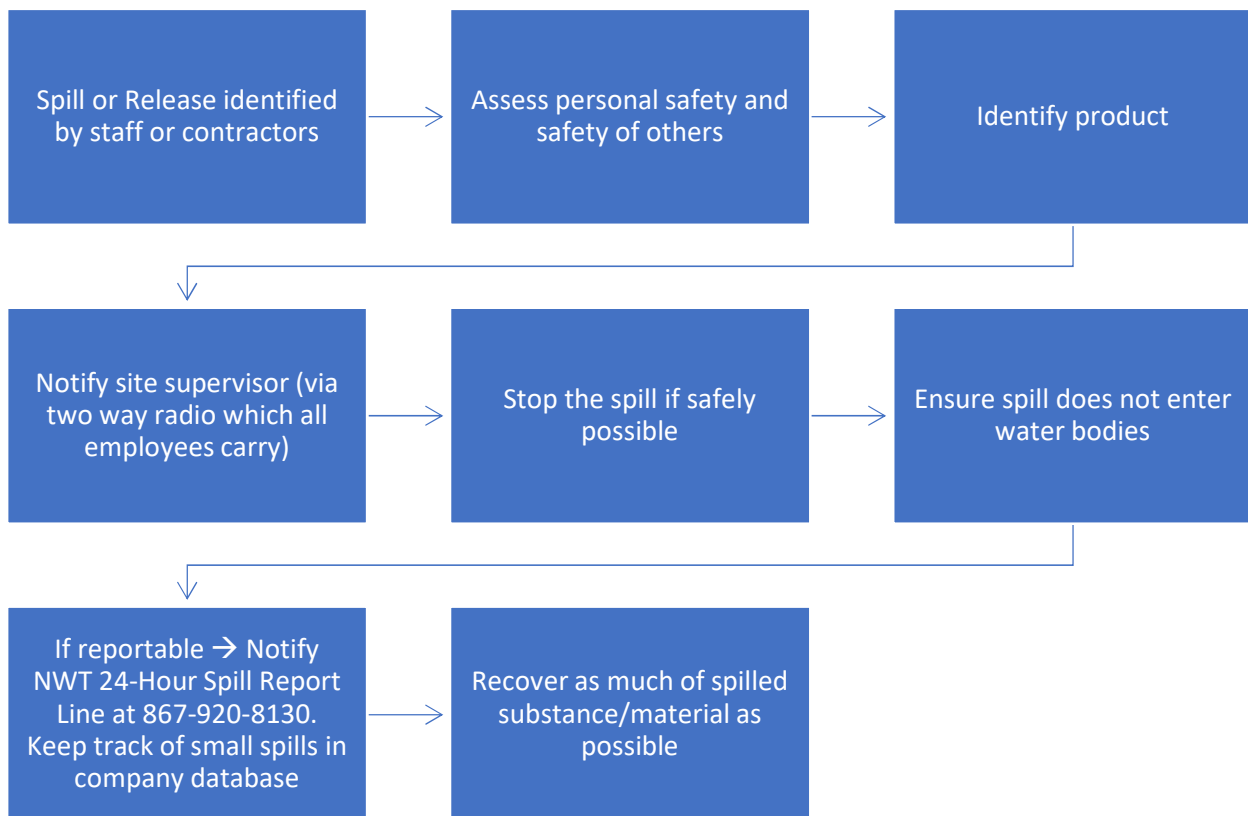


Figure 1: Spill Response Flow Chart

Part 3: Action Plan

Potential Spill Sources for each Hazardous Material on Site

Overall, for all hazardous materials discussed below, impacts are lower during winter as snow is a natural sorbent and ice forms a barrier limiting or eliminating soil or water contamination, thus spills can be more readily recovered when identified and reported (Table 1).

Material	Potential Discharge Event
Diesel Fuel (Drill rig, heavy equipment)	<ol style="list-style-type: none"> 1) Over pumping of fuel from drum into drill rig or other heavy equipment 2) Leaking from drill rig or other heavy equipment 3) Minor leaking fuel drum in/outside fuel storage area 4) Large puncture, fast leaking drum in/outside fuel storage area 5) All drums punctured and leaking at once (very unlikely)
Jet B Fuel (twin otter aircraft, helicopter)	<ol style="list-style-type: none"> 1) Over filling of aircraft 2) Leak from drum or hose while filling aircraft 3) Minor leaking fuel drum in/outside fuel storage area 4) Large puncture, fast leaking drum in/outside fuel storage area 5) All drums punctured and leaking at once (very unlikely)
Gasoline (ATVs, vehicles)	<ol style="list-style-type: none"> 1) Overfilling (small spill) 2) Leak from drum or hose while filling 3) Minor leaking fuel drum in/outside fuel storage area 3) Large puncture, fast leaking drum in/outside fuel storage area 4) All drums punctured and leaking at once (very unlikely)
Propane (Camp stove, fridge)	<ol style="list-style-type: none"> 1) Leak while connected to kitchen stove or fridge 2) Minor leaking cylinder in or outside fuel storage area 3) Large puncture, fast leaking drum in/outside fuel storage area 4) All drums punctured and leaking at once (very unlikely)
Waste Oils, Miscellaneous Oil, Lubricants and Grease (drill rig heavy equipment)	<ol style="list-style-type: none"> 1) Leak while completing routine service on drill rig or heavy equipment 2) Minor leaking drum in/outside fuel storage area 3) Large puncture, fast leaking drum in/outside fuel storage area 4) All drums punctured and leaking at once (very unlikely)

Table 1: Potential Spill Sources

Potential Environmental Impacts of Spill

All the substances mentioned above may be harmful to wildlife and aquatic life. The substances are not readily biodegradable and have the potential for bioaccumulation in the environment. Runoff into water bodies must be avoided.

Worst case scenarios

Scenario 1:

There are multiple small risks associated with the proposed operation. The most credible and impactful of these risks is a diesel spill equal to the size of a storage tank or fuel truck which is approximately 25 m³. The mobile rig will use portable, approved diesel fuel storage tanks. Diesel fuel will be trucked to

the location, using qualified fuel transport contractors, on an ice road across the Jean Marie River. The probability of a spill either onsite or while in transit is very low. The spill volume is a known volume. The consequence of a spill is mitigated by the frozen conditions and the ease of cleanup is aided greatly by those same conditions. In the event of a spill equal to 25 m³, on the river ice, the estimated cleanup cost (containing, loading, and hauling impacted snow and ice) is \$500,000 with an additional \$250,000 for later monitoring and testing. Thus, the total cost of this worst credible case scenario is estimated to be \$750,000.

Scenario 2:

The worst reasonable case scenario would be a well control problem where control is lost and brackish water with dissolved H₂S is spilled. It is unlikely that a fire would result from this; however, surface land environmental damage could occur. In the case of this scenario, additional costs would be incurred due to the additional time and material spent to control the well and cleanup during and after the event. It is unlikely there would be significant penetration into the ground due to frozen ground conditions. Similarly, there is little chance of surface water contamination due to the frozen conditions and setback from waterbodies. Water flows from a shallow well (such as this well) will be at ambient temperature and will freeze quite quickly at surface temperature, limiting dispersion.

The estimated time and cost to control the well in this scenario is two to three days and \$300,000. The costs are largely comprised of the rig and crew day rate and support services with a small additional increase in the cost of drilling fluid materials. The surface cleanup would begin immediately. The cleanup would utilize heavy equipment to break up and haul the frozen spill material to an approved containment site where it would be melted and disposed of per local regulations. The cost of this operation for equipment and personnel is estimated to be \$50,000 per day for approximately 30 days for a total of \$1,500,000. Testing and monitoring of the soil for some period after the cleanup is estimated to add an additional \$500,000 and cleanup of residual impact may add an additional \$2,000,000 however this is unlikely. Given the above, the total cost for this worst-case scenario is \$4,300,000.

Total costs of worst-case scenarios

The sum of both worst-case scenarios total \$5,050,000 and an Irrevocable Letter of Credit will be issued to OROGO pending the Regulator's review.

Procedures

Procedures for Initial Actions

- Ensure safety of all personnel.
- Assess spill hazards and risks.
- Remove all sources of ignition.
- Stop the spill if safely possible e.g., shut of pump, replace cap, tip drum upward, patch leaking hole. Use the contents of the nearest spill kit to aid in stopping the spill if it is safe to do so. Tyvek suits and chemical master gloves are located in the spill kit and should be worn immediately if there is any risk of being in contact with fuel.
- No matter what the volume is, notify site supervisor via two-way radio (all employees carry these, as well as on-site contractors if they are not accompanied by an employee).

- Contain the spill – use contents of spill kits to place sorbent materials on the spill or use shovel to dig dike to contain spill. Methods will vary depending on the nature of the spill.

Spill Reporting Procedures

Report spill immediately to site supervisor, who will determine if spill is to be reported to the NWT 24-Hour Spill Line at 867-920-8130.

Fill out and fax or email the Spill Report to the staff of the NWT 24-Hour spill line.

NWT 24-Hour Spill Line

Phone: (867) 920-8130

Fax: (867) 873-6924

Email: spills@gov.nt.ca

Procedures for Containing and Controlling the Spill

- Initiate spill containment by first determining what will be affected by the spill.
- Assess speed and direction of spill and cause of movement (water, wind and slope).
- Determine best location for containing spill, avoiding any water bodies.
- Have a contingency plan ready in case spill worsens beyond control or if the weather or topography impedes containment.

Waste Spill or Release

Waste storage areas will be established, labelled, and maintained for waste generated as needed throughout the Project and for waste resulting from spill cleanup activities. Examples of waste containers to be kept on site may include dumpsters for municipal waste, sealed cubic meter bags for soils and debris materials, drums for contaminated soil and bins for recyclable materials.

Waste storage areas will be regularly inspected. Handling and storage are conducted according to each product's SDS.

The following rules apply to all activities involving the temporary storage of hazardous materials for the Project:

- Materials are stored in a planned, orderly manner to avoid endangering the safety of personnel or release to the environment.
- Flammable waste products must be stored within designated flammable waste storage areas and must not be stored within 30 m of any other waste storage area or fuel storage area.
- Any soil that becomes contaminated because of hydrocarbon spills will be stored in an approved container for disposal at an approved facility.
- All employees must be trained on how to report a spill and how to initiate the spill response system, including taking the necessary precautions when approaching a spill with the recognition that human health is the number one priority.
- Employees must be trained in the techniques and materials that can be employed for spill containment

Procedures for restoring affected areas

Once a spill of reportable size has been contained, Imperial Oil will consult with the Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) or lead agency Inspector assigned to the file to discuss the level of clean-up that is required. The Inspector may require a site-specific study to ensure appropriate clean up levels are met. Criteria that may be considered include natural biodegradation of oil, replacement of soil and revegetation.

As described above, the ease of spill cleanup is aided by the frozen conditions. In the event of a spill on the river ice or snow, the contaminated material will be addressed by containing, loading, and hauling away the impacted snow and ice. The clean-up will begin immediately and testing and monitoring of the soil for some period after the cleanup will be carried out to assess any remaining environmental risks.

Work is planned to be completed during the winter months when the site is accessible by ice road. In the case that the site cannot be accessed due to weather conditions (blizzard, poor visibility), all possible efforts will be made to contain the spill while awaiting additional resources. The site will be equipped with resources for containment, as explained in part 4, below.

The level of success of the spill response effort will be examined and lessons learned will be incorporated into an updated spill plan.

Part 4: Resources Inventory

Imperial will have a spill kit on the drilling site and at the camp to respond in the event of a spill. Locations of these kits are to be determined given the layout for the drilling complex and camp site and are therefore not yet determined. However, locations of these kits will be marked and covered during the site orientation. Typical spill kit contents are outlined below.

Typical contents of Spill Kits:

- 2 tyvek splash suits
- 2 pairs of chemical master gloves
- 2 large bags with ties for temporary use
- 2 oil only booms (5" x 10')
- 5 oil only mats (16" x 20")
- 5 sorbent socks
- 10 sorbent pads
- 1 large tarp
- 1 roll duct tape
- 1 pick axe
- 1 aluminum scoop shovels
- 1 instruction binder

Vac trucks are also on site often during drilling and will be available for spill response if needed.

Part 5: Training Program

The effectiveness of this Spill Contingency Plan is dependent upon the training and knowledge of staff implementing the Plan. All personnel will receive an orientation related to spill contingency and emergency response on-site as part of the general safety orientation for employees and contractors.

Specific to the Spill Contingency Plan, supervisors will review the Plan with each employee on site:

- during the employee's initial site orientation
- when the employee's responsibilities under the plan change
- when the plan is updated

All employees will be trained on hazardous materials management under the WHMIS, including:

- how to recognize a hazardous material on site
- understanding the risks associated with hazardous materials
- how to activate alarms and report a release