APPENDIX D
CONTINGENCY PLANS

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1. General

The following generic contingency plans present the prescribed course of action to be followed in the case of unanticipated events during clean up such as fuel or chemical spills, potentially dangerous wildlife encounters, and the discovery of heritage resources. The plans will enable persons in a particular contingency situation to maximize the effectiveness of the environmental protection response and meet all regulatory requirements for reporting to the appropriate authorities. In addition, all of the requirements outlined in the Land Use Permit and Water Use License will be adhered to.

2. Fuel and Hazardous Material Spills

The objective of the fuel-related contingency plan is to protect the environment and human health by minimizing the impacts of spill events through clear and concise instructions to all personnel. A variety of fuels (diesel, gasoline, and lubricating oils) may be used during the investigations of the DEW Line sites. As fuels are usually stored and transported in 205 litre barrels or containers of smaller capacity, any spill quantity is likely to be small. Transportation of fuels must comply with the *Transportation of Dangerous Goods Act and Regulations*. The fuel tanks, connections, lines, and equipment should be checked on a regular basis to identify any leaks, spills, etc. The most common pollution incidents will probably involve spills of diesel or gasoline onto land resulting from:

- human error during fuel transfer;
- rupture of lines or barrels from deterioration or damage;
- seepage from fittings or valves; or
- equipment failure.

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

The individual discovering a spill shall:

- Identify the spilled material and quickly assess human and environmental health risks including:
    1. Any nearby ignition sources
    2. Any nearby water courses/potable water sources
    3. The extensiveness of the spill
    4. Refer to MSDS Sheets or government authority for material handling measures if unknown.
- Warn people in the immediate vicinity and evacuate the area if necessary. Don personal protective equipment if necessary.
- Isolate and eliminate all ignition sources.
- Obtain materials and equipment necessary for adequate response to fuel spills, such as excavators for creating earthen dykes and absorbent booms.
- Attempt to immediately stop the leakage and contain the spill, if safe to do so.
- Make every effort to contain the spill by dyking with earth or other barriers on land and containment booms on water.

- Report to the Field Team Leader the spill location, type of material, volume and extent, status of spill (direction of movement), and prevailing meteorological conditions.
- Follow all applicable federal/ territorial regulations and guidelines or the disposal of spill materials.
- Document all events and actions taken. Include information required by applicable regulations and guidelines.
- Team Leader to notify the appropriate government agencies using the contact list. Report spills immediately on the 24-Hour Spill Report Line (867)920-8130. Reports will be filed as per the quantities in Table D1.

Table D1: Reportable Quantities

Class and Division	Description	Quantities or Levels Released
1	Explosives	Any amount
2.1	Flammable gases	At least 100 L (container capacity)
2.2	Non-flammable gases, Non-toxic gases	At least 100 L (container capacity)
2.3	Toxic gases	Any amount
2.4	Corrosive gases	Any amount
3	Flammable liquids	At least 200 L
4	Flammable solids	At least 25 kg
5.1	Oxidizing substances	At least 50 kg per 50 L
5.2	Organic peroxides	At least 1 kg or 1 L
6.1	Poisonous substances	At least 5 kg or 5 L
6.2	Infectious substances	Any amount
7	Radioactive materials	Any discharge or a radiation level exceeding 10mSv/h at the package surface and 200uSv/h at 1 m from the package surface
8	Corrosives	At least 5 kg or 5 L
9.1	Miscellaneous dangerous goods	At least 50 kg
9.2	Substances hazardous to the environment	At least 1 kg
9.3	Dangerous wastes	At least 5 kg or 5 L

Substance typically found on site, Substance typically NOT found on site

3. Laboratory Chemicals

A variety of chemicals may be used during the investigations of the DEW Line sites in the field laboratory. These chemicals are usually stored and transported in 1 litre rubberized glass bottles or in smaller volume (10 - 100 mL) plastic or glass bottles. Any spill quantity is likely to be small and does not need to be reported to the spill report line.

3.1 Laboratory Chemical Spill Procedure

In the event of a spill, the following clean up procedures shall apply for these chemicals: Methanol and Methanol Solutions (contained in the PetroFLAG Test kit, RaPID Prep PCB Sample Extraction Kit and PCB RaPID Assay Test Kit); Aroclor 1254, Sulfuric acid, 1,2,6-Trihydroxyhexane and trimethylolaminomethane (contained in PCB RaPID Assay Test Kit); and, Hexane.

- Ventilate area of spill.
- Remove all sources of ignition.
- Wear appropriate personal protective equipment Wear impervious protective clothing, including boots, gloves, lab coat, as appropriate, to prevent skin contact. Use chemical safety goggles and/or a full face shield where splashing is possible.
- Keep unnecessary and unprotected personnel from entering spill area.
- Contain and recover liquid when possible.
- Use non-sparking tools and equipment.
- Collect liquid in an appropriate container or absorb with an inert material (e.g., vermiculite, dry sand, or earth), and place in a chemical waste container.
- Do not use combustible materials, such as saw dust.
- Dispose of recovered liquid and absorbent with other test kit laboratory waste as outlined in the Laboratory Waste Protocol.
- Document all events/actions.

For Sodium Sulfate, please adhere to the following precautions:

- Wear suitable protective clothing. (rubber gloves and safety glasses). Carefully sweep up and place in chemical waste container.
- Dispose of recovered sodium sulfate powder with other test kit laboratory waste as outlined in the Laboratory Waste Protocol.
- Document all events/actions.

3.2 Laboratory Waste Protocol

The ESG field laboratory produces a variety of wastes including items such as glass, plastic and paper, and waste contaminated soil and test kit liquids. All these waste products need to be disposed of in an appropriate manner. The following protocol outlines the procedures for disposal of laboratory waste at investigation sites.

Since landfills and Tier II facilities that receive DEW Line waste are not yet constructed at investigation sites, all non-hazardous laboratory waste and waste soil is securely stored on-site until the construction phase of the project when it will be disposed of in the appropriate facility.

3.3 Waste soil from XRF Analysis

All soil from the Teflon cups and left-over soil in the coffee grinder is to be emptied into one or more Rubbermaid's labelled "DEW Line Clean-Up Tier II Soil – For Disposal as Contaminated Soil".

The Tier II soil in these Rubbermaid(s) will be disposed of during the construction phase of the DEW line project. When the Rubbermaid is full of soil it should be securely covered by replacing the lid and sealed with duct tape and zapstraps. Store the Rubbermaid(s) in an on-site building that is sheltered from weather and wildlife. Team Leaders should record where and how many Rubbermaid's and the approximate volumes of Tier II soil in each. This information should be recorded on a chain of custody and also included in the site report.

3.4 Waste from the TPH and PCB Test Kits

All liquid from the test kits (e.g. the extraction and developing vials, PCB test tubes) is to be emptied into a separate Rubbermaid container labelled "Liquid Disposal from TPH and PCB Test Kits". Store this Rubbermaid container in an area that will facilitate evaporation but will not be accessible to wildlife.

When the Rubbermaid is about half-full of test kit liquid it should be emptied. Dilute the liquid in the Rubbermaid with as much water as possible then find a well-defined Tier II area (e.g. the sewage outfall) on site to empty the liquid contents.

After emptying the Rubbermaid's for the final time, clean with soap and water that can be disposed of with other camp wash water. Let the Rubbermaid's dry before using for another purpose or packing them to return to Kingston.

Dispose of consumable glass and plastic components (e.g. the glass methanol vials, the extraction and developing vials, nitrile gloves) and sodium sulfate in a designated lab garbage. Paper products like the test kit box and any kimtowels or wipes can be disposed of in the regular garbage that will be disposed of by the outfitter.

The designated lab garbage should be clearly marked and should not be emptied by the outfitter or third party support personnel. When the garbage bag is full it should be double bagged and labelled "DEW Line Clean-Up - Glass and Plastic Non-Hazardous Laboratory Waste – For Disposal in Future On-Site Non-Hazardous Waste Landfill".

The lab garbage will be disposed of during the construction phase of the DEW line project. It should be stored in an on-site building that is sheltered from weather and wildlife. Team Leaders should record where and how many garbage bags of laboratory waste are left on-site.

3.5 Soil on Kimtowels

All the dry soil on the Kimtowels should be disposed of in the same Tier II Rubbermaid's that receive waste XRF soil. Ensure that all soil is removed from the Kimtowels. If soil has stuck to the Kimtowel, remove that part of the Kimtowel with the attached soil and dispose of it in the Rubbermaid. Used Kimtowels with no remaining soil on them can be disposed of along with the other laboratory paper products by the outfitter.

3.6 Plastic Scoops

Used plastic scoops should be double-bagged, labelled as "DEW Line Clean-Up – Used Plastic Soil Sampling Scoops Non-Hazardous Waste" and stored with the designated non-hazardous lab waste in a secure area for disposal in the future on-site landfill. Team Leaders should record where and how many garbage bags of waste scoops are left on-site.

4. Wildlife Encounter

Bears are a potential hazard to workers at all times and the situation can be aggravated by the presence of any substance that a bear perceives to be food. **EMPLOY DEDICATED BEAR MONITORS AT ALL TIMES DURING SITE INVESTIGATION ACTIVITIES.** Be familiar with the NWT "Safety in Bear Country" manual and make available a copy at the site.

Operators of vehicles and equipment shall make every effort to avoid encounters with large mammals. Congregations of animals near food or garbage are a potential problem that can be overcome by proper disposal of food wastes. Concentrations of scavenging animals such as wolves, foxes and bears increase the risk of diseases, particularly rabies, and danger to personnel. The following precautions and actions are to be taken at each site:

- The killing of wildlife for any reasons at variance with the Wildlife Act and regulations is an offence. Coordinate procedures for handling wildlife problems and incidents with the regional Nunavut wildlife office.
- Use vehicles, noisemakers and, if necessary, a firearm to frighten the bear away from the site.
- Shoot the bear only if the bear returns repeatedly, refuses to leave or directly threatens human safety. Killing is considered a last resort. If at all possible, contact the appropriate wildlife officer and alert them to the problem. If a bear is to be shot, assign the task only to a person familiar with and competent with the camp firearm. Wounded or otherwise aggravated bears can be extremely dangerous.
- Report the death of a bear to the Field Team Leader and the appropriate Nunavut wildlife officer who will issue instructions as to disposal of the carcass and the formal reporting procedures to be followed.
- Due to the possibility of rabies, shoot any animal that bites a human and retain the carcass intact pending instructions from the appropriate wildlife officer. If possible, notify the wildlife officer before any drastic action is taken. Seek medical advice from the appropriate medical facility for treatment of animal-inflicted wounds.

5. Heritage Resources

All site personnel are prohibited from knowingly disturbing any archaeological or other heritage site or collecting any artefacts. Removing artefacts is a criminal offence. In the event an archaeological or heritage site is found:

- Do not remove any artifacts or other associated objects from the site unless their integrity in threatened.
- Mark the site's visible boundaries and avoid the area.
- Report the discovery of the site to the INAC/Nunavut Department of Culture, Language, Elders & Youth regarding Heritage resources.
- Document the discovery.

6. Key Contact List

24 Hour Spill Report Line

In the event of a spill, contact the 24 Hour Spill Report Line and provide with all the relevant details.

- Telephone: (867) 920-8130 (collect calls accepted).

Environment Canada, as lead agency shall then be contacted by officials to ensure the appropriate response. The lines are staffed 24 hours a day and can also be used to coordinate a response in the event of a non-spill emergency outside of normal working hours.

Other Contacts

In the event of a non-spill emergency (e.g. related to wildlife, fisheries, heritage resources, etc.) contacts are provided in Table D2. If any activities adversely affect the North Warning System operations, Ian Ashton, Telephone (613) 992-0755 / Fax: (613) 996-3925, should be contacted immediately.

Table D2: Contacts for Resource Interests

Resource	Location	Agency	Phone No.	Fax No.
Land Use	Iqaluit	Indian and Northern Affairs	(867) 979-4405	(867) 979-6445
Fisheries, Marine Mammals	Iqaluit	Fisheries and Oceans Canada	(867) 979-8002	(867) 979-8039
Wildlife	Iqaluit	Department of Sustainable Development	(867) 975-5902	(867) 975-5980
Migratory Birds	Yellowknife	Canadian Wildlife Service	(867) 669-4700	(867) 873-8185
Heritage Resources	Iqaluit	Nunavut Department of Culture, Language, Elders & Youth	(867) 979-0731	(867) 979-6700

Emergency Numbers

- Stanton Regional Hospital Yellowknife 867-669-4111
- Baffin Regional Hospital Iqaluit 867-979-5231
- Health Centre Cambridge Bay 867-983-2569

7. Health and Safety

The following Camp Rules and Hazard Assessment are intended to supplement the generic site Health and Safety Plan (HASP) (June 1997). It is imperative that the generic HASP be read in conjunction with the camp rules and hazard assessment.

7.1 Camp Rules

7.1.1 ATV's

- Do NOT operate ATVs at excessive speeds.
- Always wear a helmet.
- Check ATV prior to use for gas and oil.
- Do NOT ride the ATV if there is a suspected problem; advise the Team Leader.
- All personnel unfamiliar with ATV's shall be provided with training and operating instructions.
- Do NOT operate ATVs on the Airstrip at and LRR without the permission of the Site Supervisor.

7.1.2 Leaving Camp

- Always inform Team Leader of activities.
- Never leave camp alone. Use a buddy system.
- A bear monitor must be present at all times unless approved by Team Leader.
- Location, ETA, route, and any other pertinent information must be provided to the Team Leader.
- Communications must be maintained, either by two-way radios or sat phone.

7.1.3 Other

- Airstrip Safety – field personnel shall be aware of all safety requirements at sites with commercial Airstrips, such as FOX-M, CAM-M and FOX-5, as well sites other LRR sites, such as BAR-2, DYE-M and FOX-3.
- Steel toed/shank boots must be worn when working in all site areas.
- Inform Team Leader and Medic of any injuries, no matter how trivial
- Inform Team Leader of any allergies, medical conditions, etc.

8. Hazard Assessment

Hazard	Comments	Potential Mitigative Measures
Cold Stress	Most of the work will be outdoors. Tents will be the primary means of accommodation.	Arctic gear will include parka, hat, mitts, Arctic grade sleeping bag, thermal underwear and other appropriate clothing. Eating regular meals and having snacks available is helpful.
Heat Stress/Sunburn	Most of the work will be outdoors. There may be exposure to ultraviolet radiation.	Personal gear will include sun hat, and other appropriate sun clothing. Sunscreen is recommended at all times.
Wildlife encounters	Grizzly bears, musk oxen, caribou, raptors, and polar bears have been known to frequent the various sites.	A dedicated bear monitor will be employed. Do NOT approach wildlife remember that they are all potentially dangerous.
ATV's	ATV will be used as the primary means of transportation around the site.	Camp rules regarding ATV operation will be followed at all times. All field team members will have completed ATV safety training. Any physical obstacles on roads shall be removed or marked.
Debris	Debris may be scattered around the site.	Steel toed/shank boots will be worn when working in all site debris areas.
Site Buildings	The site buildings may be in poor condition.	Hard hats and steel toed/shank boots will be worn when inside any buildings that are in poor condition. Inspections and ventilation required prior to entry.
Carbon Monoxide Poisoning	Portable fuel oil heaters will be used to heat dining and sleeping quarters.	All heaters will be properly vented. Portable CO monitors will be used.
Exposure to toxic chemicals	Soils previously sampled from the site have been determined analytically to contain PCB, nickel, copper, lead, and zinc. Surface paint samples may contain up to 10% lead and 7% PCBs	Appropriate personal protection equipment will be worn during any activity that may result in inhalation, ingestion, or dermal contact of contaminated soil and paints. Particulate masks Level B if potentially airborne (i.e. paint chips); level C if not airborne Gloves should always be worn during soil sampling Wash hands and face prior to eating.
Asbestos Inhalation	Asbestos samples may be collected.	Face masks equipped with HEPA cartridges, safety goggles, and nitrile gloves will be worn during asbestos sampling. Samples will also be thoroughly wet down with water prior to sampling.
Heavy Equipment	A mini excavator will be on site. Work may be required in the vicinity of the excavator.	Hard hats and safety vests will be worn when working in the vicinity of the excavator.