.7 Locate the treatment facility in an area with minimal vegetative ground cover. A potential site has been identified on the Construction Drawings.

.8 Locate the treatment facility in an area that is as close as practical to the main areas of hydrocarbon contaminated soil excavation, and where possible, on an existing gravel pad or former borrow area.

.9 Do not impede surface drainage, and maintain a distance of at least 100 m from the nearest surface water body.

.10 The minimum distance required between the treatment facility and construction camp, Engineer office and site laboratory is 500 metres. Locate facilities accordingly.

.11 Avoid areas having overall slopes greater than 6%.

.12 Avoid areas containing archaeological resources.

.13 Do not interfere with LSS activities, and comply with provisions of the Site Use Restrictions (SUR).

.14 Construct the treatment facility to the lines and dimensions as indicated on the Contract Drawings and in accordance with Section 02067 of the Contract Specifications.

.15 Operate the treatment facility in accordance with Section 02067 of the Contract Specifications

.16 A program of sampling and analytical testing of the hydrocarbon contaminated soil in the landfarm will be carried out by the Owner as outlined in the Contract Specifications.

.17 All workers to wear appropriate protective equipment/clothing when handling hydrocarbon contaminated soil as directed in Section 02067 of the Contract Specifications.

.18 Avoid releasing any contaminated soil or contact water into the environment during the transport, handling, treatment and/or disposal of hydrocarbon contaminated soils.

4.9 Landfill Closure and Development

.1 Cover landfills with granular fill materials to provide a minimum cover thickness as indicated on the Contract Drawings. Regrade the landfill areas to restore natural drainage patterns and topography.

.2 Install geo-synthetic liner systems where indicated on the Contract Drawings. Cover landfills with granular fill material to provide a minimum cover thickness as indicated on the Contract Drawings. Regrade the landfill areas to restore natural drainage patterns and topography.

.3 Construct a new landfill for the disposal of non-hazardous wastes generated during the clean up of the FOX-M site.

.4 Provide drainage controls such as diversion ditches and sediment filters, as required, to prevent runoff from reaching water bodies during closure, remediation and construction of landfills.

.5 Conduct all earthworks in accordance with Section 02209 of the Contract Specifications.

.6 Install monitoring equipment as indicated on the Drawings or as directed by the Engineer in accordance with Section 02510 of the Contract Specifications.

4.10 Disposal of Site Debris

.1 Collect, sort and dispose of hazardous and non-hazardous site debris in accordance with Section 02219 of the Contract Specifications.

.2 Test contents of any intact barrels and dispose of as described in the Contract Specifications, Section 02090.

.3 Handle and dispose of any asbestos according to the methods described in the Contract Specifications, Section 02081.

.4 Workers are to wear appropriate protective clothing when handling potentially hazardous waste material as directed in Section 02090 of the Contract Specifications.

.5 Minimize off-road activity during collection of site debris.

.6 Avoid releasing any hazardous waste materials into the environment during the handling of hazardous waste materials. Invoke the contingency plans (Section 7) and take appropriate action in the event of a spill or other emergency situation.

4.11 Demolition of Buildings and Structures

.1 Carry out demolition, sorting and disposal of hazardous and non-hazardous demolition waste in accordance with Section 02060 of the Contract Specifications.

.2 Remove all residual debris from the site down to grade. Demolish structures to the top of concrete foundation level. Dispose of non-hazardous demolition debris as directed in the Contract Specifications and Drawings. Regrade gravel pads and other foundations to restore natural drainage patterns and to match adjacent topography.

4.12 Marine Vessel Movements

.1 Marine vessels can adversely affect wildlife. Sea mammals and flocks of waterfowl are to be avoided by all shipping.

.2 To minimize disruption to hunting and fishing activities, restrict vessel traffic to within traditional shipping lanes, where they exist. Avoid marked fishing gear that may be encountered near shore.

.3 Inform all marine vessel operators of all applicable EPP requirements when scheduling arrangements are made or at other appropriate periods prior to the arrival of the vessel at the site.

4.13 Aircraft Movements

.1 It is anticipated that fixed wing chartered aircraft will be used to transport personnel, perishable supplies and various construction materials and equipment to and from the site.

.2 Where concentrations of birds or mammals are known to be near the construction sites, advise charter pilots to maintain an altitude of at least 500 metres and preferably 1,000 metres, above ground or water, when passing over these areas. Low-level flights to observe or photograph wildlife shall not be permitted.

.3 Inform all charter aircraft pilots of all applicable EPP requirements when scheduling arrangements are made or at other appropriate periods prior to the arrival of the aircraft at the site.

4.14 Handling of Hazardous Waste Materials

.1 Treat and dispose of hazardous waste material, including hazardous barrel contents, in accordance with Section 02090 of the Contract Specifications.

.2 Store hazardous and non-hazardous waste materials in accordance with Section 02090 of the Contract Specifications. Ensure each storage area is separated from the nearest water body by a 30 metre buffer zone; at beach storage areas consideration must be given to the reach of sea ice and storm tides.

.3 Packaging

.1 The *Transportation of Dangerous Goods Act* (TDGA) Dangerous Goods Regulations govern the packaging and shipment of hazardous goods within Canada. If shipping out of Canada, Canadian regulations and regulations of the destination country both apply. Requirements of the International Marine Dangerous Goods Code (IMDGC) must be addressed in international waters (e.g. near Greenland).

.2 Any material classified as hazardous by the TDGA must be accompanied by the appropriate TDG shipping documents. The documents are to state the shipper, the receiver and all carriers involved in the transport of the shipment. Non-hazardous materials are also to be accompanied by a document indicating ownership and responsibility of the receiver.

.3 Package all hazardous material in accordance with the Transportation of Dangerous Goods Regulations.

.4 For TDG classification 9.3, dangerous goods in quantities larger than 5 kilograms or 5 litres, and for wastes that contain more than 500 grams of PCB mixture (a mixture with PCB concentration >50 ppm), the following procedures apply:

.1 Complete a waste manifest for each shipment, specifying a unique reference number and DND's waste generator number, to accompany the shipment to the final destination. The Department of Sustainable Development administers the manifesting system in Nunavut and is responsible for issuing the generator numbers.

.2 Document the origin and destination of the shipment on the manifest.

.3 All manifests are to be reviewed and signed by the Engineer prior to submission.

.4 Deliver the manifest to the initial carrier and forward to the relevant government agencies within two days of sending the shipment.

.5 On receipt of the dangerous goods, the receiver shall send a copy of the manifest to the sender, the carrier of the shipment, and the relevant government agencies within two working days.

.6 The Contractor is responsible for submitting the signed TDG shipping documents and waste manifests to the relevant parties as detailed in the TDG Regulations.

.7 Notify provincial and territorial governments of any shipments of PCB mixtures which pass through their borders.

.8 Notify Transport Canada, Prairie and Northern Region-Marine (613-991-6006) of any shipments of PCB mixtures which are occurring by sea.

.5 Test any waste of unknown TDGA hazard to determine whether any transport hazard exists according to the regulations. Package any substance that is considered hazardous under the TDGA in accordance with the regulations and the national standard Performance Packaging for Transportation of Dangerous Goods. The TDGA regulations specify the packaging requirements for dangerous or hazardous goods according to risk.

.4 Labelling

.1 Label and placard packages according to class and division of the hazardous item. A label or placard design is unique to each classification. A partial list of these requirements is presented in Table 4.1.

.2 Label all packages on at least two sides and write the name of the hazardous substance beside the label. Placard large containers as defined by the class and division with the TDG product identification number clearly displayed. The product identification number is indicated by the substance name in the regulations.

Table 4.1: TDGA Classification and Packaging Requirements for Specific Substances

Substance	Class/Packing Group	Packaging/Shipping Criteria
Petroleum Distillates, N.O.S. These types of petroleum hydrocarbons will include the majority of the liquid hydrocarbons to be removed from the site. (TDG)	3 III (3.3 III for Marine Vessels) - flammable liquids with a flashpoint between 23°C and 61°C, and a boiling point greater than 35°C (e.g. diesel, kerosene, lube oil). Packing Group III is the lowest risk for this class.	- by cargo vehicle or vessel, can be transported in standard large containers/barrels on land.
Hydrocarbons in Soils Flammable Solids N.O.S. (TDG)	4.1 III/II - flammable low (III) or medium (II) risk as tested. Criterion is how readily ignited the substance is. Assume most hydrocarbon contaminated soils are low risk.	- as above for cargo vehicles or vessels.

Substance	Class/Packing Group	Packaging/Shipping Criteria
Tank Bottoms Sludges Waste Type 78 (TDG)	6.1, 4.1 II - a TDG defined waste type which is more poisonous (6.1) than flammable (4.1) but both risks must be labelled. The risk is medium (Packing Group II) for this substance.	- cargo vehicle or vessel only, shipment must be registered. - should be packaged in sealed, leak proof containers.
Polychlorinated Biphenyls (TDG)	9.3 I - hazardous waste with a high risk to human health (Packing Group I). This is for anything containing PCB mixtures (any item containing PCBs in concentrations greater than 50 ppm).	- cargo vehicle or vessel only, shipment must be registered. - any item containing PCB mixtures and intended for disposal must be contained in a combination packaging where the inner package is made of earthenware, plastic or metal and is leak-proof, and the outer packaging is a drum or box made of steel, aluminum, plywood, fibre or plastic. There must also be sufficient absorbent between the inner and outer packagings to prevent any liquid from escaping (if liquid is present) from the outer packaging.
Miscellaneous Degreasing Solvents, Waste Type 1 (TDG)	6.1 II - a poisonous liquid waste with a medium risk for this class.	- cargo vehicle or vessel only. - should be packaged in sealed, leak-proof containers for ground transport.
Batteries, Wet, Acid Filled[6] (TDG)	8 III - corrosive substances contained in equipment or part of an item are considered low risk (Packing Group III).	- should be packaged in sealed, leak-proof containers for ground transport, or air transport.

Substance	Class/Packing Group	Packaging/Shipping Criteria
Compressed Gases: i) Flammable Gases (TDG)	2.1 X - any pressurized or liquified gas which is ignitable at normal atmospheric pressure when in a mixture of 13% or less in air by volume.	- any compressed gas should be contained in cylinders according to the standards in the CSA document Cylinders, Spheres, and Tubes for the Transportation of Dangerous Goods.
ii) Non-Flammable, Non-Poisonous, Non-Corrosive Gases (TDG)	2.2 X - any pressurized or liquified gas which does not meet the criteria of divisions 2.1, 2.2 or 2.4.	
iii) Poison Gas (TDG) iv) Corrosive Gases (TDG)	2.3 X - any pressurized or liquified gas that has an LC50 value less than 5,000 mL/m³ at normal atmospheric pressure by reason of toxicity. 2.4 X - any pressurized or liquified gas that has an LC50 value less than 5,000 mL/m³ at normal atmospheric pressure by reason of corrosion effects on the tissues of the respiratory tract.	
Radioactive Material, N.O.S. (TDG)	7 X - any product, substance or article with activity greater than 74 kBq/kg.	- must be packaged and handled according to the Transport Packaging of Radioactive Materials Regulations.

Note:

1. Standard documentation applies for all of the above, except any item with "waste" in the name must have a waste manifest as well as a standard shipping document. (Ground and sea transport only.)
2. Special notification is needed for any PCB mixture transport.
3. These items may be shipped by a licensed TDG shipper only.
5. Packing Group X indicates special packaging required.
6. Wet acid filled batteries can be transported as described or alternatively they can be neutralized. Neutralization would make the batteries a "waste" under TDG and would require them to be manifested.

4.15 Explosives

.1 BLASTING SHALL NOT OCCUR UNLESS SPECIFIC PERMISSION IS GRANTED BY THE NORTH WARNING SYSTEM, DND THROUGH THE SITE ENGINEER. The use of explosives is potentially dangerous to human and animal health. The following procedures apply:

.1 Comply with all provisions as detailed in the Site Use Restrictions (SUR).

.2 Obtain all necessary permits and licenses.

.3 Handle, transport, store, and use explosives and all other related hazardous material in accordance with all applicable laws, regulations and orders of regulating authorities.

.4 Electric detonation methods are prohibited.

.5 Restrict use of explosives to authorized and certified/licensed personnel who have been trained in their use.

.6 Minimize defacement of landscape features and other surrounding objects controlling the scatter of blasted material beyond the cleared working area.

.7 Minimize shock or instantaneous peak noise levels.

.8 Prevent scatter from blasting from reaching fuel or hazardous substance storage locations. A minimum distance of 300 metres in rocky terrain, and 1,000 metres in the presence of metal is required.

.9 Do NOT conduct blasting in the vicinity of concentrations of wildlife.

.10 Restrict blasting to above water and a minimum of 100 metres from concentrations of fish.

4.16 Work Site Clean Up and Abandonment

.1 Remove all temporary buildings, fuel barrels, vehicles, equipment and surplus materials from the site following completion of work.

.2 Remove all waste materials from the site following completion of the work.

.3 Stabilize all large earthwork slopes. Gravel access roads required for operation and maintenance may remain.

.4 Regrade all disturbed areas to restore natural drainage patterns.

5. PROTECTION MEASURES FOR VALUED ENVIRONMENTAL COMPONENTS

5.1 General

.1 This section describes the required protection measures for the valued environmental components identified at the FOX-M site. Comply with all requirements described in this section.

5.2 Human Health and Safety

.1 Potential hazards to human health and safety are present at the FOX-M site in the form of hazardous materials and contaminated soil, hazardous local terrain and unpredictable weather conditions. Hazardous material and contaminated soil have the potential to enter water bodies and the food chain, and thereby affect vegetation, fish, wildlife and the health of people who travel, hunt and fish in these areas. Contaminated soil is to be excavated and disposed of in accordance with Section 02066 of the Contract Specifications. Site debris may present a physical hazard to people travelling through these locations. Hazardous surface debris scattered at specific site locations is to be collected and disposed of in accordance with Section 02090 of the Contract Specifications.

.2 Take all necessary precautions when handling and transporting hazardous materials and contaminated soil to ensure that the materials do not come into contact with site personnel. Site workers shall wear protective clothing as directed in Section 02090 of the Contract Specifications when handling hazardous materials.

.3 All site personnel working on or in the vicinity of clean up operations must be trained in, made aware of, and adhere to the requirements of the Workplace Hazardous Materials Information System (WHMIS) program.

.4 Outdoor recreation activities of site personnel have the potential to adversely affect nearby fish, wildlife and heritage resources. Subject to camp rules and the requirements of territorial fishing licenses and regulations, staff may be permitted to leave the site for recreational purposes. However, recreational use of vehicles, including ATV's, is NOT permitted off of the existing road network. Normal precautions for Arctic travel include: provision for rapidly changing weather conditions; tactics for possible bear and other wildlife encounters; filing a trip plan; first aid kit, survival kit and insect repellent.

.5 Personal firearms are not permitted in the construction camp. However, the Contractor's Site Superintendent shall keep sufficient weapons (one for backup or replacement) for

defence in the event of a bear encounter that threatens human safety. When not in use, all weapons shall be locked as per all applicable legislation and access controlled by the Site Superintendent.

5.3 Local Resource Use

.1 The coastal marine waters in the area of the FOX-M site are used for hunting seals and birds, and fishing. A potential concern involves physical conflicts between ship traffic and fishing nets, near shore pollution incidents during ship-to-shore transfer of fuel and equipment, shore-to-ship transfer of hazardous materials, and shoreline terrain damage during beach landing area preparation.

.2 Clean up activities and related shipping shall not interfere with local resource use in excess of levels normally encountered by established local activities and shipping. To minimize disruption to hunting and fishing activities, vessel traffic shall be restricted to traditional shipping lanes where they exist.

.3 Schedule annual meetings with local associations to discuss these issues and to minimize any potential problems. This will include consultation to confirm the scheduling and locations of hunting and fishing activities. Assign a local contact person to answer questions and address concerns of local residents or resource users.

5.4 Local Economy and Contact With Local Residents

.1 Maximize employment and business opportunities in the north, in accordance with the guidelines in the Contract Specifications. Provide communication with the local community of Hall Beach to keep them informed of contracts and significant project developments for which local businesses and individuals may be qualified to work.

.2 Schedule regular meetings with the local community of Hall Beach to discuss ongoing work and to address any community concerns. Briefing meetings with all camp personnel are required to discuss and explain camp rules which must be established.

5.5 Aesthetic Value

.1 It is anticipated that the clean up activities will have an overall positive effect on the aesthetic value of the FOX-M site in that redundant buildings and structures will be demolished, and all disturbed areas (landfills, debris piles, sewage outfalls and borrow pits) will be restored as closely as possible to their original appearance. Construction personnel are to ensure that their activities do not contribute to any additional degradation of the local environment.

5.6 Surface Water and Fish Habitat

.1 The following applies to work adjacent to waterways:

- .1 Prevent siltation of water bodies supporting fish by the use of berms or silt fences as required, and by minimizing activities adjacent to watercourses.
- .2 Do NOT operate equipment in waterways.
- .3 Do NOT use streambeds for borrow material.
- .4 Do NOT dispose of excavated fill, waste material or debris in waterways.
- .5 Survey areas immediately upstream and 100 metres downstream of proposed work areas to determine presence of concentrations of fish.
- .6 Avoid concentrations of fish during culvert removals and work adjacent to waterways.
- .7 Do NOT ford streams at or immediately upstream of locations containing concentrations of fish.
- .8 Restrict blasting to above water and more than 100 metres from concentrations of fish.
- .9 Where possible, conduct in-stream work during low flow periods.
- .10 When removing culverts:
  - slope banks to conform to grade of adjacent stream bank as applicable; and
  - if required, stabilize bank using erosion resistant material.

.2 Obtain authorization from Fisheries and Oceans Canada for alterations or crossings of any water body constituting fish habitat. (See Section 3.)

5.7 Permafrost Soils

.1 Ice-rich soils are common in areas that are maintained by extensive vegetation cover, and are thus susceptible to permafrost degradation. The top layer provides a protective thermal barrier that prevents permafrost degradation. These soils are susceptible to erosion due to their fine texture and hilly topography. Erosion removes the thermal protection and causes permafrost degradation. Vehicle and equipment traffic, and soil excavation can disturb the surface layer and degrade the permafrost.

.2 Minimize disturbance to permafrost soils by restricting vehicle and heavy equipment traffic to existing roads and designated work areas unless approved by the Engineer.

.3 Minimize activity in areas adjacent to work areas.

.4 Do NOT operate vehicles or heavy equipment off-road following heavy rain or melting snow until the soil has dried sufficiently to prevent excess rutting.

.5 Install appropriate drainage and erosion control structures along access roads, where required.

.6 Implement the following procedures during site clean up operations to minimize disruption of permafrost:

.1 Site facilities such as work camps and storage areas such that they do not impede surface drainage or result in ponding. Construct gravel pads or use other appropriate methods to protect ice-rich soil from thermal or physical damage.

.2 Minimize extent of disturbance during excavations.

.3 Promptly backfill excavated areas with granular fill as indicated on the Contract Drawings and Specifications.

.4 Minimize the development of new borrow areas.

.5 Do NOT store materials directly on unprotected ground.

.6 Regrade disturbed areas to restore natural drainage patterns.

.7 Repair rutting that impedes local drainage or exposes permafrost in ice rich soils to the satisfaction of the Engineer.

5.8 Coastal Marine Resources

.1 The coastline adjacent to the FOX-M site is used by mammals and seabirds for feeding, migration and breeding. Typical species that may be found in the area of FOX-M include bearded and ringed seals, walrus, Arctic tern and numerous gull species.

.2 Where concentrations of birds and mammals are known to be near construction sites, advise chartered aircraft pilots to maintain an altitude of at least 500 metres and preferably 1,000 metres above ground or water when passing over these areas. Low-level flights to observe or photograph wildlife shall not be permitted. Inform charter aircraft pilots of all applicable EPP requirements when scheduling arrangements are made or at other appropriate periods prior to the arrival of the aircraft at the site.

.3 Marine mammals and flocks of seabirds must be avoided by all shipping. Where feasible, ships shall maintain a minimum distance of 1 km from known seabird colonies.

.4 During transfer of fuel to land-based storage tanks, equip the hoses or pipes with properly functioning and approved check valves to prevent backflow of fuel in the case of failure.

Attend all fuel transfer operations at all times. In the event of a spill of fuel, implement the appropriate contingency plan as detailed in Section 7 of this EPP.

5.9 Terrestrial Resources

.1 Polar bears, lemmings and arctic fox have been reported seasonally or year round at FOX-M. Raptors were not observed recently in the area. There is concern over human/wildlife contact, which could include harassment by project personnel causing disruption of activities such as calving, breeding, nesting and rearing, all of which may take place on the site proper.

.2 Prevent avoidable conflicts with wildlife using the following procedures:

.1 EMPLOY A DEDICATED WILDLIFE MONITOR(S) AT ALL TIMES.

.2 Require all on-site personnel to be familiar with the contents of "Safety in Bear Country".

.3 Do NOT feed, injure or harass wildlife.

.4 Ensure that clean up activities do NOT interfere with wildlife movement through the area.

.5 Do NOT disturb birds nesting on site.

.6 Vehicle, vessel and aircraft movements shall conscientiously avoid all known concentrations of wildlife or areas known to be frequented by important species or concentrations of wildlife.

.7 Do NOT attempt to chase, catch, divert, follow or otherwise harass wildlife by aircraft, vehicle, and boat or on foot.

.8 Control refuse and make inaccessible to bears and other scavengers.

.9 In the event of unanticipated or unavoidable contact with mammals, act in accordance with the contingency plan (Section 7). Familiarize all individuals working at or visiting the site with this plan as part of their orientation to the work site.

.10 Equipment and vehicles shall yield to wildlife, where possible.

.11 Except in the vicinity of the airfield, advise charter aircraft pilots not to fly at elevations lower than 500 metres above ground or water.

.12 In the event that wildlife are spotted from the air, aircraft shall not make descents for observation or photography.

.13 Domestic or wild pets are not allowed in camps with the exception of controlled watchdogs.

.14 Project personnel shall not be permitted to possess personal firearms. The only firearms allowed on site shall be for protection from bears and shooting of animals exhibiting aberrant behaviour. The firearms shall be controlled by the Contractor's Site Superintendent.

.15 Report vehicle collisions with wildlife, encounters with troublesome animals, and/or the presence of potentially troublesome animals to the Engineer and to the District Wildlife Officer.

.3 Disruption of avifauna during the nesting period can result in reproductive failure. For this reason, concentrations of nesting birds should be avoided during this period. Impacts on these species can be minimized by scheduling disruptive activities outside of the nesting period and by discouraging nesting at work areas.

.4 The arrival of avifauna at specific locations in the Arctic is influenced by weather conditions and other factors. Inclement weather or a delayed spring melt may delay arrival by several weeks. In general, however, the chronology of arrival, nesting, and departure is relatively consistent between years.

.5 Typically within two weeks of arrival, nesting commences and continues for one to two months until the young leave the nest. Following this, the birds feed in preparation for the fall migration and depart by mid to late September.

.6 The migration and breeding chronology of major groups of birds is shown in Table 5.1. Schedule work to minimize impacts on these species.

Table 5.1: Approximate Nesting and Breeding Chronology for Birds Observed Near DEW Line Stations

Group or Species	Arrival	Nesting Period		Length of Breeding Season	Departure
		From	To		
Raptors	Mid-May to Early June	Early June	Late August	65-75 days	Late September
Waterfowl	Late May to Early June	Early to Mid-June	Mid to late July	25-38 days	Early September
Shorebirds	Late May to Early June	Early June	Early to late July	20-25 days	Late August

5.10 Heritage Resources

.1 DEW Line sites are often located in areas which have been seasonally settled or visited by Inuit over the past 1,000 years; by their Palaeo-Eskimo predecessors for as many as 3,000 years before the Inuit; and by Europeans and Eurocanadians over the past four centuries. Archaeological sites and recent camps and cemeteries exhibiting evidence of the presence of former occupants have been found on or adjacent to all of the DEW Line stations. Many of the sites have been disturbed by previous DEW Line activities. The traditional and scientific value of heritage resources is greatly diminished if they are disturbed or moved. Archaeological sites in Nunavut are protected by law, and disturbance of archaeological sites and collection of archaeological specimens is prohibited except under the terms of an archaeological research permit.

.2 Obtain a generic pamphlet from the regulatory authorities for use at the site, which illustrates typical site and artifact types, and describes procedures to follow in the event of encountering an archaeological site.

.3 In the event that heritage resources are discovered during clean up activities, the following procedures apply:

- .1 Report discovery of archaeological site or artifacts immediately to the Engineer.
- .2 Do NOT disturb archaeological sites or artifacts discovered and cease work in that area until appropriate authorities are notified.
- .3 Report all archaeological finds in accordance with Section 7.4 of this EPP.
- .4 Do NOT resume activities in the vicinity of the find until confirmation and direction from appropriate authorities is received.

.4 Reports of archaeological sites found shall include:

- .1 the identity of the person making the discovery;
- .2 description of the site location, including topography, landmarks, etc.;
- .3 the nature of the activity resulting in the discovery;
- .4 description of the archaeological site, including size, features, or details visible, supplemented by sketches or photographs;
- .5 actions currently taken to protect the archaeological features; and
- .6 extenuating circumstances.

.5 All personnel are to be discouraged from visiting archaeological and other heritage sites.

6. ENVIRONMENTAL INSPECTION

6.1 General

.1 As part of its overall commitment to a strategy of environmental protection and quality assurance, the Owner intends to employ a dedicated environmental inspection staff to monitor its own compliance with the EPP and all applicable laws, regulations, permits, guidelines and standards.

.2 The environmental inspection staff will be a part of the DEW Line Clean Up Project Management Office (PMO). The PMO has been formed as per the Terms of Reference of the Memorandum of Understanding between the Director General Environment and Defence Construction Canada (DCC).

.3 The Owner will be represented at the site by the Engineer who will report to the DCC Contract Manager. Environmental inspection staff at each site will report to the Engineer.

.4 The Contractor will maintain regular contact with the environmental inspection/Quality Assurance team. This will include, but is not limited to:

- attendance at regular meetings as scheduled with the inspector;
- immediately reporting concerns over any aspect of this EPP; and
- immediately reporting any spills or other event that may have an effect on human or environmental health and/or safety.

7. CONTINGENCY PLANS

7.1 General

.1 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.

.2 Submit to the Engineer for approval detailed spill contingency plans for the site. Identify response capabilities by detailing response times, and types and volumes of spills to which the Contractor can respond. The following information is required as a minimum:

.1 a description of pre-emergency planning;

.2 personnel roles, lines of authority and communication;

.3 emergency alerting and response procedures;

.4 evacuation routes and procedures, safe distances and places of refuge;

.5 emergency phone numbers;

.6 directions/methods of getting to the nearest medical facility;

.7 emergency decontamination procedure;

.8 emergency medical treatment and first aid;

.9 emergency equipment and materials;

.10 emergency protective equipment;

.11 procedures for reporting incidents;

.12 spill response and containment plans for all materials that could potentially be spilled; and

.13 Material Safety Data Sheets for all fuels and chemicals stored on-site.

7.2 Fuel and Hazardous Material Spills

.1 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.

.2 A variety of fuels and other materials may be in use at the FOX-M site during clean up. The greatest volumes of potential contaminants will likely involve Arctic diesel fuel. Other substances, such as acids, solvents, lubricants, hydraulic fluid, antifreeze, fuel additives and engine coolants, also pose potential environmental and safety hazards. For simplicity, POL and minor chemical spills will be considered together. As chemicals are usually stored and transferred in barrels of 205 litres or smaller capacity, any spill quantity is likely to be small.

.3 Based on the potential hazardous materials identified for disposal, Emergency Response Plans (ERPs) are not required during transport under the TDG regulations. If materials identified for disposal are listed on Schedule XII of the TDG regulations and are in volumes exceeding those specified in that schedule, register an ERP with the Director General of the Transport of Dangerous Goods Directorate. The ERP is to contain information such as the nature and risks of the particular dangerous good and contact names and numbers for emergency assistance.

.4 If a spill or a dangerous occurrence is discovered during transport in excess of those volumes listed in Part 9, Table 1 of the TDG regulations, the person who has management or control of the goods at that time must immediately notify the Emergency Authority in the province where the occurrence took place. The appropriate authorities are listed in Part 9, Table 2 of the TDG regulations. The person must also notify his/her employer, the owner of the vehicle on which the goods were carried, and the owner (consignor) of the dangerous goods. The person's employer is then required to issue a written report to the Director General within 30 days of the occurrence in the form detailed by the TDG regulations.

.5 The most common pollution incidents will probably involve spills of arctic diesel or aircraft fuel onto land or water resulting from:

- human error during transfer operations between holding tanks;
- rupture of lines, tanks, valves, dykes or barrels from deterioration or damage;
- seepage from fittings or valves;
- accidental spills during POL transport via vehicle or aircraft; and
- equipment failure.

.6 A person in control of a substance at the time of a spill shall report the spill via the appropriate spill response line. Quantities of substances that represent "a spill" are listed in Schedule B of the Nunavut Spill Contingency and Reporting Regulations. Advise the Engineer of all spills.

.7 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.

.1 The individual discovering a spill shall:

.1 Warn people in the immediate vicinity and evacuate the area if necessary.

.2 Identify the spilled material if possible, and take all safety precautions before approaching it.

.3 Attempt to immediately stop the leakage and contain the spill, if safe to do so.

.4 Report to the Engineer the spill location, type of material, volume and extent, status of spill (direction of movement), and prevailing meteorological conditions.

.5 In the event of a shoreline spill, provide information about beach location, contaminated area, beach characteristics, presence of wildlife and archaeological sites which might be threatened.

.2 Both the Contractor and the Engineer have specific responsibilities in responding to a spill event. These are described as follows:

.1 Contractor's Responsibilities:

.1 Ensure response crew members are appropriately trained.

.2 Practice spill prevention by performing regular maintenance on all POL systems, and by using proper methods for the handling of POL products.

.3 Provide personnel, materials, and equipment necessary for adequate response to POL and hazardous material spills.

.4 Establish communications and verbally report all spills to the Engineer as soon as practical.

.5 Isolate and eliminate all ignition sources.

.6 Ensure safety and security at the spill site.

.7 Stop or reduce discharge, if safe to do so.

.8 Make every effort to contain the spill by dyking with earth or other barriers on land and containment booms on water.

.9 Assess potential for fuel/chemical recovery.

.10 Deploy on-site crews to mobilize pumps, empty 200 L drums, hand tools and absorbents to the spill site.

.11 Request assistance, if required, from DND (through the Engineer) and the Canadian Coast Guard.

.12 Hire additional assistance, if required, from northern residents, local communities, and commercial spill response firms.

.13 Follow all guidelines and regulations for disposal of spilled materials, associated debris, contaminated soil and water as established by appropriate government agencies.

.14 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.

.15 Document all events/actions.

.16 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.

.17 For spills on water, immediately mobilize additional containment and clean up equipment in consultation with the Coast Guard, Environment Canada and Fisheries and Oceans Canada if on-site equipment is inadequate. Close isolation valves to stop fuel flow, if required. Deploy light weight booms and oil absorbent materials to protect environmental resources along the coastline, as applicable. Track progress of spill, if of unknown origin, and report spills as described in Clause 7.7 below.

.2 Engineer's Responsibilities:

.1 Commit resources, as required, to respond to and clean up a spill.

.2 Supervise containment, clean up and restoration operations.

.3 Document all events/actions.

.4 Notify appropriate government agencies using the contact list.

.3 The final decision on clean up methods will be made by Environment Canada at the time of the notification of the spill.

.4 The selected clean up methods shall:

.1 minimize danger to persons and wildlife;

.2 minimize danger to property;

.3 minimize water pollution;

.4 minimize the area and degree of disturbance to land and water surrounding the spill during clean up; and

.5 minimize environmental impacts of the spill.

.5 The following general clean up procedures shall apply:

.1 Wear protective clothing as required for handling spills.

.2 Contain spills on soil or rock by constructing earthen dykes using available material. If soil is not available, place sorbent material or boom in path of spill. As the sorbent barrier becomes saturated, continually replace it. Fuel or liquids lying in pools, trenches or in specially constructed troughs are to be removed with pumps, buckets or skimmers.

.3 If ground is snow covered, create snow dykes and line with polyethylene liner for containment and recovery of ponded fuel.

.4 For spills on water, deploy containment booms and recover as much fuel as possible with a work boat and skimmer if the area has less than 1/10 ice cover. If the area is ice infested, burn any fuel spills using igniters.

.5 Apply sorbents, if necessary.

.6 Assess potential for disturbance of wildlife, fish, and archaeological sites by spill or clean up operations and notify the relevant authorities.

.7 Notify environmental authorities to discuss disposal and clean up options.

.8 Conduct required clean up operations.

.9 Assess and appropriately treat any areas disturbed by clean up activities.

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

.6 Report spills immediately on the 24 Hour Spill Report Line (867) 920-8130 (NWT; Nunavut Spill line not yet in place). Prepare a written spill report and submit it to the Engineer and the supervisor of the Spill Report Line who shall forward copies to INAC and Environment Canada.

.7 Include the following specific information when reporting a spill:

.1 report date and time of spill;

.2 location and map coordinates (if known) and direction of spill movement;

.3 party responsible;

.4 product identification and quantity spilled;

.5 conditions at the spill site including weather, depth of snow cover, proximity of spill to bodies of water, wind speed and direction, and wave height (for marine spills);

.6 cause of spill;

.7 whether the spill has terminated or is continuing;

.8 extent of contaminated area;

.9 factors affecting spill recovery;

.10 containment measures;

.11 response actions to date;

.12 request for assistance;

.13 hazards and dangers;

.14 comments and recommendations;

.15 name of the person reporting the spill; and

.16 name of the person to whom the spill is reported.

7.3 Wildlife Encounter

.1 Polar bear occurrences are common in the vicinity of the FOX-M site. 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.

.2 EMPLOY DEDICATED WILDLIFE MONITORS AT ALL TIMES DURING CLEAN UP OPERATIONS.

.3 Be familiar with bear deterrent procedures and ensure that at least one designated staff member is competent with the camp firearms. Be familiar with the GNWT "Safety in Bear Country" manual and make available a reference copy at the site office.

.4 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:

.1 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 Government of Nunavut (GN) wildlife office.

.2 Advise personnel to maintain watch for bears and immediately report any sightings to the Engineer. Immediately notify all personnel of the sighting. If the threat of attack is considered significant, assign a full time wildlife monitor to the specific areas or activities at risk.

.3 Use vehicles, noisemakers and, if necessary, a firearm to frighten the bear away from the site.

.4 Shoot a bear only if the bear returns repeatedly, refuses to leave or directly threatens human safety. Killing is considered a last resort and, 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.

.5 Report the death of a bear to the Engineer and the appropriate GN wildlife officer who will issue instructions as to disposal of the carcass and the formal reporting procedures to be followed.

.6 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.

7.4 Heritage Resources

.1 Avoid all archaeological sites at the FOX-M site during clean up activities.

.2 Unrecorded archaeological sites containing such remains as habitation structures, hunting blinds, food caches and graves, and objects such as tools, utensils and butchered animal bone may be inadvertently discovered and disturbed during clean up activities. All site personnel are prohibited from knowingly disturbing any archaeological or other heritage site or collecting any artifacts. Removing artifacts is a criminal offence.

.3 In the event of finding heritage resources:

.1 Cease site work immediately in the area; do NOT remove any artifacts or other associated objects from the site unless their integrity is threatened in any way.

.2 Mark the site's visible boundaries and avoid the area during clean up activities.

.3 Report the discovery of the site immediately to the Engineer and the Department of Culture, Language, Elders and Youth of the Nunavut Territorial Government by phone or fax and comply with any site protection instructions issued. Do not engage in any archaeological excavation activities.

.4 Prepare reports of any discovery for the respective regulatory authority and DND/PMO indicating:

- the identity of the person making the discovery;
- the nature of the material;
- the nature of the activity resulting in its discovery;

- the location of the find including a description of the site location, topography, landmarks, etc.
- a description of the archaeological site including size, features or details visible, supplemented by sketches or photographs;
- protection measures instituted;
- the present location of any heritage material removed for safekeeping; and
- extenuating circumstances.

7.5 Key Contact List

.1 24 Hour Spill Report Line

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

- Telephone: (867) 920-8130 Fax: (867) 873-6924

.2 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.

.2 Other Contacts

.1 In the event of a non-spill emergency (e.g. related to wildlife, fisheries, heritage resources, etc.), contacts are provided in Table 7.1 and Sections 7.2 and 7.3. If any clean up or associated operations adversely affect the North Warning System operations, Major A.D. Cameron should be contacted immediately at 613-998-8602.

.3 PMO Contacts

All significant events should be reported to the Project Management Office in Ottawa. Key contacts are as follows (Fax number is 613-998-1061):

- Environmental Officer – Scott Hamilton (613) 998-4583
- Deputy Project Manager – Scott Munn (613) 990-9641
- Project Manager – Lt. Col. Daniel Paquet (613) 998-9523

Table 7.1: Contacts for Resource Interests

Resource	Location	Phone No.
24 Hour Spill Line	NWT/Nunavut	867-920-8130
Iqaluit Fire Department	Nunavut	867-979-4422
Environment Canada, Environmental Protection Branch	Yellowknife Contact: Laura Johnson – Manager	867-669-4700
	Iqaluit Contact: Sid Bruinsma – Manager	867-975-4636
Indian and Northern Affairs Canada	Inuvik Region District Manager – Rudy Cockney	867-979-3361
Renewable Resources Officer Stations – Baffin Region	Iqaluit	867-979-5017
	Hall Beach	867-928-8819
GN Environmental Protection	Iqaluit; contact Earle Baddalo	867-975-5910