

**ENVIRONMENTAL PROCEDURES MONITORING AND
MANAGEMENT PLAN FOR THE PISTOL BAY PROJECT,
PISTOL BAY AREA, NUNAVUT**

Northquest Ltd.

March 2011

ENVIRONMENTAL PROCEDURES MONITORING AND MANAGEMENT PLAN

Table of Contents

	Page #
INTRODUCTION	3
1. PLANNING	3
2. STAKEHOLDERS	4
3. FLORA AND FAUNA	5
4. AIRBORNE OPERATIONS	6
5. LAND DISTURBANCE	7
6. DRILLING OPERATIONS	8
7. WATER MANAGEMENT	10
8. HAZARDOUS MATERIALS	10
9. REHABILITATION	11
10. REPORTING AND RECORDS MANAGEMENT	12

The following Environmental Principles will be adhered to by Northquest Ltd..

These principles form the guiding base for the Environmental Operating Procedures that apply to the Pistol Bay Project, Pistol Bay Area, Nunavut.

- Environmental management is an integral component of our exploration programs and is the responsibility of all program personnel.
- Any potential environmental impact from our activities will be assessed and minimized.
- Environmental standards and quality of work will be continually improved and maintained in conjunction with effective exploration.
- All relevant government laws and regulations for the protection of the environment will be known and complied with.
- All contractors and employees will be information of our Environmental Policy, Environmental Principles, Environmental Management Standards, Environmental Operating Procedures and their designated environmental responsibilities.
- Effective communication and a close liaison will be maintained with nearby communities and regulatory authorities.
- Exploration activities will be conducted with due regard for the protection of wildlife, flora and sites of natural, cultural and historical significance.

Environmental Operating Procedures

INTRODUCTION

Northquest Ltd. Is committed to maintaining high standards in environmental practices.

Exploration activities generally have a very low degree of impact upon the environment. We work in relatively pristine area, with particularly sensitive ecosystems and challenging environmental and climatic conditions. We must be diligent and innovative in the management of our activities to ensure minimal impact to the environment.

1. PLANNING

Exploration programs will be carefully planned to minimize disturbance and effectively manage environmental risks.

Risk Assessment

The activities associated with the proposed exploration program will be assessed for environmental risks and impacts. Variables such as topography, climate, fauna, vegetation and stakeholders will be considered. Procedures and/or processes will be implemented to manage and mitigate the identified environmental risks and impacts.

Emergency Preparedness

A Spill Contingency Plan has been established for exploration programs and remote camp locations. The plan includes contingencies for probable environmental emergencies as a result of natural occurrences and/or as a result of program activities.

Expenditure / Budget

Activities such as environmental training and rehabilitation will be included in the program budget.

Due Diligence

The environmental status of land will be reviewed prior to acquisition and any potential environmental liabilities recognized. This process will be continued during the life of the program and will include photographs of possible sensitive areas.

Legislative Requirements

All relevant legislation will be known, communicated and complied with.

Approvals

Any stakeholders of the land that will be explored will be notified. Relevant approvals from stakeholders and regulatory authorities will be obtained before exploration commences.

Responsibilities and Accountabilities

Environmental responsibilities will be assigned and communicated to all members of the program team. This includes employees, contractors and sub-contractors. Contractor responsibilities will be outlined in the environmental schedule of the contract. The primary responsibility for protecting the environment from impacts related to program activities is assigned to the Project Supervisor.

Induction and Training

Field employees and contractors will undergo an environmental, safety and cultural induction that includes relevant regulations.

Contractors

Preference will be given to contractors who display high standards of environmental management and performance.

Closure Planning

The short term and long term environmental implications of our activities must be considered and plans developed to eliminate or mitigate these impacts upon program closure.

2. STAKEHOLDERS

A stakeholder is an individual or group (i.e. landholder, local group, regulatory authority, community etc.) concerned with or potentially affected by our exploration activities. Regular communication will be maintained with these stakeholders for the duration of the program and afterwards in some cases. Any agreement made with stakeholders will be documented.

Cultural and Heritage Issues

Cultural objects, remains and sites of spiritual, archaeological, anthropological or historical significance will be protected.

- Surveys may be required to identify sites of sacred, heritage and cultural significance. The results of these surveys must be documented.
- Any additional sites encountered during exploration will be left undisturbed, recorded and reported to the **Department of Culture, Language, Elders and Youth 1-866-934-2035 or (867) 975-5500**.
- Any discussions with local communities or traditional owners will be documented.

Archeology

There will be no disturbances to any archaeological or palaeontological sites. No personnel shall remove, disturb or move any archaeological or palaeontological artefact or site. If field personnel locate any potential/suspected archaeological or palaeontological site they must cease any activities that may potentially disturb the site. The Department of Culture, Language, Elders and Youth (CLEY) must be contacted immediately.

**Department of Culture, Language, Elders and Youth
1-866-934-2035 or (867) 975-5500**

Once a site has been identified field personnel will provide all information requested by CLEY.

3. FLORA AND FAUNA

All reasonable care will be taken to avoid interference with rare or endangered species of native flora or fauna.

Flora

- All reasonable care will be taken to avoid unnecessary impacts to flora and to mitigate required impacts.

Fauna

- Hunting by non-residents is prohibited.
- Firearms and domestic animals are not permitted unless special permission has been obtained from the Project Manager.
- Harassment of wildlife will not be tolerated.
- The Issatik Hunters and Trappers Association of Whale Cove will be contacted prior to the initiation of any field related activities. Continual contact with the HTA to determine if any polar bears are known to be in the area.
- All bear sightings must be immediately reported to the Conservation Officer and/or Regional Biologist and Issatik HTA
- Wildlife Monitors will be hired when possible through the Issatik Hunters and Trappers Association.
- The Wildlife Monitor will relay to all field personnel areas on a daily basis any area where local hunters may be actively hunting.
- Wildlife Monitors will record any wildlife sightings including location, species, number of animals, animal activity and if possible gender and age, i.e. calves.
- All recorded wildlife sightings will be reported annually to the DOE.

Department of Environment, Keewatin Region Wildlife Management Division
Regional Manager **Dan Shewchuk** **(867) 857-2828** dshewchuk@gov.nu.ca
Wildlife Officer II **Joani Kringayark** **(867) 462-4002** jkring@artic.ca
Biologist **Raymond Mercer** **(867) 645-8083** rmerc@gov.nu.ca

- If local hunters are observed, field personnel must cease activities in the area and leave when possible.
- During the period of May 15 to July 15 when caribou are observed to be calving in the area, all activities that may disturb calving caribou will be suspended.
- Activities may resume if it has been determined by the Issatik HTA and/or the Regional Biologist that the cows are no longer calving in the area.
- No field related activities may disturb caribou during migration. All activities such as low altitude flying must cease until the migrating caribou have left the area.
- No fuel cache may be established within 10 km or conduct any drilling within 5 km of important caribou crossings.
- Low-level flying should be avoided when possible. If a concentration of caribou is encountered an altitude of at least 610 m above ground should be maintained. When large concentrations of birds are observed, flight level is restricted to 1,000 m vertical distance and 1,500 m horizontal distance. If weather conditions prohibit higher altitudes the flight path must be changed accordingly.
- All personnel will be trained on the following: Avoidance of Human-Wildlife interactions, wildlife safety, wildlife safety equipment, waste management, and protocol to report human-wildlife interactions.
- No feeding of wildlife will be tolerated.
- All bird nests will be avoided by field personnel on foot and by aircraft, particularly from the period of late May to early July to prevent the disruption of nesting raptors.
- All activities within 100 m of a nest site must be avoided from the period of August 10th to August 20th.

Local wildlife monitors will record all wildlife sightings.

4. AIRBORNE OPERATIONS

Our exploration activities require airborne support due to the remote locations. Helicopters have a minimal potential impact upon the environment. The potential impacts include: petroleum product spill and disturbance of fauna and people from low altitude flying and frequent landings / take-offs. The likelihood of disturbing or disrupting people is considered low due to the remote locations of the activity. All stakeholders will be respected.

Airstrips

Only existing airstrips will be used. For the purposes of the Pistol Bay Project, the Whale Cove airport will be used.

Helipads

Helicopter landings and take-offs have little impact upon the flora or ground surface. However, helicopters require an area clear of obstructions that allows for safe manoeuvrability of the aircraft. The size of this area is dependent upon the aircraft type.

- Landing sites will be selected whenever possible that have a competent ground surface and are naturally free of vegetation or marginally covered.
- Landing sites that are designated for repetitive use which are blanketed by ground cover vegetation must have a helipad constructed.
- Helipads will be constructed in such a way as to minimize surface contact with vegetation.
- Helipads will be constructed using dimensional lumber.

Fuel

Aviation fuel at exploration operations is contained in 205 litre steel drums for ease of handling. These drums are stored horizontally on the ground with the bungs positioned at the mid-way point. This storage method prevents contact of surface water with the bungs and possible contamination of the fuel and keeps the bung seals submerged in fuel, which prevents the seals from drying out and leaking.

- Fuel drums will be stored at a distance of no less than 100 metres from any surface water source (e.g. lake, stream, pond etc.)
- Regular visual inspection will be conducted of all fuel caches
- Empty or otherwise no longer required fuel drums will be retrieved from all locations. Empty drums will be returned to the fuel supplier for recycling.
- Fuel storage locations will have a suitable spill response kit.
- Please review the Spill Plan for more details on fuel spill protocol.
- The contents of the spill kit are listed below

1 - 360 litre / 79 gallon polyethylene overpack drum
 4 - oil sorbent booms (5" x 10')
 100 - oil sorbent sheets (16.5" x 20" x 3/8")
 1 - drain cover (36" x 36" x 1/16")
 1 - Caution tape (3" x 500')
 1 - 1 lb. plugging compound
 2 - pair Nitrile gloves
 2 - pair Tyvek coveralls
 1 - instruction booklet
 10 - printed disposable bags (24" x 48")

5. LAND DISTURBANCE

All necessary permits and permissions will be obtained prior to conducting any land disturbance. Great care will be taken to avoid and/or minimize land disturbance. When clearing is unavoidable, it must be carried out in a manner that does not promote erosion. Whenever possible, areas that are naturally free of vegetation will be selected for logistical support sites (i.e. fuel cache).

Supervision

Earth moving and clearing activities will be supervised at all times by a Northquest Ltd. Representative who should clearly define the area to be disturbed using temporary markers.

Earthmoving

Earthmoving is limited to the construction of small pits and sumps for collection and disposal of benign waste (e.g. drill sumps), as well as latrine pits.

Topsoil (or surface material useful for regeneration or re-vegetation) will be removed and stockpiled separately from subsoil. Topsoil should be returned as soon as possible, preferably within 6 months, to maintain seed variety, nutrient quality and microbial activity.

6. DRILLING OPERATIONS

Contracts for exploration drilling services will stipulate adherence to the environmental component of the Northquest Ltd. Responsibility Policy and these Environmental Procedures and include penalties for non-compliance.

Drill Sites

- Select sites to minimize damage to the environment.
- Drilling will not occur within 30 metres of the high water mark of any water body.
- Avoid locating drill sites on steep slopes.
- Prepare sites as per the guidelines in section 5 (Land Disturbance).

Sumps

- Natural depressions will be used in preference to excavation.
- Ensure the number and size of sump is adequate to contain all potential drilling fluids.
- Sumps should be positioned down slope of drill collars to ensure run-off flows into the sump.
- If excavation is required, the organic layer and any topsoil should be stockpiled separately for replacement during backfilling.
- Sediment and erosion control measures such as sumps will be implemented prior to the commencement and maintained during drilling activities to prevent any sediment from entering a water source.
- All sumps must be constructed and located in a manner where if CaCl is used as a drilling additive there is no potential for fluids to enter a water source.

Drilling Fluids

- Bio-degradable drilling fluids will be used at all times.
- Drilling fluids will be contained in sumps or by another suitable and approved method (e.g. tank).

Water Use

- Streams will be avoided as a water source for drilling activities.
- The water intake will be screened to prevent the entrainment of fish.
- The screen holes will be small enough that no fish of any size can pass through the screen and into the intake or pump system.
- The screen will be continually monitored to ensure that it is in a good state of repair.
- If the screen requires any maintenance the intake shall be closed to prevent any fish from passing into the system.

- If drilling activities require water in sufficient volumes that a water source may potentially be drawn down, information detailing the volume required, size of water body, fish species etc. will be forwarded to the Department of Fisheries for review.
- If encountered, artesian water flow will be controlled to prevent erosion of the ground surface and the silting of watercourses. Drill holes will be plugged and permanently sealed upon completion of the project.

Waste

- Receptacles will be provided for rubbish at drill sites. No waste of any description will litter the site.
- Food waste will be removed from drill sites daily.
- No drill waste, drill cuttings, sediment or any other deleterious substance will be deposited in any type of water body. All drilling related substances will be contained in a sump or impermeable container and disposed of appropriately.
- Waste will be disposed of appropriately at an approved facility.

Spill Prevention

Methods will be implemented for the handling and care of petroleum products, drilling additives, etc. so as to prevent accidental spillage of these materials. Drip pans will be placed under all equipment that contains petroleum products or hazardous materials. Only personnel trained in handling fuel will refuel equipment. Please see Spill Contingency Plan for more detailed information.

Core Cutting

Wastewater from core sawing will be controlled to prevent erosion of the ground surface and the silting of watercourses. Where practical, it should be contained and recycled through the core saw.

All cuttings and unwanted core off-cuts or pieces will be contained and disposed of by burial.

Capping of Drill Holes

- All holes will be temporarily plugged immediately upon completion, using whatever safe means available (e.g. metal cap and/or rocks), to eliminate any hazard to wildlife.
- Casing will be removed and if not possible any portion remaining above ground surface will be cut off to ground level or below and capped.
- Any excess drill chips will be poured back down the hole.

Drill Safety

All drill personnel and contractors must have the minimum first aid certification required by the Mining Inspector at WCB. A copy of all drill personnel first aid certificate must be sent to the Mining Inspector for approval prior to working on the drill site. All drill personnel will undergo training and educational sessions regarding all environmental, wildlife, safety and cultural aspects of the Pistol Bay Project area and surrounding communities (namely Whale Cove). The Northquest Ltd. Project Supervisor will be responsible for all emergency and safety operations at the drill site. Temporary emergency shelters will be used at remove drill sites, equipped with cots, food and a heat source. All drill operations will be helicopter supported at all times. Contact

between the drill personnel at the drill site and the Project Supervisor will be maintained 24 hours via helicopter radio, satellite phones or hand-held two way radios.

7. WATER MANAGEMENT

Precautions will be taken throughout our operations to prevent direct or indirect pollution of watercourses.

- Used water will be contained in excavated sumps of natural depressions. Water flow will be controlled to prevent erosion of the ground surface and the silting of watercourses.
- Proposed potable water should be tested for quality.
- Regular water monitoring should be considered for areas of advanced exploration.

8. HAZARDOUS MATERIALS

Whenever possible, the use of hazardous materials will be avoided. Other methods or non-hazardous substitutes will be employed.

- Only approved hazardous materials will be on site.
- All hazardous materials will be stored in the manner specified in the MSDS sheet.
- Whenever a substance is taken from its primary container and placed into a secondary container, the secondary container will be adequately labelled as to its contents.
- Material Safety Data Sheets (MSDS) will be available for all hazardous materials on site.
- Fuels, oils and chemicals must be properly contained and stored at a minimum distance of 100 metres away from surface water unless expressly authorized by a land use permit or in writing by an inspector.
- Flammable materials will be stored in cleared areas or in a metal storage that is segregated from combustible material.
- Disposal of hazardous materials will occur off-site at an authorized facility.

Spill Response

- Spills will be cleaned up promptly.
- Any spill will be reported immediately to:

Water Resources Manager

Andrew Keim

(867) 975-4289

24 Hour Spill Report Line

(867) 920-8130

- All spills will be reported internally to the appropriate company representatives.
- All governmental reporting requirements will be adhered to.
- Spill kits or absorbent material will be available at all fuel storage locations and activity (e.g. drill-sites, helicopter).

The Fuel Spill Contingency Plan attached to this application discusses response procedures to fuel spills.

Other Response Alternatives to Fuel Spills

In-situ combustion is a disposal method available for fuels and petroleum products – in-situ burning can be initiated by using a large size portable propane torch (tiger torch) to ignite the fuel/petroleum products. Highly flammable products such as gasoline or alcohol, or combustible material such as wood, may be used to promote ignition of the spilled product. The objective is to raise the temperature for sustained combustion of the spilled product.

Precautions need to be taken to ensure safety of personnel. Also, spilled product should be confined to control burning. These include areas where the spilled material has pooled naturally or been contained via dikes, trenches, depressions or ice slots. Prior to any attempts at in-situ burning, consultations with experts and approval by government authorities are required.

Chemical response methods are also available and may include the use of the following:

- Dispersants
- Emulsions-treating agents
- Visco-elastic agents
- Herding agents
- Solidifiers
- Shoreline cleaning agents

Biological response methods include nutrient enrichment and natural microbe seeding.

9. REHABILITATION

All reasonable steps will be undertaken to return the land surface to its original form, and to promote healthy re-vegetation and sustainable natural development. Rehabilitation varies depending on the speed of natural growth. Local land management authorities will be consulted concerning proven and recommended methods for rehabilitation and re-vegetation.

Upon completion of exploration in the Pistol Bay Project area, an inspection will be made to assess whether all rubbish has been removed, all drill holes have been capped, excavations have been backfilled.

Regardless of location, the following steps are to be taken to aid natural rehabilitation of tracks, drill sites, sump excavations, etc. as soon as practical after exploration is complete:

- Remove rubbish and waste material. Fill in all holes, trenches, and sumps with the stockpiled subsoil and compact it.
- Backfill excavations with the stockpiled subsoil and topsoil.
- Re-contour disturbed topography, particularly natural drainage patterns, as much as possible.

- Contour rip cleared or compacted surfaces to prevent erosion and to trap seeds. Compacted areas should be ripped to a depth of 0.5 m where practical using rippers with a minimum spacing of 1 m.
- Cap all drill holes.
- Spread topsoil (or surface material useful for regeneration or re-vegetation) over all disturbed areas as a rooting medium for re-vegetation.
- Spread any cleared vegetation to trap wind-blown seeds, promote re-growth and minimize erosion.
- If necessary, spread fertilizer and an approved mix of seed over the disturbed area. (No exotic seeds are to be sown in native vegetated areas).
- Fencing may be required in some areas of re-vegetation.
- Photographs should be taken of sites before, during and after the operation where surface disturbance is expected.
- Rehabilitated areas should be monitored after exploration is complete either by physical inspection or by contacting the appropriate licensing authority.

10. REPORTING AND RECORDS MANAGEMENT

Incident Reporting and Investigation

Any significant environmental incident must be promptly reported and adequately investigated. Authorities must be notified as per regulations.

Examples of environmental incidents resulting from activities are:

- Hazardous material spill;
- Bush fire;
- Introduction of noxious weeds or diseases;
- Damage to a heritage, cultural or sacred site;
- Contamination of surface or ground water;
- Significant erosion requiring major rehabilitation.

Summary of Reporting Contact Information

Department of Culture, Language, Elders and Youth 1-866-934-2035 or (867) 975-5500

Department of Environment, Wildlife Management Division, Keewatin Region

Keewatin Regional Manager, Arviat	Dan Shewchuk	(867) 857-2828
Wildlife Officer II, Repulse Bay	Joani Kringayark	(867) 462-4002
Wildlife Officer I, Rankin Inlet	Raymond Mercer	(867) 645-8083

Fuel Spill Reporting

Water Resources Manager	Andrew Keim	(867) 975-4289
--------------------------------	--------------------	-----------------------

24 Hour Spill Report Line		(867) 920-8130
----------------------------------	--	-----------------------