



# ENVIRONMENTAL AND WILDLIFE MANAGEMENT PLAN ANGILAK PROPERTY KIVALLIQ ENERGY CORPORATION

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Prepared By: Andrew Berry, Chief Operating Officer

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## 1. Introduction

This Environmental and Wildlife Management Plan (EWMP) shall be in effect from March 1, 2018 and has been specifically prepared for Kivalliq Energy Corp.'s (Kivalliq Energy) Angilak Property. A copy of this plan will be kept in the office at site and at the head office in Vancouver. Copies of this plan may be obtained from Kivalliq Energy Corporation.

Kivalliq Energy is an exploration company with a Nunavut focus. The company endeavors to take every reasonable precaution toward ensuring the protection and conservation of the natural environment, and the safety and health of all employees and contractors from any potential harmful effects of stored materials and operations.

### 1.1. Corporate Details

Kivalliq Energy Corporation  
Suite 1020- 800 West Pender Street  
Vancouver, British Columbia, V6C 2V6  
Tel: (604) 646-4527  
Fax: (604) 646-4526  
[www.kivalliqenergy.com](http://www.kivalliqenergy.com)

### 1.2. Purpose and Scope

This Environmental and Wildlife Management Plan outlines Kivalliq Energy's environmental policy and will be implemented to ensure that exploration activities at the Angilak Property are operating in an environmentally responsible manner.

This plan includes:

- Kivalliq Energy's environmental policy.
- Applicable legislation and guidelines.
- Environmental protection measures.
- Wildlife predicted impacts and mitigation measures.
- Potential impacts to aquatic life, air and noise quality.
- Vegetation and soil disturbance mitigation.
- Archaeological site procedures.
- Hazardous materials mitigation measures.
- A summary of the Waste Management Plan and Abandonment and Restoration Plan.

This Environmental and Wildlife Management Plan should be used in conjunction with other property plans and best management practices. Copies of all plans will be located in the office at site and at the head office in Vancouver and are available upon request. Other plans at the Angilak Property include:

- Abandonment and Restoration Plan
- Emergency Response Plan

- Field Safety Manual
- Fuel Management Plan
- Spill Contingency Plan
- Waste Management Plan
- Radiation Hazard Control Plan

### 1.3. Environmental Policy

Kivalliq Energy endeavours to take every reasonable precaution toward ensuring the protection and conservation of the natural environment and the safety and health of all employees and contractors from any potential harmful effects of stored materials and operations.

The company's environmental policy includes:

- Ensuring all personnel and contractors adhere to Kivalliq Energy's environmental policies.
- Minimizing the risks to the health and safety of all employees.
- Complying with all applicable environmental legislation and regulations.
- Assess and mitigate any potential environmental impacts.
- Advancing the project in an environmentally and socially responsible manner that includes community consultation.
- Cooperate with relevant regulatory bodies and governments on all aspects of environmental protection and policy.
- All plans, licences and permits will be reviewed with employees and contractors when hired and copies of the plans will be available in the site office for reference.

### 1.4. Project Description

The Angilak Property is located 350 kilometres west of Rankin Inlet (Kangiqtinig) and 225 kilometres southwest of Baker Lake (Qamani'tuaq) in the Kivalliq Region of Nunavut. The property comprises 91 mineral claims and Inuit Owned Land Parcel RI-30 (IOL) encompassing 89,852 hectares and extends north, south, east and west between Latitudes 62°27' and 62°48' North and Longitudes 98°21' and 99°24' West.

All mineral claims are contiguous in NTS map areas 65 J/06, 65 J/09, 65 J/10, 65 J/11 and 65 J/15 (UTM coordinates: 6925500N to 6962000N and 479300E to 533000E, NAD83, Zone 14). The Nutaaq Camp is located at 527975m E, 6937950m N.

### 1.5. Applicable Legislation and Guidelines

Exploration at the Angilak Property will be conducted in accordance with Federal and Territorial Acts, Regulations, Guidelines and Recommendations including, but not limited to

#### 1.5.1. Federal

- Aeronautics Act
- Canada-Wide Standards for Dioxins and Furans (Canadian Council of Ministers of the Environment)
- Canada Wildlife Act

- Canadian Environmental Protection Act (Environment Canada)
- Department of Fisheries and Oceans Operational Statements and Guidelines
- Draft Fuel Storage and Handling Guidelines, April 2009, Indian and Northern Affairs Canada - Nunavut
- Fisheries Act (Fisheries and Oceans Canada; DFO)
- Guidelines for Spill Contingency Planning (INAC)
- Migratory Birds Convention Act and Migratory Birds Regulations
- National Fire Code of Canada (Federal)
- Nunavut Land Claims Agreement
- Public Health Act
- Species at Risk Act
- Territorial Lands Act
- Transportation of Dangerous Goods Act (Transport Canada)
- Workers' compensation Board
- Workplace Hazardous Materials Information System (WHMIS)

### **1.5.2. Territorial**

- Caribou Protection Plan/Caribou Protection Measures
- Draft Recommended Best Practices For The Storage And Handling Of Petroleum And Allied Petroleum Products on Federal Crown Lands in Nunavut
- Environmental Guidelines for the Burning and Incineration of Solid Waste
- Fire Prevention Act (Territorial)
- Nunavut Environmental Protection Act
- Nunavut "Guideline for the General Management of Hazardous Waste"
- Nunavut Waters Act and Nunavut Surface Rights Tribunal Act
- Nunavut Wildlife Act
- The Mine, Health and Safety Act and Regulations (Nunavut)
- The NWT and Nunavut Safety Act, the Occupational Health and Safety Regulations

### **1.5.3. Municipal**

- Municipal Solid Wastes Suitable for Open Burning Guidelines

## **2. Training**

All employees and contractors of Kivalliq Energy will be trained in internal policies, procedures and made familiar with the Terms and Conditions of the project's licences and permits. Every person arriving at Nunavut work sites undergo an orientation which includes information on health, safety, and environmental responsibilities and stewardship. Training will include, but not be limited to:

- Emergency Response Plan
- Spill Response (Spill Contingency Plan)
- Bear Safety

- General Safety
- Environmental Management Plan
- Environmental Baseline Monitoring
- Wildlife Mitigation Measures
- Field Safety Manual
- Fuel Management Plan
- Abandonment and Restoration Plan
- Waste Management Plan

All employees and contractors will receive Bear Safety Training. Bear safety information and material will be kept in a binder on site. The Government of Nunavut published the manual “Bear Safety-Reducing Bear-People Conflicts in Nunavut”. This document will be referred to in the safety orientation that all personnel, contractors and consultants receive when they arrive at site. A copy of the manual will be kept at the camp office and in Vancouver in the head office.

### **3. Environmental Protection Measures**

Kivalliq Energy endeavors to take every reasonable precaution toward ensuring the protection and conservation of the natural environment from any potential harmful effects of stored materials and operations. All exploration activities at the Angilak Property will operate in an environmentally responsible manner. The Project Manager is responsible for implementing the Environmental Management Plan and overseeing Environmental Baseline Monitoring (section 3.1).

#### **3.1. Environmental Baseline Monitoring**

Kivalliq Energy has implemented an early stage baseline monitoring program that is designed to build an understanding of the local and regional environmental attributes in areas being worked that are of legislative, cultural, economic and/or scientific importance. The attributes selected for study are also those that will benefit from the longest record of data collection. The program is designed to correspond to the current level of exploration and allows for rapid expansion or downsizing of monitoring studies as the exploration program changes in scope and scale from year to year.

The monitoring program will investigate up to five biophysical components:

- Water Quality
- Meteorology
- Non-invasive, Observational Based Wildlife Monitoring
- Hydrology
- Air Quality

In 2016, monitoring studies focused on water quality and observational wildlife monitoring. No exploration program was conducted in 2017.

Additional biophysical components may be added as the program size increases over the years.

### **3.1.1. Water Quality**

In 2010, 20 representative sample sites were established on water bodies focused around the Lac 50 exploration area and camp location. An additional six sites were added in 2012. These sites have been sampled annually during exploration programs since the water quality sampling program commenced in 2010. Two more sites were added on the west side of the Property in 2015: a site at Dipole lake was added prior to the 2015 drilling and; a site at RIB lake, a high priority exploration target four kilometres south of Dipole.

As Kivalliq's ongoing exploration program advance targets elsewhere on the property, additional water quality sites may be added to the existing program to monitor any possible influence. Water is analyzed for hardness, metals, pH, total suspended solids, ammonia, nitrate, cyanide and alkalinity.

### **3.1.2. Meteorology**

A fully automated climate station was installed near the camp in 2010. The parameters being recorded are: temperature, relative humidity, total precipitation, barometric pressure, wind speed and direction. The data is transmitted via satellite to a secure database every three hours. While camp is operational, manual weather information is also collected by trained Kivalliq Energy staff to corroborate the weather station data and fill gaps during intermittent technical interruptions.

### **3.1.3. Wildlife Monitoring**

The objective of the wildlife monitoring is to describe wildlife use of the study area and produce coarse-scale population estimates for valued ecosystem components (VECs) occurring in the study area. The wildlife program will consist of logging incidental observations of all wildlife encountered by field staff and noting any listed species or high priority VEC known to occur in the study area. The wildlife incidental observations will be included in the Annual Report to KIA, INAC and NIRB. Predicted impacts to wildlife and wildlife mitigation measures can be seen below in section 4.



## 4. Potential Impacts & Wildlife Management

### 4.1. Predicted Impacts to Wildlife

Kivalliq Energy's proposed exploration programs are of limited scope and will be operated seasonally due to weather limitations.

Kivalliq Energy has monitoring and mitigation strategies in place to minimize the potential for any temporary impact to wildlife and wildlife habitat caused by exploration activities. All terms and conditions of the permits and licences will be adhered to including Caribou Protection Measures.

In developing mitigation measures toward the protection of wildlife, Kivalliq Energy Corporation has identified three areas of potential impact to wildlife due to the presence of this project: attracting wildlife; habitat disturbance; and unintentional interactions and disturbances. Mitigation measures specific to these areas of potential impact are outlined below.

### 4.2. Wildlife Mitigation Measures

#### 4.2.1. Attracting Wildlife

Every effort will be made to ensure that wildlife are not attracted or encouraged to linger at the project. These efforts will include:

- Waste handling practices – All waste will be stored such that it is not accessible to wildlife. Food wastes will be incinerated on a regular basis to limit odours which could attract wildlife.
- Strict rules regarding feeding wildlife – Any personnel, contractor or consultant found to be feeding wildlife will be terminated immediately.
- Keeping lunches out of reach – Field crews and drill crews will store their lunches so that they are not accessible to wildlife. All food wastes, wrappers, drink containers are to be brought back to camp for disposal, recycling and/or cleaning.
- Keeping work areas clean and tidy – Field crews and drill crews will keep the work areas free of litter and garbage. No food or beverage will be dumped out or left behind, this includes thermoses.

#### 4.2.2. Habitat Disturbance

Habitat disturbance at exploration programs is temporary and is the result of exploration activities and infrastructure. Progressive reclamation is to be practiced at site, meaning that before an exploration program is considered complete, every effort will be made to reclaim and restore the area to its original state. Refer to the Kivalliq Energy's "Abandonment and Restoration Plan".

#### 4.2.3. Unintentional Interactions and Disturbances

The potential exists for unintentional wildlife interactions and disturbances despite best efforts to avoid them. These interactions and disturbances will be documented, reported immediately to the GN and the KIA and will be reported in the required annual reports.

**Approaching and feeding wildlife is prohibited.** There are absolutely no exceptions to this rule. If

wildlife are present in the area, all employees and contractors are to avoid any contact with wildlife. These policies/regulations will be strictly enforced. Any employee or contractor who is found to be violating any of these rules will find their employment terminated and will be removed from site immediately.

Harassment and disturbance of wildlife is prohibited. If any employees and contractors are approaching a work site where migrating caribou, caribou cows and calves, muskoxen nurse groups or other wildlife are in the area, this work site will be avoided until the animals have moved on a distance of one (1) kilometre from the site.

If employees and/or contractors encounter wildlife at any time, every effort should be made to stay out of sight of wildlife or redirect travel away from wildlife where possible, to avoid impact to the wildlife.

While conducting business on behalf of Kivalliq Energy, **hunting is strictly forbidden**. There are no exceptions to this rule.

### 4.3. Caribou, Muskoxen and Other Wildlife

#### 4.3.1. Migration

A one kilometre buffer is used as a measure of a safe distance for working in areas where migrating caribou are present. If migrating caribou and/or caribou cows and calves come within one kilometre of any work site, work activities must cease until the caribou have moved safely beyond the 1 kilometre buffer area.

Outside of the migration window, if caribou approach the work site, workers must remain out of sight where possible, must not approach the caribou and must cease activities that incidentally draw the attention of the caribou or cause them to flee.

#### 4.3.2. Flights

Helicopter flights maintain a >300 metre altitude whenever possible. In areas where wildlife is observed helicopters are to maintain a minimum of altitude of 610 metres. Absolutely no landings are allowed in areas where there are migrating caribou, caribou cows and/or calves and/or muskox nurse groups present. Helicopter and aircraft pilots are instructed to avoid caribou calving grounds on their way to or from the project area.

#### 4.3.3. Crossings

Between May 15 and September 1, no fuel cache is to be established, and no blasting is to occur within 10 kilometres of a “designated caribou crossing”. No drilling is to be conducted within five kilometres of crossings. Absolutely no activities are to act as a block or in any way cause a diversion to migration of caribou. There are no designated caribou crossings on the Angilak Property or in areas currently being worked by Kivalliq Energy.

#### 4.3.4. Airborne Geophysical Surveys

Prior to conducting any low-level airborne geophysical surveys, work plans outlining the dates, locations and duration of the surveys are sent to the Kivalliq Inuit Association (KIA), Indigenous and Northern Affairs Canada (INAC) and Nunavut Impact Review Board (NIRB). If caribou and/or muskox are seen in the area,

the geophysical survey are not to be flown until they have moved a safe distance (at least 1 kilometre) from the area to be surveyed.

#### **4.4. Bear and other Carnivores**

If bears are present in the area, work is to cease until the bears have moved safely out of the area. All human-bear interactions or incidents are to be reported immediately to the KIA and to the GN Wildlife Biologist.

##### **4.4.1. Dens**

Known carnivore dens are to be avoided. Any new dens discovered are to be reported to the regional wildlife biologist and the KIA and avoided.

If a den site is discovered, the GPS coordinates will be recorded so that the site can be avoided. These coordinates will be provided to the appropriate regulatory authorities. No dens are to be disturbed.

Any exploration activities within the den buffers stated below will cease immediately. The following buffers are provided (by the Government of the Northwest Territories) for active dens, between the den and all exploration activities between May 1<sup>st</sup> and July 15<sup>th</sup>.

- Wolves                800m buffer
- Grizzly Bear        300m buffer
- Wolverine          2km buffer
- Fox                    150m buffer

#### **4.5. Breeding and Nesting Birds**

No eggs or nests are to be disturbed by any activities. If any employee or contractor comes across any active nests, they are to cease all activities immediately to ensure that the nest is not disturbed. Coordinates are to be recorded on the wildlife incidental observation log and these coordinates are to be reported to Environment Canada. Moving or disturbing the nest of a migratory bird is in contravention of the Migratory Birds Convention Act.

The peregrine falcon has been identified as species of Special Concern by COSEWIC. If any nests are found, a buffer must be maintained. A 1.5 kilometre buffer is recommended for the peregrine falcon. Any nests discovered will be recorded on the wildlife incidental observation log and the GPS coordinates provided to the applicable regulatory authorities and interested parties.

#### **4.6. Wildlife Observation Log**

Sightings of wildlife will be recorded. Sightings of wildlife will be reported by all employees and contractors to an appointed staff member who will record the wildlife sighting information into the Kivalliq Energy Wildlife Incidental Observation Spreadsheet. This information will be reported in the required annual reports provided to various regulatory agencies.

#### **4.7. Firearms**

Registered firearms will only be carried to ensure the safety of personnel on the Angilak Property. Firearms on site are required to be properly registered and stored in accordance with applicable legislation. All personnel handling a firearm must have a valid firearms licence and be approved by the Project Manager.

Hunting by all employees and contractors is strictly prohibited and will result in immediate termination. All firearm discharges must be reported immediately to the Project Manager. The use of firearms against dangerous wildlife is considered a last resort.

#### **4.8. Aquatic Life**

The following practices are in place to ensure aquatic life will be protected on the Angilak Property.

- Working in and around waterbodies must be done in such a way that prevents disturbance to aquatic life and habitat.
- Waterlines must be properly placed and screened in accordance with the “Freshwater Intake End-of-Pipe Screen Guideline” (DFO).
- No wastes are to enter any water-bodies. This includes any discharge from any exploration camp.
- All sumps, fuel caches and camps must be located at least 31 metres from the high water mark of any water-body unless otherwise approved by the appropriate regulatory authority.
- Fishing while conducting business on behalf of Kivalliq Energy is strictly prohibited.

The Angilak Property does not occur in or near any aquatic species at risk or their critical habitat according to the “Aquatic Species at Risk Maps” provided by the Department of Fisheries and Oceans.

#### **4.9. Air and Noise Quality**

Potential impacts on air quality resulting from activities on the Angilak Property include discharge of exhaust from airplanes, helicopters and generators and incinerator emissions. Exploration programs are generally small in nature and operated seasonally in the northern regions due to weather limitations. Due to the short duration of the program, the low-impact activities involved and the remote location of the property, measureable impacts to the air quality are not anticipated. As exploration program scope expands over the years, a dustfall collection program may be initiated to generate baseline air quality data.

Noise quality on the Angilak Property may be affected by airplanes, helicopters and generators which can disturb wildlife. Wildlife mitigation measures are outlined above in Section 4.2. If caribou and/or muskox are seen in the survey area, the geophysical survey are not to be flown until they have moved a safe distance (at least one kilometre) away. Helicopters are to maintain a minimum of altitude of 610 metres in areas where wildlife is observed and are instructed to avoid caribou calving grounds on their way to or from the project area.

#### 4.10. Vegetation and Soil Disturbance Mitigation

Activities planned for the Angilak Property are considered to be low impact and are predicted to have none to very little effect on vegetation and soil. Vegetation on the property mainly consists of mosses, lichen, grasses and saxifrage.

Potential impacts to vegetation and soil on the Angilak Property include disturbance due to camp and exploration activities. The Angilak Property is located above the tree line; therefore, line cutting is not required for exploration activities. Kivalliq Energy will not construct any roads.

Any sumps associated with Kivalliq Energy's proposed temporary fly camps will utilize a naturally occurring depression free from vegetation and any potential runoff contamination as a sump. All sumps will be backfilled and restored to the pre-existing natural contours of the land during final abandonment and restoration.

Soil quality can be impacted from hazardous materials spills and waste discharge. Refer to the Spill Contingency Plan for mitigation measures regarding hazardous materials spills.

#### 4.11. Archaeological Sites

Any archaeological sites identified during the course of exploration activities will be handled with the utmost care. Site coordinates will be recorded, reported to the Government of Nunavut and the Kivalliq Inuit Association and designated off limits to all workers. Disturbance is prohibited. Kivalliq Energy shall assist communities and government(s) in identifying and protecting archaeological sites and carving-stone sites, as required by law (Code of Good Conduct for Land Users, NBRLUP). Any archeological sites identified will be reported to the Chief Archaeologist at the Department of Culture, Language, Elders and Youth (CLEY), the INAC Land Administrator and the KIA.

### 5. Contacts

**Bear incident and/or interactions, and wolf or fox den sightings will be reported immediately to:**

| Name       | Position                      | Email  | Phone Number |
|------------|-------------------------------|--|--------------|
| Rob Harmer | Regional Manager-Kivalliq, GN | <a href="mailto:rharmer@gov.nu.ca">rharmer@gov.nu.ca</a> | 867-857-3172 |

**Bear sightings/incidents and large herd sightings will be reported to:**

| Name                | Position                | Email  | Phone Number |
|---------------------|-------------------------|--|--------------|
| Mitch Campbell      | GN Biologist, Arviat    | <a href="mailto:mcampbell1@gov.nu.ca">mcampbell1@gov.nu.ca</a>           | 867-857-3171 |
| Gabriel Karlik      | Executive Director, KIA | <a href="mailto:gkarlik@kivalliqinuit.ca">gkarlik@kivalliqinuit.ca</a>   | 867-645-5742 |
| Luis Manzo          | Director of Lands, KIA  | <a href="mailto:lmanzo@kivalliqinuit.ca">lmanzo@kivalliqinuit.ca</a>     | 867-645-5731 |
| Jeff Tulugak        | Land Use Inspector, KIA | <a href="mailto:jtulugak@kivalliqinuit.ca">jtulugak@kivalliqinuit.ca</a> | 867-645-5735 |
| Russell Toolooktook | CO, Baker Lake, GN      | <a href="mailto:rtoolooktook@gov.nu.ca">rtoolooktook@gov.nu.ca</a>       | 867-793-2944 |

I have read and agree to the Kivalliq Energy Corporation Environmental and Wildlife Management Plan outlined in the above document:

Signature: \_\_\_\_\_

Date: \_\_\_\_\_