

## Appendix II      **Spill Report Form**

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Available at:

<http://gov.nu.ca/environment/documents/spill-response>



Canada

# NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE

TEL: (867) 920-8130

FAX: (867) 873-6924

EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

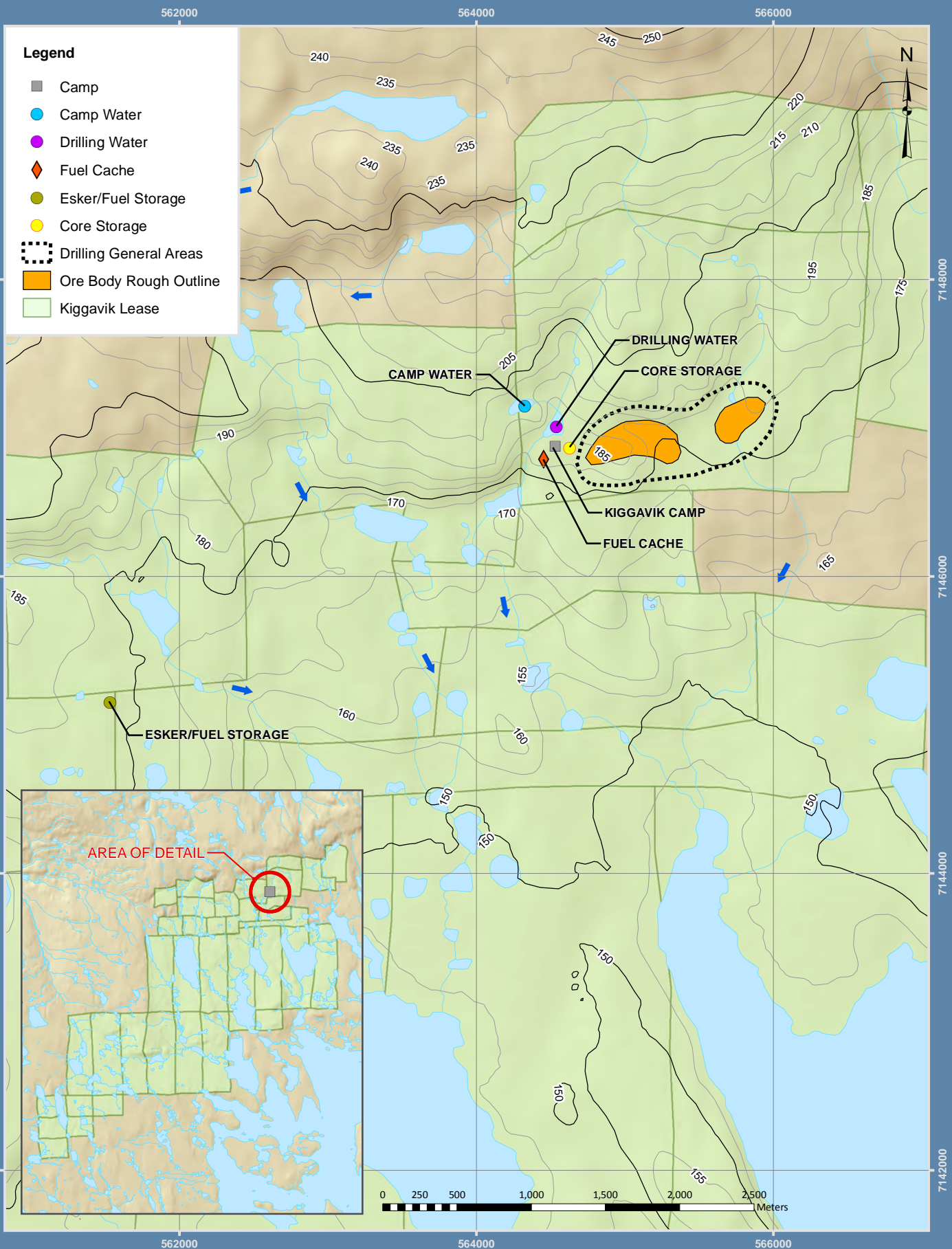
A	REPORT DATE: MONTH – DAY – YEAR		REPORT TIME		<input type="checkbox"/> ORIGINAL SPILL REPORT, OR <input type="checkbox"/> UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER _____-_____
	OCCURRENCE DATE: MONTH – DAY – YEAR		OCCURRENCE TIME			
C	LAND USE PERMIT NUMBER (IF APPLICABLE)			WATER LICENCE NUMBER (IF APPLICABLE)		
	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION				REGION <input type="checkbox"/> NWT <input type="checkbox"/> NUNAVUT <input type="checkbox"/> ADJACENT JURISDICTION OR OCEAN	
E	LATITUDE			LONGITUDE		
	DEGREES	MINUTES	SECONDS	DEGREES	MINUTES	SECONDS
F	RESPONSIBLE PARTY OR VESSEL NAME		RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION			
	ANY CONTRACTOR INVOLVED		CONTRACTOR ADDRESS OR OFFICE LOCATION			
H	PRODUCT SPILLED		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES		U.N. NUMBER	
	SECOND PRODUCT SPILLED (IF APPLICABLE)		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES		U.N. NUMBER	
I	SPILL SOURCE		SPILL CAUSE		AREA OF CONTAMINATION IN SQUARE METRES	
	FACTORS AFFECTING SPILL OR RECOVERY		DESCRIBE ANY ASSISTANCE REQUIRED		HAZARDS TO PERSONS, PROPERTY OR ENVIRONMENT	
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS					
L	REPORTED TO SPILL LINE BY	POSITION	EMPLOYER	LOCATION CALLING FROM	TELEPHONE	
	ANY ALTERNATE CONTACT	POSITION	EMPLOYER	ALTERNATE CONTACT LOCATION	ALTERNATE TELEPHONE	

## REPORT LINE USE ONLY

N	RECEIVED AT SPILL LINE BY	POSITION	EMPLOYER	LOCATION CALLED	REPORT LINE NUMBER
		STATION OPERATOR		YELLOWKNIFE, NT	(867) 920-8130
LEAD AGENCY <input type="checkbox"/> EC <input type="checkbox"/> CCG <input type="checkbox"/> GNWT <input type="checkbox"/> GN <input type="checkbox"/> ILA <input type="checkbox"/> INAC <input type="checkbox"/> NEB <input type="checkbox"/> TC			SIGNIFICANCE <input type="checkbox"/> MINOR <input type="checkbox"/> MAJOR <input type="checkbox"/> UNKNOWN		FILE STATUS <input type="checkbox"/> OPEN <input type="checkbox"/> CLOSED
AGENCY		CONTACT NAME	CONTACT TIME	REMARKS	
LEAD AGENCY					
FIRST SUPPORT AGENCY					
SECOND SUPPORT AGENCY					
THIRD SUPPORT AGENCY					

## Appendix III    **Site Maps**

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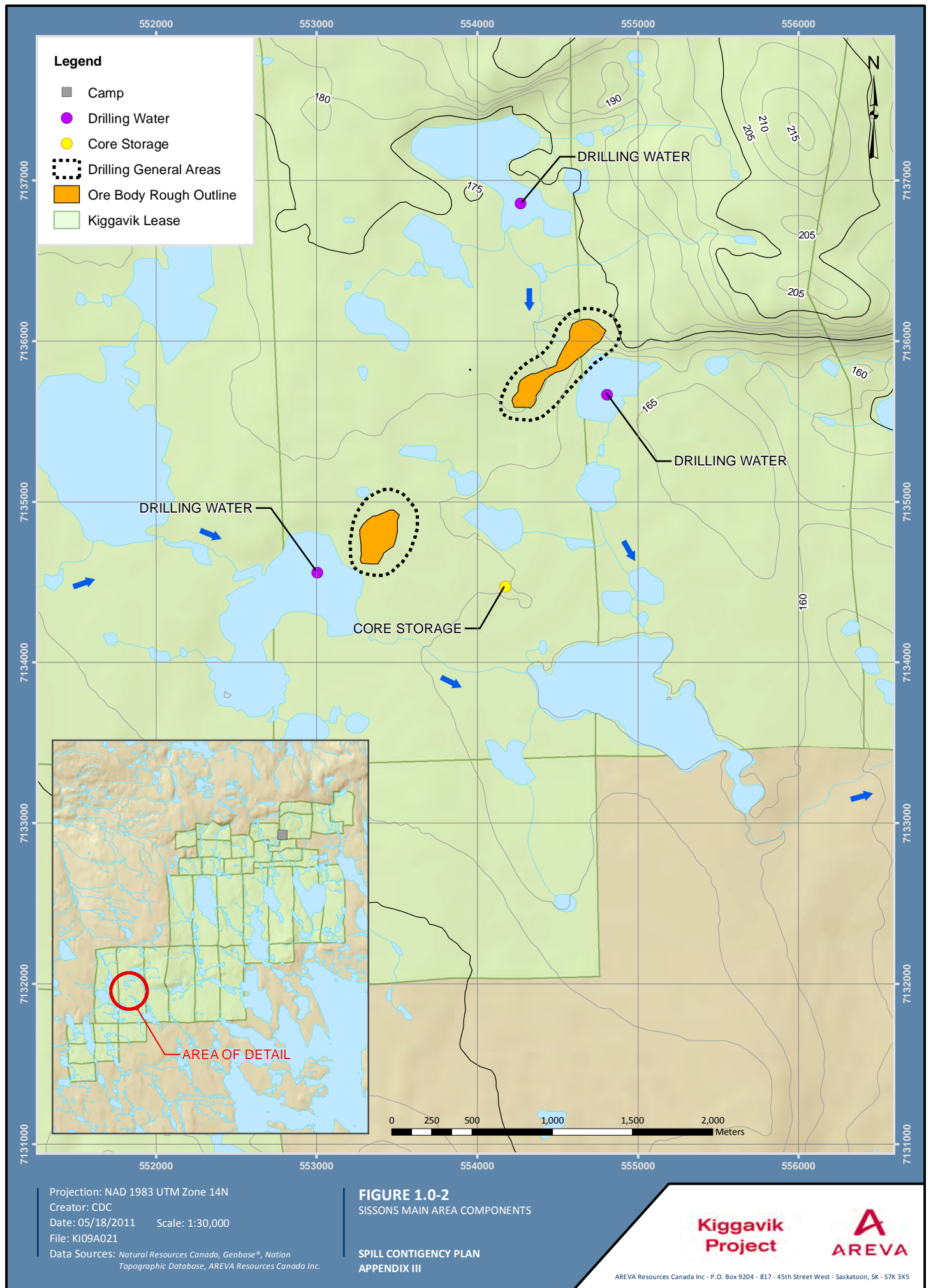
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 Creator: CDC  
 Date: 05/18/2011 Scale: 1:35,000  
 File: KI09A020  
 Data Sources: Natural Resources Canada, Geobase®, Nation  
 Topographic Database, AREVA Resources Canada Inc.

**FIGURE 1.0-1**  
 KIGGAVIK MAIN AREA COMPONENTS

SPILL CONTINGENCY PLAN  
 APPENDIX III

**Kiggavik**  
**Project**







# **AREVA Resources Canada Inc.**

## **Uranium Exploration Plan**

Exploration Department

Kiggavik Project

Version 4 Revision 1

**PIGA Unrestricted**


January 2016

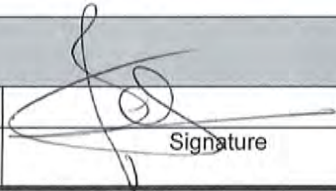
# Controlled Distribution List

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Nunavut Water Board	1
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## Approval for Use

Editor:		
Exploration Safety Health Environment and Quality Supervisor	Brad Pohler	
Title	Name	Signature

Approver:		
Vice President, Exploration	Patrick Ledru	
Title	Name	Signature



# History of Revisions

Version	Revision	Date	Details of Revision
1	0	March 2007	Original submission
2	0	October 2007	Updated to reflect opportunities for improvement
3	0	January 2009	Updated to reflect opportunities for improvement
3	1	May 2011	Updated to reflect personnel titles and grammatical changes.
3	2	May 2012	Updated to reflect personnel changes
3	3	May 2013	Updated to reflect personnel changes and grammatical errors
3	4	May 2014	Updated surface land administration
4	0	January 2015	Improved formatting and new template; updated site information and drilling operations
4	1	January 2016	Updated to reflect changes in operations and personnel.

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# Acronyms and Abbreviations

Term	Definition
AANDC	Aboriginal Affairs and Northern Development Canada
AREVA	AREVA Resources Canada Inc.
CNSC	Canadian Nuclear Safety Commission
IATA	International Air Transport Association
IOL	Inuit Owned Land
KIA	Kivalliq Inuit Association
NWB	Nunavut Water Board
SHEQ	Safety Health Environment and Quality
TDG	Transportation of Dangerous Goods

# 1 Introduction

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The AREVA Resources Canada Inc. (AREVA) Uranium Exploration Plan applies to the Kiggavik Project located approximately 80 km west of Baker Lake. The Uranium Exploration Plan is designed to meet the requirements of the Water Use Licence issued by the Nunavut Water Board (NWB), the Saskatchewan Environment Mineral Exploration Guidelines (Best Management Practices), and the Canadian Nuclear Safety Commission (CNSC) Regulations; however CNSC does not regulate exploration activities.

## 1.1 Revision to Plan

The Uranium Exploration Plan is reviewed regularly and updated as required to keep the information current and consistent with regulatory and procedural changes. A History of Revisions can be found at the front of this plan.

## 1.2 Responsibilities

The District Geologist, Nunavut is responsible for the implementation of this plan with the assistance of the following personnel:

- Project Geologist
- Safety, Health, Environment, and Quality (SHEQ) Supervisor
- Or designates

The Vice President, Exploration is ultimately responsible for any activity being carried out by Kiggavik Project personnel.

## 2 Site Information

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The Kiggavik site is located in the Kivalliq Region of Nunavut and supports the exploration of the Kiggavik Project which includes the Kiggavik mineral leases, and the St. Tropez claims which will be converted to lease in 2016.

Exploration of the Kiggavik Project is a joint venture between AREVA, Japan-Canada Uranium Company Limited and Daewoo International Corporation, with AREVA being the operator. The Kiggavik Project includes 37 Kiggavik mineral leases covering 45,639 acres. The surface rights for 31 mineral leases on Inuit Owned Land (IOL) are administered by the Kivalliq Inuit Association (KIA) while six mineral leases remain on Crown land. The Crown land covers 3,794 acres of the Jane prospect on the south-west portion of the Project with surface rights administered by Aboriginal Affairs and Northern Development Canada (AANDC).

The St. Tropez area, wholly owned and operated by AREVA, is composed of 18 mineral claims covering 41,223 acres (officially 40,894 acres) which will soon be converted to mineral leases. The surface rights are administered by the KIA.

There is an existing temporary exploration camp at the Kiggavik site which can accommodate approximately 60 people. The Kiggavik camp is located at the following coordinates:

- UTM 14W 564530 E 7146879 N
  - Latitude: 64° 26' 29" N
  - Longitude: 97° 39' 34" W

## 3 Site Operations

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### 3.1 Training

AREVA provides necessary training to all its employees and contractors to ensure worker safety and protection of the environment during exploration activities. The training programs provided are designed to meet the requirements of the Nunavut Mine Health and Safety Act and Regulations, and the *ISO14001:2004 and OHSAS18001:2007* international standards. Although exploration activities are not regulated by the CNSC, the training programs are designed to meet the requirements of the *Uranium Mines and Mills Regulations*.

All Kiggavik personnel receive appropriate radiation protection training prior to beginning work. This includes instruction on the origins of ionizing radiation, types of radiation, health risks, principles of radiation safety and regulatory compliance. Training also includes the safe handling, management and disposition of radioactive materials such as radioactive core, drill muds and cuttings. Visitors at the Kiggavik site for more than 72 hours, or who will be left without an escort will receive radiation protection training. Visitors who have not received training must be escorted on site at all times. If contractors for the project have their own training program they must submit evidence of the training program.

Personnel supervising the shipment of radioactive materials must possess a valid Transportation of Dangerous Goods (TDG) certificate in accordance with Transport Canada *Transportation of Dangerous Goods Regulations* and the International Air Transport Association (IATA) *Dangerous Goods Regulations*.

Kiggavik personnel who handle fuel, lubricants and/or radioactive material require spill response training. If the contractors have their own training program they must submit evidence of the training program. Training for AREVA employees is provided in accordance with the Spill Contingency Plan. If the contractors do not have an acceptable training program in place, AREVA will supply the training material and/or provide the spill response training as required.

### 3.2 Drilling Operations

Drilling operations are conducted in accordance with land authorizations from the NWB, AANDC, and the KIA. As required by the current water use licence issued by the NWB, all drill sites are located at a minimum of 31 m beyond the ordinary high water mark of any nearby water bodies, unless an exemption to this requirement has been granted. During drilling activities, drill mud solids or cuttings in non-mineralized zones are deposited on the ground, in a natural low-lying depression. This natural depression must also be located at a minimum of 31 m beyond the ordinary high water mark of any nearby water bodies where direct flow into the water body is not possible. Refilling of bore-hole

depressions and restoration of the natural low-lying depression will be carried out as per the Abandonment and Restoration Plan.

When mineralized core is intersected, all drill mud and cuttings are collected in appropriate containers and categorized as radioactive through appropriate radiation measurements. Drill mud or cuttings with uranium content greater than 0.05% will be collected and stored at the radioactive storage compound with an appropriate containment system in place. Down hole disposal of cuttings is often not practical at Kiggavik. Any drill hole that encounters mineralization with uranium content greater than 1.0% over a length of > 1.0 m and with a metre-per-cent concentration of > 5.0 is sealed by grouting over the entire length of the mineralization zone and not less than 10 m above or below each mineralization zone. The casing must be cut as close to the ground level as possible upon completion. A radiological survey is conducted before and after drilling to verify that radiation levels are not greater than 1 microsievert per hour ( $\mu\text{Sv/h}$ ) above background at one metre above ground. GPS locations of all drill holes are recorded and submitted with the annual report.

### 3.3 Core Logging and Storage

Permanent and long-term storage areas of radioactive material, including core and drill cuttings, are located at least 31 m from the main camp and at least 100 m from the high water mark of all water bodies. Logging of core is primarily conducted in core logging tents located a few hundred metres away from the camp facilities. Geotechnical logging of core may also be conducted at the drill sites. Permanent on-site core storage areas are appropriately labelled with radiation warning signs. Gamma radiation levels at 1 m from the surface of a storage area should be reduced to 1  $\mu\text{Sv/h}$  and in no instances exceed 2.5  $\mu\text{Sv/h}$ . If long-term off-site storage is required, AREVA intends to transport the material to be stored at an operating uranium mining facility.

### 3.4 Radioisotopes

Nuclear materials and radiation devices are used for exploration and instrument calibration. The possession, use, storage, and disposal of nuclear materials and radiation devices are carried out in accordance with Canadian Nuclear Safety Commission (CNSC) *Nuclear Substances and Radiation Devices Regulations* and *EXP-752-02 Safe Handling and Use of Exploration Sources*.

### 3.5 Spills

All spills of radioactive material are to be appropriately reported and responded to in accordance with the Spill Contingency Plan that was submitted to and approved by regulators during land use applications. The uncontrolled or accidental release of any radioactive materials, including drill mud solids and cuttings, is considered a spill. In the event of a spill, radioactive materials are collected and necessary site remediation undertaken to meet the site abandonment criteria of less than 1  $\mu\text{Sv/h}$  above background at a height of 1 m. Material collected during the clean-up is stored in appropriate containers and stored in the on-site long-term radioactive storage area for future handling.



### 3.6 Shipping of Radioactive Materials

Shipping and receiving radioactive material is carried out in accordance with the CNSC *Packaging and Transport of Nuclear Substances Regulations*, the Transport Canada *Transportation of Dangerous Goods Regulations*, and the IATA *Dangerous Goods Regulations*. All personnel responsible for the shipment of radioactive materials must possess a valid TDG certificates and provide supervision of support personnel providing assistance during the preparation and shipment of radioactive material.

### 3.7 Site Abandonment and Restoration

Site abandonment and restoration is carried out in accordance with the Abandonment and Restoration Plan. Gamma radiation surveys are conducted at each site prior to drilling and prior to final abandonment. Contaminated soil or cuttings are collected in appropriate containers and stored in the long-term core storage area for future handling, which may include transfer to an operating mine site. All drill sites are cleaned to ensure that the gamma dose rate at a height of 1 m is less than 1 µSv/h above ambient background. Materials and equipment leaving the drill site are monitored for contamination in accordance with procedure, *EXP-740, Routine Radiological Monitoring Schedule*. Materials or equipment that cannot be decontaminated to meet unrestricted release criteria are either stored in the long-term core storage area or shipped to a licensed facility such as the McClean Lake Operation in accordance with the CNSC *Packaging and Transport of Nuclear Substances Regulations* and the Transport Canada *Transportation of Dangerous Goods Regulations*.

## 4 References

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AREVA Resources Canada Inc. 2015. Abandonment and Restoration Plan, Version 5. January 2015

AREVA Resources Canada Inc. 2015. Spill Contingency Plan, Version 7, Revision 3. January 2015

Canadian Nuclear Safety Commission. 2011. Packaging and Transport of Nuclear Substances Regulations. December 2011.

Canadian Nuclear Safety Commission. 2012. Uranium Mines and Mills Regulations. December 2012.

EXP-740, Routine Radiological Monitoring Schedule

EXP-752-02 Safe Handling and Use of Exploration Sources

Saskatchewan Mineral Exploration and Government Advisory Committee. 2012. Mineral Exploration Guidelines for Saskatchewan.

Transport Canada. Transportation of Dangerous Goods Regulations. July 2014.



# **AREVA Resources Canada Inc.**

## **Waste Management Plan**

Exploration Department

Kiggavik Project

Version 6 Revision 1


**PIGA Unrestricted**

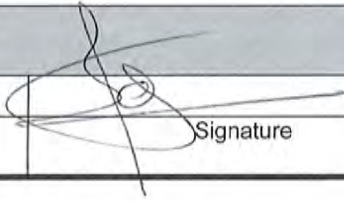
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2	0	October 2007	Update to reflect changes in field activities/capabilities and goals of continual improvement
3	0	January 2009	Update to reflect changes in field activities/capabilities and goals of continual improvement
4	0	January 2010	Update to reflect changes in field activities/capabilities and goals of continual improvement
5	0	May 2011	Update to reflect changes in field activities/capabilities and goals of continual improvement
5	1	May 2012	Updated to reflect personnel changes
5	2	May 2013	Updated to reflect personnel changes
6	0	January 2015	Updated references, formatting, and minor edits
6	1	January 2016	Updated to reflect operational and personnel changes

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# Acronyms and Abbreviations

Term	Definition
AREVA	AREVA Resources Canada Inc.
SHEQ	Safety Health Environment and Quality

# 1 Introduction

---

The AREVA Resources Canada Inc. (AREVA) Waste Management Plan applies to the Kiggavik Project (Project) located approximately 80 km west of Baker Lake, Nunavut. AREVA is committed to ensuring that all wastes generated by the Kiggavik Project are collected, stored, transported, and disposed of in a safe, efficient and compliant manner.

## 1.1 Purpose and Scope

The Waste Management Plan is fulfilled by using proven strategies and applying modern technologies to ensure materials are used efficiently and disposed of in an environmentally conscious manner. General strategies include the following:

- The implementation of a waste manifesting system to enable waste identification and tracking.
- The most environmentally suitable materials, equipment, and products are used where practical.
- Procurement procedures consider product substitution for materials that are hazardous to handle, generate hazardous wastes, or create an environmental liability.
- All site personnel attend an orientation, which addresses waste management and handling of hazardous goods, prior to being exposed to the worksite. The site orientation for short-term visitors includes a waste management component.
- Proper sorting, disposal, storage and handling of all waste streams.

## 1.2 Revision to Manual

The Kiggavik Waste Management Plan is reviewed regularly and is updated as required to keep the information current and consistent with regulatory and procedural changes. A History of Revisions can be found at the front of this plan.

## 1.3 Responsibilities

The District Geologist, Nunavut is responsible to ensure that this plan is implemented. Implementation may be completed by the following personnel or their designate:

- Project Geologist
- Safety, Health, Environment, and Quality (SHEQ) Supervisor

The Vice President, Exploration is ultimately responsible for any activity being carried out by Kiggavik Project personnel.

## **2 Waste Reduction, Reuse, and Recycling**

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### **2.1 Waste Reduction**

Efforts to, wherever practical, reduce waste at source, for example:

- refillable pump bottles instead of aerosol cans;
- reduction of paper consumption by promoting the use of electronic mail, voice messaging, electronic transmittals, etc.;
- reduction of disposable cups and containers by encouraging use/re-use of refillable mugs for beverages; and
- storage of bulk liquids in large containers and dispensing the liquids into smaller, refillable bottles and containers, instead of several smaller containers.

Means of reducing the volume of waste generated continue to be developed as the project progresses.

### **2.2 Waste Reuse**

Waste is reused to the furthest practical extent. Examples of waste reuse include but are not limited to the following:

- Reuse of packaging from shipping of materials and equipment
- 45 gallon drums for waste materials
- Sea containers for backhauling of wastes or equipment

### **2.3 Waste Recycling**

Waste is recycled where practical. Materials that may offer recycling opportunities in the future are investigated on an on-going basis during operations to reduce waste. For example, AREVA may store materials such as tires, fluorescent lamp ballasts, batteries, used oils, and other chemicals on-site for future shipment off-site for recycling.

### 3 Waste Sources

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The most common sources and types of wastes that are generated are presented in Table 3.1.

**Table 3.1 Sources of Waste Generation**

Source of Waste	Types of Waste
Chemical handling and storage operations	waste petroleum products, used chemicals
Sewage	biological sludge
Equipment maintenance	used batteries, engine oil, oil filters, tires, scrap metals, <i>etc.</i>
Building maintenance	used transformers, fluorescent lighting ballasts/tubes, glycol, construction scraps (wood, piping <i>etc.</i> )
Domestic waste from: - camp and drill sites - offices - kitchen facilities	domestic garbage, food wastes, paper, cardboard
Inert waste from camp and drill sites	cement, sand, used industrial materials, metals, pipe, glass, insulation <i>etc.</i>
Biological waste from first aid facility	biological waste, blood, gauze pads <i>etc.</i>
Drilling	clean or contaminated (mineralized) drill cuttings

## 4 Identification, Treatment and Disposal Plan

Table 4.1 presents treatment strategies and disposal plans for wastes during the exploration program.

**Table 4.1 Treatment Strategies and Disposal**

Waste Type	Treatment Strategy	Disposal Plan
<b>Petroleum based</b>		
Used oil	Dispose or recycle off-site	Collect in bunged drums. Store in lined/bermed storage area. Ship off-site
Used hydraulic fluid	Dispose or recycle off-site	Collect in bunged drums. Store in lined/bermed area. Ship off-site
Oil filters	Recycle/recover	Collect in ring lidded drums. Store in lined/bermed storage area. Store for shipment off-site.
Contaminated soils	Excavate	Store for shipment off-site or landfarming (upon approval)
Waste batteries	Recycle off-site	Drain (if required) and neutralize acid. Store for shipment off-site
Aerosol cans	Reduce/recycle	Puncture, drain, and collect in ringed drums for shipment off-site.
Paint	Dispose off-site	Collect and store cans in drums for shipment off-site
<b>Chemicals</b>		
Glycol	Dispose or recycle off-site	Collect in bunged drums. Store for shipment off-site
Solvents	Reduce/dispose off-site	Use non-toxic solvents where possible. Store in drums for shipment off-site
<b>Domestic wastes</b>		
Food	Incinerate	Collect and store in designated containers. Incinerate daily.
Paper/cardboard	Reuse/incinerate	Reuse where possible or incinerate
Plastics	reuse/dispose off-site	Reuse where possible
General camp wastes	Incinerate	Sort to retrieve non-burnable. Incinerate.
<b>Inert Bulk Wastes</b>		
Buildings/bulk debris	Reuse off-site/dispose off-site	Store for future shipment off-site
Wood	Incinerate, dispose	Sort wood, incinerate non-treated wood, ship treated wood off-site to approved disposal facility
Incinerator ash	Dispose off-site	Collect in drums for shipment off-site
Scrap metal	Dispose off-site	Store for shipment off-site
<b>Organic Wastes</b>		

<b>Waste Type</b>	<b>Treatment Strategy</b>	<b>Disposal Plan</b>
Sewage sludge	Incinerate	Bag and incinerate solid waste from pacto toilets; liquid waste is directed with greywater
Biological wastes	Incinerate/dispose off-site	Store in special waste receptacles. Incinerate/ship off-site
Clean drill cuttings		Disposed in a low lying area in the receiving environment; Potentially used for reclaiming sink holes
Contaminated drilling cuttings		Collected at the drill site in totes and stored in the radioactive storage compound for future handling, or shipped to an existing mining operation if the current exploration project does not proceed to development



## 5 Waste Management

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### 5.1 Sorting

Waste must be sorted at the source before it can be disposed or transported to specific designated areas to ensure proper disposal. Measures that are implemented for sorting include, but are not be limited to, the following:

- Containers are available for the collection of burnable, non-burnable, and recyclable wastes, such as scrap metal, timber, unsalvageable equipment, etc. The contents of the containers are sorted and stored for future handling, which consists of incineration, off-site disposal, or recycling.
- Stored wastes are kept in a neat and tidy fashion and are transported off-site during the winter haul season in accordance with the Winter Road Plan.
- The waste manifest tracking will be updated upon removal of waste items from site.

### 5.2 Waste Storage

#### 5.2.1 Containers

Containers used for storage of waste are selected based on physical and regulatory requirements prevention of wildlife attraction (i.e., steel or heavy duty plastic containers with positive clamping lids) and transport requirements (helicopter, truck, forklift, etc.). All containers are properly labelled to identify only those wastes for which the containers are being used to collect.

#### 5.2.2 Waste Storage-Areas

All waste(s) collected in drums that are susceptible to damage which may lead to a leak or spill are stored in lined/bermed areas (arctic berms) for future handling and removal from site. The lined/bermed areas (arctic berms) have been identified as the location in which used or generated hazardous materials are to be stored prior to off-site shipment.

#### 5.2.3 Incinerator

An incinerator is used on a daily basis for the incineration of non-hazardous, combustible waste materials, which includes paper, food waste, sewage and non-treated wood. Incinerator ash is collected regularly (frequency depending on ash loading) in sealed, wildlife resistant containers and transported off-site for disposal. Refer to *EXP-775, Operation of the Kiggavik Waste Incinerator* for proper handling instructions and operation of the incinerator. Proper waste segregation and incinerator operation ensures maximum combustion.

### 5.3 Food Waste Handling

Food wastes are collected from the camp, drills and other facilities as required, and immediately placed in plastic bags. The bagged waste is then transported directly to the incinerator which is

located within 50 m of the kitchen. Typically, food wastes are incinerated daily to avoid potential wildlife attraction. Food wastes are not stored outside the incinerator area.

To prevent wildlife attraction, food, beverages and their containers are not disposed of outdoors. Designated snack and break areas for personnel are provided to prevent food and wastes from being generated uncontrollably around the site.

## **5.4 Non-Food Waste Handling**

### **5.4.1 Sewage**

When pinto-toilets are used, the sewage removed from the washrooms is collected in bags and immediately incinerated. Liquid sewage from the urinals is currently mixed with the camp grey water for discharge into a designated low-lying area, which is at minimum 30 m south of camp. The grey water from the kitchen and washroom facilities is diverted to the grey water collection sump area. The grey water sump consists of a barrel that was punctured with drainage holes and buried to allow drainage and filtration of the water.

### **5.4.2 Chemicals**

Chemicals are collected in appropriate containers, and stored in a lined/bermed area for future shipment off site for disposal or recycling at an approved facility.

### **5.4.3 Waste Oil**

Waste oil is collected in bunged drums and stored in the lined/bermed area for future shipment off-site for handling at an approved facility.

### **5.4.4 Domestic Wastes**

Non-toxic, non-food solid wastes is sorted into recyclable, reusable, combustible, and non-combustible categories. Combustible items are burned in the incinerator, while non-combustible items are stored until they are shipped off-site for recycling. Aerosol cans are punctured and drained prior to being shipped off-site. Toxic materials are to be stored in sealed, steel or plastic drums in a lined/bermed area and shipped off-site for proper disposal.

### **5.4.5 Inert Bulk Wastes**

Inert bulk wastes that cannot be readily recycled or reused, such as chemically treated wood, general debris, incinerator ash, tires, etc. are stored and appropriately labelled prior to shipment off-site to an approved facility.

### **5.4.6 Hazardous Wastes**

Other hazardous, non-combustible waste and contaminated materials not identified above are temporarily stored in appropriate containers and shipped off-site for disposal or recycling.

During normal operations, hazardous materials are stored in other various locations associated with their intended use to minimize site transport and handling requirements. These materials and locations are as follows:

- oils and greases are stored in drums, pails, and bottles in the maintenance shop or drill laydown area
- batteries of all types are stored in a storage area;
- ethylene glycol is stored in drums in the lined/bermed area

#### **5.4.7 Drill Cuttings**

When drilling in non-mineralized zones, drill mud solids or cuttings are deposited in designated low-lying areas. When mineralized core, greater than 0.05% uranium, is intercepted, all drill mud and cuttings are disposed of down hole where possible or collected in appropriate containers and stored in the radioactive storage area. This is in accordance with *EXP-740-05, Management and Disposition of Radioactive Drill Cuttings* and the Abandonment and Restoration Plan.

## 6 References

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# **AREVA Resources Canada Inc.**

## **Wildlife Mitigation and Monitoring Plan**

Exploration Department

Kiggavik Project

Version 5 Revision 5


**PIGA Unrestricted**


January 2016

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## Approval for Use

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# History of Revisions

Version	Revision	Date	Details of Revision
1	0	March 2007	Original submission
2	0	January 2008	Updated to reflect changes in field activities/capabilities and areas of continual improvement
2	1	May 2008	Updated to reflect program changes initiated by new consulting biologist and to integrate comments received by Nunavut and NWT biologists
3	0	January 2009	Updated to reflect opportunities for improvement
4	0	January 2010	Updated to reflect opportunities for improvement
5	0	April 2011	Updated to reflect lessons learned throughout the 2010 field season. These changes include an appendix which outlines the appropriate responses to a variety of scenarios to ensure appropriate mitigative actions are carried out in a timely and effective manner.
5	1	May 2012	Updated to reflect change in personnel titles
5	2	May 2013	Updated to reflect changes in personnel
5	3	May 2014	Updated to include deterrence measures for safety intervention and wildlife monitor responsibilities
5	4	January 2015	Minor edits for improved clarity and updated to new template
5	5	January 2016	Minor edits.

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# Acronyms and Abbreviations

Term	Definition
AANDC	Aboriginal Affairs and Northern Development Canada
AREVA	AREVA Resources Canada Inc.
BQCMB	Beverly and Qamanirjuaq Caribou Management Board
EC	Environment Canada
EIS	Environmental Impact Statement
GN	Government of Nunavut
GNWT	Government of Northwest Territories
GN-DoE	Government of Nunavut, Department of Environment
HTO	Hunters and Trappers Organization
KIA	Kivalliq Inuit Association
SHEQ	Safety Health Environment and Quality

# 1 Introduction

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The Wildlife Mitigation and Monitoring Plan (Plan) described herein has been developed by AREVA Resources Canada Inc. (AREVA) for the Kiggavik Project (Project) located approximately 80 km west of Baker Lake, Nunavut. The Plan is implemented during the field season to monitor and reduce potential impacts on wildlife with particular emphasis on caribou. The Plan serves as a work instructional and internal best management practice and encompasses activities in Nunavut, including continued exploration and environmental studies for the environmental assessment process.

All AREVA personnel, contractors, subcontractors, helicopter contractors, and Wildlife Monitors have the responsibility to be familiar with and to follow this Plan. Implementation and enforcement is the responsibility of the Safety, Health, Environmental, and Quality (SHEQ) Supervisor or designate with support from the Wildlife Monitors. Kiggavik Project worksites and activities include the following:

- Camp Activities (including the fuel cache)
- Drilling Operations
- Airborne Geophysics
- Ground Geophysics and Exploration Activities
- Environmental Baseline Work and
- Environmental Monitoring

The Plan is reviewed and updated regularly, and was developed in consultation with a biologist knowledgeable in barren ground caribou. The Plan is reviewed to reflect lessons learned through AREVA's experience and the experience of other projects and to incorporate feedback and recommendations from regulators and community members.

The current Plan has evolved with lessons learned during the previous field seasons, community input, and regulatory commitments. AREVA is working closely with the Government of Nunavut Department of Environment (GN-DoE) to investigate options for collecting meaningful caribou population data using low invasive methodologies.

## 2 Monitoring Plan

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### 2.1 Wildlife Monitoring

AREVA will employ an Independent Wildlife Monitor(s) to:

- Verify that this plan is carried out
- Independently report Kiggavik related wildlife and any concerns to external agencies
- Provide safety assistance regarding wildlife issues

The Wildlife Monitor must become familiar with their scope of work by discussing this plan with the SHEQ Supervisor or designate. The Wildlife Monitor will be responsible for observations surrounding the Kiggavik camp and must report wildlife sightings to the SHEQ Supervisor or designate. They may report to the local Conservation Officer and Hunters and Trappers Organization (HTO) at any time. Provided weather conditions are adequate, the camp observations should be conducted from the five height-of-land (HOL) locations surrounding camp. If collared caribou are identified as approaching the site activities, or caribou herds have been visually observed in the area, an aerial reconnaissance survey greater than 610 m (2,000 ft) may be conducted with the Wildlife Monitor to determine proximity to site activities. The Wildlife Monitor will be responsible for advising on the number and proximity of caribou to determine when to cease activity. Regular communication with the SHEQ Supervisor and Project Geologist is beneficial for adequate reporting and mitigation measures.

If requested, the Wildlife Monitor will be allowed to carry the firearm provided by AREVA during regular monitoring of the HOL locations and during wildlife deterrence for safety intervention. The firearm may be obtained following discussion with the Facility and Logistics Coordinator, Kiggavik and will be returned to the locked gun cabinet once work is complete. The AREVA General Standard Practice (GSP) Manual [Section 9.03 Firearms and Offensive Weapons](#) guides the storage and use of firearms.

### 2.2 Baseline Data to Support Environmental Assessment

Wildlife survey data collected to support development of the Environmental Impact Statement (EIS) may be used to support site monitoring and help inform appropriate mitigation actions as required. The environmental consultants communicate regularly with the SHEQ Supervisor or designate to ensure important wildlife observations are recorded and communicated to appropriate personnel at site.

## **2.3 Aerial Observations**

Wildlife observations during daily transportation of field staff and contractors will be recorded to provide information about the presence of caribou and any other wildlife in the area. Refer to section 3.4 Flight Specific Mitigation for the required altitudes of the above mentioned flights.

## **2.4 Wildlife Logs**

AREVA has provided Wildlife Sightings Forms for all site personnel and visitors to complete following the observation of any wildlife. Instructions regarding this form are provided during orientation. The Wildlife Monitor will communicate information obtained in the field to the SHEQ Supervisor or designate. All wildlife information will be transcribed to an electronic file which is included in the monthly wildlife reports.

## **2.5 Caribou Radio-Collaring Data**

The study area will be monitored for approaching caribou with the use of satellite collar information provided by caribou biologists with the Government of Northwest Territories. In the future, the Government of Nunavut may provide collar data as well.