Orano Canada Inc.

Uranium Exploration Plan

Exploration Department

Kiggavik Project

Version 7

November 2019

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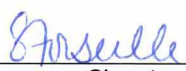
Stephanie Forseille	Coordinator, Exploration SHEQ (Safety, Health, Environment and Quality)	
Name	Title	Signature

Approver:		
John Robbins	Vice President, Exploration	
Name	Title	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
5	0	January 2017	Updated to reflect transition to Care and Maintenance phase
6	0	January 2019	Updated to reflect Corporate name change and title changes
7	0	November 2019	Updated to reflect personnel change

Table of Contents

Acronyms and Abbreviations

Term	Definition
Orano	Orano Canada Inc.
CNSC	Canadian Nuclear Safety Commission
IATA	International Air Transport Association
IOL	Inuit Owned Land
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada
KIA	Kivalliq Inuit Association
NWB	Nunavut Water Board
SHEQ	Safety Health Environment and Quality
TDG	Transportation of Dangerous Goods

1 Introduction

The Kiggavik Project is currently in a care and maintenance phase. The Uranium Exploration Plan (Plan) will be kept in this state, but is considered not applicable during the care and maintenance phase. This Plan will be updated prior to a change in project phase to reflect the most recent information.

The Orano Canada Inc. (Orano) Uranium Exploration Plan applies to the Kiggavik Project located approximately 80 km west of Baker Lake. The 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

During the active exploration phase, the 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 beginning of this Plan.

1.2 Responsibilities

The Manager – New Projects is responsible for the implementation of this Plan with the assistance of the following personnel:

- Project Geologist
- Coordinator, SHEQ Exploration
- Or designates

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

2 Site Information

The Kiggavik site is located in the Kivalliq Region of Nunavut and supports the exploration of the Kiggavik mineral leases and the St. Tropez mineral leases.

Exploration of the Kiggavik Project is a joint venture between Orano and Japan-Canada Uranium Company Limited (JCU), with Orano being the operator. The 37 Kiggavik mineral leases cover 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 and Contact prospects on the south-west portion of the Project with surface rights administered by Crown-Indigenous Relations and Northern Affairs Canada (INACCIRNAC).

The St. Tropez area, wholly owned and operated by Orano, is composed of 5 mineral leases covering 16,549.21 ha. The surface rights are administered by the KIA.The St. Tropez area is wholly owned and operated by Orano out of the Kiggavik site.

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

3.1 Training

Orano 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 *ISO14001:2015 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 Orano employees is provided in accordance with the Spill Contingency Plan. If the contractors do not have an acceptable training program in place, Orano 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, CIRNAC, 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. Refiling 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 (µSv/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 metre from the surface of a storage area should be reduced to 1 µSv/h and in no instances exceed 2.5 µSv/h. If long-term off-site storage is required, Orano 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 µSv/h above background at a height of 1 metre. 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 metre 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

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.