

# **Orano Canada Inc.**

## **Kiggavik Project Field Program**

### **2021 Annual Report**

21-CND-92-01


January 2022




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# 1 Summary of Kiggavik 2021 Field Program

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## 1.1 General

The Kiggavik uranium exploration project (Kiggavik) is located 80 kilometres (km) west of Baker Lake, Nunavut and is operated by Orano Canada Inc. (Orano). The project includes the Kiggavik and St. Tropez mineral leases collectively termed the Kiggavik Project. No work occurred on the Kiggavik project in 2021, including no drilling, geophysics, or site inspections. The Kiggavik camp is in a care and maintenance phase.

Main Project contributors are shown in Table 1-1.

**Table 1-1 Kiggavik Project Contributors**

Activity	Contributors
Management	Orano
Environment, Safety and Radiation Protection	Orano

## 1.2 Site Inspection/Maintenance

No site inspection or maintenance was performed in 2021. The next scheduled Orano site maintenance and inspection is planned for 2024.

## 1.3 Inspections

The most recent inspection of the field activities was carried out by the Kivalliq Inuit Association (KIA) on July 23, 2019.

### 1.3.1 Kivalliq Inuit Association

The KIA conducted an inspection of the Kiggavik camp and fuel storage areas on July 23, 2019 for the Land Use Licence KVL306C02. The technical specialist had no recommendations following the 2019 site inspection. The report is available in Appendix C: KIA Site Inspection Report

## 2 Summary of Planned Activities for 2022

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No drilling, geophysics, prospecting, or geological mapping are planned to occur in the 2022 field season.

Annual site maintenance and inspections performed since placing the site into care and maintenance have demonstrated site stability. As such, Orano has shifted to a five year maintenance and inspection schedule with the option of the KIA providing an interim inspection, as requested. The next scheduled Orano site maintenance and inspection is planned for 2024.

Table 2-1 identifies the planned maintenance and inspection schedule for the current five year cycle (2020-2024).

**Table 2-1 Site Inspection and Maintenance Plan**

Year	Work Plan
2020	No site inspection or maintenance
2021	No site inspection or maintenance
2022	No site maintenance or inspection or KIA Inspection on behalf of Orano (2022 or 2023)
2023	No site maintenance or inspection or KIA Inspection on behalf of Orano (2022 or 2023)  Planning and preparation for 2024 site maintenance and inspection
2024	Planned site maintenance and inspection (performed by Orano)



### 3 Environmental Monitoring and Protection

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Orano is committed to taking every reasonable precaution toward ensuring the protection and conservation of the natural environment. This commitment is reflected in Orano's Environmental Policy and is supported through a comprehensive environmental program for the exploration activities at Kiggavik .

The following Management Plans (Plans) were included in previous Annual Reports and are unchanged. They will be submitted to regulatory agencies when updates occur or prior to commencing the next active field season:

- Uranium Exploration Plan
- Waste Management Plan
- Spill Contingency Plan
- Noise Abatement Plan
- Wildlife Mitigation and Monitoring Plan
- Radiation Protection Plan
- Abandonment and Restoration Plan

These Plans ensure compliance with regulatory conditions and internal Orano requirements and guide the development of best management practices and procedures to mitigate any potential adverse environmental impacts. Orano intends to operate in accordance with commitments made in the Plans; however, during the Care and Maintenance phase the Plans are largely not applicable as no activity will be occurring, other than site inspections. The Plans are available to personnel and will remain static during the Care and Maintenance phase. The Plans will be revised prior to changing phase or earlier if conditions warrant. The following sections summarize the applicable portions of the Plans during the Care and Maintenance phase.

#### 3.1 Uranium Exploration Plan

The Uranium Exploration Plan is designed to meet the requirements of the Water Licence issued by the Nunavut Water Board (2BE-KIG1823) and the *Mineral Exploration Guidelines of Saskatchewan*, also referred to as Best Management Practices (BMPs). Although current activities are not regulated by the Canadian Nuclear Safety Commission (CNSC), the Uranium Exploration Plan is designed in accordance with the CNSC Regulations. The plan discusses activities related to uranium exploration including:

- Training requirements
- Drilling practices
- Core storage and logging
- Radioisotopes
- Spills
- Shipping radioactive material
- Site abandonment and restoration

No work occurred in 2021 that is applicable to the Uranium Exploration Plan.

## 3.2 Waste Management Plan

In accordance with Orano's Environmental Policy, a Waste Management Plan was developed to guide waste segregation, storage, and disposal while mitigating potential adverse environmental impacts. Orano is committed to ensuring waste generated at the Kiggavik Project site is collected, stored, transported and disposed of in accordance with regulatory requirements.

No work occurred in 2021 that produced waste.

As outlined in the conditions of the Nunavut Water Board Licence No. 2BE-KIG1823, hazardous waste generated through the course of the operation must be disposed of at a licensed facility. No hazardous waste was disposed of in 2021.

An inventory of all waste and material remaining on site was recorded upon seasonal shutdown and is summarized in [Table 3-1](#).

**Table 3-1 Waste Product Remaining at Kiggavik Site (As Per End of Season Inventory in 2019)**

Type of Waste/Product	Quantity	Storage Method
Controlled Burn Ashes	2 drums	Stored inside a locked sea container on site.
Large Generator Oil	1 – 20 L pail 15W 40 oil	Stored inside building on secondary containment.
Propane	24 – 100 lb bottles	Upright in a fenced compound.

### 3.2.1 Canada Wide Standards

Efforts to meet the *Canada-Wide Standard (CWS) for Dioxins and Furans* and the *Canada-wide Standard for Mercury Emissions* include the development and implementation of a Waste Management Plan involving waste inventory, diversion and sorting prior to incineration. Waste materials incinerated include food waste, paper, untreated wood products and toilet wastes. Remaining wastes are sorted and stored in sea containers on site until they are removed via the winter haul to be shipped to a licensed disposal facility.

## 3.3 Water Consumption and Management

As outlined in the conditions of the Nunavut Water Board Licence No. 2BE-KIG1823, the domestic camp water is limited to 10 cubic metres per day (m<sup>3</sup>/day), and the drill water is limited to 289 m<sup>3</sup>/day for a total maximum consumption of 299 m<sup>3</sup>/day. Drilling during low flow artesian was compliant with Part F, Item 7 of the Licence and is further described in Section 3.3.2.

### 3.3.1 Camp and Drill Water Use

As no work activities were performed in 2021, no water was drawn from local sources.

### 3.3.2 Artesians

As per the NWB Licence, Part F, Item 7 (c), Orano must provide information on all artesian flows encountered, with GPS coordinates, dates, and flow rates, depth, permafrost, aquifer and packer testing data with associated water quality analytical results. As no drilling was performed, no artesian flow was encountered.

## 3.4 Spill Contingency Plan

In accordance with existing legislation and requirements, Orano maintains a Spill Contingency Plan for Kiggavik. The objectives of this plan are to:

- Identify the potential for and the appropriate response to spills at Kiggavik
- Provide procedures for prevention or mitigate adverse environmental effects through effective and efficient response
- Identify personnel and their responsibilities
- Identify emergency contacts
- Describe reporting requirements

As no field activities or inspections took place in 2021, no spills occurred or were noted.

### 3.4.1 Fuel Cache

The primary fuel storage area is located on an esker 3.5 km southwest of the Kiggavik camp. The fuel cache includes eight, 50,000 L double walled steel Envirotanks that are registered with Environment Canada, they were installed in accordance with Canadian Council for Ministers of the Environment (CCME) – *Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products*. Three Envirotanks are used for jet fuel and five for diesel fuel.

Fuel was removed from the Kiggavik Project fuel cache during the 2017 winter haul. No fuel remains at the fuel cache or camp.

## 3.5 Noise Abatement Plan

A Noise Abatement Plan was developed to mitigate the effects from noise generated during camp set-up, camp operation, winter road use, helicopter use, and drilling activities. Noise controls and abatement serve a combination of environmental and occupational health and safety purposes. The focus of the plan is the control of environmental noise for the protection of wildlife.

## 3.6 Wildlife Mitigation and Monitoring Plan

The Wildlife Mitigation and Monitoring Plan (WMMP) was developed to monitor and reduce disturbance to wildlife, particularly caribou. The plan incorporated recommendations from the Government of Nunavut – Department of Environment (GN-DoE), Environment Canada (EC) and the Beverly and Qamanirjuaq Caribou Management Board (BQCMB); as well as conditions from the NIRB, Kivalliq Inuit Association (KIA), Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) and the Nunavut Water Board (NWB). The plan is designed to protect wildlife from activities at Kiggavik, increase the current understanding of wildlife interactions with human development and aid in determining the effectiveness of mitigation measures.

As the Kiggavik Camp was not occupied in 2021, no wildlife monitoring activities were performed.

### 3.6.1 Caribou Migration

During caribou migrations, mitigation measures were implemented as required by the Nunavut Impact Review Board (NIRB) 2007 screening decision and the WMMP. As no work was performed in 2021, no caribou were noted.

## 3.7 Abandonment and Restoration Plan

The Abandonment and Restoration Plan was developed to address permit conditions, regulations and industry standards for seasonal operation, shut-down and final closure. This plan is frequently reviewed and revised to reflect the expansion of infrastructure, cost estimates, changing field programs and the identification of improved reclamation practices.

The objectives of the plan are to:

- Protect human health
- Reduce or eliminate environmental effects
- Re-establish conditions to similar pre-exploration land use
- Establish physical and chemical stability of disturbed areas

### 3.7.1 Seasonal Shutdown

As no work was performed and the Kiggavik camp was not opened in 2021, no work was required to place the project into the seasonal shutdown. Current site hazardous inventory is documented in Table 3-1.

### 3.7.2 Progressive Reclamation

The Abandonment and Restoration Plan has been implemented to ensure drill-site stability. Consistent with the objective to return lands to a state similar to pre-exploration use, Orano intends to implement progressive restoration practices and incorporate new abandonment and/or reclamation methods and procedures, where applicable.

## 4 Effects of the Project on Human Health

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Orano is committed to providing a healthy and safe work environment for all employees and contractors and to ensuring work is performed in a safe and responsible manner. To meet this commitment, Orano takes every reasonable precaution to ensure the health and safety of personnel to mitigate the potential harmful effects of uranium exploration activities. This commitment is supported through a comprehensive Health and Safety Program.

### 4.1 Health and Safety Program

The Health and Safety Program ensures work activities are performed in a safe and responsible manner and they are conducted in accordance with the Nunavut *Mine Health and Safety Regulations*, exploration best practices and Orano safety requirements. No work activities were performed in 2021.

### 4.2 Radiation Protection

To minimize radiation exposure during drilling, the Radiation Protection program was implemented to ensure work activities were performed in a safe and responsible manner. As no drilling occurred in 2021 there are no radiation monitoring results.

## 5 Summary of Local Hires and Initiatives

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An important aspect of the Kiggavik Project, during the active phase, is to bring employment and business opportunities to local residents. However, in 2021 there was no work carried out at Kiggavik and therefore no local people were hired.

### 5.1 Local Employment

During exploration, from 2009 to 2017, Kiggavik provided employment to local people by hiring local companies to supply services to the project. In that time, nearly 55,000 hours were worked by local Inuit and local non-Inuit community members with up to 34 local people employed per year. Further details on annual local employment is provided in report years corresponding with active exploration.

### 5.2 Locally Contracted Work

As no work was performed in 2021, no local contractors were hired.

In the past, many goods and services obtained for Kiggavik were contracted to local suppliers. From 2007 to 2019, the total value of contracts awarded to northern vendors was \$83.63M. Further details on annual expenditures to local suppliers is provided in report years corresponding with active exploration.

## 6 Community Engagement

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Information sharing and community engagement are requirements of the environmental assessment process as well as one of Orano's corporate commitments. In the past, engagement was largely focused on the environmental assessment process. Due to the federal Minister's Decision (August 2016) to not approve the proposed Kiggavik Project, there is reduced community engagement regarding the project. Should the Kiggavik project be revitalized, engagement activities are expected to be increased to coincide with the project advancements and milestones as appropriate.

Information remains available and accessible on the Orano company website at [www.oranocanada.ca](http://www.oranocanada.ca).

## **Appendix A Compliance with Conditions**

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During Kiggavik's Care and Maintenance phase the conditions of each decision/license/approval will not be contained in the annual report. This section will be limited to a listing of approvals.

### **A.1 Nunavut Impact Review Board file no. 06AN085**

On March 26, 2008 NIRB re-issued the original terms and conditions (April 3, 2007 Screening Decision) along with the additional terms and conditions outlined in the August 30, 2007 and January 9, 2011 letters.

### **A.2 Nunavut Planning Commission Keewatin Regional Land Use Plan Conformity Determination**

The Kiggavik Project received a positive conformity determination for advanced exploration on December 15, 2006.

### **A.3 Crown-Indigenous Relations and Northern Affairs Canada**

CIRNAC (issued as INAC) Land Use Permit N2018C0010 (received January 25, 2018, Expires January 24, 2023).

### **A.4 Kivalliq Inuit Association Land Use Licence**

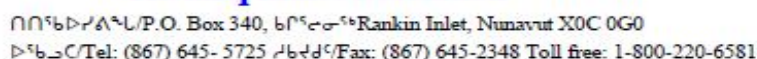
KIA Land Use Licence KVL306C02 (received April 3, 2007; expiry January 12, 2023).

### **A.5 Nunavut Water Board Licence**

NWB licence 2BE-KIG1823 (received June 14, 2018; expiry June 13, 2023) (previous licence No.'s 2BE-KIG1318, 2BE-KIG0812, 2BE-KIG0708 and 2BE-SIS0607)



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<b>License:</b>	KVL306C02
<b>Land Use Type:</b>	Mineral Exploration
<b>Land Use Activity:</b>	Diamond Drilling, Bulk Fuel Storage, Airstrip, Core Logging & Storage
<b>Company:</b>	ORANO
<b>Site Contact:</b>	Stephanie Forseille
<b>Location:</b>	Kiggavik, NU
<b>Coordinates:</b>	64° 26' 29" N 97° 39' 34" W
<b>Inspector(s):</b>	Jeff Hart
<b>Inspection Date:</b>	July 23, 2019

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**Kivalliq Inuit Association**

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**SITE INSPECTION FINDINGS:**

**Main Camp**

- All buildings and material secure, should not encroach on surrounding environment.
- Grey water site (Figure 3) is showing signs of regrowth vs 2016 (Figure 4).

**Fuel Storage**

- Located on a gravel pad to the west of the camp, away from any water bodies. The fuel storage area is secure, and there are no signs of leaks or spills.

**ADDITIONAL NOTES:**

- A controlled burn of large wood material was held in 2016. The burned area appears to be recovering and shows regrowth of moss and grass. (Figure 5 - current & Figure 6 - 2016)
- Wildlife: ~15 muskox nearby
- 2 weather haven structures showed minor weather damaged but were repaired.
- A large battery and some oils stored inside with proper secondary containment. (Figure 7)

**RECOMMENDATIONS:**

- No recommendations at this time.

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ᑲᓐᓂᓐᓂᓐ-TIKIRARJUAQ-WHALE COVE/ ᑲᓐᓂᓐᓂᓐ-SALLIQ-CORAL HARBOUR/ ᑲᓐᓂᓐᓂᓐ-NAUJAAT/ ᑲᓐᓂᓐᓂᓐ-ARVIAT



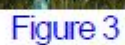
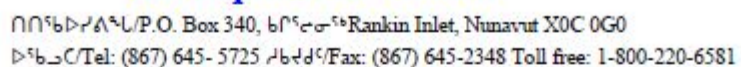
Figure 1



Figure 2

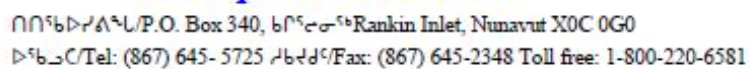
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 $\Delta^{\circ}$   $\text{C}_{60}\text{H}_{12}\text{O}_2$ -TIKIRARJUAQ-WHALE COVE/ $\text{C}_{60}\text{H}_{12}\text{O}_2$ -SALLIQ-CORAL HARBOUR/ $\text{C}_{60}\text{H}_{12}\text{O}_2$ -NAUJAAT/ $\text{C}_{60}\text{H}_{12}\text{O}_2$ -ARVIAT





ΔΙΓΛΙΓΑΑΡJUK-CHESTERFIELD INLET / QAMANITTUAQ-BAKER LAKE / KANGIQLINIQ-RANKIN INLET  
TIKIRARJUAQ-WHALE COVE / SALLIQ-CORAL HARBOUR / NAUJAAT / ARVIAT