



**Presentation from
Orano Canada Inc.**

**Présentation d'
Orano Canada Inc.**

In the Matter of the

À l'égard d'

Orano Canada Inc. – Cluff Lake Project

Orano Canada Inc. – Projet de Cluff Lake

Application for the renewal of the Uranium
Mine Decommissioning Licence for the
Cluff Lake Project

Demande de renouvellement du permis
de déclassement de la mine d'uranium de
Cluff Lake

Commission Public Hearing

Audience publique de la Commission

May 15, 2019

Le 15 mai 2019

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Cluff Lake Project

Request to Renew and Amend
Decommissioning License

UMDL-MINEMILL-CLUFF.01/2019

One Day Public Hearing – May 15, 2019



orano

Presentation Overview

1. Project Summary
2. Decommissioning Overview
3. License Term
4. Stakeholder Engagement
5. Requested Licence Amendments
6. Concluding Statements

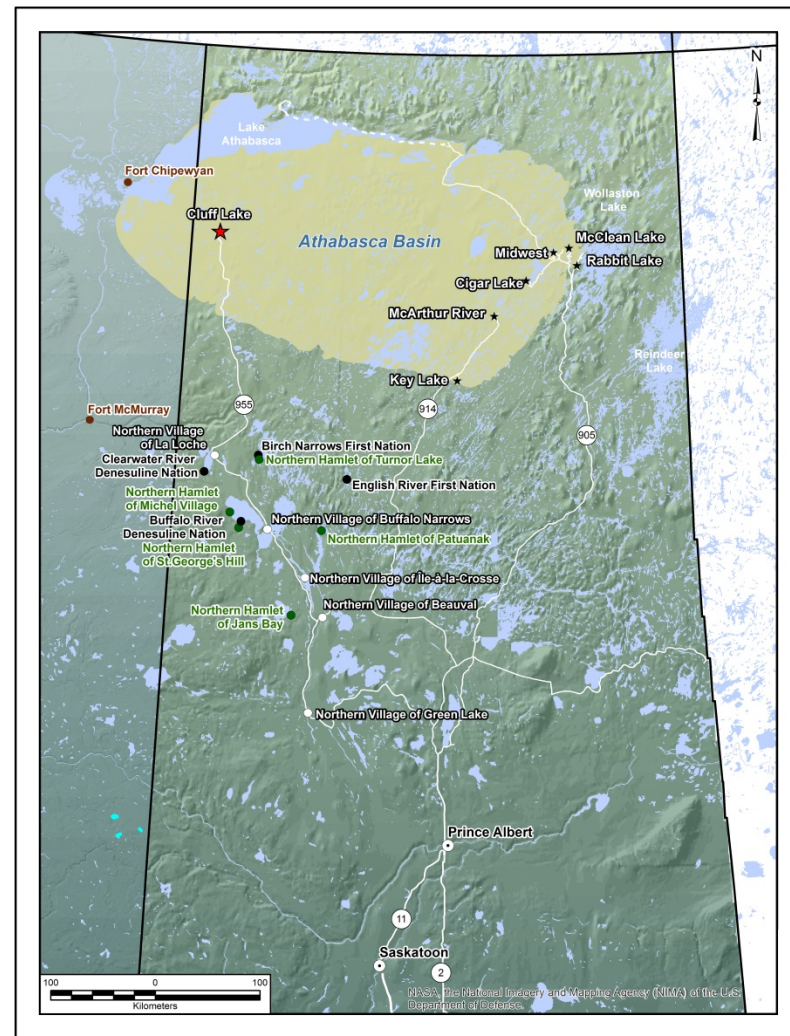
01

Project Summary



Project Location

- Northwestern Saskatchewan
- Within Treaty 8 Territory and the Homeland of the Metis
- Site is remote; the primary, potential future users of the site are resource development and traditional land users



Operations Overview

- Discovered in mid '60's
- Operated from 1980 - 2002
- Underground and open pit mining (5 ore bodies) and milling produced 62M lbs. (or 28M kg) uranium concentrate (U_3O_8) and 8,000 troy ounces of gold
- ~4,000 person years of company staff employment; 52% northern
- Nearby lands used for traditional purposes throughout operations



Decommissioning Overview

- **Comprehensive Study Report under CEAA submitted in 2000; approved by CNSC in 2004**
- **Conclusion: effects of decommissioning largely positive and adverse effects are not significant**
- **End-State Objectives**
 - Safe environment
 - Minimize adverse effects
 - Stable and self-sustaining landscape
 - Traditional uses unrestricted
 - Minimal future land use constraints



- **Physical work largely completed between 2004 to 2006**
 - Constructed structures – removed or stabilized
 - Disturbed areas – reclaimed

Project Site Status

- Decommissioning is complete and objectives are met
- Site is well understood
- Physically and chemically stable under passive care
- Unrestricted access
- Public safety at site is comparable to other wilderness areas
- Site is available and safe for traditional land use



02

Decommissioning Overview



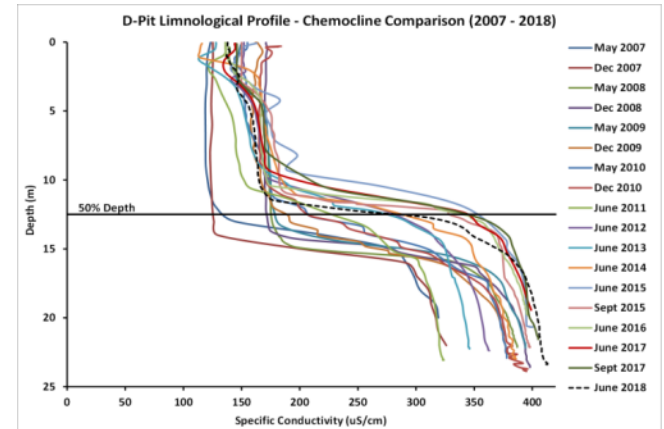
D Mining Area



D Mining Area



- **First deposit mined**
- **Decommissioned as pit lake, flooded in 1983**
- **Stable chemocline, surface water quality objectives being achieved now and in the long-term**



Claude Mining Area



Claude Mining Area



- **Pit was backfilled with waste rock and demolition debris, covered, planted with trees**
- **Waste rock pile was shaped, compacted, covered with a ‘moisture store-and-release’ till layer, and seeded**
- **Vegetation is self-sustaining, pile is stable, and successfully minimizing net percolation rates**
- **Achieving surface water quality in Claude Lake now and in the long-term**

Claude Area Re-Vegetation



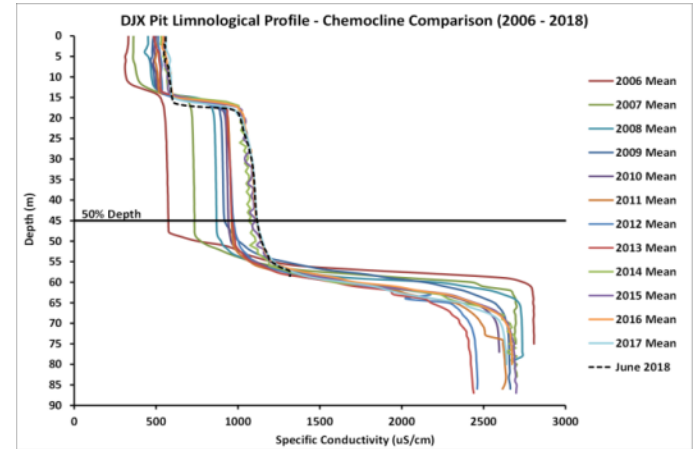
DJ Mining Area



DJ Mining Area - Pit



- DJX waste rock placed at bottom of DJN pit and covered with bentonite
- Decommissioned as pit lake, flooded in 2005-06
- Stable chemocline, surface water quality objectives being achieved now and in the long-term



DJ Mining Area Waste Rock and Overburden

- *Former* locations of waste rock and overburden
- DJN waste rock entirely relocated to Claude pit; overburden used as cover material in Claude Waste Rock Pile decommissioning
- Areas regraded and revegetated



Underground Mining Areas DJ & OP/DP

- Raises (8) entirely backfilled, reinforced concrete caps placed, additional 1m till cover
- Declines (2) backfilled about 180m down the ramp, concrete plug placed, covered with till
- Underground mining was by the cut-and-fill method; long term stability
- Stable



Mill Complex Area

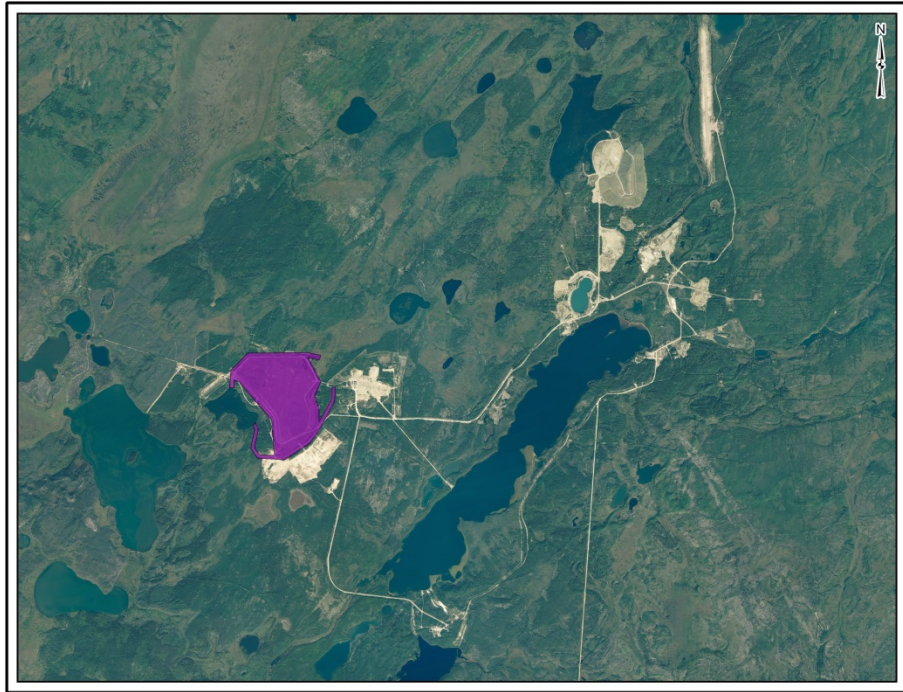


Mill Complex Area



- **Mill and warehouses demolished**
- **Demolition debris placed in Claude pit**
- **Area covered with clean till, graded, and revegetated**

Tailings Management Area



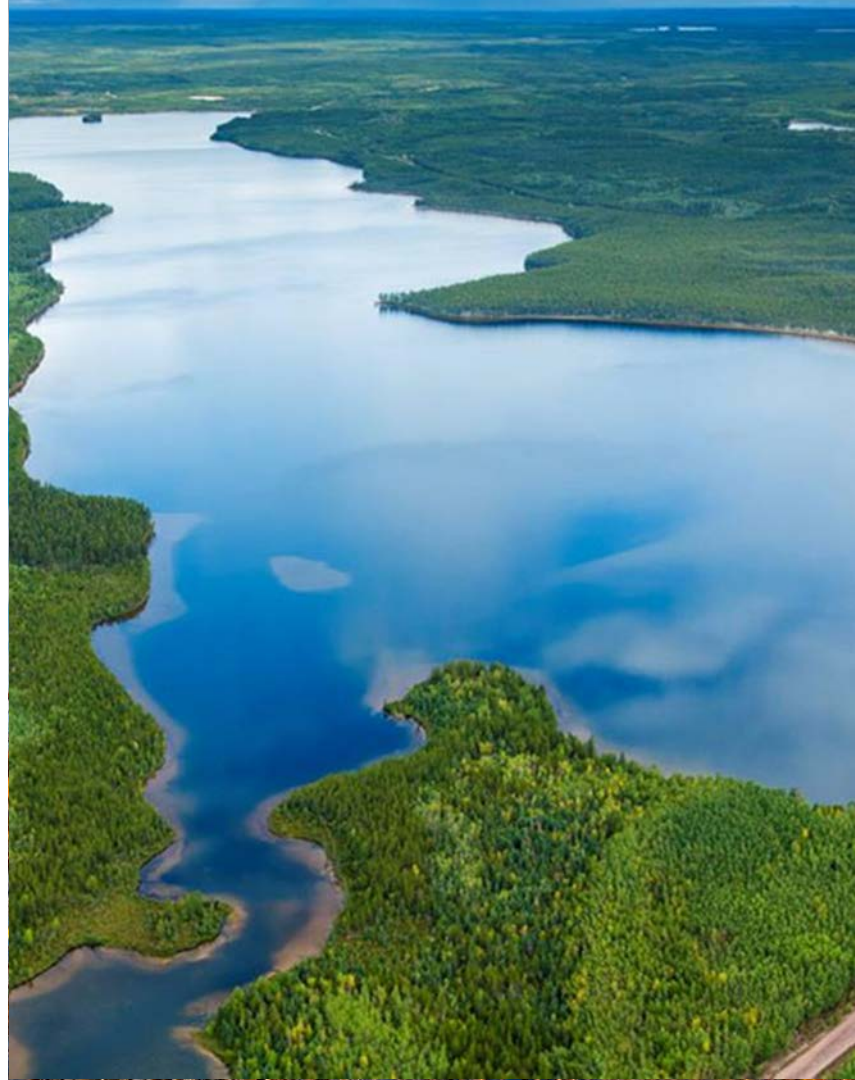
Tailings Management Area



- **Low permeability tailings consolidated to remove pore water**
- **Till ‘moisture store-and-release’ cover placed, graded, and seeded**
- **Storm water management: north and south diversion ditches, collector channel, surface grading; designed to route Probable Maximum Flood**
- **Vegetation is self-sustaining, storm water management achieved under passive care, design successfully minimizing net percolation rates**
- **Achieving surface water quality in Snake Lake now and in the long-term**

03

**Licence Term
Works
Monitoring
Risk Assessment**



Licence Term Works Post-Decommissioning Infrastructure

2013 Program - Site was prepared for unrestricted access and a transition to campaign monitoring.

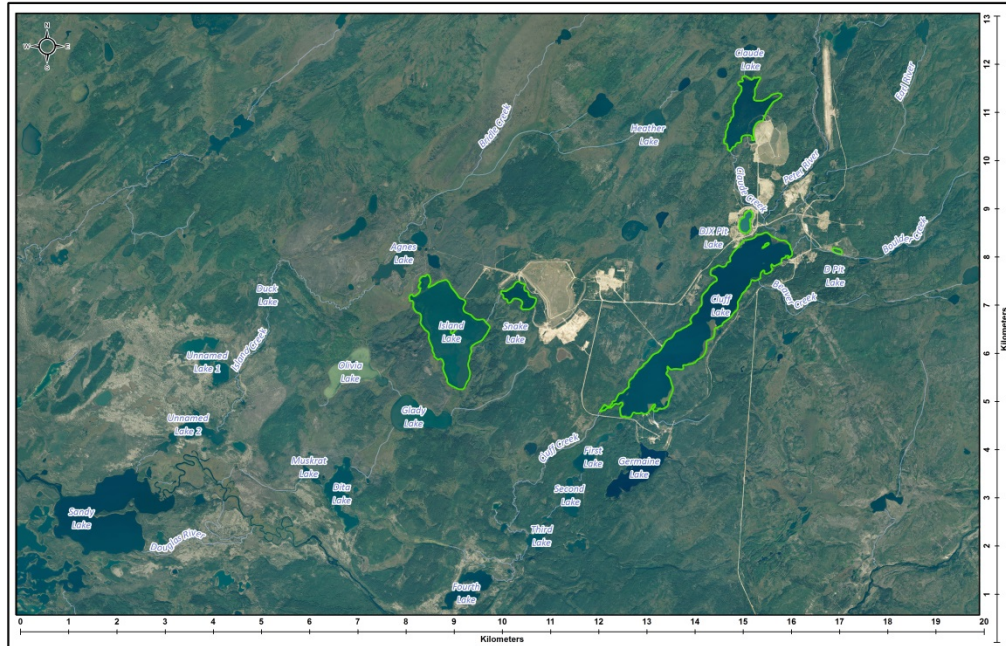
- **Decommissioning of Germaine camp, shop buildings, Secondary Water Treatment System, communication towers, and seven stream crossings with culverts removed and streams rehabilitated**

2017/18 Program – complete remaining works in Detailed Decommissioning Plan, improve site aesthetics

- **Decommissioning of: two stream crossings with culverts removed and streams rehabilitated, removal of a small building and runway lights at the abandoned airstrip, and decommissioning of groundwater monitoring wells**

Surface Water Quality

Lakes impacted by mining activities meet decommissioning surface water quality objectives now and long-term



Radiological Clearance

- Radiation sources that once existed on site have either been removed or managed as part of the decommissioning activities
- Disturbed areas of the site have been surveyed and confidently pass radiological clearance
- Radon concentrations at background levels
- Potential dose to future users is well within regulatory limits for members of the public, similar to background



Vegetation is Self-Sustaining



- re-establishment of native species of grasses, forbs, and woody species to accelerate the process of natural ecological succession
- >750,000 trees planted
- trajectory towards a forested environment similar to that which existed prior to mining
- wildlife species can and are reclaiming the mine footprint

Ecological and Human Health Risk

- **2015 Risk Assessment confirms Environmental Assessment conclusions – the effects of decommissioning are largely positive and the potential adverse effects are not significant**
- **Potential adverse effects are moderate, localized, temporary, with recovery occurring over several generations**
- **No downstream impacts**
- **2015 Human Health Risk Assessment confirms continued safe use of the area for traditional land use, i.e. safe for hunting/harvesting, fishing, gathering, etc.**

End State Summary

- **Surface water quality objectives achieved (now and long-term)**
- **Levels of gamma, radon, and long-lived radioactive dust pose no unacceptable risk to traditional land uses**
- **Infiltration rates around covered tailings and waste rock adequately protective**
- **Site appearance and land capability similar to that which existed prior to mining**
- **No unreasonable risk to humans or the environment**

04

Stakeholder Engagement



Stakeholder Engagement



Closest Neighbors

Alex Flett, a Dene trapper, was trapping at Cluff Lake before mining, he and his family continued to trap at the site during mining (while working at the mine), and the family maintains a trapper cabin on the shore of Cluff Lake now that mining is complete.



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Requested License Amendments



Modernize

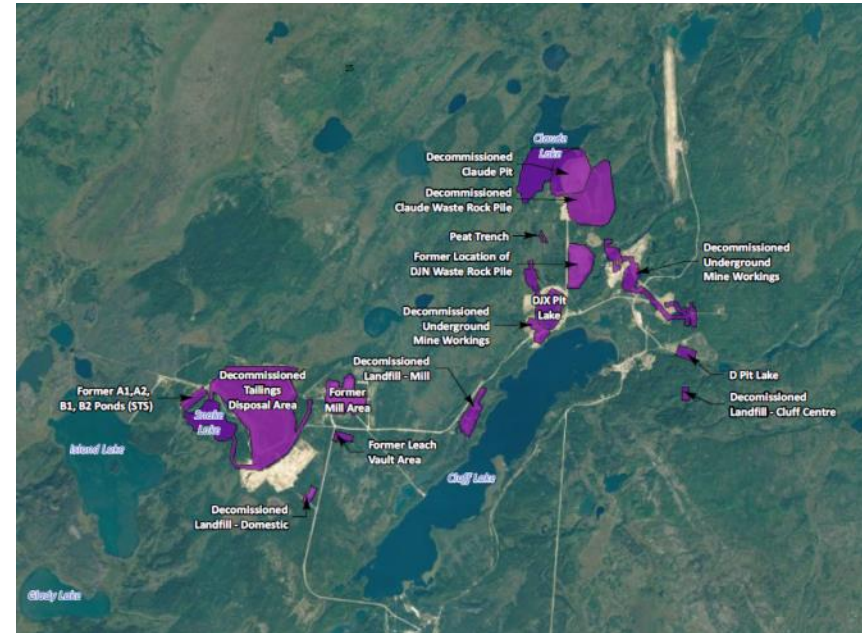
- **Decommissioning is complete and the Project has transitioned to the post-decommissioning phase**
- **REQUEST: remaining licensed activities are to: possess, manage, store nuclear substances**
- **Cluff Lake Project recognized as a closed mine under the *Metal Mining Effluent Regulations* as of January 16, 2006; no effluent release**
- **REQUEST: remove 'Authorized Effluent Discharge Limits' from amended licence**

Detailed Post-Decommissioning Plan & Financial Guarantee

- **Works outlined in the Cluff Lake Detailed Decommissioning Plan are complete and achievement of decommissioning objectives demonstrated**
- **REQUEST: Detailed Post-Decommissioning Plan (V04) replace Detailed Decommissioning Plan (V03) in support of license**
- **REQUEST: Accept a revised financial assurance that reflects costs associated with monitoring, administration, and transfer to the Provincial Institutional Control Program**

Area of Licensed Activities

- With decommissioning complete, the requested licensed activities are to: possess, manage, store nuclear substances
- REQUEST: Area delineated under license to be narrowed to include only parcels of land contemplated for future transfer to provincial IC



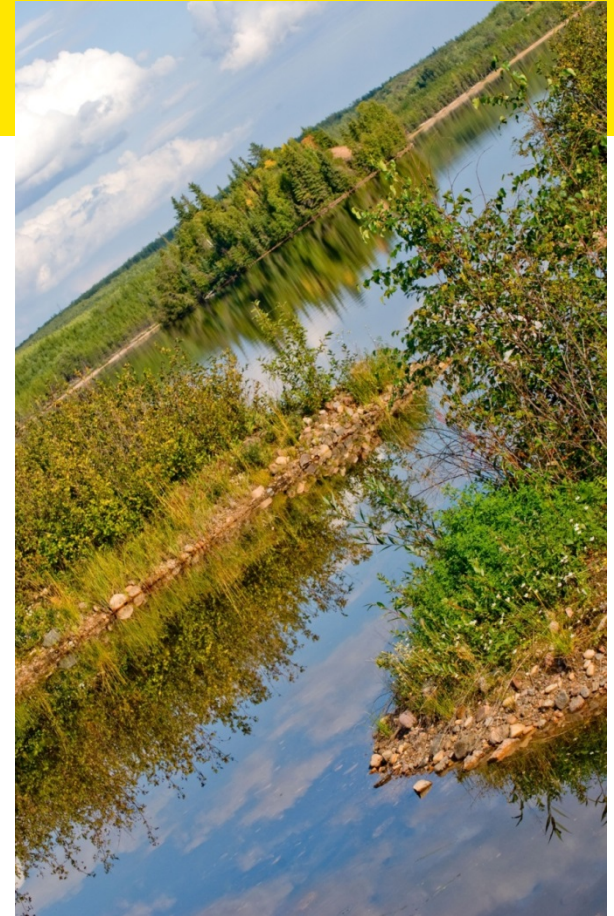
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Concluding Statements



Concluding Statements

- Orano Canada is a qualified operator
- Decommissioning works complete
- Decommissioning objectives achieved
- Requested licence amendments administratively prepare the site for transfer to provincial institutional control
- The Cluff Lake site remains safe for traditional land use and the fingerprint of past mining remains local with no downstream impacts



● Thank You!

- Check us out on social media



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