Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

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Written submission from Orano Canada Inc.

Mémoire de Orano Canada Inc.

In the Matter of the

À l'égard de

Orano Canada Inc.,
McClean Lake Operation

Orano Canada Inc.,
Établissement minier de McClean Lake

Application for licence amendment for the expansion of the JEB Tailings Management Facility (TMF) at the McClean Lake Operation

Demande de modification de permis pour l'agrandissement de l'installation de gestion des résidus (IGR) JEB à l'établissement de McClean Lake

Commission Public Hearing

Audience publique de la Commission

September 29-30, 2021

29 et 30 septembre 2021

Canada

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Executive Summary

Orano Canada Inc. (Orano) has submitted a licence amendment request to the Canadian Nuclear Safety Commission (CNSC) to amend the existing uranium mine operating licence (UMOL-MINEMILL-McCLEAN.01/2027) issued July 12, 2018 for the McClean Lake Operation. The amendment request is to authorize the raising of the final top of consolidated tailings from a currently approved elevation of 448 metres above sea level (mASL) to an elevation of 462 mASL. To facilitate this higher top of tailings elevation an expansion of the existing JEB Tailings Management Facility (TMF) by construction of an embankment to an elevation of 468 mASL is required.

This Commission Member Document (CMD) presents the project details and an overview of the safety control areas (SCA) applicable to the McClean Lake Operation's performance, as well as the proposed amendment (the JEB TMF Expansion).

The McClean Lake Operation, including the JEB TMF has been subject to several environmental assessments, with performance of the operation and the JEB TMF continuously reviewed through various validation reports, including the ongoing Tailings Optimization and Validation Program (TOVP), along with numerous Technical Information Documents (TIDs). The Environmental Performance (EP) TID involves the review of over 20 years of historical environmental performance data. Contaminant transport modelling and predictive risk modelling confirm that the operation is performing within previous environmental risk assessments, and is expected to do so in the long-term, post-decommissioning. The results of these reviews, informed by more than 20 years of operating experience and data analysis supplemented with the review of the project design, conclude that the project-environmental interactions resulting from the JEB TMF Expansion project will continue to perform as expected and meet regulatory requirements with respect to the protection of the workers and public safety and of the receiving environment.

This CMD includes an overview of each of the 14 Safety and Control Areas (SCA). The SCAs that are directly relevant to the amendment request (the JEB TMF Expansion) are as follows:

Operating Performance

The JEB TMF is operated in compliance with CNSC regulatory requirements (REGDOC 2.11.1, Waste Management, Volume I: Management of Radioactive Waste). Orano has the programs in place at the McClean Lake Operation to ensure that the expanded facility will continue to perform within previous environmental risk assessments as it has for the past 22 years during operations and in the long-term, post-decommissioning, maximizing reliance on passive institutional controls.

Safety Analysis

Orano has conducted a thorough safety analysis of the embankment from construction, through operations to decommissioning and for the long-term, including analyses of potential severe accidents. With the application of robust design features and mitigation measures the expansion to the JEB TMF can be constructed, operated and decommissioned safety.

Physical Design

During the expansion design process significant consideration has been given to developing robust designs of the embankment and liner to providing the required stability and containment of the tailings and pond water. Orano is confident that preliminary decommissioning designs of the cover and landform will continue to ensure the necessary long-term safety and environmental performance post-decommissioning. Updates to these designs during the stages of final decommissioning planning will be informed by the test plot program and provided to the CNSC for review and acceptance.

Environmental Performance

Orano has developed and implemented environmental management plans, programs and procedures that comply with applicable federal and provincial requirements, including licences and operating approvals specific to the McClean Lake Operation. These plans and programs are designed to passively control the release of radioactive and hazardous substances into the environment and to protect the environment and human health during operations and post decommissioning.

Two integral components of the Environmental Management System are the *Environmental Monitoring Program* (EMP) and the Environmental Protection Code of Practice (ECOP). The EMP integrates effluent monitoring, environmental monitoring, and groundwater monitoring compliant with the Canadian Standard Association (CSA) Standards. The ECOP describes administrative and action levels for environmental protection, pertaining to routine operational and environmental monitoring. The expansion of the JEB TMF does not result in major changes to the EMP and the ECOP. Each will continue to be evaluated for adequacy and adjusted where required. Groundwater monitoring will continue to be the indicator of hydraulic containment and the early indicator of migration of contaminants from the facility.

The JEB Water Treatment Plant (WTP) has the capacity to continue treating reclaimed water from the JEB TMF to meet effluent discharge limits and ensure that downstream waterbodies will continue to meet applicable water quality objectives.

Orano has conducted a review and assessment of the potential project-environment interactions and determined, with the applied mitigations, that predicted environmental risks for the JEB TMF Expansion project are within those already predicted and assessed through environmental assessments of the McClean Lake Operation. Therefore, none of the potential project-

environment interactions are expected to result in an unreasonable level of risk to the biophysical or socio-economic environments during operations or post-decommissioning.

The predicted exposure to radiation for people using the site after decommissioning will be the same as exposure to natural background radiation in the area.

Overall, the risk to the environment and to people from the proposed expansion is predicted to be negligible.

Waste Management

Orano is required to revise and update the McClean Lake Operation's Preliminary Decommissioning Plan (PDP) and Financial Assurance (FA) every 5 years. In keeping with the concept of lifecycle planning, the updated PDP has been prepared considering project status to the end of 2025. Project developments are included in the PDP and FA calculation upon completion of construction. Future revisions to the plan will reflect the staged expansion of the JEB TMF. In 2020, Orano submitted a revised PDP and resulting cost estimate for the McClean Lake Operation, proposing a financial guarantee (FA) of $102,098,000 (CAN). The revised PDP and FA have been reviewed by the CNSC and the Saskatchewan Ministry of Environment and have concluded that the revision meets regulatory requirements.

Indigenous and Community Engagement

Orano has implemented a robust Public Information Plan for the McClean Lake Operation and specifically for the licence amendment request (the expansion of the JEB TMF).

Orano conducted an analysis of potential adverse impacts, which concluded that the JEB TMF Expansion project and its related activities are unlikely to have any effect on Indigenous Rights. The activities related to the JEB TMF Expansion project are occurring on lands previously taken up for mining and, with the exception of a single trap line crossing through the southern boundaries of the surface lease, Orano is not aware of any other exercising of Indigenous or Treaty Rights. The single trap line is compensated for through site access and a Trappers' Compensation Agreement. The proposed JEB TMF expansion generates no new disturbance to the lands and environmental effects are expected to fall within those previously assessed and approved through previous environmental assessments.

Through engagement conducted by Orano since 2012 on the proposed expansion there have not been any expressed concerns regarding the Project infringing on Indigenous or Treaty Rights pursuant to section 35 of the Constitution.

Orano remains committed to continuing to meet with Indigenous leadership, Mètis representatives, community members and representative communities to build relationships, provide updates and address concerns.

Conclusion

Orano concludes that the expansion of the JEB TMF can be constructed, operated and decommissioned in a manner that does not present an unreasonable level of risk to the local biophysical or socio-economic environments, taking into account current and future mitigation measures during the operating period, robust design of the embankment and liner during construction and enhanced and informed design features along with passive controls during and post decommissioning.

Orano is confident that all these aspects will ensure the long-term protection of the McClean Lake Operation terrestrial and aquatic environment, as well as the protection of current and future generations. The post decommissioning of the McClean Lake site, including the expanded tailings management facility minimizes reliance on active institutional controls as per REGDOC 2.11.1.

1 Introduction

1.1 Background

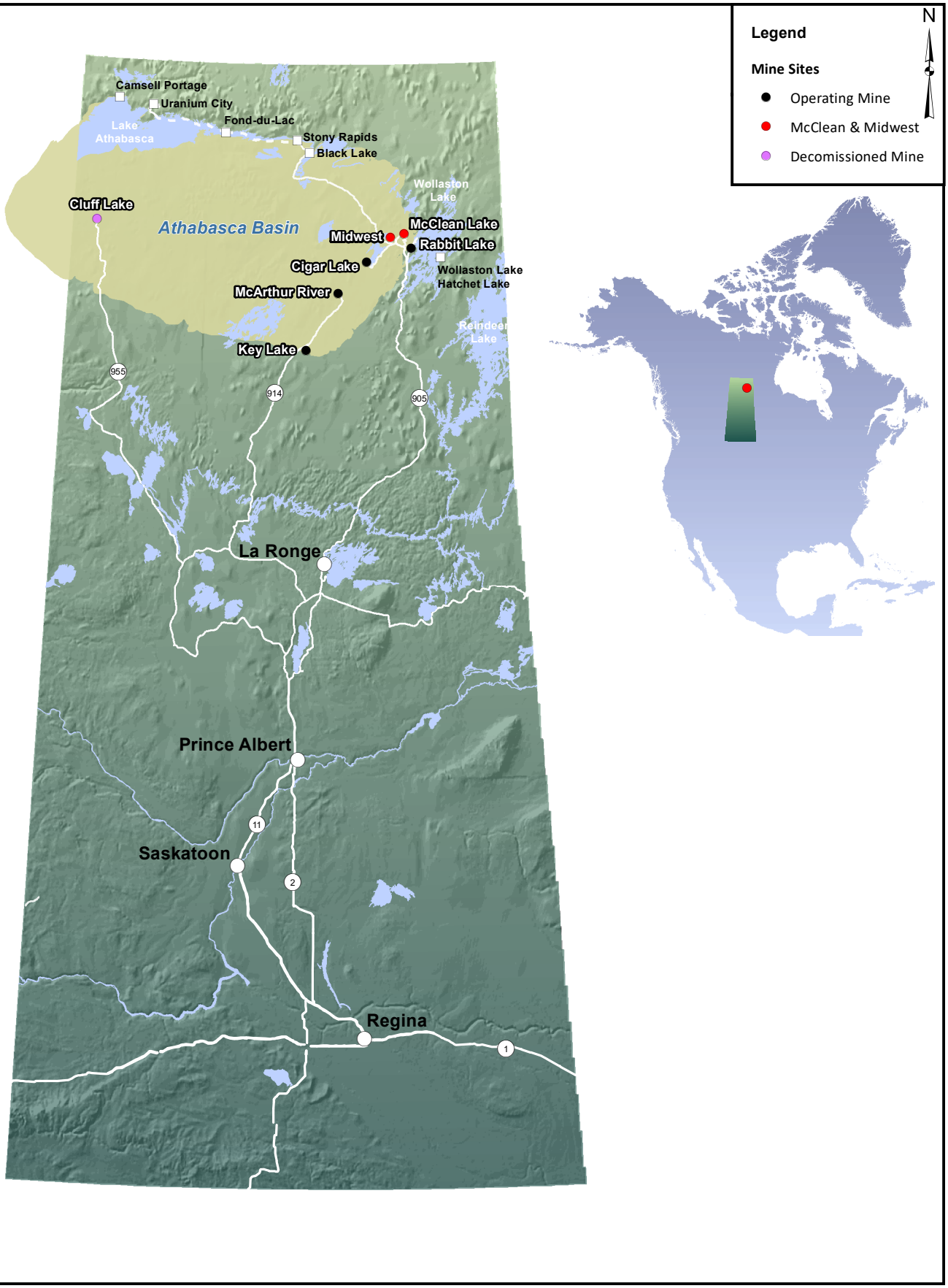
The McClean Lake Operation is a joint venture between Orano Canada Inc. (Orano) and Denison Mines Inc. (Denison) operated by Orano. Orano is a Canadian company, headquartered in Saskatoon, Saskatchewan. Orano is a subsidiary of the multinational Orano group headquartered in France.

In 1994, the Atomic Energy Control Board (AECB) (predecessor to the Canadian Nuclear Safety Commission) (CNSC) issued COGEMA (predecessor to AREVA; now Orano) a Licence for the McClean Lake Operation. This Licence has since been subject to several renewals and amendments. The McClean Lake Operation operates under current operating licence, UMOL-MINEMILL-McClean.01/2027, renewed by the CNSC on July 1, 2017 for a 10-year term, expiring June 30, 2027 and is authorized to conduct licensed activities, including:

- operate and modify a nuclear facility for the mining of uranium ore;
- produce uranium concentrate; and
- operate the JEB tailings management facility (TMF).

The CNSC staff reports annually to the Commission on Orano's performance through the Regulatory Oversight Report which was last presented in December 2020.

The McClean Lake Operation is a uranium mine and mill facility located in northern Saskatchewan, within a region known as the Athabasca Basin, Treaty 10 territory and within the homeland of the Mètis. As shown in Figure 1-1, the McClean Lake Operation is located approximately 750 kilometres north of Saskatoon, near the northern most limit of the provincial highway #905. Workers commute to and from the site by aircraft landing at Points North and continue by bus to the McClean Lake Operation. The nearest communities are the hamlet of Wollaston Lake (often referred to as Wollaston Post) and the Hatchet Lake Densuline Nation, located approximately 50 km by air east of the McClean Lake Operation.



Projection: NAD 1983 UTM Zone 13N
Compiled: T.Lohman Drawn: T.Lohman
Date: 4/28/2021 Scale: 1:6,000,000
Data Sources: Natural Resources Canada, Geobase®, Nation Topographic Database, ORANO Canada Inc.

McCLEAN LAKE OPERATION

FIGURE 1-1
LOCATION OF THE McCLEAN LAKE OPERATION IN NORTHERN SASKATCHEWAN

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File: Q:\SHEQ\GIS\McCLEAN_LAKE\2021\CMD\Maps\Figure 1-1 - Project Location.mxd

In 1999, the McClean Lake Mill was commissioned with run-of-mine uranium ore from JEB and ran JEB and Sue ore bodies through a conventional grinding circuit. Run-of-mine ore processing continued from 1999 through 2010 with average annual ore grades ranging from 0.4% to 2.5% uranium, at annual production levels ranging from 680,000 kg (1.5 Mlbs) to 2,940,000 kg (6.5 Mlbs) U_3O_8. The McClean Lake Operation commenced construction of the Mill Expansion project in 2005 (AREVA 2004). This project included construction activities to modify the McClean Lake Mill for receipt and processing of high grade ore slurry from the Cigar Lake Mine and to expand the annual production capacity of the McClean Lake Mill to 13 Mlbs U3O8. At that time, 100% of the ore slurry from the Cigar Lake Mine was planned to be transported to the McClean Lake Mill for initial processing, while the back-end processing and packaging was to be shared between the McClean Lake Mill and Cameco's Rabbit Lake Mill. In 2006, in the midst of the construction activities to expand the mill, a water inflow event occurred at the Cigar Lake Mine, which delayed the receipt of ore slurry. In 2007, temporary modifications were subsequently made to the McClean Lake Mill to process low grade ore and to increase the volume of ore feed through the Mill Optimization project (AREVA 2007). By 2009, the planned construction and commissioning activities associated with both the Mill Expansion project and the Mill Optimization project were complete, with the exception of the commissioning of the Slurry Receiving Circuit.

In July 2010, with the Cigar Lake mine unavailable and no further economic local ore sources available, the McClean Lake Mill transitioned into a temporary cessation of milling.

In November 2011, Orano (AREVA at the time) and its McClean Lake Joint Venture and Cigar Lake Joint Venture partners entered into an agreement to process and package 100% of the ore slurry from the Cigar Lake Mine at the McClean Lake Mill. The agreement required an upgrade of the McClean Lake Mill from its annual back-end capacity of 13 Mlbs U_3O_8 to 10,909,090 kg (24 Mlbs) U_3O_8. The decision to process and package 100% of Cigar Lake ore at the McClean Lake Mill was a return to the milling concept initially assessed and approved in the 1995 Environmental Impact Statement (EIS) for the Cigar Lake Operation (Cameco 1995) and maintained in subsequent environmental assessments. As a result of the decision to process and package 100% of the ore slurry from the Cigar Lake Mine at the McClean Lake Mill, Orano (AREVA at the time) submitted its proposal to upgrade the existing McClean Lake Mill to allow for an annual production of rate of 24 Mlbs U_3O_8 (AREVA 2004).

In 2012, Orano (AREVA at the time) received approval from the CNSC Commission to operate the high-grade ore circuits and the Slurry Receiving Circuit, increase annual production to 13 Mlbs U_3O_8, and process McArthur River ore (AREVA 2012). It was at the 2012 proceedings before the Commission that the CNSC Staff presented, and the CNSC Commission approved, the adoption of the Licence Conditions Handbook (LCH) format, which lists the authorized activities, including the annual production rate, for the McClean Lake Mill. Orano (AREVA at the time) submitted a notification to the CNSC and an application to Saskatchewan Ministry of Environment (SMOE) to construct the Mill Upgrade Project, which would increase the mill's annual capacity to 24 Mlbs U_3O_8 (AREVA 2004). Evaluation of both project and process alternatives were presented in the application, together with corresponding risk analyses. In 2013, approval of the Mill Upgrade project was included as an amendment to the McClean Lake

Operation's LCH (CNSC 2013). The construction commenced in 2013 and the Mill Upgrade project was substantially completed in 2015, with the exception of a new Tailings Neutralization Circuit, which was completed in 2016 and commissioned with product in early 2017.

In 2010, the CNSC approved (CNSC 2010) Orano's (AREVA at the time) request to conduct activities to ensure the assessed capacity of the JEB TMF would be realized. The activities were to ensure slope stability and pond water containment during the operation of the JEB TMF and involved sloping of existing till slopes and the placement of a bentonite amended liner. The project is entitled the JEB TMF Optimization project (AREVA 2010), the first stage was conducted in 2012-2013, making slope improvements and placing a liner to 439 mASL. The second stage, involving sloping improvements and placement of liner to 443 mASL, was completed in 2018.

On August 26, 2011, Orano (AREVA at the time) submitted a Project Description and request to amend the McClean Lake Operation operating licence for the expansion of the JEB TMF. In November 2011, the CNSC determined that a federal screening level EA under the *Canadian Environmental Assessment Act (S.C. 1992, c. 37) (CEAA)* must be carried out for the project with the CNSC overseeing the environmental assessment process. In July 2012, when *CEAA, 2012 (S.C. 2012, c.19, s. 52)* came into force, Orano (AREVA at the time) was notified that an EA would no longer be required and that the project would continue directly to the licensing process under the *Nuclear Safety and Control Act* (*NSCA*). The document originally prepared for the expansion was accepted as an Environmental Impact Statement (EIS) to meet the requirements of *CEAA, 1992*. However, since an EA was no longer required, the document was modified to address the licensing requirements of the CNSC and the Saskatchewan Ministry of the Environment (SMOE). The document was re-submitted, following the receipt of technical comments to the CNSC in 2014 as part of the licensing amendment review.

In 2014, as a result of a suppressed industry, the mine plan was revisited, which resulted in a reduction in the forecasted tailings production. The reduction was significant enough that it was necessary to revisit the alternatives assessment for the long term management of tailings. The subsequent alternatives assessment confirmed that, despite the 2014 reduced tailings forecast, additional tailings capacity was required and expanding the JEB TMF remained the preferred option. With the revised mine plan, there was a decreased need for tailings capacity that was reflected in a reduced scope in design. With this change of scope to the expansion project, the project description was further revised and submitted to the CNSC in 2016 as a notification to update the McClean Lake Operations LCH (AREVA 2016). The notification to expand the JEB TMF to an elevation of 457.5 mASL, with top of consolidated tailings at an elevation of 448 mASL was accepted by the CNSC in 2017 (CNSC 2017). A request to construct the project was submitted to and approved by the SMOE in 2019 (SMOE 2019). Construction of this expansion will commence in spring/summer 2021.

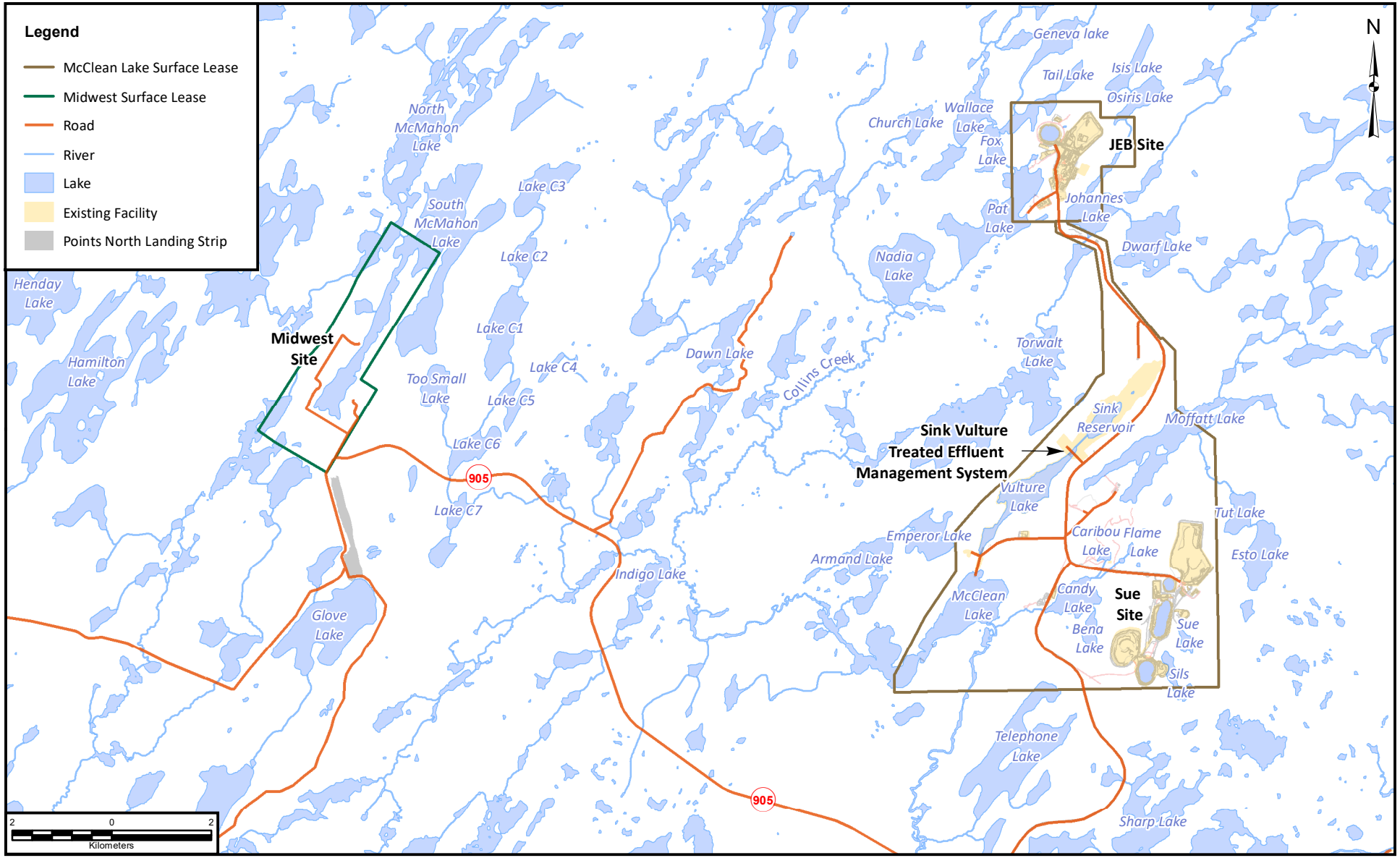
Intermittent ore slurry shipments from Cigar Lake Mine commenced in March 2014. With consistent delivery of Cigar Lake ore slurry received through the Slurry Receiving Circuit since September 2014, Orano accomplished a successful restart, commissioning, and ramp-up of production at the McClean Lake Mill, as demonstrated in the Commissioning Report (AREVA

2015). In 2016, the CNSC approved Orano's (then AREVA) request to increase annual production to 24 Mlbs U_3O_8 (AREVA 2016b).

With consistent delivery of Cigar Lake ore slurry received through the Slurry Receiving Circuit since September 2014 (other than temporary shut-downs for care and maintenance or in response to the COVID-19 pandemic), the McClean Lake Mill continues to demonstrate safe, reliable operating performance producing an average yearly rate equivalent to 18 Mlbs, with ore grades averaging 17% uranium, including ore grades in excess of 32% uranium.

1.2 Overview of the McClean Lake Operation

As shown in Figure 1-2, the McClean Lake Operation consists of three general areas: the JEB site, the Sue site, and the Midwest site. Figure 1-3 shows the various facilities located at the McClean Lake Operation. The JEB site is the location of the McClean Lake Mill and other ancillary facilities related to the milling operation such as the JEB Water Treatment Plant (WTP) and JEB TMF. The Sue site, connected to the McClean Lake Mill by a 12 km haul road, is the location of the majority of the previously mined deposits, the Sue WTP, and the Surface Access Borehole Resource Extraction (SABRE) Project area, which sits above the uranium deposits referred to as McClean Ore Pods. The Sink Vulture Treated Effluent Management System (S/V TEMS) controls the release of effluent from the McClean Lake Operation to the environment while allowing water treatment effluent to be discharged as required. The Midwest site has undergone multiple environmental assessments for varying mining techniques; the latest environmental assessment for open pit development was approved federally and provincially in 2012. The Midwest site is currently connected to the McClean Lake Operation by the Provincial highway #905. A further description of each of these main areas is provided below.



Projection: NAD 1983 UTM Zone 13N
Compiled: T.Lohman Drawn: T.Lohman
Date: 4/29/2021 Scale: 1:110,000
Data Sources: Natural Resources Canada, Geobase®, Nation Topographic Database, ORANO Canada Inc.

McCLEAN LAKE OPERATION

FIGURE 1-2
McCLEAN LAKE AREA GENERAL AREAS

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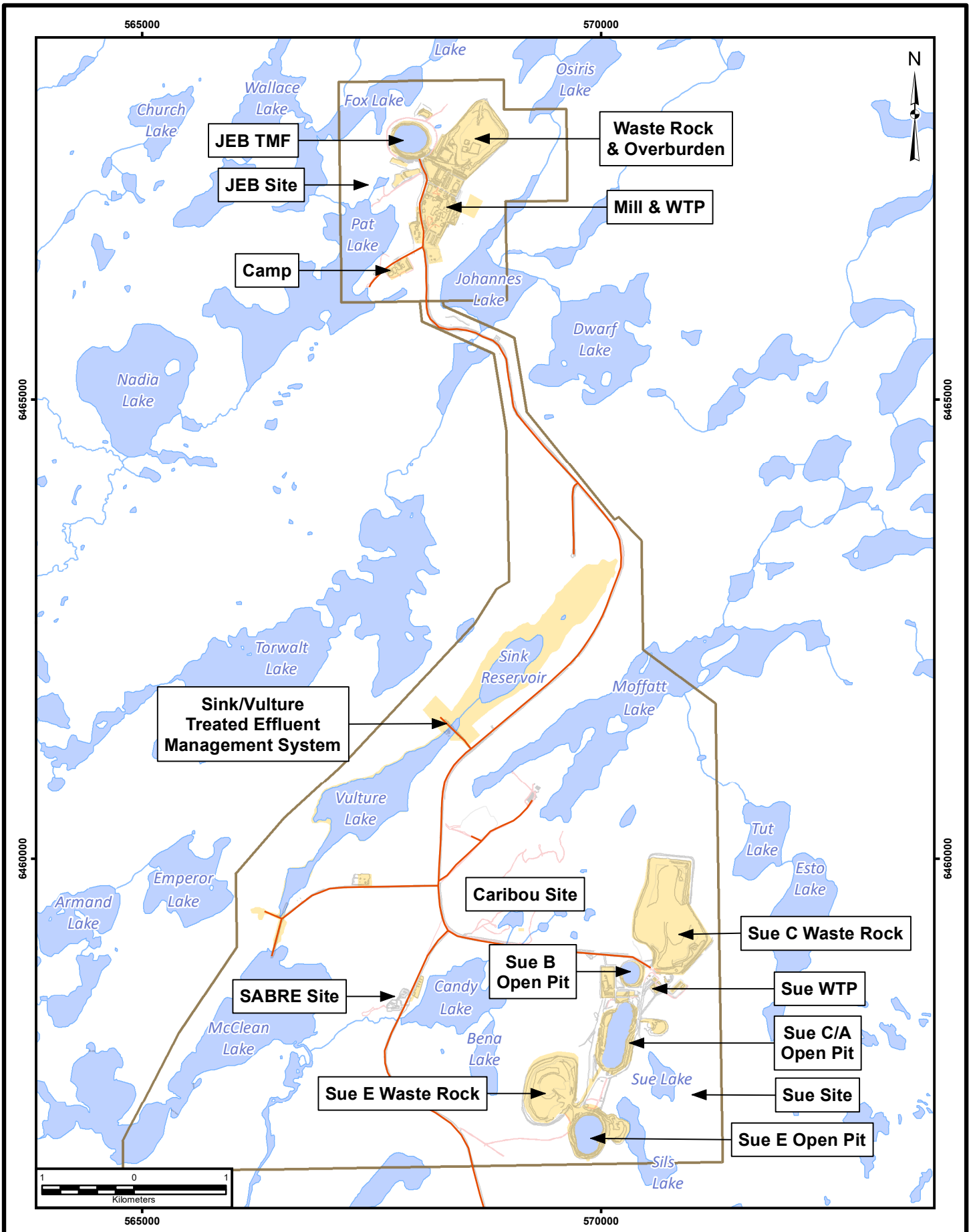
File: Q:\SHEQ\GIS\McCLEAN_LAKE\2021\CMD\Maps\Figure 1-2 - ML Operation - General Areas.mxd



Projection: NAD 1983 UTM Zone 13N
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Date: 4/28/2021 Scale: 1:55,000
Data Sources: Natural Resources Canada, Geobase®, Nation Topographic Database, ORANO Canada Inc.

McCLEAN LAKE OPERATION

FIGURE 1-3
McCLEAN LAKE OPERATION - SITE LAYOUT

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File: Q:\SHEQ\GIS\McCLEAN_LAKE\2021\CMD\Maps\Figure 1-3 - ML Operation - Site Layout.mxd

JEB Site

The McClean Lake Mill located at the JEB site was designed and constructed to process both uranium ore slurry and run-of-mine ore at grades ranging from less than 1% to 32% uranium. The McClean Lake Mill uses grinding, leaching and a solvent extraction recovery process to extract and concentrate the uranium from the ore. The potential environmental impacts of the McClean Lake Operation have been assessed for a production rate of 12,247,000 kg (27 Mlbs) U_3O_8 per year. The McClean Lake Mill was initially constructed to produce 8 Mlbs U_3O_8 per year but was expanded from 2005 to 2007 to produce 13 Mlbs U_3O_8 per year with the construction of the ore slurry receiving circuit. The McClean Lake Mill was further expanded from 2013 to 2016 to produce 24 Mlbs U_3O_8 per year. Figure 1-4 shows the McClean Lake Mill with the JEB TMF in the background.

Sue and Midwest Sites

The other main areas of the McClean Lake Operation are the S/V TEMs, the Sue and Midwest sites. The Sue site has been the primary mining area to date hosting the Sue deposits, the McClean deposits, and the Caribou deposit. Sequential open pit mining of the Sue C, Sue A, Sue E, and Sue B pits was completed using conventional drill, blast, load and haul mining methods. The remaining deposits in the Sue site are undergoing feasibility studies to determine the most suitable mining methods. The Sue site area is also the location of the SABRE Project, which is a mining program in development for evaluating the extraction of uranium mineralization from ore bodies using a “hydraulic borehole” (jet boring) mining method that is conducted from the surface. The Sue site main infrastructure includes the Sue WTP and the Sue Heavy Duty Maintenance Shop.

The S/V TEMS is located between the JEB and Sue sites; it receives treated effluent from the water treatment plants at both JEB and Sue and consists of Sink Reservoir, Vulture Lake and McClean Lake east basin, as well as flow control structures between the waterbodies.

The Midwest site was the location of an underground test mine facility operated by the previous operator, Denison Mines Corp, in the 1980’s. Orano became operator of the Midwest Project in 1993 when the site was in care and maintenance. In August 2012, the environmental assessment (AREVA 2011) to mine Midwest as an open pit mine with the run-of-mine ore transported on a new 17 km haul road to the McClean Lake Mill for processing was approved. Determining the most suitable mining method of the Midwest deposit is in progress and once a development decision is made, it is anticipated that the project will proceed to the licensing phase.

Figure 1-4 McClean Lake Mill and JEB TMF

1.2.1 JEB Tailings Management Facility

The JEB TMF is the repository for tailings resulting from uranium processing at the McClean Lake Mill. The overall tailings management system is comprised of the tailings preparation circuit within the McClean Lake Mill, the tailings delivery system, and the JEB TMF. The facility is designed and operated to provide stable physical containment and to reduce the migration of soluble constituents from the JEB TMF to the receiving environment throughout the operational and post-decommissioning periods. The JEB TMF is pictured in the forefront of Figure 1-5.

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Date: 4/29/2021
Scale:
Data Sources: ORANO Canada Inc.

McCLEAN LAKE OPERATION

FIGURE 1-5
JEB TAILINGS MANAGEMENT FACILITY (TMF)

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1.3 Highlights

1.3.1 JEB TMF Expansion Project

In November 2019, Orano submitted a request (Orano 2019) to expand the JEB TMF, to the elevation that was previously contemplated, described, and reviewed by technical staff and stakeholders from 2011 to 2014: an expansion of the JEB TMF with the construction of an embankment and placement of a soil-bentonite liner to a pit crest of 468 mASL (the Project). In this document the processed soil-bentonite liner will be referred to as the soil-bentonite liner. This further expansion is required to accommodate possible future mine plans.

After review and feedback from the CNSC staff, on June 16, 2020, Orano applied for a licence amendment to expand the JEB TMF (Orano 2020).

The Project has been designed to further increase tailings disposal capacity within the JEB TMF footprint through the expansion of an embankment around the entire JEB TMF perimeter and the placement of a soil-bentonite liner to contain the pond during the operation period. Both aspects, the embankment and liner, are a continuation of the previously accepted JEB TMF Expansion project (AREVA 2016, CNSC 2017, SMOE 2018), the liner was initially considered and accepted with the JEB TMF Optimization project (AREVA 2010). Additional tailings disposal capacity can be realized through the Project while:

- continuing to meet long-term environmental performance objectives within a physical footprint comparable to the existing facility, and
- remaining consistent with the requirements of CNSC REGDOC 2.11.1 Volume II: Management of Uranium Mine Waste Rock and Mill Tailings.

The expansion of the JEB TMF embankment to an elevation of 468 mASL provides the ability to raise the top of consolidated tailings above the currently accepted level of 448 mASL up to 462 mASL, providing an additional 2.3 million m^3 of unconsolidated tailings disposal capacity.

Modelling predictions of the performance of the decommissioned JEB TMF for over 20,000 years are updated and calibrated based on the knowledge acquired over 20 years of operation. Orano's objective in the development of the Project is to optimize the capacity for tailings within the existing and approved JEB TMF environmental footprint, including meeting Canadian Water Quality Standards (CWQG) and Saskatchewan Environmental Quality Guidelines (SEQG) in Fox Lake and Pat Lake throughout operations (short-term), and post-decommissioning (long-term).

In summary, the scope of the Project includes the following:

- modify/expand the outer perimeter of the JEB TMF to accommodate disposal of tailings to a consolidated tailings elevation of 462 mASL, resulting in an embankment constructed to an elevation of 468 mASL;
- placement of a soil-bentonite liner to contain the operating pond throughout operations;
- update the surface water management plan for management of Probable Maximum Precipitation (PMP) event runoff:
- conduct modifications to the Waste Rock Runoff Pond and Storm Water Storage Pond (SWSP);
- construction of a new Mill Site Runoff Pond for surface water management;
- decommissioning of monitoring wells affected by the Project footprint, modification or replacement of the drift monitoring well(s) and installation of new monitoring wells; and
- decommissioning of the JEB TMF and placement of a soil cover to reduce net percolation to levels protective of the environment.

Construction, operation, and decommissioning of the expanded JEB TMF has been evaluated, concluding that the proposed further expansion of the JEB TMF will continue to:

- passively limit the long-term concentrations of Constituents of Potential Concern (COPCs) in pore water through geochemical controls established during the operating period;
- passively limit groundwater migration through the tailings mass during the post-closure period by establishing a hydraulic conductivity contrast between the consolidated tailings and the surrounding host materials;
- passively limit infiltration through the tailings during the post-closure period through implementation of cover and landform designs;
- maintain hydrodynamic containment of the tailings through the operating period;
- employ acceptable tailings preparation and deposition methods as informed by the Tailings Optimization and Validation Program (TOVP);
- control seepage of JEB TMF pond water into the glacial drift (till) during the operating period through the construction of an upstream low permeability liner;
- manage storm water effectively;
- validate the geochemical and geotechnical aspects of the facility design; and therefore
    - achieve low levels of radiation exposure to workers and the public in the operating period and post-decommissioning; and
    - passively control contaminant flux to ultimately maintain surface water quality in down gradient and downstream lakes to acceptable surface water quality that results in an absence of unreasonable risk to the environment and people.

Orano remains committed to providing the CNSC staff final design and construction details in advance of commencing construction through the review of construction drawings and confirming tailings performance through the TOVP.

Upon completion of decommissioning, an end-state will be achieved that ensures long-term stability, with passive control and no unreasonable risk to the environment. The decommissioned tailings will be consolidated and unable to flow, and contaminant transport will be limited and controlled through perpetual, passive measures.

1.3.2 JEB TMF Expansion Project - History

The JEB TMF Expansion project is designed to expand the JEB TMF to provide an additional 2.3 million m^3 of unconsolidated tailings capacity. On August 26, 2011, Orano (then AREVA) submitted a Project Description and request to amend the McClean Lake Operation operating licence for the Project. In November 2011, the CNSC determined that a federal screening level EA under the *Canadian Environmental Assessment Act* (S.C. 1992, c. 37) (*CEAA*) must be carried out for the project with the CNSC overseeing the environmental assessment process. In July 2012, when *CEAA, 2012* (S.C. 2012, c.19, s. 52) came into force, Orano (then AREVA) was notified that an EA would no longer be required and that the project would continue to the licensing process under the *Nuclear Safety and Control Act* (NSCA). The document originally prepared for the Project was accepted as an Environmental Impact Statement (EIS) to meet the requirements of *CEAA, 1992*. However, since an EA was no longer required, the document was modified to address the licensing requirements of the CNSC and SMOE. The document was re-submitted, following the receipt of technical comments to the CNSC in 2014 as part of the licensing amendment review.

In 2014, as a result of a suppressed industry, the mine plan was revisited, which resulted in a reduction in the forecasted tailings production. The reduction was significant enough that it was necessary to revisit the alternatives assessment for the long term management of tailings. The subsequent alternatives assessment confirmed that, despite the 2014 reduced tailings forecast, additional tailings capacity was required and expanding the JEB TMF remained the preferred option. With the revised mine plan, there was a resulting decreased need for tailings capacity that was reflected in a reduced scope in design. Upon a change of scope to the project, the project description was further revised and submitted to the CNSC in 2016 as a notification to update the McClean Lake Operations LCH (AREVA 2016). The notification to expand the JEB TMF to an elevation of 457.5 mASL, with top of consolidated tailings at an elevation of 448 mASL was accepted by the CNSC in 2017 (CNSC 2017). A request to construct the project was submitted to and approved by the MOE in 2018 (SMOE 2018).

As processing of ore from Phase 1 of the Cigar Lake Mine progressed, it became apparent that due to the geochemical and physical characteristics of Cigar Lake ore, the tailings generated were utilizing more of the JEB TMF capacity than anticipated. Based on current life of mining and milling projections, an additional 3.0 million cubic meters of tailings is expected to be produced. Orano revisited the options analysis of various long-term tailings management

facilities and determined a further expansion to the existing JEB TMF to be the preferred option, as it utilizes existing footprint and mine workings, is environmentally acceptable as releases to the environment are within those previously assessed, does not result in additional effects on the landscape, wildlife or traditional land use, and is economically feasible (see Table 1-1 for results – with a ranking of 1 being the most favorable, while a ranking of 5 is the least favorable.).

Table 1-1 – Options Analysis Results

Site Option Considered	PBTMF – On surface lease	Sue C Pit	Sue E Pit	JEB TMF Expansion (468 mASL)
Option Components	**New pit**	**existing pit**	**existing pit**	**Expansion to existing TMF**
Project Components				
Proposed total Volume (million m^3)	5	5.8	4.9	6.9
Proposed incremental Volume (million m^3)	NA	NA	NA	2.3
Proposed Footprint (Pit only, Waste Rock not included) (m^2)	102,000	256,470	194,250	72,000
Length of pipe Utilidor (km)	10.5	13	14.5	1
New Road Length (km)	10.5	0	0	0
Evaluation of Criteria				
Environment				
Local Status of Environment	5	1	1	1
Physical Environment & Setting	2	2	2	2
Watershed Considerations	2	2	2	1
Operational Water Quality	4	4	4	1
Post-decommissioning Water Quality	1	1	1	1
Size of Footprint	5	3	3	2
Ease of Decommissioning	4	3	3	2
Proximity to Sensitive Environment	2	3	3	2
Post closure failures	1	1	1	3
Subtotal	**26**	**20**	**20**	**15**
Technical and Operation				
Technology	2	2	2	2
Storage Capacity and Expandability	3	1	1	4

Site Option Considered	PBTMF – On surface lease	Sue C Pit	Sue E Pit	JEB TMF Expansion (468 mASL)
Option Components	**New pit**	**existing pit**	**existing pit**	**Expansion to existing TMF**
Schedule	5	3	3	1
Worker Safety	4	2	2	2
Constructability	2	2	2	3
Operational Considerations	3	3	3	1
Water Treatment Requirements	3	2	2	1
Land Access	1	1	1	1
Complexity of Monitoring	2	2	2	2
Accidents and malfunctions	3	3	3	2
Subtotal	**28**	**21**	**21**	**19**
Financial				
Capital Costs	4	4	4	2
Operational Costs	5	4	4	2
Decommissioning Costs	3	3	3	3
Long-term care and maintenance Costs	4	4	4	2
Subtotal	**16**	**15**	**15**	**9**
Acceptance				
Community and Indigenous Representative Organizations (i.e. AJES and EQC)	3	3	3	2
Industry	2	2	2	3
Subtotal	**5**	**5**	**5**	**5**
TOTAL	**75**	**61**	**61**	**48**
Options Ranking	**3**	**2**	**2**	**1**

1.3.3 Preliminary Decommissioning Plan and Financial Assurance Update

As per the 5-year review cycle requirement, in November 2020, Orano provided an updated Preliminary Decommissioning Plan (PDP) and Financial Assurance (FA) to the CNSC and the Saskatchewan Ministry of Environment. The updated PDP included project development to the end of 2025; the FA includes costs associated with the decommissioning of projects completed. Future updates will include the expanded JEB TMF. The 2020 PDP and FA included a

reduction in financial assurance from $107,241,000 (CAD) to $102,098,000 (CAD). Refer to sections 3.11.1.1 and 4.7 for additional information.

1.4 Requests

1.4.1 Licence Amendment Request

Orano is requesting to amend the McClean Lake Operation Licence Condition Handbook Section G.1 Licensing Basis for Activities as follows:

- From: “disposal of tailings in the JEB tailings management facility (JEB TMF) up to a consolidated tailings elevation of 448 metres above sea level (mASL), which is the approximate low point of the natural ground elevation”
- To: “disposal of tailings in the JEB tailings management facility (JEB TMF) up to a consolidated tailings elevation of 462 metres above sea level (mASL), which is the approximate high point of the natural ground elevation”

1.4.2 Acceptance of revised Financial Guarantee

Orano is requesting to amend the McClean Lake Operation Licence Condition Handbook Section G.3 Financial Guarantee to note the accepted updated financial guarantee of $102,098,000.

2 Business Plan

This section provides Orano’s business plan for the McClean Lake Operation.

2.1 McClean Lake Mill Production Forecast

The McClean Lake Mill production forecast is dependent on ore availability, as well as market conditions. The current on-going feed comes from the Cigar Lake Mine with potential to increase and maximize the mill production capacity with McClean Lake, Midwest and other ore sources.

Current approved licenced production capacity and capabilities of the McClean Lake Mill is 24 Mlbs, with a current annual production target of 18 Mlbs.

2.2 Mining Production Forecast

The McClean Lake Operation's mining production forecast is largely focused on evaluating the SABRE mining technique, which is a selective mining method that minimizes environmental disturbances. A mining test to extract ore from cavities is currently planned for 2021. A production decision to implement the SABRE mining technique, mining of some or all of the remaining McClean Lake orebodies and/or Midwest orebodies may occur in the licence term depending on the outcome of:

- the mining test;
- the market conditions; and
- discussions with the relevant partners.

2.3 Improvement Plans and Significant Activities

Orano provides the CNSC staff with a forecast of activities that may occur over the Licence term. These activities will be subject to regulatory oversight of the CNSC and may require approvals and updates to the LCH.

2.3.1 SABRE Project

In 1991, mining three of the McClean pods (pod 1, 2, and 5) using conventional underground mining methods was assessed and subsequently approved following a Joint Federal-Provincial Panel review process. The 1991 EIS recognized that advances in mining technology would be monitored and could support changes to the mining method (Minatco 1991). The SABRE project previously, referred to as the Mining Equipment Development (MED) program was initially proposed in 2004. Phase I of the SABRE project was presented to and approved by the CNSC in 2004, which involved the completion of five mined cavities, the purpose of which was to develop and test the specialized mining equipment that would allow access to ore bodies from surface and to determine whether this alternative mining technique would be economically viable. An approval was issued after it was determined that an EA under *CEAA* was not required. The CNSC had concluded that the activities proposed under the SABRE project were similar to what had been assessed in 1991, the activities being proposed were either a partial implementation of the project that was assessed in 1991, or involved changes in technology that were consistent with changes in technology expected to occur over the life of the McClean Lake Operation and that would be evaluated as part of the licensing responsibilities of the CNSC.

In 2006, the CNSC approved Phase II of the SABRE project. In 2009, the CNSC issued a Licence amendment, approving the full scope of the SABRE project, which included the following activities:

- assessment of economic viability of the re-engineered mining system;

- continued efforts to optimize the mining system; and
- mining of the McClean Lake Underground pod #'s 1E, 1W, 2 & 5.

The activities currently planned for the SABRE project are within current approvals. The SABRE team intends to complete the test mining on pod 1E in 2021.

2.3.2 Selenium Treatment

Orano has continued to monitor the evolution of selenium throughout the McClean Lake Mill and JEB Waste Management System, and to keep abreast of developments in selenium treatment technologies. As part of Orano's commitment to continual improvement, Orano has implemented mitigation measures within the JEB TMF and JEB WTP to optimize selenium removal, and conducted investigations into various treatment technologies. The addition of ferrous sulphate into the JEB WTP to improve selenium removal efficiency has been chosen by Orano as the preferred treatment technology. The design and engineering of the treatment process are currently in progress with the plan to have ferrous sulphate treatment technology implemented before the 12-month rolling average selenium release mass loading forecast in treated effluent exceeds the approved Ecological Based Release Level (EBRL). Orano is providing regular updates to the CNSC on the implementation progress.

2.3.3 Potential Future Mining and Milling

The mining of the Caribou deposit, the McClean deposits, the Sue D deposit (an extension to the Sue C deposit), and the Midwest deposit are pending development decisions. The mining of these deposits may be completed using conventional open pit or underground methods or using the SABRE mining method. The processing of these ores and the disposal of tailings generated will occur at the McClean Lake Mill.

Orano notes potential future mining activities, which have not already been subject to an environmental assessment may, in some cases, be required to undergo an environmental assessment. Currently approved environmental assessments considered open pit mining of the Caribou and Midwest Project, and underground mining of the McClean deposits. Mining these deposits will require further approvals from the CNSC and the SMOE prior to commencing construction and operation. The mining of other ore bodies that have not yet undergone environmental assessment (Sue D, Sue E-extension) may be subject to environmental assessment.

Modifications to the McClean Lake Mill may be required to safely and efficiently process ore from the McClean and Midwest Projects. These modifications have been contemplated in the Midwest EIS (AREVA 2011) and will require further approvals from the CNSC and the SMOE prior to commencing construction and operation.

3 Safety and Control Areas

Orano recognizes the safety and health of our personnel and the public, protection of the environment, and quality of our operational processes as our highest priorities.

During the licence term the CNSC did not have concerns related to the SCAs at the McClean Lake Operation. All SCAs have consistently received satisfactory ratings from the CNSC in the annual regulatory oversight reports presented by the CNSC staff to the Commission.

The CNSC conducts regular inspections of the McClean Lake Operation, issues, actions items, or recommendations are documented and addressed to the satisfaction of the CNSC.

As this application is for an amendment to the uranium mine operating licence to expand the JEB TMF, and not for a licence renewal, an in-depth overview of the SCAs relevant to the activity have been provided. Where the SCA is not directly relevant to the activity, a summary has been provided. Of the 14 SCAs those directly relevant to the licencing request include:

- Management System,
- Operating Performance,
- Safety Analysis,
- Physical Design,
- Conventional Health and Safety,
- Environmental Protection,
- Emergency Management and
- Waste Management.

Summaries have been provided on:

- Human Performance,
- Fitness for Service,
- Security,
- Safeguards and Non Proliferation,
- Packaging and Transport, and
- Radiation Protection.

3.1 Management System

The Management System SCA covers the framework which establishes the processes and programs required to ensure an organization achieves its objectives, continuously monitors the performance against these objectives and fosters a healthy safety culture.

3.1.1 Relevance and management

Activities at the McClean Lake Operation are described and facilitated through a comprehensive Integrated Management System (IMS). The IMS manual (Orano 2019b) applies to the regulated activities performed by employees and contractors, and to other key activities included for business reasons. The IMS manual includes management system policies and makes reference to IMS procedures and other controlled documents. It also describes the organization of the McClean Lake Operation and position responsibilities for the performance of work affecting the integrated management system.

The primary objectives of the IMS are:

- to ensure that the product, processes and services consistently meet the needs and expectations of our customers;
- to provide assurance to regulatory agencies and other interested stakeholders that the product, processes and services are consistent and conducted as approved;
- to achieve continual improvement in the product, processes and services; and
- to ensure that the interests of Orano are met.

The IMS is designed to meet the requirements of the following standards:

- ISO 14001 (for the environmental management system);
- ISO 45001 (for the health and safety management system); and
- ISO 17025 (for the competence of testing and calibration laboratories).

Orano has received and maintains certification for each of the above for its McClean Lake Operation, each being re-certified in 2020.

The IMS is comprehensive. The activities of the employees are included in the system. Each of the key process and support service activities are managed by a department head, and the department heads are responsible for maintaining and improving quality in their respective departments. This approach establishes clear lines of accountability and responsibility with respect to quality.

As presented in Figure 3-1, the Vice President Operations, McClean Lake is the most senior person on-site, having authority over all operational activities at the McClean Lake Operation including the integrated management system. The Vice President Operations, McClean Lake also fills the role of General Manager at the McClean Lake Operation. Site personnel report to the Vice President Operations, McClean Lake, who reports to the President & CEO in the Saskatoon Corporate Office. The Vice President Operations, McClean Lake and the site managers identified comprise the McClean Lake Operation management team; this management team is responsible for managing work affecting the IMS at the McClean Lake Operation.

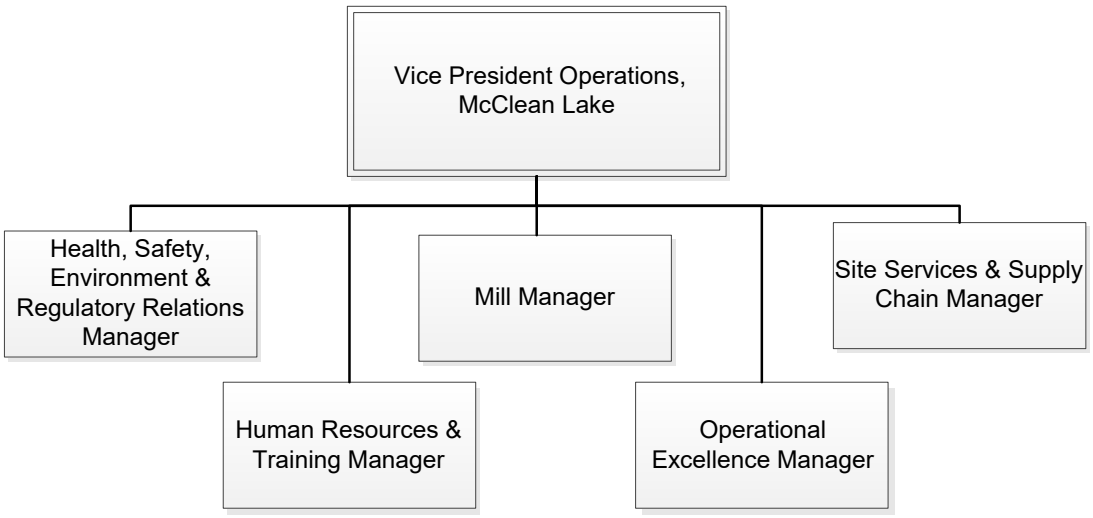

Figure 3-1 McClean Lake Operation Management Structure

3.1.2 Past performance

The management system is the framework that guides the processes and programs required to ensure objectives are achieved, performance is monitored and a health and safety culture is maintained during production, maintenance, materials handling, waste management and other activities. This includes, but is not limited to, requirements for work planning, change control, corrective action, document control, audits, and management review. Routine inspections by CNSC staff continue to confirm that the McClean Lake Operation is in overall compliance with these requirements. Findings made by CNSC staff are reviewed and used to strengthen existing programs and controls to ensure safety, security and the environment are not compromised. Orano continued to strengthen its management system during the current Licence term.

Orano uses both internal and external audits to evaluate various aspects of site operations related to the management system and licensed activities. Internal audits are conducted by the Regulatory Relations Group (and designates) with the entire management system being audited

on a three year rotation. An external auditor and registrar conduct audits to the ISO 14001 and 45001 standards on an annual basis. The audits are considered either surveillance audits or re-certification audits. The re-certification audits are conducted every three years and consist of a complete audit of the system. Annual surveillance audits are conducted for the period between the re-certification audits. Orano was re-certified to ISO 14001 standard twice and certified to the new ISO 45001 standard once during the Licence term. An external auditor and registrar also conduct audits on a two year rotation to the ISO 17025 standard.

The program requires that an environmental, health and safety (EHS) compliance audit be conducted to assess conformance with applicable federal and provincial EHS regulations, site permits and approvals, and legislation at least once every three years. Results of audits are reviewed and tracked internally to ensure findings, identified opportunities for improvement, and areas of concern are reviewed by site management and responded to accordingly. There were no significant issues identified in internal or external audits completed during the current Licence term.

Orano conducts periodic management reviews of the management system to evaluate the system's continuing suitability, adequacy and effectiveness; changes to physical, human and financial resources; and actions related to possible changes to policies, objectives, targets and other elements of the management system.

Orano continues to take opportunities to improve the safety performance and will continue to establish challenging objectives to reinforce the drive towards reducing risks. To facilitate the objectives and gauge the perception of employees in relation to safety culture, safety culture assessments are conducted regularly. The McClean Lake Operation hosts an annual safety day for management, supervisors and employees. The safety day consists of presentations and group activities.

Orano has a methodical change control/design control program. The purpose of the program is to ensure that changes made to the facilities, personnel or operating methods are controlled. Safety and environment are the paramount considerations. Risks are identified and control and mitigation guide decisions and actions. The process determines whether or not the change can be implemented safely and considers traditional safety concerns such as industrial hygiene, personal protective equipment and process safety concerns.

Orano has a contractor management program that is designed to manage outsourced work performed at the McClean Lake Operation. The program summarizes how contractor management and oversight responsibilities will be conducted and provides requirements for monitoring contractor compliance with safety, health, environment and radiation policies as well as procedures and relevant legislative requirements.

3.1.3 Future plans

While the existing management system meets current regulatory and ISO requirements, Orano is committed to continual improvement of the management system. Future efforts regarding the management system will be guided by updates and development of the regulatory framework, standards and REGDOC's, as well as findings from internal audits, external audits and regulatory inspections. The new and existing circuits will continue to be audited regularly and as required. Existing procedures will be augmented as new activities or equipment are integrated into the McClean Lake Operation.

The IMS procedures, including governance, emergency response and public information will be updated to reflect the JEB TMF Expansion project.

3.1.4 Challenges

As the regulatory framework continues to develop with changes in existing standards and REGDOC's, along with the development of new standards and REGDOC's, on-going assessment and identification of gaps will be required, followed by the planning and implementation of required changes or improvements. Orano will continue to work closely with the CNSC staff to implement new and standardized requirements under the regulatory framework in a manner mutually agreed upon that will ensure safe and reliable operation during any implementation phase.

3.1.5 Requests

Orano has no requests related to the management system SCA, at this time.

In conclusion, Orano submits that it has the management system measures in place for the safe operation of the McClean Lake Operation and in support of this Licence amendment request.

3.2 Human Performance

The Human Performance Management SCA covers activities that enable effective human performance through the development and implementation of processes. This ensures that the number of licensee staff is sufficient in relevant job areas and that licensee staff have the necessary knowledge, skills, procedures and tools in place to safely carry out their duties.

This SCA is not directly relevant to the licensing request, therefore only a summary is being provided.

Training activities at the McClean Lake Operation are conducted in accordance with programs defined with the IMS and adhere to the Systematic Approach to Training (SAT). The Training Group is responsible to ensure employees are provided with the required safety training to

competently perform their jobs by addressing applicable federal and provincial regulations. These training programs include classroom training, where trainees are evaluated using knowledge-based theory exams and skill-based practical assessments where applicable. Technical and other professional development opportunities are provided to employees and are conducted onsite as well as offsite.

Training programs are reviewed and updated accordingly as per the requirements of the SAT.

The CNSC staff reviews of this SCA have resulted in satisfactory ratings.

Orano has demonstrated that through the use of SAT, that the implemented training programs at McClean Lake Operation ensure that employees are provided with the required training to competently and safely perform their jobs.

Orano submits that it has the human performance management measures in place for the safe operation of the McClean Lake Operation and will be applied to the licensing request to expand the JEB TMF.

3.3 Operating Performance

The Operating Performance SCA includes an overall review of the conduct of the licensed activities and the activities that enable effective performance. The Licence requires the McClean Lake Operation to have a program in place that ensures the safe operation of its facility. The McClean Lake Operation IMS defines the programs in place to ensure on-going performance is maintained and continuous improvement is achieved.

3.3.1 Relevance and Management

As it relates to the amendment request, the following paragraphs provide discussions specifically related to the JEB TMF, including tailings preparation and deposition; the JEB TMF design and operation and history.

JEB TMF

The 1991 McClean Lake EIS (Minatco 1991) proposed in-pit tailings disposal in the previously mined out JEB pit for the management of tailings at the McClean Lake Operation, rather than an engineered surface structure. The mined out JEB pit was converted into a tailings management facility (the JEB TMF) and is designed and managed to provide hydrodynamic containment of tailings throughout the operations period.

Tailings

During operation, the process wastes from the McClean Lake Mill are mixed and transferred to the Tailings Preparation Circuit. The Tailings Preparation Circuit is used to treat and neutralize tailings for the control of key constituents of potential concern (COPC) in the tailings pore water and to thicken the resulting tailings slurry prior to deposition. Prior to neutralization, both the soluble and solid concentrations of arsenic and iron are measured in the total waste stream, and the Fe^{3+}/As_{total} (soluble phase) and Fe^{3+}/As^{-1} (solid phase) molar ratios are then adjusted by the controlled addition of ferric sulphate. This critical step provides the means to specifically and consistently precipitate arsenic with iron in the form of a stable mineral compound that is suitable for the long- term control of source terms.

Following the preparation process, tailings are thickened and the resulting tailings slurry is pumped from the McClean Lake Mill for deposition in the JEB TMF. When consolidated, the hydraulic conductivity of the tailings material is expected to be two orders of magnitude less than that of the surrounding fractured natural sandstone. Under these long-term conditions post-decommissioning, the consolidated tailings represent a low-permeability material, and therefore, groundwater will preferentially flow around the tailings mass through the surrounding more permeable host rock.

Tailings Management

The tailings are placed in a mined-out pit referred to as the JEB TMF which has been specially designed to manage the tailings properties during operations and over the long term, and allow for them to be regularly sampled and evaluated. The McClean Lake Mill manages tailings so that COPCs that may pose a risk to the environment (e.g. heavy metals such as arsenic, uranium and molybdenum and radionuclides such as radium-226) are controlled in a way that protects the environment now and over the long term. The goal is to produce tailings that are stable for geological time.

- **Operational Period:** During the operating period, three main concerns are managed: protection of people working near the tailings, protecting the environment, and ensuring the tailings' physical environment is controlled. Each of these concerns is addressed through the management of water in and around the JEB TMF:

    - Water cover: the tailings are placed under water, which serves to contain the tailings, protect workers in the area from radiation exposure, and to prevent the tailings from freezing (which would make them more challenging to manage in the future).

    - Isolation from Water in the Environment: tailings are isolated from the surrounding environment by pumping water from a drain at the base of the JEB TMF. The pumping causes groundwater to flow inwards, towards the JEB TMF and makes it impossible for COPCs to flow out of the JEB TMF into the

environment. The pumped water (referred to as raise water) is used in the mill process and then treated at the JEB WTP to meet strict environmental criteria before being released.

- **Post-Closure Period:** The key to the long-term performance of the JEB TMF is setting up passive controls (i.e. mechanisms that will be effective without needing human action, processes or infrastructure). Long after the mine site has been decommissioned and returned to its natural state, passive controls will continue to operate over geological time to protect the environment. The following passive controls are established to ensure the long-term environmental performance of the JEB TMF:

    - Physical Controls: Once the tailings settle into a solid mass (consolidate), the ability of groundwater to flow through the tailings is significantly reduced. Most of the groundwater will flow around the tailings rather than through them which will mitigate advective flux of COPCs from the tailings.

    - Chemical Controls: The design and control of the chemistry of the placed tailings reduces, as much as possible, COPC concentrations in the pore water of the tailings. Control of key COPCs is accomplished through their precipitation in solid mineral phases which remain in equilibrium with their dissolved liquid form. The understanding and control of the tailings chemistry allows for accurate predictions of COPC source terms based on equilibrium values.

Though many components are carefully monitored, the primary COPCs in the JEB TMF are arsenic, molybdenum, uranium and radium-226. The primary objective of tailings management at the JEB TMF is to ensure the COPCs are controlled through passive controls and do not migrate into neighbouring Fox Lake and Pat Lake to ensure there is no exceedance of water quality standards.

Orano manages and monitors the tailings preparation process, where tailings are treated in the mill, and conducts investigations into the qualities of the tailings placed in the JEB TMF to ensure the operation is achieving the necessary performance to protect people and the environment, now and in the centuries to come.

3.3.2 Past performance

The tailings preparation and performance are continuously reviewed internally and reported on to the regulators in various documents. The most inclusive is the Tailings Management Technical Information Document (TID) (Orano 2020b). The Tailings Management TID is updated on a 5-year cycle, most recently in 2020, and to date has concluded that the JEB TMF is performing as expected, with no predicted downstream environmental effects after decommissioning and meeting the CNSC expectations with respect to the protection of health and safety of its workers and the receiving environment.

3.3.3 Future Plans

As is subject of this licensing action, Orano intends to expand the JEB TMF. The construction and operation of the JEB TMF will be subject to on-going internal review, and reviews conducted by the CNSC staff and other regulators.

As indicated by past performance reviews, Orano will continue to evaluate the JEB TMF through its continual improvement initiatives, as well as take appropriate corrective actions to resolve non-compliances that may results from CNSC staff inspections and document reviews.

3.3.4 Challenges

Orano does not have challenges associated with this SCA.

3.3.5 Requests

The modifications related to the request to expand the JEB TMF are discussed throughout this document.

3.4 Safety Analysis

The Safety Analysis SCA is a systematic evaluation of the potential hazards associated with the conduct of a proposed activity or facility and considers the effectiveness of preventative and mitigating measures and strategies in minimizing the risk of such hazards.

3.4.1 Relevance and management

As required, Orano has conducted a safety analysis to evaluate the potential hazards associated with the expansion to the JEB TMF. As part of the safety analysis, Orano has reviewed preventative measures and strategies in reducing the effects of identified hazards. The following paragraphs discuss the risk and safety analysis conducted to evaluate potential hazards related to expanding the JEB TMF.

Risk Analysis

Of primary concern in the evaluation of tailings management facilities are the long-term transport of contaminants from the facility, and the geotechnical stability of the facility in the operating period and post-closure. The risk assessment concludes:

- predictions of long-term water quality in neighbouring water bodies is expected to meet water quality guidelines and objectives for all COPCs;

- the embankment design has incorporated a sufficient factor of safety to be stable at the end of construction and end of TMF operating period; and
- the post-closure landform will be physically stable, safe, and environmentally sustaining without active maintenance efforts (i.e., passively stable).

Embankment Stability

The expansion of the JEB TMF will be achieved through the continued construction of an engineered embankment structure and placement of a soil-bentonite liner from the currently approved elevation of 457.5 mASL to an elevation of 468 mASL. This expansion will allow for final consolidation of placed tailings to an elevation of 462 mASL, which is approximately 14 m higher than the currently approved top of consolidated tailings of 448 mASL. A conceptual cross-section through the proposed expanded JEB TMF is presented in Figure 3-2. As part of the response to comments from CNSC staff, in February 2021 Orano conducted additional detailed drilling investigations of the embankment foundation to improve the confidence in the geological model for the site. The drilling investigation confirmed the continuity of the dense till units underlying the proposed embankment foundation and the absence of any weak clay layers within or under the till units (Golder 2021).

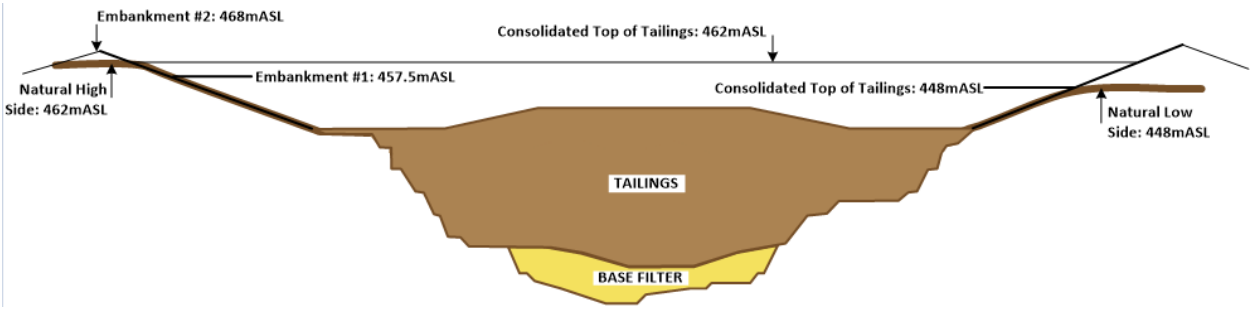

Figure 3-2 Conceptual Cross-section

The volume of tailings that can be stored within the expanded JEB TMF is limited by the height of the embankment that is constructed around the JEB TMF perimeter. For the purpose of this project, the height of the embankment was constrained by the decision not to disturb/impact Fox Lake with the construction of the embankment. As a result, the embankment height was determined by the proximity of Fox Lake (i.e., maintaining a minimum 10 m set back between the toe of the embankment and the Fox Lake high water mark) and the design parameters determined to provide a stable embankment slope.

Based on these constraints, and the variability of the natural ground surface, the height of the embankment required for the Project varies from 6 m on the east side to 10.5 m on the west side of the JEB TMF, post JEB TMF expansion to 457.5 mASL elevations. The expansion of the JEB TMF will create capacity for approximately 2.3 million m^3 of additional unconsolidated tailings. The design includes maintaining a minimum 1 m water cover over the tailings mass, a 1 m freeboard to the embankment crest, and a 0.5 m allowance for storage of a Probable Maximum Precipitation (PMP) storm event during the operation period.

A soil cover system will be installed as part of decommissioning of the JEB TMF. The soil cover system will provide a sustainable landform configuration, drainage system for the decommissioned JEB TMF, and a mechanism to reduce precipitation infiltration into the underlying tailings. During construction of the soil cover system the downstream side of the embankment slopes will be flattened to further enhance stable slope conditions after the decommissioning period.

Numerical analyses of the increased embankment height and its resulting extra loading included both steady state seepage and slope stability at the end of construction and end of JEB TMF operating period.

Slope Stability – Deterministic Analysis

A deterministic slope stability analysis was used to assess the stability conditions of various embankment slope geometries around the JEB TMF at the end of construction conditions and the long-term or end of operations condition. In deterministic slope stability analysis, soil parameters such as unit weight, effective friction angle, and effective cohesion are assumed to have a single, unique value. The analysis result is a single factor of safety for each trial slip surface.

For the slope stability analysis of the JEB TMF Expansion (468 mASL) the design was assessed against the both the US Army Corps of Engineers (2003) recommended minimum factors of safety for new earth and rock-fill dams and those recommended by the Canadian Dam Association (2007 and 2014).

Deterministic analyses (summarized in Table 3-1) were conducted to assess the stability of the slopes for two representative conditions:

- first at the end of construction conditions and
- second for the long-term condition (end of JEB TMF operations).

All factor of safety values calculated using the deterministic approach met both the US Army Corps of Engineers (2003) and the Canadian Dam Association (2007 and 2014) recommended minimum factor or safety values (Table 3-1). A summary and comparison of the minimum factor of safety values obtained from the deterministic slope stability analyses and those required by the US Army Corps of Engineers (2003) and the Canadian Dam Association (2007 and 2014) is presented in below in Table 3-1.

Table 3-1: Required factors of safety values and analyzed factors of safety value

Analysis condition	Required minimum factor of safety	Slope	Meets required factor of safety value	Deterministic factor of safety value, minimum value
End of construction (including staged construction)	1.3	Upstream and downstream	Yes	1.49 (upstream 2H:1V)
Long-term (steady seepage, maximum storage)	1.5	Downstream	Yes	1.55 (downstream 2H:1V)

In addition, it is expected that the factor of safety for the upstream slope where the liner will be placed will increase with time as tailings are deposited against the slope.

Slope Stability – Seismic Analysis

The JEB TMF is located within the tectonically stable North American tectonic plate. The seismicity in this area during the period of historical record has been very low; no natural earthquake event with magnitude M3 or larger has been recorded in the JEB area. Evaluation of the embankment stability under seismic conditions was conducted using the guidelines and procedures provided by the Canadian Dam Association (2007 and 2014) with an estimated peak ground acceleration of 0.143 g for an annual exceedance probability of 1/10,000. Embankment slopes with 2.0H:1.0V slope or flatter meet the objective of achieving a minimum factor of safety of more than 1.0 for seismic loading conditions.

Slope Stability – Probabilistic Analysis

A detailed parametric evaluation followed by a probabilistic slope stability analysis was conducted. This analysis identified that the stability condition of the JEB TMF till slopes are sensitive to both the effective friction angle and suction angle of the till. Probabilistic analyses for the JEB TMF Expansion (468 mASL) were conducted considering the variability of the effective friction angle, φ' and the suction angle, φ^b of the till, liner material and waste rock fill. Calculated mean factor of safety values and reliability indices from the probabilistic analysis for the proposed slopes 2H:1V (or flatter) met the required factor of safety value and the industry recommended (Whitman 1984) reliability index values of 1.5 and 2.5, accordingly.

Conclusion and Recommendations

Targeted drilling investigations and testing programs have identified a sequence of compact to very dense three till units underlying the site. The three till units consist of varying compositions of predominantly silt and sand with some gravels and cobbles. Recent site investigations conducted in 2021 were consistent with the material characterizations in 2009: non-plastic to low plastic results, specific gravity, and grain-size distributions. The 2009 and 2021 investigations provide ample confidence in the current geological model and the suitability of the foundation conditions beneath the expansion embankment.

Slope stability analyses were completed to determine the stability of the proposed JEB TMF Expansion embankments. Analyses were completed using both deterministic and probabilistic methods and recommended factor of safety values and reliability indices published by the US Army Corps of Engineers (2003) and the Canadian Dam Association (2007 and 2014).

Analyses of the upstream and downstream slopes found the resulting factor of safety values and reliability indices met or exceeded the recommended standards. Deterministic and probabilistic slope stability analyses calculated a deterministic factor of safety of more than 1.5 and a reliability index of more than 2.5 for an upstream slope of 2H:1V. While deterministic and probabilistic slope stability analyses of the downstream slope of 2H:1V calculated a deterministic factor of safety of more than 1.55, probabilistic mean factor of safety of more than 1.74, and a reliability index of more than 3.89.

Seismic slope stability analyses were conducted using the guidelines and procedures provided by the Canadian Dam Association (2007 and 2014). All embankment slopes met the minimum required factor of safety value for seismic loading conditions.

Stability analyses were conducted using the long term condition of reestablishment of hydraulic head levels in the till to their pre-mining state. However, in order to provide an on-going assessment of the embankment stability a rigorous stability monitoring program will be implemented for the embankment fill and till slopes to monitor piezometric conditions during operations. In addition, a slope maintenance program will be developed and implemented during operations.

Mount Polley Dam Failure Review Panel

Orano conducted a review of the Independent Expert Engineering Investigation and Review Panel's *Report on Mount Polley Tailings Storage Facility Breach*, which investigated the breach that occurred at Mount Polley in August 2014. The panel investigation determined that the Mount Polley Breach occurred due to a foundation failure. Specifically, the failure occurred due to shear failure under undrained loading conditions of a thin clay (glaciolacustrine) layer. The panel determined that the pre-failure site investigations were not sufficient to detect this layer nor its critical importance to the foundation stability. This weak clay unit was not considered in the design of the Mount Polley Tailings Storage Facility.

Prior to converting the JEB open pit to the tailings management facility, the JEB open pit mine had an open pit face on all side walls of the pit. Initial site geotechnical investigation for the JEB site in 1995 included a detailed pit wall sampling program to characterize the till units at the site. The 1995 site investigation did not identify any weak clay layers within or subjacent to the till units. An additional drilling investigation in 2021 of the perimeter of the JEB TMF with borehole advancement utilizing sonic drilling methods obtained continuous core of the complete till interval to the depth of the sandstone contact. This drilling program provided further confidence in the proposed embankment foundation and the absence of weak units within or subjacent to the till units.

Brumadinho Feijão Dam Failure Review Panel

Orano also conducted a review of the *Report of the Expert Panel on the Technical Causes of the Failure of Feijão Dam I*, which investigated the breach that occurred at Vale's Brumadinho site in January 2019. The expert panel identified that failure mode was a brittle failure of the loose saturated tailings within the downstream slope resulting in a static liquefaction failure of the dam.

Based on this review the failure modes identified for Vale's Brumadinho site are not applicable to the JEB TMF since the JEB TMF Expansion is a continuous downstream construction with engineered embankment materials that do not use tailings nor rely on tailings strength. In addition, the embankment materials are designed to be stable throughout staged construction,

post-construction, and for the long-term condition (post-closure) where the low permeable soil-bentonite liner provides containment of the impounded water at the end of construction conditions and for the long-term condition (post-closure).

Consequences of an Embankment Failure

Although determined unlikely to occur, a screening level environmental risk assessment was conducted to determine the potential consequences on the receiving environment, should there be an embankment failure. This assessment is further discussed in Section 3.9

Mitigative Measures

Following construction of the embankment a stability monitoring program will be implemented to monitor piezometric conditions during operations. In addition, slopes will be flattened to 4H:1V as part of the JEB TMF decommissioning to mitigate erosion potential and for long term stability of the slopes.

3.4.2 Past performance

Safety analyses for the McClean Lake Operation are reviewed regularly and as required depending on the type of analysis. For example, safe work plans are completed almost daily, the hazard registry is reviewed every two years (at a minimum), and the Ecological Risk Assessment (ERA) documented through the Environmental Performance TID (EP TID) is reviewed annually for its adequacy. Safety analyses ensure changes to the facility are controlled and that risks posed are acceptable.

Recommendations from the CNSC on the safety analyses are considered continual improvement and incorporated into the management system and contribute to the overall safety of people and protection of the environment.

3.4.3 Future plans

Safety analyses for the McClean Lake Operation will continue to be updated regularly, as required. Where applicable, the updates will incorporate recommendations from the CNSC staff as well as applicable standards and guiding regulatory documents.

Upon approval and through construction of the embankment, to ensure that the JEB TMF expansion can be constructed, operated and decommissioned safely, Orano will continue to review and update safe work plans, design plans and the IMS as it relates to the JEB TMF, including maintenance, monitoring and emergency preparedness and response.

ICMM – Global Industry Standard on Tailings Management

The International Council on Mining & Metals (ICMM) published the Global Industry Standard on Tailings Management (the Tailings Standard) in August 2020, providing a framework for safe tailings facility management, with the objective to achieve the goal of zero harm to people and the environment with zero tolerance for human fatality. The Tailings Standard requires the operators to take responsibility to ensure good governance, and prioritize the safety of tailings facilities, through all phases of a facility's lifecycle.

The Tailings Standards consists of 6 Topics, 15 Principles and 74 Requirements. In August 2020 ICMM members committed to implement the Tailings Standard such that all facilities with 'Extreme' or 'Very high' potential consequences will be in conformance with the Tailings Standard within three years, and all other facilities within five years. Compliance with the Tailings Standard requires operators to use specific measures to prevent the failure of tailings facilities and to implement best practices in planning, design, construction, operation, maintenance, monitoring, closure and post closure activities.

Orano, which is a member of the ICMM, has commenced a formal process to identify areas of gaps between current operation and the Tailings Standard, and has assigned roles and responsibilities to identified action items.

Monitoring

A performance monitoring program will be implemented to confirm physical and environmental stability of the JEB TMF during and after the decommissioning period.

3.4.4 Challenges

Orano does not identify any challenges that would prevent this SCA from being achieved.

The CNSC staff will be engaged in regulatory notification of changes required within the licencing basis and ensure that the safety analyses is presented within the notifications.

3.4.5 Requests

The modifications related to the request to expand the JEB TMF are discussed throughout this document.

3.5 Physical Design

The Physical Design SCA relates to activities that impact on the ability of systems, components and structures to meet and maintain their design basis given new information arising over time and taking changes in the external environment into account.

3.5.1 Relevance and management

Orano maintains a program for physical design program at the McClean Lake Operation. The mill and other facilities at the McClean Lake Operation are designed, installed, operated and modified in accordance with the physical design program. On-going optimization and continuous improvements are made to the McClean Lake Mill circuits, equipment and associated facilities. The change and design control processes are triggered when a modification or addition to facilities, processes or equipment are proposed and are not considered a replacement in kind and therefore requires design. The aspects of the physical design process are as follows:

- Change control – ensures that changes made to the facilities, personnel or operating methods are controlled. Physical installations were initially designed with safety, environment, radiation protection and efficiency in mind. Safety is the paramount consideration guiding decisions and actions. The change control process is followed before any physical changes are implemented. The process determines whether or not the change can be implemented safely and considers traditional safety concerns (such as industrial hygiene and personal protective equipment) and process safety concerns.

- Design control - ensures the design function is performed adequately and in a controlled manner and can be triggered by the change control process, when a modification or addition to facilities, processes, or equipment is proposed which requires design. Design control is a process that ensures the design function is being performed adequately. The output of the design control process is objective evidence that appropriate consideration has been given to each stage in the design process.

Proposed changes, not considered to be replacement in kind, are controlled through the change control and design control processes of the McClean Lake Operation IMS. These processes assess risks and determines if mitigation of risks can be done to an acceptable level. Orano considers the physical design process to be effective and controlled. The process ensures safety is paramount and ensures that process safety is inherent to the design of the McClean Lake Mill and associated facilities.

The physical design of the tailings management facility is described and documented in its Facility Description Manual (FDM) (AREVA 2016c), which provides details including physical description, technical specifications and capacities. Orano uses facility change control and design control processes to ensure that any physical changes are reviewed and approved by site management before implementation.

The 1991 McClean Lake EIS (Minatco 1991) proposed in-pit tailings disposal in the previously mined out JEB pit for the management of tailings at the McClean Lake Operation, rather than an engineered surface structure. The mined out JEB pit was converted into a tailings management facility (the JEB TMF) and is designed and managed to provide hydrodynamic containment of tailings during the operational period.

Orano's November 2019 notification to the CNSC included a JEB TMF Expansion Project Description (Orano 2019). Key design features and considerations are further described below.

Site characterization

The initial site geotechnical and hydrogeological investigation for the JEB site began in 1995 as part of pit wall sampling to characterize the till units at the site. Since that time extensive investigations and testing programs have been conducted to define the general stratigraphy encountered in the JEB TMF area. Stratigraphy at the site consists of a localized thin organic unit (less than 4 m thick), a till (10 to 28 m in thickness), upper sandstone, lower sandstone, basement regolith, and intact basement rock. The till has been further characterized based on composition, resistance logs, neutron logs, weathered zones, and stratigraphic position as being comprised of three units: Units 1, 2 and 3, which are thought to represent three separate and distinct glaciations. The 2021 drilling investigation utilized sonic drilling to obtain continuous core of the till intervals and advanced boreholes at nine locations around the JEB TMF along the embankment footprint. The drilling investigation showed the continuity of the dense till units and the absence of any weak clay layers underlying the proposed embankment foundation.

Embankment and Liner Design

The expansion will be constructed around the perimeter of the JEB TMF, allow for storage capacity of unconsolidated tailings to a maximum elevation of 465.5 mASL, with a top of consolidated tailings to an elevation of 462 mASL. The embankment will be constructed as a downstream raise type embankment to the currently approved expansion to 457.5 mASL, through further expansion of the embankment and soil -bentonite liner from 457.5 mASL to 468 mASL. Completion of the expansion of the embankment to 468 mASL will also require completion of an alternate plan for the management of storm water runoff since transportation of runoff via gravity drainage from the mill terrace to the JEB TMF would be no longer possible.

Previous studies evaluated the stability of the overburden till slopes and soil-bentonite liner in support of the embankment to 457.5 mASL to optimize storage of consolidated tailings in the JEB TMF. This involved flattening the till slopes from the till/sandstone contact and construction of a soil-bentonite liner to elevation 457.5 mASL. The primary purpose of the liner system is to provide containment of the JEB TMF pond water above the sandstone contact throughout operations of the TMF. It should be noted that under the long-term condition (i.e., end of JEB TMF operations/post decommissioning) there will be no pond. The proposed expansion to 468 mASL will require extension of the soil-bentonite liner to the top of the expanded embankment. The rock-bentonite liner system will be the same as that of the successfully constructed JEB TMF Optimization (AREVA 2010).

The hydraulic properties of material readily available on site (till and crushed sandstone) are not suitable on their own for use as a liner material. However, based on results of an extensive materials characterization program, both the sandstone waste rock and till materials perform

similarly as an aggregate base and, with bentonite addition, meet the design requirements for the liner.

Laboratory tests conducted to evaluate the till, crushed sandstone, amended till-bentonite, and amended crushed sandstone-bentonite included:

- grain-size determination;
- gradation of the parent material and the corresponding bentonite content;
- standard proctor compaction;
- triaxial hydraulic conductivity;
- freeze-thaw triaxial hydraulic conductivity;
- long-term freeze-thaw cycling effects on the hydraulic conductivity of the mixture;
- the effect of molding water content;
- soil-water characteristic curve, and
- direct shear.

Based on the inherent variability in the materials and the potential construction methods considered for the liner placement a bentonite addition of 5% was recommended for the amended liner materials in order to achieve the desired hydraulic conductivity of $1.0x10^{-9}$ m/s or less.

Detailed designs for the proposed expansion were based upon previous investigation results and the current JEB TMF Expansion project. Field verification will be required prior to the construction of each design component. It will involve topographic surveys and geotechnical investigations (e.g., depth to groundwater, thickness of peat unit, foundation conditions) of the site location under consideration. If the geotechnical conditions are found to be different from those assumed in detailed designs, changes to the design of the new structure may be required.

The expansion embankment to 468 mASL will be predominantly constructed of till or compacted sandstone waste rock fill. Mechanical and hydraulic properties of the compacted waste rock fill compared favorably with the till fill for embankment construction purposes. The grain-size distribution of the compacted sandstone waste rock may not be compatible with the soil-bentonite material and so a transition material may be required. The transition layer between the compacted waste rock material and the soil-bentonite liner material is designed to prevent the migration of fines from the soil-bentonite liner into the compacted waste rock material. Prior to construction of the embankment a fill test pad will be constructed. The fill test pad will confirm whether a transitional layer comprised of a median grain size material is required and validate the construction methods required to achieve the design objectives.

Landform Design

Final grading of the completed post-closure JEB TMF soil cover will be designed with the primary goal of being a permanent walk-away closure. In order to satisfy this criterion the landform design was completed using a geomorphic approach that is based on passive drainage with built-in redundancy and replicates key features of locally present analogues landforms.

To address potential erosion of the final cover, the final design will be based on a PMP event. To test the design robustness and as part of the conceptual design, erosion of the cover was considered under a beyond-design basis hypothetical extreme precipitation event. Under this scenario the net percolation rate increased from 10 mm/yr to 12 mm/yr. The resulting increase in mass flux rate was within the upper bounds of the effects previous assessed for the JEB TMF reporting to the receiving environments of Fox and Pat lakes. Analysis of various climate change models and scenarios showed that at a maximum the net percolation rate would increase but the resulting soil cover performance would be within the range of the original design.

Cover Design

A conceptual soil cover design was prepared for the JEB TMF at the end of operations. The primary goal of the cover was to minimize infiltration to mitigate groundwater flow and contaminant transport from the post-closure JEB TMF to the receiving environments of Fox and Pat lakes. The second goal of the soil cover was to provide a physical barrier between the underlying tailings and potential human and ecological receptors. Development of the soil cover included:

- detailed review of the design concept for the JEB TMF and recent advances in soil cover design, and identification of potential soil cover options;
- review and summary of site climate setting information to determine the atmospheric boundary conditions applied in the numerical simulations, also accommodating for climate change scenarios;
- soil-atmospheric numerical modelling analyses that evaluated various soil cover configurations and identify key design parameters that should be incorporated into the design of the cover test plots;
- anticipated performance of the soil cover system in light of the soil-atmospheric simulations and empirical based findings in the peer-reviewed literature;
- development of design specifications for the cover test plots and final post-closure JEB TMF soil cover; and
- identification of outstanding testing that should be completed to finalize the selection of specifications for the cover test plots and final post-closure JEB TMF soil cover.

Results from the soil cover design analysis determined that the conceptual soil cover would be based on an engineering sandstone-bentonite barrier cover that limited net percolation to a design value of 10 mm/yr and an upper bound value of 20 mm/yr. An upper bound net percolation of 20 mm/yr was used in sensitivity analyses based on the parametric analysis. Parametric analyses conducted as part of the numerical modelling indicated that net percolation for the soil cover was sensitive to the saturated hydraulic conductivity of the barrier unit and the surface layer as well as the surface layer thickness. Crushed sandstone was utilized as the surface layer in the conceptual design.

3.5.2 Past performance

Orano continually demonstrates the ability to follow the physical design process when a modification or addition is required at the McClean Lake Operation. The physical design process is and will be followed for the JEB TMF Expansion.

3.5.3 Future plans

Prior to construction a number of undertakings will be completed by Orano, which will provide further confidence in the foundation competency and ensure the expansion and its relevant structures are constructed safely and as designed. These undertakings include the verification of embankment soil conditions, construction details (drawings, technical specifications, construction QA/QC plans), embankment fill test pad and a cover test plot program.

3.5.4 Challenges

Orano does not anticipate challenges related to this SCA.

3.5.5 Requests

The modifications related to the request to expand the JEB TMF are discussed throughout this document.

3.6 Fitness for Service

The Fitness for Service SCA covers activities that impact the physical condition of structures, systems and components to ensure that they remain effective over time. This area includes programs that ensure equipment is available to perform its intended design function when called upon to do so.

This SCA is not directly relevant to the licensing request, therefore only a summary is being provided.

McClean Lake Operation has programs and procedures that ensure the facility is operated in a safe, clean and reliable manner. These programs and procedures address the following areas that comprise this SCA:

- asset management through predictive and preventative maintenance (PM) program;
- an in-service inspection program; and
- maintenance and operating parameters.

Orano has an established PM program as defined in the IMS. The program is administered, organized and controlled through a computerized maintenance management system (CMMS). This system manages the PM program for mill equipment and documents the equipment operating history. PM and reactive maintenance tasks are managed, initiated and documented through the work notification and work order functions of the system and are based on equipment manufacturer recommendations and equipment history. The PM work is monitored for completeness and accuracy.

Orano has an in-service inspection program comprised of secondary containment inspections, structural integrity inspections and tank integrity inspections. Qualified tradespersons are assigned to perform the initial assessment and are guided by procedures as outlined in the IMS. Inspections are documented in the CMMS. Contract specialists are brought in from time to time dependent upon the deficiencies noted.

Fire protection systems are tested according to an established schedule as outlined in the fire protection program. Third-party reviews are conducted to confirm required tests and inspections with respect to fire protection are completed and these review reports are submitted to the CNSC.

The PM program ensures that systems, equipment and devices are maintained in good working order and within design specifications. Calibrations are performed and documented on instruments, controls and associated indicators. Overall, Orano considers the PM program to be effective.

The CNSC staff reviews of this SCA have resulted in satisfactory ratings.

Orano submits that it has the fitness for service measures in place for the safe operation of the McClean Lake Operation and in support of this Licence request.

3.7 Radiation Protection

The Radiation Protection SCA covers the implementation of a radiation protection program in accordance with the Radiation Protection Regulations. This program must ensure that contamination and radiation doses received are monitored and controlled.

Orano has an extensive Radiation Protection Program (RPP) to meet the requirements of the *Radiation Protection Regulations.* The RPP is composed of several program elements. Each element is supported by a system procedure. Each procedure describes required activities that must be performed to comply with the program objectives. The elements of the radiation program include:

- Doses remain ALARA (as low as reasonably achievable);
- Dosimetry monitoring;
- Radiological hazard area monitoring;
- Radioactive Contamination Control;
- Bioassay sampling for uranium in urine;
- Ventilation monitoring;
- Management of radioisotopes;
- Shipment of radioactive materials;
- Radiation Protection training;
- Personal protective respiratory equipment management; and
- Emergency response.

In addition to the procedures, the RPP includes the Radiation Protection Code of Practice (Orano 2017) (RCOP) for milling, including supporting facility operations, as well as mining operations when applicable. These manuals provide information on general as low as reasonably achievable (ALARA) principles, site specific radiological protection information and direction in the event of upset conditions to ensure doses are maintained ALARA. This direction ensures regulatory compliance with the *Uranium Mines and Mills Regulations* and *Radiation Protection Regulations* are upheld.

The RPP is rooted in the principle of maintaining doses ALARA while taking into account social and economic factors. This principle has been integrated into each of the elements and is implemented through each procedure at the McClean Lake Operation. The verification of this principle is obtained through the dosimetry monitoring procedure which ensures adequate dosimetry monitoring is conducted for each required individual. Dosimetry monitoring documents worker exposures to gamma radiation, radon progeny and long lived radioactive dust. Dosimetry results demonstrate compliance with dose limits as defined by the CNSC, Licence conditions and operating targets that are identified within the RCOP for the McClean Lake Operation.

Routine radiological area monitoring is performed throughout the McClean Lake Operation. This routine monitoring includes quantitative sampling of gamma radiation; radon progeny and long lived radioactive dust, and is comprised of a matrix of sampling locations and sampling frequencies. Each location and frequency is determined based on worker occupancy and

potential radiological hazards that may be present. The routine monitoring also includes contamination control monitoring to minimize the spread of radioactive materials and provides general housekeeping assessments. Routine bioassay sampling is also established to monitor workers for uranium intake. Since many radiological hazards are airborne such as radon progeny and long lived radioactive dust, routine ventilation monitoring is performed; this monitoring measures airflow within the mill and other surface facilities. Along with monitoring requirements, routine operation and inspection of the mill ventilation systems is integrated into the operation of the process circuits.

Routine reporting of results includes monthly reporting of area monitoring, quarterly reporting of official dosimetry as well as quarterly notification to workers of personal exposure.

Radiation protection training material is provided in Basic Orientation, Advanced Radiation Protection, Nuclear Gauge Training and Radiation Protection Supervisor training (Supervisors in the Nuclear Age). The intent of each training aspect is to ensure workers have an acceptable level of radiation protection knowledge, workers have increased awareness of radiological hazards in the workplace and that the knowledge of lessons learned from past events can be shared.

With respect to the licensing request, as part of the Project review, Orano conducted an evaluation of operational radiological conditions. The Project has made no changes to the operational protective measures implemented for the placement of uranium tailings from high-grade ores in the JEB TMF (i.e. tailings will be placed below sufficient water cover to attenuate gamma radiation and radon emanation). Exposure rates in working areas above the tailings will be less than the workplace exposure rate objectives developed for the McClean Lake Operation.

3.7.1 Past Performance

Figure 3-3 below demonstrates the maximum and average site doses over the licence term, to date relative to the annualized regulatory limit of 100 mSv/year. The figure below demonstrates that doses are well below the annualized regulatory limit, even with the processing of high grade ore.

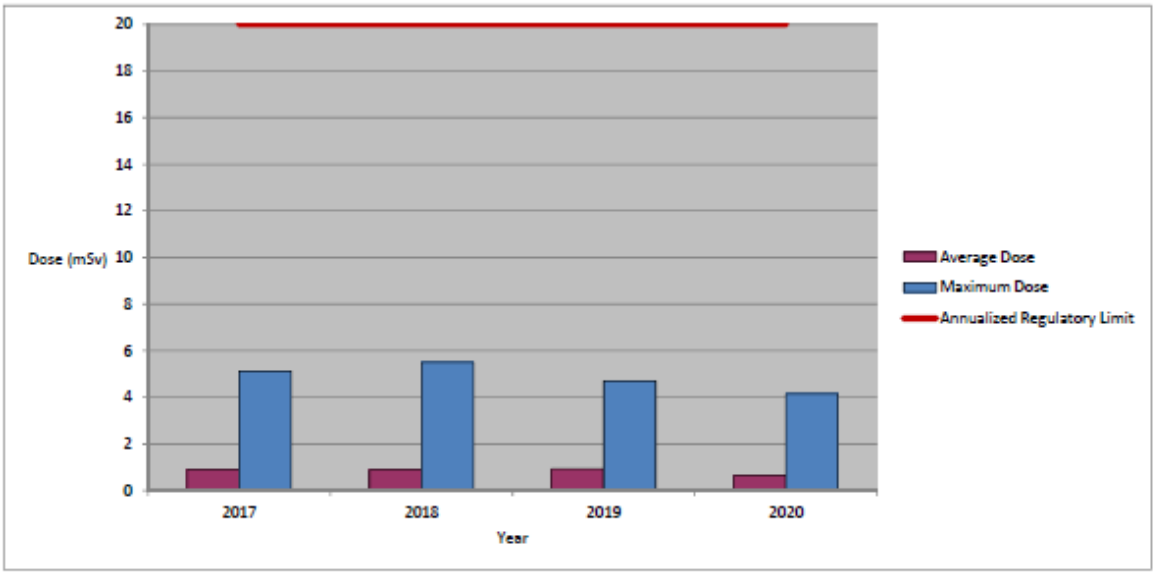

Figure 3-3: Maximum and Average Doses at the McClean Lake Operation since 2017

During the Licence term, there was one exceedance of the weekly Action Level of 1 mSv reported. It occurred during non-routine cleaning activities when the mill was not operational (2020).

3.7.2 Future Plans

The RPP is a mature program that has maintained doses ALARA. The current dose results have demonstrated the effectiveness of the program with the introduction of high grade, high production operations. The McClean Lake Operation will continue to focus on reducing the top worker doses through the continuation of Job Task Observations, worker awareness, radiation protection training and application of lessons learned.

3.7.3 Requests

Orano has no requests related to the management system SCA, at this time.

Orano submits that it has the radiation protection measures in place for the safe operation of the McClean Lake Operation and in support of this Licence request.

3.8 Conventional Health and Safety

The Conventional Health and Safety SCA covers the implementation of a program to manage workplace safety hazards and to protect personnel and equipment.

3.8.1 Relevance and Management

Orano is required to develop, implement and maintain effective safety programs to promote safe and healthy workplaces and prevent incidences of occupational injuries and illnesses.

Orano is committed to providing a healthy and safe work environment for its employees and contractors and to ensuring that work is performed in a safe and responsible manner that meets regulatory and company standards.

The McClean Lake Operation IMS is measured in accordance with Occupational Health and Safety Management Assessment Series ISO 45001:2018 standard.

The ISO 45001 standard provides the minimum requirements for a comprehensive Health and Safety Management System which allows an organization to proactively minimize occupational health and safety risks and to continually improve its health and safety performance. The McClean Lake Operation initially received certification to the OHSAS 18001:2007 standard in 2008 and has maintained the external certification until transitioning to the ISO 45001:2018 standard in 2020.

3.8.2 Past Performance

Industry standard key performance indicator for conventional health and safety for uranium mine and mill facilities is the total number of recordable incident rate. The TRIF (Total Recordable Incident Frequency) is derived from combining the number of safety incidents and total work hours of all employees with a standard employee group.

Performance is reported annually to the CNSC Commission in the CNSC staff ROR.

Table 3-2 summarizes information on the number, frequency and severity of recordable lost-time injuries at the McClean Lake Operation over the current licence term.

Table 3-2: McClean Lake Operation – Injury Statistics 2017 - 2020

	2017	2018	2019	2020
# of LTI's[1]	0	1	3	2
LTI Severity[2] rate	67.8	4.8	48	42.8
LTI Frequency rate[3]	0.0	0.3	0.90	0.7
Total Recordable Incident Frequency (TRIF)[4]	1.4	0.74	3.15	2.7

[1] An injury that takes place at work and results in the worker being unable to return to work for a period of time.

[2] A measure of the total number of days lost to injury for every 200,000 person-hours worked at the facility.

Accident severity rate = [(# of days lost in last 12 months) / (# of hours worked in last 12 months)] x 200,000.

[3] A measure of the number of LTIs for every 200,000 person-hours worked at the facility.

Accident frequency rate = [(# of injuries in last 12 months) / (# of hours worked in last 12 months)] x 200,000.

[4] A measure of the number of fatalities, lost-time injuries, and other injuries requiring medical treatment for every 200,000 person-hours worked at the facility. Recordable incident rate = [(#incidents in last 12 months) / # hours worked in last 12 months)] x 200,000.

As an example of Orano's commitment to safety and continually improvement initiatives, Orano implemented the Health, Safety, and Environment (HSE) inspection program at the McClean Lake Operation in January 2020, with the primary objective being safety culture improvement; the program included:

- Detailed inspections;
- Addressing any identified deficiencies as soon as possible;
- Monthly inspection schedule;
- Senior leader coordinates the inspection team for the assigned area;
- Inspections are tracked to ensure they are completed;
- Actions are tracked to ensure they are completed; and
- Photos are used to communicate where appropriate.

In total, 55 Inspections were completed generating 52 actions with an overall completion rate of 94% by December 31, 2020. The remaining 6% are actively being managed. Overall, Orano considered the program successful and will continue it in 2021.

3.8.3 Future Plans

Orano will continue to implement new corporate safety standards as well as maintain and enhance its safety program where opportunities are identified during the next Licence term. We continue to strive to continually reduce risk and achieve zero harm through our operations.

With the site facilities aging, there is increased potential of the very low likelihood but severe consequences associated with the regular use of fuels (propane) and reagents. In alignment with our commitment to continual improvements Orano has initiated the implementation of a Process safety and Asset management systems to compliment conventional health and safety.

3.8.4 Challenges

Legislation, best practices, and safety technology is ever changing and improving. Maintaining high safety standards and a high degree of employee awareness of safety is a challenge at any industrial operation. Until there are sustainably no injuries to any employees on the job, there will be a need to strive for improvement. Orano is committed to maintaining a high level of safety

performance and is looking for ways to continually improve aspects of the McClean Lake Operation, including in the area of health and safety.

3.8.5 Requests

Orano has no requests related to the conventional health and safety CSA, at this time.

In conclusion, Orano submits that it has the appropriate conventional health and safety measures in place for the safe operation of the Licence request.

3.9 Environmental Protection

The Environmental Protection SCA covers programs that identify, control and monitor releases of radioactive and hazardous substances and effects on the environment from facilities or as the result of licensed activities.

3.9.1 Relevance and Management

Orano has developed and implemented environmental management plans, programs and procedures that comply with applicable federal and provincial requirements, including licences and operating approvals specific to the McClean Lake Operation. These plans and programs are designed to control the release of radioactive and hazardous substances into the environment and to protect the environment and human health during operations and post decommissioning.

Environmental protection at the McClean Lake Operation is managed through the Environmental Management System (EMS) which provides a system for control of environmental issues both current and future. The EMS is designed to meet the requirements of the CNSC, the SMOE and Environment and Climate Change Canada (ECCC). Additionally, the EMS is designed to meet the criteria of the International Standard Organizations (ISO) 14001: 2015 standard, as well as internal requirements. The documents that comprise the EMS identify:

- emissions to air, water and land;
- the programs that are in place to monitor them and the receiving environment;
- legal requirements; and
- reporting requirements.

Two integral components of the EMS are the *Environmental Monitoring Program* (EMP) and the Environmental COP (ECOP). The EMP integrates effluent monitoring, environmental monitoring, and groundwater monitoring in alignment with the Canadian Standard Association (CSA) Standards *N288.4 Environmental Monitoring Programs at Class 1 nuclear facilities and*

uranium mines and mills, N288.5 Effluent monitoring programs at Class 1 nuclear facilities and uranium mines and mills, and N288.7 Groundwater Protection Programs at Class 1 nuclear facilities and uranium mines and mills.

The ECOP describes administrative and action levels for environmental protection, pertaining to routine operational and environmental monitoring. Examples of where administrative and action levels are applied include tailings preparation and water treatment. The McClean Lake Mill treated effluent that is released to the environment is required to comply with the Environment and Climate Change Canada Metal and Diamond Mining Effluent Regulations (MDMER) discharge limits, with effluent action levels established in accordance with *CSA N288.8 Establishing and implementing action levels for releases to the environment from nuclear facilities.*

The EMS has proven to be successful in the prevention of unreasonable risk to the environment during operations to date. When action level exceedances or unplanned releases to the environment occur, steps are taken to both correct the issues and prevent them from reoccurring. These steps are handled through the site-wide non-conformance procedure outlined in the IMS.

The EMS is an ever evolving system. As new projects are proposed and approved, additional monitoring is implemented to support predictions made in the environmental assessments. Additionally, follow-up programs to environmental assessments and updates to technical information documents and scientific modeling are ongoing.

Continual improvement is at the forefront of environmental performance. Site inspections, environmental training, reviews of environmental monitoring data and systematic audits of the EMS are performed routinely. As part of the ISO 14001 EMS, and to fulfill one of the responsibilities detailed within the Orano Environment Policy, objectives and targets are created at the beginning of every year and support continual improvement and the prevention of pollution. The objectives and targets program requires participation from all departments with a significant effort put on developing a strong environment culture across site.

The Environmental Monitoring Design Document (EMDD) documents the rationalization of the EMP and outlines all required monitoring. The monitoring data is compiled, interpreted and presented routinely in quarterly environmental reports and the McClean Lake Operation Annual Report. Environmental Performance (EP) reports have been incorporated into the *Environmental Performance Technical Information Document* (EP TID) which is updated every five years, unless otherwise required. The EP TID presents environmental performance data and compares performance to predictions presented in environmental impact assessments, reference values, federal and provincial guidelines and previous monitoring results. The EP TID provides a forum to ensure monitoring and follow-up programs are appropriately focused and the results are documented and communicated. The EP TID provides information related to predictive risk modelling and is used to refine the ecological risk assessment (ERA) when

required. The 2016 update included consideration of the expanded JEB TMF and updated the ERA.

Orano has undertaken the development of other TIDs, arranged by technical subject area. The TIDs provide comprehensive presentations of baseline information, operational performance data, and predictive modeling. These TIDs include the *Hydrogeology and Groundwater Modelling of the Collins Creek Basin*, *Waste Rock Management,* and the *Tailings Management*. The TIDs serve as principle reference documents in support of the environmental assessment of new projects and activities and future licensing actions, as well as being a key component of knowledge management within Orano.

As relevant to this licence amendment request, the following paragraphs will focus on the potential project-environment interactions related to the JEB TMF Expansion, mitigation and an assessment of their associated impacts.

Project-Environment Interactions

A screening approach was used to identify and assess the linkages (interactions) between the Project components or activities, and the corresponding potential risks to the environment (e.g., surface water quality, vegetation, wildlife, and socio-economics). Project activities that may potentially lead to interactions with the environment are: construction, operation, and decommissioning, as well as accidents and malfunctions.

Once key project-environment interactions and mitigation are understood, resource efforts are focused on addressing these key issues. This understanding aids in the optimization of the Project design, and the mitigation and monitoring plans. Project-environment interactions where mitigation eliminates or reduces potential effects such that there is no anticipated environmental risks were screened out and did not require further assessment.

Potential project-environment interactions that required further assessment and their associated potential impacts are presented below in Table 3-3.

Table 3-3: Potential Project - Environment Interactions

Project Component/ Activity	Potential Effects Pathway	Mitigation	Assessment	Monitoring
Tailings Management Facility	Solute transport from the TMF	-Hydraulic containment -soil-bentonite amended liner -Monitoring wells -Instrumentation program	Predictions are within the predicted effects previously assessed and approved	Sediment and benthics sampling station in Fox Lake will be re-established as part of the EMP
Decommissioning, Closure, and Reclamation	Long-term solute transport from the TMF	-Back-filling the TMF to promote consolidation -Low infiltration engineered soil cover -The cover design incorporates a closure landform configuration and drainage system minimizing erosion, mimicking landforms near by -Continue with the implementation of the TOVP -Implementation of a cover test plot program	Water quality concentrations in Fox Lake are predicted to meet surface water guidelines Predictions are within the predicted effects previously assessed and approved	No significant changes to the existing monitoring programs
Decommissioning, Closure, and Reclamation	Uptake of COPCs by wildlife through ingestion of vegetation on the decommissioned JEB TMF	-Cover is of suitable depth and material to prevent roots from penetrating through -Implementation of a cover test plot program	Predictions are within the predicted effects previously assessed and approved	No changes to the conceptual PDP
Accidents and Malfunctions	Erosion of the soil covering the decommissioned TMF may decrease cover integrity	The cover design incorporates a closure landform configuration and drainage system	Predictions are within the predicted effects previously assessed and approved	No changes to the conceptual PDP

The review and assessment of the potential project-environment interactions, with the applied mitigations determined that predicted environmental risks for the Project are within those already predicted and assessed through environmental assessments of the McClean Lake Operation. Therefore none of these potential project-environment interactions are expected to result in an unreasonable level of risk to the biophysical or socio-economic environments.

Effluent and Emissions

Potential project-environment interactions to air and water during construction, operation and decommission where identified and assessed.

As part of the Project review, Orano conducted an evaluation of operational and post-closure radiological conditions. The Project has made no changes to the operational protective measures implemented for the placement of uranium tailings from high-grade ores in the JEB TMF (i.e. tailings will be placed below sufficient water cover to attenuate gamma radiation and radon emanation). Exposure rates in working areas above the tailings will be less than the workplace exposure rate objectives developed for the McClean Lake Operation.

The JEB WTP has the capacity to continue treating reclaimed water from the JEB TMF to meet effluent discharge limits and will continue to meet surface water quality objectives.

Human Health Risk Assessment

The potential impact to human health for the currently approved JEB TMF expansion has been included in the 2016 environmental risk assessment, assessing the impacts of the expanded JEB TMF on human health during construction, operation, decommissioning and post-closure. The releases of COPCs during construction, operation, decommissioning and post-closure of the proposed expansion are expected to be within those considered for the approved JEB TMF. The potential impact to human health is considered to be negligible.

Successful closure and decommissioning of the JEB TMF will require that the public dose limit is not exceeded for traditional uses of the site such as hunting, trapping and gathering. Orano conducted an evaluation of the post-closure radiation exposure conditions for the expanded JEB TMF, considered potential exposure of traditional land users to gamma radiation, radon, and long-lived radioactive dusts. Orano concludes that the anticipated radiation exposure post-decommissioning will be indistinguishable from natural background radiation in the area and that environmental risk to the health of the general public is predicted to be negligible. Successful closure and decommissioning of the JEB TMF will ensure containment of the tailings material within the TMF, while the engineered cover acts a barrier to contain and isolate the waste.

Environmental Risk Assessment

Orano has assessed the impact of the JEB TMF Expansion on the surrounding environment during construction, operation, decommissioning and post-decommissioning. Predicted environmental risks for the Project are within existing predictions.

Long-term/Post-decommissioning

Design of the decommissioned facility, including landform and engineered cover will significantly limit the infiltration of precipitation into the tailings, and therefore mitigate or slow the release of constituents of potential concern (COPCs) from the facility into the receiving environments of Fox and Pat lakes.

To assess the potential environmental effects from the release of COPC (such as arsenic, uranium and molybdenum) post decommissioning to the receiving environment, contaminate transport modelling is conducted to predict the transport of contaminants and resulting contaminant loading to the surface water.

The modelling is updated with changes to the facility design and with the most current results of geochemical sampling of the in-situ tailings pore water. The most recent contaminant transport modelling was completed in 2019 with results from sampling in 2018. The results of the modelling indicate that concentrations of all COPC's will remain below CWQC and SEQG values in the receiving environment, specifically in key receptors Fox and Pat lakes, therefore remaining protective of aquatic life.

No environmental effects are predicted from the transport of COPCs from tailings in the JEB TMF to the downstream environment after decommissioning.

Disruptive Event – Cover Erosion

As the assessment of the long-term performance of the decommissioned facility includes an engineered cover maintaining the ability to meet its design intent and criteria, in response to CNSC staff comments during the technical review, Orano conducted an assessment of the cover, involving erosion as a disruptive event or beyond-design basis failure to consider potential effects to the receiving environment.

The expanded JEB TMF has been designed with a key design criterion of "permanent walk-away closure" with the drainage systems and landscape functioning as permanent walk-away closure features. The closure design has been completed using a geomorphic approach to mimic the geological characteristics, physical characteristics, and regional climatic characteristics of nearby landforms and provide a final landform that will be stable in the long term and not require long term maintenance.

Major erosion of the cover surface in the long term is not considered to be a credible failure mode. To address the CNSC's comment, a beyond design basis cover erosion scenario was developed as a hypothetical extreme disruptive event scenario to assess the potential effects on cover infiltration performance and subsequent solute transport predictions. The hypothetical extreme case scenario considered sufficient flow to cut through the cover barrier and expose the tailings, representing a failure mode which exceeds the basis of design and is considered very unlikely to occur. The outcome was an increase in infiltration through the tailings; however

the potential effects remained within the previously assessed upper bound maximum case of long term fluxes for COPCs into the receiving environment.

Environmental Consequence Assessment – Embankment Failure

In addition to the review of environmental interactions, a screening level evaluation of the potential environmental consequences to Fox Lake, Pat Lake and downstream waterbodies in the Collins Creek watershed resulting from the unlikely failure of the embankment of the expanded JEB TMF during operations subsequent to the proposed expansion was conducted under two scenarios:

1) release of pond water to the environment when the pond is at a maximum capacity; and

2) release of pond water and tailings solids to the environment when the JEB TMF is at the maximum capacity.

The results of the assessment indicate that an embankment failure at the JEB TMF would not result in effects on the Collins Creek watershed downstream of the facility. While water and sediment quality and the health of aquatic biota in Fox Lake would be affected, recovery of the lake potentially taking many months or years, would occur following remediation. The assessment confirmed that waterbodies downstream of Fox Lake would not be negatively impacted over the short or long term.

Validation Programs

Orano routinely carries out programs to validate key design assumptions on the performance of the expanded JEB TMF, including the TOVP, EP TID, contaminant transport and predictive risk modelling. These programs are intended to provide additional confidence in the predicted environmental performance of the decommissioned JEB TMF.

Monitoring

There are no major changes to the way the JEB TMF will be operated; however, some changes to existing monitoring programs will be implemented as part of the Project. Ongoing updates to the EMP are recognized as an appropriate measure by which to optimize monitoring activities and to implement changes to the program to reflect changes in operational activities. The implementation of the Project will not require changes to the major components of this program. The addition of monitoring stations specific to the JEB TMF area will be added within the framework of the existing program in consultation with provincial and federal regulatory agencies, as required.

Monitoring of groundwater quality provides an early indicator for contaminant plume migration from the JEB TMF and enables updates to COPC concentration predictions in the receiving

environments of Pat and Fox lakes. Should updated prediction modelling identify increases above the current long-term assessment predictions, Orano will conduct further risk modelling and implement mitigation measures, if necessary.

3.9.2 Past Performance

Orano has developed, implemented and maintained an effective environmental protection program at the McClean Lake Operation that protects the environment and the public in accordance with CNSC regulatory requirements. Environmental performance is monitored routinely and reported to the CNSC routinely in quarterly reports and the annual compliance reports.

Since the licence renewal in 2017, the McClean Lake Operation has demonstrated successful on-going protection of the environment. WTP effluent action levels established based on operational results have been reduced due to the low concentrations of COPCs in effluent, and effluent discharge quality has consistently been below discharge limits. Selenium has emerged as a COPC in recent years, and Orano has developed a selenium management plan to ensure long term environmental safety.

Annual air quality on the site has been consistently below ambient standards. Groundwater quality monitoring, ongoing since the start of operations, has continued, providing early warning of emerging trends. To date, no groundwater quality monitoring results indicate unacceptable downstream impacts.

The Environmental Protection Program at the McClean Lake Operation includes both spill prevention and spill response. While some discharges have occurred, they were all discovered, reported and cleaned up promptly. All spills that have occurred are expected to have negligible, or minor, localized impacts.

Environmental Performance Reporting

As noted above, the EP TID is updated on a regular cycle, providing a comprehensive understanding of the environment surrounding the McClean Lake Operation and the operation's current environmental performance. The EP TID is a leading practice, developed by Orano that provides the basis for continual improvement and alignment with current and developing standards. Volume 1 of the EP TID provides an update on the status of the existing environment including the physical environment, climate and air quality, the aquatic environment, the terrestrial environment, and culture. The contents of EP TID Volume 1 align with Environmental Performance Reports that are required as part of provincial reporting requirements and also include a comparison of the current state of the environment to predictions made in previous federal-provincial environmental assessments and environmental risk assessments.

The EP TID was last submitted in 2016; the CNSC review concluded that the report was acceptable and met regulatory requirements, with an updated version provided to the regulators in 2022

Environmental Risk Assessment Updates

The EP TID also includes a second volume when necessary, which provides an update of the environmental risk assessment based on current and anticipated future activities at the McClean Lake Operation. This document was last updated in 2016, and included the expanded JEB TMF, providing an update of predictive modelling for air, water, sediment quality, ecological and human health risks based on an updated mine plan and early operational experience with the processing of Cigar Lake ore.

The EP TID concluded that the predicted effects remain within the predictions of previous EAs and ERAs conducted for the McClean Lake Operation. The CNSC review concluded that the report was acceptable and met regulatory requirements.

Tailings Optimization and Validation Programs

The key instrument for demonstrating the performance of the tailings preparation and JEB TMF performance has been the Tailing Optimization and Validation Program (TOVP). The purpose of the TOVP is to monitor and confirm, during the operating period, that two passive controls (geochemical and geotechnical) are developing as predicted to regulate the release of COPCs.

On-going evaluation of the chemical and physical characteristics of tailings stored in the JEB TMF during the operational period is required to validate the prediction of post decommissioning environmental risk. The McClean Lake Operation Tailings TID (Orano 2020b) is updated on a 5-year cycle and includes the TOVP which describes specifically the geochemical and geotechnical monitoring and evaluation activities completed to determine the long-term solute concentrations of COPCs in the JEB TMF, and the long-term post decommissioning groundwater flow regime.

Consideration of the expanded JEB TMF has been included in the Tailings Management TID (Orano 2020b) and has concluded that the geochemical and geotechnical monitoring programs are anticipated to be unchanged by the expansion of the JEB TMF and will continue throughout the operating life of the JEB TMF, until decommissioning.

Geochemical Validation: In the TOVP in-situ tailings samples are taken at the same approximate locations throughout the tailings mass over each sampling campaign. The samples are tested for the chemistry of the pore water and solids. Pore water results are incorporated into two overall weighted average pore water concentrations for the JEB TMF; one for the JEB/Sue Tailings (first place tailings located on the bottom portion of the TMF) and a second average for the Cigar Lake tailings. These average pore water concentrations are presented as both a reasonable base case and conservative bounding case that are used in the contaminant

transport model to determine the potential for environmental impacts on the downstream environment.

Additional research is conducted on COPCs which show an evolution of pore water values over time. These COPCs, such as arsenic, molybdenum and uranium, are evaluated to understand the evolution of their individual geochemistry over time and predict a long-term stable pore water concentration controlled by the larger geochemistry of the tailings mass (i.e. neutral pH and oxidizing conditions) and passive thermodynamic laws. Although sampling of the tailings occurs every five years, the research programs investigating the evolution of individual COPCs are ongoing.

Geotechnical Validation**:** As with validation of the geochemical aspects of the tailings, geotechnical validation is also conducted through in-situ sampling every five years and the completion of cone penetrometer testing. The sampled tailings are evaluated for key geotechnical parameters with additional consolidation testing, as required. Geotechnical validation is focused on estimating the final hydraulic conductivity of the tailings which is then used as an input to the contaminant transport modelling. As with the tailings source terms the hydraulic conductivity may be considered separately for the JEB/Sue and Cigar Lake tailings, if the final predicted hydraulic conductivities of the two units are found to be different.

3.9.3 Future Plans

Monitoring Programs

The groundwater monitoring plan has been developed to monitor and demonstrate that hydraulic containment is achieved throughout the operational period. Groundwater wells within a close proximity to the JEB TMF are monitored for water quality as an early performance indicator of the migration of COPCs from the JEB TMF, as well as to aid in updating and validating COPC concentration predictions and the long-term COPC concentration predictions into Fox and Pat lakes. Should revised COPC predictions in Fox and Pat lakes be above current long-term predictions, Orano will assess the risks, and, if necessary, conduct an updated ERA and implement mitigation measures, if required.

Validation/Performance Reports

The various validation reports that are prepared to validate or confirm the performance of the JEB TMF will continue to be updated routinely, including the TOVP, the EP TID and contaminant transport modelling.

Tailings Optimization and Validation Program (TOVP)

The existing TOVP will be continued throughout the operating period of the Project. This program will continue to study and define tailings geochemical and geotechnical properties, which will be used to update long-term closure predictions for the JEB TMF.

Consolidation of the deposited tailings will continue to be monitored to enhance the understanding of the tailings behaviour and estimation of *in situ* tailings management. The understanding of tailings behaviour and its geotechnical properties are important for the detailed design of the JEB TMF closure and construction of the soil cover system. Tailings properties and consolidation characteristics will continue to be assessed through the existing TOVP.

Long-term/Post-decommissioning

- During the technical review of the expansion of the JEB TMF Orano committed to the CNSC to conduct a long-term assessment of the scenarios used to predict concentrations of COPCs in Fox Lake and Pat Lake sediments and assess the risk to aquatic receptors due to sediment COPC predictions. In the event that the sediment concentration predictions will result in an unreasonable risk to aquatic receptors over the long term, Orano will evaluate additional mitigation measures.

- The requirements for a cover in achieving good long-term decommissioning performance are influenced by the climate in which the facility is located, surface topography, and the hydraulic conductivity, source term, and long-term stability of placed waste. The effectiveness of a cover in limiting net percolation depends on the materials with which it is constructed (i.e., earthen or geosynthetic), their physical properties (e.g., hydraulic conductivity, moisture retention capability), and the long-term integrity of the cover. A test plot study will be conducted for cover evaluation to determine a detailed cover design to achieve the required cover performance.

- During the technical review of the expansion of the JEB TMF Orano committed to the CNSC to conduct a revision of the cover erosion scenario discussed above during detailed decommissioning planning of the facility, confirming the conclusion of the current assessment.

3.9.4 Challenges

Orano does not anticipate any challenges related to this SCA.

3.9.5 Requests

Orano has no requests related to the environmental protection SCA at this time.

In conclusion, Orano submits that it has the appropriate measures in place to safely conduct and operate the licence amendment request.

3.10 Emergency Management and Fire Protection

Emergency management and fire protection covers emergency plans and emergency preparedness programs which exist for emergencies and for non-routine conditions. This SCA also includes any results of emergency response exercise participation.

3.10.1 Relevance and Management

Emergency planning is a requirement of the *NSCA*, its regulations and the Licence. In addition to the CNSC licensing requirements, ECCC and SMOE have requirements related to emergency planning and spill prevention. Emergency response planning is conducted to ensure emergency situations are responded to quickly and efficiently to protect the safety of personnel and the public, and to minimize the impact to the environment and facilities. These emergencies may include scenarios involving:

- Fires
- Injury
- Off-site transportation emergency
- Radiation – nuclear device & restricted areas
- Environmental spills
- Hazardous materials releases
- Search for lost person(s)
- Confined space rescue

While several personnel provide assistance in the event of an emergency, certain designated positions play key roles in directing and/or supporting emergency response activities. The responsibilities and activities of specific individuals in the event of a site emergency are described in the applicable IMS documentation. Orano maintains an Emergency Response Team (ERT) at the McClean Lake Operation which is trained to respond to emergencies.

Training for the ERT members is provided through a variety of methods. Routine weekly training is conducted by Orano personnel and consultants are brought to site to provide specialized training as required. This specialized training includes:

- Technical Rope/Confined Space Rescue;
- HAZMAT Responder;
- Wildland Fire Awareness;
- Advanced Medical Responder; and
- NFPA Industrial Fire Brigade training.

Classes are verified to meet the applicable standard such as NFPA (National Fire Protection Association), St. John Ambulance or other requirements.

Orano has developed and implemented a Fire Protection Program (FPP), which applies to routine and non-routine work activities at the McClean Lake Operation, including commissioning, operation and decommissioning. The FPP outlines the components that comprise the overall approach to fire protection at the site. The objective of the FPP is to prevent uncontrolled fires from starting, detect, extinguish and control fires that do occur, provide adequate protection to protect structures, systems and components to life safety so that safe shut-down can be achieved if a fire does occur. The FPP also ensures:

- personnel, including emergency response personnel, are adequately trained with respect to fire safety and emergency response;
- that the McClean Lake Operation comply with the National Fire Code and National Building Code of Canada; and
- that continual monitoring, auditing and reporting of conditions and programs occurs.

As it relates to this licensing activity, Orano will integrate the response to an embankment failure into its emergency preparedness and response planning.

3.10.2 Past Performance

Each year, Orano conducts a number of internal drills and training exercises at the McClean Lake Operation to assess the ability to manage and respond to an emergency involving the ERT, with coordinated efforts from other site groups and offsite mutual aids. The list below includes a subset of the types of mock emergency exercises and drills conducted for training purposes is provided below:

- collision between forklift carrying 1000 lb propane bottle and loaded yellowcake transport truck;
- table top exercise to simulate the response to an elevated hydrogen gas concentration within the Leaching circuit;
- collision between a light duty pickup truck and loaded hydrogen peroxide transport truck;
- joint exercise with Cameco Corporation’s Cigar Lake Mine to respond to a slurry container coming loose and falling from the slurry haul truck traveling from the Cigar Lake Mine to the McClean Lake Operation;
- locating and rescuing of an injured employee in a remote location using navigational equipment;
- table top large scale crisis management exercise involving multiple simultaneous incidents including wildfires, search and rescue of missing ERT members, and explosion of propane cylinders causing damage to buildings;

- collision between two light duty trucks involving multiple casualties and propane release;
- collision between a light duty truck and 100-Ton haul truck involving multiple casualties;
- hydrogen peroxide spill during a power outage; and
- an anhydrous ammonia line failure.

Following up on the mock emergencies and drills, debrief sessions were held with the exercise participants. Positive comments and areas for improvement were exchanged. Action items resulting from the exercises were recorded and tracked to completion.

The McClean Lake Operation ERT participates in the Saskatchewan Mining Association annual Mine Rescue Competition (noting that the competition was not held in 2020 or 2021 due to the COVID-19 pandemic). The competition is comprised of five different events. These included a first aid scenario, proficiency (gas testing, written exam and SCBA bench test) event, a surface problem (technical rope rescue), a surface practical skills event (search and rescue), and a firefighting event using 20 lb fire extinguishers.

Daily, weekly, monthly, quarterly and annual checks and inspections are conducted as a part of the FPP. Checks performed as per the program include: annual fire hydrant flushes, monthly emergency equipment, wheeled extinguisher, post indicator valve, sprinkler tree, fire hose cabinets, semi-annual propane ground monitor, fire department connection, fire doors, kitchen fire suppression and hood cleaning.

Fire Hazard Assessments (FHA) are routinely conducted to demonstrate that a comprehensive analysis has been undertaken to assess the potential fire hazards at the McClean Lake Operation. The FHA also assesses fire protection systems and features that are used to mitigate their impacts on people, equipment, buildings and the environment. The FHA was recently updated (2020) to ensure compliance with CSA N393-13.

3.10.3 Future Plans

Orano will continue to ensure compliance with the REGDOC 2.10.1, Nuclear Emergency Preparedness and Response.

Emergency Preparedness and response to an embankment failure will be integrated into existing plans, in accordance with regulatory requirements, including the ICMM Global Industry Standard on Tailings Management.

3.10.4 Challenges

Orano does not have any challenges associated with the SCA.

3.10.5 Requests

Orano has no requests related to the emergency management and fire protection SCA at this time.

In conclusion, Orano submits that it has the appropriate emergency management and fire protection measures in place for the safe operation of the Licence request.

3.11 Waste Management

Waste management covers internal waste-related programs that form part of the facility's operations up to the point where waste is either permanently disposed of on site or removed from the facility to a separate waste management facility. This area also covers the planning for decommissioning.

3.11.1 Relevance and Management

Orano has a waste management plan for the McClean Lake Operation that forms part of the IMS (Orano 2019b). The waste management plan describes how waste is managed, and by whom, throughout its lifecycle at the McClean Lake Operation, to the point of final disposal. The plan has an overall objective to reduce, reuse and recycle.

Personnel, including short and long-term contractors, are trained on and regularly reminded of proper waste segregation and waste disposal procedures.

Both conventional waste and radiologically contaminated waste are managed at the McClean Lake Operation. Facilities for handling waste include:

- clean waste rock piles;
- the JEB TMF;
- several landfills;
- an incinerator;
- the hydrocarbon landfarm;
- the sewage solids disposal area;
- the special waste pad; and
- the hazardous material pad.

Many domestic and industrial wastes are recycled. Waste volumes are tracked and reported annually to the CNSC.

Other than the JEB TMF, which is subject to this licence amendment request, this aspect of the waste management SCA is not relevant to the licensing request and the JEB TMF is described throughout this document.

The subject of decommissioning planning is also relevant to this licensing request and is discussed in the following paragraphs.

3.11.1.1 Preliminary Decommissioning Plan

Orano maintains a Preliminary Decommissioning Plan (PDP) and Financial Assurance (FA) for the McClean Lake Operation as per requirements of the *General Nuclear Safety and Control Regulations*, the provincial *Mineral Industry Environmental Protection Regulations* and in accordance with CNSC Regulatory Guide G-219, *Decommissioning Planning for Licensed Activities* and to meet requirements of CSA standard N294-09, *Decommissioning of Facilities Containing Nuclear Substances*. The PDP and FA is intended to provide sufficient planning for decommissioning to ensure adequate financial assurances are in place to decommission the McClean Lake Operation should a governmental agency need to assume responsibility for decommissioning the site in the unlikely event Orano is unable to fulfill its obligations. The PDP and FA reflects existing infrastructure in the 5-year planning window being considered. Orano is obligated to decommission the McClean Lake Operation at the end of its lifecycle and will provide detailed plans for regulatory approval prior to commencing final decommissioning activities. The PDP, along with resulting changes to the FA is reviewed and revised every 5 years, or as a result of significant changes to the facility.

Orano is required to revise and update the McClean Lake Operation's PDP and FA every 5 years. In keeping with the concept of lifecycle planning, the updated PDP has been prepared considering project status to the end of 2025. Project developments are included in the PDP and FA calculation upon completion of construction. Future revisions to the plan will reflect the staged expansion of the JEB TMF.

Orano's preferred end-state and vision of decommissioning is to return the site to a passive, natural, vegetated state. Above ground facilities will be removed to achieve an acceptable aesthetic state that is safe, physically and chemically stable, and meets dose criteria established for the general public.

The end-state objectives for key landforms that will remain onsite include:

- placement of a cover on the JEB TMF followed by re-vegetation to return the site to a natural state;
- re-contouring of waste rock stockpiles to long-term stable slopes and re-vegetation; and,
- flooding of the mined-out Sue pits with an acceptable long-term water quality.

Based on preliminary decommissioning plans for the 5-year window (which does not include the construction of the expanded JEB TMF) to the end of 2025, the financial guarantee will be revised from $107,241,000 (CAN) to $102,098,000 (CAN), which is subject to the review of the Commission through this licensing request.

This represents a decrease of approximately $5M from the currently held financial assurance of $107,241,000 (CAD).

This preliminary decommissioning cost estimate differs from the financial assurance amount current in place due to the following changes:

- The plan has been revised using current rates for materials, equipment, and labour for decommissioning cost development. Unit rate costs have increased approximately 5% overall.
- Deposition of tailings within the JEB TMF has displaced the total volume of waste rock required to backfill the JEB TMF to surface resulting in a cost reduction of approximately $3M.
- Water treatment direct costs have increased for both the JEB and Sue water treatment plants resulting in an approximate additional $2.2M over the anticipated respective periods.
- Camp and operational costs have decreased by approximately $2.7M due to reduced cost of flights, fuel, and service contracts. This is reflected in the flight and fuel unit rates as well as the food and lodging rate of $80 per person per day that is currently applied onsite.
- Interim and post-closure monitoring costs have increased by approximately $0.21M as a result of escalation of consultant fees and associated direct costs.
- Change in inflation rates from 2% to 1.6% resulted in a reduction of $2.3M.

The primary physical decommissioning of the McClean Lake Operation is expected to take approximately 5 years, followed by a period of continued water treatment and environmental monitoring, after which final decommissioning of remaining infrastructure will occur, and commencement of the post-decommissioning environmental monitoring program. The decommissioning period is anticipated to span 20 years, with the proposed decommissioning schedule shown in Figure 3-3.

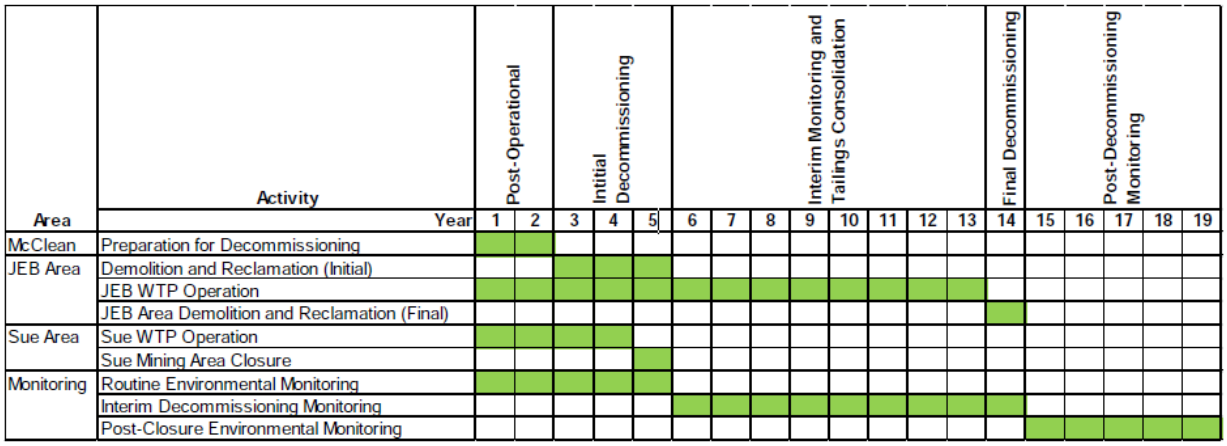

Figure 3-3: Anticipated Decommissioning Schedule

3.11.2 Past Performance

Orano's waste management plan is performing as predicted and is reviewed on a regular basis by the CNSC, continually receiving satisfactory ratings.

Orano monitors and reports on of the various components of the waste management plan, in documents such as the McClean Lake Operation Annual Report and various Technical Information Documents to review and update operational and predicted performance.

As is relevant to this licensing request, the PDP and FA are thoroughly reviewed and accepted by the Saskatchewan Ministry of Environment and the CNSC staff who work closely to align and coordinate requirements.

3.11.3 Future Plans

As per existing approval to expand the JEB TMF and the expansion currently being considered, the PDP and FA will be updated to reflect any changes resulting from the completion of these projects.

3.11.4 Challenges

Orano does not anticipate challenges related to the SCA.

3.11.5 Requests

An updated version of the PDP and FA was submitted to the CNSC in November 2020 and has been determined acceptable by the CNSC staff and the Province of Saskatchewan. The

updated version of the financial guarantee provided in the revised PDP of $102,098,000 requires approval by the Commission.

3.12 Security

The Security SCA covers the programs required to implement and support the nuclear security requirements stipulated in the General Nuclear Safety and Control Regulations (GNSCR) and other CNSC requirements.

As this SCA is not directly relevant to the licensing request, only a high-level summary has been provided.

Orano implements and maintains security measures at the McClean Lake Operation to prevent the loss of nuclear substances and prevent acts of sabotage at the facility. The IMS outlines the responsibilities of the Security Group with respect to site security, site access and assisting with emergency response. The objective of the security plan is to ensure safe and secure operation of the facility, by maintaining protection through use of equipment, personnel and procedures.

The McClean Lake Operation has been subject to numerous Security Threat and Risk Assessments (STRA). They are conducted every 5-years; as the last one was conducted in 2016, the next STRA will be conducted and submitted to the CNSC in 2021. Findings and recommendations issued by the CNSC are used to improve the overall security program.

Orano submits that it has the security measures in place for the safe operation of the McClean Lake Operation and in support of this Licence renewal request.

3.13 Safeguards and Non-Proliferation

The Safeguards and Non-Proliferation SCA covers the programs and activities required for the successful implementation of the obligations arising from the Canada/International Atomic Energy Agency (IAEA) safeguards agreements, as well as all other measures arising from the *Treaty on the Non-Proliferation of Nuclear Weapons*.

As this SCA is not directly relevant to the licensing request, only a high-level summary has been provided.

The site maintains inventories for radioactive material (mainly uranium ore concentrate) where receipts and shipments are recorded.

Periodic audits of the inventory system are conducted by the IAEA, the CNSC and by Orano internal auditors. Uranium accountability controls and practices are in place through the

accountability system to comply with the applicable nuclear materials safeguards requirements of the CNSC.

Complimentary access to the IAEA is granted, as requested. The IMS describes the IAEA access to site and how it is to be handled.

Reports are submitted to the CNSC International Safeguards Division using the IAEA Protocol Reporting software.

Orano submits that it has the safeguards and non-proliferation measures in place for the safe operation of the McClean Lake Operation and in support of this Licence request.

3.14 Packaging and Transport

The Packaging and Transport SCA includes programs that cover the safe packaging and transport of nuclear substances and radiation devices to and from the licensed facility.

As this SCA is not directly relevant to the licensing request, only a high-level summary has been provided.

Orano has procedures and supporting documents related to the handling, storing, loading, transporting and receipt of nuclear substances and other dangerous goods.

Nuclear substances are transported to and from the McClean Lake Operation on public roadways, railways and marine transport globally and comply with the *Transportation of Dangerous Goods Regulations* (TDGR) and the *Packaging and Transport of Nuclear Substances Regulations, 2015* (PTNSR). The responsibilities of the packaging and transportation of nuclear substances is managed by three groups: Mill Operations, Radiation Protection and Supply Chain. Generally, the Mill Operations Group is responsible for the packaging and loading, the Radiation Protection Group is responsible for radiation assessments and monitoring of shipped radioactive materials and the Supply Chain group is responsible for the shipping documentation. Employees involved in the radioactive shipment process are trained in the safe handling, packaging, marking, labelling, shipping and receipt of dangerous and/or radioactive goods commensurate with their responsibilities.

Personnel verify that recipients of radioactive shipments from the McClean Lake Operation hold a valid license to possess such prescribed substances prior to shipment departure. Additionally, if required by the Nuclear Non-proliferation Import and Export Control Regulations, an import or export license is obtained from the CNSC prior to shipment and corresponding import or export permits are also obtained from Global Affairs Canada.

A condition of the *Transport of Dangerous Goods Regulations* requires Orano to have an approved *Emergency Response Assistance Plan*. The Orano Emergency Response Assistance

Plan (ERAP) has received approval from Transport Canada for the transport of radioactive shipments. These shipments include, but are not limited to, shipments of uranium concentrate (U3O8) and uranium ore slurry totes transported between the McClean Lake Operation and the Cigar Lake Mine.

Orano will continue to comply with applicable federal and international transportation regulations as appropriate.

Orano submits that it has the appropriate safe packaging and transport of nuclear substances and radiation devices to and from the McClean Lake Operation as required.

4 Other Matters of Regulatory Interest

4.1 Environmental Assessment

Orano does not have any active projects in the environmental assessment (EA) process under the *Impact Assessment Act, 2019* and understands that licensing actions including this request to amend the Licence are subject to an environmental protection review under the *Nuclear Safety Control Act*. The environmental assessment history for the McClean Lake Operation is provided in Table 4-1.

Table 4-1 McClean Lake Operation – Environmental Assessment History

Project	Environmental Assessment	Subsequent Licensing Actions	Key Aspects
McClean Lake Operation	McClean Lake EIS: 1991 Joint Panel [(a)] Approved: 1993 Subsequent assessment to confirm acceptability of JEB TMF (Cigar Lake Project 1995)	Atomic Energy Control Board (AECB) and Provincial Approval to Construct and Operate the McClean Lake Mine and Mill	Initial approval for the overall McClean Lake Project, which included the JEB Mill and the overall waste management system Subsequent approval for the JEB TMF facility 6 million lbs (licence)
Midwest Project (1995)	1995 Midwest EA Addenda submitted: 1996 (March, May, October) and May 1997 Joint Panel Approved:1997		Adopted new mining method, jet-boring in frozen ground

Project	Environmental Assessment	Subsequent Licensing Actions	Key Aspects
Cigar Lake Project	Cigar Lake EIS: 1995 Joint Panel Approved: 1997	Canadian Nuclear Safety Commission (CNSC) and Provincial Approval to *Construct* Cigar Lake Mine (December 2004) CNSC and Provincial Approval to Expand the JEB Mill to Process Cigar Lake Ore (2005)	Assessment and approval to process up to 24 million lbs (10.9 million kg) of U_3O_8 annually and of that, process 18 million pounds (8.2 million kg) U_3O_8 from Cigar Lake high grade ore slurry through the mill expansion (including deposition of tails to the JEB TMF) Assessment and approval of the activity of transporting high grade ore slurry to McClean Lake Operation
Disposal of Cigar Lake Waste Rock (2001)	Federal Screening Report Approved: 2003		Transport and disposal of Cigar Lake waste rock in the McClean Lake Operation's Sue C/A pit.
SUE E Project	Federal and Provincial Screening Approved: 2005	CNSC and Provincial Approval to Construct and Operate the SUE E Project (2005)	Subsequent assessments demonstrate that the past, current and planned future activities at the McClean Lake Operation continue to fall within the environmental effects envelope originally reviewed by the Joint Panel. These effects considered production levels from McClean Lake Operation to be up to 24 million lbs (10.9 million kg) U_3O_8 through the mill, based on the processing of high grade ore.
Rabbit Lake Solution Processing Plant	Screening Report Approved: Province August 2008 CNSC June 2008		Receipt of 18 Mlbs from Cigar, sending equivalent of 10 Mlbs to Rabbit as Uranium Solution and processing 8 Mlbs of Cigar through McClean Lake Mill with remaining capacity for McClean Lake source ores
Midwest Project	Project Description submitted 2005 Draft EIS 2007 and 2010 Final EIS 2011 Approved: Provincial and Federal August 2012 Comprehensive	No development decision	Open pit mining method Includes a mill expansion: 27/16 million lbs – base case 27/27 million lbs – cumulative case

Project	Environmental Assessment	Subsequent Licensing Actions	Key Aspects
	Study Level EA		
Caribou Project	Federal and Provincial Screening Approved: Province of Saskatchewan 2009 Canadian Nuclear Safety Commission 2010	CNSC Approval to Construct and Operate the Caribou Project (future) Provincial Approval to Construct and Operate the Caribou Project (future)	Subsequent assessments demonstrate that the past, current and planned future activities at the McClean Lake Operation continue to fall within the environmental effects envelope originally reviewed by the Joint Panel. These effects considered production levels from McClean Lake to be up to 24 million lbs (10.9 million kg) U_3O_8 through the McClean Lake Mill, based on the processing of high grade ore.
Receipt and Processing of McArthur River Ore at the McClean Lake Operation	Proposal submitted: November 2009 DEIS submitted: January 2011 FEIS submitted: May 2011 Provincial approval: January 2012 Federal approval (CNSC): April 2012 Screening Level EA		To transport ore slurry on existing public roads, from McArthur River Mine to the McClean Lake Mill for a three year period.

4.2 Indigenous Engagement

Orano has implemented a Public Information Program for the McClean Lake Operation, which is further discussed in section 4.3.

As requested by the CNSC staff, Orano provided an Indigenous Engagement Report in accordance with REGDOC 3.2.2: Indigenous Engagement, which included the identification of Indigenous groups that may have an interest in the Project based on proximity, historical involvement or expressed interest; the identification of potential adverse impacts and a summary of engagement. A summary of the report is provided herein, and an updated version of the Indigenous Engagement Report can be found in Appendix A.

As a result of proximity and historical involvement or expressed interest in the McClean Lake Operation, the principal target audience group consists of the three Indigenous communities and four municipal communities (the Athabasca Basin communities) and their leadership located within the Athabasca Basin Region of northern Saskatchewan (see attached map). These Indigenous communities include:

- Black Lake Denesuline Nation;
- Fond du Lac Denesuline Nation; and
- Hatchet Lake Denesuline Nation.

and the following four municipalities, three of which include Métis locals within Métis Northern Region I.

- Northern Settlement of Camsell Portage;
- Northern Hamlet of Stony Rapids;
- Northern Settlement of Uranium City; and
- Northern Settlement of Wollaston Lake.

The following Indigenous groups or communities were also considered within the evaluation and included in engagement activities:

- English River First Nation;
- Birch Narrows Denesuline Nation;
- Buffalo River Denesuline Nation;
- Lac La Ronge Indian Band;
- Metis-Nation of Saskatchewan;
- Ya'thi Néné Lands and Resource Office; and
- Athabasca Joint Engagement and Environment Sub-committee.

The relationship with the Athabasca Basin communities has a historical connection to the substantive environmental assessment processes in the 1990s which resulted in Joint Review Panel recommendations that there be specific efforts by the mining companies towards ensuring these communities and their community members obtain benefits from the mining and milling activities. This was further entrenched through the Saskatchewan Government-directed requirement to identify "Priority Recruitment Communities" in association with the Human Resources Development Agreement, an agreement made pursuant to Orano's provincial Surface Lease obligations for the McClean Lake Operation. Priority Recruitment Communities are those communities to which employment and associated benefits are to first flow. The practice of identifying the Athabasca Basin communities as such continues today.

Additionally, in 1999, the two uranium mining companies (Cameco and Orano) signed an Impact Management Agreement with the Athabasca Basin communities, which in 2016, was replaced with the Ya'Thi Néné Collaboration Agreement (Collaboration Agreement). The Collaboration Agreement includes, along with other nearby uranium operations, the McClean Lake Operation. The 2016 Collaboration Agreement further reinforced the two companies' commitment to continue maximizing workforce and business development, community engagement, environmental stewardship and community investment, the 4 pillars of our relationship with Indigenous and other communities in northern Saskatchewan.

As of December 31, 2020, the total investments (Orano and Cameco combined) with Athabasca Basin communities since the renewal of the Ya'thi Néné Collaboration Agreement in 2016 are:

- $27M in Community Investment;
- $69M in Workforce Development;
- $501M in Business Development; and
- $1M in Engagement & Environmental Stewardship.

An outcome of the Collaboration Agreement is the creation of joint committees that support the ongoing implementation of the agreement. Specific to the Public Information Program is the Athabasca Joint Engagement and Environment Subcommittee (AJES). The intent of the AJES is to be the primary point of contact for engagement between the operations and the Athabasca Basin communities (both Indigenous and municipal) and the primary liaison between Orano and the Athabasca Basin communities for engagement and information sharing.

As per REGDOC 3.2.2: Indigenous Engagement, Orano conducted an analysis of potential adverse impact (refer to section 2.1 of Indigenous Engagement Report can be found in Appendix A), which concluded that the Project and its related activities are unlikely to have effect on Indigenous Rights.

The activities related to the Project are occurring on lands previously taken up for mining and, with the exception of a single trap line crossing through the southern boundaries of the surface lease, Orano is not aware of the exercising of any Indigenous or Treaty Rights. The single trap line is compensated for through site access and a Trappers' Compensation Agreement. There is no new disturbance to the lands and environmental effects are expected to fall within those previously assessed and approved through previous environmental assessments.

Through engagement conducted by Orano since 2012 on the proposed expansion, there have not been any expressed concerns regarding the Project infringing on Indigenous or Treaty Rights pursuant to section 35 of the Constitution.

Orano is committed to continuing to meet with Indigenous leadership, community members and representative communities to build relationships, provide updates and address concerns.

The CNSC staff have reviewed Orano Indigenous Engagement Report and provided feedback/requests to Orano, of which Orano complied. Orano will continue to update the CNSC staff on the outcomes of engagement activities moving through the licensing process and through the licence term.

4.3 Public Information and Disclosure Program

As per licence requirements and in accordance with REGDOC 3.2.1: Public Information and Disclosure, Orano maintains a Public Information Program (PIP) for the McClean Lake Operation, which includes the Public Disclosure Program for Orano Canada Inc.'s operations.

The Program was developed with the following intended objectives:

- encourage early information-sharing about the McClean Lake Operation to address the perceived risk to health and safety of the workers, the public and the environment from the McClean Lake Operation;
- provide an opportunity for two-way sharing of information;
- communicate key Orano business decisions as it relates to the McClean Lake Operation;
- provide opportunities for stakeholders to engage in a dialogue with Orano about issues, comments, concerns, and questions regarding on-going or proposed activities at the McClean Lake Operation; and
- provide Orano an opportunity to address concerns.

The PIP identifies the audiences identified by Orano as interested in the McClean Lake Operation, the variety of methods for providing information and the disclosure protocol. The PIP is reviewed regularly internally and by the CNSC staff, the PIP is in good standing, with recent administrative updates, primarily related to the modernization of language and terminology.

4.3.1 Engagement Activities

The 2019 JEB TMF Expansion Project Description (Orano 2019) contains the history or engagement conducted on this file, dating back to 2011, which is summarized in Table 4-2.

Table 4-2 Historic Engagement Activities related to the JEB TMF Expansion

Community/Interest Group	Date of Meeting	Comment
Orano employees - Saskatoon Office	March 8, 2011	Early engagement, issue identification. Report provided with the August 26, 2011 Project Description Submission

Community/Interest Group	Date of Meeting	Comment
Orano employees - McClean Lake Operation	March 3 and March 9, 2011	
Hatchet Lake/Wollaston Lake – Community Open House	October 5, 2012	
AWG	March 11, 2011	
EQC	March 29, 2011	
EQC	August 8, 2011	Meetings to discuss project details, project-environment interactions and potential impacts. Requests for information related to Crown's Duty to Consult or potential impacts to Rights Report provided with the November 2012 Licensing Application
Fond du Lac	September 19, 2011 *postponed to November 21 due to elections	
Black Lake	September 20, 2011	
Wollaston Lake/Hatchet Lake	September22, 2011 *postponed due to community funeral (unable to reschedule)	
Uranium City	October 3, 2011	
Air Ronge	October 4, 2011	
La Ronge	October 5, 2011	
Pinehouse	October 6, 2011	
Buffalo Narrows	October 18, 2011	
EQC	November 15, 2011 – Orano unable to attend due to inclement weather	
AWG	December 8, 2011	
EQC	June 13, 2012 *multi-day workshop at McClean Lake Operation	
EQC	June 20, 2012	
Fond du Lac - Community Open House	October 2, 2012	Engagement conducted following the submission of the licensing application, to provide further project details, changes to the project, updates

Community/Interest Group	Date of Meeting	Comment
		on technical reviews and the regulatory process Determine level of awareness, support and request feedback on the Project. Report provided with the 2016 application to reducing the scope of the embankment.
Black Lake – Community Open House	October 4, 2012	
Stoney Rapids – Community Open House	October 3, 2012	
Pinehouse – Community Open House	October 16, 2012	
English River/Patuanak – Community Open House	October 17, 2012	
Southend - Community Open House	October 18, 2012	
La Ronge - Community Open House	October 19, 2012	
Buffalo Narrows - Community Open House	October 23, 2012	
Ile a la Crosse - Community Open House	October 24, 2012	
Beauval - Community Open House	October 25, 2012	
EQC Meeting	October 30, 2012	
EQC Meeting	April 13, 2013	
Black Lake Community	May 28, 2013	
Black Lake First Nation Leadership	May 28, 2013	
Uranium City leadership	May 29, 2013	
Uranium City community	May 29, 2013	
Stony Rapids leadership	May 29, 2013	
Stony Rapids Community	May 29, 2013	
Fond du Lac First Nation Leadership	May 30, 2013	
Fond du Lac Community	May 30, 2013	
La Ronge - Community Open	June 6, 2013	

Community/Interest Group	Date of Meeting	Comment
House		
Stanley Mission - Community Open House	June 7, 2013	
La Loche - Community Open House	June 10, 2013	
AWG Meeting	September 12, 2013	
Southend - Community Open House	October 8, 2013	
Hatchet Lake/Wollaston Lake - Community Open House	October 9, 2013	
NSEQC Workshop at McClean Lake	October 21-22, 2013	
EQC Meeting	February 20, 2014	
EQC Meeting	April 29, 2014	
AWG Workshop at McClean Lake	June 17, 2014	
Fond du Lac – Community Open House	September 30, 2014	
Stony Rapids - Community Open House	October 1, 2014	
Black Lake - Community Open House	October 1, 2014	
Hatchet Lake - Community Open House	October 2, 2014	
AWG Meeting	February 19, 2015	Update on change in scope, proceeding with an expansion to a lower elevation Project scope
AWG Meeting	September 22, 2015	
EQC Meeting	October 14, 2015	
AREVA produced Newsletter for Athabasca Basin Communities	Spring 2015	Including status on regulatory review
		Report provided with the 2016 application to reducing the scope of the embankment; summarizing activities since the 2012 report
AREVA produced Newsletter for Athabasca Basin Communities	Fall 2015	Information on reduced scope expansion

Table 4-3 is an excerpt from the Indigenous Engagement Report, provided as Appendix A to this document, listing engagement activities conducted in relation to this licensing activity.

Table 4-3 Engagement Activities Related to 2019 Application

Community/Interest Group	Date	Comment
Athabasca Joint Engagement and Environment Subcommittee (AJES)	June 7, 2018	Update that Orano is preparing to submit a request to further expand the JEB TMF to the elevation contemplated from 2011 to 2014. With intention to submit updated Project Description late first Q 2019.
EQC	July 24, 2018	Update that Orano is preparing to submit a request to further expand the JEB TMF to the elevation contemplated from 2011 to 2014 With intention to submit updated Project Description late first Q 2019.
AJES	September 24, 2018	Update that Orano is preparing to submit a request to further expand the JEB TMF to the elevation contemplated from 2011 to 2014 With intention to submit updated Project Description late first Q 2019.
AJES	November 20, 2018	Update that Orano is preparing to submit a request to further expand the JEB TMF to the elevation contemplated from 2011 to 2014 With intention to submit updated Project Description late first Q 2019.
AJES	April 23, 2020	Presented key details of the project to the AJES, status of regulatory review process.
McClean Lake Employees (Metallurgy group)	June 10, 2020	Presented key details and information
McClean Lake Employees (Leaders)	June 11, 2020	Presented key details and information
McClean Lake Employees (Mill Operations)	June 13, 2020	Presented key details and information
McClean Lake Employees (Mill Maintenance)	June 14, 2020	Presented key details and information
McClean Lake Employees (Chem Lab)	June 17, 2020	Presented key details and information
McClean Lake Employees (Safety)	June 18, 2020	Presented key details and information
JIC	June 19, 2020	Presented key details of the project to the JIC, including alternatives considered and a request for guidance on how to engagement with leadership and communities, should the committee have suggestions
McClean Lake Employees (Services)	June 20, 2020	Presented key details and information
AJES	June 29, 2020	Advancing project information previously provided, alternatives considered and a request for guidance on how to engagement with leadership and communities, should the committee have suggestions

Community/Interest Group	Date	Comment
Mail out to the Athabasca Basin communities, leadership and representative organizations	Late June and Early July	Letters with project specific multi page fact sheet
AJES	June 29, 2020	Presentation and discussion
Ya'thi Nene Lands and Resource Office	July 22, 2020	The TMF Factsheet, Cover Letter and TMF Expansion Project Description - Appendix J were mailed to Garrett Schmidt Orano has followed up with requests to meet to discuss the review.
MNS – Region 1 (Earl Cook)	July 22, 2020	The TMF Factsheet and Cover letter was mailed out *sample in appendix B
MNS (Glen McCullum)	July 13, 2020	The TMF Factsheet and Cover letter mailed out *sample in appendix B
Ya'thi Nene Lands and Resource Office - Newsletter	Summer 2020 edition	Description of the JEB TMF Expansion included https://www.yathinene.ca/newsletters/summer-2020-newsletter
Community of Pinehouse Lake leadership (Mike Natomagan)	August 20, 2020	The TMF Factsheet and Cover letter mailed out *sample in appendix B
Lac la Ronge Indian Band leadership (Tammy Cook-Searson)	August 20, 2020	The TMF Factsheet and Cover letter mailed out *sample in appendix B
Birch Narrows Dene Nation leadership (Jonathon Sylvestre)	August 20, 2020	The TMF Factsheet and Cover letter mailed out *sample in appendix B
English River First Nation leadership (Jerry Bernard)	August 20, 2020	The TMF Factsheet and Cover letter mailed out *sample in appendix B
Buffalo River Dene Nation leadership (Elmer Campbell)	August 20, 2020	The TMF Factsheet and Cover letter mailed out *sample in appendix B
EQC (Darren Thomas)	August 28, 2020	The TMF Factsheet and Cover letter mailed out *sample in appendix B
AJES	September 10, 2020	Meeting held at McClean Lake Operation; discuss the JEB TMF Expansion Project and tour of the JEB TMF. *meeting notes and participant questionnaire provided in Appendix A
Employees	September 15, 2020	Presentation on project to Orano employees
Employees	September 24, 2020	Presentation on project to Orano employees
Employees	September 29, 2020	Presentation on project to Orano employees
Ya'thi Nene Lands and Resource Office - newsletter	Fall 2020 edition	TMF JEB Expansion included https://www.yathinene.ca/newsletters/fall-2020-newsletter
Ya'thi Nene Lands and Resource Office	January 25, 2021	JEB TMF Expansion Project Description sent to Garrett Schmidt by mail (USB) to Garrett Schmidt
Community of Uranium City (chairperson Dean Classen)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet

Community/Interest Group	Date	Comment
		*sample included in Appendix C; fact sheet same as Appendix B
Hatchet Lake First Nation (Chief Bart Tsannie)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Northern Settlement of Wollaston Lake (Terri Daniels)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Settlement of Camsell Portage (Chairperson Claire Larocque)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Northern Hamlet of Stony Rapids (Mayor Daniel Powder)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
AJES representative for Uranium City, Camsell Portage, Stony Rapids (Victor Fern)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
AJES – Fond du Lac (Georgie McDonald)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Northern Saskatchewan Environmental Quality Committee (Darren Thomas)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Birch Narrows Dene Nation (Chief Jonathon Sylvestre)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Saskatchewan Environmental Society (Ann Cox)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Kineepik Mètis Local - JIES (Cheyenna Campbell (English River First Nation)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
AJES – Black Lake First Nation (John Toutsaint)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
AJES – Hatchet Lake First Nation (Jerilyn Benonie)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Métis Nation of Saskatchewan (Environment Minister - Mervin (Tex) Bouvier)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Kineepik Mètis Local – JIES (Walter Smith)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Ya'thi Nene Lands and	February	Orano emailed Stakeholders information on Participant Funding for the

Community/Interest Group	Date	Comment
Resource Office (Garret Schmidt)	16, 2021	JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Mètis Nation of Saskatchewan – Regional Director - Region 1 (Earl Cook) Copy to: Uranium City: Allen Augier Stony Rapids: Curtis Fiss Camsell Portage: Claire Larocque	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Buffalo River Dene Nation (Chief Elmer Campbell)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Black Lake First Nation – (Chief Archie Robillard)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Fond du Lac First Nation (in absence of a Chief - Band Administrator Molly Naldzil)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
AJES meeting	February 24, 2021	As a topic of discussion Orano representatives noted that the JEB TMF Expansion, which has been discussed on numerous occasions will be presented at a Commission Hearing in September 2020, reminder that Participating funding opportunities are available and that Orano will be coordinating a project specific workshop for Q2 2021, with a request for AJES members to provide questions, comments or concern to assist in developing information for the workshop
Mervin Tex Bouvier MNS Environment Minister Regional Director of Northern Region 3	March 2, 2021	JEB TMF Expansion Project Description sent to MNS
Email to AJES and YTN LRO	March 12, 2021	Orano emailed AJES members a reminder to provide questions or comments on the JEB TMF Expansion, in preparation of the 2nd Q workshop
Community of Uranium City (chairperson Dean Classen) Northern Settlement of Wollaston Lake (Terri Daniels) Settlement of Camsell Portage (Chairperson Claire Larocque) Northern Hamlet of Stony Rapids (Mayor Daniel Powder) Black Lake First Nation – (Chief Archie Robillard) Fond du Lac First Nation (in absence of a Chief - Band Administrator Molly	March 19, 2021	Orano's Senior Management sent a letter to Athabasca Basin Leadership containing: - Reminder on scheduled hearing date - Project factsheet - Notice that a project video is available on Youtube - Request to hear concerns, if any

Community/Interest Group	Date	Comment
Naldzil) Hatchet Lake First Nation (Chief Bart Tsannie) Ya'thi Nene Lands and Resource Office (Garret Schmidt)		
Project Video to YouTube	March 2021	https://www.youtube.com/watch?v=rIRBm7eQ048
YTN LRO	April 22, 2021	To receive feedback and request for further information, if any, on the project description and consequence of failure information provided to YNLR office. Questions pertaining to alternatives assessment and engagement history
AJES	May 17, 2021	Workshop on tailings management and expansion

4.4 Eastern Athabasca Regional Monitoring Program

In addition to the environmental stewardship pillar created with the Collaboration Agreements, Orano, in partnership with Cameco Corporation, the Government of Saskatchewan and the CNSC established the Eastern Athabasca Regional Monitoring Program (EARMP) in 2011. The program assesses the ecological integrity of Saskatchewan's northern watersheds in order to address potential environmental concerns, to review potential environmental effects from uranium mining and milling and to identify sustainable management practices in the region.

The goal of the EARMP study design is to monitor for potential effects on the water, fish, berries, and wildlife in the Athabasca region downstream of uranium mining operations. The EARMP community program was developed to address potential concerns about the safety of traditional country foods. EARMP's community sampling program collects traditional country foods, which are currently tested by CanNorth Environmental Services, a 100% Indigenous-owned company, which then publishes an annual report. To date, the EARMP's community reports have consistently concluded that traditional country foods are safe for consumption.

4.5 Community Based Environmental Monitoring Program

In 2018, the Community Based Environmental Monitoring Program (CBEMP) was established based on 18 years of data collected through the Athabasca Working Group (AWG) Environmental Monitoring Program. The fundamental goal of the CBEMP the involvement of community members, with the following objectives:

- Through interviews/mapping gain a better understanding of the traditional foods community members are consuming and the importance of these foods in their diet;
- Provide training to conduct interviews to map current traditional foods and harvesting locations and document the quantities and types of foods consumed (dietary survey); and

- Conduct a sampling program that targets the traditional food types and harvesting locations identified by community membership as being important for testing

The results continue to demonstrate that regularly eating locally collected fish, meat, berries, and plants is safe and should be encouraged for the community as the harvesting and consumption of traditional foods are integral components of good health among Indigenous people.

4.6 Cost Recovery

Orano is in good standing with the CSNC regarding licensing fees for the McClean Lake Operation.

4.7 Financial Guarantees

As discussed in section 3.11.1.1, as per the 5-year review cycle requirement, in November 2020, Orano provided an updated PDP and FA to the CNSC and the Saskatchewan Ministry of Environment. With the FA calculated on projects completed through to the end of construction, the updated PDP resulted in a reduction in financial assurance from $107,241,000 (CAD) to $102,098,000 (CAD).

Orano is required to provide financial assurance to the Province of Saskatchewan, as per *The Mineral Industry Environmental Protection Regulations, 1996*. As per an MOU between the CNSC and the Province of Saskatchewan, Orano provides a single PDP and FA, subject to mutual acceptance, with the SMOE, as owner of land, is identified as beneficiary to the FA. Letters of credit and surety bonds (split in accordance to share of ownership between Orano (77.5%) and Denison (22.5%)) are the utilized and accepted forms of financial instruments for the McClean Lake Operation (including the Midwest Project); of which the SMOE holds the original and CNSC has been provided copies of, for review. The updated PDP and FA have been reviewed and accepted by the CNSC staff and the SMOE. Upon final acceptance of change in FA, the financial instrument values will be updated.

5 Conclusions

On the basis of the detailed Project information and assessment of effects summarized in this document and subject to a robust technical review by the CNSC staff, Orano concludes that the JEB TMF Expansion can be constructed, operated and decommissioned in a manner that, taking into account environmental design features and mitigation, does not present an unreasonable level of risk to the local biophysical or socio-economic environments.

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Appendix A: Indigenous Engagement Report

Orano Canada Inc.

JEB TMF Expansion

Indigenous Engagement Report - update

April 2021

orano

Table of Contents

1 Project History

The JEB TMF Expansion Project (the Project) has a long history of development and engagement with stakeholders, commencing prior to the submission of the project description and licence amendment request to the Canadian Nuclear Safety Commission (CNSC) in August 2011.

On August 26, 2011, Orano submitted a Project Description and request to amend the McClean Lake Operation operating licence for the vertical expansion of the JEB TMF. In November 2011, the CNSC determined that a federal screening level environmental assessment (EA) under *Canadian Environmental Assessment Act (CEAA*, *1992)* was required for the Project, with the EA process overseen by the CNSC. In July 2012, the *Canadian Environmental Assessment Act*, 2012 (S.C. 2012, c.19, s. 52) came into force, Orano was notified that an EA would no longer be required and that the Project would continue to the licensing process under the *Nuclear Safety and Control Act* (*NSCA*). The project description advanced through a technical review with the CNSC staff, as Orano continued to conduct engagement with stakeholders including community meetings, workshops, open houses and various other presentations (detailed in 3.2 Summary of Engagement).

In 2014, Orano revised its mine plan (removing resources that were no longer included in the forecast), resulting in a reduction in the forecasted tailings production. The reduction was significant enough that Orano determined it was necessary to revisit the alternatives assessment for the management of tailings. The subsequent alternatives assessment confirmed that expanding the JEB TMF remained the preferred option, although with a reduced scope in design (still requiring an embankment to be constructed, however to a lower elevation). The project description was revised and re-submitted to the CNSC in 2016 as a notification to update the McClean Lake Operation's Licence Conditions Handbook. The notification to expand the JEB TMF allowing for the top of consolidated tailings to be 448 mASL, through the construction of an embankment to an elevation of 457.5 mASL, was accepted by the CNSC in 2017.

As processing of ore from Phase 1 of the Cigar Lake mine progressed, it become apparent that the physical characteristics of the tailings of the Cigar Lake ore were utilizing much more capacity of the JEB TMF than anticipated. Subsequently, on November 2019, Orano submitted a request to expand the JEB TMF from what was accepted in 2017, to the elevation that was previously contemplated, described and reviewed by technical staff and stakeholders from 2011 to 2014, an expansion of the JEB TMF to 468 mASL. This further expansion is required to accommodate possible future mine plans.

The project is subject to a public hearing in September 2021 with the CNSC, through an amendement to the McClean Lake Operation's Uranium Mine Operating licence.

1.1 Indigenous Engagement Report

In July 2020 Orano provided an Indigenous Engagement Report, this is an update to that report.

Section 3.3 provides an update on engagement activities.

2 Identification of Indigenous Groups

The JEB TMF Expansion Project is occurring entirely on the McClean Lake Operation surface lease, of which Orano has been the owner/operator of for decades. This long ownership has provided the opportunity to establish relationships with stakeholders, such as Indigenous leadership, communities and representative organizations; including the development of knowledge related to historic land use and assessment of environmental and land use impacts.

The McClean Lake Operation is located in Treaty 10 Territory and Homeland of the Métis; specifically Northern Region I.

As a result of proximity and historical involvement or expressed interest in the McClean Lake Operation, the principal target audience group consists of the three Indigenous communities and four municipal communities (the Athabasca Basin communities) and their leadership located within the Athabasca Basin Region of northern Saskatchewan (see attached map). These Indigenous communities include:

- Black Lake Denesuline Nation
- Fond du Lac Denesuline Nation
- Hatchet Lake Denesuline Nation

which are the focus of this document and self-assessment; however for completeness the four municipal Athabasca communities included in the principal target audience are provided below:

- Northern Settlement of Camsell Portage
- Northern Hamlet of Stony Rapids (identified as Métis Northern Region I community)
- Northern Settlement of Uranium City (identified as Métis Northern Region I community)
- Northern Settlement of Wollaston Lake (identified as Métis Northern Region I community).

The relationship with the Athabasca Basin communities has a historical connection to the substantive environmental assessment processes in the 1990s which resulted in Joint Review Panel recommendations that there be specific efforts by the mining companies towards ensuring these communities and their community members obtain benefits from the mining and milling activities. This was further entrenched through the Saskatchewan Government-directed requirement to identify “Priority Recruitment Communities” in association with the Human Resources Development Agreement, an agreement made pursuant to Orano’s provincial Surface Lease obligations for the McClean Lake Operation. Priority Recruitment Communities are those communities to which employment and associated benefits are to first flow. The practice of identifying the Athabasca Basin communities as such continues today.

Additionally, in 1999, the two uranium mining companies (Cameco and Orano) signed an Impact Management Agreement with the Athabasca Basin communities, which in 2016, was replaced with the

Ya'Thi Néné Collaboration Agreement (Collaboration Agreement). The Collaboration Agreement addresses, along with other nearby uranium operations, the McClean Lake Operation. An outcome of the Collaboration Agreement is the creation of joint committees that support the ongoing implementation of the agreement. Specific to the Public Information Program is the Athabasca Joint Engagement and Environment Subcommittee (AJES). The intent of the AJES is to be the primary point of contact for engagement between the operations and the Athabasca Basin communities (both Indigenous and municipal) and the primary liaison between Orano and the Athabasca Basin communities for engagement and information sharing.

2.1 Identification of Potential Adverse Impacts

Orano utilized the guidance provided in Appendix A of REGDOC 3.2.2 Aboriginal Engagement to assist in identifying potential adverse impacts and assessing the consultation activity spectrum (Table 1 of REGDOC 3.2.2).

Suggested Consideration	Orano's Assessment
Step 1: Identifying Potential Adverse Impacts	
Does the activity described in the licence application have likely or potential impacts on land, water and resources? Are these changes significant? What is the spatial extent of the potential impacts? Are there potential impacts beyond the immediate footprint of the regulated facility?	Potential impacts on land, water and resources are expected to be within those previously assessed and approved. Impacts are not considered long-term and are within the boundaries of the existing surface lease.
Are there any Indigenous groups that claim traditional territory that encompasses the location of the regulated facility?	Orano has well-established relationship and benefit agreements in place with the Indigenous communities located in the Athabasca Basin.
Are there any First Nations reserve lands, treaty lands, or Indigenous communities located near the regulated facility?	McClean Lake Operation's Surface Lease is located within Treaty 10 and within Métis Northern Region I
Does the activity described in the licence application involve lands or resources that are currently the subject of land claim negotiations or are part of existing comprehensive land claim agreements or self-government agreements?	No
Have any environmental or other assessments of the regulated facility been carried out? Have any environmental or other assessments been undertaken for similar activities in the vicinity of the regulated facility? If so, what adverse impacts on rights and/or related interests are revealed, if any, by these assessments?	Yes, numerous environmental assessments have been conducted on activities related to the McClean Lake Operation and surrounding operations. Adverse impacts on rights identified: a single trap line crossing through the boundaries of the surface lease. We are not aware of the exercising of any Indigenous or Treaty rights. The single trap line is compensated for through site access and a Trappers' Compensation Agreement.
Are there any other activities occurring in the same area? Is the activity described in the licence application likely to have any cumulative effects in combination with other activities in the same or surrounding area?	Yes, there are surrounding mining operations. No, it is not expected that activities related to this Project will have cumulative effects.

Orano's analysis of the Project and its related activities are that it is unlikely to have an effect on Indigenous Rights. The activities related to the Project are occurring on lands previously taken up for mining and, with the exception of a single trap line crossing through the boundaries of the surface lease, Orano is not aware of the exercising of any Indigenous or Treaty Rights. The single trap line is compensated for through site access and a Trappers' Compensation Agreement. There is no new disturbance to the lands and environmental effects are expected to fall within those previously assessed and approved through previous environmental assessments. Through engagement conducted by Orano since 2012, there have not been any expressed concerns regarding the Project infringing on Indigenous or Treaty Rights.

Because of the reasons outlined above, with respect to Table 1: Consultation Activity Spectrum of REGDOC 3.2.2 Aboriginal Engagement, Orano considers the potential for adverse impacts to Indigenous and/or Treaty Rights to be on the left side of the Spectrum (or weak). This has been confirmed by Orano's extensive and proactive engagement which has not resulted in any claims or identification of impacts to Indigenous and/or Treaty Rights.

3 Engagement

A project-specific Public Information Program and this Indigenous Engagement plan were developed to ensure interested parties receive information on the Project and have an opportunity to express concerns to Orano.

3.1 Indigenous Representatives

3.1.1 Athabasca Joint Engagement and Environment Subcommittee (AJES)

As per the 2016 Collaboration Agreement, specific engagement of the Athabasca Basin communities (identified above in Section 2) will be determined by the AJES and the Joint Implementation Committee (JIC). The JIC is the higher-level committee responsible for ensuring the proper implementation of the Collaboration Agreement. Also established under the Collaboration Agreement is the Ya'Thi Néné Land and Resource Office (YTN LRO), which is a new entity established to ensure capacity for environmental management and monitoring. Information is also provided to these communities through different communication mediums targeted for the Athabasca Basin communities by their representatives on the JIC and the AJES including an annual report on the Collaboration Agreement.

3.1.2 Leadership

While the AJES and the YTN LRO report to Athabasca Basin elected leaders, Orano is open to direct communication with the leadership, when requested. Orano will work through the terms of the Collaboration Agreement to ensure the Athabasca Basin leadership has the adequate level of consultation.

3.1.3 Métis

The Métis Northern Region I communities in the Athabasca Basin of Stony Rapids, Uranium City and Wollaston Lake have representation of each community with the AJES. The AJES and the YTN LRO report to the elected leaders. Orano will engage with the Métis locals to ensure that the Mètis communities receive an adequate level of consultation.

Orano is working with representation of the Métis Nation of Saskatchewan to determine a path forward regarding direct communication with that office.

3.1.4 Joint Implementation Environment Subcommittee (JIES)

This subcommittee was formed under the Collaboration Agreements with English River First Nation and Pinehouse for the companies to engage with regarding the Community Engagement and Environmental Stewardship Pillar described in their respective Collaboration Agreements.

Cameco is the primary industry participant in these subcommittees however Orano regularly provides operational updates and project information, when requested.

3.2 Summary of Engagement

3.2.1 Historic Engagement

In the early stages of the JEB TMF Expansion Project, Orano developed a Project-specific PIP to provide guidance on assessing if the project or its activities had the potential to impact Indigenous Rights; to identify interested parties/stakeholders; to describe engagement objectives and tools; and to describe record keeping and reporting.

As the Project advanced through different stages of the regulatory process, the Project-specific PIP was updated based on lessons learned and level of information to provide. Reports on engagement were provided to the CNSC with submissions of the project description and subsequent regulatory requests.

The following table summarizes the history of engagement conducted by Orano on the Project since 2011.

Community/Interest Group	Date of Meeting	Comment
Orano employees - Saskatoon Office	March 8, 2011	Early engagement, issue identification. Report provided with the August 26, 2011 Project Description Submission
Orano employees - McClean Lake Operation	March 3 and March 9, 2011	
Hatchet Lake/Wollaston Lake – Community Open House	October 5, 2012	
AWG	March 11, 2011	
EQC	March 29, 2011	
EQC	August 8, 2011	Meetings to discuss project details, project-environment interactions and potential impacts. Requests for information related to Crown's Duty to Consult or potential impacts to Rights
Fond du Lac	September 19, 2011 *postponed to November 21 due to elections	
Black Lake	September 20, 2011	

Community/Interest Group	Date of Meeting	Comment
Wollaston Lake/Hatchet Lake	September 22, 2011 *postponed due to community funeral (unable to reschedule)	Report provided with the November 2012 Licensing Application
Uranium City	October 3, 2011	
Air Ronge	October 4, 2011	
La Ronge	October 5, 2011	
Pinehouse	October 6, 2011	
Buffalo Narrows	October 18, 2011	
EQC	November 15, 2011 – Orano unable to attend due to inclement weather	
AWG	December 8, 2011	
EQC	June 13, 2012 *multi-day workshop at McClean Lake Operation	
EQC	June 20, 2012	
Fond du Lac - Community Open House	October 2, 2012	Engagement conducted following the submission of the licensing application, to provide further project details, changes to the project, updates on technical reviews and the regulatory process Determine level of awareness, support and request feedback on the Project. Report provided with the 2016 application to reducing the scope of the embankment.
Black Lake – Community Open House	October 4, 2012	
Stoney Rapids – Community Open House	October 3, 2012	
Pinehouse – Community Open House	October 16, 2012	
English River/Patuanak – Community Open House	October 17, 2012	
Southend - Community Open House	October 18, 2012	
La Ronge - Community Open House	October 19, 2012	
Buffalo Narrows - Community Open House	October 23, 2012	
Ile a la Crosse - Community Open House	October 24, 2012	
Beauval - Community Open House	October 25, 2012	
EQC Meeting	October 30, 2012	
EQC Meeting	April 13, 2013	

Community/Interest Group	Date of Meeting	Comment
Black Lake Community	May 28, 2013	
Black Lake First Nation Leadership	May 28, 2013	
Uranium City leadership	May 29, 2013	
Uranium City community	May 29, 2013	
Stony Rapids leadership	May 29, 2013	
Stony Rapids Community	May 29, 2013	
Fond du Lac First Nation Leadership	May 30, 2013	
Fond du Lac Community	May 30, 2013	
La Ronge - Community Open House	June 6, 2013	
Stanley Mission - Community Open House	June 7, 2013	
La Loche - Community Open House	June 10, 2013	
AWG Meeting	September 12, 2013	
Southend - Community Open House	October 8, 2013	
Hatchet Lake/Wollaston Lake - Community Open House	October 9, 2013	
NSEQC Workshop at McClean Lake	October 21-22, 2013	
EQC Meeting	February 20, 2014	
EQC Meeting	April 29, 2014	
AWG Workshop at McClean Lake	June 17, 2014	
Fond du Lac – Community Open House	September 30, 2014	
Stony Rapids - Community Open House	October 1, 2014	
Black Lake - Community Open House	October 1, 2014	
Hatchet Lake - Community Open House	October 2, 2014	
AWG Meeting	February 19, 2015	Update on change in scope, proceeding with an expansion to a lower elevation
AWG Meeting	September 22, 2015	

Community/Interest Group	Date of Meeting	Comment
EQC Meeting	October 14, 2015	Project scope
AREVA produced Newsletter for Athabasca Basin Communities	Spring 2015	Including status on regulatory review
		Report provided with the 2016 application to reducing the scope of the embankment; summarizing activities since the 2012 report
AREVA produced Newsletter for Athabasca Basin Communities	Fall 2015	Information on reduced scope expansion

3.2.2 Engagement related to the 2019 Application

Community/Interest Group	Date	Comment
Athabasca Joint Engagement and Environment Subcommittee (AJES)	June 7, 2018	Update that Orano is preparing to submit a request to further expand the JEB TMF to the elevation contemplated from 2011 to 2014. With intention to submit updated Project Description late first Q 2019.
EQC	July 24, 2018	Update that Orano is preparing to submit a request to further expand the JEB TMF to the elevation contemplated from 2011 to 2014 With intention to submit updated Project Description late first Q 2019.
AJES	September 24, 2018	Update that Orano is preparing to submit a request to further expand the JEB TMF to the elevation contemplated from 2011 to 2014 With intention to submit updated Project Description late first Q 2019.
AJES	November 20, 2018	Update that Orano is preparing to submit a request to further expand the JEB TMF to the elevation contemplated from 2011 to 2014 With intention to submit updated Project Description late first Q 2019.
AJES	April 23, 2020	Presented key details of the project to the AJES, status of regulatory review process.
McClean Lake Employees (Metallurgy group)	June 10, 2020	Presented key details and information
McClean Lake Employees (Leaders)	June 11, 2020	Presented key details and information
McClean Lake Employees (Mill Operations)	June 13, 2020	Presented key details and information
McClean Lake Employees (Mill Maintenance)	June 14, 2020	Presented key details and information
McClean Lake Employees (Chem Lab)	June 17, 2020	Presented key details and information
McClean Lake Employees (Safety)	June 18, 2020	Presented key details and information
JIC	June 19, 2020	Presented key details of the project to the JIC, including alternatives considered and a request for guidance on how to engagement with leadership and communities, should the committee have suggestions

Community/Interest Group	Date	Comment
McClean Lake Employees (Services)	June 20, 2020	Presented key details and information
AJES	June 29, 2020	Advancing project information previously provided, alternatives considered and a request for guidance on how to engagement with leadership and communities, should the committee have suggestions
Mail out to the Athabasca Basin communities, leadership and representative organizations	Late June and Early July	Letters with project specific multi page fact sheet

3.3 Update to Engagement Activities

Community/Interest Group	Date	Comment
AJES	June 29, 2020	Presentation and discussion
Ya'thi Nene Lands and Resource Office	July 22, 2020	The TMF Factsheet, Cover Letter and TMF Expansion Project Description - Appendix J were mailed to Garrett Schmidt Orano has followed up with requests to meet to discuss the review.
MNS – Region 1 (Earl Cook)	July 22, 2020	The TMF Factsheet and Cover letter was mailed out *sample in appendix B
MNS (Glen McCullum)	July 13, 2020	The TMF Factsheet and Cover letter mailed out *sample in appendix B
Ya'thi Nene Lands and Resource Office - Newsletter	Summer 2020 edition	Description of the JEB TMF Expansion included https://www.yathinene.ca/newsletters/summer-2020-newsletter
Community of Pinehouse Lake leadership (Mike Natomaga)	August 20, 2020	The TMF Factsheet and Cover letter mailed out *sample in appendix B
Lac la Ronge Indian Band leadership (Tammy Cook-Searson)	August 20, 2020	The TMF Factsheet and Cover letter mailed out *sample in appendix B
Birch Narrows Dene Nation leadership (Jonathon Sylvestre)	August 20, 2020	The TMF Factsheet and Cover letter mailed out *sample in appendix B
English River First Nation leadership (Jerry Bernard)	August 20, 2020	The TMF Factsheet and Cover letter mailed out *sample in appendix B
Buffalo River Dene Nation leadership (Elmer Campbell)	August 20, 2020	The TMF Factsheet and Cover letter mailed out *sample in appendix B
EQC (Darren Thomas)	August 28, 2020	The TMF Factsheet and Cover letter mailed out *sample in appendix B

Community/Interest Group	Date	Comment
AJES	September 10, 2020	Meeting held at McClean Lake Operation; discuss the JEB TMF Expansion Project and tour of the JEB TMF. *meeting notes and participant questionnaire provided in Appendix A
Employees	September 15, 2020	Presentation on project to Orano employees
Employees	September 24, 2020	Presentation on project to Orano employees
Employees	September 29, 2020	Presentation on project to Orano employees
Ya'thi Nene Lands and Resource Office - newsletter	Fall 2020 edition	TMF JEB Expansion included https://www.yathinene.ca/newsletters/fall-2020-newsletter
Ya'thi Nene Lands and Resource Office	January 25, 2021	JEB TMF Expansion Project Description sent to Garrett Schmidt by mail (USB) to Garrett Schmidt
Community of Uranium City (chairperson Dean Classen)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Hatchet Lake First Nation (Chief Bart Tsannie)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Northern Settlement of Wollaston Lake (Terri Daniels)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Settlement of Camsell Portage (Chairperson Claire Larocque)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Northern Hamlet of Stony Rapids (Mayor Daniel Powder)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
AJES representative for Uranium City, Camsell Portage, Stony Rapids (Victor Fern)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
AJES – Fond du Lac (Georgie McDonald)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet

Community/Interest Group	Date	Comment
		*sample included in Appendix C; fact sheet same as Appendix B
Northern Saskatchewan Environmental Quality Committee (Darren Thomas)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Birch Narrows Dene Nation (Chief Jonathon Sylvestre)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Saskatchewan Environmental Society (Ann Cox)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Kineepik Mètis Local -JIES (Cheyenna Campbell (English River First Nation)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
AJES – Black Lake First Nation (John Toutsaint)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
AJES – Hatchet Lake First Nation (Jerilyn Benonie)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Métis Nation of Saskatchewan (Environment Minister - Mervin (Tex) Bouvier)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Kineepik Mètis Local – JIES (Walter Smith)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Ya'thi Nene Lands and Resource Office (Garret Schmidt)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Mètis Nation of Saskatchewan – Regional Director - Region 1 (Earl Cook) Copy to: Uranium City: Allen Augier	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B

Community/Interest Group	Date	Comment
Stony Rapids: Curtis Fiss Camsell Portage: Claire Larocque		
Buffalo River Dene Nation (Chief Elmer Campbell)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Black Lake First Nation – (Chief Archie Robillard)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
Fond du Lac First Nation (in absence of a Chief - Band Administrator Molly Naldzil)	February 16, 2021	Orano emailed Stakeholders information on Participant Funding for the JEB TMF Expansion CNSC public hearing and attached TMF Expansion Fact Sheet *sample included in Appendix C; fact sheet same as Appendix B
AJES meeting	February 24, 2021	As a topic of discussion Orano represenatives noted that the JEB TMF Expansion, which has been discussed on numerous occasions will be presented at a Commission Hearing in September 2020, reminder that Participating funding opportunities are available and that Orano will be coordinating a project specific workshop for Q2 2021, with a request for AJES members to provide questions, comments or concern to assist in developing information for the workshop
Mervin Tex Bouvier MNS Environment Minister Regional Director of Northern Region 3	March 2, 2021	JEB TMF Expansion Project Description sent to MNS
Email to AJES and YTN LRO	March 12, 2021	Orano emailed AJES members a reminder to provide questions or comments on the JEB TMF Expansion, in preparation of the 2nd Q workshop
Community of Uranium City (chairperson Dean Classen) Northern Settlement of Wollaston Lake (Terri Daniels) Settlement of Camsell Portage (Chairperson Claire Larocque) Northern Hamlet of Stony Rapids (Mayor Daniel Powder) Black Lake First Nation – (Chief Archie Robillard) Fond du Lac First Nation (in absence of a Chief - Band Administrator Molly Naldzil) Hatchet Lake First Nation (Chief Bart Tsannie) Ya'thi Nene Lands and Resource Office (Garret Schmidt)	March 19, 2021	Orano's Senior Management sent a letter to Athabasca Basin Leadership containing: - Reminder on scheduled hearing date - Project factsheet - Notice that a project video is available on Youtube - Request to hear concerns, if any

Community/Interest Group	Date	Comment
Project Video to YouTube	March 2021	https://www.youtube.com/watch?v=rIRBm7eQ048
YTN LRO	April 22, 2021	To receive feedback and request for further information, if any, on the project description and consequence of failure information provided to YNLR office. Questions pertaining to alternatives assessment and engagement history

3.4 Planned Engagement

Orano will continue to meet with the AJES on a regular basis and other stakeholders, such as Mètis Nation Saskatchewan, as requested. The AJES will advise Orano if focused meetings are required with community members, representatives, elders or leadership. To date the AJES has not advised Orano that these are required. Orano has also asked the leadership to advise if they would like to meet directly to discuss the project.

Orano will utilize social media and web based platforms to provide project specific information, as well as providing information in the publications of newsletters circulated by Orano and the YTN LRO.

2021	Action
Q1	- Focused meeting and presentation to the EQC
Q1	- Provide the YTN LRO technical project information and application
Q1	- Publish project information in YTN LRO newsletter
Q1	- Provide project information to MNS and Local Mètis Leadership
Q2	- Focused meeting with AJES
Q2	- TMF update at scheduled quarterly EQC meeting
Q2	- Focused meeting with Athabasca Basin leadership, if requested
Q2	- Publish project information in YTN LRO newsletter
Q2	- Meet with YTN LRO to discuss technical information and project application provided in Q1
Q2	- Focused meeting and presentation to Mètis Nation of Saskatchewan and/or Local Mètis leadership, if requested
Q2/Q3	- Radio interviews and special program providing information on the TMF Expansion project in English, Cree and Dene. And, including the posting of these radio recordings on website and social media
Q3	- Publish project information in YTN LRO newsletter
Q2	- Follow-up on feedback, requests and guidance provided by the AJES, MNS and EQC
Q4	- Publish project information in YTN LRO newsletter

4 Engagement Records

4.1 Stakeholder Issues and Information Management System (SIIMS) Database

Accurate Recording of Engagement Outcomes: Orano strives to record questions, comments, and concerns made through written correspondence (letters or emails) and during focus meetings, open houses, and telephone calls. These questions, comments, and concerns are assessed to determine issues or trends in level of interest in projects and project aspects, areas for improvement, areas of misunderstanding, as well as to continuously improve communication and engagement tools. Orano strives to respond to inquiries, concerns, and questions from groups and individuals that are submitted or gathered. The responses may be further disseminated through our publications, social media posts, or through direct emails. Orano keeps records of its engagement activities and questions or comments made by stakeholders

SIIMS: Orano keeps records of interactions and engagement with stakeholders in its Stakeholder Issues and Information Management System (SIIMS) database, which constitutes a repository of questions, comments and feedback received from stakeholders throughout the year. For ease of analysis of the records, these interactions are tagged per themes such as socio-economics (jobs, training, donations and sponsorships), biophysical environment, regulatory process, traditional knowledge, etc.

A summary of the records will be provided to regulators through project submissions, applications, engagement reports or as a part of hearing material.

4.2 Interim Status Reporting Schedule

Orano will include this update in the Commission Member Document for the McClean Lake Operation's licence renewal, due June 2021 and provide an update to concerns heard, if necessary, at the September hearing.

4.3 Summary of Comments/Feedback

Event Type	Date	Event Summary	Participating Organizations	Secondary Type	Stakeholder Commenting	Stakeholder Org. Type	Team Commenting	Comments
Email	10/18/2017	AREVA VP of HSE received an email from Mr. Vince Natomagan of Pinehouse Lake enquiring about the status of the tailings expansion project.	Individual - GP, AREVA	Tailings	1) Vince Natomagan (Individual - GP)	General Public	2) Dale Huffman (AREVA)	1) Is it true that AREVA is contemplating an above ground tailings management facility at McClean Lake? If so, I thought the Jeb Pit was sufficient or being expanded? 2) With the approved expansion of the pit, we will be able to place foreseeable tailings so that they consolidate to ground level. Eventually the TMF will be full and for future projects we will need to look at other tailings options. We would likely then look at further vertical expansion of the current TMF (i.e. the original TMF expansion project, before we reduced it), as well as possibly using the pits at the Sue site. We aren't currently contemplating an above ground facility (similar to Key Lake). Typically with any options analysis we start with all options (in-pit, in-lake, above ground, purpose-built, etc.) and then eliminate options from there. Our last options analysis quickly eliminated in-lake and above-ground options, even though most of the uranium tailings in Canada are either above ground or in lakes. Let me know if you need more info.

Event Type	Date	Event Summary	Participating Organizations	Secondary Type	Stakeholder Commenting	Stakeholder Org. Type	Team Commenting	Comments
Board / Committee	06/07/2018	The second quarter AJES meeting was held at the Orano head office. McClean Lake Operation, Rabbit Lake and Cigar Lake were all and Notes were shared with AJES members on June 20, 2018.	Athabasca Joint Engagement and Environmental Subcommittee, Cameco, Cameco Corporation, Individual - GP, Ya'thi Nene Lands and Resource Office, AREVA	McClean Lake, SK	1) Linda McNabb (Ya'thi Nene Lands and Resource Office); 3) Linda McNabb (Ya'thi Nene Lands and Resource Office)	Environmental Non-Government Organization (ENGO)	2) Carolanne Inglis-McQuay (AREVA), 4) Dale Huffman (AREVA)	1) Expansion of tailings. How long will the facility (with the upgrades) last? Will we need additional tailings space later? 2) We anticipate that we will need more space in the future. The current facility with expansion will last till about 2028/29, after that will need more capacity. We may need to construct a purpose built pit. Additional options – could look at above ground and in lake pits. 3) Do options analysis come back to this table? 4) Yes, definitely.
Board / Committee	09/24/2018	The Athabasca Environment and Engagement Subcommittee (AJES) met for its Q3 meeting. Discussed at the meeting were the McClean Lake Operation, the Cigar Lake Operation and Rabbit Lake - along with the Traditional Foods study program.	Athabasca Joint Engagement and Environmental Subcommittee, Cameco Corporation, CanNorth, Ya'thi Nene Lands and Resource Office, AREVA, AREVA-Community Liaison Workers	General Activities			1) Tina Searcy (AREVA)	1) Tailings Management Facility Expansion Project: *In 2011 Orano submitted an application to vertically expand the JEB TMF to a height of 468 mASL, this involved the construction of embankment approximately 6 to 20 meters around the existing top of pit. *In 2016, as a result of an updated mine plan involving the suspension of planned mining of ore bodies like Midwest and Caribou, a revised project was submitted to vertical expand the JEB TMF to a height of 457.5mASL* This project was approved by the CNSC, following a technical review and an environmental review under the Nuclear Safety Control Act *Orano will be submitting a request to construct this project to the Ministry of Environment by end of September, 2018 *the currently approved expansion (to 457.5) will accommodate tailings until 2028/2030 *Given the lengthy regulatory review process and to accommodate future mining plans, Orano intends to submit an application to once again review an expansion of the JEB TMF to 468 mASL *It is expected that this application will be submitted to the CNSC by end of 2018 *And then to the Ministry Of Environment

Event Type	Date	Event Summary	Participating Organizations	Secondary Type	Stakeholder Commenting	Stakeholder Org. Type	Team Commenting	Comments
								when construction drawings have been prepared. TS will present the project in detail to the AJES at the November meeting, including the 3D renderings and some of the options analysis. It is important to note that the AJES will be well informed and engaged about regarding this Project.
Board / Committee	09/24/2018	The Athabasca Environment and Engagement Subcommittee (AJES) met for its Q3 meeting. Discussed at the meeting were the McClean Lake Operation, the Cigar Lake Operation and Rabbit Lake - along with the Traditional Foods study program.	Athabasca Joint Engagement and Environmental Subcommittee, Cameco Corporation, CanNorth, Ya'thi Nene Lands and Resource Office, AREVA, AREVA-Community Liaison Workers	McClean Lake, SK			1) Tina Searcy (AREVA)	1) Tailings Management Facility Expansion Project: *In 2011 Orano submitted an application to vertically expand the JEB TMF to a height of 468 mASL, this involved the construction of embankment approximately 6 to 20 meters around the existing top of pit. *In 2016, as a result of an updated mine plan involving the suspension of planned mining of ore bodies like Midwest and Caribou, a revised project was submitted to vertical expand the JEB TMF to a height of 457.5mASL* This project was approved by the CNSC, following a technical review and an environmental review under the Nuclear Safety Control Act *Orano will be submitting a request to construct this project to the Ministry of Environment by end of September, 2018 *the currently approved expansion (to 457.5) will accommodate tailings until 2028/2030 *Given the lengthy regulatory review process and to accommodate future mining plans, Orano intends to submit an application to once again review an expansion of the JEB TMF to 468 mASL *It is expected that this application will be submitted to the CNSC by end of 2018 *And then to the Ministry Of Environment when construction drawings have been prepared. TS will present the project in detail to the AJES at the November meeting, including the 3D renderings and some of the options analysis. It is important

Event Type	Date	Event Summary	Participating Organizations	Secondary Type	Stakeholder Commenting	Stakeholder Org. Type	Team Commenting	Comments
								to note that the AJES will be well informed and engaged about regarding this Project.
Board / Committee	11/20/2018	The Athabasca Joint Environment and Engagement Subcommittee held it's Q4 meeting for the year. Topics discussed were the Tailings Management Facility Expansion at the McClean Lake Operation, along with the Rabbit Lake Eagle Point Flooding project, and a general update of Cigar Lake. Orano also presented the exploration plans for 2019.	Athabasca Joint Engagement and Environmental Subcommittee, Athabasca Working Group, Cameco, Cameco Corporation, CanNorth, Ya'thi Nene Lands and Resource Office, AREVA, AREVA-Community Liaison Workers	General Consultation			1) Tina Searcy (AREVA)	1) No comments made by the AJES members on the Tailings Management Facility Expansion project.

Event Type	Date	Event Summary	Participating Organizations	Stakeholder Commenting	Stakeholder Org. Type	Team Commenting	Comments	Action
Conference Call	04/23/2020	Orano presentations to AJES regarding McClean Lake Operation TMF Expansion and Cluff Lake Project update. McClean TMFX Factsheets and Cluff Lake Factsheets provided.	Athabasca Joint Engagement and Environmental Subcommittee, Black Lake First Nation, Cameco, Fond du Lac First Nation, Hatchet Lake First Nation, Joint Implementation Committee (YTN CA), Orano-Community Liaison Workers, Ya'thi Nene Lands and Resource Office, Orano	2) Garrett Schmidt (Ya'thi Nene Lands and Resource Office); 4) Garrett Schmidt (Ya'thi Nene Lands and Resource Office); 6) Garrett Schmidt (Ya'thi Nene Lands and Resource Office); 8) Denise Bougie (Athabasca Joint Engagement and Environmental Subcommittee)	Environmental Non-Government Organization (ENGO), Project Committee	1) Tina Searcy (Orano), 3) Tina Searcy (Orano), 5) Tina Searcy (Orano), 7) Tina Searcy (Orano), 9) Tina Searcy (Orano)	1) Presentation on TMF Expansion 2) - Question from Garrett Schmidt (executive director YTN LRO) o Is the assessment of the consequences of berm failure available to the public 3) o Response by Tina – that study is an attachment to the Project Description, which is currently under technical review by the CNSC o We will present this information during our project focus meeting 4) o Garrett – will we be provided with the PD ? 5) Tina – when the PD is finalized and a regulatory path has been determined by the CNSC, we can advance this information 6) o Garrett – when will the regulatory path be determined 7) ? Tina – we currently don't know – experiencing delays due to COVID-19 8) - Question from Denise on water flows in the area; 9) clarified the flow paths and that we have no environmental effects beyond the surface lease	Provide PD to YTN LRO when finalized (complete) provide embankment failure assessment to YTN LRO (complete)
In person meeting	06/10/2020	Presentation to McClean Lake employees on details and status of the JEB TMF Expansion	McClean Lake Metallurgy group	1)employee	Employees	2)Vincent Laniece	1) have we looked at alternatives 2)yes, extensively and a number of options	
In person meeting	06/10/2020	Presentation to McClean Lake employees on details and status of the JEB TMF Expansion	McClean Lake Metallurgy group	1)employee	Employees	2)Vincent Laniece	1) Is the CNSC worried about the embankment creating an incident similar to Rio Tinto in Brazil or Mount Polley BC 2) This is part of it – the McClean lake tailings while consolidated are not free flowing. The embankment stability has been studied with great care. A study has been conducted to understand the impact of the embankment failure and recovery is expected in months after remediation	
In person meeting	06/10/2020	Presentation to McClean Lake employees on details	McClean Lake Metallurgy group	1)employee	Employees	2)Vincent Laniece	1) Will the Cigar Lake tailing consolidate like the Sue tailings? 2) As per the samples collected with the 2018	

Event Type	Date	Event Summary	Participating Organizations	Stakeholder Commenting	Stakeholder Org. Type	Team Commenting	Comments	Action
		and status of the JEB TMF Expansion					TOVP program, Cigar tailings are lighter than JEB Sue. We have enough evidence today that they will and this will be confirmed in the next TOVP sampling programs.	
In person meeting	06/10/2020	Presentation to McClean Lake employees on details and status of the JEB TMF Expansion	McClean Lake Metallurgy group	1)employee	Employees	2)Vincent Laniece	1) Has a potential location for a purpose built tailings pit been decided 2) Yes, north east of mill, different water shed (Johannes), requires new facilities (open pit, waste rock pile, water treatment, pipelines, acess etc…).	
In person meeting	06/11/2020	Presentation to McClean Lake employees on details and status of the JEB TMF Expansion	McClean Lake leaders group	1)employee	Employees	2)Vincent Laniece	1) have alternatives have been reviewed 2) A number of alternatives were reviewed, making use of Sue pits, purpose built pit, TMF expansion. The TMF expansion is preferred as minimizinghe tailings environment footprint, making the best use of already produced waste rock and the cheapest, combined with 20 years of experience of managing it	
In person meeting	06/13/2020	Presentation to McClean Lake employees on details and status of the JEB TMF Expansion	McClean Lake Mill Operations group	1)employee	Employees	2)Devin Helps	1) What will the stakeholder communities get out of the TMF expansion 2) A chance to ask questions about the project and express any concerns. Additional longevity for mill operations.	
In person meeting	06/14/2020	Presentation to McClean Lake employees on details and status of the JEB TMF Expansion	McClean Lake Mill Maintenance group	1)employee	Employees	2)Devin Helps	1) Once the TMF is fully decommissioned and nobody is left onsite, will it contaminate the environment 2) As the tailings are designed to consolidate more than the surrounding sandstone which will promote groundwater movement around the tailings. This will results in contaminants moving out of the TMF at a slow enough rate that the downstream environment will not be negatively affected	
In person meeting	06/17/2020	Presentation to McClean Lake employees on details and status of the JEB TMF Expansion	McClean Lake Chem Lab	1)employee	Employees	2)Devin Helps	1) What happens if the TMF fills up? 2) An alternate tailings management strategy would be implemented such as a purpose-built pit or finding a way to use the existing Sue pits. Both options have been considered by Orano.	
In person meeting	06/18/2020	Presentation to McClean Lake employees on details	McClean Lake Safety group	1)employee	Employees	2)Devin Helps	1) Why is the TMF water level being raised currently, today? 2) To accommodate tailing placement over the next year or so.	

Event Type	Date	Event Summary	Participating Organizations	Stakeholder Commenting	Stakeholder Org. Type	Team Commenting	Comments	Action
		and status of the JEB TMF Expansion						
Conference Call	06/19/2020	Presentation re TMF, Cigar Lake, McClean Lake updates. JIC targets for 2020. TMF Expansion Factsheet provided.	Cameco, Fond du Lac First Nation, Joint Implementation Committee (YTN CA), Ya'thi Néné Land and Resource Office, Ya'thi Nene Lands and Resource Office, Orano	2) Garrett Schmidt (Ya'thi Nene Lands and Resource Office); 4) Garrett Schmidt (Ya'thi Nene Lands and Resource Office); 6) Victor Fern (Fond du Lac First Nation); 8) Victor Fern (Fond du Lac First Nation); 10) John Throassie (Joint Implementation Committee (YTN CA))	Environmental Non-Government Organization (ENGO), Indigenous, Land & Resource Use	1) Tina Searcy (Orano), 3) Tina Searcy (Orano), 5) Tina Searcy (Orano), 7) Tina Searcy (Orano), 9) Tina Searcy (Orano)11)Tina Searcy (Orano)	1) 1. TMF Update – Tina Searcy (Orano): • Presenting important project for Orano (slide deck and fact sheet is attached) • In 2007 identified the tailings management facility would run out of capacity • Examined options that led to 2011 and a project description being submitted to regulators – calling for expanding the facility • In 2014-15, reduced the scope of the project due to market changes; regulators approved the project • The existing project will run out of capacity in 2027 (estimated) • Orano is now striving for approval for further capacity past 2027 • CNSC hearing is expected on this project. Not anticipated mid-to-late 2021 2) can orano provide me the embankment failure assessment: 3) yes, I can get that to youn 4) will the project be open for northern contracts 5) yes, the project procurement will be subject to Orano's current contracting requirements 6) in the picture of tailings consolidated for 5 years – how deep were those tailings at 7) I will have to find that answer for you 8) inquiry about community engagement 9) Orano has been engaging on this project since before 2011, including numerous open houses in northern communities, in 2016 with the formation of AJES, Orano is taking and seeking advice from AJES and organizations such as yourselves for guidance on continued and effective engagement with community and leadership 10) the project could be hard to understand for members of the communities; I hope you can find a way to communicate it 11) we hope to continue to	Provide Embankment failure assessment (Complete)

Event Type	Date	Event Summary	Participating Organizations	Stakeholder Commenting	Stakeholder Org. Type	Team Commenting	Comments	Action
							receive advice from yourselves	
Conference Call	06/19/2020	Presentation re TMF, Cigar Lake, McClean Lake updates. JIC targets for 2020. TMF Expansion Factsheet provided.	Cameco, Fond du Lac First Nation, Joint Implementation Committee (YTN CA), Ya'thi Néné Land and Resource Office, Ya'thi Nene Lands and Resource Office, Orano			1) Tina Searcy (Orano)	1) 3. McClean Lake update: when CLake re-opens, McClean Lake will re-open No questions about Expansion	
In person meeting	06/20/2020	Presentation to McClean Lake employees on details and status of the JEB TMF Expansion	McClean Lake Services group	1)employee	Employees	2)Devin Helps	1) What makes Orano think they will gain approval to expand to 468? 2) Honestly, we don't know if we will gain approval, but the purpose of the public hearings and community engagement is to work with the government and stakeholders to gain approval.	
Mass Mailout	06/30/2020	Orano mailed TMF Factsheets and cover letters to houses and businesses in the Athabasca basin.	Orano			1) Carey Hyndman (Orano)	1) This indicates the communities that received the unaddressed mail. Basically all of the Houses in the Athabasca Basin. 415 Houses and 41 businesses.	
Meeting	06/29/2020	Meeting held with AJES re TMF Expansion. Presentation by Tina Searcy	Athabasca Joint Engagement and Environmental Subcommittee, Northern Saskatchewan Environmental Quality Committee, Orano	1) Victor Fern (Northern Saskatchewan Environmental Quality Committee); 3) Victor Fern (Northern Saskatchewan Environmental Quality Committee); 5) Georgie McDonald (Athabasca Joint Engagement and Environmental Subcommittee)	Community-Based Organization, Project Committee	2) Tina Searcy (Orano), 4) Tina Searcy (Orano), 6) Tina Searcy (Orano)	1) Will an emergency response to failures be created? 2) Yes, this will be incorporated in to existing emergency response plans for McClean Lake. 3) How do people contact Orano with questions? 4) They can contact Orano personnel directly, like myself or Glenn or through yourselves as representatives of the communities. 5) Were the sue pits considered? 6) Yes, as covered in the presentation, the Sue pits were included in the options considered. Sue C was screened out because it is being used for disposal of other wastes; requires additional infrastructure like a new water treatment plant; and it is a significant challenge to pipe tailings that distance, particularly during the cold winter months in northern Saskatchewan.	include Emergency Response for berm failure, prior to operation
Meeting	09/10/2020	Orano toured the McClean Lake Tailings Management Facility	Athabasca Joint Engagement and Environmental	2) Shea Shirley (Ya'thi Néné Land and		1) Vincent Laniece (Orano), 1) Tina Searcy (Orano), 3)	1) TMF Expansion project overview – discussion lead by Tina Searcy and Vincent Lanience;	

Event Type	Date	Event Summary	Participating Organizations	Stakeholder Commenting	Stakeholder Org. Type	Team Commenting	Comments	Action
		with AJES	Subcommittee, Black Lake First Nation, Cameco, Cameco Corporation, Fond du Lac First Nation, Hatchet Lake First Nation, Northern Saskatchewan Environmental Quality Committee, Ya'thi Néné Land and Resource Office, Orano, Orano-Community Liaison Workers	Resource Office)		Tina Searcy (Orano)	viewed animation 2) Inquiry about end state slope and vegetated cover (Shea Shirley) 3) discussed the flatten of the slopes, and using natural vegetation to blend the landmark into the surrounding environment (Tina Searcy)	
Meeting	09/10/2020	Orano toured the McClean Lake Tailings Management Facility with AJES	Athabasca Joint Engagement and Environmental Subcommittee, Black Lake First Nation, Cameco, Cameco Corporation, Fond du Lac First Nation, Hatchet Lake First Nation, Northern Saskatchewan Environmental Quality Committee, Ya'thi Néné Land and Resource Office, Orano, Orano-Community Liaison Workers	1) Victor Fern (Fond du Lac First Nation); 3) Darren Thomas (Northern Saskatchewan Environmental Quality Committee); 5) Darren Thomas (Northern Saskatchewan Environmental Quality Committee); 7) Darren Thomas (Northern Saskatchewan Environmental Quality Committee)		2) Dale Huffman (Orano), 4) Dale Huffman (Orano), 6) Dale Huffman (Orano), 8) Dale Huffman (Orano), 9) Tina Searcy (Orano)	1) inquiry about groundwater treatment and how the surrounding groundwater is intercepted and post closure groundwater routing. (Victor Fern) 2) explained how groundwater used to intercepted by dewaterings wells, is no pumped through the base drain to the wtp. Post closure because the tailings will be solid plug the groundwater will be diverted around the facility, because it wants to travel the easiest pathway, which is around the solid tailings through the fractured sandstone. Toured the JEB TMF, stood on the lookout to again discuss the existing facility and describe the expansion (project need, schedule, options, visually pointing out the height of the embankment). The feedback was this was a great opportunity to visualize the project. Discussion was primarily lead by Dale Huffman. 3) a few questions about height of embankment, height above existing top of facility. 4) pointing out where the top of the embankment would be on the high side (6 m above) vs the low side (20 m above) 5) inquiry about high water level of closest lake (Fox Lake). Have extreme	

Event Type	Date	Event Summary	Participating Organizations	Stakeholder Commenting	Stakeholder Org. Type	Team Commenting	Comments	Action
							precipitation events been considered on effecting the level and encroachment on toe of the berm. (Darren Thomas) 6) responded about high water marks provided and considered in the design of the embankment. The max height is driven by requirements to maintain the toe of the embankment a minimum of 10 meters away from the high water mark of Fox Lake. 7) crest width of top of embankment 8) can't recall the exact number, but wide enough to drive on, etc (approx. 6 to 10 meters?) 9) Requested participants to complete a brief survey. Attached.	
Meeting	09/10/2020	Orano toured the McClean Lake Tailings Management Facility with AJES	Athabasca Joint Engagement and Environmental Subcommittee, Black Lake First Nation, Cameco, Cameco Corporation, Fond du Lac First Nation, Hatchet Lake First Nation, Northern Saskatchewan Environmental Quality Committee, Ya'thi Néné Land and Resource Office, Orano, Orano-Community Liaison Workers	1) Shea Shirley (Ya'thi Néné Land and Resource Office); 3) Victor Fern (Athabasca Joint Engagement and Environmental Subcommittee); 6) Jerilynn Benonie (Athabasca Joint Engagement and Environmental Subcommittee); 6) Kristin Cuddington (Cameco Corporation); 6) Barry Esford (Cameco); 6) Victor Fern (Athabasca Joint Engagement and Environmental Subcommittee); 6) Georgie McDonald (Athabasca Joint Engagement and Environmental Subcommittee); 6) Shea Shirley (Ya'thi Néné		2) Tina Searcy (Orano), 4) Dale Huffman (Orano), 5) Dale Huffman (Orano), 7) Dale Huffman (Orano), 9) Dale Huffman (Orano), 11) Dale Huffman (Orano), 12) Tina Searcy (Orano)	1) Inquiry about end state slope and vegetated cover 2) discussed the flattening of the slopes, and using natural vegetation to blend the landmark into the surrounding environment 3) inquiry about groundwater treatment and how the surrounding groundwater is intercepted and post closure groundwater routing. 4) explained how groundwater is intercepted by dewaterings wells, is not pumped through the base drain to the wtp post closure. Because the tailings will be a solid plug, the groundwater will be diverted around the facility, travelling the easiest pathway, which is around the solid tailings through the fractured sandstone. 5) Toured the JEB TMF, stood on the lookout to again discuss the existing facility and describe the expansion (project need, schedule, options, visually pointing out the height of the embankment). The feedback was this was a great opportunity to visualize the project. Discussion was primarily lead by Dale Huffman. 6) a few questions about height of	

Event Type	Date	Event Summary	Participating Organizations	Stakeholder Commenting	Stakeholder Org. Type	Team Commenting	Comments	Action
				Land and Resource Office); 8) Darren Thomas (Northern Saskatchewan Environmental Quality Committee); 10) Darren Thomas (Northern Saskatchewan Environmental Quality Committee)			embankment, height above existing top of facility. 7) pointing out where the top of the embankment would be on the high side (6 m above) vs the low side (20 m above) 8) inquiry about high water level of closest lake (Fox Lake). Have extreme precipitation events been considered on effecting the level and encroachment on toe of the berm. (Darren Thomas) 9) responded about high water marks provided and considered in the design of the embankment. The max height is driven by requirements to maintain the toe of the embankment a minimum of 10 meters away from the high water mark of Fox Lake. 10) Q: crest width of top of embankment 11) A: can't recall the exact number, but wide enough to drive on, etc (approx. 6 to 10 meters?) 12) Requested participants to complete a brief survey. Attached.	
Presentation	09/24/2020	Presentation to Employees – given by Tina Searcy, Vincent Laniece and Kebbi Hughes Topics: JEB TMF Expansion and Tailings Performance/TOVP	Orano	employee		1) Tina Searcy (Orano)	1) Q: where is the material for the embankment coming from (?) A: clean material from the existing waste rock piles. Sorted and scanned during mining for eventual construction purposes. (Tina) Q: Where does the vegetation come from (Natalie) A: we would source from a nursery that has vegetation natural to the area, for example Sask Power has one we have utilized in the past, some additional seeding and then allow natural growth	

Event Type	Date	Event Summary	Participating Organizations	Stakeholder Commenting	Stakeholder Org. Type	Team Commenting	Comments	Action
							of vegetation to occur once stabilized	
Meeting	February 24, 2021		AJES				As a topic of discussion Orano represenatives noted that the JEB TMF Expansion, which has been discussed on numerous occasions will be presented at a Commission Hearing in September 2020, reminder that Participating funding opportunities are available and that Orano will be coordinating a project specific workshop for Q2 2021, with a request for AJES members to provide questions, comments or concern to assist in developing information for the workshop No comments were received during the meeting	
Email to AJES and YTN LRO	March 12, 2021	Orano emailed AJES members a reminder to provide questions or comments on the JEB TMF Expansion, in preparation of the 2nd Q workshop					As of April 1, Orano received one respone – indicating no comments, they are okay with the project	

Appendix A Tour of the TMF with AJES – Meeting Minutes

Orano Canada Inc.

817 45th Street West
Saskatoon SK S7L 5X2
Tel.: +1 (306) 343-4500

Meeting Minutes

Enter Date

Meeting Purpose: Tour of the TMF with AJES

Meeting Information:

Date:	September 10, 2020	**Time**:	All day
Location:	McClean Lake Operation	**Comments:**	Tour

1. Glenn Lafleur –Orano Canada
3. Tina Searcy – Orano Canada
4. Vincent Laniece – Orano Canada
5. Barry Esford – Cameco
7. Kristin Cuddington – Cameco
8. Shea Shirley – Yahti Nene Lands and Resource
9. Darren Thomas – NSEQC Manager
10. Georgie MacDonald – AJES FDL
11. Jerilynn Benonie – AJES – Hatchet Lake
12. Victor Fern – AJES – Pro – Communities – FDL
13. Rick Robillard – Community Liaison – Black Lake/ Stony Rapids
14. Darlene Gazandlare Community Liaison – Hatchet Lake/ Wollaston Lake
15. Dale Huffman

1.	Orientation
2.	TMF Expansion project overview – discussion lead by Tina Searcy and Vincent Lanience; viewed animation Questions: Q: Inquiry about end state slope and vegetated cover (Shea Shirley) A: discussed the flatten of the slopes, and using natural vegetation to blend

	the landmark into the surrounding environment (Tina Searcy) Q: inquiry about groundwater treatment and how the surrounding groundwater is intercepted and post closure groundwater routing. (Victor Fern) A: explained how groundwater used to intercepted by dewaterings wells, is no pumped through the base drain to the wtp. Post closure because the tailings will be solid plug the groundwater will be diverted around the facility, because it wants to travel the easiest pathway, which is around the solid tailings through the fractured sandstone
3.	Toured the JEB TMF, stood on the lookout to again discuss the existing facility and describe the expansion (project need, schedule, options, visually pointing out the height of the embankment). The feedback was this was a great opportunity to visualize the project. Discussion was primarily lead by Dale Huffman. Q: a few questions about height of embankment, height above existing top of facility. A: pointing out where the top of the embankment would be on the high side (6 m above) vs the low side (20 m above) Q: inquiry about high water level of closest lake (Fox Lake). Have extreme precipitation events been considered on effecting the level and encroachment on toe of the berm. (Darren Thomas) A: responded about high water marks provided and considered in the design of the embankment. The max height is driven by requirements to maintain the toe of the embankment a minimum of 10 meters away from the high water mark of Fox Lake. Q: crest width of top of embankment A: can't recall the exact number, but wide enough to drive on, etc (approx. 6 to 10 meters?)
4.	Requested participants to complete a brief survey. Attached.

orano

McClean Lake Tailings Management Facility Expansion Project

Request for Feedback

Thank you for participating in the tour and meetings today (September 10, 2020) at McClean Lake. We would appreciate your feedback below so that we can understand your level of knowledge and whether you have any concerns with the proposed expansion plan. Thank you for sharing your opinion.

1. Do you know what the Tailings Management Facility Expansion Project is about?
   a. (Yes)
   b. No
   c. A little bit

2. Where have you heard about the Project? Please circle all answers that apply:
   (a.) During presentations given to our committee
   b. People talking about it around the community
   (c.) During a visit to the McClean Lake Operation
   (d.) Receipt of information package in the mail
   e. Other

3. Do you have any general questions, concerns or positive things to say about the Project? What are they? How much job opportunities ~~Some clarification etc info.~~ do you expect?

4. Is there anything you would specifically like addressed at future meetings?
   - Job opportunities.
   -

5. Do you agree that expansion of the current tailings is the best option?
   (a. Yes)
   b. No
   c. Unsure
   d. The following option is better: _____

6. Would you say you are:
   (a.) Supportive of the project
   b. Not supportive of the project
   c. Neither supportive or opposed to the project
   d. Unsure

7. Is there something you would like Orano to do to help increase the understanding of the project in your community?
   - Create an updated animation.
   - Explain job opportunities

Name: Rich Archibald

Thank you very much for your thoughts. Please feel free to reach out to Orano via your CSR contact or any other means with concerns or ideas.

Orano Canada Inc.

100-833 45th Street West
Saskatoon SK S7L 5X2
Tel.: +1 (306) 343-4500

McClean Lake Tailings Management Facility Expansion Project

Request for Feedback

Thank you for participating in the tour and meetings today (September 10, 2020) at McClean Lake. We would appreciate your feedback below so that we can understand your level of knowledge and whether you have any concerns with the proposed expansion plan. Thank you for sharing your opinion.

1. Do you know what the Tailings Management Facility Expansion Project is about?
   a. Yes
   b. No
   c. A little bit

2. Where have you heard about the Project? Please circle all answers that apply:
   a. During presentations given to our committee
   b. People talking about it around the community
   c. During a visit to the McClean Lake Operation
   d. Receipt of information package in the mail
   e. Other

3. Do you have any general questions, concerns or positive things to say about the Project? What are they? NJ

4. Is there anything you would specifically like addressed at future meetings?

5. Do you agree that expansion of the current tailings is the best option?
   a. Yes
   b. No
   c. Unsure
   d. The following option is better: _____

6. Would you say you are:
   a. Supportive of the project
   b. Not supportive of the project
   c. Neither supportive or opposed to the project
   d. Unsure

7. Is there something you would like Orano to do to help increase the understanding of the project in your community?

Name: Darlene Grandbois

Thank you very much for your thoughts. Please feel free to reach out to Orano via your CSR contact or any other means with concerns or ideas.

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   d. Receipt of information package in the mail
   e. Other

3. Do you have any general questions, concerns or positive things to say about the Project? What are they?

   No

4. Is there anything you would specifically like addressed at future meetings?

   No

5. Do you agree that expansion of the current tailings is the best option?
   a. Yes
   b. No
   c. Unsure
   d. The following option is better: _____

6. Would you say you are:
   a. Supportive of the project
   b. Not supportive of the project
   c. Neither supportive or opposed to the project
   d. Unsure

7. Is there something you would like Orano to do to help increase the understanding of the project in your community?

   update the communities on upcoming expansions.

Name: Jerilyn Bernier

Thank you very much for your thoughts. Please feel free to reach out to Orano via your CSR contact or any other means with concerns or ideas.

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   e. Other

3. Do you have any general questions, concerns or positive things to say about the Project? What are they?

4. Is there anything you would specifically like addressed at future meetings?

   @ NSEQC mtg - ~~dis~~ present this an option to TMF Expansion

5. Do you agree that expansion of the current tailings is the best option?
   a. Yes
   b. No
   c. Unsure
   d. The following option is better: _____

6. Would you say you are:
   a. Supportive of the project
   b. Not supportive of the project
   c. Neither supportive or opposed to the project
   d. Unsure

7. Is there something you would like Orano to do to help increase the understanding of the project in your community?

   Climate → long term factors considered in Decommissioning

Name: Dawn Thomas NSEQC

Thank you very much for your thoughts. Please feel free to reach out to Orano via your CSR contact or any other means with concerns or ideas.

Orano Canada Inc.

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orano

McClean Lake Tailings Management Facility Expansion Project

Orano Canada Inc.

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Request for Feedback

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   c. During a visit to the McClean Lake Operation
   d. Receipt of information package in the mail
   e. Other

3. Do you have any general questions, concerns or positive things to say about the Project? What are they? WILL IF TAILING OVER CAPACITY; NEEDED TO EXTENT

4. Is there anything you would specifically like addressed at future meetings?
   COMMUNITY CONSULTATION

5. Do you agree that expansion of the current tailings is the best option?
   a. Yes
   b. No
   c. Unsure
   d. The following option is better: ______________________

6. Would you say you are:
   a. Supportive of the project
   b. Not supportive of the project
   c. Neither supportive or opposed to the project
   d. Unsure

7. Is there something you would like Orano to do to help increase the understanding of the project in your community?
   COMMUNITY VISITS UPDATE

Name: ______________________

Thank you very much for your thoughts. Please feel free to reach out to Orano via your CSR contact or any other means with concerns or ideas.

orano

McClean Lake Tailings Management Facility Expansion Project

Request for Feedback

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   c. During a visit to the McClean Lake Operation
   d. Receipt of information package in the mail
   e. Other

3. Do you have any general questions, concerns or positive things to say about the Project? What are they? USING AN EXISTING PIT ALREADY USED FOR TMF PURPOSE

4. Is there anything you would specifically like addressed at future meetings?
   A GOOD DIAGRAM (MODEL) OF THE EXACT PROJECT DISCRIPTION

5. Do you agree that expansion of the current tailings is the best option?
   a. Yes
   b. No
   c. Unsure
   d. The following option is better: _____

6. Would you say you are:
   a. Supportive of the project
   b. Not supportive of the project
   c. Neither supportive or opposed to the project
   d. Unsure

7. Is there something you would like Orano to do to help increase the understanding of the project in your community?
   HAVE MORE NORTHERNERS FROM THE BASIN AND BUSSINESS

Name: VICTOR CLEMENT

Thank you very much for your thoughts. Please feel free to reach out to Orano via your CSR contact or any other means with concerns or ideas.

Orano Canada Inc.

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Appendix B 2020 TMF Factsheet

Orano Canada Inc.

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Saskatoon SK S7L 5X2
Tel.: +1 (306) 343-4500

August 2020

McClean Lake Operation

JEB Tailings Management Facility (TMF) Expansion Project

Project Brochure

As a community member with potential interest in the McClean Lake Operation, I wanted to reach out to you with an update on our project to expand the tailings management facility and secure future production and opportunities for the region.

From 2011 to 2015 Orano Canada Inc. (formerly AREVA Resources Inc.) considered various tailings management options, and presented the options to stakeholders and the regulators. The best option from many perspectives but most importantly, environmentally is to vertically expand the JEB TMF to a height that would allow end-state consolidated tailings to be approximately 14 meters above the lowest side of the JEB TMF, and equal to or lower than the highest side, by constructing an engineered embankment to contain tailings and pond water during operations and for the long-term. This option keeps the footprint of the facility the same. In 2016, due primarily to the sustained low uranium market and resulting change to mining plans (producing less tailings), Orano reduced the scope of the project and received regulatory approval to expand the JEB TMF to allow for end-state consolidated tailings to be at or below the existing low side of the TMF. This work is in progress (it is completed in stages) and Orano has started depositing tailings into the expanded facility.

However, now in order for Orano to plan and prepare for future mining operations, we must ensure there is adequate capacity for the long-term management of tailings at the McClean Lake Operation. Our most recent forecasts are predicting that the approved expanded TMF will be full by 2027. As a result, in November 2019, Orano applied to the Canadian Nuclear Safety Commission (CNSC) to expand the JEB TMF from what is currently approved to the elevation previously contemplated. The CNSC recently advised that a licence amendment and decision by the Commission tribunal is required.

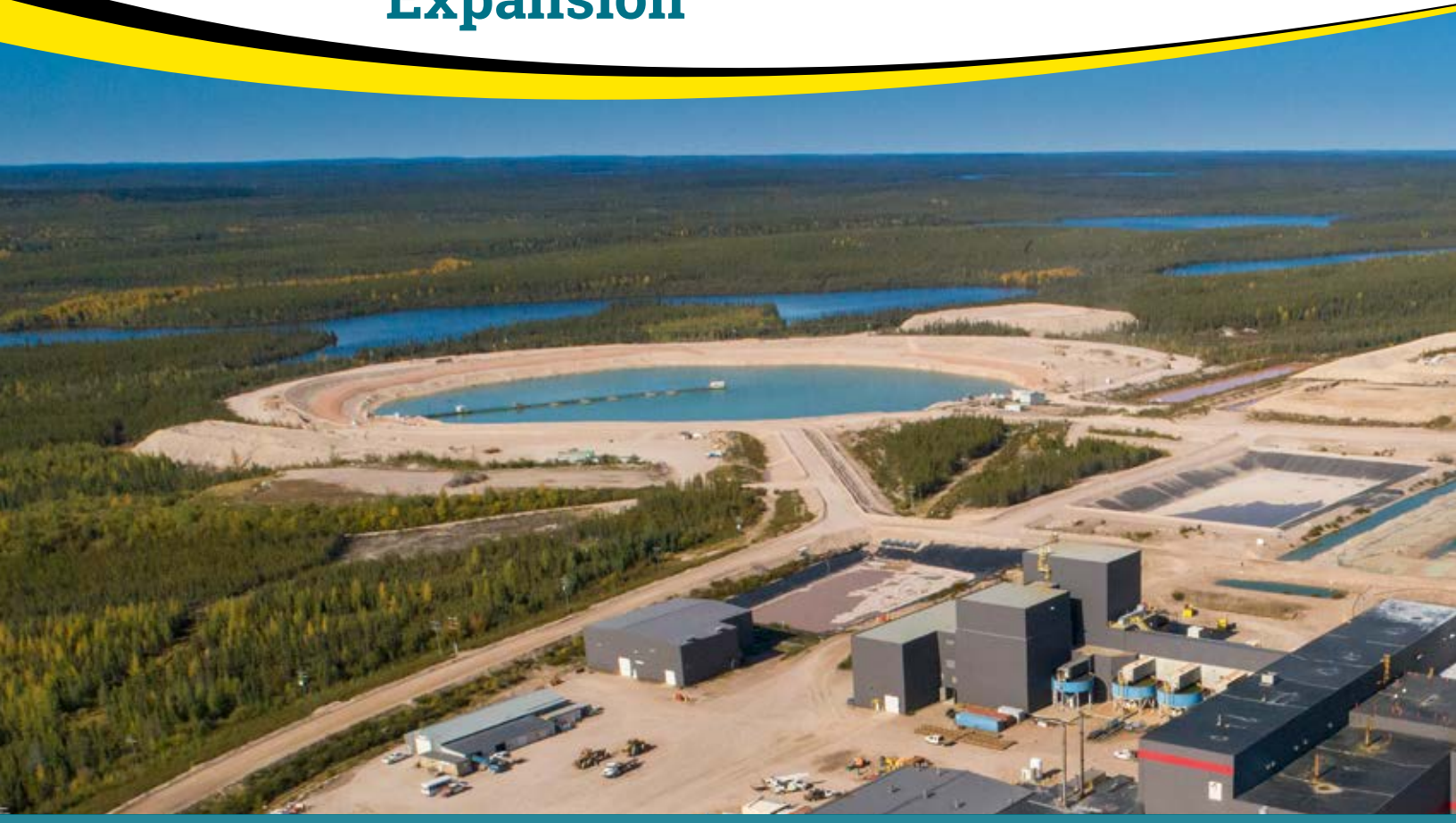
In our previous consultations with Indigenous communities and stakeholders, we explained in depth that the further expansion of the existing TMF remains by far the preferred option as it continues to be ranked best environmentally, operationally and economically. As Orano continues to meet with leadership and community representative organizations, we wanted to also broadly share information regarding the project with community members through the provision of the enclosed brochure.

Should you have any questions please do not hesitate to contact Glenn Lafleur, Manager Northern Affairs at (306) 343-4555 or glenn.lafleur@orano.group or Tina Searcy, Regulatory Relations Manager at (306) 343-4525 or tina.searcy@orano.group.

Sincerely,

Vincent Laniece
Vice President, Safety, Environment and Engineering

Orano Canada's McClean Lake Tailings Management Facility Expansion



Tailings Facts

- Tailings are the waste material left after a mineral, such as uranium, is processed out of the rock or ore.
- All mining and mineral processing facilities produce tailings.
- Tailings must be disposed of and managed properly to protect the environment for the long term.
- Tailings can be disposed of using various options such as in existing valleys, on surface, underground, and in mined out pits.

Tailings at McClean Lake

- At Orano Canada's McClean Lake Operation, tailings are disposed of in a mined out pit, called the JEB pit. They are submerged under water as a method of radiation protection and to prevent them from freezing, which is more challenging to manage.
- Tailings are processed in the McClean Lake mill to be stable in the long term (do not release chemicals that may pose a risk to the environment), and to consolidate (settle and pack as a hard solid mass) in the pit - now called the Tailings Management Facility. They act as a plug that forces ground water to travel around the pit (keeps ground water clean).

Sustainably Managing Our Tailings For The Long Term

Orano has over 20 years of milling and tailings disposal experience at McClean Lake. It is expected that the tailings management facility (TMF) will reach its capacity in 2027, so we are proposing to expand the TMF to allow us to keep milling beyond 2027. We view this expansion as the best option as it allows us to use an existing disturbed area, which means the footprint of the site does not increase; it uses existing infrastructure and does not impact any new environment.

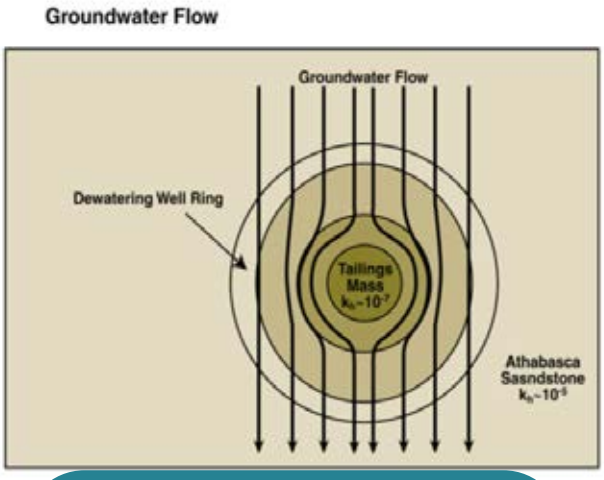
Tailings before they go in the TMF. They have the texture of pudding, they are not runny.

Tailings after a few years in the TMF. They are now solid and hard. They create a plug, which forces the ground water to go around them. They are not free flowing.

Hardened tailings are compact, strong and can stand on their own. A sample of 7,6cm (3in) in diameter by 25,4cm (10in) long can withstand 6kg (13lb) of weight stacked on it.

The Tailings Management Facility

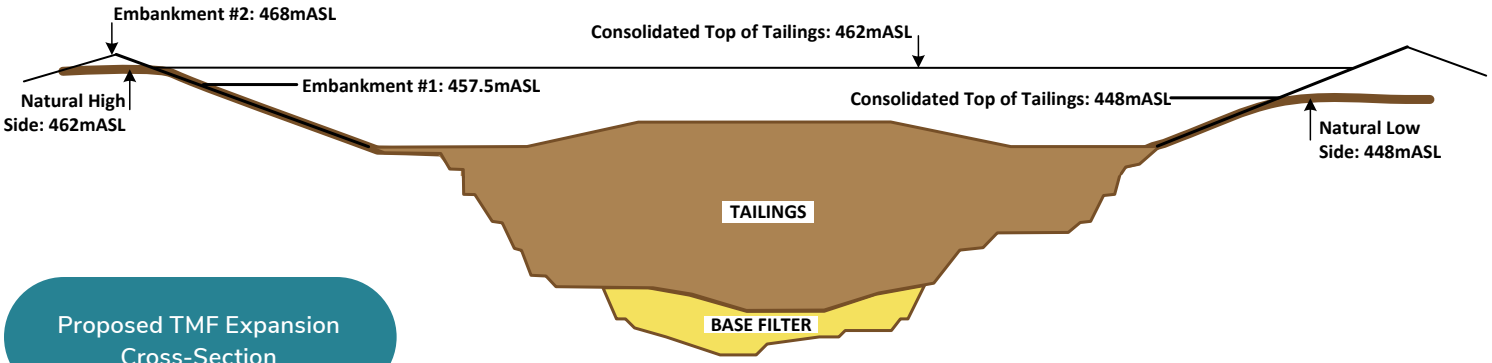
- The Tailings Management Facility (TMF) design allows the proper management of the tailings, and minimizes potential adverse environmental impacts. Orano designed the existing and proposed expansion of the TMF with safe operation and decommissioning in mind.
- Tailings from the uranium milling process are collected and treated in the tailings preparation circuit. The solids are separated from the liquids. The liquids are treated in the water treatment plant. The solid tailings are thickened into a mud like substance called slurry that has the consistency of pudding. The thick slurry is pumped down to the TMF for long-term storage.
- Once in the TMF, the tailings settle at the bottom and consolidate or harden over time. These hard tailings are not free flowing and are fully contained in the facility.



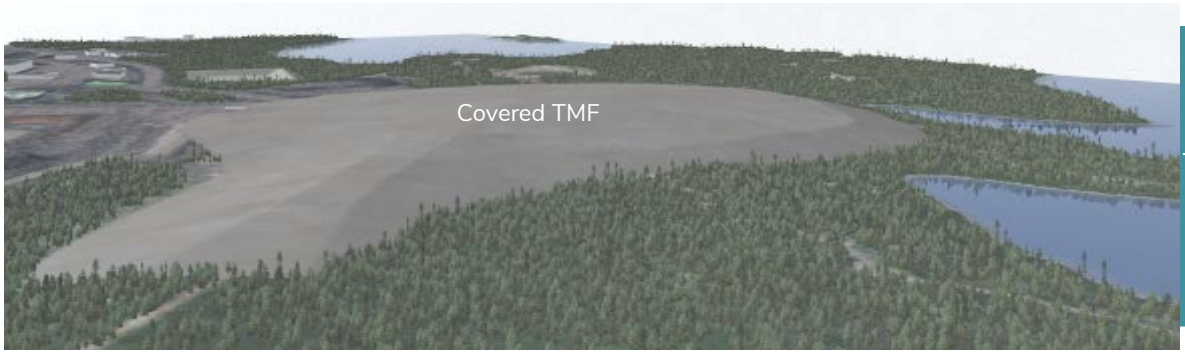
Tailings are compact and act as a plug to divert groundwater around the TMF

The Proposed TMF Expansion

- Currently, tailings are allowed to consolidate to the top of the pit on the lowest side. To optimize the TMF's footprint and have the tailings be even with the existing ground at the end of production, Orano is proposing to build an embankment around the top of the pit so that the height all around the pit becomes even with the existing highest side of the pit.
- Responsibly, this expansion will take place in stages as the space is needed to continue to produce. The material used to construct the embankment will come from the existing clean waste rock pile.
- During operations, the tailings will be placed higher than the naturally occurring high side of the pit, which will allow the tailings to settle and pack at a level even or below the natural high side of the pit after closure of the TMF. At the time of decommissioning, a protective cover will be placed on the TMF, the side slopes will be flattened and the entire facility will be shaped and blended into the natural environment.



Proposed TMF Expansion Cross-Section



Decommissioned TMF Rendering

The cover will be vegetated with species determined during conversations with Indigenous representatives

Decommissioned TMF Rendering

Revegated with local species

Stability

- The stability of the TMF's slope has been one of the main considerations during the development and design of the various stages of the proposed expansion.
- In the short term, during operations, the embankment will help contain the water cover on top of the tailings. The tailings themselves are not free flowing but rather dense and continue to solidify over time.
- The TMF is not located in an area at risk of earthquake.
- A stability monitoring program has been designed and will be implemented following construction of the expansion.
- A third party has conducted an assessment of the potential results of an unlikely embankment failure. It was determined that there would be no catastrophic effect on the watershed downstream of the facility. However, the water and sediment quality in the small lake (Fox Lake) immediately adjacent to the TMF may be affected but would recover within months up to a few years following the remediation.

Regulatory Process

- Orano has updated the TMF expansion project description, which was initially submitted in 2012. The update takes into account operational changes that occurred at the McClean Lake Operation since then.
- The project description details the use of the existing footprint of the TMF and site infrastructure. It outlines the fact that there is no need for new waste rock piles, water treatment plants or roads, and that the discharge of effluent will continue in the same watershed. The environmental footprint of the project is minimized.
- The project description is currently undergoing a technical review by the Canadian Nuclear Safety Commission. During this technical review process and in anticipation of the federal regulatory approval, Orano will continue to provide information on the project.
- The provincial regulator has previously determined that an environmental assessment is not required, which allowed Orano to proceed with the process to obtain construction approval. This process will begin in advance of the need to start construction.
- Orano expects that they will need to begin construction of the expansion in about 2027.

2011 TMF Open House in Air Ronge

Responding to Stakeholder Questions

Q: Is this above ground tailings?

A: No it is not. The tailings are still being maintained within the pit. Over time, they will be at or below the natural high-side of the pit.

Q: Is there a risk of failure?

A: The proper design and construction will minimize this risk, and so will the implementation of the embankment monitoring program to watch for signs of potential failure.

Q: What would be the consequences of a failure?

A: In the unlikely event that the embankment would fail, third-party studies indicate that there would be no catastrophic effect on the waterbodies downstream. The water and sediment quality in the small lake immediately next to the TMF could be affected but would recover within months, or up to a few years, after remediation.

Q: What is the expansion's impact on the environment?

A: There are no new effects on the environment from this project, other than those previously considered, reviewed and approved. The surface and groundwater quality will remain below provincial thresholds, and there are no additional effects on the landscape or wildlife.

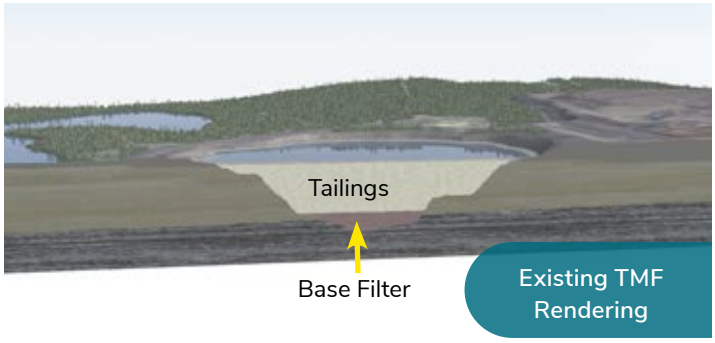
We want to hear from you

Orano is committed to discussing its projects and seeking feedback from the public, particularly its northern neighbours.

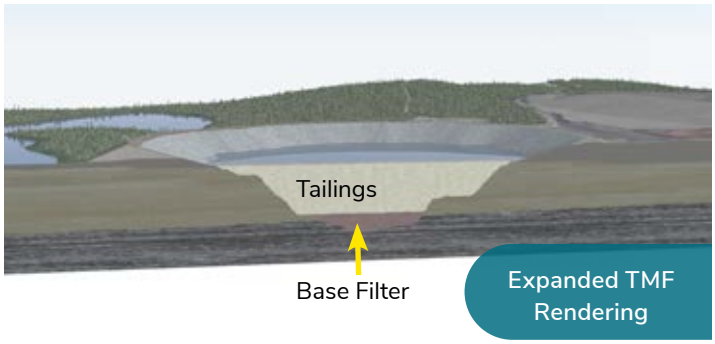
Orano has been providing information and receiving important feedback on this project since 2011, from the public, Indigenous leadership, communities and representatives of organizations such as the Northern Environmental Quality Committees and the Ya'thi Néné AJES. These conversations will continue throughout the regulatory process and for the life of the operation.

We continue to seek your comments or questions and would appreciate receiving any feedback as soon as possible so we may address any concerns in advance of the regulatory decision.

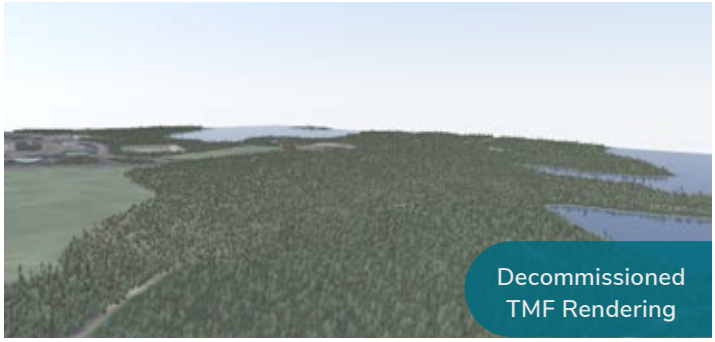
Please send your feedback, comments or questions to **oc-publicrelations@orano.group**



Existing TMF Rendering



Expanded TMF Rendering



Decommissioned TMF Rendering

Orano Canada Inc.
833 45th Street West
Saskatoon, SK S7L 5X2

oranocanada.com

306.343.4500 | OC-publicrelations@orano.group

Appendix C Feb. 2021 - Participant Funding Email with Fact Sheet

From: SEARCY Tina (ORN-MN)
To: "t.daniels@sasktel.net"
Cc: OC-SIIMS
Subject: Orano Canada JEB TMF Expansion - Participant Funding
Date: Tuesday, February 16, 2021 11:27:00 AM
Attachments: 2020 ORANO TMF Expansion Fact Sheet.pdf

Good Morning

In November 2019, Orano Canada Inc. (Orano) requested to amend its uranium mine operating licence for the expansion of the JEB Tailings Management Facility (TMF) at its McClean Lake Operation. As an expansion of the JEB TMF is the preferred option by Orano to create capacity for tailings, and to allow for the continued operation of the McClean Lake mill, Orano has been presenting on this project for a number of years. For more information on the project, please refer to the attached fact sheet.

As Indigenous and community stakeholders with interest in the McClean Lake Operation and/or past participants in CNSC hearings, we wanted to share with you the request for funding to participate in the September 2021 public Commission hearing to consider Orano's request to amend its uranium mine operating licence for the expansion of the JEB Tailings Management Facility at its McClean Lake Operation.

In advance of the public hearing, the CNSC is making up to $100,000 available through its Participant Funding Program to assist Indigenous peoples, members of the public and stakeholders in reviewing Orano's application. Requests are due to the CNSC by April 1, 2021. Information on how to apply is provided below.

You can read the full notice here: http://nuclearsafety.gc.ca/eng/the-commission/participant-funding-program/opportunities/index.cfm
Funding will be awarded for the review of documentation, including CNSC staff's documents and Orano's Commission member documents, and for participation in the public Commission hearing. Funding for travel to the Commission hearing is within the scope of this opportunity. However, due to potential travel restrictions or limitations relating to the COVID-19 pandemic, the Commission will announce at a later date whether there will be in-person oral presentations at the Commission hearing.
To apply, please submit a participant funding application form. Certain terms and conditions apply. You can submit the form by:

- Email: mailto:cnsc.pfp.ccsn@canada.ca
- Mail: Canadian Nuclear Safety Commission
  c/o Participant Funding Program administrator
  P.O. Box 1046, Station B
  280 Slater Street
  Ottawa, ON, Canada Â K1P 5S9
- Fax: 613-995-5086

Deadline for submitting a participant funding application: **April 1, 2021**.
A funding review committee that is independent of the CNSC will consider all applications for

funding and make recommendations on the allocation of funds.
For information on how to participate, consult the Participate in a public Commission hearing and Participant Funding Program sections of the CNSC website.
For questions about this specific funding opportunity, contact:
Adam Zenobi
Participant Funding Program Administrator
613-415-2814
cnsc.pfp.ccsn@canada.ca

Should you have any questions, please don't hesitate to reach out to me.

Sincerely,

Tina Searcy, BSc
Regulatory and Environmental Science Manager
Orano Canada Inc.
Tel: (306) 343-4525
Cell: (306) 227-9013
tina.searcy@orano.group