Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

CMD 26-H105.1-REF5
Part 3 of 14

Date: 2026-06-29

Written Submission from Orano Canada Inc.

Mémoire d' Orano Canada Inc.

In the matter of

À l'égard d'

Orano Canada Inc.

Orano Canada Inc.

Application to renew the McClean Lake Operating Licence for 2-year term

Demande pour le renouvellement du permis d'exploitation de McClean Lake pour une période de deux ans

Hearing in writing based on written submissions

Audience par écrit fondée sur des mémoires

September 2026

Septembre 2026

Document ID: QQQVZZNDK725-166150894-13328 (PDF)

Canada

Appendix A GISTM Conformance Documents

Section A: JEB TMF Emergency Preparedness and Response Plan

Orano Canada Inc.

JEB TMF Emergency Preparedness and Response Plan

Version 1 Revision 0

Document # 359ML-400-PLA-Z-003

January 2024

Approval for Use

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Name	Title	Signature

History of Revisions

Version	Date	Details of Revision
1	January 2024	Initial Issue

Table of Contents

Acronyms and Abbreviations

Term	Definition
CNSC	Canadian Nuclear Safety Commission
ECCC	Environment and Climate Change Canada
EHS	Environment Health and Safety
EPRP	Emergency Preparedness and Response Plan
ERP	Emergency Response Plan
ERT	Emergency Response Team
FMEA	Failure Mode and Effect Analysis
GISTM	Global Industry Standard on Tailings Management
JEB site	The area containing the JEB TMF, JEB waste stockpile, ore pad, mill and office complex and the associated outbuildings.
JEB WTP	JEB Water Treatment Plant
MDMER	Metal and Diamond Mining Effluent Regulations
Orano	Orano Canada Inc.
PFM	Potential Failure Mode
RTFE	Responsible Tailings Facility Engineer
SMOE	Saskatchewan Ministry of Environment
TMF	Tailings Management Facility (used to describe the McClean Lake Operation configuration)
WTP	Water Treatment Plant

1 Objective

The Emergency Preparedness and Response Plan (EPRP) outlines instructions for emergencies related to the JEB Tailings Management Facility (TMF). Instructions on how to be prepared and how to respond to emergencies are established. The emergency situations covered by this document are related to various failure modes of the JEB TMF that could lead to harm to people and the environment. This document has been made specific to the JEB TMF with considering to the requirements of the Global Industry Standard on Tailings Management (GISTM) (ICMM 2020).

2 Emergency Preparedness

2.1 Personnel and Contact Information

Table 2.1 Key Personnel Contact Information

Position	Name	Office Phone Number	Mobile Phone Number
Orano Personnel			
Vice President Operations, McClean Lake	Dale Huffman	(306) 343-4512 (Saskatoon) (306) 633-1400 (McClean)	(306) 291-3997
Mill Manager	Todd McCorriston	(306) 633-1439	(306) 229-9961
Vice President, Safety, Health, Environment & Regulatory	Colin Braithwaite	(306) 343-4058	(306) 371-6646
Environmental Coordinator	Devin Helps	(306) 633-1409	(403) 679-9244
Emergency Response Incident Commander	Tyrel Braaten Brett Arnott	(306) 633-1403 (306) 633-1403	After hours: (639) 216-7399
Mill Operations General Supervisors	Duncan Brown Stan White	(306) 633-1511	-
Manager, Safety, Health, Environment & Regulatory	Brett Mitchell	(306) 633 1412	(306) 980-7265
Responsible Tailings Facility Engineer	Spencer Chuhaniuk	(306) 343-4039	(306) 261-3471
Regulatory Personnel			
Environmental Protection Officer Environmental Protection Branch, Saskatchewan Ministry of Environment	Casey Frantik	-	(306) 531-3928
Senior Project Officer Uranium Mines & Mills Division, Canadian Nuclear Safety Commission	Salman Akhter	(306) 514-2714	(306) 281-6787
Mines Inspector Mine Safety Unit	Victor Mela	1800567 7233 Ext. 4896	

Ministry of Labour Relations & Workplace Safety			

2.2 Site Access

The JEB TMF is located within the McClean Lake Operation in northern Saskatchewan, approximately 750 km northeast of Saskatoon. The McClean Lake Operation is accessible by an unpaved provincial highway. Local access roads lead to various sites within the operation. Access is restricted to Orano and other authorized personnel. There is a single access road leading to the JEB TMF where traffic may travel down a ramp into the facility. The Site Layout is shown in Appendix A.

2.3 Preparedness

There is specific equipment, personnel and procedures in place to be prepared for an emergency related to the JEB TMF. Further details are found in Procedure 715 Environmental Emergency Response and work instruction 715-02 Response to Spill of Mine site Water (Treated or Untreated) or Tailings. Equipment that is required if the Emergency Response Plan (ERP) is activated is located in the Environment Group's warehouse. It is the responsibility of the Environment Group to maintain and keep appropriate inventory of the required equipment. The Emergency Response Team (ERT) is responsible for conducting training of the ERP, detailed in Procedure 717 Preparing for an Environmental Emergency. The ERT shall also have succession plans in place to replace members as required. The equipment and training requirements are outlined in detail in Section 2.7.

2.4 Inundation

A Dam Breach and Inundation Study was completed by WSP Golder (2022). This study was an analysis of downstream impacts of a hypothetical failure of the JEB TMF embankment resulting in the release of tailings and pond water. Two dam breach scenarios were studied that represent the worst-case conditions: A breach of the southwest embankment and a breach of the southeast embankment. The major risk associated with the hypothetical breach of the southwest embankment is downstream impacts to water quality in adjacent surface water bodies (Fox Lake, Wallace Lake, Pat Lake and Nadia Lake). For a breach of the southeast embankment, the major risk is to access roads and Pat Lake which are within the flood path. There are no communities, residences, public access roads or infrastructure in the study areas.

The area of inundation from a hypothetical failure and release of tailings and tailings fluid are shown in Appendix B. Tables 2.2 and 2.3 summarize the arrival times and flood volumes.

Table 2.2 Breach of Southwest Embankment Summary (WSP Golder 2022)

Key Location	Distance from TMF (km)	Flood Arrival Time (hr)	Time to Peak Flood Level (hr)	Flood Peak Discharge (m^3/s)	Maximum Flow Velocity (m/s)
Dam Toe	0.0	0.0	0.3	2,570	6.1
Pat Lake Inlet	0.5	0.1	1.3	2,240	5.1
Fox Lake Inlet	0.4	0.3	0.4	99	0.9
Pat Lake Outlet	3.0	0.4	1.1	78	0.6
Nadia Lake Outlet	4.8	1.2	12.8	28	0.2

Table 2.3 Breach of Southeast Embankment Summary (WSP Golder 2022)

Key Location	Distance from TMF (km)	Flood Arrival Time (hr)	Time to Peak Flood Level (hr)	Flood Peak Discharge (m^3/s)	Maximum Flow Velocity (m/s)
Dam Toe	0.0	0.0	0.3	533	4.5
Access Road	0.1	0.0	0.3	526	3.0
Pat Lake Inlet	0.7	0.2	1.9	509	2.8

2.5 Notification

For situations that arise that may affect the integrity of the JEB TMF, immediate notification shall be given to Orano's Mill Operations Supervisor. Afterwards and if necessary other person(s) and departments within Orano may be notified along with Regulatory Personnel.

Public notification may be required depending on the situation. Appropriate outreach and public communication will be considered by the Crisis Management team and will follow the Orano Crisis Communications Plan.

2.6 Document Maintenance

Whenever there is a change to personnel, procedure, plan etc. this document shall be revised to capture the change.

2.7 Training and Equipment

Training and exercises shall be carried out by the ERT, Environmental Group and Mill Operations Supervisors. The training is further detailed in procedure 717 Preparing for an Environmental Emergency. The training shall include introduction and review of this manual and its contents. Exercises shall include simulations to response of Potential Failure Modes (PFM) as outline in Section 3 and Appendix C. Frequency of training shall be conducted at an annual frequency or when there is a material change to the JEB TMF or new member(s) to the ERT and/or responsible groups. The locations for supplies for emergency response shall be made known to persons who require access to the supplies in an emergency. Inventory of equipment shall be maintained including, but not limited to:

- Water sample containers
- Silt curtains
- Soil sampling equipment (containers and shovels)
- All terrain vehicle and appropriate safety equipment (including but not limited to helmets and fire extinguisher)

The ERT conducts separate exercises for rescue which may be involved in response to an emergency related to the JEB TMF. Equipment used by the ERT for rescue purposes is supplied and maintained by the ERT.

3 Emergency Response

3.1 Activation

During routine inspections or general observations while in the JEB TMF area, person(s) may discover unusual conditions or situations that may affect the integrity of the JEB TMF. Any person(s) who discover a situation or unusual condition that threatens the integrity of the JEB TMF leading to failure will immediately notify the Mill Operations Supervisor. It is then at the discretion of the Mill Operations Supervisor (with input from others, as needed) whether to activate the Emergency Response Plan (ERP). There are three levels of response to unusual conditions or situations:

- Yellow: The unusual condition has no threat to the integrity of the JEB TMF. The condition should be communicated to the RTFE, other appropriate person(s) and/or department(s) and corrected as required. The ERP is not activated.

- Orange: The unusual condition has no immediate threat to the integrity of the JEB TMF. There is potential for the condition to progress and have an immediate threat to the integrity of the JEB TMF. The ERP is not activated. The RTFE, other appropriate person(s) and/or department shall be notified to correct the condition. The ERT is notified of the condition and prepare as necessary. Downstream areas shall be barricaded and notifications issued for personnel to avoid the area.

- Red: The unusual condition has immediate threat or has already affected the integrity of the JEB TMF. The ERP is activated.

The general procedure from discovery of a condition to the decision on ERP activation is outlined in Figure 3.1 below:

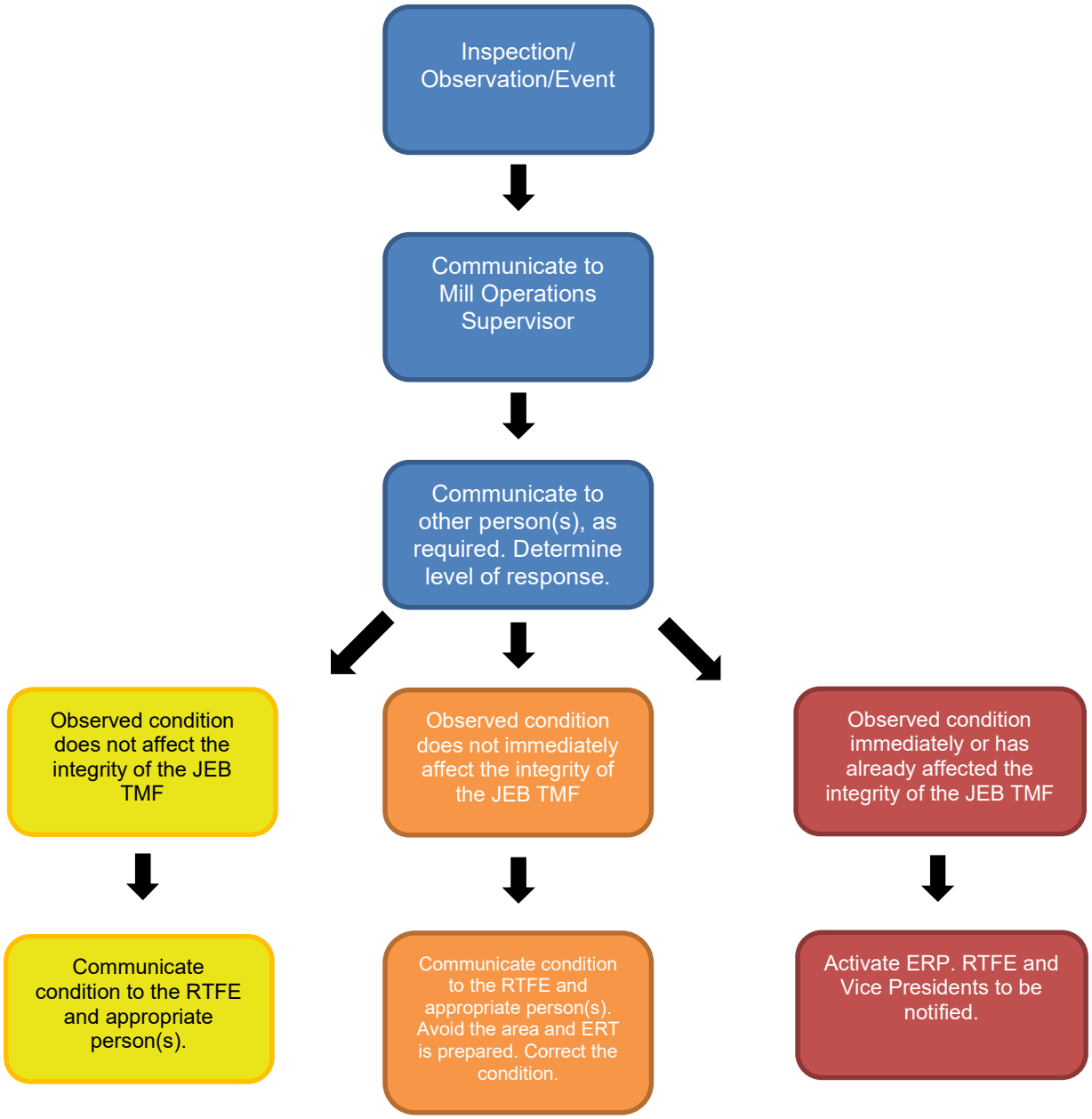

Figure 3.1 ERP general procedure

3.2 Emergency Identification

3.2.1 Failure Modes

A failure mode and effect analysis (FMEA) was conducted by WSP Golder (2022). Potential failure modes (PFM) were identified along with their existing controls and barriers. Potential risk reduction measures were identified for each PFM, where possible. A list of PFMs is found in Appendix III. These PFMs fall under Categories I and II which include identified credible PFMs. Inspections that are conducted as part of the Operations Maintenance and Surveillance (OMS) Manual cover the identification of PFMs where applicable.

3.3 Trigger Actions Response Plan

Trigger action response plans (TARPs) are a critical aspect of managing the safety of tailings dams. TARPs are developed by defining appropriate triggers, trigger thresholds, and responses for specific areas of movement. Trigger thresholds are developed specific to identified credible failure modes based on professional experience, review of monitoring data, design inputs, and monitoring capability. Responses are planned around potential failure scenarios and potential impacts to personnel, infrastructure, and the environment. Once in place, TARPs are continually optimized as the understanding of each PFM and more information becomes available, or operating conditions change.

The TARPs developed for the JEB TMF are based on the credible PFMs for the facility and provided in Table 3.1. Information on the instrumentation is found in the JEB TMF OMS manual.

Table 3.1 Trigger Action Response Plan for JEB TMF

Emergency Type	Alert Level	Indicator	Trigger	Communication	Actions
Overtopping Dam overtopping occurs when water flows over the top of the dam which occurs when either not following operational water level guidelines resulting in operating above minimum Freeboard levels or when climatic event leads to overtopping of the dam and release of tailings pond water.	Yellow	Visual Observation / Staff Gauge or Survey Measurement	Pond Level Exceeds Maximum Operating Level (Normal Freeboard = 2.5 m)	Notify RTFE, AE and EoR.	Develop a plan to lower pond levels. Maintain routine. monitoring and surveillance activities. Escalate to Orange Alert level in the spring if local snow load accumulation is considered to potentially provide heavy runoff flows.
	Orange	Visual Observation / Staff Gauge or Survey Measurement	Pond Level Exceeds Environmental Design Flood Level (Freeboard = 2.0 m)	Notify General Manager, RTFE, AE and EoR.	Develop a plan to lower pond levels including curtailed process plant production to increase reclaim water treatment capacity. Increase frequency of monitoring and surveillance activities under advisement of the EoR. Escalate to Red Alert in the spring if melt water from the remaining snow load or heavy rainfall continues and is considered potentially excessive.

Emergency Type	Alert Level	Indicator	Trigger	Communication	Actions
	Red	Visual Observation / Staff Gauge or Survey Measurement	Pond Level Exceeds Inflow Design Flood Level (Minimum Freeboard = 1.0 m)	Notify CEO, General Manager, RTFE, AE and EoR. Notify regulatory agencies within 24 hours.	Develop a plan to lower pond levels including ceasing process plant production to maximize reclaim water treatment capacity. Increase frequency of monitoring and surveillance activities under advisement of the EoR.
Instability Events that may lead to dam instability include rising pond levels, seismic events, elevated phreatic surface, and extreme precipitation events causing erosion of the embankment.	Yellow	Inclinometer Data	Greater than 2 mm deflection per quarter or 10 mm cumulative deflection	Notify RTFE, AE and EoR	Increase frequency of monitoring and surveillance activities under advisement of the EoR.
		Visual Observation	Appearance of new cracks / opening of existing cracks		
		Piezometer Data	Significant trend of increasing pore pressures in several piezometers. Reading from a single piezometer exceeds Yellow Alert level (see **Error! Reference source not found.**)		
	Red	Inclinometer Data	Accelerating deflection in excess of Yellow Alert	Notify CEO, General Manager, RTFE, AE and EoR. Notify regulatory	

Emergency Type	Alert Level	Indicator	Trigger	Communication	Actions
		Visual Observation	Continuing and accelerating growth of cracks & slope slumps, toe bulges, increasing trend of deformation	agencies within 24 hours.	Increase frequency of monitoring and surveillance activities under advisement of the EoR. Undertake remedial repairs as recommended by the EoR. Maintain 24-hour/7-day vigilance of distressed structure as directed by EoR.
		Piezometer Data	Rapid rise of piezometric levels subsequent to exceedance of Yellow Alert level (see Table 5.2)		
Excess Seepage Occurs as a result of poor liner performance or water overtopping the liner crest leading to uncontrolled seepage through the embankment.	Yellow	Visual Observation	Appearance of seepage at downstream toe	Notify RTFE, AE and EoR.	Increase frequency of monitoring and surveillance activities under advisement of the EoR. Undertake remedial repairs as recommended by the EoR.
		Piezometer Data	Increased piezometric levels in embankment/foundation downstream of liner exceeds Yellow Alert level (See Table 5.2)		

Emergency Type	Alert Level	Indicator	Trigger	Communication	Actions
	Red	Visual Observation	Ponded or running seepage at downstream toe	Notify CEO, General Manager, RTFE, AE and EoR. Notify regulatory agencies within 24 hours.	Increase frequency of monitoring and surveillance activities under advisement of the EoR Undertake remedial repairs as recommended by the EoR. Maintain 24-hour/7-day vigilance of distressed structure as directed by EoR.
		Piezometer Data	Increased piezometric levels in embankment/foundation downstream of liner subsequent to exceedance of Yellow Alert level (see **Error! Reference source not found.**)		
Internal Erosion Occurs when water seeps through the dam along preferred pathways and carries away soil particles. Preferred pathways may be the result of defects in the liner, foundation or embankment.	Yellow	Visual Observation	Appearance of turbid seepage at downstream toe	Notify RTFE, AE and EoR.	Increase frequency of monitoring and surveillance activities under advisement of the EoR. Undertake remedial repairs as recommended by the EoR.

Emergency Type	Alert Level	Indicator	Trigger	Communication	Actions
	Red	Visual Observation	Appearance of sand boils or sink holes at downstream toe	Notify CEO, General Manager, RTFE, AE and EoR. Notify regulatory agencies within 24 hours.	Increase frequency of monitoring and surveillance activities under advisement of the EoR. Undertake remedial repairs as recommended by the EoR. Maintain 24-hour/7-day vigilance of distressed structure as directed by EoR.
Contaminant Loading Occurs as a result of blinding the base filter drain or mechanical failure of pumping equipment that affects the ability to pump sufficient water from the drain to maintain hydraulic containment, or not following operational water level guidelines affecting the ability to maintain hydraulic containment.	Yellow	Staff Gauge or Survey Measurement, Piezometric Data	Pond Level > 445.7 and < 455 mASL: Head differential between Fox Lake and drift monitoring well exceeds 1.0 m Annual assessment of piezometric data does not demonstrate hydraulic containment	Notify RTFE, AE and EoR.	Assess the cause and develop corrective plan to resume normal operating conditions. Maintain routine monitoring and surveillance activities.
			Pond Level > 455 mASL: Head differential between Fox Lake and drift monitoring well exceeds 7.0 m Annual assessment of piezometric data does not demonstrate hydraulic containment		

Emergency Type	Alert Level	Indicator	Trigger	Communication	Actions
	Red	Staff Gauge or Survey Measurement, Piezometric Data, Groundwater Quality Monitoring	Drift monitoring well head exceeds Fox Lake (445.7 mASL) over a period of three days Observed impacted groundwater quality downstream of TMF	Notify CEO, General Manager, RTFE, AE and EoR. Notify regulatory agencies within 24 hours	Assess the cause and develop a plan to lower base drain water levels. Increase frequency of monitoring and surveillance activities, assess potential effects and develop recovery plan under advisement of the EoR. This includes analysis of nearby data loggers for groundwater flow patterns and gradients.

3.4 Preventative and Remedial Action: ERP

As described in work instruction 715-02 Response to Spill of Tailings, the JEB TMF embankment will contain pond water (during operations) and tailings placed above the natural ground level. The embankment is designed and constructed following conservative guidelines and the GISTM that will ensure it is structurally stable. In addition, Orano will manage and monitor the expanded JEB TMF as per the GISTM which targets zero harm to the environment and people. It is considered extremely unlikely that the embankment will fail. It is also important to recognize that there are no human settlements downstream of the JEB TMF embankment and no risk to the public even in the extremely unlikely event of an embankment failure. Material would report to the ground adjacent to the JEB TMF and potentially into adjacent surface water bodies.

Safety Actions:

1. In the event of an embankment failure, personnel must immediately vacate and stay out of the JEB TMF area. An announcement will be made over the radio on all channels to ensure that personnel are aware of the requirement.

2. The Safety/Environment Group or members of the ERT will ensure that the roads around and into the JEB TMF are blockaded to prevent entry.

3. Depending on the circumstances of the event, it may require reporting as a Dangerous Occurrence, which is the responsibility of the Regulatory Relations and Safety Groups.

4. Depending on the circumstances, the ground may be saturated and unsafe to access for days, if not weeks. Specialists will be brought to site to determine when access is possible.

Environmental Concerns and Actions:

In the extremely unlikely event of a failure of the JEB TMF embankment, three scenarios are possible:

a) Embankment material fails above the level of the JEB TMF pond and no tailings or pond water is released.

b) Pond water is released and runs into adjacent surface water bodies

c) Both tailings and pond water are released and flow into adjacent surface water bodies.

Scenario a) would require:

1. Evaluation by specialists.

2. Cessation of tailings discharge into the JEB TMF, if deemed necessary.

3. Remediation work to repair and test the embankment.

Scenarios b) and c) would qualify as both a reportable discharge of industrial waste, and an unauthorized deposit under the *Metal and Diamond Mining Effluent Regulations* (MDMER). For these scenarios the following steps should be taken.

1. Deposition of tailings into the JEB TMF will be halted immediately.

2. Environment personnel will document the event and report to the CNSC, SMOE, and ECCC as per *Work Instruction 715-05, Documentation and Reporting of a Spill or an Exceedence of Effluent Discharge Limit.*

3. Environment and Safety personnel will assess when it is safe to approach the vicinity of the discharge from the adjacent surface water bodies. This action should be taken after the discharge is complete and no further material is reporting to adjacent surface water bodies.

4. Environment personnel will collect a sample from the adjacent surface water bodies at locations nearest to the JEB TMF for testing Acute Lethality. Refer to *Work Instruction 703-02, Collecting WTP Effluent Grab Sample, Daphnia and Trout Bioassay Sample*. This sample is sent to Nautilus Laboratory, where a dilution series will be run for both Rainbow Trout (40L) and Daphnia Magna (4L).

5. When collecting the acute lethality sample in Step 4, Environment personnel will collect a grab sample set, which typically consists of 4L, 1L, 250mL, 100 mL, and 100 mL (Hg). This sample set shall be kept until the results of the acute lethality sample are known. Refer to *Work Instruction 703-02, Collecting WTP Effluent Grab Sample, Daphnia and Trout Bioassay Sample*. If the sample is found to be acutely lethal, the characterization sample shall be sent to the Saskatchewan Research Council for analysis.

6. Environment personnel will place a silt curtain around the area of the discharge to reduce migration of solids into other parts of the lakes. The silt curtain will be stored in the EHS Norseman.

7. When it is safe to access the shore of lakes adjacent to the JEB TMF, the Services group or a contractor will clean up spilled tailings remaining on the ground. The tailings shall be placed back into the JEB TMF when the facility is safe to access and accept material. If necessary, a contractor may be hired to recover tailings solids that reported to adjacent surface water bodies and/or ground. A detailed plan for recovery, transport, and storage will be developed at the time to address the specific volume and characterization of the material. Consideration will be given to moving the replaced tailings that were released during the TMF restoration.

8. After clean up, the Environment group will sample the soil to ensure that contaminated material has been successfully removed.

9. Environment personnel will develop an on-going water sampling schedule for the adjacent lakes in consultation with specialists in the HSE group of Orano's Saskatoon office, CNSC, SMOE, and ECCC.

10. If water quality in Pat Lake deteriorates below drinking water quality guidelines, the McClean Lake Operation potable water treatment plants will be shut down and water will be procured from an alternative source.

4 References

- *Crisis Management Plan, Version 7. April 2022*
- *Golder Associates 2022, Dam Breach Flood Inundation Study for the JEB TMF Embankment.*
- *Golder Associates 2022, Failure Modes and Effects Analysis Summary.*
- *ICMM 2020, Global Industry Standard on tailings Management.*
- *Procedure 715, Environmental Emergency Response*
- *Procedure 717, Preparing for an Environmental Emergency*
- *Work Instruction 715-02, Response to Spill of Minesite Water (Treater or Untreatted) or Tailings.*
- *Work Instruction 715-05, Documentation and Reporting of a Spill or an Exceedence of Effluent Discharge Limit.*
- *Work Instruction 703-02, Collecting WTP Effluent Grab Sample, Daphnia and Trout Bioassay Sample*.
- *359ML-400-OM-Z-004, JEB TMF Operations Maintenance and Surveillance Manual*

Appendix A Site Layout

REFERENCE(S)

1. IMAGERY COPYRIGHT © 20210802, 20210710 ESRI AND ITS LICENSORS. SOURCE: VIVID, MAXAR. USED UNDER LICENSE, ALL RIGHTS RESERVED.
2. PROJECTION: UTM ZONE 13 DATUM: NAD 83.
3. ALL UNITS ARE METRES UNLESS OTHERWISE NOTED.

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0 100 200
1:5,000 METRES

CLIENT
orano

PROJECT
McCLEAN LAKE TAILINGS MANAGEMENT FACILITY
DAM SAFETY SYSTEMS - OMS & TARP

TITLE
GENERAL SITE PLAN

CONSULTANT
wsp

YYYY-MM-DD	2023-07-30
DESIGNED	MR
PREPARED	AS
REVIEWED	
APPROVED	

PROJECT NO.	PHASE	REV.	FIGURE
23592413	3000	A	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25 mm

Appendix B Inundation Maps

	Distance from the Dam (km)	Estimated/ Assumed Ground/ Thalweg Elevation (m)	Apx. Ground/ Bank Elevation (m)	Flood Arrival Time (hour)	Time to Flood Peak Level (hour)	Maximum Flood Level (m)	Flood Peak Discharge (m^3/s)	Maximum Flood Depth above Ground/ Thalweg (m)	Maximum Flood Depth above Ground/ Bank (m)	Maximum Flow Velocity (m/s)
1 - Dam Toe	0.0	459.0	459.0	0.0	0.3	462.8	533	3.8	3.8	4.5
2 - Access Road	0.1	458.8	458.8	0.0	0.3	460.4	526	1.6	1.6	3.0
3 - Pat Lake Inlet	0.7	444.0	444.0	0.2	1.9	445.6	509	1.6	1.6	2.8
4 - Downstream Boundary	3.2	444.0	447.0	0.4	2.1	445.6	27	1.6	-1.4	0.4

Fox Lake
JEB TMF
Waste Rock Runoff Pond
Pat Lake
Ore Pad Pond
Mill Site Runoff Pond
Mill Terrace
MAPPING DOWNSTREAM BOUNDARY

LEGEND

- LOCATION OF INTEREST
- CONTOUR - 1 m
- CONTOUR - 5 m
- FLOW ARROW
- PROPOSED BREACH LOCATION ARROW
- MAPPING DOWNSTREAM BOUNDARY
- PROPOSED BREACH LOCATION
- WATERCOURSE
- TAILING RUN-OUT EXTENT

0 150 300
1:10,000 METRES

REFERENCE(S)
1 m CONTOURS GENERATED FROM LIDAR PROVIDED BY CLIENT. BACKGROUND IMAGERY COPYRIGHT © 20210802 ESRI AND ITS LICENSORS. SOURCE: MAXAR. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 13 DATUM: NAD 83

KEY MAP
Scale 1:700,000

CLIENT
ORANO CANADA INC.

CONSULTANT
GOLDER

YYYY-MM-DD	9/23/2022
DESIGNED	AG
PREPARED	PS
REVIEWED	HZ
APPROVED	HZ

PROJECT
JEB TAILINGS MANAGEMENT FACILITY (TMF) EXPANSION STAGE 2

TITLE
DAM BREACH FLOOD INUNDATION MAP FOR THE FLOOD-INDUCED OVERTOPPING FAILURE AT SOUTHEAST OF JEB TMF EMBANKMENT

PROJECT NO.	CONTROL	REV.	FIGURE
21498180	4000	0	2

PATH: I:\CLIENTS\ORANO\21498180\Mapping\Products\Hydrology\21498180_DB_InundationOvertoppingFailure_sIE_RevA.mxd PRINTED ON: 2022-09-23 AT: 11:05:39 AM

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

Key Location ID and Name	Distance from the Dam (km)	Estimated/ Assumed Ground/ Thalweg Elevation (m)	Apx. Ground/ Bank Elevation (m)	Flood Arrival Time (hour)	Time to Flood Peak Level (hour)	Maximum Flood Level (m)	Flood Peak Discharge (m^3/s)	Maximum Flood Depth above Ground/ Thalweg (m)	Maximum Flood Depth above Ground/ Bank (m)	Maximum Flow Velocity (m/s)
1 - Dam Toe	0.0	448.0	448.0	0.0	0.3	453.6	2,570	5.6	5.6	6.1
2 - Pat Lake Inlet	0.5	444.0	444.0	0.1	1.3	446.4	2,240	2.4	2.4	5.1
3 - Fox Lake Inlet	0.4	446.5	446.5	0.3	0.4	448.4	99	1.9	1.9	0.9
4 - Pat Lake Outlet	3.0	444.0	447.0	0.4	1.1	446.3	78	2.3	-0.7	0.6
5 - Nadia Lake Outlet	4.8	441.0	443.0	1.2	12.8	443.1	28	2.1	0.1	0.2
6 - Downstream Boundary	10.0	435.0	438.8	7.0	26.0	436.3	25	1.3	-2.5	0.2

Wallace Lake
Fox Lake
Nadia Lake
Pat Lake
Collins Creek
JEB TMF
Mill Site Complex
1
2
3
4
5
6
MAPPING DOWNSTREAM BOUNDARY

LEGEND

- LOCATION OF INTEREST
- CONTOUR - 1 m
- CONTOUR - 5 m
- FLOW ARROW
- PROPOSED BREACH LOCATION ARROW
- MAPPING DOWNSTREAM BOUNDARY
- PROPOSED BREACH LOCATION
- WATERCOURSE
- TAILING RUN-OUT EXTENT

0 500 1,000
1:30,000 METRES

REFERENCE(S)
1 m CONTOURS GENERATED FROM LIDAR PROVIDED BY CLIENT. BACKGROUND IMAGERY COPYRIGHT © 20210802 ESRI AND ITS LICENSORS. SOURCE: MAXAR. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 13 DATUM: NAD 83

KEY MAP
905
WOLLASTON LAKE
Scale 1:2,500,000

CLIENT
ORANO CANADA INC.

CONSULTANT
WSP GOLDER

YYYY-MM-DD	9/23/2022
DESIGNED	AG
PREPARED	PS
REVIEWED	HZ
APPROVED	HZ

PROJECT
JEB TAILINGS MANAGEMENT FACILITY (TMF) EXPANSION STAGE 2

TITLE
DAM BREACH FLOOD INUNDATION MAP FOR THE FLOOD-INDUCED OVERTOPPING FAILURE AT SOUTHWEST OF JEB TMF EMBANKMENT

PROJECT NO.	CONTROL	REV.	FIGURE
21498180	4000	0	1

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

Appendix C Potential Failure Modes

Table C.1 PFM Summary

PFM Number	PFM Description	Existing Barriers and Controls	Potential Risk Reduction Measures
PFM-3	Not following operational pumping guidelines resulting in operating above minimum Freeboard levels results in overtopping of the dam and release of tailings and pond water	Weekly and daily reports, OMS manual, PI screen (process control system)	None
PFM-4	Excessive settlement of the dam embankment materials results in insufficient Freeboard and overtopping of the dam and release of tailings and pond water	Surveillance and monitoring program in OMS	Crest maintenance (maintain design crest elevation)
PFM-5	Excessive settlement of the foundation results in insufficient Freeboard and overtopping of the dam and release of tailings and pond water	Surveillance and monitoring program in OMS	Crest maintenance (maintain design crest elevation)
PFM-9	Water level goes up in TMF and porewater pressures rise in outer shell leading to reduced shear strength, failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	Toe drain/stability berm
PFM-10	Defects in liner leads to higher than design porewater pressure in the downstream shell leading to reduced shear strength, failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	Toe drain/stability berm
PFM-11	Water levels increase in TMF and porewater pressures rise in the foundation leading to reduced shear strength, failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	Toe drain/stability berm
PFM-12	Defects in liner leads to higher than design porewater pressure in the foundation leading to reduced shear strength, failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	Toe drain/stability berm
PFM-13	Excessive settlement due to long term pumping and erosion of foundation leads to embankment instability, resulting in failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	Crest maintenance (maintain design crest elevation)
PFM-14	Unexpected weak layer in the foundation leads to lower than expected shear strength and embankment instability resulting in failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	Crest maintenance (maintain design crest elevation)
PFM-15	Unexpected weak layer in the embankment leads to lower than expected shear strength and embankment instability resulting in failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	None
PFM-16	Static liquefaction of the tailings adds additional loading on the dam resulting in failure of the embankment and release of tailings and pond water	None	None

PFM-17	Static liquefaction of the foundation leading to reduced shear strength of the foundation, failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	Additional SIs and piezometers in the foundation
PFM-18	Excessive differential settlement of the embankment materials results in insufficient freeboard and overtopping of the embankment, failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	Crest maintenance (maintain design crest elevation)
PFM-19	Preferential seepage in the liner due to instrumentation installation causing flow concentrations in the liner resulting in higher than design porewater pressure in the downstream shell leading to reduced shear strength, failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	None
PFM-24	Excessive settlement due to long term pumping and erosion of foundation leads to liner instability, resulting in failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	None
PFM-25	Unexpected weak layer in the foundation leads to lower than expected shear strength and liner instability resulting in failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	None
PFM-26	Unexpected weak layer in the embankment leads to lower than expected shear strength and liner instability resulting in failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	None
PFM-27	Not constructing liner in time and operating above Minimum Freeboard levels and pond water overtops liner crest resulting in uncontrolled seepage through the embankment	Established operating procedures	Advanced construction sequencing
PFM-29	Defects in the liner causing flow concentrations and internal erosion (piping failure) in the embankment leads to embankment instability resulting in failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	None
PFM-30	Defects in the liner causing flow concentrations and internal erosion (piping failure) in the dam foundation leads to embankment instability resulting in failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	None
PFM-31	Excessive differential settlement of the embankment materials leads to cracking of the liner causing flow concentrations and internal erosion (piping failure) in the dam embankment that leads to embankment instability resulting in failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	None
PFM-32	Desiccation of liner leads to cracking of liner and causing flow concentrations and internal erosion (piping failure) in the dam embankment that leads to embankment instability resulting in failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	None
PFM-33	Desiccation of liner leads to increased hydraulic conductivity and internal erosion (piping failure) in the dam embankment leads to embankment instability resulting in failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	None

PFM-34	Filter incompatibility between the liner (base soil) and the downstream shell leads to internal erosion of the liner resulting in higher than design porewater pressure in the downstream shell leading to reduced shear strength, failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	Continue construction QA and ensure sample frequency provides confidence in grain size distribution of liner and embankment materials
PFM-35	Poor QA/QC of liner construction leads to increased hydraulic conductivity and internal erosion (piping failure) in the dam embankment that leads to embankment instability resulting in failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	None
PFM-36	Freeze/thaw effects on liner lead to increased hydraulic conductivity causing flow concentrations and internal erosion (piping failure) in the dam embankment that leads to embankment instability resulting in failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	None
PFM-37	Damage of liner induced by construction activities leads to degradation in the liner surface resulting in increased hydraulic conductivity causing flow concentrations and internal erosion (piping failure) in the dam embankment that leads to embankment instability resulting in failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	None
PFM-38	Preferential seepage in the embankment due to instrumentation installation causing flow concentrations and internal erosion (piping failure) in the dam embankment leads to embankment instability resulting in failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	None
PFM-39	Poor tailings sample practice results in damage to liner causing flow concentrations and internal erosion (piping failure) in the dam embankment leads to embankment instability resulting in failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS, riprap armoured liner	Implementation of a formal ground disturbance program
PFM-40	Improper decommissioning of groundwater monitoring wells leads to preferential seepage pathways causing flow concentrations and internal erosion (piping failure) in the dam embankment that leads to embankment instability resulting in failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	Implementation of standard well decommissioning practice
PFM-41	Improper seal between liner interfaces during construction leads to preferential flow path causing flow concentrations and internal erosion (piping failure) in the dam embankment that leads to embankment instability resulting in failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	None
PFM-42	Poor identification and inadequate removal of organics during downstream expansion leads to differential settlement of the embankment and cracking of the liner causing flow concentrations and internal erosion (piping failure) in the dam embankment that leads to embankment instability resulting in failure of the embankment and release of tailings and pond water	Surveillance and monitoring program in OMS	Strip surface soils in the embankment footprint starting from the downstream toe moving inwards

PFM-43	Increase in perched water seepage through upstream embankment leads to erosion of the liner requiring repair	Liner is armoured with riprap	None
PFM-44	Excessive surface runoff on the liner leads to erosion of the liner requiring repair	Liner is armoured with riprap	None
PFM-45	Inadequate liner armour protection against wave and ice action leads to erosion of liner requiring repair	None	None
PFM-46	Not following OMS procedures leads to lack of maintenance and slope erosion but no release of tailings	Training	None
PFM-48	Blinding base drain decreases filter porosity and affects ability to maintain head differential resulting in loss of containment	Weekly and daily reports, OMS manual, PI screen (process control system)	None
PFM-49	Defects in liner leads to increased hydraulic conductivity and pond seepage water daylighting in the downstream slope	None	Seepage Collection, surveillance
PFM-50	Desiccation of liner leads to increased hydraulic conductivity and pond seepage water daylighting in the downstream slope	None	Seepage Collection, surveillance
PFM-51	Filter incompatibility between the liner (base soil) and the downstream shell leads to increased hydraulic conductivity of the liner and pond seepage water daylighting in the downstream slope	None	Seepage Collection, surveillance
PFM-52	Poor QA/QC of liner construction leads to increased hydraulic conductivity and pond seepage water daylighting in the downstream slope	None	Seepage Collection, surveillance
PFM-53	Freeze/thaw effects on liner lead to increased hydraulic conductivity and pond seepage water daylighting in the downstream slope	None	Seepage Collection, surveillance
PFM-54	Damage of liner induced by construction activities leads to degradation in the liner surface resulting in increased hydraulic conductivity and pond seepage water daylighting in the downstream slope	None	Seepage Collection, surveillance
PFM-55	Inadequate liner armour protection against wave and ice action leading to erosion of liner leads to increased hydraulic conductivity and pond seepage water daylighting in the downstream slope	None	Seepage Collection, surveillance
PFM-56	Preferential flow path due to instrumentation installation leads to pond seepage water daylighting in the downstream slope	None	Seepage Collection, surveillance
PFM-57	Poor tailings sample practice results in damage to liner leading to preferential flow path resulting in pond seepage water daylighting in the downstream slope	Surveillance and monitoring program in OMS, riprap armoured liner	Implementation of a formal ground disturbance program
PFM-59	Improper seal between liner interfaces during construction leads to preferential flow path resulting in increased hydraulic conductivity and pond seepage water daylighting in the downstream slope	None	Seepage Collection
PFM-60	Poor identification and inadequate removal of organics during downstream expansion leads to differential settlement of the embankment and cracking of the liner leading to increased hydraulic conductivity and pond seepage water daylighting in the downstream slope	Surveillance and monitoring program in OMS	Seepage Collection; strip surface soils in the embankment footprint starting from the

			downstream toe moving inwards
PFM-61	Change in pond water chemistry leads to chemical change in liner properties resulting in increased hydraulic conductivity and pond seepage water daylighting in the downstream slope	Confinement of barrier layer counteracts the effect of osmotic consolidation on hydraulic conductivity	Seepage Collection
PFM-63	Not following operational pumping guidelines affecting ability to maintain head differential resulting in loss of containment	Weekly and daily reports, OMS manual, PI screen (process control system)	None

Appendix A GISTM Conformance Documents

Section B: JEB TMF Operations, Maintenance and Surveillance Manual

Orano Canada Inc.

JEB TMF Operations, Maintenance and Surveillance Manual

Version 1 Revision 0

Document # 359ML-400-OM-Z-004

January 2024

Orano Canada Inc.

orano

Approval for Use

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Name	Title	Signature

History of Revisions

Version	Date	Details of Revision
1	January 2024	Rev 0: Initial Submission

Table of Contents

Acronyms and Abbreviations

Term	Definition
AE	Accountable Executive
CNSC	Canadian Nuclear Safety Commission
CSR	Corporate Social Responsibility
DAR	Deviance Accountability Report
DSI	Dam Safety Inspection
ECCC	Environment and Climate Change Canada
EHS	Environment Health and Safety
EMP	Environmental Monitoring Program
EoR	Engineer of Record
EPRP	Emergency Preparedness and Response Plan
FMEA	Failure Mode and Effect Analysis
GISTM	Global Industry Standard on Tailings Management
ICMM	International Council on Mining and Metals
ITRB	Independent Tailings Review Board
JEB site	The area containing the JEB TMF, JEB waste stockpile, ore pad, mill and office complex and the associated outbuildings.
JEB WTP	JEB Water Treatment Plan
MDMER	Metal and Diamond Mining Effluent Regulations
SMOE	Saskatchewan Ministry of Environment
ORANO	Orano Canada Inc.
PFM	Potential Failure Mode
PMP	Probable Maximum Precipitation
RTFE	Responsible Tailings Facility Engineer
SMOE	Saskatchewan Ministry of Environment
TARP	Trigger Action Response Plan
TMF	Tailings Management Facility (used to describe the McClean Lake Operation configuration)
TMS	Tailings Management System
TPR	Third Party Review
TOVP	Tailings Optimization and Validation Program
VWP	Vibrating Wire Piezometer
WTP	Water Treatment Plant

1 Objective

The objective of this document is to provide guidance and procedures for the operation, maintenance and surveillance of the JEB TMF and its appurtenant structures at Orano Canada Inc.'s (Orano) McClean Lake Operation, located in northern Saskatchewan. This document should not be relied upon for design purposes. Personnel that are expected to use this manual should be trained in its:

- Existence and importance; and
- Understand how to be competent in their roles and responsibilities.

2 Roles and Responsibilities

2.1 Organizational Chart

The organizational chart shown in Figure 2.1 identifies positions of responsibility within the company as well as external consultants, with respect to tailings management.

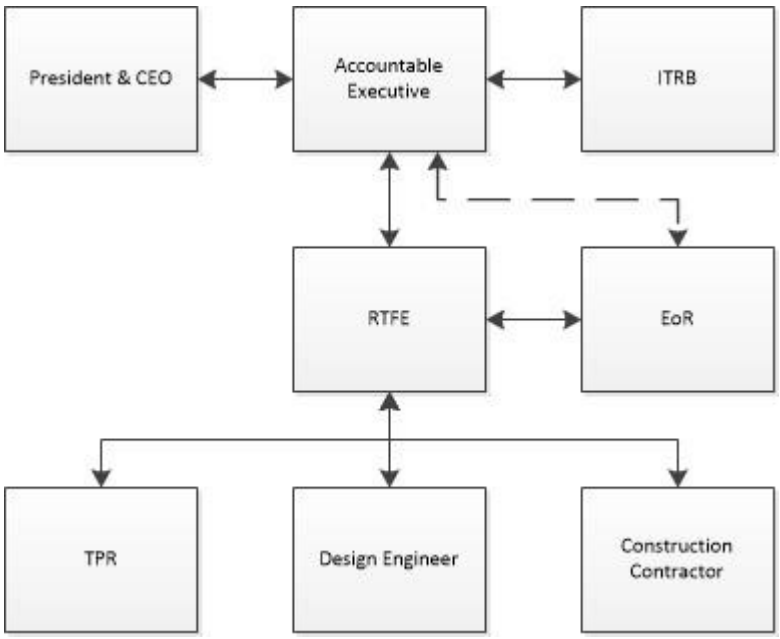

Figure 2.1 Organizational chart

2.2 Responsibilities, Competency and Training

Clarity in corporate policy and personnel accountability and responsibility is critical to the safe management of tailings. Accountabilities, responsibilities and associated competencies are defined to support appropriate identification and management of risks associated tailings facilities.

- Accountability for the overall governance of tailings facilities resides with Orano. Orano's corporate commitment to the safe and responsible management of its tailings is presented in Orano's Tailings Management Policy.
- Orano's organizational structure (Figure 2.1) and roles are established to support management of tailings facility risks and governance accountability and are described in the sections below.
- Role competency and experience requirements are defined for critical roles within the established organizational structures.

- Communication processes are maintained to ensure that personnel understand their responsibilities. Training is conducted to maintain currency of knowledge and skills.
- Neighbouring northern communities are engaged on matters related to tailings management, including potential risks to those communities.
- Integrate activities and communicate effectively, both internally (e.g., between different business units) and externally, on matters related to tailings management.
- Share information about tailings management with regulators, communities, investors and other external parties.

Tailings management requires key personnel to have competencies consistent with the requirements of the JEB TMF and its risks. A competency framework for key personnel will be developed for each role to focus on key practice areas and used in conjunction with mentoring and training to maximize learning and development. The competency framework will be based on the following structure:

- Purpose of the position
- Nature of the work
- Education/Experience
- Autonomy/decision-making capacity and authority
- Budgetary and managerial responsibilities
- Understanding of relevant theory and knowledge in relevant practice areas
- Execution of the Tailings Management System (TMS)
- Leadership skills and behaviours

2.2.1 Accountable Executive

An executive(s) who is directly answerable to the President & CEO on matters related to tailings and the Global Industry Standard on Tailings Management (GISTM). The Accountable Executive (AE) is accountable for the safety of the JEB TMF; tailings management structure and training; and, emergency preparedness and response. This role is held by the Vice President, Safety, Health, Environment and Regulatory of Orano. This person has the following responsibilities:

- Ensuring that the necessary resources are in-place for tailings management.
- Demonstrating to the President & CEO that the tailings facility is managed in accordance with legal requirements and standards.
- Delegating responsibility and authority for tailings management and defining the personnel responsibilities, authority, and reporting relationships to implement the systems needed for safe, responsible tailings management throughout the lifecycle. This includes mainly Site Operations staff, Responsible Tailings Facility Engineer (RTFE), Manager of Regulatory and Environmental Science.
- Delegating responsibility and authority for the development of integrated closure plans to ensure facility integrity post-closure.
- Being aware of the key outcomes of tailings risk assessments and how these risks are being managed.

- Establishing a program for reviewing tailings safety, including independent reviews.
- For new tailings facilities or expansion of existing facilities, approving that the design satisfies the as low as reasonably practicable (ALARP) principle and approving additional steps to further reduce potential consequences to people and/or the environment, where appropriate.
- Having scheduled communication with the Engineer of Record (EoR).
- Encouraging open, transparent communication among all employees and contractors regarding concerns about tailings facility integrity, safety or compliance.

2.2.2 Responsible Tailings Facility Engineer

The RTFE is accountable for the integrity of the tailings facility. The RTFE must be available at all times during construction, operations and closure of the JEB TMF. The RTFE has clearly defined, delegated responsibility for management of the JEB TMF and has appropriate qualifications and experience compatible with the level of complexity of the JEB TMF. This role is held by the Civil/Geotechnical Engineer. This person has the following responsibilities:

- Coordinating their efforts through the Accountable Executive for an aligned approach to tailings governance for Orano.
- Implementing the Tailings Management System.
- Establishing, with input from appropriate personnel, a budget for approval by the Accountable Executive. The budget provides funding required to perform the checks required by the ICMM GISTM.
- With input from the Accountable Executive, establishing an organizational structure with roles and responsibilities that meets the operational needs.
- Establishing a formal relationship with the EoR and Design Team to ensure that construction and operation meet the design intent and are compliant with legal requirements.
- Ensuring surveillance is undertaken in accordance with design intent, performance objectives and the risk management plan.
- Ensuring the development of the tailings facility closure plan, implementation of progressive reclamation as practicable during the Operations phase, and implementation of the closure plan at the end of the Operations phase.
- Maintaining records related to design, construction and Operation, Maintenance and Surveillance (OMS) manual.
- Ensuring inspections (e.g., dam safety inspections or dam safety reviews) are completed.
- Reviewing and updating the OMS manual.
- Ensuring that the JEB TMF emergency response plans are developed, maintained and tested as per the frequency required in the International Council on Mining and Metals (ICMM) GISTM.
- Implementing a program for reviewing tailings safety, including Independent Review as per the frequency required in the ICMM GISTM and further developed in the McClean Lake Operation JEB TMF Emergency Preparedness and Response Plan.
- Identifying when/where contemplated operational changes are a potential deviation from the design intent and engage the EoR or Design Team as part of the process to manage change.

- Participating in or providing input to community engagement activities related to tailings management.

2.2.3 Engineer of Record (EoR)

The qualified engineer (and engineering firm) responsible for confirming that the tailings facility is designed, constructed, and decommissioned with appropriate concern for integrity of the facility, and that it aligns with and meets applicable regulations, statutes, guidelines, codes, and standards. This role is held by WSP's Geotechnical Principal. This person has the following responsibilities:

- Documenting information on the design, design basis and design intent of the facility.
- Providing guidance and oversight to the investigations and studies needed to adequately characterise the site.
- Identifying and providing oversight to the necessary design analyses as required to develop the design basis for the facility.
- Providing engineering analysis in support of the development of the closure plan.
- Providing input into the OMS manual and implementation of OMS activities in accordance with the design.
- Receiving and reviewing tailings facility performance data at a frequency determined based on the risks.
- Participating in periodic risk assessments.
- Leading the identification and evaluation of potential failure modes, and the identification of credible failure modes.
- Participating in the development of the risk management plan, including risk controls and critical controls and associated surveillance.
- Overseeing or verifying quality management during construction.
- Preparing a periodic Deviance Accountability Report to properly assess change as part of Orano's Tailings Standard.
- Confirming that the tailings facility's operation is compliant or identifying variances from performance criteria and advising Orano with recommendations.
- Notifying the Accountable Executive (or delegate) in the event the EoR identifies critical concerns or significant outstanding concerns that have not been adequately addressed by the RTFE or others with relevant responsibility and authority.
- Advising on contemplated changes to the tailings facility's operation.
- Conducting inspections and participate in Independent Tailings Review Board inspections.
- Working with the RTFE, be responsible for preparation of or review of the Construction Records Report ('as-built' report) and updates.
- Developing and maintaining relevant records related to design, construction and operation, maintenance, surveillance and closure, and providing those records to Orano.

2.2.4 Independent Tailings Review Board

The Independent Tailings Review Board (ITRB) is a mechanism to review the safety of tailings facilities. The ITRB is a "*board (or single reviewer) that provides independent technical review of the design, construction, operation, closure and management of the TMF. The independent reviewers are third-parties who are not, and have not been directly involved with the design or operation of the TMF. The expertise of the ITRB members shall reflect the range of issues relevant to the facility and its context and the complexity of these issues.*" (ICMM 2020). For Orano, the ITRB is comprised of independent professional(s) with in-depth knowledge specific to the geotechnical technical challenges at the JEB TMF at the McClean Lake Operation. The independent professional(s) have considerable experience in the areas of tailings design, operations and closure and other specific topics of concern that are identified by Orano. The independent reviewer is a third-party who is not, and has not been directly involved with the design or operation of the JEB TMF.

2.2.5 Miscellaneous Roles

Third party review, design engineer and construction contractor are roles that have responsibilities specific to their tasks. During their duties they will have communication with all members of the organization. Their scopes of work will vary but will be defined during their individual activities.

2.3 Reporting

Records must be documented with the names and positions of responsible persons. These records shall be made accessible to anyone with Orano as well as appropriate external personnel.

Surveillance reporting mustbe communicated to appropriate personnel in the event that the surveillance results are outside the specified performance range. This communication should be done in a timely manner that reflects the urgency of the conditions.

2.4 Succession Planning

As part of managing risk a succession plan is in place for key responsible personnel for the JEB TMF. The succession plan covers:

- The Accountable Executive;
- The Responsible Tailings Facility Engineer;
- The Engineer of Record; and
- The Independent Tailings Review Board.

Where there is a change in personnel in any position it is up to the RTFE to ensure a smooth transition. This will be done through training on the background and key features of the facility. A document package will also be created and provided to new persons that cover the facilities background in design, studies, current and futures operations and/or construction activities.

In the case where the RTFE role is being replaced it will be the responsibility of the Accountable Executive to delegate the task and ensure the proper execution of ensuring a smooth transition and training.

The ITRB members will commit to a one-year term as part of their contracts. When their term is nearing completion, the member will either be asked to renew their contract or a search for a replacement member will begin.

3 Site and Facility Description

3.1 Site Overview

The JEB TMF is a former open pit uranium mine located in northern Saskatchewan approximately 750 km northeast of Saskatoon. The JEB TMF is part of the McClean Lake Operation that includes other former open pit mines, a processing mill, water treatment plant(s), other support utilities and infrastructure and a camp. Deposition of tailings into the JEB TMF began in 1999. Expansion of the JEB TMF has been designed and approved by regulators. Dykes and a liner were constructed to contain tailings and fluid above natural ground. The dykes are constructed from crushed sandstone and the liner is constructed from a blend of crushed sandstone, till and bentonite. Expansion construction of the dykes and liner had been completed in stages and will undergo staged construction.

The JEB TMF is actively monitored by Orano and its representatives including hydraulic containment/water levels, pore water pressure and slope movement. The design for decommissioning of the JEB TMF is ongoing.

3.2 Tailings Deposition and Water Reclaim System

The tailings are transported from the mill by pipeline to the JEB TMF where the tailings are deposited in a sub-aqueous manner. The JEB TMF was designed and constructed with a drift at the bottom of the pit and a raise well system. The raise wells are used for maintaining hydraulic containment and water level monitoring. In addition, the raise wells pumps return water back to the mill for use in the process. A reclaim pump house on the JEB TMF pond water surface sends water from the JEB TMF pond to the JEB Water Treatment Plant (WTP).

3.3 Access Roads

The McClean Lake Operation is accessible by an unpaved provincial highway. Local access roads lead to various sites within the operation. Access is restricted to Orano and other authorized personnel. There is a single access road leading to the JEB TMF where traffic may travel down a ramp into the tailings facility or along the crest of the dykes.

3.4 Dam Consequence Classification

In the event of a hypothetical breach of the tailings facility the consequence rating is classified as “very high” (Golder Associates Ltd. 2021). This was determined by modelling breach scenarios and assessing the downstream impacts on the following categories:

- People;
- The environment;
- Health, Social and Cultural; and

- Infrastructure and economics.

The highest rating in any of the categories then determines the overall consequence rating. For the JEB TMF the highest rating is from the environment category. This is due to restoring impacts to downstream water bodies would take a very long time (greater than 5 years) to complete. All other categories ranged from low to high.

3.5 Reference and Regulatory Information

The McClean Lake Operation, specifically the JEB TMF is regulated by the Saskatchewan Ministry of Environment (SMOE) and the Canadian Nuclear Safety Commission (CNSC). Both entities regularly communicate with Orano staff on matters that relate to construction, operations and inspections of the JEB TMF. Where there are out of the ordinary situations related to the tailings facility (including but not limited to inspections) the appropriate supervisors must be notified. The RTFE shall be notified and then decisions will be made to communicate matters to regulators.

Orano is an ICMM member and therefore complies by the GISTM. Compliance by this standard is achieved through engineering design, operations, and administrative tasks. Inspections and reviews as required by the standard are outlined in detail in Section 5, Surveillance.

3.6 Site Conditions

3.6.1 Topography

Topography surrounding the JEB TMF is defined by muskeg-covered, poorly drained terrain. The lowest natural elevation corresponds to Pat Lake at approximately 443.5 mASL, while the highest natural elevation corresponds to two drumlins at approximately 470 mASL, located directly to the northeast and southeast of the JEB TMF (Golder Associates Ltd. 2019).

3.6.2 Geology

The general geology encountered in the JEB TMF area includes the following units in descending order:

- Till;
- Upper sandstone;
- Lower sandstone;
- Basement regolith; and
- Intact basement

3.6.3 Climate and Seismicity

The McClean Lake Operation site experiences summer to winter conditions throughout the year. The summer temperatures are relatively short, with freezing winter conditions lasting longer throughout the year. Precipitation comes in the form of both rain and snow with the 24-hour probable maximum precipitation amounting to 0.466 m (Golder Associates Ltd. 2019).

The JEB TMF is located within the tectonically stable interior of the “Stable Canada”. The seismicity in this area during the period of historical record has been very low; no natural earthquake event with magnitude M3 and larger has been recorded in the JEB area. The closest earthquake location with magnitude M3 to the JEB TMF site was recorded in the northeast area of Alberta, approximately 500 km from the JEB TMF site (Golder Associates Ltd. 2019).

4 Operation

The JEB TMF has expanded from an in-pit facility to an above natural ground containment structure. With that there have been extensive engineering and construction quality measures to ensure the safe containment of tailings. There are performance indicators to ensure the facility is operating as intended.

4.1 Water Management

Surface water runoff from around the JEB site is either stored in temporary ponds, treated through the tailings neutralization circuit or directed to the JEB TMF. Storage ponds are pumped into the JEB TMF or tailings neutralization circuit whenever the water level is deep enough to commence pumping. This may be after a heavy precipitation event or after multiple smaller precipitation events.

Water balance is maintained by reclaiming water out of the JEB TMF and pumping to the JEB WTP. JEB WTP operation manuals are found under Suite 510, JEB Water Treatment Plant Unit Process and contain the operational directives. Treated water is released to adjacent reservoirs, Sink/Vulture. Three raise water wells also play a role in the water balance of the JEB TMF. These are wells completed into a chamber at the end of a drift at the bottom of the JEB TMF pit. The objective of the raise well water system is to maintain a downward hydraulic gradient from the tailings pond to the base filter and to maintain a consistent pond level. The raise water system removes water volumes daily to compensate for the impinging groundwater and, additionally, removes pore water from the tailings that passes through the filter in the bottom of the JEB TMF. The water is collected by the raise water system and pumped to the mill for re-use. Excess water is directed to the JEB WTP. Water that is treated in the JEB WTP is released to the environment in adjacent reservoirs, Sink/Vulture.

4.2 Operational Freeboard and Water Levels

Freeboard is the vertical distance between the JEB TMF pond water surface and top of the lowest point of the impervious part of the dam, in this case the soil-bentonite liner. The minimum freeboard calculation accounts for the worst-case scenario rainfall and wind/wave event to maintain safe storage. The calculation includes (Golder Associated Ltd 2018):

- Probable Maximum Precipitation (PMP) direct rainfall depth, 0.466 m
- Surface water from around the site that would report to the JEB TMF, 1.0 m
- Wave run up, 1.0 m

Therefore, a minimum of 2.5 m of freeboard must be maintained between the pond water surface and lowest part of the soil bentonite liner. Storage capacity may be estimated by elevation using the stage storage curve, shown in Figure 4.1

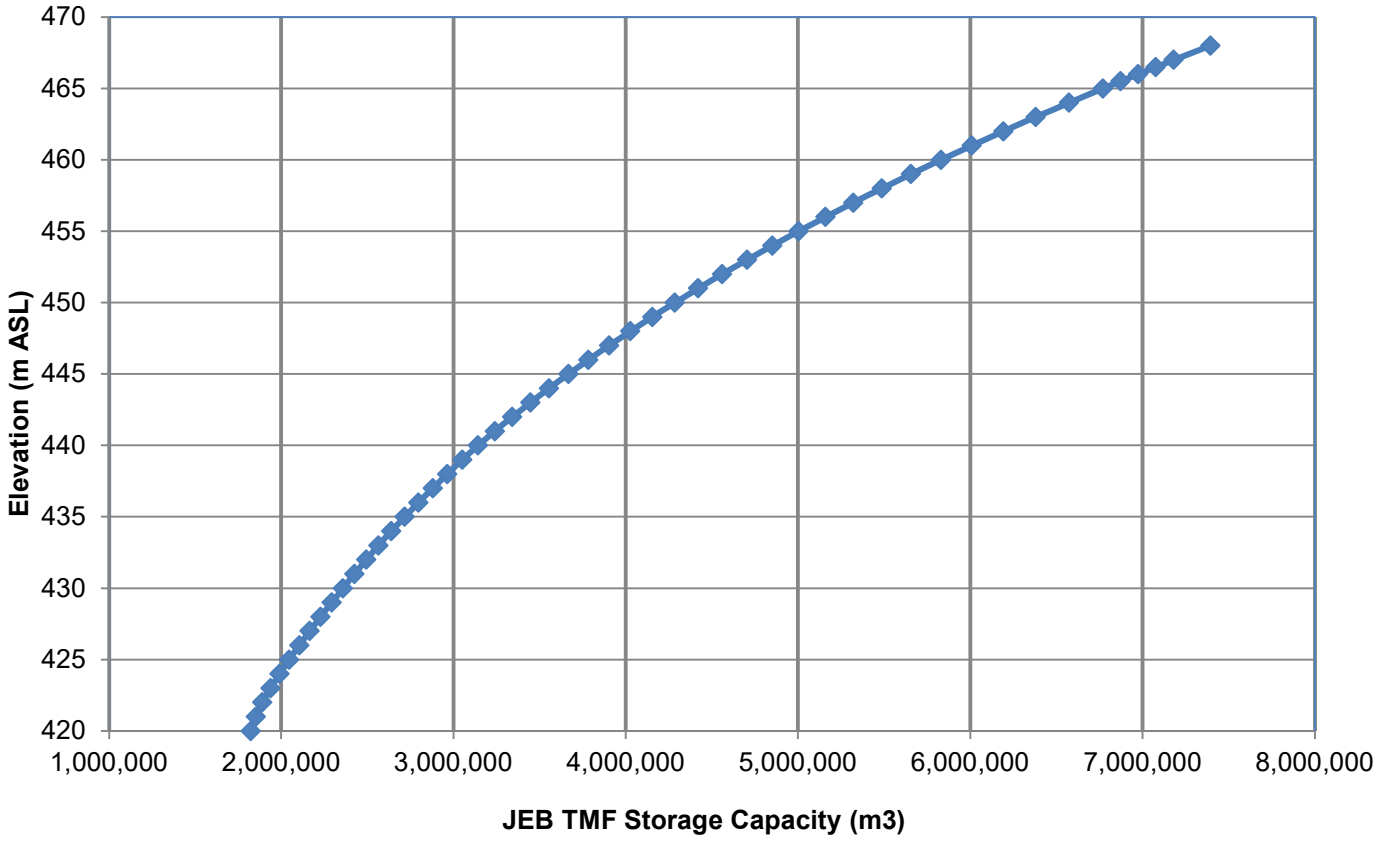

Figure 4.1 JEB TMF Stage Storage Curve

The JEB TMF raise well has specific performance objectives to maintain hydraulic containment within the facility:

- When the pond elevation is less than 445.7 mASL the raise well water level must be maintained at least one meter below the pond elevation.
- When the pond elevation is between 445.7 masl and 455 mASL, the raise well water level must be maintained at least three meters below the Fox Lake elevation.
- When the pond elevation is greater than 455 masl the raise well water level must be maintained at least seven meters below the Fox Lake elevation.

Further information on water levels is found in Table 5.1 Trigger Action Response Plan for JEB TMF.

4.3 Change Management

The RTFE in collaboration with the EoR will ensure the OMS is updated accordingly to reflect changes in the operation related to the JEB TMF and associated works. Changes to procedures, equipment or organizations shall follow OCI-401 Management of Change Standard, prior to implementation.

4.4 Documentation and Reporting

The following information related to the JEB TMF operation shall be documented and reported to the RTFE. This information will be made available to other Orano personnel and Orano's consultants as requested:

- Surveys of the tailings surface; and
- Routine inspections

In addition, routine duties for the JEB TMF Unit Process, Document No. 504-03 shall be documented and reported in a similar manner.

4.5 Tailings Placement

The tailings are transported from the mill tailings thickener in three separate pipe lines. Two of the three pipelines carry tailings underflow and are deposited in a sub-aqueous manner. The third pipeline carries tailings thickener overflow and discharges above the JEB TMF pond water surface.

The tailings thickener underflow is typically discharged at a solids content below 30%. Depending on the type of ore that is processed, the grain size of the tailings varies, however the majority of the tailings fall under silt or clay sized particles. Upon deposition the coarser grains tend to form a mound around the deposition point. Bathymetric surveys take place at least twice per year to determine how the tailings surface has increased in height and to select new deposition locations, as necessary. Deposition points are selected to fill low spots, but must maintain a 30-meter buffer from the edge of the pit if still depositing within the exposed sandstone (i.e. the tailings surface has not reached the soil bentonite liner surface). This is to maintain a low permeability zone with the finer tailings that tend to spread outwards from the deposition point.

5 Surveillance

5.1 General

The surveillance of the JEB TMF is intended to ensure that the design intent is being met and the facility is being operated in it's intended and safe manner. There has been extensive engineering and performance indicators have been developed to measure performance and indicate action levels. Surveillance is conducted through visual inspections and data collection for both Orano personnel and Orano's consultants to interpret.

5.2 Inspections

5.2.1 Visual Embankment and Soil Bentonite Liner Inspection

Visual inspection of the embankment and soil bentonite liner are to be conducted by the McClean Lake Operation Environmental Group at a monthly frequency or event driven after heavy precipitation (25 mm or 1 inch in 24 hours). During the winter months when the embankment and liner are covered in snow the visual inspection will be limited. The inspection form is found in Appendix C. The inspection includes visual observations of erosion, cracks, slumping/instability, settlement, seepage/high water table, excessive vegetation growth. The inspection findings and related documentation shall be made available to the RTFE. Inspectors shall be trained by the RTFE and/or EoR.

A failure mode and effect analysis (FMEA) was conducted by WSP Canada Inc. (2022). Potential failure modes (PFM) were identified along with their existing controls and barriers. Potential risk reduction measures were also identified for each PFM where possible. A list of PFMs are included in the JEB TMF Emergency Preparedness and Response Plan (EPRP refer to OCI 359ML-400-PLA-Z-003). These PFMs fall under Categories I and II which include all credible PFMs. Inspections that are conducted will cover the identification of PFMs where applicable.

5.2.2 Facilities and Tailings Line Inspection

Refer to work instruction, Document No. 504-17, Tailings Management Facility Unit Process Surface Pipeline and Drain/Vent Checks. This document has instructions on which pipelines need to be inspected, the frequency of the inspections and the where to document the information. This is conducted by the McClean Mill Operations group.

5.3 Instrumentation and Monitoring

The JEB TMF pond water will rise above the natural water table with time. The upper till slopes and the JEB TMF embankment have been designed to contain water by implementing a soil-bentonite liner. A monitoring program for the JEB TMF was developed to verify the performance of the expanded JEB TMF and includes groundwater monitoring and monitoring of embankment slope stability. Monitoring cross sections have been established at six locations around the JEB TMF:

- Monitoring Section 01: Northwest area of the JEB TMF towards Fox Lake
- Monitoring Section 02: Northeast area of the JEB TMF
- Monitoring Section 03: South area of the JEB TMF near the south ramp
- Monitoring Section 04: Southeast area of the JEB TMF near the raise well pump house
- Monitoring Section 05: Northwest area of the JEB TMF towards Fox Lake
- Monitoring Section 06: Northwest area of the JEB TMF towards Fox Lake

A general site plan is provided in Appendix A. The instrumentation locations and associated monitoring cross sections are provided in Appendix B.

5.3.1 Groundwater Monitoring

Groundwater monitoring is used to demonstrate that hydraulic containment is maintained throughout the operation of the JEB TMF, identifying horizontal and vertical hydraulic gradients surrounding the JEB TMF and the hydraulic gradients across the liner. Groundwater monitoring wells in the vicinity of the JEB TMF includes nested monitoring wells at location 95-01, 95-02, 95-03, 95-05 and the JEB TMF base drain monitoring well, CM05. Vibrating wire piezometer (VWP) arrays are installed in groups of three, within the upper liner, the lower liner and within the till.

5.3.2 Embankment Stability

A geotechnical instrumentation plan is used to demonstrate that embankment stability is maintained throughout the operation of the JEB TMF. VWPs installed within the till below the embankment measure pore-water pressures of the foundation soil and are located below the downstream toe, the centreline and the upstream toe of the embankment.

A slope inclinometer casing is installed below the crest of the embankment near Monitoring Cross Section 1 adjacent to Fox Lake to monitor movement of the embankment at that location. When the embankment is expanded to 468 masl, the slope inclinometer casing will require decommissioning and replacement. The expanded JEB TMF will have a slope inclinometer casing installed at each of the six Monitoring Cross Sections.

5.3.3 Trigger Action Response Plan

Trigger action response plans (TARPs) are a critical aspect of managing the safety of tailings dams. TARPs are developed by defining appropriate triggers, trigger thresholds, and responses for specific areas of movement. Trigger thresholds are developed specific to identified credible failure modes based on professional experience, review of monitoring data, design inputs, and monitoring capability. Responses are planned around potential failure scenarios and potential impacts to personnel, infrastructure, and the

environment. Once in place, TARPs are continually optimized as the understanding of each PFM and more information becomes available, or operating conditions change.

The TARPs developed for the JEB TMF are based on the credible PFMs for the facility and provided in Table 5.1

Regular review of piezometric levels in foundation soil is required to determine stability of the JEB TMF embankment. Piezometric Yellow Alert levels are provided in Table 5.2 for each Monitoring Section, except for Monitoring Section 4 where expansion embankment has not yet been constructed.

Table 5.1: Trigger Action Response Plan for JEB TMF

Emergency Type	Alert Level	Indicator	Trigger	Communication	Actions
Overtopping Dam overtopping occurs when water flows over the top of the dam which occurs when either not following operational water level guidelines resulting in operating above minimum Freeboard levels or when climatic event leads to overtopping of the dam and release of tailings pond water.	Yellow	Visual Observation / Staff Gauge or Survey Measurement	Pond Level Exceeds Maximum Operating Level (Normal Freeboard = 2.5 m)	Notify RTFE, AE and EoR.	Develop a plan to lower pond levels. Maintain routine. monitoring and surveillance activities. Escalate to Orange Alert level in the spring if local snow load accumulation is considered to potentially provide heavy runoff flows.
	Orange	Visual Observation / Staff Gauge or Survey Measurement	Pond Level Exceeds Environmental Design Flood Level (Freeboard = 2.0 m)	Notify General Manager, RTFE, AE and EoR.	Develop a plan to lower pond levels including curtailed process plant production to increase reclaim water treatment capacity. Increase frequency of monitoring and surveillance activities under advisement of the EoR. Escalate to Red Alert in the spring if melt water from the remaining snow load or heavy rainfall continues and is considered potentially excessive.

Emergency Type	Alert Level	Indicator	Trigger	Communication	Actions
	Red	Visual Observation / Staff Gauge or Survey Measurement	Pond Level Exceeds Inflow Design Flood Level (Minimum Freeboard = 1.0 m)	Notify CEO, General Manager, RTFE, AE and EoR. Notify regulatory agencies within 24 hours.	Develop a plan to lower pond levels including ceasing process plant production to maximize reclaim water treatment capacity. Increase frequency of monitoring and surveillance activities under advisement of the EoR.
Instability Events that may lead to dam instability include rising pond levels, seismic events, elevated phreatic surface, and extreme precipitation events causing erosion of the embankment.	Yellow	Inclinometer Data	Greater than 2 mm deflection per quarter or 10 mm cumulative deflection	Notify RTFE, AE and EoR	Increase frequency of monitoring and surveillance activities under advisement of the EoR.
		Visual Observation	Appearance of new cracks / opening of existing cracks		
		Piezometer Data	Significant trend of increasing pore pressures in several piezometers. Reading from a single piezometer exceeds Yellow Alert level (see **Error! Reference source not found.**)		
	Red	Inclinometer Data	Accelerating deflection in excess of Yellow Alert	Notify CEO, General Manager, RTFE, AE and EoR. Notify regulatory agencies within 24 hours	Increase frequency of monitoring and surveillance activities under advisement of the EoR. Undertake remedial repairs as recommended by the EoR.
		Visual Observation	Continuing and accelerating growth of cracks & slope slumps, toe bulges, increasing trend of deformation		

Emergency Type	Alert Level	Indicator	Trigger	Communication	Actions
		Piezometer Data	Rapid rise of piezometric levels subsequent to exceedance of Yellow Alert level (see Table 5.2)		Maintain 24-hour/7-day vigilance of distressed structure as directed by EoR.
Excess Seepage Occurs as a result of poor liner performance or water overtopping the liner crest leading to uncontrolled seepage through the embankment.	Yellow	Visual Observation	Appearance of seepage at downstream toe	Notify RTFE, AE and EoR.	Increase frequency of monitoring and surveillance activities under advisement of the EoR. Undertake remedial repairs as recommended by the EoR.
		Piezometer Data	Increased piezometric levels in embankment/foundation downstream of liner exceeds Yellow Alert level (See Table 5.2)		
	Red	Visual Observation	Ponded or running seepage at downstream toe	Notify CEO, General Manager, RTFE, AE and EoR. Notify regulatory agencies within 24 hours.	Increase frequency of monitoring and surveillance activities under advisement of the EoR Undertake remedial repairs as recommended by the EoR. Maintain 24-hour/7-day vigilance of distressed structure as directed by EoR.
		Piezometer Data	Increased piezometric levels in embankment/foundation downstream of liner subsequent to exceedance of Yellow Alert level (see **Error! Reference source not found.**)		

Emergency Type	Alert Level	Indicator	Trigger	Communication	Actions
Internal Erosion Occurs when water seeps through the dam along preferred pathways and carries away soil particles. Preferred pathways may be the result of defects in the liner, foundation or embankment.	Yellow	Visual Observation	Appearance of turbid seepage at downstream toe	Notify RTFE, AE and EoR.	Increase frequency of monitoring and surveillance activities under advisement of the EoR. Undertake remedial repairs as recommended by the EoR.
	Red	Visual Observation	Appearance of sand boils or sink holes at downstream toe	Notify CEO, General Manager, RTFE, AE and EoR. Notify regulatory agencies within 24 hours	Increase frequency of monitoring and surveillance activities under advisement of the EoR. Undertake remedial repairs as recommended by the EoR. Maintain 24-hour/7-day vigilance of distressed structure as directed by EoR.
Contaminant Loading Occurs as a result of blinding the base filter drain or mechanical failure of pumping equipment that affects the ability to pump sufficient water from the drain to maintain hydraulic containment,	Yellow	Staff Gauge or Survey Measurement, Piezometric Data	Pond Level > 445.7 and < 455 mASL: Head differential between Fox Lake and drift monitoring well exceeds 1.0 m Annual assessment of piezometric data does not demonstrate hydraulic containment	Notify RTFE, AE and EoR.	

Emergency Type	Alert Level	Indicator	Trigger	Communication	Actions
or not following operational water level guidelines affecting the ability to maintain hydraulic containment.			Pond Level > 455 mASL: Head differential between Fox Lake and drift monitoring well exceeds 7.0 m Annual assessment of piezometric data does not demonstrate hydraulic containment		Assess the cause and develop corrective plan to resume normal operating conditions. Maintain routine monitoring and surveillance activities.
	Red	Staff Gauge or Survey Measurement, Piezometric Data, Groundwater Quality Monitoring	Drift monitoring well head exceeds Fox Lake (445.7 mASL) over a period of three days Observed impacted groundwater quality downstream of TMF	Notify CEO, General Manager, RTFE, AE and EoR. Notify regulatory agencies within 24 hours	Assess the cause and develop a plan to lower base drain water levels. Increase frequency of monitoring and surveillance activities, assess potential effects and develop recovery plan under advisement of the EoR. This includes analysis of nearby data loggers for groundwater flow patterns and gradients.

Table 5.2: Piezometric Yellow Alert Levels for JEB TMF

Instrument Type	Instrument ID	Monitoring Feature	Installation Location	Historic Total Elevation Head Range (m ASL)	Typical Total Elevation Head Range (m ASL)	Yellow Alert Total Elevation Head (m ASL)	Additional Information
Monitoring Section 1							
Vibrating Wire Piezometer	VW21-01FA	Foundation Soil	Downstream Toe, 457.5 mASL Embankment	--*	--*	446.0	
	VW21-01FB		Crest Centreline, 457.5 mASL Embankment	--*	--*	446.0	
	VW21-01FC		Upstream Toe, 457.5 mASL Embankment	--*	--*	446.0	
	VW23-01LL	Liner	Lower 452.5 m ASL Soil Bentonite Liner	--*	--*	--****	
	VW23-01LU		Upper 452.5 m ASL Soil Bentonite Liner	--*	--*	--****	
Monitoring Section 2							
Vibrating Wire Piezometer	VW21-02FA	Foundation Soil	Downstream Toe, 457.5 mASL Embankment	--*	--*	453.0	
	VW21-02FB		Crest Centreline, 457.5 mASL Embankment	--***	--***	453.0	
	VW21-02FC		Upstream Toe, 457.5 mASL Embankment	--*	--*	453.0	
Monitoring Section 3							
Vibrating Wire Piezometer	VW21-03FA	Foundation Soil	Downstream Toe, 457.5 mASL Embankment	--*	--*	446.0	
	VW21-03FB		Crest Centreline, 457.5 mASL Embankment	--*	--*	446.0	

Instrument Type	Instrument ID	Monitoring Feature	Installation Location	Historic Total Elevation Head Range (m ASL)	Typical Total Elevation Head Range (m ASL)	Yellow Alert Total Elevation Head (m ASL)	Additional Information
	VW21-03FC		Upstream Toe, 457.5 mASL Embankment	--*	--*	446.0	
	VW23-03FC	Liner	Upstream Toe, 457.5 m ASL Embankment	--*	--*	--****	
	VW23-03LL		Lower 452.5 m ASL Soil Bentonite Liner	--*	--*	--****	
	VW23-03LU		Upper 452.5 m ASL Soil Bentonite Liner	--*	--*	--****	
Monitoring Section 5							
Vibrating Wire Piezometer	VW21-05FA	Foundation Soil	Downstream Toe, 457.5 mASL Embankment	--*	--*	446.0	
	VW21-05FB		Crest Centreline, 457.5 mASL Embankment	--*	--*	446.0	
	VW21-05FC		Upstream Toe, 457.5 mASL Embankment	--*	--*	446.0	
Monitoring Section 6							
Vibrating Wire Piezometer	VW21-06FA	Foundation Soil	Downstream Toe, 457.5 mASL Embankment	--*	--*	446.0	
	VW21-06FB		Crest Centreline, 457.5 mASL Embankment	--*	--*	446.0	
	VW21-06FC		Upstream Toe, 457.5 mASL Embankment	--*	--*	446.0	
	VW-2306LL	Liner	Lower 452.5 m ASL Soil Bentonite Liner	--*	--*	--****	

Instrument Type	Instrument ID	Monitoring Feature	Installation Location	Historic Total Elevation Head Range (m ASL)	Typical Total Elevation Head Range (m ASL)	Yellow Alert Total Elevation Head (m ASL)	Additional Information
	VW23-06LU		Upper 452.5 m ASL Soil Bentonite Liner	--*	--*	--****	

*VWP installed in soil that is not yet saturated – no readings available yet.
**VWP damaged during installation and is non-functional
***VWP producing non-realistic readings – the condition of the VWP is to be investigated.
****Alert level to be determined after sufficient data is available to determine typical values.

5.3.4 Piezometers and Monitoring Wells

The locations of the piezometers and monitoring wells are provided in the Instrumentation Plan in Appendix B. The VWPs installation details are provided below in Table 5.3. Installation details for the groundwater monitoring wells are provided in Table 5.4.

Table 5.3: Vibrating Wire Piezometer Instrumentation Installation Details

Monitoring Section	VWP Name and Serial Number	Zero Readings (B unit, °C)	Installation Location (m)	Target Location
1	19-01-VW1 (VW58438)	2019/07/03 14:25	N: 11,267.02	VWP Array, Hydraulic Gradients Across Liner
		8926.2	E: 5,100.62	
		11.7	Elev: 444.71	
	19-01-VW2 (VW58437)	2019/07/11 9:55	N: 11,266.89	
		8717.5	E: 5,100.85	
		21	Elev: 445.67	
	19-01-VW3 (VW58439)	2019/07/16 15:00	N: 11,266.64	
		8693.9	E: 5,101.19	
		28.2	Elev: 446.53	
1	VW21-01FA (VW133666)	2021/06/20 09:05	N: 11,324.60	Foundation Soil, Downstream Toe
		8849.9	E: 5,061.70	
		10.9	Elev: 447.97	
	VW21-01FB (VW133688)	2021/06/20 11:24	N: 11,311.6	Foundation Soil, Centreline
		8996.7	E: 5,082.9	
		9.4	Elev: 448.36	
	VW21-01FC (VW133654)	2021/06/20 14:01	N: 11,299.2	Foundation Soil, Upstream Toe
		9143.6	E: 5,104.8	
		11.3	Elev: 449.27	
1	VW23-01LL (VW171249)	2023/07/01 12:00	N: 11,299.17	VWP Array, Hydraulic Gradients Across Liner
		8867.9	E: 5,105.00	
		19.1	Elev: 450.78	
	VW23-01LU (VW165391)	2023/07/16 12:00	N: 11,298.91	
		9115.7	E: 5,105.32	
		15.0	Elev: 451.64	
2	19-02-VW1 (VW58434)	2019/07/04 7:34	N: 11,345.78	VWP Array, Hydraulic Gradients Across Liner
		8820.1	E: 5,426.69	
		9.8	Elev: 444.03	

Monitoring Section	VWP Name and Serial Number	Zero Readings (B unit, °C)	Installation Location (m)	Target Location
	19-02-VW2 (VW58435)	2019/08/02 11:43	N: 11,345.46	
		8974.2	E: 5,426.41	
		22.6	Elev: 444.98	
	19-02-VW3 (VW58436)	2019/09/07 7:59	N: 11,345.19	
		8630.2	E: 5,426.25	
		5.1	Elev: 445.87	
2	VW21-02FA (VW133675)	2021/07/26 09:24	N: 11,375.69	Foundation Soil, Downstream Toe
		9177.7	E: 5,475.6	
		19	Elev: 454.04	
	VW21-02FB (VW133695)	2021/07/26 09:22	N: 11,367.95	Foundation Soil, Centreline
		9121.2	E: 5,469.13	
		18.2	Elev: 454.28	
	VW21-02FC (VW133696)	2021/07/26 08:59	N: 11,359.13	Foundation Soil, Upstream Toe
		9101.5	E: 5,480.15	
		15	Elev: 454.01	
3	19-03-VW1 (VW58429)	2019/08/21 18:35	N: 11,038.01	VWP Array, Hydraulic Gradients Across Liner
		8987.5	E: 5,222.89	
		15.9	Elev: 444.04	
	19-03-VW2 (VW58430)	2019/08/23 17:15	N: 11,037.73	
		8894.7	E: 5,223.01	
		16.6	Elev: 445.00	
	19-03-VW3 (VW58428)	2019/08/27 11:51	N: 11,036.65	
		8384.4	E: 5,223.06	
		14.6	Elev: 445.83	
3	VW21-03FA (VW58431)	2021/07/24 13:01	N: 10,954.05	Foundation Soil, Downstream Toe
		8803.4	E: 5,186.13	
		17.7	Elev: 447.27	
	VW21-03FB (VW58432)	2021/08/06 16:48	N: 10,974.74	Foundation Soil, Centreline
		8679.7	E: 5,196.31	
		15.2	Elev: 446.99	
	VW21-03FC (VW58431)	2021/08/06 16:50	N: 10,989.52	Foundation Soil, Upstream Toe
		8841.1	E: 5,203.05	
		15.4	Elev: 446.66	
3	VW23-03FC (VW165362)	2023/07/16 12:00	N: 11,021.92	Foundation Soil, Upstream Toe
		8853.7	E: 5,223.78	
		12.7	Elev: 449.01	
	VW23-03LL	2023/08/10 12:00	N: 11,022.30	

Monitoring Section	VWP Name and Serial Number	Zero Readings (B unit, °C)	Installation Location (m)	Target Location
		8747.5	E: 5,224.02	VWP Array, Hydraulic Gradients Across Liner
		13.0	Elev: 449.96	
	VW23-03LU (VW165362)	2023/08/11 12:00	N: 11,022.37	
		8679.8	E: 5,224.20	
		18.7	Elev: 450.81	
4	19-04-VW1 (VW58442)	2019/09/19 14:05	N: 11,082.68	VWP Array, Hydraulic Gradients Across Liner
		8496.4	E: 5,460.35	
		15.5	Elev: 444.04	
	19-04-VW2 (VW58441)	2019/09/21 11:38	N: 11,083.06	
		8693.4	E: 5,460.27	
		9.2	Elev: 444.85	
	19-04-VW3 (VW58440)	2019/09/22 13:04	N: 11,083.35	
		8727.1	E: 5,459.87	
		11.4	Elev: 445.67	
5	VW21-05FA (VW133697)	2021/07/01 15:56	N: 11,204.30	Foundation Soil, Downstream Toe
		8777.8	E: 5,017.13	
		23.7	Elev: 449.53	
	VW21-05FB (VW133668)	2021/07/01 17:19	N: 11,203.30	Foundation Soil, Centreline
		9094.8	E: 5,038.95	
		26.8	Elev: 450.46	
	VW21-05FC (VW133679)	2021/07/01 17:31	N: 11,200.19	Foundation Soil, Upstream Toe
		8859.9	E: 5,058.17	
		28.8	Elev: 450.82	
6	VW21-06FA (VW133664)	2021/06/10 14:06	N: 11,374.77	Foundation Soil, Downstream Toe
		8609.6	E: 5,097.30	
		15.6	Elev: 447.80	
	VW21-06FB (VW133678)	2021/06/10 15:07	N: 11,362.16	Foundation Soil, Centreline
		8970.2	E: 5,114.56	
		13.9	Elev: 448.43	
	VW21-06FC (VW133708)	2021/06/10 15:35	N: 11345.56	Foundation Soil, Upstream Toe
		8727.4	E: 5137.64	
		14.2	Elev: 449.18	
6	VW23-06LL (VW171388)	2023/06/30 12:00	N: 11,345.41	VWP Array, Hydraulic Gradients Across Liner
		8610.8	E: 5,137.93	
		25.5	Elev: 450.27	
	VW23-06LU (VW165380)	2023/07/16 12:00	N: 11,345.17	
		8961.7	E: 5,138.19	

Monitoring Section	VWP Name and Serial Number	Zero Readings (B unit, °C)	Installation Location (m)	Target Location
		16.6	Elev: 451.21	

The data loggers have been programmed with a daily monitoring interval. The data must be downloaded by the McClean Lake Operation Environment Group and reviewed by the RTFE for alert level exceedances every three months and sent to engineer of record team annually. Refer to work instruction, Document No. 705-14 Downloading/Importing JEB TMF Vibrating Wire Dataloggers.

Installation details for the groundwater monitoring wells are provided in Table 5.4.

Table 5.4: Monitoring Well Installation Details

Monitoring Cross Section	Monitoring ID	Instrumentation	Unit	Bottom of Screen Elevation (m ASL)
1	95-05D	Monitoring Well	Till	442.63
	95-05C	Monitoring Well	Upper Sandstone	415.06
	95-05B	Monitoring Well	Lower Sandstone	366.03
	95-05A	Monitoring Well	Regolith	351.10
2	95-01D	Monitoring Well	Till	446.55
	95-01C	Monitoring Well	Upper Sandstone	411.24
	95-01B	Monitoring Well	Lower Sandstone	384.90
	95-01A	Monitoring Well	Regolith	359.38
3	95-03C	Monitoring Well	Till	431.99
	95-03B	Monitoring Well	Sandstone	380.83
	95-03A	Monitoring Well	Regolith	351.80
4	95-02D	Monitoring Well	Till	441.75
	95-02C	Monitoring Well	Upper Sandstone	420.38
	95-02B	Monitoring Well	Lower Sandstone	366.99
	95-02A	Monitoring Well	Regolith	352.53

Routine groundwater monitoring triggers associated with contaminant loading are determined by pond water level and base drain head. An annual assessment of all piezometric data is required to evaluate hydraulic containment as part of the dam safety inspection (Section 5.4).

5.3.5 Slope Inclinometers

The location of the slope inclinometer casing is shown as SI21-01 and is provided in the Instrumentation Plan in Appendix B. The VWPs associated with the slope inclinometer are installed within the casing and the details are provided below in Table 5.5.

Table 5.5: Slope Inclinometer Casing Instrumentation Details

Monitoring Section	SI Name and Serial Number	Zero Readings (B unit, °C)	Installation Location (m)	Target Location
1	SI21-01-VW-1 (137471)	2021-10-11 7:40	N: 11281.37	Foundation Soil
		9635.9	E: 5058.61	
		13.1	Elev: 447.78	
	SI21-01-VW-2 (137498)	2021-10-11 7:41	N: 11281.37	457.5 m ASL Embankment Rock Fill
		9402.6	E: 5058.61	
		13.9	Elev: 452.78	

The Yellow Level alert trigger (as in Table 5.1) for slope instability based on slope inclinometer data is the following:

- Greater than 2 mm deflection per quarter (within 3 months); or
- Cumulative deflection of 10 mm

The slope indicator must be perpetually monitored every three months. The data must be downloaded by the McClean Lake Operation Site Services group and reviewed for alert level exceedances every three months by the RTFE. The data is reviewed by the engineer of record team annually or when there are trigger level exceedances. Refer to work instruction, Document No. 401-29 Slope Monitoring Using a Slope Inclinometer.

5.4 Dam Safety Inspection and Dam Safety Reviews

A Dam Safety Inspection (DSI) will be conducted annually by the EoR and should coincide with the completion of construction activities and be provided to the CNSC. The scope of the DSI will typically consist of a physical inspection, review of operational and performance data. A report shall be made that summarizes the finding(s) along with recommendations if any. It should be noted that the EoR may be required to perform event driven specific inspections of the facility (i.e. erosion after heavy precipitation).

An independent Dam Safety Review (DSR) shall be conducted every 5 years, at least. The frequency may be increased upon recommendation by the ITRB. A DSR service provider shall not perform consecutive DSRs

on the same tailings facility. The typical scope of work for a DSR includes technical, operational and governance review for the tailings facility. A report shall be provided to Orano that summarizes the finding(s) along with recommendations, if any.

6 Maintenance

6.1 General

Maintenance of the JEB TMF shall be completed as needed to ensure the facility is operating to its intended design. It is the responsible of the RTFE to ensure that inspections are completed and action items requiring maintenance are noted. The Mill Manager shall be notified of deficiencies that are reported. The RTFE and Mill Maintenance department must ensure that required maintenance is scheduled and completed in a timely manner as to not hinder the design or operation of the facility. Maintenance may be completed by the McClean Lake Operation Mill Maintenance department or Site Services in which case notifications shall be created. However, some cases may require the use of contractors for more extensive or specialized service.

Where deficiencies are noted that are deemed to be of complicated or specialized in nature where the performance of the facility is in question, the EoR shall be notified as well. The EoR may elect to do their own physical inspection, request photographs or delegate the inspection task. Upon review the EoR may prescribe remedial measures to correct the deficiency and/or preventative measures to reduce future occurrences.

Where maintenance or repair work is performed the work must done by either qualified persons or persons familiar with the task. Proper safety procedures and safe work plans shall be utilized.

6.2 Components Requiring Maintenance

Maintenance shall be conducted on the following if needed:

- Embankment and soil bentonite liner
- Roads and ditches
- Walkway and floating barges
- Monitoring instruments (piezometers and slope inclinometers)
- Tailings deposition system

6.3 Maintenance Schedule and Events

Deficiencies are that are identified as part of operations and surveillance activity shall be rectified within the timelines in Table 6.1. Deficiencies will be assigned a description, responsible person, and timeline all captured in Orano's AHEAD management system. Priority rankings shall be assigned based on the opinion of the RTFER and/or EOR.

Table 6.1: Deficiency Priority Ranking System.

Priority	Rectification Timeline
Very High	< 12 months
High	≤ 18 months
Medium	≤ 2 years
Low	≤ 3 years
Very Low	≤ 5 years

6.3.1 JEB TMF Embankment, Liner, Roads and Ditches

Regular inspections of JEB TMF will typically trigger a maintenance event of the embankment, liner, roads or ditches. The findings of inspections will be provided to the RTFE and highlight the need for maintenance. Depending on the complexity of the maintenance required either Site Services or a contractor would be responsible for the maintenance work.

6.3.2 JEB TMF Walkway and Floating Barges

Daily checks of the JEB TMF pond water level would reveal maintenance required for the floating walkways or barges. The RTFE and Mill Manager shall be notified of deficiencies at which point plans will be made to correct the deficiency as well as a safe work temporary alternate plan, if needed.

6.3.3 JEB TMF Monitoring Instrumentation

During the prescribed instrumentation data collection periods any maintenance required would be noted and corrected if not difficult (i.e. installing a new battery in a datalogger). More extensive maintenance such as damaged instrument repair shall be noted. The RTFE shall be notified and plans to repair the damage will be made either through site personnel or contractors and/or new equipment.

6.3.4 Tailings Deposition System

The tailings deposition system may require maintenance by relocating the discharge or the tailings lines. The RTFE makes informed decisions on tailings placement and thus where the discharge locations shall be. Relocating the tailings lines requires cutting or fusing of new pipe. The tailings lines anchors must also be cut to bring the lines to surface. Depending on where the lines are being moved to this may require a collaborative effort between a contractor and the Mill Operations to ensure it is done safely and efficiently.

6.4 Documentation and Reporting

Record of maintenance shall be documented and reported and made accessible to the RTFE. When documenting repair work, measurements or survey of as constructed repairs should be included. Photographs of before, during and after repair work shall also be included. A brief description of the work and date shall also be included as part of the work in order to properly document any change and inform new personnel of the change history.

7 Emergency Preparedness and Response Plan

7.1 General

Emergency response planning is conducted to ensure emergency situations are responded to quickly and efficiently to protect the safety of personnel, to protect the environment and to minimize financial losses. The Emergency Preparedness and Response Plan (EPRP) document provides the framework for responding to emergencies specific to the JEB TMF. It refers to specific instructions to be followed by the initial responder when an emergency situation occurs.

The EPRP is a separate detailed document, 359ML-400-PLA-Z-003 JEB TMF EPRP.

8 References

Golder Associates Ltd. 2018. JEB Tailings Management Facility Optimization Stage 2 and Expansion Stage 1 Design Report.

Golder Associates Ltd. 2019. JEB Tailings Management Facility 468 m ASL Expansion Stage 2 Design Report.

Golder Associates Ltd. 2021. JEB Tailings Management Facility 468 Expansion Preliminary Dam Classification.

Orano Canada Inc. 2021. 504-03 Tailings Management Facility Unit Process Routine Duties.

Orano Canada Inc. 2021. 504-17 Tailings Management Facility Unit Process Surface Pipeline and Drain/Vent Checks.

Orano Canada Inc. 2022. OCI-401 Management of Change Standard.

Orano Canada Inc. 2022. 401-29 Slope Monitoring using a Slope Inclinometer.

Orano Canada Inc. 2023. 359ML-400-PLA-Z-003 JEB TMF EPRP.

Orano Canada Inc. 2023. 705-14 Downloading/Saving JEB TMF Vibrating Wire Dataloggers.

WSP Canada Inc. 2023. McClean Lake Operation, JEB TMF Expansion - Failure Modes and Effects Analysis Summary.

Appendix A Site Layout

REFERENCE(S)

1. IMAGERY COPYRIGHT © 20210802, 20210710 ESRI AND ITS LICENSORS. SOURCE: VIVID, MAXAR. USED UNDER LICENSE, ALL RIGHTS RESERVED.
2. PROJECTION: UTM ZONE 13 DATUM: NAD 83.
3. ALL UNITS ARE METRES UNLESS OTHERWISE NOTED.

DRAFT

0 100 200
1:5,000 METRES

CLIENT
orano

PROJECT
McCLEAN LAKE TAILINGS MANAGEMENT FACILITY
DAM SAFETY SYSTEMS - OMS & TARP

TITLE
GENERAL SITE PLAN

CONSULTANT
wsp

YYYY-MM-DD	2023-07-30
DESIGNED	MR
PREPARED	AS
REVIEWED	
APPROVED	

PROJECT NO.	PHASE	REV.	FIGURE
23592413	3000	A	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

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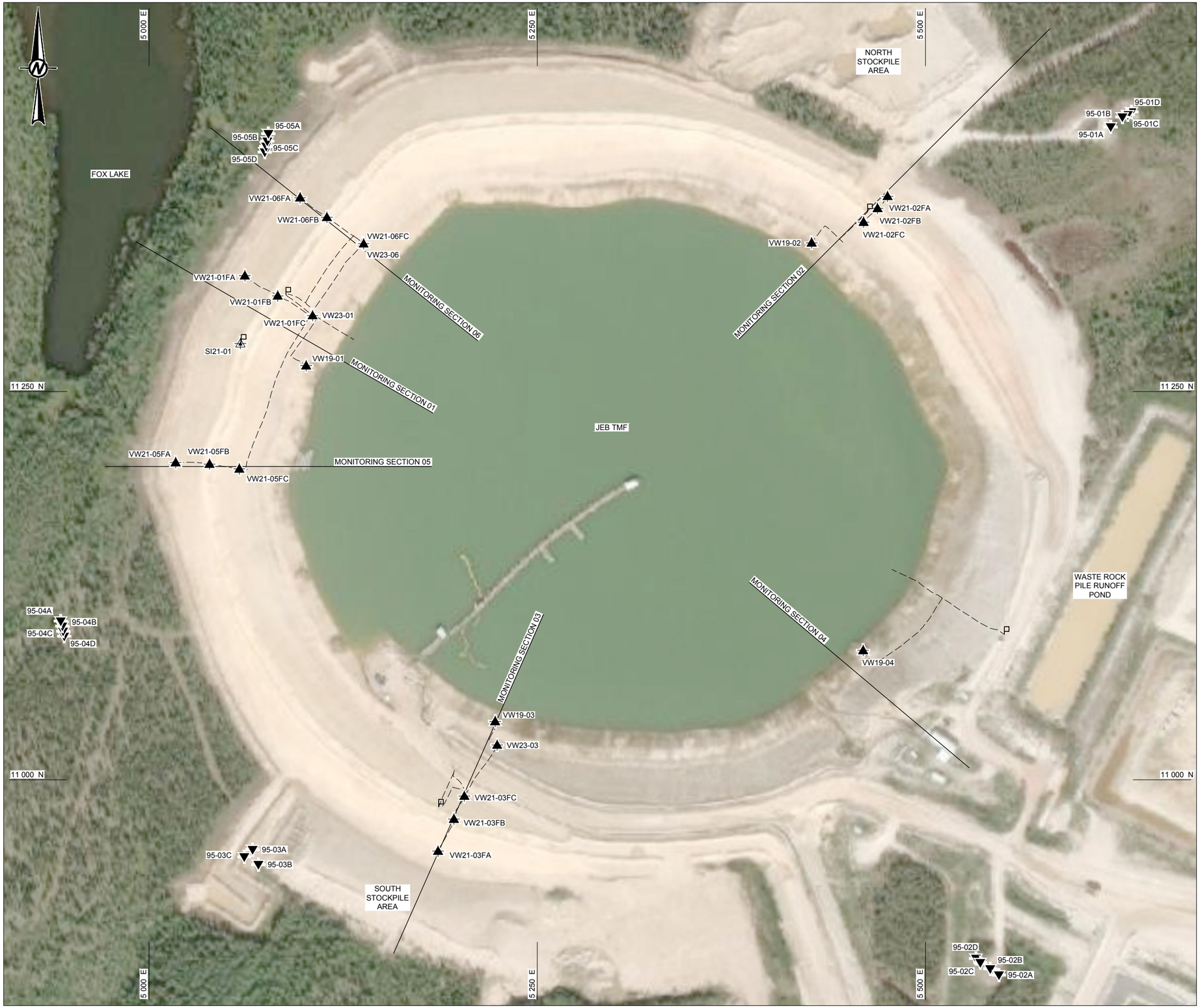
Appendix B Instrumentation Plan



LEGEND

- VIBRATING WIRE PIEZOMETER
- MONITORING WELL
- INCLINOMETER
- DATA LOGGER
- INSTRUMENTATION CABLE

REFERENCE(S)

1. IMAGE OBTAINED FROM © 2022 MICROSOFT CORPORATION © 2022 MAXAR © CNES (2022) DISTRIBUTION AIRBUS DS.
2. COORDINATES ARE REFERENCED TO LOCAL MINE COORDINATE SYSTEM.
3. UNITS ARE METRES UNLESS OTHERWISE NOTED.

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1:2,500 METRES

CLIENT

orano

PROJECT

McCLEAN LAKE TAILINGS MANAGEMENT FACILITY
DAM SAFETY SYSTEMS - OMS & TARP

TITLE

JEB TMF INSTRUMENTATION PLAN

CONSULTANT

wsp

YYYY-MM-DD	2024-03-25
DESIGNED	PJE
PREPARED	AS
REVIEWED	PJE
APPROVED	MAT

PROJECT NO.	PHASE	REV.	FIGURE
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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI B

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Path: \\golder.gds\gal\Saskatoon\GIS_Clients\Orano\McClean_Lake\99_PROJECTS\23592413_EoR_Services\3000_Dam_Safety-OMS+TARP\02_PRODUCTION\FIGURES\ | File Name: 23592413_3000_JEB TMF Instrumentation Plan.dwg | Last Edited By: aspuler Date: 2024-03-25 Time:10:41:47 AM | Printed By: ASpuler Date: 2024-03-25 Time:10:53:49 AM

Appendix C JEB TMF Visual Inspection Form

TAILINGS DAM INSPECTION REPORT

All parts of inspection sheet should be completed. Adverse conditions should be described. Additional information may be put on attached pages. Photos should include a location description and a scale where possible. To be completed for the JEB TMF monthly. Completed Inspections to be sent to the responsible tailings facility engineer.

INSPECTION DATE _____

LOCATION _____

PERSONNEL

Primary Inspector _____ Others _____

_____

WEATHER

	Current	Last 3 Days	Last 2 Weeks
Rain			
Snow			
Daily High Temperature			
Daily Low Temperature			

STATUS OF DISPOSAL FACILITY

Active Deposition: ☐ Notes: _____

Active Water Reclaim: ☐

DAM INFORMATION

Pond Elevation _____ Lowest Liner Elevation _____

Crest Elevation _____ Freeboard (liner elevation – pond elevation) _____

LOCAL CONSTRUCTION ACTIVITIES

Dewatering: _____

Maintenance: _____

Dam Raising: _____

Other: _____

REASON FOR INSPECTION

Routine: ☐

Special Condition: ☐

NOTES

TAILINGS DAM INSPECTION REPORT

Upstream Slope – SBL Slope and Crest and Embankment Slope

No.	Item	Chkd	Condition	
			Remarks / Description	Photograph No.
1	Slope Surface/Protection			
2	Surface Erosion			
3	Surface Settlements/Depressions			
4	Sinkholes			
5	Cracks/Movements			
6	Debris			
7	Vegetation			
8	Evidence of High Water Table/Seepage			
9	Other unusual Conditions			
Notes:				
(If space insufficient, continue on separate sheet)				

TAILINGS DAM INSPECTION REPORT

Dam Crest

No.	Item	Chkd	Condition	
			Remarks / Description	Photograph No.
1	Surface Cracks (a) Transverse (b) Longitudinal			
2	Settlements/Depressions			
3	Sinkholes			
4	Lateral Movements			
5	Erosion			
6	Vegetation			
7	Animal Burrows			
8	Other unusual Conditions			

Notes:

(If space insufficient, continue on separate sheet)

TAILINGS DAM INSPECTION REPORT

Downstream Dam Slope

No.	Item	Chkd	Condition	
			Remarks / Description	Photograph No.
1	Surface Erosion			
2	Surface Settlements/Depressions			
3	Sinkholes			
4	Cracks/Slope Movements			
5	Seepage/Wet Areas			
6	Animal Burrows			
7	Vegetation			
8	Slope Angle			
9	Other Unusual Conditions			
Notes:				
(If space insufficient, continue on separate sheet)				

TAILINGS DAM INSPECTION REPORT

Erosion Control and Sedimentation Structures

No.	Item	Chkd	Condition	
			Remarks / Description	Photograph No.
1	Seepage/Wet Areas			
2	Signs of Instability			
3	Vegetation			
4	Other unusual Conditions			

Notes:

(If space insufficient, continue on separate sheet)

TAILINGS DAM INSPECTION REPORT

Instrumentation and Sump

No.	Item	Chkd	Condition	
			Remarks / Description	Photograph No.
1	Piezometers			
2	Standpipes			
3	Survey Monuments			
4	Inclinometers			
5	Northeast Wetland/Sump			
6	Other			

Notes:

(If space insufficient, continue on separate sheet)

Appendix A GISTM Conformance Documents

Section C: Global Industry Standard on Tailings Management Disclosure

Orano Canada Inc.

Global Industry Standard on Tailings Management Disclosure

Version 2 Revision 0

Document # 359ML-400-RP-Z-009

October 2024

Orano Canada Inc.

Approval for Use

Editor:		
Spencer Chuhaniuk	Civil/Geotech Engineer	
Name	Title	Signature

Approver:		
Colin Braithwaite	VP, SHER	
Name	Title	Signature

History of Revisions

Version	Date	Details of Revision
1	October 2023	Initial Issue
2	September 2024	Update to Section 5 – Risk Assessment Update to Summary of Annual Performance with 2023 results Update to 2024 Independent Review

Table of Contents

1 Executive Summary

Orano Canada Inc. is the operator of the McClean Lake uranium production facility in Northern Saskatchewan, Canada. Tailings from the production process report to the JEB Tailings Management Facility. The JEB Tailings Management Facility is a former open pit mine and in 1999 was converted to permanently store tailings.

The JEB Tailings Management Facility has recently undergone expansion to permanently store tailings above natural ground (above the open pit rim). This involved extensive engineering, regulatory approval and construction of the embankment.

Orano Canada Inc. being a subsidiary of Orano Mining, a company member of the International Council on Mining and Metals agreed to apply the Global Industry Standard on Tailings Management to the JEB Tailings Management Facility. The consequence of failure for the JEB Tailings Management Facility was analysed and classified in the “very high” category. With the JEB Tailings Management Facility in the “very high” category, compliance to the Global Industry Standard on Tailings Management was to be met by August 5, 2023.

This disclosure note constitutes the official publication in compliance with Principle 15.1, B and C of the Global Industry Standard on Tailings Management (GISTM). Note that 15.1, A only concerns new tailings facility projects.

2 Introduction

Orano Canada Inc.'s (OCI) McClean Lake Operation is situated in Northern Saskatchewan, Canada as shown in Figure 2.1 and 2.2. Figure's 2.3 and 2.4 depict the location of the JEB Tailings Management Facility (TMF) within the McClean Lake Operation. The JEB TMF is operated and maintained by OCI. Engineering support comes from an Engineer of Record (EOR) team and an Independent Tailings Review Board (ITRB).

The JEB TMF was a former open pit mine, converted to a tailings facility in 1999. The TMF has recently undergone expansion to store tailings above natural ground. The current Stage 1 expansion embankment of 457.5 masl has the capacity to store 1.5 Mm^3 of unconsolidated tailings once complete. The future Stage 2 expansion embankment to 468 masl will provide an additional 2.25 Mm^3 of unconsolidated tailings storage.

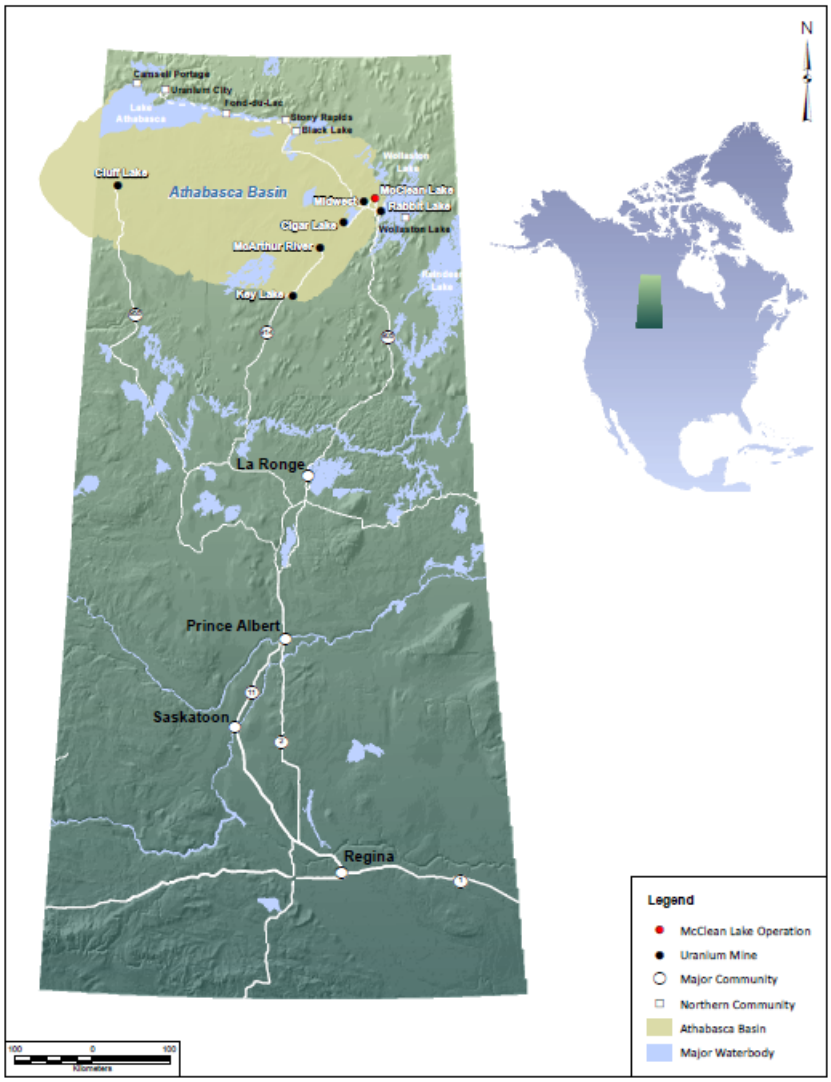

Figure 2.1 Location of the McClean Lake Operation

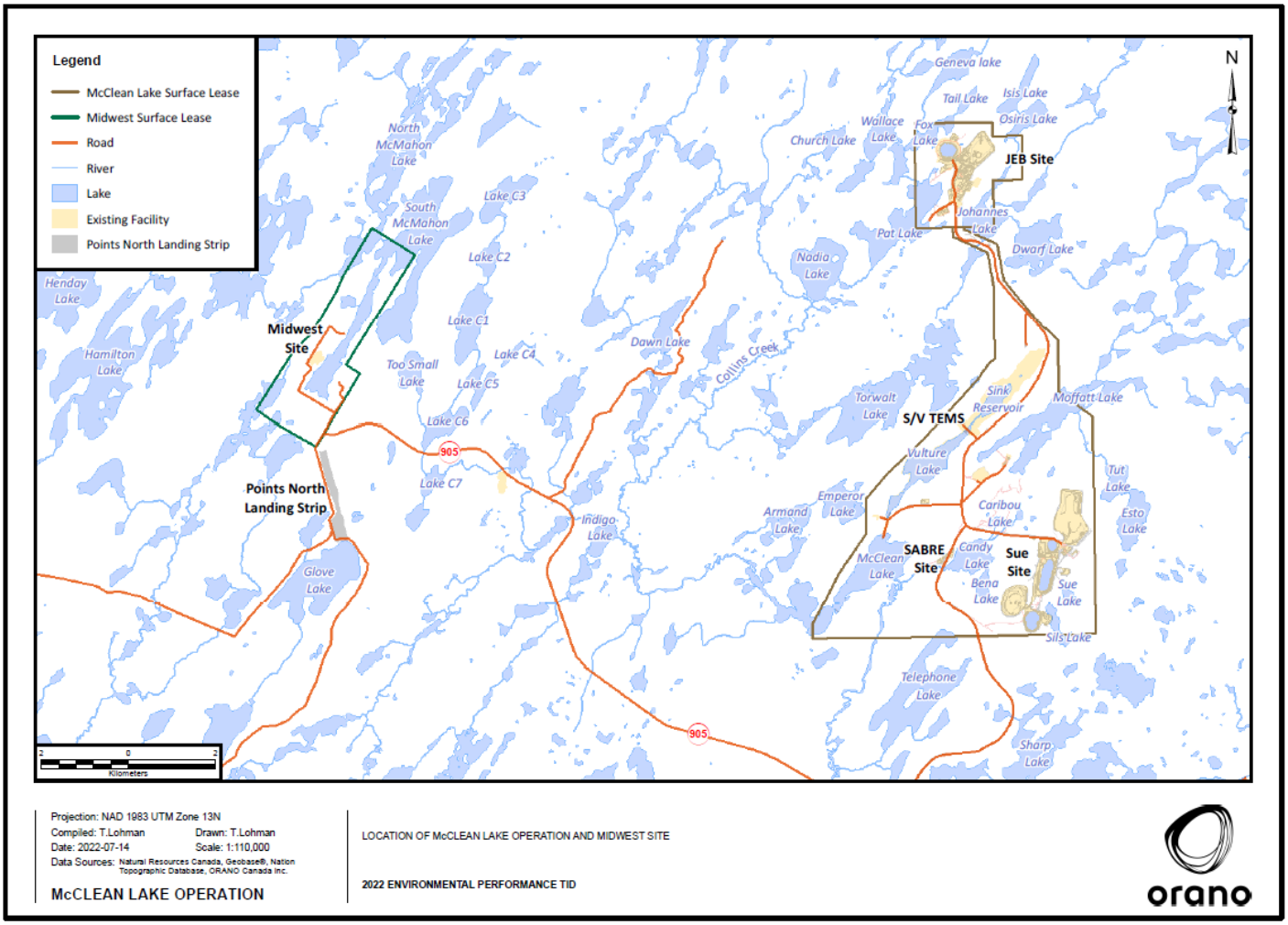

Figure 2.2 Location of the McClean Lake Operation

Figure 2.3 Location of the JEB TMF at the McClean Lake Operation

Figure 2.4 The JEB TMF at the McClean Lake Operation, looking North

3 Description of the Facility (B.1)

The JEB TMF embankment is constructed from crushed sandstone and the liner is constructed from a blend of crushed sandstone, till and bentonite. The liner portion is approximately 2 m thick, placed on the upstream side of the embankment and existing pit slopes (flattened as part of optimization of the facility). The liner extends down to the top of the sandstone. As shown in Figure 3.1.

Topography surrounding the JEB TMF is defined by muskeg-covered, poorly drained terrain. The lowest natural elevation corresponds to Pat Lake at approximately 443.5 masl, while the highest natural elevation corresponds to two drumlins at approximately 470 masl, located directly to the northeast and southeast of the JEB TMF (Golder Associates Ltd. 2019).

The general geology encountered in the JEB TMF area includes the following units in descending order:

- Till;
- Upper sandstone;
- Lower sandstone;
- Basement regolith; and
- Intact basement

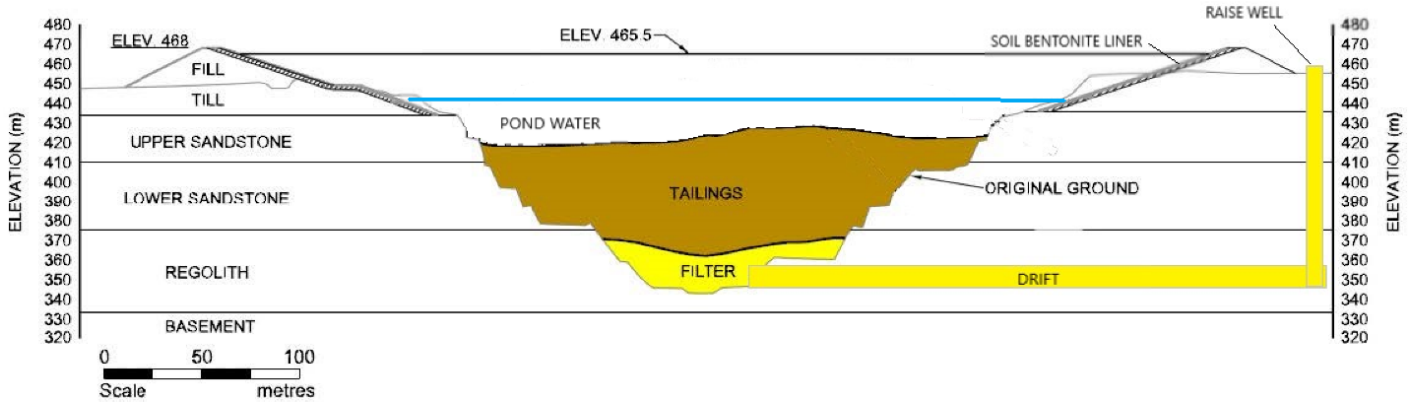

Figure 3.1 Cross section of the JEB TMF at future 468 masl elevation

The tailings are transported from the mill by pipeline to the JEB TMF where the tailings are deposited in a sub-aqueous manner. The JEB TMF was designed and constructed with a drift at the bottom of the pit and a raise well system. The raise wells are used for maintaining hydraulic containment and water level monitoring. In addition, the raise wells pumps return water back to the mill for use in the process. There is also a reclaim pump house on the JEB TMF pond water surface, which sends water from the JEB TMF pond to the JEB Water Treatment Plant.

A summary of the main characteristics of the JEB TMF are shown in Table 3.1.

Table 3.1 Main characteristics of the JEB TMF

Type	Downstream constructed rock fill embankment/dam, 3H:1V slopes, up stream soil bentonite liner
Lowest natural ground elevation (approximately)	448 masl
Current embankment and liner elevation	457.5 masl (embankment) 452.5 masl (liner)
Future embankment and liner elevation	468 masl
Operational freeboard	2.5 m (embankment 457.5 masl or less)

	1.5 m (embankment above 457.5 masl)
Storage Volume	1,500,000 m^3 (457.5 masl) 2,250,000 m^3 (468 masl)

4 Consequence Classification (B.2)

A preliminary dam consequence classification was provided by the EOR team for the JEB TMF (Golder Associates Ltd. 2021). The predicted incremental flood impacts due to a dam failure were summarized as the following:

- The population at risk within the inundation area is limited to workers who may be periodically in the area or recreational users in the area. The population could be one to ten people, corresponding to a consequence classification of Significant.
- Failure of the JEB TMF would result in flooding and debris flow downstream of the structure. Severe injury or loss of life could occur to a person in the inundation zone. It is expected that there would be between one to ten people that could experience loss of life from a failure, corresponding to a High consequence classification.
- Fox Lake and Pat Lake could receive flows of pond water and tailings solids if a failure of the JEB TMF were to occur. The flows could result in the loss or destruction of freshwater aquatic habitat, effects to water quality resulting in health effects to fauna, and long-term effects associated with metal leaching from tailings solids. Restoration may be possible but would require more than five (5) years to complete, corresponding to a Very High consequence classification.
- Failure of the JEB TMF would result in the cessation of operations that could realistically extend over several years. This would have an effect on the employees of the mine, as well as other businesses in the region. The effects may be considered to a small portion of the population (less than 500 people), corresponding to a Significant consequence classification.
- There is not any third-party infrastructure within the potential inundation zone. This corresponds to a Low consequence classification.

The preliminary dam consequence classification for the JEB TMF is presented in Table 4.1. Upon completion of the initial Dam Safety Inspection by the EOR in 2022 the consequence classification was confirmed. An overall ***Very High*** consequence classification is recommended by the EOR team.

Table 4.1: JEB TMF Preliminary Dam Consequence Rating Assessment (Golder Associates Ltd. 2021)

Factor	Consequence Classification
Potential Population at Risk	Significant
Potential Loss of Life	High
Environment	Very High

Factor	Consequence Classification
Health, Social, and Cultural	Significant
Infrastructure and Economics	Low
Overall Rating	**Very High**

5 Risk Assessment (B.3)

The EOR team conducted a Failure Mode and Effects Analysis (FMEA) for the JEB TMF (WSP Canada Inc. 2023). The FMEA provides an insight into priority areas to be addressed in the construction planning and operations monitoring. The following sections provide discussion of key themes in the Potential Failure Modes (PFMs), mitigation measures and how these could potentially be incorporated into the construction planning and operations. The PFM's serve as the risk register for the JEB TMF with the last update in July 2024. A summary of PFM categories are shown in Table 5.1.

Table 5.1: Potential Failure Modes Category Definitions (WSP 2023)

Category	Definition
I: Credible PFMs of Greatest Significance	Those PFMs of greatest significance considering need for awareness, potential for occurrence, magnitude of consequence, and likelihood of adverse response. Category I PFMs are those for which physical possibility is evident, fundamental flaw or weakness is identified, and conditions and events leading to failure seem reasonable and credible. The PFMs shall be subcategorized as urgent or less-urgent.
II: Credible PFMs Considered but of Lesser Significance	Those PFMs that are physically possible, but there is typically less urgency involved to respond to concerns. Category II PFMs are judged to be of lesser significance and likelihood than those of Category I. A PFM may be placed in Category II because there is no direct or indirect evidence or any indication of problem development; the loading required to initiate the potential adverse response is not as likely as for Category I; or the magnitude of consequences is not as significant as Category I PFMs. A surveillance and monitoring program is normally required for Category II. The PFMs shall be subcategorized as potentially significant or minor.
III: More Information or Analyses Needed in order to Classify	These PFMs to some degree lacked information sufficient to allow a confident

Category	Definition
	judgment of significance. As a result, additional investigative action or analyses is recommended.
IV: PFMs of Least Significance	Those PFMs are physically possible and of least significance because their likelihood is so remote that the failure is negligible, at least over the time period under consideration. The PFMs shall be subcategorized as insignificant or clearly negligible.
V: Other Considerations (Non-credible PFMs)	Candidate PFMs that were ruled out and not developed because the physical possibility does not exist, information came to light which eliminated the concern.

5.1 Key Focus Areas

Several important themes emerged in comparison of the PFMs. Only one Category I PFM is related to a physical failure of the embankment and the remaining ten Category I PFMs are related to the release of contaminated seepage:

1) **Embankment Construction and Care** – Seven of the 11 Category I PFMs are related to the JEB TMF construction and its maintenance: five PFMs highlight the importance of Quality Assurance/ Quality Control (QA/QC) of the materials during construction; one PFM highlights care of the Soil Bentonite Liner (SBL) surface during other construction activities; and one PFM highlights the importance of QA/QC of embankment foundation preparation. In general, multiple failure modes include mechanisms resulting from poor QA/QC during embankment construction. This FMEA stresses the need for adequate investigation prior to construction to verify ground conditions in advance of construction, and for strict controls during construction.

2) **Sampling and Instrumentation** – Three of the 11 Category I PFMS are related to JEB TMF monitoring. In addition to the potential for occurrence, these PFMs are significant because they highlight a need for awareness and a potential weakness associated with monitoring. It must be recognized that even the monitoring necessary to operate the JEB TMF safely has the potential to result in a failure mechanism: although sampling and testing tailings are fundamental to on-going evaluation and to validate the post decommissioning predictions, a poor tailings sample practice has the potential to fail the embankment and release contaminated seepage; and, although the instrumentation installed in the embankment is critical in assessing embankment performance, if care is not taken during installation there exists potential to release contaminated seepage.

3) **Pumping Capacity and Pond Operations** – Several PFMs are related to the maintenance of JEB TMF pond water elevations with one Category I PFM related to base drain pumping and loss of containment. Should the base drain become obstructed, the magnitude of consequence is considered great, and the approach to hydraulic containment within the JEB TMF throughout operations and decommissioning would require significant redesign.

5.2 Mitigation Measures and Additional Recommendations Summary

EMBANKMENT CONSTRUCTION AND OPERATION

An overarching recommendation for the JEB TMF throughout expansion is to continue construction QA/QC practices by implementation of the JEB TMF QA/QC Plan and to maintain as-built records. Field verification programs are recommended prior to expansion construction to improve confidence in the conditions expected. During operations, routine surveillance and monitoring of the embankment are necessary to observe and monitor changes related to downstream slope instability, internal erosion and seepage. Potential mitigations for PFMs related to downstream instability due to high porewater pressures and reduced shear strength are the following:

- A toe drain may be constructed to reduce porewater pressures and a stability berm at the toe of the embankment may provide a buttress for additional stability.
- Additional instrumentation may be installed in the foundation (e.g., slope indicators and piezometers). Potential mitigations for PFMs related to internal erosion are the following:
  - Formal ground disturbance programs may improve the tailings sample practice to mitigate soil bentonite liner damage beneath the tailings.
  - Standard well decommissioning practices may be implemented to mitigate preferential flow pathways.
  - Footprint preparation that includes a methodological approach to stripping soils mitigates the inadequate removal of buried organics that may result in differential settlement. Potential mitigations for PFMS related to the release of contaminated seepage are the following:
  - A seepage collection system may be constructed in the downstream embankment to mitigate releases to the environment.

OVERTOPPING AND POND WATER ELEVATIONS

Failures related to overtopping can be mitigated by implementing a higher freeboard during operations. Maintaining the design crest elevation is recommended and is the most beneficial when the soil bentonite liner and embankment is constructed to a constant elevation. To achieve a constant elevation in a single construction campaign, advanced construction sequencing and planning is recommended.

OPERATION, MAINTENANCE AND SURVEILLANCE CONSIDERATIONS

The Operations Maintenance and Surveillance (OMS) manual describes the plans and procedures that allow the JEB TMF to be operated in accordance with the design intent. The operating procedures will describe performance indicators and the response including actions to be taken if the performance criteria are not within the defined range. A Trigger Action Response Plan (TARP) is a tool to manage risk with trigger levels developed that consider the performance objective and response where performance levels are exceeded.

From the outcomes of the FMEA workshop, potential TARPs include performance indicators for management of water and seepage (e.g., pond water elevations and base drain hydraulic head) and other action levels for risks associated with, but not limited to, ground movement, erosion, pond water chemistry and piezometric levels.

Maintenance for the JEB TMF will identify all components with requirements to achieve performance objectives and will define the preventative and corrective actions to achieve these objectives. From the outcome of the FMEA workshop, maintenance is categorized into the expected preventative (e.g., maintenance of surveillance instruments such as the slope indicator probe), predictive (e.g., diverting surface runoff concentrated on the SBL crest) and corrective (e.g., design crest elevation maintenance) activities.

The OMS manual describes a surveillance program for the inspection and monitoring of activities to inform decision-making and to verify whether performance objectives, the risk management plan and design intent are being met. Surveillance includes site observations and inspections and instrument monitoring. Analysis of surveillance results should consider the expected range of observations or performance and the timeframes for data analysis reporting. Roles and timelines must be defined and the tools provided so that timely data is collected and reviewed by the appropriate personnel.

6 Breach and Inundation (B.4)

The EOR team conducted detailed dam breach analyses to obtain estimates of flood extents downstream of the JEB TMF embankment (Golder Associates Ltd. 2022). Two potential breach locations were selected for flood-induced overtopping scenarios:

- A potential breach dam breach of SW Dam at the JEB TMF.
- A potential breach dam breach of SE Dam at the JEB TMF.

The selected breach locations represent ‘worst-case’ scenarios for analyzing downstream impacts of hypothetical failures of the JEB TMF embankment under extremely wet hydrological conditions (i.e., PMP event). The detailed analyses were based on reasonably conservative dam breach parameters and used the topographic contour information obtained from Orano and other sources for the study area. For the detailed modelling, it was conservatively assumed that the entire tailings and water in the TMF above original natural ground would be released and that a dam breach would behavior as Newtonian (water-like) and was modelled entirely as water.

6.1 Effects of Potential Dam Failures

6.1.1 Southwest Dam

A hypothetical failure of the SW Dam would impact the downstream environment, including the Fox Lake, Wallace Lake, Pat Lake and Nadia Lake. In the event of an overtopping failure of the SW Dam, a total of 3.16 Mm³ of water and tailings was assumed to be released from the dam. The downstream affected areas are summarized as follows:

- The flood peak elevation immediately downstream of the dam was predicted to be 5.6 m above the ground elevation. The peak discharge and maximum flow velocity were estimated to be 2,570 m3/s and 6.1 m/s, respectively.
- The flood peak elevation at Pat Lake Inlet located 0.5 km downstream of the dam was predicted to be 2.4 m above the ground elevation. The peak discharge and flow velocity was estimated to be 2,240 m^3/s and 5.1 m/s, respectively.

- The flood peak elevation at Pat Lake outlet located 3.0 km downstream of the dam was predicted to be 0.7 m below the estimated channel bank elevation. Therefore, the flood flows would be contained within the channel. The peak discharge and flow velocity was estimated to be 78 m3/s and 0.6 m/s, respectively.

6.1.2 Southeast Dam

A hypothetical failure of the SE Dam would impact the downstream infrastructure and environment, including the Waste Rock Runoff Pond, a portion of the Mill Site Complex, the JEB TMF access road and Pat Lake. In the event of an overtopping failure of the SE Dam, a total of 1.53 Mm³ of water and tailings was assumed to be released from the dam. The downstream affected areas are summarized as follows:

- The flood peak elevation immediately downstream of the dam was predicted to be 3.8 m above the ground elevation. The peak discharge and flow velocity was estimated to be 533 m3/s and 4.5 m/s, respectively.
- JEB TMF access road located immediately downstream of the SE Dam would be overtopped with a maximum flow depth of 1.6 m. The peak discharge and flow velocity were estimated to be 526 m^3/s and 3.0 m/s, respectively.
- The flood peak elevation at Pat Lake Inlet located 0.7 km downstream of the dam was predicted to be 1.6 m above the ground elevation. The peak discharge and flow velocity was estimated to be 509 m3/s and 2.8 m/s, respectively.
- The flood peak elevation at Pat Lake outlet located 3.2 km downstream of the dam was predicted to be 1.4 m below the estimated channel bank elevation. Therefore, the flood flows would be contained within the channel. The peak discharge and flow velocity was estimated to be 27 m^3/s and 0.4 m/s, respectively.

7 Impact Assessment (B.4)

Two impact assessments were conducted for the implications of the unlikely failure of the JEB TMF embankment. One scenario modeled the impacts of a failure of the embankment at the Stage One elevation of 457.5 masl. The other scenario modeled the impacts at the final elevation of 468 masl. It should be noted in both hypothetical scenarios there are downstream environmental receptors but no downstream communities.

7.1 457.5 masl Scenario

The hypothetical failure of the JEB TMF embankment is predicted to result in impacted water quality in Fox Lake. Further downstream, exceedances of the available water quality guidelines (WQG) and benchmarks are predicted for the long-term WQG in Pat Lake, and the long-term WQG in Nadia Lake. Exceedances are not predicted in Upper Collins Creek from the JEB TMF failure, which indicates that potential negative effects are limited to Fox Lake, Pat Lake, and Nadia Lake.

The results of this screening level assessment indicate that the consequences of a dam failure at the JEB TMF would not have catastrophic 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 and recovery of

the lake could take many months or years, it is not anticipated that water bodies downstream of Fox Lake would be negatively impacted over the short- or long-term (Arcadis Canada Inc. 2016).

7.2 468 masl Scenario

The hypothetical failure of the JEB TMF embankment is predicted to result in impacted water quality in Fox Lake. Further downstream, limited exceedances of drinking water guidelines are predicted in Pat Lake, with no other exceedances of the available water quality guidelines and benchmarks predicted in Nadia Lake and Upper Collins Creek from the JEB TMF embankment failure, which indicates that potential negative effects are limited to Fox Lake and Pat Lake.

In conclusion, the results of this screening level assessment indicate that the consequences of a JEB TMF embankment failure would not have catastrophic 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 and recovery of the lake could take many months or years following remediation, it is not anticipated that water bodies downstream of Fox Lake would be negatively impacted over the short- or long-term (Canada North Environmental Services 2019).

8 Summary of Design (B.5)

The design of the JEB TMF embankments fall into two stages, the first stage of transition from pit to embankments to an elevation of 457.5 mas (current height). The second stage is the transition from an embankment elevation of 457.5 masl to 468 masl. Both stages have a design basis that follows appropriate guidelines, references and professional practice. Both stages were designed with personnel from the EOR company. It should be noted that Golder Associated Ltd. was acquired by WSP Canada Inc. However, the existing design team and EOR team are the same personnel.

8.1 457.5 masl Design

The Optimization and Expansion Stage 1 of the JEB TMF will allow for additional tailings storage capacity, Detailed design has been completed for various component earth structures associated with the JEB TMF Optimization Stage 2 and Expansion Stage 1, including i) till re-sloping and soil bentonite liner for the TMF Optimization Stage 2, ii) embankment and soil-bentonite liner for the TMF Expansion Stage 1, and iii) erosion and sediment control for the TMF Optimization Stage 2 and TMF Expansion Stage 1.

The TMF Optimization, to be completed in two stages, involves flattening the till slope to 3H:1V from the till/sandstone contact and construction of a soil-bentonite liner to elevation 443 masl. The construction of Optimization Stage 1 was completed in September 2013. It was confirmed that liner soil material could be produced on site by either crushing sandstone or screening till, and the designed soil-bentonite liner can be constructed to meet the technical specifications. The results of field and laboratory testing of the soil bentonite liner material as part of the Construction Quality Assurance for the Optimization Stage 1 are consistent with those laboratory tests conducted previously for the design of the TMF Optimization and TMF Expansion.

The TMF Expansion Stage 1 involves increasing the elevation of placed un-consolidated tailings to 452.0 masl. An embankment will be constructed around the TMF perimeter to elevation of 457.5 masl. The inside slope of the embankment will be lined with the soil-bentonite liner to contain the operating pond throughout

operations. The soil-bentonite liner system will be the same as that of the successfully constructed Optimization Stage 1. Construction drawings and technical specifications have been prepared for the following work packages:

- JEB TMF Optimization Stage 2;
- JEB TMF Expansion Stage 1 Embankment; and
- Waste Rock Pile Runoff Ponds and Diversion Channels.

The detailed design was based upon work previously completed as part of the JEB TMF Expansion, and existing information of site topography, foundation conditions, soil properties and groundwater conditions. Field verification will be required prior to the construction of each design component. Field verification will be provided by conducting a site topographical survey and geotechnical investigation of the site location under consideration. Additional groundwater level monitoring may be required in the vicinity of the component earth structures. Geotechnical and groundwater conditions such as the elevation of the groundwater table, the depth of peat across the site, and the foundation conditions beneath the proposed earth structures will be determined during the geotechnical investigation. Changes to the design of the new structure may be required upon completion of the geotechnical investigation if the geotechnical conditions are found to be different than those assumed during the design.

The majority of the TMF Expansion Embankment will be constructed of till or compacted waste rock fill with rock sizes up to 0.6 meters. While the compacted waste rock fill will have favourable mechanical and hydraulic properties for the embankment construction compared to till fill, its grain-size distribution may not be compatible with the soil-bentonite material. A transition material may be required between the compacted waste rock material and the soil-bentonite liner material to prevent the migration of fines from the soil-bentonite liner into the compacted waste rock material. An embankment fill test pad will need to be constructed prior to the construction of the embankment in order to design a transitional material if such transitional material is required. The Quality Assurance/Quality Control plan developed for the TMF Optimization and TMF Expansion may require to be updated prior to each construction stage to reflect current construction materials, construction methods, field and laboratory test procedures and standards, and incorporate the experience gained from previous construction stages. Construction materials such as till and sandstone waste rock are erodible. It is expected that surface erosion will occur, particularly after heavy precipitation events and spring runoff. Continuous monitoring and maintenance of the earth structures and surface drainage systems will be required. Monitoring of groundwater quality, seepage through the liner, erosion of earth structures and embankment stability will be required. Monitoring data obtained from early optimization construction and operation stages will be valuable source of information to confirm the design and performance of the structures, to identify any potential problems that need to be addressed prior to the next expansion stage of construction, and to provide inputs for the optimization of the design for the next construction stages (Golder Associates Ltd. 2018).

8.2 468 masl Design

Expansion Stage 2 of the JEB TMF will allow for additional tailings storage capacity. Detailed design has been completed for various component earth structures associated with the JEB TMF Expansion Stage 2 including: i) embankment and soil-bentonite liner, ii) erosion and sediment control, and iii) alternate site surface water management plan for the management of storm water runoff after the JEB TMF is raised above 457.5 masl and the transportation of runoff via gravity drainage from the site to the JEB TMF is no longer available.

Expansion Stage 2 will provide the ability to place un-consolidated tailings to an elevation of 465.5 masl. The Expansion Stage 2 embankment will be constructed as a downstream raise of the approved Expansion Stage 1 embankment (crest elevation 457.5 masl). The Expansion Stage 2 embankment will be constructed to an elevation of 468 masl. The inside slope of the Expansion Stage 2 embankment will be lined with a soil-bentonite liner to contain the operating pond throughout operations. The soil-bentonite liner system will be the same as that of the successfully constructed JEB TMF Optimization. Construction drawings and technical specifications have been prepared for the following work packages:

- JEB TMF Expansion Stage 2 Embankment;
- Modifications to the Storm Water Storage Pond; and
- The new Mill Site Runoff Pond.

The detailed design was based upon work previously completed as part of the JEB TMF Expansion, and existing information of site topography, foundation conditions, soil properties and groundwater conditions. Field verification will be required prior to the construction of each design component. Field verification will be provided by conducting a site topographical survey and geotechnical investigation of the site location under consideration. Additional groundwater level monitoring may be required near the component earth structure during operations. Geotechnical and groundwater conditions such as the elevation of the groundwater table, the depth of peat across the site, and the foundation conditions beneath the proposed earth structures will be determined during the geotechnical investigation. Changes to the design of the new structure may be required upon completion of the geotechnical investigation if the geotechnical conditions are found to be different than those assumed during the design.

The majority of the JEB TMF Expansion Stage 2 embankment will be constructed of till or compacted sandstone waste rock fill with rock sizes up to 0.6 meters. While the compacted waste rock fill will have favourable mechanical and hydraulic properties for the embankment construction compared to till fill, its grainsize distribution may not be compatible with the soil bentonite material. A transition material may be required between the compacted waste rock material and the soil-bentonite liner material to prevent the migration of fines from the soil-bentonite liner into the compacted waste rock material. An embankment fill test pad will need to be constructed prior to the construction of the embankment to design a transitional material if such transitional material is required.

The Quality Assurance/Quality Control plan developed for Expansion Stage 2 may require to be updated prior to construction to reflect current construction materials, construction methods, field and laboratory test procedures and standards, and incorporate the experience gained from previous construction.

Construction materials such as till and sandstone waste rock are erodible. It is expected that surface erosion will occur, particularly after heavy precipitation events and spring runoff. Continuous monitoring and maintenance of the earth structures and surface drainage systems will be required during operations.

Monitoring of groundwater quality, seepage through the liner, erosion of earth structure and embankment stability will be required. Monitoring data obtained from early optimization construction and operation stages will be a valuable sources of information to confirm the design and performance of the structures, to identify any potential problems that need to be addressed prior to the next expansion stage of construction, and to provide inputs for the optimization of the design for the next construction stages (Golder Associates Ltd. 2019).

9 Summary of Annual Performance (B.6 and B.7)

9.1 Dam Safety Inspection

The 2023 Dam Safety Inspection (DSI) of the JEB TMF was completed by Orano's Engineer of Record, WSP Canada (WSP). The DSI was conducted in accordance with the Canadian Dam Association (CDA) *Dam Safety Guidelines*, 2007 (Revised 2013). The site inspection was conducted on October 12, 2023 by representatives of WSP including the JEB TMF Engineer of Record and Orano and consisted of a visual inspection of the key features of the facility. The report also consisted of a review of instrumentation data.

The JEB TMF has a dam consequence classification of Very High. It is the repository for tailings resulting from uranium processing at the McClean Lake Mill.

Table 9.1 summarizes the condition ratings for the main components of the facility, based on observations from the 2023 DSI. Table 9.2 summarizes conditions from 2022 compared to 2023. Condition ratings have been assigned in accordance with WSP's condition rating system (WSP 2024):

- S = Satisfactory. Will fulfill intended purpose.
- F = Fair. Will fulfill intended purpose. Maintenance or further study required.
- P = Poor. May not fulfill intended purpose. Repair or modification required.
- U = Unsatisfactory. Will not fulfill purpose. Repair or modification required.
- N = Not inspected.

Table 9.1: 2023 JEB TMF DSI Deficiencies

ID Number	Location	Condition	Priority	Description / Recommended Action	Orano Action
Dam Safety Deficiencies					
I-DS-03	Downstream Dam Slope	S	High	**Seepage/Wet Areas:** Standing water was observed at the toe near 60° and water levels should be reduced. **Recommended Mitigation: Continue to** remove snow in the Northeast area prior to the spring melt. Continue pumping from the submersible pump inside the CSP sump in the northeast section to maintain water as low as practicable. Continuous pumping is required until the JEB TMF Pond elevation reaches 448 m ASL.	**Snow has been removed. Water was pumped from the sump until the pond reached 448 masl.** **Pumping was done after the snow melt and during heavy rain to keep the water level as low as practical.**
Facility Management Deficiencies					

ID Number	Location	Condition	Priority	Description / Recommended Action	Orano Action
II-FM-01	Downstream Dam Slope	S	Medium	**Surface Erosion:** Minor rilling was observed at the embankment toe near 270°. **Recommended Mitigation:** Fill depressions with traffic gravel and nominally compact.	
II-FM-04	Dam Crest	S	Low	**Depressions:** Minor rutting and depressions were observed along the crest near 350°. **Recommended Mitigation:** Fill depressions with traffic gravel and nominally compact.	**Depressions and ruts were filled in potions of the crest at approximately 90 degrees where water was observed to seep through the embankment**
Non-Conformances or Best Management Practices					
III-NC-01	Erosion Control Swale and Sedimentation Structures	S	Low	**Signs of Instability:** Minor sloughing of the outer berm was observed in Southeast corner of South Sedimentation Structure and should be monitored. **Recommended Mitigation:** Continue monitoring and repair if condition worsens.	
III-NC-03	Instrumentation	U	High	**Questionable Piezometer Readings:** ■ SI21-01-VW1 appears to be broken. B unit and temperature are consistently either 10.00 and -108.52, respectively otherwise are both blank. **Recommended Mitigation:** Rationalize need for replacement or abandonment and revised monitoring plan, as required.	**SI21-01-VW1: WSP confirmed this piezometer can be abandoned with no need to replace as there are other piezometers at the same depth which can be used.**
III-NC-04	Erosion Control Swale and Sedimentation Structures	S	Low	**Breach in Berm:** A breach in the erosion control berm at the South Sedimentation Structure was observed. **Recommended Mitigation:** The breached area should be monitored to ensure that runoff reports to the sedimentation trap.	**The area leading to the structure was regraded to direct runoff water into the erosion control structure.**
IV-BMP-01	Instrumentation	S	Low	**Piezometers:** VWP cable leads that encase the transducer wires sit unprotected at the surface, and consideration should be taken to protect the wires at all Monitoring Sections Where data loggers	

ID Number	Location	Condition	Priority	Description / Recommended Action	Orano Action
				appear to be detaching from the posts, they should be secured. **Recommended Mitigation:** Protect VWP cable leads at surface and secure dataloggers.	
IV-BMP-02	Erosion Control Swale and Sedimentation Structures	S	Low	**Grading and Cleanup:** The inlet for the south sedimentation structure required grading and cleanup at the time of the inspection. **Recommended Mitigation:** Grading and cleanup of the area completed in October of 2023.	**This was completed as part of the 2023 JEB TMF Construction.**

Table 9.2: Condition Rating Summary

Component	Condition			Notes
	2022	2023	Trend	
Upstream Slope: Soil-Bentonite Liner			↑	All previous deficiencies associated with the soil-bentonite liner were addressed during 2023 construction activities (I-DS-01, I-DS-02). During the DSI, one deficiency was noted but subsequently mitigated: ▪ soil-bentonite rip rap armour layer removed for an air-entry permeameter test (II-FM-05) and backfilled with rip rap after test completion
Downstream Dam Slope			↔	Snow removal, continuous pumping and maintenance is recommended to maintain functionality and address: ▪ Standing water near the northeast embankment toe (I-DS-03) ▪ Minor rilling near the western embankment toe (II-FM-01)
Upstream Slope: Till/Rockfill			↑	All previous deficiencies associated with the till/rockfill upstream slope were addressed during 2023 construction activities (II-FM-02, II-FM-03).
Dam Crest			↔	Maintenance is recommended to maintain functionality and address: ▪ Minor rutting and depressions (II-FM-04)
Erosion Control Swale and Sedimentation Structures			↑	Short circuiting runoff near the South Sedimentation Structure inlet was address during 2023 construction activities (III-NC-02). Monitoring and maintenance are recommended to maintain functionality and address: ▪ Minor sloughing of the outer berm of the South Sedimentation Structure (III-NC-01) ▪ Breach in the erosion control berm near the South Sedimentation Structure (III-NC-04) During the DSI, one deficiency was noted but subsequently mitigated: ▪ South Sedimentation Structure inlet required grading and completed following DSI (IV-BMP-02)
Instrumentation			↔	Deficiencies related to questionable piezometer readings were addressed during 2023 construction activities at VW21-02FB but SI21-01-VW1 appears to be broken. ▪ A revised monitoring plan is recommended (III-NC-03) Additional protection and repair are required to address: ▪ Unprotected VWP cable leads sitting at the surface at all Monitoring Stations and data loggers that are detaching from posts (IV-BMP-01)

Legend:

- Satisfactory
- Fair
- Poor
- Unsatisfactory
- Not Inspected

↑ Improving

↔ Unchanged

↓ Declining

NA = overall rating not available.

9.2 Environmental Monitoring

Groundwater monitoring and surface water monitoring is conducted throughout the McClean operation with specific groundwater wells and lakes that are sampled adjacent and downstream of the JEB TMF. This is part of Orano's larger environmental performance monitoring. Pre-development chemistry is compared to operational chemistry. The sampling frequency and parameters are outlined in the Saskatchewan Ministry of Environment (SMOE) Approval to Operate. The results are reported in Orano's Environmental Performance Technical Information Document (Orano 2022), the 2023 McClean Lake Operation Annual Report and provided to the SMOE and CNSC.

To date, only a few minor trends have been observed. The water chemistry observed in the vicinity of the mining areas and JEB TMF show that there are no major changes to the groundwater chemistry to date that would indicate unanticipated migration of solutes. Mostly, the trends are related to the temporary lowering of the water table from mining activities resulting in the oxidation of rock in muskeg areas to the northeast and southwest of the JEB TMF, and from the recharge through the waste rock piles which contains some residual nitrogen from blasting. Overall, the concentrations of dissolved constituents in groundwater remain low (Orano 2023). Locations of the groundwater monitoring wells and surface water monitoring locations are shown in Figures 9.1 and 9.2 Respectively.

Figure 9.1 JEB Site Groundwater Monitoring Locations

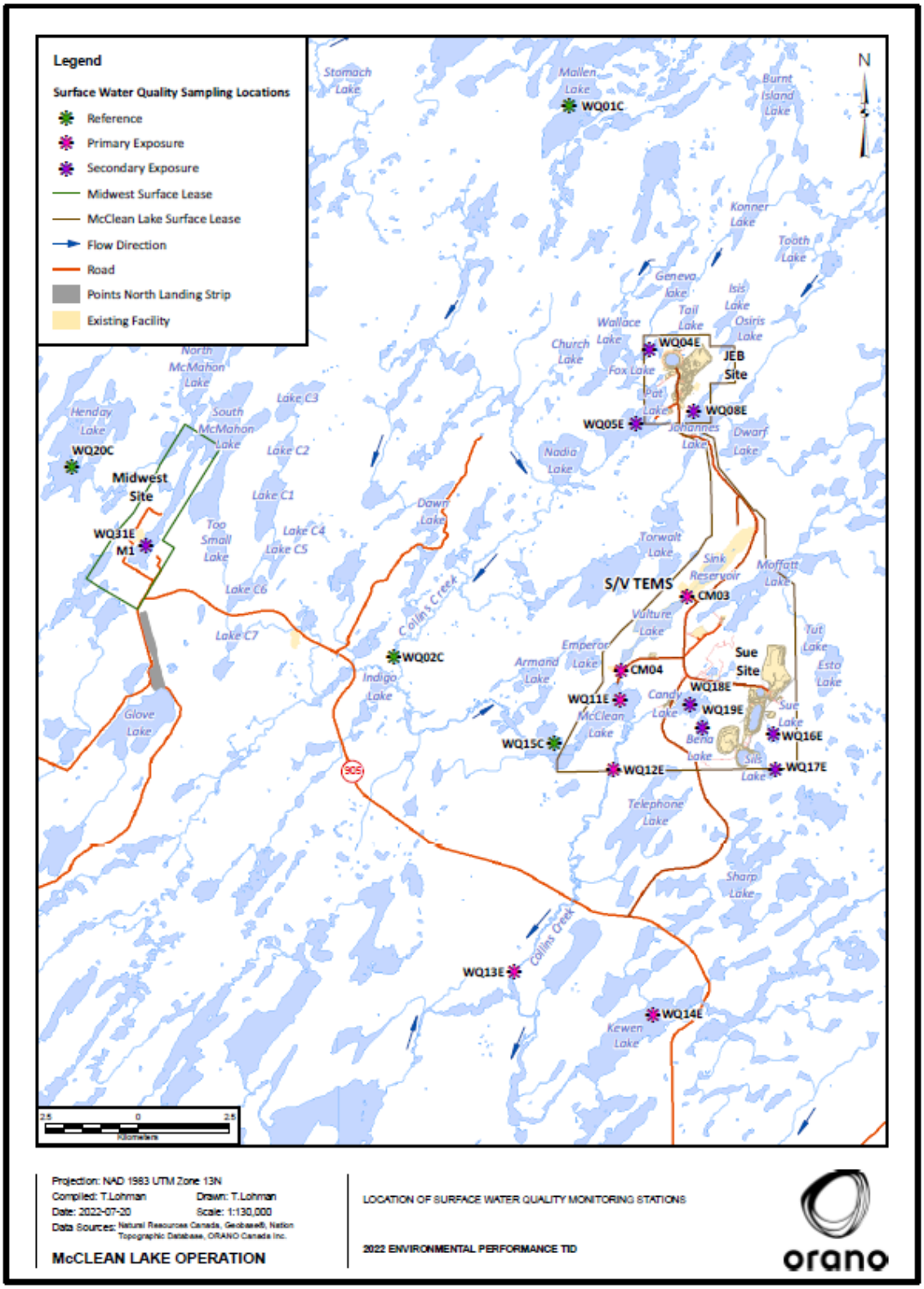

Figure 9.2 Surface Water Quality Monitoring Locations

10 Emergency Preparedness and Response Plan (B.8)

The Emergency Preparedness and Response Plan (EPRP) outlines instructions for emergencies related to the JEB TMF. Instructions on how to be prepared and how to respond to emergencies are established. The emergency situations covered by this document are related to various failure modes of the JEB TMF that could lead to harm to people and the environment.

The EPRP contains the contact information for key personnel in the event of an emergency. The general emergency response procedure is shown in Figure 10.1.

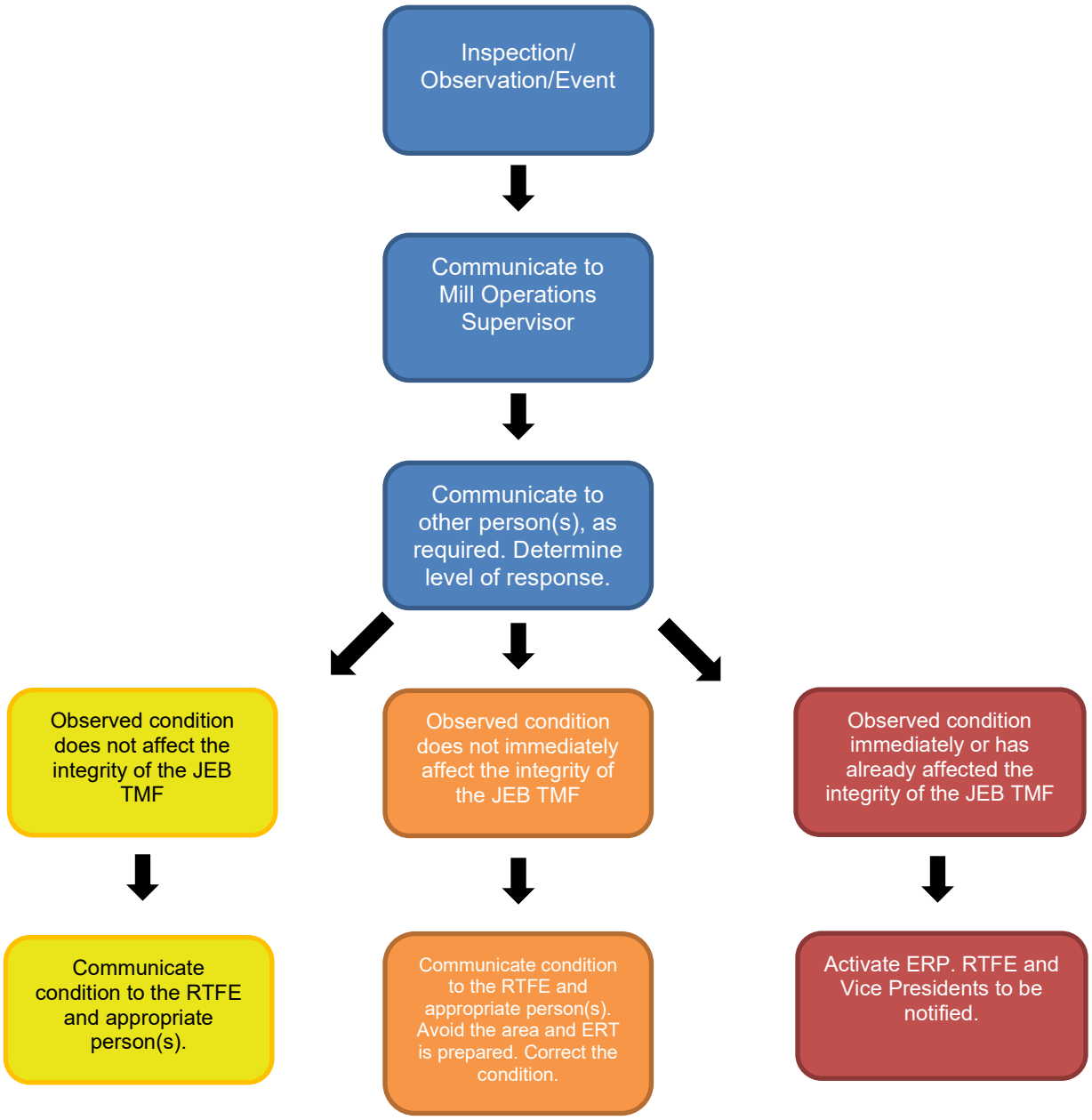

Figure 10.1 ERP general process

11 Independent Review (B.9)

Orano established an Independent Tailings Review Board (ITRB) for the JEB TMF. The ITRB provided comments and recommendations related to the information and studies presented by Orano and the Engineer of Record, WSP during the meeting held on June 4, 2024. The next meeting will be held in 2025. The summary of key comments, recommendations, mitigations, and response are shown in Table 11.1

Table 11.1: Summary of key comments, recommendations, and mitigations

Comment/ Recommendation No.	Comment/Recommendation	Mitigation/Response
2024-01	If not already completed, the ITRB recommends that the EOR complete an assessment to determine the breakthrough on the existing liner, and to evaluate the potential long-term impact on the effectiveness of the liner system.	The soil bentonite liner has been designed and analyzed for appropriate thickness and hydraulic conductivity for pond containment during operations only (Golder Associates Ltd. 2009). This has been confirmed through construction activity. The soil bentonite liner is not part of the long term solute transport for post operational conditions.
2024-02	The ITRB recommends that the EOR review the requirement for instrumentation and develop a plan for installing instrumentation if required. This is regarding the northern portion of the facility where dewatering wells were installed during 2023 construction.	The Engineer of Record is satisfied with the existing instrumentation in the liner and downstream of the facility.
2024-03	The ITRB recommends that the EOR confirm that the consequence of failure has been evaluated on the basis of the new guidance from CDA.	The 2023 guideline had not been adopted into the GISTM which Orano is committed to. Briefly, the 2023 guideline would likely decrease the consequence from "very high" to "high". However the facility has been designed using "extreme" parameters
2024-04	The ITRB reiterates these recommendations and recommend that the EOR in collaboration with Orano, more full develop the descriptions of potential mitigation measures that are required to mitigate the risks identified.	Orano and the Engineer of Record are satisfied with the risk assessment and mitigations identified as part of the FMEA.

Comment/ Recommendation No.	Comment/Recommendation	Mitigation/Response
	This is regarding the FMEA identified risks and mitigation measures.	
2024-05	The ITRB recommends that WSP engage with Dr. Benson regarding the long-term performance of the proposed closure cover system in the near-term, as cover performance in field tests typically requires several years of exposure to the elements and forces of nature in order to achieve adequate input for the final cover design.	Orano and the EOR team will continually review published, peer reviewed works and engage industry experts throughout the closure process.

12 Financial Assurance (B.10)

Uranium mining companies in Saskatchewan are required by the Saskatchewan Ministry of Environment (SMOE) and the Canadian Nuclear Safety Commission (CNSC) to develop preliminary decommissioning plans (PDP), estimate the associated costs for decommissioning, and provide financial assurance (FA).

The PDP is intended to provide a high-level concept of how the facility (in its current state) would be decommissioned and the FA provides financial guarantee ensuring funding is available to conduct the decommissioning activities identified. In keeping with the concept of lifecycle planning, the current updated PDP and FA have been prepared for the McClean Lake Operation with consideration of planned activities within a 5-year period, that is, to the end of 2025. The PDP and FA are updated nominally on a 5-year cycle. It is recognized that should the scope of development vary from that which is currently anticipated, future revisions to the plan will reflect those changes. Completed project developments are included in the PDP and FA calculation upon completion of construction.

Decommissioning requirements are incorporated into the feasibility and design of every development. Orano will provide detailed plans for regulatory approval prior to commencing final decommissioning activities. The current 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 (i.e. SMOE) need to assume responsibility for decommissioning the site in the unlikely event Orano is unable to fulfill its obligations. Stakeholders will be engaged during the preparation of the detailed decommissioning plan.

There is an approved FA amount for the McClean Lake Operation. This amount has been accepted by both the federal and provincial regulators.

13 References

Arcadis Canada Inc. 2016. Environmental Consequence Assessment of the Unlikely Embankment Failure of the JEB Tailings Management Facility Expansion Stage 1.

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Golder Associates Ltd. 2021. JEB Tailings Management Facility 468 Expansion Preliminary Dam Classification.

Golder Associates Ltd. 2022. Dam Breach Flood Inundation Study for the JEB TMF Embankment.

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WSP Canada Inc. 2023. McClean Lake Operation, JEB TMF Expansion - Failure Modes and Effects Analysis Summary.

WSP Canada Inc. 2024. Orano McClean Lake Operation, JEB TMF Expansion – 2023 Dam Safety Inspection.

Appendix A GISTM Self-Assessment JEB TMF

GISTM - Orano Mining
Self-assessment year 2024

● Meets
◑ Partially meets
○ Does not meet
⊗ Not applicable

Locations / sites **JEB TMF McClean Lake, Saskatchewan, Canada**

Requirement		
TOPIC I: AFFECTED COMMUNITIES		
Principle 1 Respect the rights of project-affected people and meaningfully engage them at all phases of the tailings facility lifecycle, including closure.		
1.1 Demonstrate respect for human rights in accordance with the United Nations Guiding Principles on Business and Human Rights (UNGP), conduct human rights due diligence to inform management decisions throughout the tailings facility lifecycle and address the human rights risks of tailings facility credible failure scenarios. For existing facilities, the Operator can initially opt to prioritise salient human rights issues in accordance with the UNGP.	●	As a company member in the International Council on Mining and Metals (ICMM), Orano Mining subsidiaries adhere to ICMM's Mining Principles on human rights. Commitments to Principle 3.1 include conducting its business in compliance with the fundamental texts aimed at protecting human rights, namely: the UN Guiding Principles on Business and Human Rights, the fundamental conventions of the International Labour Organization, and the Guidelines for Multinational Enterprises issued by the Organization for Economic Cooperation and Development (OECD). Orano Mining values transparency and dialogue with its stakeholders, in particular on questions relating to human rights and management of grievances plays an essential part in the quality of its relations with stakeholders. Orano Mining deployed a grievance mechanism on all of its sites in 2020. Moreover, Orano Canada Inc.'s (OCI) Values Charter requires that the company's communication program is transparent, sincere and open. In keeping with these commitments, Orano Canada Inc.'s overarching communication program considers the exchange of information with neighboring Indigenous Nations and municipalities, the public and other potential stakeholders. The company's Public Information Program related to the McClean Lake Operation (MLO) describes how it ensures that information related to the health, safety and security of persons and the environment is communicated. Furthermore, the Canadian Nuclear Safety Commission (CNSC) decision to amend the uranium mine and mill licence held by OCI for its MLO for the expansion of the JEB TMF followed a public hearing held virtually on October 4, 2021 . In which, CNSC made participant funding available through its Participant Funding Program, and invited interventions from Indigenous Nations and communities, members of the public and stakeholders. In the event of a failure the Orano Mining corporate policy commits to restoration post failure.
1.2 Where a new tailings facility may impact the rights of indigenous or tribal peoples, including their land and resource rights and their right to self-determination, work to obtain and maintain Free Prior and Informed Consent (FPIC) by demonstrating conformance to international guidance and recognised best practice frameworks.	●	OCI Communications and Social Responsibility (CSR) Policy recognizes a responsibility to the Indigenous peoples and other community stakeholders in areas in which we have activities and is committed to their meaningful involvement in those activities. The subcommittees under each Collaboration Agreement (Ya Thi Nene, Pinehouse, English River First Nation) include local representation and meet quarterly to discuss uranium mining and community matters such as environmental protection, and health and safety. In the cases where OCI's undertakings may have an impact on traditional activities in the area, it meets with Indigenous leaders, their communities, and other interested parties to agree on consent and how each party will be accommodated or compensated. See Orano McClean Lake Operation Public Information Program CSR-100 Version 2. Most communities are very far from the site, all dam breach assessments show the flood mapping does not reach any downstream community. The agreement documents are confidential, if we need to show they can be requested.
1.3 Demonstrate that project-affected people are meaningfully engaged throughout the tailings facility lifecycle in building the knowledge base and in decisions that may have a bearing on public safety and the integrity of the tailings facility. The Operator shall share information to support this process.	●	The 2021 JEB TMF Expansion Indigenous Engagement Report. Section 8 of the 2022 McClean Lake Report also speaks to engagement. The collaboration agreements also cover this.
1.4 Establish an effective operational-level, non-judicial grievance mechanism that addresses complaints and grievances of project-affected people relating to the tailings facility, and provide remedy in accordance with the UNGP.	●	To meet the commitments of its CSR Policy, OCI provides a mechanism for transparent dispute resolution to strengthen trust-based relationships with Indigenous peoples and communities near its activities. Grievance mechanism in place https://www.orano.group/canada/en/our-commitments/community-engagement#communitiescollaboration Also mentioned in CSR Policy.
TOPIC II: INTEGRATED KNOWLEDGE BASE		
Principle 2 Develop and maintain an interdisciplinary knowledge base to support safe tailings management throughout the tailings facility lifecycle, including closure.		
2.1 Develop and document knowledge about the social, environmental and local economic context of the tailings facility, using approaches aligned with international best practices. Update this knowledge at least every five years, and whenever there is a material change either to the tailings facility or to the social, environmental and local economic context. This knowledge should capture uncertainties due to climate change.	●	The information is in the tailings Technical Information Document (TID): Social is from Section 4 considerations given to accidents and then clean up, downstream effects which have social impact and also Section 6.1. Environmental is all of Sections 4 and 6. Economic is covered by decommissioning and returning the property to the province. This captures uncertainty due to climate from a potential breach due to intense precipitation. When the TID is updated it can include more specifically the Failure Mode and Effects Analysis (FMEA); The JEB TMF Breach and Inundation study to show where and how far breach water goes, previous studies speaks to the effects of a breach on downstream water quality. The FMEA considers climate change from extreme precipitation (dam breach), to intense heat (desiccation and cracking). We have updated and documented knowledge with the FMEA and Breach & Inundation study, completed in December 2022. The TID will be updated every 5 years or when there is a material change.
2.2 Prepare, document and update a detailed site characterisation of the tailings facility site(s) that includes data on climate, geomorphology, geology, geochemistry, hydrology and hydrogeology (surface and groundwater flow and quality), geotechnical, and seismicity. The physical and chemical properties of the tailings shall be characterised and updated regularly to account for variability in ore properties and processing.	●	Tailings TID: Climate, Section 3.14. Geology, Section 2.3.3.1. Hydrogeology Section 7, Hydrology Section 4, Geotechnical is found in Construction documents and Sections 2.2.3 and 2.3.3.1. Physical and chemical properties of tailings, Sections 5 and 2.2. Geology, hydrology, hydrogeology, geotechnical and seismic are all included in the facility design reports.
2.3 Develop and document a breach analysis for the tailings facility using a methodology that considers credible failure modes, site conditions, and the properties of the slurry. The results of the analysis shall estimate the physical area impacted by a potential failure. When flowable materials (water and liquefiable solids) are present at tailings facilities with Consequence Classification of 'High', 'Very High' or 'Extreme', the results should include estimates of the physical area impacted by a potential failure, flow arrival times, depth and velocities, and depth of material deposition. Update whenever there is a material change either to the tailings facility or the physical area impacted.	●	Assessment of consequences to the receiving environment has been conducted. Flood mapping, velocity arrival time etc. has also been conducted using the most conservative breach location and fluid properties. The reports are included in the disclosure summary.
2.4 In order to identify the groups most at risk, refer to the updated tailings facility breach analysis to assess and document potential human exposure and vulnerability to tailings facility credible failure scenarios. Update the assessment whenever there is a material change either to the tailings facility or to the knowledge base.	●	JEB TMF Breach and Inundation study completed October 2022. There are no downstream human environments. There would only be Orano personnel potentially working in a downstream flow area. We now know and have document of potential human exposure and vulnerability to tailings flow.
Principle 3 Use all elements of the knowledge base - social, environmental, local economic and technical - to inform decisions throughout the tailings facility lifecycle, including closure.		
3.1 To enhance resilience to climate change, evaluate, regularly update and use climate change knowledge throughout the tailings facility lifecycle in accordance with the principles of Adaptive Management.	●	FMEA considers climate change with higher than design rainfall (PFM 7, 8, 29, 33, 34, 37, 51, 54).
3.2 For new tailings facilities, the Operator shall use the knowledge base and undertake a multi-criteria alternatives analysis of all feasible sites, technologies and strategies for tailings management. The goal of this analysis shall be to: (i) select an alternative that minimises risks to people and the environment throughout the tailings facility lifecycle; and (ii) minimise the volume of tailings and water placed in external tailings facilities. This analysis shall be reviewed by the Independent Tailings Review Board (ITRB) or a senior independent technical reviewer. For existing tailings facilities, the Operator shall periodically review and refine the tailings technologies and design, and management strategies to minimise risk and improve environmental outcomes. An exception applies to facilities that are demonstrated to be in a state of safe closure.	●	The 2011 pre-feasibility goes through alternative sites considered in Section 2. Minimizing risk to people and environment and volumes placed were not specifically considered in the pre-feasibility. However this has been shown with the Breach and Inundation study. Since this standard came out in 2020 the TMF was already in the expansion works. Therefore moving forward we use the Tailings Optimization and Validation Program (TOVP), Dam Safety Review (DSR), Dam Safety Inspection (DSI), to minimize risk and improve environmental outcomes. Tailings management and process is continually reviewed internally through tailings TID; The JEB TMF considered a new facility (i.e. the expanded portion)Embankment construction is considered a new facility. Options assessment completed in design reports Factor of Safety i.e. 1.5:1 to 4:1 slopes. The minimal volume of water and tailings is done with the reclaim line and raise well. The reports have been reviewed by the independent Tailings Review Board (ITRB).
3.3 For new tailings facilities, use the knowledge base, including uncertainties due to climate change, to assess the social, environmental and local economic impacts of the tailings facility and its potential failure throughout its lifecycle. Where impact assessments predict material acute or chronic impacts, the Operator shall develop, document and implement impact mitigation and management plans using the mitigation hierarchy.	●	Use breach analysis to assess failure impacts to social/environment and economic. FMEA considers potential failure scenarios due to climate change. The EPRP will mitigate the impacts after failure i.e. water sampling, contractor clean up. The Operations Maintenance and Surveillance (OMS) Manual has plans for inspections, Trigger Action Response Plans (TARPs) to help prevent this. The OMS and EPRP are finalized and will be operational by December 2023.
3.4 Update the assessment of the social, environmental and local economic impacts to reflect a material change either to the tailings facility or to the social, environmental and local economic context. If new data indicates that the impacts from the tailings facility have changed materially, including as a result of climate change knowledge or long-term impacts, the Operator shall update tailings facility management to reflect the new data using Adaptive Management best practices.	●	The Breach and Inundation Study assesses failure impacts to social/enviro and economic. If there is a change to the TMF or to the social/enviro/econ setting then update the assessment of failure impacts. If and when things change update the OMS manual to reflect the change. The DSI and preliminary consequence classification did assess the social, environmental and economic impacts of a tailings failure.

TOPIC III: DESIGN, CONSTRUCTION, OPERATION AND MONITORING OF THE TAILINGS FACILITY		
Principle 4 Develop plans and design criteria for the tailings facility to minimise risk for all phases of its lifecycle, including closure and post closure.		
4.1 Determine the consequence of failure classification of the tailings facility by assessing the downstream conditions documented in the knowledge base and selecting the classification corresponding to the highest Consequence Classification for each category in Annex 2, Table 1. The assessment and selection of the classification shall be based on credible failure modes, and shall be defensible and documented.	●	JEB TMF breach and inundation study is complete. Preliminary classification is complete. DSI is complete to confirm the consequence classification of "very high".
4.2 With the objective of maintaining flexibility in the development of a new tailings facility and optimising costs while prioritising safety throughout the tailings facility lifecycle: A. Develop preliminary designs for the tailings facility with external loading design criteria consistent with both the consequence of failure classification selected based on current conditions and higher Consequence Classifications (including 'Extreme'). B. Informed by the range of requirements defined by the preliminary designs, either: 1. Implement the design for the 'Extreme' Consequence Classification external loading criteria; or 2. Implement the design for the current Consequence Classification criteria, or a higher one, and demonstrate that the feasibility, at a proof of concept level, to upgrade to the design for the 'Extreme' classification criteria is maintained throughout the tailings facility lifecycle. C. If option B.2 is implemented, review the consequence of failure classification at the time of the Dam Safety Review (DSR) and at least every five years, or sooner if there is a material change in the social, environmental and local economic context, and complete the upgrade of the tailings facility to the new Consequence Classification as determined by the DSR within three years. This review shall proceed until the tailings facility has been safely closed according to this Standard. D. The process described above shall be reviewed by the Independent Tailings Review Board (ITRB)	●	The preliminary consequence classification is "very high". So the next analysis above is "extreme". A. The design uses the "extreme" 1/10,000" seismic analysis. The PMP event is 466 mm from Hopkins 1994 this is the "extreme" event that is meteorically possible and there fore is used. B. The DSI confirmed a consequence classification of "very high". "Extreme" events were used in design C. "Extreme" events used for PMP and seismic. D. This was all reviewed by the ITRB
4.3 The Accountable Executive shall take the decision to adopt a design for the current Consequence Classification criteria and to maintain flexibility to upgrade the design for the highest classification criteria later in the tailings facility lifecycle. This decision shall be documented.	●	Vice President of Safety, Health, Environment and Regulatory is assigned the role of Accountable Executive (AE). The 2022 DSI has the final consequence classification and it is accepted by Orano
4.4 Select, explicitly identify and document all design criteria that are appropriate to minimise risk for all credible failure modes for all phases of the tailings facility lifecycle.	●	FMEA is complete and covers risk assessment (confirmed by Engineer of Record) Design report presents design criteria Design criteria considered live document
4.5 Apply design criteria, such as factors of safety for slope stability and seepage management, that consider estimated operational properties of materials and expected performance of design elements, and quality of the implementation of risk management systems. These issues should also be appropriately accounted for in designs based on deformation analyses.	●	Addressed by the detailed design documents.
4.6 Identify and address brittle failure modes with conservative design criteria, independent of trigger mechanisms, to minimise their impact on the performance of the tailings facility.	●	Brittle failure was considered and assed under Potential Failure Mode (PFM) 11 in the FMEA.
4.7 Existing tailings facilities shall conform with the Requirements under Principle 4, except for those aspects where the Engineer of Record (EOR), with review by the ITRB or a senior independent technical reviewer, determines that the upgrade of an existing tailings facility is not viable or cannot be retroactively applied. In this case, the Accountable Executive shall approve and document the implementation of measures to reduce both the probability and the consequences of a tailings facility failure in order to reduce the risk to a level as low as reasonably practicable (ALARP). The basis and timing for addressing the upgrade of existing tailings facilities shall be risk-informed and carried out as soon as reasonably practicable.	●	Principle 4 is met, the Engineer of Record (EOR) and ITRB have all reviewed design.
4.8 The EOR shall prepare a Design Basis Report (DBR) that details the design assumptions and criteria, including operating constraints, and that provides the basis for the design of all phases of the tailings facility lifecycle. The DBR shall be reviewed by the ITRB or senior independent technical reviewer. The EOR shall update the DBR every time there is a material change in the design assumptions, design criteria, design or the knowledge base and confirm internal consistency among these elements.	●	DBM in designs reports, is reviewed by the ITRB. It is updated as needed by the EOR.
Principle 5 Develop a robust design that integrates the knowledge base and minimises the risk of failure to people and the environment for all phases of the tailings facility lifecycle, including closure and post-closure		
5.1 For new tailings facilities, incorporate the outcome of the multi-criteria alternatives analysis including the use of tailings technologies in the design of the tailings facility. For expansions to existing tailings facilities, investigate the potential to refine the tailings technologies and design approaches with the goal of minimising risks to people and the environment throughout the tailings facility lifecycle.	●	Pre-feasibility document is completed. Design report considered alternative slope angles.
5,2 Develop a robust design that considers the technical, social, environmental and local economic context, the tailings facility Consequence Classification, site conditions, water management, mine plant operations, tailings operational and construction issues, and that demonstrates the feasibility of safe closure of the tailings facility. The design should be reviewed and updated as performance and site data become available and in response to material changes to the tailings facility or its performance	●	Detailed design considered appropriate inputs and design to extreme external loads complete. TOVP results reviewed during design process.
5.3 Develop, implement and maintain a water balance model and associated water management plans for the tailings facility, taking into account then knowledge base including climate change, upstream and downstream hydrological and hydrogeological basins, the mine site, mine planning and overall operations and the integrity of the tailings facility throughout its lifecycle. The water management programme must be designed to protect against unintentional releases.	●	Design has the hydrology and hydrogeology components and considered the water balance of TMF and adjoining areas.
5.4 Address all potential failure modes of the structure, its foundation, abutments, reservoir (tailings deposit and pond), reservoir rim and appurtenant structures to minimise risk to ALARP. Risk assessments must be used to inform the design.	●	Design addresses credible failure modes (stability all inclusive, surface erosion, Section 6. Piping, Section 8.2.2 for 457.5 and 8.1.2 for 468). FMEA supports this.
5.5 Develop a design for each stage of construction of the tailings facility, including but not limited to start-up, partial raises and interim configurations, final raise, and all closure stages.	●	The design considers and implements a staged construction approach.
5.6 Design the closure phase in a manner that meets all the Requirements of the Standard with sufficient detail to demonstrate the feasibility of the closure scenario and to allow implementation of elements of the design during construction and operation as appropriate. The design should include progressive closure and reclamation during operations.	●	Conceptual design for closure has been completed.
5.7 For a proposed new tailings facility classified as 'High', 'Very High' or 'Extreme', the Accountable Executive shall confirm that the design satisfies ALARP and shall approve additional reasonable steps that may be taken downstream, to further reduce potential consequences to people and the environment. The Accountable Executive shall explain and document the decisions with respect to ALARP and additional consequence reduction measures. For an existing tailings facility classified as 'High', 'Very High' or 'Extreme', the Accountable Executive, at the time of every DSR or at least every five years, shall confirm that the design satisfies ALARP and shall seek to identify and implement additional reasonable steps that may be taken to further reduce potential consequences to people and the environment. The Accountable Executive shall explain and document the decisions with respect to ALARP and additional consequence reduction measures, in consultation with external parties as appropriate.	●	The Design Basis uses applicable parts of the Canadian Dam Association guidelines and "extreme" external loading events. Dam Safety Inspection (DSI): Conducted annually for the JEB TMF led by the EOR with the RTFE and AE involved. The most recent DSI was conducted in October 2023 with the report to issued in Q1 2024.
5.8 Where other measures to reduce the consequences of a tailings facility credible failure mode as per the breach analysis have been exhausted, and pre-emptive resettlement cannot be avoided, the Operator shall demonstrate conformance with international standards for involuntary resettlement.	●	The FMEA and Breach and Inundation Study show that resettlement is not necessary.

Principle 6 Plan, build and operate the tailings facility to manage risk at all phases of the tailings facility lifecycle, including closure and post-closure.		
6.1 Build, operate, monitor and close the tailings facility according to the design intent at all phases of the tailings facility lifecycle, using qualified personnel and appropriate methodology, equipment and procedures, data acquisition methods, the Tailings Management System (TMS) and the overall Environmental and Social Management System (ESMS) for the mine and associated infrastructure.	●	The corporate policy and tailings standard are finalized and in internal management system
6.2 Manage the quality and adequacy of the construction and operation process by implementing Quality Control, Quality Assurance and Construction vs Design Intent Verification (CDIV). The Operator shall use the CDIV to ensure that the design intent is implemented and is still being met if the site conditions vary from the design assumptions.	●	Programs in place for QAQC. Construction Record reports meets intent of CDIV. All designs have QAQC components.
6.3 Prepare a detailed Construction Records Report ('as-built' report) whenever there is a material change to the tailings facility, its infrastructure or its monitoring system. The EOR and the Responsible Tailings Facility Engineer(RTFE) shall sign this report.	●	Construction record reports have been approved by the EOR in the past before the standard existed. Moving forward the EOR and RTFE will also approve the reports.
6.4 Develop, implement, review annually and update as required an Operations, Maintenance and Surveillance (OMS) Manual that supports effective risk management as part of the TMS. The OMS Manual should follow best practices, clearly provide the context and critical controls for safe operations, and be reviewed for effectiveness. The RTFE shall provide access to the OMS Manual and training to all levels of personnel involved in the TMS with support from the EOR.	●	OMS manual is finalized and in internal management system
6.5 Implement a formal change management system that triggers the evaluation, review, approval and documentation of changes to design, construction, operation or monitoring during the tailings facility lifecycle. The change management system shall also include the requirement for the EOR to prepare a periodic Deviance Accountability Report (DAR), that provides an assessment of the cumulative impact of the changes on the risk level of the as-constructed facility. The DAR shall provide recommendations for managing risk, if necessary, and any resulting updates to the design, DBR, OMS and the monitoring programme. The DAR shall be approved by the Accountable Executive.	●	This is covered in section 6 of the tailings governance standard which is finalized and in internal management system
6.6 Include new and emerging technologies and approaches and use the evolving knowledge in the refinement of the design, construction and operation of the tailings facility.	●	Addressed by TOVP and in design reports (instrumentation technology).
Principle 7 Design, implement and operate monitoring systems to manage risk at all phases of the facility lifecycle, including closure.		
7.1 Design, implement and operate a comprehensive and integrated performance monitoring programme for the tailings facility and its appurtenant structures as part of the TMS and for those aspects of the ESMS related to the tailings facility in accordance with the principles of Adaptive Management.	●	Design report provides monitoring program (Section 11 for 457.5 and section 11 for 468). There is a section in the OMS manual to document monitoring for the tailings facility, taken from the design report recommendation. The OMS manual is finalized and in IMS
7.2 Design, implement and operate a comprehensive and integrated engineering monitoring system that is appropriate for verifying design assumptions and for monitoring potential failure modes. Full implementation of the Observational Method shall be adopted for non-brittle failure modes. Brittle failure modes are addressed by conservative design criteria.	●	Design report provides monitoring program (Section 11 for 457.5 and section 11 for 468). There is a section in the OMS manual to document monitoring for the tailings facility, taken from the design report recommendation. Trigger Action Response Plans are implemented for the observational approach. The OMS manual is finalized and in IMS
7.3 Establish specific and measurable performance objectives, indicators, criteria, and performance parameters and include them in the design of the monitoring programmes that measure performance throughout the tailings facility lifecycle. Record and evaluate the data at appropriate frequencies. Based on the data obtained, update the monitoring programmes throughout the tailings facility lifecycle to confirm that they remain effective to manage risk.	●	Design report provides monitoring program (Section 11 for 457.5 and section 11 for 468). There is a section in the OMS manual to document monitoring for the tailings facility, taken from the design report recommendation. Trigger Action Response Plans are implemented for the observational approach. The OMS manual is finalized andin IMS.
7.4 Analyse technical monitoring data at the frequency recommended by the EOR, and assess the performance of the tailings facility, clearly identifying and presenting evidence on any deviations from the expected performance and any deterioration of the performance over time. Promptly submit evidence to the EOR for review and update the risk assessment and design, if required. Performance outside the expected ranges shall be addressed promptly through Trigger Action Response Plans (TARPs) or critical controls.	●	Design report provides monitoring program (Section 11 for 457.5 and section 11 for 468). There is a section in the OMS manual to document monitoring for the tailings facility, taken from the design report recommendation. Trigger Action Response Plans are implemented for the observational approach. The OMS manual is finalized and in IMS
7.5 Report the results of each of the monitoring programmes at the frequency required to meet company and regulatory requirements and, at a minimum, on an annual basis. The RTFE and the EOR shall review and approve the technical monitoring reports.	●	The design report specifies the frequencies. The DSI will cover the reporting. The OMS has notes for frequencies Annual reporting requirements being met. Formal review by EOR/RTFE. The OMS manual is finalized and in IMS
TOPIC IV: MANAGEMENT AND GOVERNANCE		
Principle 8 Establish policies, systems and accountabilities to support the safety and integrity of the tailings facility		
8.1The Board of Directors shall adopt and publish a policy on or commitment to the safe management of tailings facilities, to emergency preparedness and response, and to recovery after failure.	●	Orano Canada, under the Orano mining corporate policy on tailings, includes response and recovery after failure.
8.2 Assess the hazards of the products of mining according to UN Globally Harmonised System of Hazard Classification and Labelling or equivalent relevant regulatory systems and communicate through safety data sheets and labelling as appropriate	●	The tailings governance standard document is complete which includes a Tailings Management System (Section 4) Environmental and social management systems (ESMS) covered by risk management and community engagement. Also the AE adopts the design to have ALARA to the environment
8.3 For roles with responsibility for tailings facilities, develop mechanisms such that incentive payments or performance reviews are based, at least in part, on public safety and the integrity of the tailings facility. These incentive payments shall reflect the degree to which public safety and the integrity of the tailings facility are part of the role. Long-term incentives for relevant executive managers should take tailings management into account.	●	Tailings responsibility positions should have Short Term Incentive (STI) based partly on personal objectives which include tailings safety through GISTM management, inspections etc. We are compliant with just that, by tailoring individual incentives in responsibility with tailings through their annual objectives. Orano does not have Long Term Incentives. Documentation will be HR-400 Performance and Development Process.
8.4 Appoint one or more Accountable Executives who is/are directly answerable to the CEO on matters related to this Standard. The Accountable Executive(s) shall be accountable for the safety of tailings facilities and for avoiding or minimising the social and environmental consequences of a tailings facility failure. The Accountable Executive(s) shall also be accountable for a programme of tailings management training, and for emergency preparedness and response. The Accountable Executive(s) must have scheduled communication with the EOR and regular communication with the Board of Directors, which can be initiated either by the Accountable Executive(s), or the Board. The Board of Directors shall document how it holds the Accountable Executive(s) accountable.	●	The accountable executive is Vice President of Safety, Health, Environment and Regulatory and reports to the CEO. This is documented in the tailings standard.
8.5 Appoint a site-specific Responsible Tailings Facility Engineer (RTFE) who is accountable for the integrity of the tailings facility, who liaises with the EOR and internal teams such as operations, planning, regulatory affairs, social performance and environment, and who has regular two-way communication with the Accountable Executive. The RTFE must be familiar with the DBR, the design report and the construction and performance of the tailings facility.	●	The RTFE is held by the Civil/Geotech Engineer position, documented in the tailings standard.
8.6 Identify appropriate qualifications and experience requirements for all personnel who play safety-critical roles in the operation of a tailings facility, including, but not limited to the RTFE, the EOR and the Accountable Executive. Ensure that incumbents of these roles have the identified qualifications and experience, and develop succession plans for these personnel.	●	Covered in the role descriptions and competency in tailings governance standard. Succession plan is covered by Section 3.
8.7 For tailings facilities with Consequence Classification of 'Very High' or 'Extreme', appoint an Independent Tailings Review Board (ITRB). For all other facilities, the Operator may appoint a senior independent technical reviewer. The ITRB or the reviewer shall be appointed early in the project development process, report to the Accountable Executive and certify in writing that they follow best practices for engineers in avoiding conflicts of interest.	●	There are two members that have been selected for the ITRB.

Principle 9 Appoint and empower an Engineer of Record		
9.1 Engage an engineering firm with expertise and experience in the design and construction of tailings facilities of comparable complexity to provide EOR services for operating the tailings facility and for closed facilities with 'High', 'Very High' and 'Extreme' Consequence Classification, that are in the active closure phase. Require that the firm nominate a senior engineer, approved by the Operator, to represent the firm as the EOR, and verify that the individual has the necessary experience, skills and time to fulfil this role. Alternatively, the Operator may appoint an in-house engineer with expertise and experience in comparable facilities as the EOR. In this instance, the EOR may delegate the design to a firm ('Designer of Record') but shall remain thoroughly familiar with the design in discharging their responsibilities as EOR. Whether the EOR or the DOR is in-house or external, they must be competent and have experience appropriate to the Consequence Classification and complexity of the tailings facility.	●	EOR has been selected and documented by proposal and work authorizations.
9.2 Empower the EOR through a written agreement that clearly describes their authority, role and responsibilities throughout the tailings facility lifecycle, and during change of ownership of mining properties. The written agreement must clearly describe the obligations of the Operator to the EOR, to support the effective performance of the EOR.	●	EOR has been selected and their role is documented by proposal, tailings governance standard and work authorizations.
9.3 Establish and implement a programme to manage the quality of all engineering work, the interactions between the EOR, the RTFE and the Accountable Executive, and their involvement in the tailings facility lifecycle as necessary to confirm that both the implementation of the design and the design intent are met.	●	Covered in tailings governance standard AE/RTFE/EOR sections.
9.4 Given its potential impact on the risks associated with a tailings facility, the selection of the EOR shall be decided by the Accountable Executive and informed, but not decided, by procurement personnel.	●	The work authorization containing the EOR was Approved by senior management.
9.5 Where it becomes necessary to change the EOR (whether a fi rm or an inhouse employee), develop a detailed plan for the comprehensive transfer of data, information, knowledge and experience with the construction procedures and materials.	●	Succession plan in scope of proposal. Also follow change management, Section 6 of tailings standard.
Principle 10 Establish and implement levels of review as part of a strong quality and risk management system for all phases of the tailings facility lifecycle, including closure		
10.1 Conduct and update risk assessments with a qualified multi-disciplinary team using best practice methodologies at a minimum every three years and more frequently whenever there is a material change either to the tailings facility or to the social, environmental and local economic context. Transmit risk assessments to the ITRB or senior independent technical reviewer for review, and address with urgency all unacceptable tailings facility risks.	●	Captured by FMEA. Redo FMEA every 3 years or when there is a change i.e. construction/expansion. Then have the ITRB review this.
10.2 Conduct regular reviews of the TMS and of the components of the ESMS that refer to the tailings facility to assure the effectiveness of the management systems. Document and report the outcomes to the Accountable Executive, Board of Directors and project-affected people. The review shall be undertaken by senior technical reviewers with the appropriate qualifications, expertise and resources. For tailings facilities with 'High', 'Very High' or 'Extreme' Consequence Classification, conduct the review at least every three years.	●	The EOR can review the OMS and EPRP to meet this objective. The EOR has done their review, the documents are finalized and are in IMS.
10.3 Conduct internal audits to verify consistent implementation of company procedures, guidelines and corporate governance requirements consistent with the TMS and aspects of the ESMS developed to manage tailings facility risks.	●	Section 8 of the tailings governance standard.
10.4 The EOR or senior independent technical reviewer shall conduct tailings facility construction and performance reviews annually or more frequently, if required.	●	EOR will conduct an annual performance review (inspection and data analysis).
10.5 Conduct an independent DSR at least every five years for tailings facilities with 'Very High' or 'Extreme' Consequence Classifications and at least every 10 years for all other facilities. For tailings facilities with complex conditions or performance, the ITRB may recommend more frequent DSRs. The DSR shall include technical, operational and governance aspects of the tailings facility and shall be completed according to best practices. The DSR contractor cannot conduct consecutive DSRs on the same tailings facility and shall certify in writing that they follow best practices for engineers in avoiding conflicts of interest.	●	Conduct independent DSR every 5 years starting from 2021 or when the ITRB recommends.
10.6 For tailings facilities with 'Very High' or 'Extreme' Consequence Classifications, the ITRB, reporting to the Accountable Executive shall provide ongoing senior independent review of the planning, siting, design, construction, operation, water and mass balance, maintenance, monitoring, performance and risk management at appropriate intervals across all phases of the tailings facility lifecycle. For tailings facilities with other Consequence Classifications, this review can be done by a senior independent technical reviewer.	●	ITRB contracts are in place and meetings have been conducted.
10.7 The amount of estimated costs for planned closure, early closure, reclamation, and post-closure of the tailings facility and its appurtenant structures shall be reviewed periodically to confirm that adequate financial capacity (including insurance, to the extent commercially reasonable) is available for such purposes throughout the tailings facility lifecycle, and the conclusions of the review shall be publicly disclosed annually. Disclosure may be made in audited financial statements or in public regulatory filings. Subject to the provisions of local or national regulations on this matter, Operators shall use best efforts to assess and take into account the capability of an acquirer of any of its assets involving a tailings facility (through merger, acquisition, or other change in ownership) to maintain this Standard for the tailings facility lifecycle.	●	There is financial assurance confirmed, as part of the McClean operations Preliminary Decommissioning Plan and Financial Assurance.
Principle 11 DEVELOP AN ORGANISATIONAL CULTURE THAT PROMOTES LEARNING, COMMUNICATION AND EARLY PROBLEM RECOGNITION.		
11.1 Educate personnel who have a role in any phase of the tailings facility lifecycle about how their job procedures and responsibilities relate to the prevention of a failure.	●	Covered in 'role competency' in tailings governance standard.
11.2 Establish mechanisms that incorporate workers' experience-based knowledge into planning, design and operations for all phases of the tailings facility lifecycle.	●	Covered by 'role competency' and AE/RTFE/EOR sections in tailings governance standard.
11.3 Establish mechanisms that promote cross-functional collaboration to ensure effective data and knowledge sharing, communication and implementation of management measures to support public safety and the integrity of the tailings facility.	●	Covered by AE/RTFE/EOR sections in tailings governance standard. Regular meeting with EOR team is conducted.
11.4 Identify and implement lessons from internal incident investigations and relevant external incident reports, paying particular attention to human and organisational factors.	●	Section 8 in tailings governance standard.
11.5 Establish mechanisms that recognise, reward and protect from retaliation, employees and contractors who report problems or identify opportunities for improving tailings facility management. Respond in a timely manner and communicate actions taken and their outcomes.	●	Whistle blower and grievance mechanisms in place (Orano employee handbook and for service providers). In the tailings governance standard it specifically speaks to recognize, reward and protect whistleblowers which is not in the HR guidelines.
Principle 12 ESTABLISH A PROCESS FOR REPORTING AND ADDRESSING CONCERNS AND IMPLEMENT WHISTLEBLOWER PROTECTIONS.		
12.1 The Accountable Executive shall establish a formal, confidential and written process to receive, investigate and promptly address concerns from employees and contractors about possible permit violations or other matters relating to regulatory compliance, public safety, tailings facility integrity or the environment.	●	Covered in Communication Section of tailings governance standard. Also covered in the Orano Canada CSR procedure for complaints/grievance, section 4. The AE will refer to this.
12.2 In accordance with international best practices for whistleblower protection, the Operator shall not discharge, discriminate against, or otherwise retaliate in any way against a whistleblower who, in good faith, has reported possible permit violations or other matters relating to regulatory compliance, public safety, tailings facility integrity or the environment.	●	Orano has a whistleblower policy in place in employee handbook that complies with this requirement.

TOPIC V: EMERGENCY RESPONSE AND LONG-TERM RECOVERY		
Principle 13 PREPARE FOR EMERGENCY RESPONSE TO TAILINGS FACILITY FAILURES.		
13.1 As part of the TMS, use best practices and emergency response expertise to prepare and implement a site-specific tailings facility Emergency Preparedness and Response Plan (EPRP) based on credible flow failure scenarios and the assessment of potential consequences. Test and update the EPRP at all phases of the tailings facility lifecycle at a frequency established in the plan, or more frequently if triggered by a material change, either to the tailings facility or to the social, environmental and local economic context. Meaningfully engage with employees and contractors to inform the EPRP, and co-develop community-focused emergency preparedness measures with project-affected people.	●	EPRP has TARPs from EOR and potential failure modes from the FMEA. There is reference to training and testing. Exercises were done.
13.2 Engage with public sector agencies, first responders, local authorities and institutions and take reasonable steps to assess the capability of emergency response services to address the hazards identified in the tailings facility EPRP, identify gaps in capability and use this information to support the development of a collaborative plan to improve preparedness.	●	Site services, first responders need to be aware, trained and capable of an emergency response related to hazards from the EPRP. EPRP is done and exercises done
13.3 Considering community-focused measures and public sector capacity, the Operator shall take all reasonable steps to maintain a shared state of readiness for tailings facility credible flow failure scenarios by securing resources and carrying out annual training and exercises. The Operator shall conduct emergency response simulations at a frequency established in the EPRP but at least every 3 years for tailings facilities with potential loss of life.	●	EPRP to be developed for expanded facility. Include in EPRP that training exercises and readiness need to be conducted by site services and first responders. Since there are no public services in the area it falls on the site first responders. ERPR is exercises were done.
13.4 In the case of a catastrophic tailings facility failure, provide immediate response to save lives, supply humanitarian aid and minimise environmental harm.	●	There are no downstream communities, however there is an immediate response plan in the event of failure in EPRP.
Principle 14 PREPARE FOR LONG-TERM RECOVERY IN THE EVENT OF CATASTROPHIC FAILURE.		
14.1 Based on tailings facility credible flow failure scenarios and the assessment of potential consequences, take reasonable steps to meaningfully engage with public sector agencies and other organisations that would participate in medium- and long-term social and environmental post-failure response strategies.	●	The OMS manual and EPRP cover communications post incident.
14.2 In the event of a catastrophic tailings facility failure, assess social, environmental and local economic impacts as soon as possible after people are safe and short-term survival needs have been met.	●	Remediation plan is in the EPRP.
14.3 In the event of a catastrophic tailings facility failure, work with public sector agencies and other stakeholders to develop and implement reconstruction, restoration and recovery plans that address the medium- and long-term social, environmental and local economic impacts of the failure. The plans shall be disclosed if permitted by public authorities.	●	OMS manual and EPRP will be distributed to authorities as needed. Note no communities nearby
14.4 In the event of a catastrophic tailings facility failure, enable the participation of affected people in reconstruction, restoration and recovery works and ongoing monitoring activities.	●	This is covered by the collaboration agreements and IMS document SCM-104-01.
14.5 Facilitate the monitoring and public reporting of post-failure outcomes that are aligned with the thresholds and indicators outlined in the reconstruction, restoration and recovery plans and adapt activities in response to findings and feedback.	●	There is already guidelines in place for release reporting, and are in the OMS/EPRP
TOPIC VI: PUBLIC DISCLOSURE AND ACCESS TO INFORMATION		
Principle 15		
15.1 Publish and regularly update information on the Operator's commitment to safe tailings facility management, implementation of its tailings governance framework, its organisation-wide policies, standards or approaches to the design, construction, monitoring and closure of tailings facilities. A. For new tailings facilities for which the regulatory authorisation process has commenced, or that are otherwise approved by the Operator, the Operator shall publish and update, in accordance with Principle 21 of the UNGP, the following information: 1. A plain language summary of the rationale for the basis of the design and site selected as per the multi-criteria alternatives analysis, impact assessments, and mitigation plans (Information may be obtained from the output of multiple Requirements including, but not limited to, Requirements 3.2, 3.3, 5.1, 5.3, 6.4, 6.6, 7.1 and 10.1); and 2. The Consequence Classification. (Requirement 4.1). B. For each existing tailings facility and in accordance with Principle 21 of the UNGP, the Operator shall publish and update at least on an annual basis, the following information: 1. A description of the tailings facility (information may be obtained from the output of Requirements 5.5 and 6.4); 2. The Consequence Classification (Requirement 4.1); 3. A summary of risk assessment findings relevant to the tailings facility (Information may be obtained from the output of Requirement 10.1);	●	Orano Mining publishes, and discloses the requirements under Principle 15.
15.2 Respond in a systematic and timely manner to requests from interested and affected stakeholders for additional information material to the public safety and integrity of a tailings facility. When the request for information is denied, provide an explanation to the requesting stakeholder.	●	Covered by Orano's grievance mechanism and CSR policy.
15.3 Commit to cooperate in credible global transparency initiatives to create standardised, independent, industry-wide and publicly accessible databases, inventories or other information repositories about the safety and integrity of tailings facilities.	●	Member of ICMM, Saskatchewan Mining Association and other industry groups. Orano has regular communication and sharing with the Canadian Nuclear Safety Commission and Saskatchewan Ministry Of Environment on JEB TMF related matters. To meet the commitments of its CSR Policy, OCI communicates with and provides opportunities for dialogue with Indigenous Peoples and interested stakeholders and consider those views in our activities in order to build consensus.