

Tailings Storage Facility Disclosure

South Tailings Pond Tailings Storage Facility

July 2023



Teck

Contents

Contents	1
1. Tailings Facility Description	2
2. Consequence of Failure	3
3. Summary of Risk Assessment Findings	4
4. Summary of Impact Assessments and of Human Exposure and Vulnerability to Tailings Facility Credible Flow Failure Scenarios.....	5
5. Description of the Design for all Phases of the Tailings Facility Lifecycle.....	6
6. Summary of Material Findings of Annual Facility Performance Reports (AFPRs) and Dam Safety Review (DSR)	6
7. Summary of Material Findings of the Environmental and Social Monitoring Program	7
8. Summary of the Tailings Facility Emergency Preparedness and Response Plan (EPRP)	8
9. Independent Reviews	9
10. Financial Capacity	9
11. Conformance to the Global Industry Standard on Tailings Management	10
Table 1: Description of STF TSF	2
Table 2: STP TSF Design Information Summary.....	6
Table 3: Categories of Conformance	10
Figure 1: South Tailings Pond TSF Site Plan	3

1. Tailings Facility Description

The South Tailings Pond (STP) is an active Tailings Storage Facility (TSF) at the Fording River Operation (FRO) which is owned and operated by Teck Coal Ltd. (Teck). The Fording River Operation is located approximately 30 km north of Elkford in the interior of British Columbia.

The site is located within the southern interior of BC near the eastern Rocky Mountains. The topography is predominately characterized by a mix of fluvial valley bottoms and gentle side slopes leading to upper mountainous slopes. FRO is located within either the Engelmann Spruce – Subalpine Fir (ESSF) or Montane Spruce (MS) bio-geoclimatic zones. Common vegetation includes subalpine fir and Engelmann Spruce. Shrubs include false azalea, black huckleberry, grouseberry, low bilberry western meadow rue, heart-leaved arnica, and one-leaved foamflower. The climate is characterized by warm dry summers and cool winters. Climate conditions in the area are described based on data from the Fording River Cominco meteorological station, located within the Fording River Valley 4 km south of FRO. Climate conditions at FRO are strongly influenced by elevation, slope aspect and proximity to the Fording River Valley.

Tailings are retained in the STP TSF by two tailings embankment structures (Main Dam and West Dam). The facility occupies a total area of approximately 80 hectares. The facility has an emergency spillway capable of passing a 24-hour probable maximum flood (PMF).

The STP TSF is located south of the processing plant, on the east side of the Fording River and is 2,079 m long. STP first began construction in 1977 and tailings deposition began in early 1979. STP can collect and store up to 12 million cubic metres of tailings. Tailings are deposited hydraulically via a single point gravity pipeline discharge. Tailings are seasonally dredged from the STP to the Turnbull tailings storage facility.

A short description of the STP TSF is summarized in the table below.

Table 1: Description of STF TSF

TSF Design Summary	Description
Status	Active
Number of tailings embankment structures	2
Type of Construction	Downstream zoned earth fill embankments
Most recent Annual Facility Performance Review	2022 www.teck.com/tailings
Independent Review Board	Yes

Note: Further details regarding the TSF configuration can be found in our facility inventory at www.Teck.com/tailings



Figure 1: South Tailings Pond TSF Site Plan

2. Consequence of Failure

All Teck tailings facilities are assessed for credible failure modes, and the outcomes from these credible failure scenario assessments inform our risk management activities. For the purposes of assigning a facility consequence classification, the downstream consequences of *potential* failure modes (not considering whether they are credible or not) are used, as per the Canadian Dam Association (CDA) guidelines and the requirements of the jurisdictions in which we operate. The Global Industry Standard on Tailings Management (GISTM) bases consequence classification on credible failure modes only, which may result in a lower stated classification.

Consequence classification should not be confused with risk, as risk also requires the consideration of the likelihood of the event occurring. To better understand the risk that a tailings facility presents, it is necessary to consider both the likelihood and the consequences of a potential failure event. That analysis is performed through our risk assessment process described in the next section.

The STP is classified as a “Very High” consequence facility under both the CDA guidelines and the GISTM.

3. Summary of Risk Assessment Findings

Teck applies risk-based design approaches, whereby risk assessments are used to demonstrate the resilience of our facilities to extreme loading criteria, and to inform decisions to manage risks to as low as reasonably practicable (ALARP). This approach focuses our efforts on credible failure modes, reducing risks at our facilities by reducing the likelihood of occurrence and mitigating downstream impacts, regardless of the consequence classification from theoretical embankment failures.

The most recent risk assessment for the STP TSF was conducted in 2023, assessing potential failure modes for hazards up to and including extreme events (i.e., an event that occurs once in 10,000 years). As part of this assessment, failure modes are deemed as credible or non-credible, considering the greatest combination of events or operational errors, and then the risks of such events are evaluated.

All failure modes are sorted according to Teck's risk matrix, with risk mitigation controls identified and tracked. These failure modes are also described in the publicly available Annual Facility Performance Reports. These risk assessments are prepared with assistance from the Engineer of Record and are reviewed by the Independent Tailings Review Board. Teck regularly updates these detailed risk assessments, and the key findings from the most recent assessment are described below.

The STP TSF has potentially credible failure modes that are of very low likelihood. A summary of material risks (high or extreme consequences, regardless of likelihood) that are being managed, the existing controls that are in place, and additional risk mitigation measures that are planned are summarized below.

Erosion of the Embankment during very large flood event in the Fording River

What could happen:

- During a large flood event, the Fording River floods and could cause erosion of the embankment toe leading to embankment instability and flow failure.

What we are doing to control the risk:

- Riprap has been placed along parts of the embankment to protect the facility against river erosion.
- A design was developed to widen the river and increase rip rap armour at the embankment toe. Construction began in 2021 and is being executed in a staged approach to mitigate potential environmental impacts associated with the river widening and placement of rip rap.

Rupture of the clarified water pipeline at STP

What could happen:

- Pipeline rupture could be undetected for several hours causing erosion of the embankment fill, loss of freeboard and breach of embankment structure, resulting in a flow failure.

What we are doing to control the risk:

- The integrity of the pipeline is verified through pipeline inspections that include real-time camera monitoring, multiple daily inspections, and plant alarms if a loss of water in the system is detected.

- Evaluation of alternative pipeline routes is being evaluated to eliminate the potential for impact to the integrity of the embankment, and to consider secondary containment in critical areas.

The above risks, and the results of the performance monitoring and surveillance program that monitors these risks are described in more detail in the Annual Facility Performance Report at www.teck.com/tailings.

4. Summary of Impact Assessments and of Human Exposure and Vulnerability to Tailings Facility Credible Flow Failure Scenarios

Formal inundation studies have been conducted at the STP TSF to identify potentially impacted communities, infrastructure and waterbodies in the extremely unlikely event of a tailings facility breach. An assessment of human exposure (potential for a person to be located in the inundation area) and vulnerability (existing physical, social, economic and environmental conditions that make people and the environment more susceptible to the impacts) was undertaken for the STP TSF area of influence to understand the severity of the effects of a tailings embankment breach. Results of the assessment are summarized below.

The potential effects to people and the environment in the highly unlikely scenario of a breach of the STP tailings facility may include on-site loss of life of workers, impacts to water supply, public health and safety, aquatic and terrestrial environment, current use of land and waterways, and infrastructure. Vulnerability factors include sensitive fish habitat, livelihoods tied to the area of influence and potentially impacted drinking water sources. The area of influence for the STP embankment includes the on-site work area downstream of the facility including the Fording River South Active Water Treatment Facility, the Fording and Elk Rivers, and low-lying areas adjacent to these rivers.

What are we doing to control the risk:

- The controls and mitigations that have been implemented to reduce the likelihood and consequences of a credible tailings facility failure scenarios at the STP TSF are described in Section 3 above. Further, measures have been taken to protect potentially affected people, including sharing of information. We have a plan in place to assess the capacity of the communities to respond to emergencies, and to co-develop emergency response measures with provincial agencies and project-affected people to improve preparedness.

5. Description of the Design for all Phases of the Tailings Facility Lifecycle

General design information regarding the STP retaining structure design for the operational phase is summarized in the table below. An updated closure design for the STP TSF is under development.

Table 2: STP TSF Design Information Summary

Structure	Main Dam	West Dam
Containment or Design Type	Downstream-constructed, zoned earth fill embankment	Downstream-constructed, zoned earth fill embankment
Estimated Crest El. (m)	1,637.85	1,637.85
Current Embankment Height (m)	35	24
Initial Operation	1979	1979
Final Permitted Embankment Height (m)	35	24
Current Tailings Volume (Mm ³)	11.2	11.2
Final Permitted Tailings Capacity (Mm ³)	12	12
Crest Length(m)	879	1200
Overall Downstream Slope	1.5V:1H	1.5V:1H
Design Storm Event	24 hour Probable Maximum Flood (PMF)	24 hour Probable Maximum Flood (PMF)
Design Earthquake	6.2M or 0.23g (2/3 between 1:1000 and MCE)	6.2M or 0.23g (2/3 between 1:1000 and MCE)

6. Summary of Material Findings of Annual Facility Performance Reports (AFPRs) and Dam Safety Review (DSR)

Annual Facility Performance Reports (AFPRs) are compiled each year by a third-party Engineer of Record to summarize the past year's monitoring and surveillance information into a concise review. Dam Safety Reviews (DSRs) are performed every 5 years by an independent reviewer in order to provide an independent assessment of the design and performance of the tailings facility. These reports document the safe operation, maintenance, and surveillance of the facility and identify and make any recommendations for continual improvement. Recommendations from these reports are tracked in the site tailings management system through to completion.

The recommendations from the AFPRs and DSRs are considered 'material'¹ findings' when the observation relates to credible failure modes of the facility that could result in a very high or extreme consequence, regardless of the likelihood of such an occurrence. It is important to note that a 'material finding' *does not* mean a high probability of occurrence. The urgency with which recommendations are to be addressed are defined by the Engineer of Record or independent reviewer by assigning a priority rating, which then informs the timeline to complete the action.

The most recent AFPR for this facility was completed for the period of September 1, 2021 through August 31, 2022 and the most recent DSR was performed in 2019. An AFPR for this facility is completed annually, and the next DSR will be performed in 2024.

There were no high priority recommendations identified in either the 2022 AFPR or 2019 DSR that would indicate any tailings facility safety issues. The 'material findings' from the reports are described in the AFPR, and summarized below.

- **Potential for erosion of embankment toe during storm events:** It was recommended to install additional rip rap or other protective measures to further protect the embankment toe during extreme storm events.
 - **Action:** A design has been developed to widen the river away from the embankment toe, and to install additional rip rap protection. Construction began in 2021 and is being executed in a staged approach to mitigate potential environmental impacts associated with the river widening and relocation.

7. Summary of Material Findings of the Environmental and Social Monitoring Program

There were no material findings associated with the STP from the 2022 social monitoring program. Key indicators of interest include feedback from the community and our annual sustainability report.

As part of ongoing efforts to continuously improve our social performance, FRO recently completed human rights, human exposure, and vulnerability assessments of credible failure scenarios. Further, a socio-economic profile was updated in 2023 to ensure the mine has updated knowledge for the area of influence of the STP. An updated Global Industry Standard on Tailings Management (GISTM) Engagement Plan was created and is in the process of being implemented. This Plan outlines the activities that will be undertaken to inform and gather feedback from identified project affected people (PAP) and local emergency response organizations. All feedback gathered is tracked and continually updated within the Knowledge Base. Material findings from social monitoring across the site in general can be found in the Teck Sustainability Report.

¹ Material: Important enough to merit attention or having an effective influence or bearing on the determination in question. For the Standard, the criteria for what is material will be defined by Operator, subject to the provisions of local regulations, and evaluated as part of any audit or external independent assessment that may be conducted on implementation. (GISTM, 2020)

FRO has implemented an Environmental Management System (EMS) that is certified to the ISO 14001:2015 standard and applicable Teck corporate standards for health, safety, environment and community (HSEC) management. Teck is committed to environmental management best practices and to achieve continual improvement in our environmental performance. Through this policy FRO commits to:

- Complying with applicable legal, regulatory and other requirements which relate to the operations' identified environmental aspects.
- Ensuring effective implementation, maintenance, and documentation of the EMS.
- Setting environmental objectives which measure progress towards continual improvement and utilizing accepted assessment processes.
- Prevention of pollution.
- Minimizing environmental impacts of activities and services related to mining operations.
- Making this policy available to employees, persons working on Teck's behalf and the public.
- Raising the environmental awareness of employees and those working on Teck's behalf.

Monitoring and review requirements defined in the EMS are tracked to verify the overall effectiveness in controlling environmental impacts, verifying conformance with operational controls, tracking regulatory compliance status, and progress toward achieving objectives and targets. Audits are also conducted at least annually from external or third parties.

Teck has a robust internal audit program to monitor compliance to legal and internal requirements. These audits are conducted once every three years. In 2022 the audit scope included tailings facilities at FRO.

The STP EMS was also externally audited by a third party in 2022. This resulted in no major non-conformances, and there were no findings associated with the STP.

8. Summary of the Tailings Facility Emergency Preparedness and Response Plan (EPRP)

The STP TSF is included in the site-specific Mine Emergency Preparedness and Response Plan. This plan identifies hazards associated with credible flow failure scenarios and describes actions to prepare for and respond to emergencies arising from those hazards. The plan describes roles and responsibilities of site personnel and of provincial emergency response organizations, alert and notification procedures including off-site contacts, an inventory of response equipment, and training requirements for site personnel. The EPRP program is linked to the tailings facility specific trigger action response plans (TARP), which are associated with the tailings surveillance and monitoring program. The objectives of the EPRP are:

- Establish procedures for emergency preparation, including escalating levels of response.
- Respond to developing, imminent or actual tailings facility failure scenarios in a way that reduces potential consequences; and,
- Identify training and testing requirements for effective implementation of the EPRP.

In the highly unlikely event of an imminent tailings facility failure, response actions would be taken to save human lives and reduce the potential downstream consequences. The actions identified in the EPRP generally include:

- Immediate physical actions that could potentially be taken in response to an unexpected triggering event to prevent further deterioration of the situation or condition toward embankment failure.
- Emergency call out procedures to establish internal and external communication lines. These contact lists are verified annually to confirm accurate contact information. The groups that would be contacted include, but are not limited to:
 - Emergency Management BC
 - Indigenous Government Organizations
 - Potentially affected downstream communities
 - Teck Corporate Crisis Response Team
 - The Engineer of Record
- Procedures for coordination with Emergency Management BC in order to conduct an evacuation of downstream potentially affected areas. For this purpose, evacuation maps have been prepared.

As part of Teck's preparation for emergencies, simulations and training exercises are conducted annually, and include participation by emergency preparedness agencies and representatives of the downstream project affected people. During these exercises, Fording River Operations will request input on the capability and capacity of emergency response services of downstream communities and project affected people to respond in an evacuation situation. As part of our commitment to continuous improvement, Fording River Operations EPRP will continue to develop over time in collaboration with project affected people to improve the state of preparedness for emergencies.

9. Independent Reviews

The Independent Tailings Review Board meets three times annually. The most recent meeting was in July 2023, and the next one is scheduled for November 2023.

10. Financial Capacity

Teck confirms that it has adequate financial capacity to cover estimated costs of planned closure, early closure, reclamation, and post-closure of the STP TSF and its appurtenant structures. These costs are disclosed annually in aggregate form in our annual financial statements contained within our [Annual Report](#). These cost estimates are based on the tailings facility closure designs described in Section 5.

Further, Teck maintains insurance for our tailings facilities to the extent commercially available.

11. Conformance to the Global Industry Standard on Tailings Management

Teck has performed a self-assessment of conformance to the Global Industry Standard on Tailings Management (GISTM) for the South Tailings Pond at FRO. This self-assessment has been performed in accordance with the ICMM Conformance Protocols issued in May 2021.

Categories of conformance for individual Requirements in the GISTM are set out below. These take into account guidance from ICMM. Where some requirements represent ongoing community engagement or other ongoing activities, and the systems and/or practices are substantively implemented such that the intended outcome is functionally achieved, and there is no physical risk to tailings facility safety, then these requirements can be considered conformance with the GISTM.

Table 3: Categories of Conformance

Conformance Level	Description
Meets	Systems and/or practices related to the Requirement have been implemented and there is sufficient evidence that the Requirement is being met.
Meets with plans in place	Where an Operator is required to undertake engineering work or other measures to conform to some Requirements (e.g., for Requirements 4.7 or 5.7, which might include remedial engineering measures for existing facilities), the expectation is that these shall be carried out as soon as reasonably practicable. It is not necessary for such measures to be complete by the implementation deadlines for an Operator to be in conformance, but both the measures and associated timelines should be clearly documented by an Accountable Executive.
Partially meets	Systems and/or practices related to meeting the Requirement have been only partially implemented. Gaps or weaknesses persist that may contribute to an inability to meet the Requirement, or insufficient verifiable evidence has been provided to demonstrate that the activity is aligned to the Requirement.
Does not meet	Systems and/or practices required to support implementation of the Requirement are not in place, are not being implemented or cannot be evidenced.
Not applicable	The specific Requirement is not applicable to the context of the asset.

For the South Tailings Pond of FRO, all requirements have been met, or are met with a plan in place, for Principles 1 to 3 and 6 to 15. Ongoing work to meet all requirements in Principles 4 and 5 will continue beyond August 5, 2023, and these principles are considered partially met. Importantly, there are no immediate physical safety risks at the facility related to the work in progress. The ongoing work to address the outstanding recommendations is as follows:

- Principle 4 & 5: Work is ongoing to further reduce the risk of embankment erosion during extreme storm events to as low as reasonably practicable (ALARP), as discussed in section 6. This includes the development of the design to widen the river and install additional rip rap protection, and construction began in 2021. The work is being executed in a staged approach to mitigate

potential environmental impacts associated with the in-river work, and is projected to be completed in 2025.

- Principle 5: Closure designs are being updated to account for the additional requirements introduced by the GISTM. Design work is ongoing, with closure Design Basis Reports and updated cost estimates expected by the end of 2023.