

# Tailings Management



Pictured above: Tailings Facility at Elkview Operations, Canada.

## Tailings Management

Tailings are a common by-product of the mining process, and tailings management is a critical element in the design, operation and closure planning of mines. Incidents within the industry over the last several years demonstrate the potentially severe impacts of tailings facility failures. In August 2020, the first global standard for tailings management, the Global Industry Standard on Tailings Management (GISTM), was launched jointly by the ICMM, the UNEP and the PRI. The standard sets a high benchmark for improving the safe management of tailings facilities, and for working towards the goal of zero harm.<sup>7</sup> Teck was part of the multi-stakeholder advisory group that provided input to develop the GISTM, and we are working with ICMM to develop guidance documentation and conformance protocols for its implementation. Teck is committed to implementation of the GISTM across our sites. All of our tailings management facilities will be operated in compliance with the standard by August 2023.

Teck currently manages 16 active and 39 closed tailings facilities. Tailings storage facilities at all of Teck's operating and closed sites meet or exceed regulatory requirements, and we are continually improving the management of our facilities by developing and incorporating best

practices. In 2020, Teck continued to play an active role in promoting leading practices for tailings facility management, both in our own operations and across the mining industry through our work with the ICMM and the Mining Association of Canada (MAC).

### GRI Indicators and Topic Boundary

306-103, 306-2, G4-MM3

This topic is considered one of the most material by our employees, local communities, government regulators and society in the context of all Teck sites.

### How Does Teck Manage This Topic?

Information about how we manage tailings, including relevant policies, management practices and systems, is available for [download on our website](#).

<sup>7</sup>Global Industry Standard on Tailings Management. Global Tailings Review. 2020.



## 2020 Highlights

Zero

significant tailings-related environmental incidents

100%

of facilities completed annual evaluations performed by a third-party Engineer of Record

10

Tailings Governance Reviews were completed in our two-year recurring cycle for facilities

## Our Performance in Tailings Management in 2020

**Our Targets and Commitments** We are committed to conducting regular reviews of our tailings facilities, and to being open and transparent with communities and other stakeholders regarding the construction and management of our tailings facilities. Our regular reviews have six levels of protection, which include a range of internal and external reviews that can create recommendations for continuous improvement. When these recommendations arise and when they align with best practices, we develop action plans based on findings, and we regularly assess the implementation of these plans. The following table summarizes our performance against our new sustainability strategy and goals for tailings management.

Sustainability Strategy Goals	Status	Summary of Progress in 2020
Strategic Priority: Continue to manage our tailings across their life cycle in a safe and environmentally responsible way		
<b>Goal:</b> Preferentially consider milling and tailings technologies that use less water for both new mines and any mine life extensions at existing mines.	On track	Evaluated tailings technologies at several operations and development projects.
<b>Goal:</b> Expand the use of digitally connected surveillance technologies to assist in monitoring our tailings storage facilities.	On track	Created an integrated monitoring platform for our Chilean tailings facilities that will be online upon the start of operations for QB2.  Expanded use of drone and satellite technologies, both as part of a planned commitment to technology enhancement, and as a way to safely view facilities during the COVID-19 pandemic.

Internal and external reviews of our facilities and procedures are conducted to ensure we maintain the highest standard of safety and environmental protection, including following best practice guidance set by MAC and ICMM. Beyond the comprehensive internal and external reviews, an additional

level of facility oversight is in place for our tailings facilities through our Tailings Working Group, which includes subject matter experts from across our business units and sites. This working group also maintains Teck's own tailings guidance and governance framework documents.

## Internal Reviews

### Staff Inspections

Tailings facilities are inspected by trained operators and expert technical staff as frequently as several times daily, with formal staff inspections at least once per month for our operating facilities. The frequency of inspection of our legacy facilities is determined based upon their state of closure and overall risk profile.

### Tailings Governance Reviews

Tailings Governance Reviews are carried out every second year at our operations and every third year at our legacy properties by internal subject matter experts. These Governance Reviews include confirmation that we have the personnel and procedures in place to meet our commitments, and that we are addressing recommendations for continual improvement from our external reviews in a meaningful and timely manner.

The Governance Reviews also evaluate the performance of our Engineers of Record and other external reviewers to look

for signs of complacency or lack of succession planning by those outside of Teck whom we rely on as part of our overall management processes. For our joint venture projects, we have an ongoing process with the other shareholders of the Antamina mine and the Fort Hills oil sands mine that meet the requirements of our Tailings Governance Review process.

From the combined Governance Review process in 2020, there were no significant findings; however, several value-added items were identified and are being implemented by the sites. As a result of our ongoing Tailings Governance Review processes, and based on themes from the MAC and ICMM advancements, we are further strengthening our guidance related to change management, roles and responsibilities, and we are enhancing integration of risk evaluation and identifying critical controls. Our initial review of the GISTM indicates that Teck has no gaps in relation to the GISTM requirements on the prevention of catastrophic failures. Teck is also committed to reporting against the ICMM Conformance Protocol once it is available in 2021.

## External Reviews

### Annual Facility Safety Inspections and Dam Safety Reviews

A fully licensed, qualified individual who is vetted by our Tailings Working Group conducts formal facility safety inspections (FSIs) at least annually. Independent, qualified engineers also conduct periodic reviews, with timing dependent upon the consequence classification of the facility. For all facilities, the annual inspection reports are provided to the appropriate authority in each jurisdiction. FSIs and dam safety reviews are conducted to evaluate our conformance with international best practices, our internal policy/standards and applicable regulatory requirements. Teck makes FSIs and other information about our tailings facilities, both operating and legacy, available on our website at [teck.com/tailings](https://teck.com/tailings).

### Independent Review Boards

A key element of Teck's review process is the use of Independent Review Boards. These boards, typically comprising three very senior subject matter specialists, meet from once to several times per year, depending upon the

nature of the facility and the issues being considered by the board, to conduct a third-party review of design, operation, surveillance and maintenance of our storage facilities. The results from the Independent Review Board assessments are communicated directly to senior management.

### Additional Detailed Third-Party Reviews

A qualified independent tailings reviewer, vetted by our Tailings Working Group, conducts comprehensive third-party dam safety reviews every three to 10 years for active and inactive facilities. The frequency of inspection is based on the consequence classification for each facility.

### Tailings Reviews Conducted in 2020

All of our operating and legacy facilities are reviewed against our internal policy and guidance documentation on a regular schedule, as described in Table 4.

In addition to the reviews noted in Table 4, equivalent Governance Reviews were carried out at our two major joint venture tailings facilities at Antamina and Fort Hills.

**Table 4: 2020 Status of Major Tailings and Water Retaining Structures**

Location	Annual Facility Safety Inspections <sup>(1)</sup>	Dam Safety Reviews <sup>(2)</sup>	Independent Review Board Activity <sup>(3)</sup>	Tailings Governance Reviews
	Up to Date	Up to Date		
Carmen de Andacollo	✓	✓	✓	Current – next review in 2021
Elkview	✓	✓	✓	Current – reviewed in 2020
Fording River	✓	✓	✓	Current – next review in 2021
Greenhills	✓	✓	✓	Current – reviewed in 2020
Highland Valley Copper	✓	✓	✓	Current – reviewed in 2020
Red Dog	✓	✓	✓	Current – next review in 2021
Sullivan <sup>(4)</sup>	✓	✓	✓	Current – reviewed in 2020
Louvicourt <sup>(4)</sup>	✓	✓	✓	Current – next review in 2021
Quebrada Blanca Phase 2	Not yet operating	Not yet operating	✓	Current – reviewed in 2020

- (1) The Engineer of Record performs a detailed examination of the facility, its related infrastructure and the records relating to these, to identify any conditions or changes that might contribute to, or signal the potential for, a compromise to the safety and reliability of the structure.  
(2) A facility review by an independent, third-party engineer not affiliated with the Engineer of Record or the Tailings Review Board. The frequency of these reviews depends on the failure consequence risk-rating of that structure.  
(3) Review by a team of independent senior subject matter experts who review the facility design approach, surveillance results and a site's overall approach to tailings management, including performance of the Engineer of Record.  
(4) Legacy property.

## Special Reviews

In addition to internal and external reviews, Teck will occasionally complete a special review using external senior subject matter experts. The Mount Polley event (2014), the Samarco event (2015) and the Brumadinho event (2019) all triggered such reviews. These reviews concluded that no immediate or emerging threats of catastrophic failures were

apparent within Teck's tailings and water dams. In 2020, the continual improvement recommendations from the 2019 special review were addressed, including enhanced career development opportunities for up-and-coming subject matter experts in the organization.

## Tailings Performance in 2020

Total tailings and fine coal refuse generated from processing ore and raw coal, stored in the 16 facilities at our operating mines, are reported in Table 5. This total does not include our minority joint venture operations at Antamina and Fort Hills.

**Table 5: Tailings and Fine Coal Refuse Generated from Processing Ore and Raw Coal** (million tonnes)

2020	2019	2018	2017
72	74	76	75

## Tailings Incidents

Building on our strong track record of tailings management, we had zero significant incidents at our tailings storage facilities in 2020, and all of our facilities performed as intended, with their inspections and assorted internal and external reviews conducted as scheduled.

## Industry Association Activities

Teck was an active participant in ICMM's Tailings Position Statement and Governance Framework and is a participant in ICMM's leadership work on a long-term goal of developing safe and sustainable alternatives to conventional wet tailings storage facilities. We were an active member of the multi-stakeholder advisory group involved in creating the GISTM, published in August 2020 by the ICMM, UNEP and PRI. This document serves as the industry-leading standard for the safer management of tailings storage facilities. We are also

actively participating in the ICMM Tailings Good Practice Guide and the Tailings Conformance Protocol – both documents are due to be completed in early 2021.

Teck also chairs the MAC Tailings Working Group, which has been responsible for providing industry-leading best practice guidance, including key industry guidance documents. Teck continues to use the MAC Tailings Protocol's Table of Conformance as one component of our Governance Review process at our sites.

## Transparency and Disclosure

We are also focused on being open and transparent with communities and other stakeholders regarding our tailings facilities. As such, we make information on our approach to tailings management, a detailed list of facilities and copies of recent Dam Safety Inspections (DSIs) available on [our website](#).

We have also provided detailed information about our tailings facilities through responses to the Investor Mining & Tailings Safety Initiative chaired by the Church of England Pensions Board and the Swedish Council on Ethics for the AP Funds.

### Case Study: Teck's Tailings Working Group: An Industry-Leading Approach

At Teck, we have a well-established central governance program for the management of tailings across all projects, operations and legacy facilities. To ensure safety of all facilities, Teck has implemented an additional layer of responsibility and oversight: our central Tailings Working Group (TWG). Teck's TWG consists of senior subject matter experts with broad experience in the management of tailings facilities. In 2020, the Chair of our TWG served as the industry advisor to an expert panel developing the Global

Industry Standard on Tailings Management, published in August 2020. The Standard aims to enhance the safety of mine tailings across the globe, providing guidance in a wide range of topics related to tailings. Many of the core governance elements that Teck has embraced for many years are reflected in this standard. The TWG is now working to implement the standard at Teck, and continues to play a leadership role in developing upcoming tailings guidance. Read the full case study at [teck.com/news/stories](https://teck.com/news/stories).