

Our Approach to Tailings and Mine Waste Management



Which Teck sites does this document apply to?

All Teck sites and projects, with a focus on operations and legacy sites with major active tailings facilities and major development projects with proposed large tailings facilities. Does not include operations in which Teck has/had an ownership interest but is not the principal operator.

Governance and Accountability

Background

Tailings and mine waste rock are common by-products of mining practice. Tailings facilities are historically well-managed with very few incidents; however, a tailings incident has the potential to have a significant impact on communities, local economies and the surrounding environment. Teck operates 10 mines and multiple legacy properties with active tailings storage facilities, and responsible management of tailings and waste rock is critical for our company.

Accountability and Resourcing

The Board of Directors, through its Safety and Sustainability Committee, broadly oversees health, safety, environment and community policies, systems, performance and auditing, including implementation of our Health, Safety, Environment and Community (HSEC) Management Standards and tailings guidance. Our activities associated with tailings and waste management are reported to the Safety and Sustainability Committee of the Board and/or to our HSEC Risk Management Committee.

The following senior leaders are involved in implementing the management of tailings and mine waste:

- The Senior Vice President, Sustainability and External Affairs reports directly to the President & CEO and is responsible for sustainability, health and safety, environment, community and Indigenous affairs, among areas including tailings management

- The Vice President, Environment oversees compliance with environmental standards for projects, operations and our legacy properties, and regularly reviews environmental performance risks and strategic issues, including tailings, biodiversity, water, air and energy
- The Senior Advisor, Tailings & Mine Waste chairs our Tailings Working Group and reports directly to the Vice President, Environment

The Tailings Working Group includes members of our senior management team and tailings management subject matter experts from operations where we have active tailings storage facilities. The group provides oversight and guidance, and conducts reviews to ensure alignment with Teck's guidelines for tailings management. This activity includes engaging qualified professionals for the entire life cycle of our tailings facilities for completing independent reviews.

Managing tailings and mine waste is part of our annual company objectives, especially in our HSEC performance. HSEC performance is a factor in Teck's bonus structure and affects from 15% to 20% of each department's bonuses for all executives. In addition, the personal component of executive bonus ratings may include specific objectives related to HSEC matters, including tailings and mine waste management.

Approach to Managing Tailings and Mine Waste Management

Policies and Standards

Teck has a Tailings and Water Retaining Structures Policy and associated guidance documentation that provide a consistent company-wide approach to how we manage the risks inherent with tailings. In addition, Teck has a companion Tailings Governance document that provides clear guidance on roles and responsibilities related to tailings management across all Teck projects, operations and legacy properties.

Teck's HSEC Management Standards also include general guidance on tailings and mine waste management. These management standards, the associated guidance documents, and our adherence to them, are overseen by the Safety and Sustainability Committee of the Board.

Memberships, Partnerships and External Commitments

We work with various local, national and international organizations and programs to support improvements in tailings and mine waste management across the industry:

- **International Council on Mining and Metals (ICMM):** A global industry association that represents leading international mining and metals companies who are required to implement the ICMM 10 Principles
- **Mining Association of Canada (MAC):** A national association that promotes the development of Canada's mining and mineral processing industry. Through MAC, we are required to implement the Towards Sustainable Mining (TSM) program, which aids in improving industry performance. Teck's Senior Advisor, Tailings & Mine Waste is the Chair of MAC's Tailings Working Group
- **Canada's Oil Sands Innovation Alliance (COSIA):** An alliance of oil sands producers focused on accelerating improvement in environmental performance in Canada's oil sands through collaborative action and innovation
- **Association of Professional Engineers and Geoscientists of British Columbia:** As a member company, Teck's Senior Advisor, Tailings & Mine Waste was a reviewer for the guideline for the requirements of foundation investigations for dams that was issued in 2016
- **Australian Research Council:** In 2017, Teck became part of an initial three-year applied research program, along with four universities in Australia and several other mining companies, focused on finding more effective tools for predicting and avoiding tailings facility failures

Waste Management

The following categories of waste are products of Teck's operations. Waste disposal methods are determined based on data and information provided by waste management suppliers specific to each site's applicable factors.

Tailings and Fine Coal Refuse: Tailings and fine coal refuse is the finer fractions of the processed mined material that have no economically recoverable commodity. These materials are typically stored in tailings storage facilities.

Waste Rock: Waste rock is the rock that is removed to access ores and coal, which typically contains trace amounts of naturally occurring metals and other constituents. The bulk of waste rock from our operations is placed in areas that are specifically designed to contain the rock. The remainder of the rock that may still have some geochemical concern is placed within tailings storage facilities or used to backfill open pits and underground workings. Waste rock that is not susceptible to geochemical instability such as oxidation processes, which can lead to metal leaching, is also used for reclamation activities and to construct dams, roads and similar structures. Long-term storage of waste rock is conducted in accordance with closure plans and approved by regulatory authorities. These plans most often include contouring, covering and revegetation to achieve established land use objectives.

Coarse Coal Refuse: Coarse coal refuse is a coarse fraction of raw coal that is separated during processing; it is not currently an economic product. Coarse coal refuse is placed in designated engineered facilities, or if determined to not be susceptible to leaching, it may be used as a construction material. Coarse coal refuse can also be mixed with dewatered fine coal refuse within engineered structures, and Teck carries out this practice at several of our operations for storage efficiency and optimal geotechnical performance. Long-term storage of coarse coal refuse is conducted in accordance with regulatory approved closure plans, which most often involves contouring, covering and revegetation to achieve established land use objectives.

Hazardous Waste and Non-Hazardous Waste: Although a very small volume relative to our tailings and waste rock, we treat our other waste management responsibilities with equal focus. Hazardous and non-hazardous wastes are segregated and disposed of in accordance with material-specific waste management plans and regulatory requirements. The primary hazardous wastes produced at our operations include waste oil, solvents, antifreeze, paint, batteries and fluorescent tubes. This waste is recycled or disposed of off-site by licensed contractors. Non-hazardous waste (e.g., scrap metal, wood waste, glass, tires, cardboard and paper) is recycled whenever possible.

Tailings Management

Tailings storage facilities at all our operations meet or exceed regulatory requirements, and we work to continually improve the management of these facilities. Planning, design, construction, operation, decommissioning and closure are carried out in a manner such that:

- Structures are stable
- Solids and water are managed within designated/approved areas
- Facilities comply with regulatory requirements
- Facilities conform to applicable standards, internal policies, industry best practices and the technical guidelines of the jurisdictions in which we operate

We have comprehensive systems and procedures in place for the safe operation and monitoring of tailings facilities that follow best practices, organized around interrelated activities that include:

- 1. Surveillance Technology:** Dictated upon site-specific conditions and approved designs, our sites employ surveillance systems such as GPS hubs, piezometers, inclinometers, pressure gauges, remote sensing and other technologies to monitor tailings dams, abutments, natural slopes and water levels. The surveillance information is evaluated against established response levels that include pre-determined mitigation activities should trends of unusual performance arise
- 2. Staff Inspections:** Tailings dams are inspected by trained operators and expert technical staff as frequently as several times daily, with formal staff inspections at least once per month
- 3. Annual External Inspections:** Formal dam safety inspections are conducted at least annually by an external

Engineer of Record, a fully licensed, qualified individual in the relative jurisdiction, who has their qualifications vetted by our Tailings Working Group. 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

4. Internal Review: On a formal rotation basis every two to three years, we conduct internal management review of our tailings facilities. These Tailings Governance Reviews evaluate each site's conformance with our internal tailings guidance documents and policy. In addition, informal and more frequent reviews of our facilities are carried out by one or more members of our Tailings Working Group during routine site evaluations, which assist in reinforcing the issues discussed during the most recent governance reviews

5. Detailed Third-Party Reviews: Comprehensive third-party dam safety reviews are conducted by a qualified independent tailings reviewer(s), vetted by our Tailings Working Group, every five to 10 years for active and inactive facilities. The frequency of inspection is based upon the consequence classification for each facility

6. Independent Review Boards: Our operations and projects with existing or planned major tailings storage facilities have Tailings Review Boards made up of independent experts from relevant fields, such as geotechnical, hydrogeological, hydro-technical and geochemical. These boards 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

Each facility also has a detailed Operations, Maintenance and Surveillance (OMS) manual and Emergency Preparedness and Response Plan, both of which are regularly updated. We maintain site-specific Tailings Management Systems that conform to or exceed industry standards of practice, that demonstrate responsibility and leadership through the commitment and actions of our employees, and that are developed through consultation with communities. We continually review our facilities and procedures and are committed to maintaining the highest standard of safety at our operations.

Antamina and Fort Hills, joint venture operations where Teck is not the operator, both have Tailings Review Boards in place, as well. Teck also provides senior experts to Antamina's Tailings Technical Committee.

Tailings-Related Internal and External Audits

In addition to internal assessments of performance against our own guidelines and practices noted as one of our management practices, we assess our tailings management practices under MAC’s TSM Tailings Management Protocol. Achieving a minimum of a Level A under TSM is a requirement of our HSEC Management Standards. A Level A rating indicates that tailings management practices that meet industry best practice, as defined by the MAC Tailings Guidelines, have been developed and implemented. All of our operations meet or exceed this standard. Several of our facilities reached a verified Level AAA, which indicates that excellence and leadership in tailings management are demonstrated through validation by an external, independent evaluation.



Table 1: Tailings Management Internal and External Audits

Type	Organization	Items Audited
External	Mining Association of Canada: Towards Sustainable Mining	<ul style="list-style-type: none"> •Tailings management policy and commitment •Tailings management system •Assigned accountability and responsibility for tailings management •Annual tailings management review •Operation, maintenance and surveillance manual
External	ISO 14001 external audits	<ul style="list-style-type: none"> •Components of the environmental management system at each site
Internal	Risk-based Health, Safety and Environment audits at each site	<ul style="list-style-type: none"> •Adherence to regulatory and permit requirements; effectiveness of controls based on risk profile

Following each of these audits, applicable management teams use the results to inform future actions and Teck’s five-year planning process.

Our Targets and Commitments

We are committed to the safe and environmentally responsible development, operation and management of tailings storage facilities. We continually review our facilities and procedures, and are committed to maintaining the highest standard of safety and environmental protection at our operations, including standards set by MAC and ICMM.

We report on our performance against these indicators and our progress towards our tailings management goals on an annual basis in our [sustainability report](#).