Health and Safety

Pictured above: Employee at Carmen de Andacollo Operations, Chile.

Health and Safety

With 4% of gross domestic product impacted by lost-time injuries worldwide every year, the economic and human costs of occupational incidents and diseases are significant.[3] Technology and automation present new opportunities to improve employee health and safety, often by taking people out of hazardous situations or areas, but they can also present new challenges.[4,5]

Industry context

Mining and processing involves the handling of large volumes of materials, the use of heavy equipment and potentially hazardous production processes that pose potential occupational health and safety hazards and risks. Teck and other member companies of the International Council on Mining and Metals (ICMM) have set the collective goal of zero fatalities and are implementing measures to reduce injuries and to meet this goal. The 2018 ICMM Safety Report recorded 50 fatalities across member companies in 2018; this was a 2% decrease from 51 fatalities in 2017 and an 18% drop in fatality frequency.[5]

Teck context

Safety is a core value and strategic priority for Teck. In 2019, we were deeply saddened by the fatality that took place in November 2019 at our Quebrada Blanca Phase 2 (QB2) project. We have carried out an in-depth investigation into the incident to learn as much as possible and to implement measures to prevent reoccurrences. In 2019, the High-Potential Incident Frequency was 16% lower year over year and our Lost-Time Disabling Injury Frequency was 18% lower. Total Recordable Injury Frequency also decreased year over year by 24%.

GRI Indicators and Topic Boundary

403-103, 403-1, 403-2, 403-3, 403-4

This topic is considered one of the most material by our employees, contractors and regulators in the context of all Teck sites and in contractor selection and management.

How Does Teck Manage This Topic?

Information about how we manage health and safety, including relevant policies, procedures, management practices and systems, is available for download on our website.

[3] Safety and Health at the Heart of the Future of Work: Building on 100 Years of Experience. International Labour Organization. 2019. [4] Mine 2019: Resourcing the Future. PricewaterhouseCoopers. 2019.
[5] Benchmarking 2018 safety data: progress of ICMM members. International Council on Mining & Metals. 2018.

2019 Highlights

18% reduction in Lost-Time Disabling Injury Frequency (LTDIF) and **16%** reduction in High-Potential Incident Frequency

85% employees trained in hazard identification across operations, exploration sites and projects against a target of 50%

Conducted Teck's second Health and Safety Culture Survey to identify opportunities to refine our strategy; employee participation was approximately **70%** of the entire workforce, up from **61%** when the survey was last conducted in 2016.

Our Performance in Health and Safety in 2019

Our Targets and Commitments We engage and develop our people, and work to ensure everyone goes home safe and healthy every day. The following table summarizes our performance against our 2020 sustainability goals for health and safety, and introduces our new strategic priority and goals.

2020 Sustainability Strategy Goals	Status	Summary of Progress in 2019
Reduce serious injuries and eliminate fatalities by ensuring our high-potential risks have effective controls in place and by enhancing our culture of safety.	Not achieved	While we reduced our recordable injuries in 2019, we sadly had one fatality at our QB2 project. Implemented our High-Potential Risk Control strategy as planned and all operations met or exceeded the target for Work Team Risk Assessments and Effectiveness Reviews. Implemented our new hazard identification training program at operations, exploration sites and projects. At the end of 2019, we achieved a completion rate of 85% against a target of 50%. Conducted Teck's second Health and Safety Culture Survey to help understand how our health and safety journey has evolved and to identify opportunities to refine our strategy.
Implement improved occupational health and hygiene monitoring and exposure control to protect the longer-term health of workers.	On track	Developed a Teck standard for occupational medical assessments based on exposure monitoring results and implemented a pilot project to test new real-time monitoring technology to refine the application of exposure controls. Held first-ever company-wide Occupational Health and Hygiene Forum in 2019.

New Strategic Priority and Goals

Strategic Priority	Goals
• Eliminate fatalities, serious injuries and occupational disease	1. Contribute to the elimination of fatalities and serious injuries through significantly enhanced critical control verification for fatal hazards. 2. By 2025, contribute to the elimination of occupational disease by implementing new technologies in real-time exposure monitoring to improve exposure controls for dust and welding fumes. Details about the context, definitions and key performance indicators related to this strategic priority and these goals are available on our website at teck.com/responsibility.

Key Performance Indicators

2019: 1	2019: 18% reduction	2019: 24% reduction	2019: 16% reduction
2018: 2	2018: No change	2018: No change	2018: 28% reduction
2017: Zero	2017: 14% reduction	2017: 12% reduction	2017: 14% reduction
Indicator[1] Work-related fatal injuries	**Indicator**[1] Lost-Time & Disabling Injury Frequency	**Indicator**[1] Total Recordable Injury Frequency	**Indicator**[1] High-Potential Incident Frequency
Target Zero fatalities	**Target** 10% year-over-year reduction	**Target** 10% year-over-year reduction	**Target** Year-over-year improvement

(1) All indicators include employees and contractors.

Building a Positive Culture of Health and Safety

Launched in 2009, Courageous Safety Leadership (CSL) focuses on challenging existing values, beliefs and attitudes towards safety and builds commitment from individuals to work safely. More than 17,500 employees have been trained in CSL since the inception of the program. In 2019, we implemented sustaining activities to realize our commitments from the fourth phase of our CSL program. We also continued to train new employees and contractors in the Introduction to CSL course. Approximately 1,500 directors, employees and contractors participated.

The aggregate results of our 2019 Health and Safety Culture Survey show an improvement compared to 2016 in the following categories:

- 49% of employees who feel pressure to put production before safety, compared to 51% in 2016; of the 49% who feel pressure, 18% say that it comes from their desire to get the job done
- 73% of employees rating Teck's safety culture as "Good" or better, compared to 69% in 2016
- 51% of employees rating Teck's safety culture as improved, compared to 50% in 2016

High-Potential Risk Control

As of the end of the year, all operations met or exceeded their 2019 High-Potential Risk Control targets for risk assessments and effectiveness reviews. These targets were to conduct four Work Team Risk Assessments and four Effectiveness Reviews per operation. As a result of our improved risk assessment efforts across the company, we identified and shared stories of positive change. Teams across the company have tightened their controls for several key serious injury and fatality risks.

In 2019, we launched a new company-wide training module titled *Introduction to Hazard Identification* to equip employees and contractors with skills and a common understanding of hazard identification, and to give employees a clear understanding of key terms such as hazard, hazard types, risk and controls. To date, 85% of employees have completed this module at operations, exploration sites and projects. At our operations in British Columbia with United Steelworkers Union representation, we worked closely with the union to co-produce and implement the training; feedback from the union on the training was positive.

We also refined the application of our High-Potential Risk Control strategy and developed an internal Teck Vehicle Safety Strategy. Vehicle-related incidents represent Teck's single largest category of incidents. Vehicle-related incidents typically result from a combination of three factors: the driver, the road environment and the vehicle. Improvement actions have been defined for each of these three key factors. The objective of this new strategy is to eliminate serious injuries and fatalities from vehicle-related incidents.

Occupational Health and Hygiene

We work to continuously enhance our occupational health and hygiene risk assessments, monitoring and exposure controls to protect the long-term health of employees. All of our operations were required to establish and implement exposure reduction plans in 2019. By the end of the year, all 12 operations were on track with their plan implementation.

Our Occupational Health and Hygiene Committee continued to implement a comprehensive sampling training program in 2019. The objective of the program is to provide all personnel who have a role in collecting hygiene samples with standard training for the collection of quality samples, including the collection of respirable particulate samples and noise monitoring and mapping.

We also implemented a new internal standard for occupational medical assessments based on exposure monitoring results. We also began implementing a pilot project at our Fording River, Greenhills and Highland Valley Copper operations to test new real-time monitoring technology to refine the application of exposure controls.

Case Study: Reducing Dust Levels Inside Haul Truck Cabs

In 2019, we commenced a pilot of Nanozen technology — a real-time, wearable particle sensor — at our Greenhills Operations to improve health and safety for haul truck operators. Dust exposure for operators can lead to occupational illness and disease; we are committed to reducing dust levels using this innovative technology and other practices. For the pilot, sampling was taken using Nanozen. As a result, it was discovered that the drivers were at their highest exposure of respirable particulate while blowing out the cab with compressed air. Immediate steps were taken to reduce dust exposure, starting with the removal of all compressed air units from haul truck cabs. The team is also exploring further dust reduction practices. Read the full case study at teck.com/news/stories.

Safety Performance

We are deeply saddened to report that we had a fatality in 2019. On November 27, 2019, a truck overturned between kilometre 80 and 81 of the Pintados Road at our Quebrada Blanca Phase 2 (QB2) project, resulting in the death of a subcontractor who worked for a company providing services for the construction of the QB2 project. To help prevent this type of incident from occurring again, we are conducting a detailed investigation and sharing learnings across our company and industry.

In 2019, our Total Recordable Injury Frequency (TRIF) was 24% lower than in 2018. Lost-Time Disabling Injury Frequency decreased year over year by 18%. Teck's TRIF is slightly above the average compared to the ICMM, which is made up of many of the world's largest mining companies.

Table 3: Health and Safety Performance – Teck Total[(1),(3),(4),(5),(6),(7)]

	2019	2018	2017	2016
Total Recordable Injury Frequency	**0.82**	1.01	1.01	1.13
Lost-Time Injuries	**90**	73[(9)]	89	73
Lost-Time Injury Frequency	**0.34**	0.36	0.45	0.42
Disabling Injury Frequency	**0.20**	0.26	0.17	0.28
Lost-Time Disabling Injury Frequency	**0.54**	0.62	0.62	0.72
Lost-Time Injury Severity	**41.00**	73.35	24.4	28.4
Number of Fatalities	**1.2[(8)]**	2	0	0

Table 4: Health and Safety Performance – Teck-Operated[(2),(3),(4),(5),(6),(7)]

	2019	2018	2017	2016[(10)]
Total Recordable Injury Frequency	**0.88**	1.16	1.25	1.35
Lost-Time Injuries	**86**	69	85	71
Lost-Time Injury Frequency	**0.38**	0.44	0.62	0.55
Disabling Injury Frequency	**0.20**	0.27	0.18	0.33
Lost-Time Disabling Injury Frequency	**0.58**	0.71	0.80	0.88
Lost-Time Injury Severity	**43.16**	94.59	34.66	37.72
Number of Fatalities	**1**	2	0	0

(1) Safety statistics in Table 3 include both employees and contractors at all of our locations (operations, projects, closed properties, exploration sites and offices). For sites where Teck owns more than 50%, safety statistics are weighted 100%; for sites where Teck owns 50% or less, safety statistics are weighted according to Teck's ownership of the operation. This includes the Antamina mine, in which we have a 22.5% interest. We define incidents according to the requirements of the U.S. Department of Labor's Mine Safety and Health Administration. Severity is calculated as the number of days missed due to Lost-Time Injuries per 200,000 hours worked.
(2) Safety statistics in Table 4 include both employees and contractors at all of our locations in which Teck holds majority ownership and directly manages (operations, projects, closed properties, exploration sites and offices). For sites where Teck owns more than 50%, safety statistics are weighted 100%. We define incidents according to the requirements of the U.S. Department of Labor's Mine Safety and Health Administration. Severity is calculated as the number of days missed due to Lost-Time Injuries per 200,000 hours worked.
(3) Decrease in severity in 2019 is a consequence of the single fatality in 2019 versus two fatalities in 2018. Each fatality results in counting 6,000 lost days.
(4) A Lost-Time Injury is an occupational injury that results in loss of one or more days beyond the initial day of the injury from the employee's scheduled work beyond the date of injury.
(5) A Disabling Injury is a work-related injury that, by orders of a qualified practitioner, designates a person, although at work, unable to perform their full range of regular work duties on the next scheduled work shift after the day of the injury.
(6) A fatality is defined as a work-related injury that results in the loss of life. This does not include deaths from occupational disease or illness.
(7) Frequency indicators in this table are calculated by the number of events in the period multiplied by 200,000 and divided by the number of exposure hours in the period, which refers to the total number of actual hours worked by employees/contractors at a site where one or more employees/contractors are working or are present as a condition of their employment and are carrying out activities related to their employment duties. Hours of exposure may be calculated differently from site to site; for example, time sheets, estimations and data from human resources are inputs into the total number of exposure hours.
(8) There was one fatality at Fort Hills oil sands mine, which is operated by Suncor. See their sustainability report for further information.
(9) Data has been restated based on improvements in calculations.
(10) 2016 reference data is based on partially available information.

High-Potential Incidents

In 2019, our High-Potential Incident Frequency was 18% lower compared to 2018 and six Potentially Fatal Occurrences were reported at Teck-operated locations, which were investigated and for which corrective actions were developed. Where relevant, the results are shared with all of our business units and operations in order to facilitate a local gap analysis against the findings to prevent similar occurrences. We investigate potentially fatal occurrences to the same standard as actual fatalities.

While our total High-Potential Incident (HPI) frequency and severity has declined since 2016, our business units and operations continue to experience HPIs. As such, we continue to focus on improving our understanding of high-potential risk and control effectiveness.

Figure 3: High-Potential Incident Performance – Teck Total[1],[2]

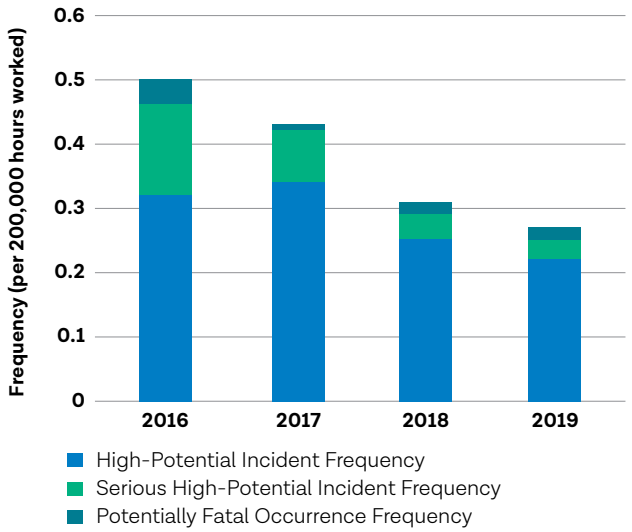
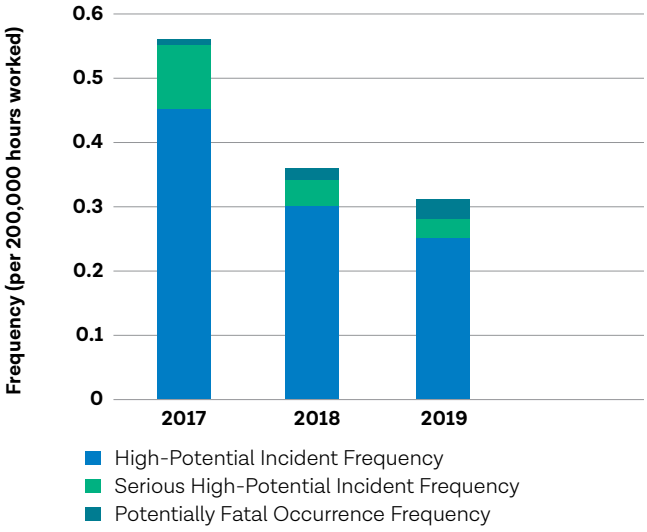


Figure 4: High-Potential Incident Performance – Teck Operated[1],[3],[4]



(1) Frequency indicators in Figures 3 and 4 are calculated by the number of events in the period multiplied by 200,000 and divided by the number of exposure hours in the period, which refers to the total number of actual hours worked by employees/contractors at a site where one or more employees/contractors are working or are present as a condition of their employment and are carrying out activities related to their employment duties.
(2) Safety statistics in Figure 3 include both employees and contractors at all of our locations (operations, projects, closed properties, exploration sites and offices). For sites where Teck owns more than 50%, safety statistics are weighted 100%; for sites where Teck owns 50% or less, safety statistics are weighted according to Teck's ownership of the operation. This includes the Antamina mine, in which we have a 22.5% interest.
(3) Safety statistics in Figure 4 include both employees and contractors at all of our locations in which Teck holds majority ownership and directly manages (operations, projects, closed properties, exploration sites and offices). For sites where Teck owns more than 50%, safety statistics are weighted 100%.
(4) Reference data is not available for 2016 because reporting of Teck-operated statistics began in 2017.

Process Safety Events

Process safety events are those that typically involve an unexpected mechanical integrity failure in a pipeline system or processing facility that may result in a fire, explosion, rupture or hazardous chemical leak. All high-potential incidents (including process safety events) were thoroughly investigated to identify corrective actions to minimize the potential for reoccurrence.

Table 5: Process Safety Events – Teck-Operated[1]

	2019	2018	2017	2016
Process-Related HPIs	**2**	7	6	11
Frequency (per 1,000,000 hours)	**0.04**	0.22	0.22	0.43

(1) Teck-operated data covers all operations in which Teck holds majority ownership and directly manages.

Collaboration with Industry

Teck was involved in the development of the ICMM publication *Fatality Prevention: Eight Lessons Learned* (2019). Lesson one in the paper describes the historically uneven focus between overall injury reduction efforts in the pursuit of "zero harm" versus serious injury and fatality prevention. We believe that current corporate reporting requirements and sustainability report scoring indices may be promoting the wrong behaviour by focusing on lower-level injury reduction lag indicators such as Total Recordable Injury Frequency (TRIF). Teck believes the industry should continue to monitor and report on total injury lag performance, but not at the risk of distracting us from a relentless focus on eliminating serious injuries and fatalities. With intent and purpose, the weightings assigned to serious injury and fatality prevention lead and lag indicators should be adjusted accordingly.

Occupational Diseases

We report the incidence of occupational diseases at Teck, based on accepted workers' compensation claims from each jurisdiction in which we work, for the disease categories set out in Table 6. In some cases, as our systems for reporting occupational diseases continue to mature, occupational disease cases and rates may increase in the short to medium term. This is a reflection of the long latency period associated with the development of occupational disease. We continue to enhance our application of improved risk-based controls to prevent occupational diseases.

Table 6: Occupational Disease Cases[1],[2],[3]

Disease Category	2019	2018	2017	2016
Respiratory Diseases	**1**	1	3	1
Hearing Loss[4]	**4**	2	5	9
Musculoskeletal Disorders	**11**	6	6	9
Cancer	**2**	0	0	0
Other Medical Disorders	**1**	8	4	2
Total	**19**	17	18	21

Table 7: Occupational Disease Cases by Gender[1],[2],[3]

	2019	2018	2017	2016
Female	**1**	4	2	0
Male	**18**	13	16	21
Total	**19**	17	18	21

Table 8: Occupational Disease Rate[1],[2],[3]

	2019	2018	2017	2016
Total Occupational Disease Rate (per 200,000 hours)	**0.18**	0.17[5]	0.19[5]	0.22[5]
Total Occupational Disease Rate (per 1,000,000 hours)	**0.90**	0.84[5]	0.94[5]	1.10[5]

(1) Occupational disease data is collected from insurance providers such as WorkBC; global exploration sites or marketing offices are not included.
(2) Occupational diseases are defined as an adverse, generally chronic and irreversible health effect associated with overexposure to chemical, physical or biological agents in the workplace (e.g., silicosis, bladder cancer, berylliosis, metal fume fever, asthma).
(3) Workers' compensation claims data is for accepted claims over the past four years and are for employees only; contractor data is not included.
(4) The reporting for hearing loss may be under-reported, due to limited data availability.
(5) Data has been restated based on improvements in calculations.

Outlook for the Health and Safety of Our Workforce

Safety is a core value at Teck and we are committed to continuously improving our performance. In 2020, we will continue to focus on eliminating fatalities and reducing serious injuries by putting effective controls in place for our high-potential risks and by enhancing our culture of safety. We will also continue the implementation of our Introduction to Courageous Safety Leadership program for new employees, and we will action key results from our second company-wide Health and Safety Culture Survey. Our efforts to improve occupational health and hygiene monitoring and improve exposure controls to protect the longer-term health of workers will also continue.

Moving forward, we will work towards our strategic priority of eliminating fatalities, serious injuries and occupational disease. We have set new goals for health and safety performance, which include enhancing critical control verification for fatal hazards and contributing to the elimination of occupational disease by implementing new technologies for real-time exposure monitoring to improve exposure controls for dust and welding fumes. Our focus in 2020 will be on concluding the final steps of our 2020 goals within our previous sustainability strategy, and on making progress towards achieving our new goals.