

Water Stewardship



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Water is an essential resource for people, communities and the environment. Overconsumption, environmental degradation and changing climate conditions are contributing to growing water risks, with nearly 1.8 billion people in 17 countries who faced high water stress in 2019.⁶ Recognizing the importance of water, governments and companies are working to improve the management, protection and restoration of the world's fresh water ecosystems. These actions are aligned with the United Nations Sustainable Development Goal 6 on clean water and sanitation.⁷

Industry context

Water is a critical input to the mining process. Mining companies demonstrate leadership in water stewardship by using water efficiently, maintaining water quality and engaging with communities to collaboratively manage a shared water resource throughout the mining life cycle.

Teck context

Leadership in water stewardship is a priority for Teck. Communities with whom we share watersheds care about access to sufficient quantities of clean water for health, quality of life, economic well-being and the preservation of the local environment, and we share those values. That is why we are working to protect water quality downstream of our operations, improve water use efficiency in water-scarce regions and engage with communities of interest on watershed management wherever we operate. Teck made progress towards meeting our water stewardship commitments this year, including the targets set in 2018

to reduce fresh water use at our Chilean operations and to have zero significant water-related incidents at all operations. On water use, we continued to advance water projects at our Chilean operations to help us achieve our 2020 target of a 15% reduction in fresh water use. At our Quebrada Blanca Phase 2 project, we began construction of a desalination plant so that we will not use fresh water in this water-scarce region.

On water quality, we met our target of zero significant water-related incidents⁸ in 2019. We also continued to implement the Elk Valley Water Quality Plan at our steelmaking coal operations in southeast British Columbia and updated the implementation plan based on key learnings over the past five years. Major activities included the successful operation of the West Line Creek water treatment facility, ongoing construction of the Fording River South water treatment facility and advancing expansion of the Elkview Saturated Rock Fill (SRF) water treatment facility.

GRI Indicators and Topic Boundary

303-103, 303-1, 303-3, 306-103, 306-1

This topic is considered one of the most material by our shareholders, employees, local communities, regulators and society in the context of Teck's operations.

How Does Teck Manage This Topic?

Information about how we steward water, including relevant policies, our alignment to the ICMM water framework, management practices and systems, is available for download on our website.

⁶ Release: Updated Global Water Risk Atlas Reveals Top Water-Stressed Countries and States. World Resources Institute. 2019. ⁷ Why does water matter? UN Environment Programme.

⁸ Teck uses a risk management consequence table to determine incident severity, which includes environmental, safety, community, reputational, legal and financial aspects. "Significant incidents" includes incidents assessed as Level 4 or Level 5 based on our risk matrix and guidance.

2019 Highlight

~3x / the number of times water is reused and recycled at mining operations

Our Performance in Water Stewardship in 2019

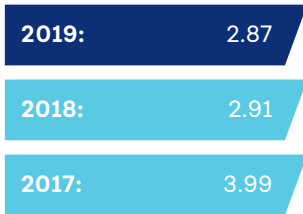
Our Targets and Commitments Teck is committed to responsible management of water resources, and to protecting water quality and water access where we operate. The following table summarizes our performance against our 2020 sustainability goals for water stewardship, and introduces our new strategic priority and goals.

2020 Sustainability Strategy Goals	Status	Summary of Progress in 2019
Contribute to watershed management in water-stressed regions through water use efficiency projects, use of alternative water sources, water quality improvement measures and capacity building.	On track	Continued to implement the Elk Valley Water Quality Plan. Highland Valley Copper (HVC), Red Dog Operations (RDO) and Carmen de Andacollo (CdA) are also progressing watershed-based planning activities.
Increase our understanding of groundwater and proactively assess groundwater risks.	On track	Defined groundwater modelling scope and requirements at HVC, RDO and CdA; work on the conceptual and numerical models is progressing at all three operations.
Collaborate in developing innovative water technology and practice.	On track	Operated the first SRF water treatment facility at Elkview Operations. This SRF is now being expanded and another SRF is planned at Fording River Operations.

New Strategic Priorities and Goals

Strategic Priorities	Goals
<ul style="list-style-type: none"> Transition to seawater or low-quality water sources for all operations in water-scarce regions by 2040 Implement innovative water management and water treatment solutions to protect water quality downstream of all our operations 	<ol style="list-style-type: none"> By 2025, design all development projects in water-scarce regions with a seawater or low-quality water source. By 2025, implement new source control or mine design strategies and water treatment systems to further advance efforts to manage water quality at our operations. <p>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.</p>

Key Performance Indicators



Indicator

Number of times water was reused and recycled at mining operations

Target

No target



Indicator

Significant water-related incidents

Target

Achieve zero significant water-related incidents each year

Managing Water Quality in the Elk Valley

In 2019, we continued to implement water quality management measures to meet the objectives of the Elk Valley Water Quality Plan (“the Plan”), which was approved in 2014 by the B.C. Minister of Environment. The goal of the Plan is to stabilize and reverse the increasing trend of mine-related constituents and to maintain the health of the watershed while allowing for continued sustainable mining in the region where our steelmaking coal operations are located.

The Plan establishes short-, medium- and long-term water quality targets, which are protective of the environment and human health, for selenium, nitrate, sulphate and cadmium, as well as a plan to manage calcite formation. In 2019, we

implemented a range of practices and mitigation projects as part of the Plan, including reduction of nitrate from blasting by using liners for explosives, the expansion of the Saturated Rock Fill treatment (SRF) technology and advancing construction of the Fording River South Water Treatment Facility. To date, we have spent approximately \$425 million on implementing the Plan.

Monitoring Aquatic Health

Teck conducts ongoing aquatic health studies and monitoring in the Elk Valley. Making this information broadly available helps advance community knowledge and understanding and can accelerate the pace of scientific progress and innovation.

As part of our regular monitoring of fish numbers, the results of 2019 Westslope Cutthroat trout counts were 74% lower for juveniles and 93% lower for adults than the 2017 counts in the Upper Fording River. The reasons for the lower fish counts are unknown at this time. When we received the results of the fish count we re-surveyed, initiated additional monitoring for fish and brought together a team of external experts to assess potential causes. Precautionary measures were also implemented to limit handling and sampling of fish and limit water use at our operations during low-flow periods.

Annual reports about our ongoing monitoring programs are prepared by professional scientists and reflect data generated since the Elk Valley Water Quality Plan was approved. The reports have been reviewed by the Environmental Monitoring Committee (EMC), a group that provides science-based and Ktunaxa traditional knowledge advice and input to Teck and the B.C. Ministry of Environment and Climate Change Strategy regarding monitoring designs and reports in the Elk Valley. The committee includes representatives from the Ministry of Environment and Climate Change Strategy; Ministry of Energy, Mines and Petroleum Resources; Ktunaxa Nation Council; Interior Health Authority; and Teck, as well as an independent scientist. Read the 2019 EMC Report available at teck.com/media/2019-EMC.pdf.

Water Treatment Facilities

The West Line Creek water treatment facility is operating and successfully treating over seven million litres of water a day. As a result, we are seeing reductions in selenium and nitrate concentrations downstream of the facility. Construction of the Fording River South water treatment

facility continued in 2019 and the project is targeting completion for the end of 2020, with a full treatment capacity of 20 million litres of water per day.

In 2019, the B.C. Government endorsed SRFs, a new treatment technology developed by Teck that uses an in situ method to remove selenium and nitrate from mine-impacted water. We received approval to begin construction to expand the SRF facility at our Elkview Operations from 10 million litres of water per day to 20 million litres of water per day. The expanded facility will replace the previously planned Elkview Tank-Based Water Treatment Facility and is expected to be operational in late 2020. SRFs can treat large volumes of water with less energy and with a smaller environmental footprint compared to tank-based facilities. SRFs are also quicker to build, less complex to operate, and have lower capital and operating costs. Read the full case study at teck.com/news/stories/.

Research and Development

Teck is focused on continued monitoring and research as part of the Plan. Three examples of this work are:

- **Alternative treatment technologies:** Exploring the use of smaller water treatment facilities that can be built much closer to points of discharge
- **Nitrate prevention:** Using liners that prevent explosives that contain nitrate, which are used in the mining process, from coming in contact with water
- **Waste rock covers:** Continuing to evaluate different forms of covers for waste rock piles, ranging from vegetative to geosynthetic covers

Community Engagement on Water

Access to clean and sufficient water by users in our areas of influence is important to us and to our stakeholders. When implementing our water management practices, we consider and engage with other water users in the watersheds where we

operate. In 2019, we conducted community engagement in the Elk Valley to share updates on our work on water quality in the watershed, as well as new technologies being implemented to improve water quality.

Case Study: Helping to Protect Water Quality with New Blasting Practices that Reduce Nitrate at the Source

At our steelmaking coal operations in the Elk Valley, Teck partnered with explosives and plastics providers to develop an innovative liner for wet explosives. This prevents the explosives from coming into contact with water and releasing nitrate into the environment. Through collaboration between Teck, Maxam and Friesen Plastics, various combinations of procedures,

liner types and explosive truck modifications were trialled at Fording River Operations throughout 2019 until a system was perfected. This solution is helping us meet our water quality commitments and could eventually eliminate the need for water treatment for nitrate in the Elk Valley. Read the full case study at teck.com/news/stories/.

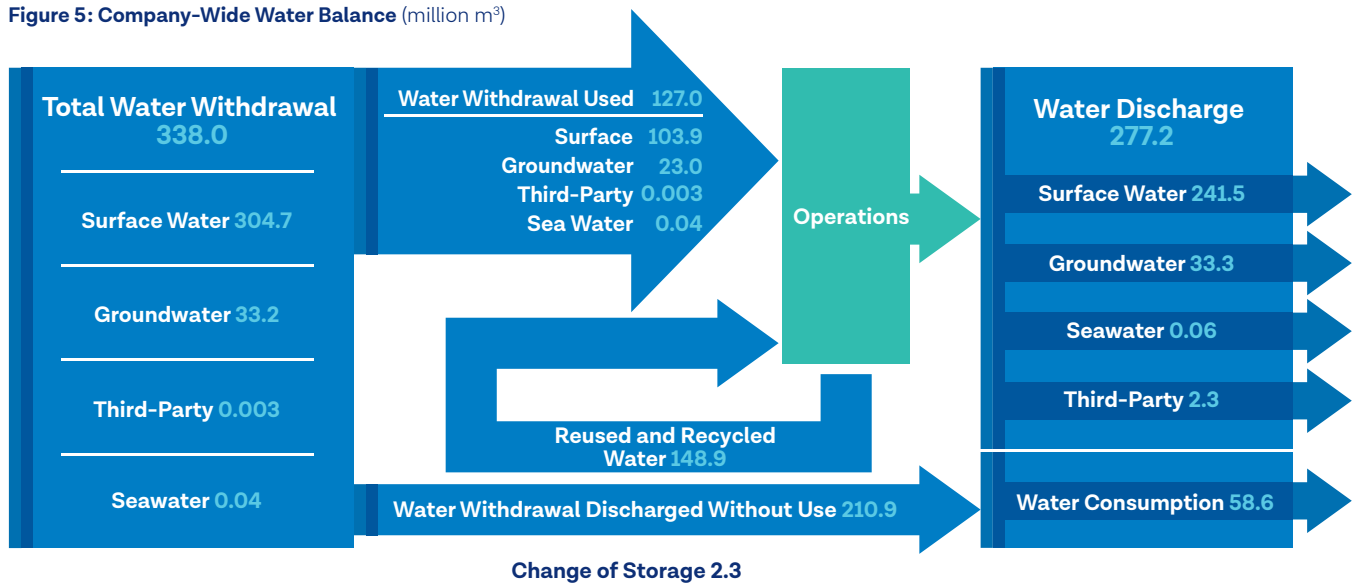
Improving Water Efficiency

We monitor water data at all our operations and incorporate the data into scenario planning using site-wide water balances.⁹ The company-wide water balance is complex, due to the variability of natural factors such as rainfall, snowmelt and the diversity of the climates and geological conditions where our operations are located. Understanding our water balance is key to improving water management practices and to enabling better decision-making.

In 2018, we updated our water data collection and reporting to align with the ICMM’s *A practical guide to consistent water reporting*. Our detailed water data is provided in our 2019 Sustainability Performance Data spreadsheet.

At Teck, we use water primarily for material processing and transport, cooling and dust control. The portion of the water we use that is consumed occurs through entrainment in our products and tailings or through evaporative processes. The water we use is obtained primarily from where our operations interface with surface water and groundwater systems and we are transitioning to seawater sources in water-scarce regions such as northern Chile. Overall, we discharge a significant proportion of our water withdrawals without use and where practical, we discharge this water close to the withdrawal location. The water we discharge is monitored and treated where necessary.

Figure 5: Company-Wide Water Balance (million m³)



Water withdrawal: water that is received, extracted or managed (collected and conveyed through an operation’s infrastructure) by operation and by type (surface water, groundwater, seawater or third-party water); excludes water diverted away from operational areas

Water discharge: water removed from an operation and returned to the environment or a third-party (surface water, groundwater, seawater or third-party)

Water consumption: water that is no longer available for use, including evaporated water, water entrained in products or tailings, and other operational losses

Water use: water used for mining or operational processes, such as for mineral processing, cooling, dust control or truck washing. Water use includes:

- Water withdrawals for use: water that is used for the first time
- Reused water: water that is reused without being treated between uses
- Recycled water: water that is reused and is treated prior to reuse

Water that enters a site and is discharged without use: water that enters a site, is not used in any processes and is released to the receiving environment

Change of storage: the change in the stored water volume at our operations – the difference between water inputs and water outputs; a positive number indicates water accumulation and a negative number indicates decreased storage

Types of Water

Surface water: water from precipitation and runoff that is not diverted around the operations; includes water inputs from surface waterbodies that may be located within our operation’s boundaries

Groundwater: water from beneath the earth’s surface that collects or flows in the porous spaces in soil and rock that is not diverted around the operations

Third-party sources: water supplied by an entity external to the operation, such as from a municipality; we do not use wastewater from other organizations

Seawater: water obtained from a sea or ocean

⁹ Site-wide water balances provide an understanding of water withdrawals, consumption, reuse/recycle and discharge volumes at each operation. Water balances are developed using a mix of measurements and modelling computation.

In 2019, our water efficiency, expressed as the percentage of reused and recycled water to total water use, was 74% at our mining operations (excluding Trail Operations). The number of times water was reused and recycled, expressed as the ratio of water reused and recycled to water withdrawals for use, was 2.87 at our mining operations. This means that we reused the same water approximately 3 times on average before treating and returning it to the environment.

Trail Operations accounts for 27% of our total water use and 59% of our water withdrawals for use. Almost all of the water used at Trail Operations is for cooling purposes, meaning that it does not come into contact with chemicals or reagents, and the only change it undergoes is a slight increase in temperature before being returned to the environment within regulatory-approved conditions.

In 2019, our total water use and water withdrawals for use were similar to 2018. At our mining operations, we reduced our total water use and water withdrawals for use primarily through operational improvements at our Highland Valley Copper Operations and interruptions to production at our Carmen de Andacollo Operations.

In 2019, progress towards our target of reducing freshwater use in Chile by 15% by 2020 was affected by the interruptions to production at Carmen de Andacollo. We were able to reduce our freshwater consumption by up to 13% during the months where our water reuse infrastructure was fully operational, and we continue to work on increasing our water reuse to reduce our need for freshwater in water-scarce regions like northern Chile.

Table 9: Water Use, Water Reused and Recycled

All operations	2019	2018 ⁽²⁾	2017	2016
Total water use (m ³)	275,931,000	303,446,000	291,930,000	285,268,000
Water withdrawals for use (m ³) ⁽¹⁾	127,018,000	128,758,000	115,368,000	117,930,000
Water reused/recycled (m ³)	148,914,000	174,688,000	176,563,000	167,338,000
Mining operations				
Total water use (m ³)	200,867,000	235,303,000	220,788,000	212,489,000
Water withdrawals for use (m ³)	51,954,000	60,615,000	44,225,000	45,151,000
Water reused/recycled (m ³)	148,914,000	174,688,000	176,563,000	167,338,000
Water efficiency (reused/recycled as % of total water use)	74%	74%	80%	79%
Number of times water reused and recycled (ratio of reused/recycled and withdrawals for use)	2.87	2.88	3.99	3.71

(1) 'Water withdrawals for use' previously called 'new water use'. Definition updated to reflect ICMM water reporting guidance.

(2) 2018 data has been restated based on improvements in accounting for water use and reuse at our Line Creek Operations.

Case Study: Building the First Large-Scale Desalination Plant for Mining in Chile's Tarapacá Region

In Chile's Tarapacá region, one of the driest places on earth, water scarcity is a growing challenge that can affect the well-being of the region's communities, ecosystems and economy. As we advance our Quebrada Blanca 2 (QB2) project in the region, we will avoid impacting freshwater by constructing and using a desalination plant.

Construction of the desalination plant, which is located between Puerto Patillos and Punta Patache, began in 2019. The desalination plant is one way we are meeting our commitment to reducing use of fresh water in water-scarce regions and to preserving this essential resource for others. Read the full case study at teck.com/news/stories/.

Outlook for Water Stewardship

In 2020, we will continue the work of implementing our approach to water stewardship, with a focus on achieving our 2020 water goals and two water targets: reducing fresh water consumption at our Chilean operations and achieving zero significant water-related incidents across Teck. We will also continue to implement the Elk Valley Water Quality Plan by advancing construction of a tank-based water treatment facility at our Fording River Operations, by continuing research and development with respect to source control and by expanding the use of SRF technology. As part of reducing our consumption of fresh water at our Chilean operations, we will advance construction of the desalination plant for our Quebrada Blanca Phase 2 project.

Moving forward, we will work towards our strategic priorities of transitioning to seawater or low-quality water sources for all operations in water-scarce regions by 2040 and implementing innovative water management and water treatment solutions to protect water quality downstream of all our operations. We have set new water goals, which include designing all development projects in water-scarce regions with a seawater or low-quality water source, and implementing new source control or mine design strategies and water treatment systems to further advance efforts to manage water quality at our operations by 2025. 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 our new goals.