Environmental Management

Why was Environmental Management a Material Topic in 2015?

Global Context: Business and society depend on ecosystems and their components such as water, air, biodiversity and climate. Comprehensive environmental management is essential for businesses to mitigate their impacts on the environment while enhancing economic and social development. Management systems and regulations are required to establish environmental practices and set the expectations for performance. Environmental management includes all of the policies, procedures and practices that a company uses to comply with environmental requirements, minimize environmental impacts and improve environmental performance.

Industry Context

Due to the physical disturbance of the land, generation of air- and water-based emissions, use of resources, and associated production processes, mining has the potential to adversely impact the environment. Many of these impacts can be mitigated or even avoided through proper management and planning. Effective management requires that mining companies recognize and address:

- The interrelated nature of many environmental and social issues
- The cumulative nature of many environmental impacts
- The need to look at different impacts across the mining life cycle and value chain
- The potential vulnerability of ecosystems as a whole

When commodity prices decline and mining companies focus on cost reduction, communities may be concerned that environmental management decreases in priority. The 2015 ICMM perception survey found that stakeholders identified reduction of environmental impacts as the most important issue for the mining industry to address. Therefore, industry must be especially attuned to this concern and demonstrate that it remains focused on strong environmental management.

Teck Context

Responsible environmental management is an integral part of who we are as a company; it is enshrined in Teck’s values through our commitment to sustainability as well as in our Code of Sustainable Conduct and Charter of Corporate Responsibility.

Beyond our core values, we also work in highly regulated jurisdictions with stringent and rigorously applied environmental legislation, which also makes environmental management a key compliance issue. Sound environmental management is an important component of regulatory compliance and permitting, particularly as permitting processes become more complex due to increased regulatory requirements, societal expectations, focus on social factors, interconnectivity of communities through technology, and lengthier and broader stakeholder consultation.

Environmental management is very important to our COIs. For example, in 2015, the majority of our community grievances were related to environmental concerns. Demonstrating that we have robust environmental management can help build trust in local communities. Strong environmental management also allows us to avoid regulatory fines, project delays and/or material impacts to operations. For more information about community grievances and how they are tracked, please see the Community Engagement section on page 70.

What is in this Topic?

Overall day-to-day environmental management, including total environmental expenditure, compliance with environmental regulations, compliance with permits, supplier environmental assessments and transportation.

Performance Highlights

In 2015, Line Creek Operations received the Towards Sustainable Mining Leadership Award from the Mining Association of Canada. This is an award for mining operations that demonstrate, through management actions and overall results, a strong commitment to excellence in environmental and community performance.

Learn More

Health, Safety, Environment and Community Management at Teck
What is Teck’s Approach to Environmental Management?

Our Targets and Commitments
We are committed to conducting regular audits of our sites on our environmental compliance. We develop corrective action plans where necessary based on findings, and we regularly assess the implementation of these plans.

HSEC Management Standards
Our HSEC Management Standards and our environmental audit program help drive continual improvement and assessment of compliance with environmental regulations. The standards provide a consistent and systematic methodology for the identification and effective management of HSEC issues and risks, and provide a platform to support continual improvement in HSEC programs and performance. The standards are supported by guidance documents specific to technical areas such as management and performance around tailings, water, biodiversity and a number of other key technical areas. Additional information on our environmental management approach is provided in the HSEC Management Standards section on page 12 and within the sections in this report that focus on air quality (page 105), water management (page 96), biodiversity (page 117), tailings and mine waste management (page 91) and energy and climate change (page 109).

External Certification
Since 2009, we have worked towards certification of environmental management systems to conform to the internationally recognized ISO 14001 standard. ISO 14001 certification requires external verification through third-party audits conducted by accredited certification service providers. To date, 10 of our 12 operations have attained and maintained certification. Pend Oreille is yet to achieve certification and Quebrada Blanca Operations is very close to attaining certification.

Permitting and Approvals
Our licence to operate depends on our ability to meet legal compliance requirements and demonstrate value to both shareholders and communities. We continually monitor and manage the social and environmental aspects of our activities in order to meet or exceed regulations and to ensure regulatory compliance and performance. This helps us obtain and maintain approvals to operate and to grow our business. We engage directly and indirectly (through industry groups) with governments and regulators to help ensure that permitting processes are practical and effective in meeting their objective of protecting the local environment and communities. Once permits are granted, our environmental assurance program ensures that we continue to meet all relevant requirements. We track our environmental permits and requirements, and the management of those requirements, such as discharge monitoring, in our task management system called SiteLine. Teck is also obligated to respond to government orders such as the development and implementation of the Elk Valley Water Quality Plan (see more on page 99).

Quebrada Blanca Environmental Impact Assessment
In 2014, we submitted a social and environmental impact assessment (SEIA) to update permits for our facilities and extend the life of mine at our existing Quebrada Blanca operation in Chile while we continue working towards developing Quebrada Blanca Phase 2. We engaged with local communities during the development of the SEIA to gather input and inform our submission. The SEIA includes an expansion of the pit to extend operations to 2020 and the improvement of the water management systems to enhance environmental performance. In addition, we will be improving our water management systems to reflect new environmental regulations. For example, the SEIA proposed the construction of a series of channels to keep non-contact water separate from water.
exposed to mine operations. The SEIA is currently under review by the Government of Chile and a decision is anticipated mid-2016.

**Fording River Swift Project**

The Environmental Assessment Certificate (EAC) for the Fording River Swift Project was issued in September 2015. There are 19 conditions that form part of the EAC and that were developed following consultation with key stakeholders and First Nations. Each of the conditions and the certified project description are legally binding requirements that Teck must meet to be in compliance with the certificate.

**Internal and External Audits**

Our Health, Safety and Environment assurance program is designed to ensure that requirements are met, as dictated by the applicable permits, legislation and regulations in each jurisdiction. We conduct compliance audits on a three-year rotational basis for all operations and plans are developed to address the findings based on risk priority criteria. In 2015, we implemented a risk-based auditing approach and enhanced post-audit communication to focus on the most significant health, safety and environment risks.

Our expectation is that corrective actions on significant findings are to be completed within two years of the audit, as confirmed by a mid-term effectiveness check. We monitor and report to our HSEC Risk Management Committee on the progress of our assurance program on a quarterly basis. We also conduct external verification for the purpose of regulatory or external commitments. Table 28 provides an overview of the types of audits and evaluations that are conducted across our operations. We conduct third-party audits to assess regulatory compliance on a regular basis.

Table 28: **Internal and External Audits of Environmental Management**

<table>
<thead>
<tr>
<th>Type</th>
<th>What is audited?</th>
<th>For whom?</th>
<th>Evaluation criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Internal</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk-based Health, Safety and Environment audits at each site</td>
<td>Adherence to regulatory and permit requirements; effectiveness of controls based on risk profile</td>
<td>HSEC Risk Management Committee</td>
<td>Legal obligations, internal standards</td>
</tr>
<tr>
<td>Mid-term effectiveness check</td>
<td>Validate effectiveness of closure of findings two years after initial audit</td>
<td></td>
<td>Action plans from past audit findings</td>
</tr>
<tr>
<td>Risk reviews</td>
<td>Control of significant risks</td>
<td></td>
<td>Internal standards</td>
</tr>
<tr>
<td>ISO 14001 internal audits</td>
<td>Components of the environmental management system at each site</td>
<td>Site Management</td>
<td>ISO 14001 Environmental Management System Standard</td>
</tr>
<tr>
<td><strong>External</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Towards Sustainable Mining (TSM) audit</td>
<td>External verification of site data reported to TSM</td>
<td>Mining Association of Canada (MAC)</td>
<td>TSM Protocols</td>
</tr>
<tr>
<td>Sustainability Report assurance</td>
<td>External assurance of report, data and practices</td>
<td>International Council on Mining and Metals (ICMM)</td>
<td>ICMM Assurance Procedure</td>
</tr>
<tr>
<td>GHG Regulation Assurance</td>
<td>Validation of GHG data reported and quantification of methodologies</td>
<td>Alberta and B.C. governments</td>
<td>Quantification methodologies defined by regulation</td>
</tr>
<tr>
<td>ISO 14001 external audits</td>
<td>Components of the environmental management system at each site</td>
<td>International Organization for Standardization</td>
<td>ISO 14001 Environmental Management System Standard</td>
</tr>
</tbody>
</table>
What is Teck’s Approach to Environmental Management?

**Environmental Monitoring**
We conduct thousands of measurements to manage and evaluate our environmental performance. We monitor a range of environmental data, including:
- Emissions to air
- Ambient air quality
- Noise levels
- Geotechnical information related to water retention structures
- Environmental incidents
- Water quality (surface water, groundwater and permitted discharges to receiving water)
- Biodiversity (including land reclamation)
- Energy consumption and greenhouse gas emissions
- Material use and recycling information

As required, we develop corrective action plans based on findings for monitoring, and we regularly assess the implementation of these plans.

**Environmental Incidents**
An incident is an unintended event that, in the vast majority of cases, is immediately managed and has no environmental implications. All of our operations have control measures in place to minimize the likelihood of environmental incidents and to mitigate potential effects on the environment for those incidents that do occur.

Control measures include facility design considerations, spill containment measures, meters, alarms, standard operating procedures, training, regular inspections, and the identification of potential issues through internal risk assessments and audits. Significant environmental incidents are investigated to identify the root causes, and we implement remedial measures and corrective actions. We also share learnings across Teck from any significant environmental incidents to reduce the potential for future occurrences.

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**Spotlight on Supply Chain Management**

**Evaluating the Environmental Management Practices of Our Suppliers**
We established our Recommended Protocols for Suppliers and Service Providers in 2012, communicated the expectations contained within these Protocols to major suppliers, and integrated the Protocols into our procurement and contract processes. The Protocols include expectations to address issues relating to ethics, health and safety, environmental stewardship, and human rights, including numerous labour law requirements.

To strengthen the utility and impact of the Protocols, as well as inform the development of our Supply Chain Risk Management Strategy, in 2014 we undertook additional engagement with a selection of our major suppliers through a pilot questionnaire to create greater mutual understanding of expectations, performance, and potential risks and impacts of our suppliers.

In 2015, we expanded the questionnaire to 40 suppliers and service providers. Suppliers ranged in nature from small family-run businesses to railways and multinational organizations. No major issues were uncovered in our evaluation of supplier responses to the questionnaire. Where suppliers had questions, support was provided to them to assist in reporting. We will continue the assessments into 2016 and expand on the lessons learned from this process.
What was Our Performance in Environmental Management in 2015?

In this section, Teck reports on our environmental expenditures, environmental compliance and learnings from significant environmental incidents. We also disclose our involvement in environmental litigation, fines and penalties and our progress on permits and approvals.

Environmental Expenditures

In 2015, Teck reported $49 million in environmental costs compared to $52 million in 2014 and $27 million in 2013. Environmental costs are reported in our Annual Report under Operating Costs on page 29. Expenditures on material environmental risks are reported (e.g., water, reclamation, renewable energy). Expenditures related to legal compliance and the routine operational activities are not reported separately. Environmental expenditures are a part of operating costs and are not accounted for separately.

Environmental Compliance

Compliance across all of our operations remained high in 2015. We had 107 permit non-compliance incidents, compared to 100 in 2014, and two regulatory non-compliance incidents, compared to six in 2014. Our response to significant non-compliance incidents is discussed in the Significant Environmental Incidents section.

The number of permit non-compliances has increased due to more rigorous internal monitoring and review. While non-compliances have increased, the severity of environmental incidents has decreased.

Table 29: Permit and Regulatory Non-Compliances

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2014</th>
<th>2013</th>
</tr>
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<tbody>
<tr>
<td>Permit Non-Compliances</td>
<td>109</td>
<td>100</td>
<td>79</td>
</tr>
<tr>
<td>Regulatory Non-Compliances</td>
<td>2</td>
<td>6</td>
<td>5</td>
</tr>
</tbody>
</table>

Significant Environmental Incidents

We assess the severity of environmental incidents based on their potential environmental, safety, legal, community, reputational and financial impacts. In general, 2015 was an outstanding year in terms of environmental stewardship at Teck, with fewer incidents of all nature in comparison to previous years. Based on our incident severity criteria, three environmental incidents occurred in 2015 that were of greater significance across all of our projects and operations, with one of those being a natural event unrelated to our activities.

Fish Incident at Greenhills Operations

In August 2015, 83 westslope cutthroat trout were killed during a fish salvage and relocation project at Greenhills Operations in southeast British Columbia. The intent of the project was to dry out, inspect and remediate any identified deficiencies in a spillway and stilling basin. Unfortunately, the planning and execution of the fish relocation from the basin resulted in fish mortality.

Following this incident, an application to install a fish screen at the top of the Greenhills sediment pond spillway was submitted to the Department of Fisheries and Oceans. Since installation, the fish screen has reduced the risk of trapping fish in the spillway stilling basin over the winter while we are developing a longer-term mitigation plan. Additional monitoring, process controls and incident response are being implemented across all steelmaking coal operations to prevent further fish mortalities.
What was Our Performance in Environmental Management in 2015?

Outlook for Environmental Management
In 2016, we will continue to implement and evaluate the effectiveness of our environmental management practices through our assurance program, address findings and amend practices as required. We will also continue to improve our environmental safeguards and prevent reoccurrence of environmental incidents on a site-by-site basis as required. For example, at Trail Operations, we are investing $8.1 million in improved environmental controls, including construction of an upstream outfall retention reservoir. At our steelmaking coal operations, we will continue to implement the area-based water management plan, the Elk Valley Water Quality Plan, to address the increasing trend of selenium and nitrate in the watershed. At our Red Dog, Trail and Carmen de Andacollo (CdA) operations, we will focus on improving our air quality monitoring and understanding of our releases to air and the potential impacts on people, communities and the environment; in particular, we will focus on implementing the Atmospheric Decontamination Plan to improve air quality near CdA.

Landslides at Line Creek Operations
An intense rainfall event triggered two separate landslides adjacent to Line Creek Operations in July 2015. Neither event was connected to activities at the mine. The landslides blocked the access road to the site, fully obstructed Line Creek and severely damaged the cable belt system that delivers raw coal from the mine to the process plant. As a result, operations were suspended temporarily while removal of debris, slope stabilization and repairs to the cable belt were completed.

Through the remediation process, the stream was rehabilitated to pre-slide conditions. This included re-establishment of the previous gradient, placement of riprap to protect against future erosion, and strategic placement of boulders throughout the channel to enhance the stream habitat and restore natural stream flows. To reduce downstream turbidity during the remediation process and to minimize impacts to water quality and commercial fly fishing guides, clean water from above the slide debris was pumped around the work area. Development of the remediation plan included engagement with provincial and federal agencies as well as local First Nations. All work was approved by the Ministry of Forests, Lands and Natural Resource Operations, observed by the Department of Fisheries and Oceans and overseen by an Independent Environmental Monitor. Flow was fully restored to Line Creek in mid-August.

Concentrate Spill at Red Dog Operations
In 2015, there was one significant spill. A trailer carrying zinc concentrate from the Red Dog mine to the port overturned in October 2015 and released approximately 65,500 kilograms of concentrate to the tundra and across an intermittently flowing drainage. No environmental impact was indicated and immediate cleanup was initiated. All work has been undertaken with full approval of the regulator.

Environmental Litigation
Upper Columbia River Litigation
Environmental litigation regarding the Upper Columbia River and involving the Confederated Colville Tribes and the Spokane Tribe of Indians continues. For more information, visit the Upper Columbia River project website.

Charges, Fines and Penalties
In the third quarter of 2015, the British Columbia Ministry of Environment (BC MOE) filed charges in relation to the death of five bighorn sheep at Greenhills Operations in July 2014. The sheep perished after ingesting ammonia nitrate stored at the explosives storage facility. Fines may result from these charges. Improved procedures and facilities have been implemented across Teck’s coal operations to address the issue.

In January 2015, we paid penalties of $10,000 relating to a late report submission from our Duck Pond Operations in the first half of 2014.

In the second quarter of 2015, the Chilean Environmental Superintendence (SMA) announced five charges against Carmen de Andacollo stemming from inspections in 2013 and 2014. Carmen de Andacollo submitted a defence document to the SMA in the third quarter of 2015. On March 29, 2016, the SMA issued a sanction of $60,000 for two of the charges classified as ‘mild’, while the remaining three charges were dropped.

In February 2016, Teck Metals was assessed a penalty for five charges under the Fisheries Act and Environmental Management Act relating to 13 accidental discharge incidents at Teck’s Trail Operations between November 2013 and February 2015. These incidents involved the discharge of effluent with elevated levels of copper, zinc, ammonia, chlorine and cadmium. Teck Metals was assessed a total penalty of $3.4 million. All of the incidents were self-reported non-compliances, of which only one constituted an exceedance of our daily allowable permitted discharge limit. No impact to the Columbia River was allowable permitted discharge limit.

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