

BALDY RIDGE EXTENSION PROJECT

ASSESSMENT REPORT

With respect to:

the Application by Teck Coal Limited

for an Environmental Assessment Certificate

pursuant to the *Environmental Assessment Act*, S.B.C. 2002, c.43

Prepared by:

Environmental Assessment Office

August 12, 2016



1. Introduction

This report provides an overview of the environmental assessment (EA) of the proposed Baldy Ridge Extension Project (BRE Project) conducted by the Environmental Assessment Office (EAO). It summarizes the procedures followed during the EA and the findings of the EA, and cross-references relevant sections of EAO's BRE Project Technical Report (Technical Report) where more in-depth analysis and discussion can be found.

2. Project Description

Teck Coal Limited (Teck) is proposing to develop the BRE Project, located in southeast British Columbia (BC) in the Regional District of East Kootenay, approximately 2.5 kilometres (km) east of the District of Sparwood (DOS). Figure 1 shows the regional location of the BRE Project. Teck is Canada's largest producer and exporter of metallurgical coal, primarily used in steel-making, and operates five coal mines in the Elk Valley.

The BRE Project is an extension of the currently operating Elkview Operations (EVO) open pit coal mine located on 25,000 hectares of Teck's privately owned land. EVO supports a workforce of approximately 1,000 employees and contributes to the local communities in the East Kootenays, including DOS, Elkford, Crowsnest Pass, and Fernie.

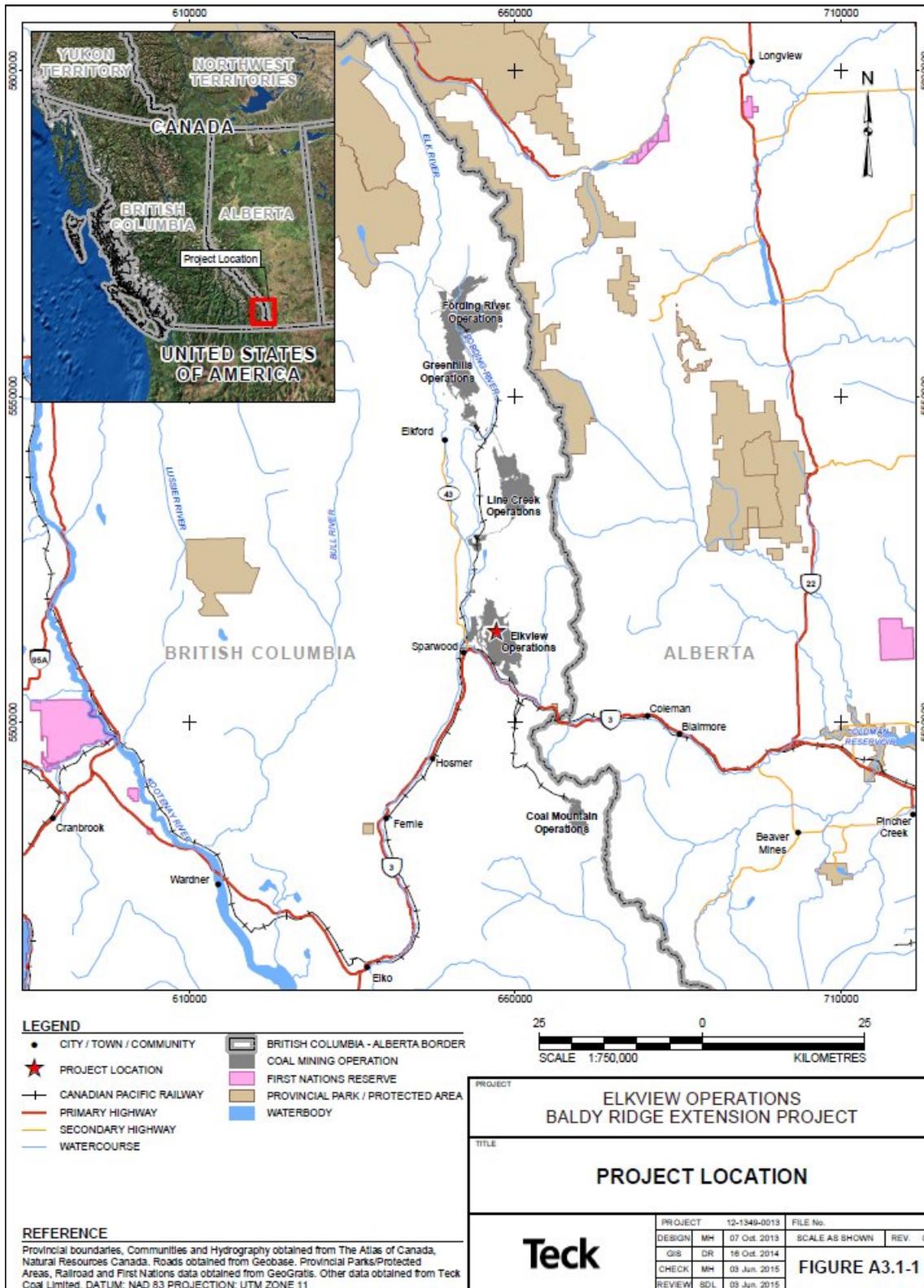
Coal mining on the EVO property dates back to 1902 and since then ownership has changed several times. By 1969, through the acquisition of the coal properties held by Crowsnest Industries Inc., Kaiser Resources Limited operated the site as a large scale open-pit and underground operation collectively referred to as the Balmer Mine. In 1980, Kaiser Resources Limited was acquired by the publically owned B.C. Resources Investment Corporation. The B.C. Resources Investment Corporation then renamed itself Westar Group Limited, and placed the Balmer Mine within its wholly-owned subsidiary of Westar Mining Limited. Underground operations ceased in 1986 and Westar Mining Limited focused on developing the open pit Harmer Ridge Mine. In 1992 Teck Cominco Limited (now Teck Resources Limited) purchased the property following the Westar Group Limited's bankruptcy and Elkview Coal Corporation was formed (as a wholly-owned subsidiary of Teck Cominco Limited) to operate the Harmer Ridge Mine (renamed the Elkview Mine). In 2003, Fording Canadian Coal Trust and Teck Cominco Limited formed the Elk Valley Coal Partnership joint venture (60 percent Fording Canadian Coal Trust and 40 percent Teck Cominco Limited) to operate all the metallurgical coal mines in the Elk Valley, including the operations of the Elkview Coal Corporation. In 2008 Teck Cominco Limited purchased the majority share of the Elk Valley Coal Partnership from Fording Canadian Coal Trust and renamed the partnership Teck Coal Limited, the current owner/operator of EVO.

As an extension of the existing EVO mine, the BRE Project would mine coal deposits in Baldy Ridge, Adit Ridge, and Natal Ridge, all located on the property. Teck estimates

these coal deposits will provide a total of 153 million metric tonnes of clean coal (Mmtcc) and would extend the overall life of EVO operations by about 23 years to 2045. Figure 2 shows the BRE Project footprint in relation to the existing EVO mine.

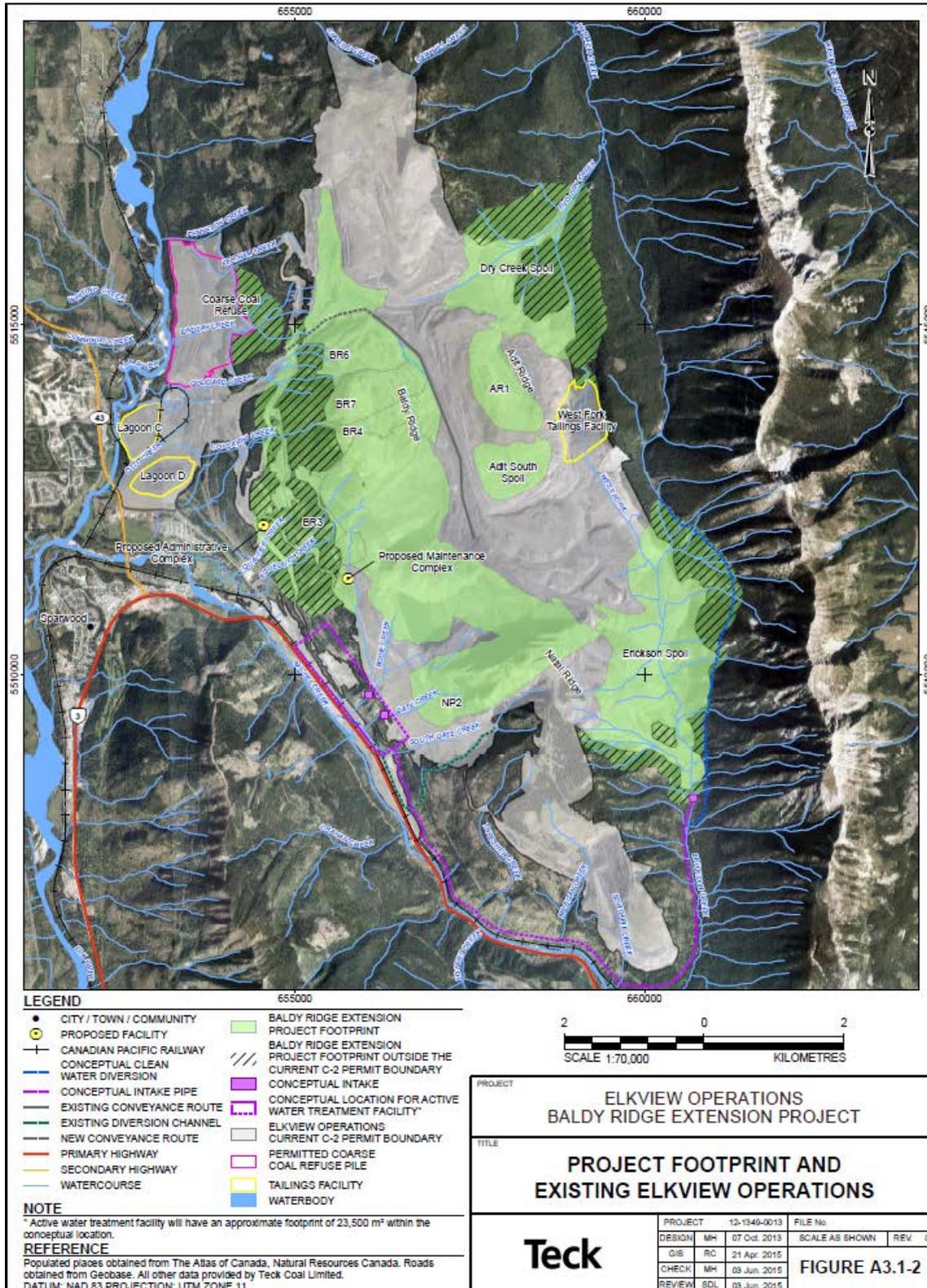
As an extension of the existing operations, the BRE Project will use existing EVO facilities such as haul roads, overland conveyor, hopper and breaker station, main power supply line, gas line, main mine access roads; coal processing facilities; Canadian Pacific Railway line and load-out loop; explosives storage; and surface water management infrastructure.

Figure 1: Baldy Ridge Extension Location



Source: Baldy Ridge Extension Project Environmental Assessment Certificate Application

Figure 2: Major Project Components



Source: Baldy Ridge Extension Project Environmental Assessment Certificate Application

The BRE Project would expand existing waste rock spoils and require new or upgraded infrastructure including a coal conveyance system, re-located maintenance and administration facilities, including sewage treatment facility, surface water management facilities. The BRE Project will also require expansions to the existing coarse coal refuse (CCR) pile and the West Fork Tailings Facility (WTF).

Provided an Environmental Assessment Certificate (EAC) is issued, and once Teck receives additional necessary permits and approvals, Teck plans to commence construction of the BRE Project by late 2016. The operations stage would begin in early 2017, overlapping to some extent with the construction stage, and would end in approximately 2045. Teck developed the BRE Project schedule to develop a coal production target of approximately 7 Mmtc per year.

Progressive reclamation would commence during operations and would continue throughout the life cycle of the mine. Following the operations stage (2014), the BRE Project would include reclamation and closure activities. Teck would conduct reclamation monitoring as required by the Ministry of Energy and Mines (MEM), and water quality management as required by Ministry of Environment (MOE). Teck would continue to operate infrastructure required for ongoing water quality management (e.g., active water treatment) in the post-closure period of the closure stage for as long as required by permits and regulation.

The BRE Project is in the traditional territory of the Ktunaxa Nation and in the consultative boundaries for the Shuswap Indian Band. The section below discusses Aboriginal Consultation.

Strategic Context

Area Based Management Plan / Elk Valley Water Quality Plan

Steelmaking coal occurs as layers or seams within rock. The mountaintop-mining / valley fill method used in the Elk Valley extracts the coal along with large quantities of rock, and this waste rock is placed in large piles (referred to as spoils) adjacent to, and / or in mined-out pits. Rainwater and snowmelt flow through these piles and carry selenium and other substances, including cadmium and sulphate as well as nitrate from blasting residue, into the local watersheds. Geochemical study indicates waste rock piles continue to release selenium at steady rates for a very long period of time.

Water quality studies conducted since the 1990s have shown the Elk River and several of its tributaries to have increasing levels of constituents such as selenium, nitrate, cadmium and sulphate. In 2013, the Minister of Environment issued an Order to Teck to develop an area-based management plan (ABMP) to stabilize and reverse water quality concentrations of selenium and other contaminants in the Elk Valley watershed, including the Canadian portion of Lake Koocanusa. The Minister's Order required Teck to form a Technical Advisory Committee to provide science-based expert advice on the development of the plan. The committee comprised representatives from the Ktunaxa

Nation Council (KNC), provincial and federal governments, United States and Montana State governments, an independent scientist and Teck.

The Minister of Environment approved the ABMP submitted by Teck, referred to as the Elk Valley Water Quality Plan (EVWQP) on November 18, 2014. The EVWQP is provincial policy that must be considered by statutory and delegated decision makers reviewing permits under the Environmental Management Act (EMA).

The objectives of the EVWQP are the protection of aquatic ecosystem health, management of bioaccumulation of constituents in the receiving environment, protection of human health and protection of groundwater, while at the same time allowing for continued sustainable mining in the Elk Valley. To achieve these objectives, the EVWQP sets out a plan to manage water quality on a watershed-basis, with the use of clean water diversions and several active water treatment facilities (AWTF) as the primary mitigation and management approach. The EVWQP modelled water quality up until 2034, and included Teck's permitted and proposed mining activities (including the BRE Project) in that period. The initial implementation plan and schedule includes the water treatment plant at EVO (first phase in 2020, second phase in 2024).

The EVWQP sets out short, medium, and long-term water quality targets for selenium, nitrate, sulphate and cadmium (Order constituents) and targets to address calcite formation. The EVWQP also establishes water quality benchmarks (thresholds) for impacts to sensitive aquatic species.

EAO scoped the EA to avoid duplication of the work completed as part of the EVWQP; work that has already undergone a substantial science-based review. EAO also accepted the EVWQP's watershed-based approach to managing water quality effects, and considers the EVWQP to be a cumulative effects assessment for surface water quality, aquatic ecosystem health, human health and groundwater quality. For the purposes of the EA, and in the context of the cumulative effects assessment for surface water quality, aquatic ecosystem health, human health and groundwater quality, EAO relied on the approved EVWQP for its:

- baseline data;
- water quality benchmarks (thresholds) for impacts to sensitive aquatic species;
- water quality targets and monitoring locations for the targets; and
- mitigation and adaptive management strategies that are applicable to the BRE Project.

Valley Wide Permitting for implementation of the EVWQP

Environmental Management Act (EMA)

On November 19, 2014, MOE issued Elk Valley EMA Permit 107517 (EMA Valley-wide Permit) to Teck. This permit supports the implementation of the EVWQP by authorizing and managing contaminants from current and historic mining activity in the Elk Valley. The EMA Valley-wide Permit sets out performance objectives, compliance points, discharge limits, monitoring programs and timelines. The EMA Valley-wide Permit also contains a number of additional requirements that MOE – in consultation with KNC – considered essential for the full and effective implementation of the EVWQP. Some of the key permit conditions applicable to Teck's operations in the Elk Valley include:

- regional aquatic effects monitoring program, to monitor and manage for biological effects on aquatic organisms;
- groundwater monitoring program, to protect groundwater quality;
- tributary evaluation and management programs, to evaluate the ecological value of tributaries including the potential for rehabilitation of aquatic and riparian habitat and potential for improvement of water quality conditions, and prioritize tributaries for ongoing protection and/or rehabilitation;
- human health risk assessment and ecological risk assessment;
- research and development program;
- Lake Koochanusa Monitoring and Research Working Group;
- adaptive management program; and
- an Environmental Monitoring Committee, with membership from MEM, MOE, Interior Health Authority (IHA), KNC, an independent scientist and Teck. Environment Canada was invited as well but declined.

Mines Act

On November 27, 2014, MEM issued permit amendments to the five Teck Coal mines which approved aspects of the EVWQP that related to MEM mandate, including the mitigation strategies for water quality and calcite. For EVO, this includes water treatment of Bodie, Gate and Erickson Creeks and the diversions of Upper Erickson watershed and South Gate Creek outlined in Teck's Initial Implementation plan.

EAO has also relied upon the *Mines Act* permit to require the implementation of necessary water management and water treatment mitigation.

Coordinated Approach to Southeast Coal Permitting

In recognition of the high ecological and social values, the importance of economic development in the Elk Valley, and the high volume of permit applications that Teck would require for current and potential future operations, the Southeast Coal Permitting Program (SECPP) was established in spring 2014. As part of the SECPP, BC and Teck each established Southeast Coal Project Boards that met jointly on a regular basis to

provide guidance and oversight to ensure that EAs and permitting, as well as activities related to the EVWQP, are conducted in a timely and high quality manner that meet established deadlines. In April 2016, the SECPP was included in the mandate on the Major Mines Permitting Office.

The BRE Project is the third of four major mine expansions recently proposed by Teck in the Elk Valley that require an EA. The Line Creek Operations Phase II Project received an EAC in September 2013, and the Fording River Operations – Swift Project received an EAC in September 2015. The Coal Mountain Operations Phase 2 Project (CMO Phase 2) was active in the EA process until February 2016 when EAO issued an Application Information Requirements (AIR). However, due to an economic downturn in the global coal market, Teck requested to postpone work in the EA process for CMO Phase 2.

3. Environmental Assessment Process

In conducting this EA, EAO considered the potential environmental, economic, social, heritage and health effects, including cumulative effects, of the BRE Project under the *Environmental Assessment Act* (Act).

EAO conducted the EA in consultation with an advisory working group made up of provincial and local government representatives with the mandates and skill sets relevant to the review of the BRE Project, as well as representatives of KNC, which is the administrative body representing the Ktunaxa Nation.

EAO undertook public consultation activities during the course of the EA, including holding two public comment periods. All public comments, and the Teck's responses to these comments, were considered in completing the EA.

On June 5, 2014, EAO determined that the BRE Project was reviewable pursuant to the Reviewable Projects Regulation, and issued a legal Order under Section 10 of the Act because the BRE Project is a modification of an existing coal mine and would result in the disturbance of at least 750 hectares of land not previously permitted for disturbance and has a proposed production capacity that exceeds 250,000 tonnes/year of coal. The BRE Project did not require a federal EA.

On November 19, 2014, EAO issued an Order under Section 11 of the Act, which set out the scope, procedures and methods for the EA. The Section 11 Order was modified by issuance of a Section 13 Order on May 15, 2015, to change the scope of the BRE Project and assessment to reflect design changes proposed by Teck and consistency with the Reviewable Projects Regulation, excluding the decommissioning phase.

EAO required Teck to develop a Valued Components (VCs) Selection Document which was provided for review by the working group and the public. The VCs, and the information that must be collected, analyzed and presented by Teck in their Application

for an EAC (Application), were identified by the Teck in the draft AIR. The draft AIR was reviewed by the Working Group and on September 15, 2016, EAO issued the final AIR for the BRE Project.

The Application Review Stage of the EA started on February 15, 2016, following a 45-day evaluation of the Application against the AIR by EAO and the Working Group. The Working Group and public provided additional review and comment on the Application and supplementary material during the Application Review Stage.

EAO completed the review of the BRE Project and on August 15, 2016, referred the Application for decision to the Minister of Environment and Minister of Energy and Mines.

Other Required Authorizations

If an EAC is issued, the BRE Project would also require various permits from federal, provincial and local governments. The majority of provincial permits are provided through MEM, MOE, and the Ministry of Forests, Lands and Natural Resource Operations (FLNRO). Teck applied for concurrent review of one major permit:

- amendment to the existing Permit Approving Work System and Reclamation Program issued pursuant to the BC *Mines Act* (Permit No. C-2).

As the BRE Project would destroy and alter fish habitat, Teck would also require an authorization from Fisheries and Oceans Canada (DFO) to carry out a proposed work, undertaking, or activity that could cause serious harm to fish, under the subsection 35(2) of the *Fisheries Act*.

4. Key Conclusions of the Environmental Assessment

EAs in BC use VCs as an organizing framework for the assessment of the potential effects for proposed projects. VCs are components of the natural and human environment that are considered by the proponent, public, Aboriginal groups, scientists and other technical specialists, and government agencies involved in the assessment process to have scientific, ecological, economic, social, cultural, archaeological, historical or other importance. To ensure effective use of resources and appropriately focus on the potential for significant adverse effects, EAO selects VCs that evaluate the project-environment interactions of the greatest importance and consequence.

EAO's Technical Report is organized around the EA pillars (environmental, economic, social heritage and health) and selected VCs:

- Water Quality and Aquatic Health (Section 2.1);
- Air Quality (Section 2.2);
- Global Climate (Section 2.3);
- Fish and Fish Habitat (Section 2.4);

- Ecosystems, Vegetation and Wildlife (Section 2.5);
- Economic (Section 3.0);
- Socio-community (Section 4.0);
- Heritage (Section 5.0); and
- Health (Section 6.0).

EAO's Technical Report assesses the impacts of the BRE Project on all VCs, identifies key mitigation measures for each, and reaches conclusions on their residual effects. To ensure the effects of the BRE Project are sufficiently mitigated, EAO proposes 25 conditions to be included in the EAC, if issued, along with a Certified Project Description. Appendix A of this Assessment Report summarizes EAO's conclusions and key proposed conditions for each VC. The remainder of this section provides a summary of the key issues and concerns that were the focus of the EA.

As the BRE Project is an expansion of an operating mine with minimal projected changes to the labour force and procurement practices, and taking into account the comprehensive permitting regime for mining including the EMA Valley-wide Permit, which implements and adds to the EVWQP, EAO concluded that there would not be significant adverse effects (and minimal overall effects) to the economic, health and heritage VCs. The socio-community and biophysical aspects of the BRE Project's potential impacts were the dominant focus of the EA. The discussion below is focused on the four significant issues raised during the EA:

- ability of the BRE Project to meet water quality targets and adequately mitigate effects to the aquatic environment, before and after implementation of the EVWQP;
- potential effects to the westslope cutthroat trout (WCT) population in the Harmer and Grave Creek system due to habitat loss and water quality effects;
- cumulative effects to ecosystems and species already facing pressures of diminished habitat, such as grizzly bears, lynx, wetlands, and mature/old growth forest; and
- potential socio-community issues faced by the DOS due to the close proximity of the BRE Project to the community.

Water Quality

The BRE Project would produce approximately 150 million tonnes of coal and would generate approximately 1,200 million bank cubic metres¹ (Mbcm) of additional waste rock. A large portion of the waste rock (about 500 Mbcm or 42 percent) would be placed in-pit as backfill, with the remainder placed in extensions to existing spoils on the eastern side of the property. The waste rock spoils will be placed over top of small tributary streams in the Dry Creek and Erickson Creek drainages. Approximately 6 million m³ of tailings and 30 million m³ of CCR would also be generated and stored in

¹ A bank cubic metre refers to undisturbed or pre-drilled soils/rock in the ground.

extensions to existing purpose-engineered facilities on site. The spoiled waste rock is the primary source of contaminant loading (e.g., selenium) into water courses leading to effects to water quality and the aquatic ecosystem.

As outlined earlier, the EA accepted the EVWQP as a cumulative effects assessment of water quality and aquatic health, and also accepted the water management measures within the EVWQP and the supporting EMA Valley-wide Permit and *Mines Act* Permit, namely active water treatment and clean water diversion, as the measures required to mitigate both the direct and cumulative effects to water quality from the BRE Project. The EVWQP and supporting EMA Valley-wide Permit and *Mines Act* Permit require a phased development of the EVO AWTF, first operating by 2020 with a second phase in 2024. As the EVWQP sets out a plan to manage water quality on a watershed-basis, project-specific measures to mitigate effects to Order constituents are limited to designing the Project to facilitate implementation of the EVWQP (e.g., directing mine affected water to the planned treatment facility).

In order to compare and understand the direct effects of the BRE Project in the local study area (LSA) on aquatic life, the EA considered the BRE Project's direct effects on water quality and the potential related effects on aquatic health. The EA examined predicted water quality and aquatic health effects from the Order constituents before and after the EVO AWTF. The assessment took into account the interaction of changes to groundwater flow and quality, surface water flow and quality, geochemistry and chemical loadings, and aquatic health of representative sensitive species of invertebrates, amphibians, water birds and fish. Additionally, the EA considered the direct and cumulative effects from other water quality constituents that were not included in the EVWQP over the full life of the BRE Project.

Under current conditions in some watersheds affected by EVO, there are some exceedances of BC's water quality guidelines for the protection of freshwater aquatic life and the EVWQP Level 1 benchmarks. In some streams, chemical constituents are currently below human and terrestrial wildlife health screening values, but the water quality modelling for the BRE Project predicts concentrations exceeding health screening values. Section 2.1 – Water Quality and Aquatic Health of the Technical Assessment Report describes which Order and non-Order constituents are predicted to exceed the EVWQP benchmarks and health screening values. The highest concentrations of most constituents (Order and non-Order constituents) have been observed in Erickson, Bodie, Gate and Dry Creeks. Water quality modelling for the BRE Project indicates that the BRE Project would result in further increases in constituent concentrations in the local watersheds. The primary project activities that would contribute to further constituent loading include additional spoiling of waste rock in Dry Creek and Erickson Creek.

Maximum monthly average selenium concentrations are currently above the EVWP Level 1 Benchmark. However, the EVO AWTF, once operational in 2020, is predicted to temporarily decrease concentrations of selenium and nitrate in Michel Creek. Michel Creek is a major tributary to the Elk River and receives surface water from

Erickson Creek which would be directly impacted by the expansion of the Erickson Spoil. However, the concentrations of selenium would begin to rise again until 2024, when the second phase of the facility is predicted to bring the levels below the long-term targets in the EVWQP and compliance limits set out in the EMA Valley-wide Permit. The Application predicts that during the operation of the second phase of the EVO AWTF, selenium levels in Michel Creek would again continue to increase to near the EVWQP Level 1 benchmarks and compliance limits by 2035. However, with the future operation of the EVWQP mandated AWTFs associated with Teck's other operations in the Elk Valley, regional selenium concentrations in the Elk River downstream of Michel Creek, show a predicted steady decrease in concentrations to 2033.

In the development of the water quality model for the EVWQP, Teck modelled potential constituent concentrations to 2034. In 2017, Teck would be required to remodel the water quality predictions under the EMA Valley-wide Permit, to predict water quality predictions beyond 2034.

During the EA, the advisory Working Group identified uncertainties related to Teck's understanding of the surface and sub-surface water flow from the BRE Project that would support the design and operation of the EVO AWTF. The Working Group also raised concerns about a lack of groundwater modelling of the valley fill aquifer underlying the confluence of the Elk River and Michel Creek. During the EA, agencies recommended a series of follow-up actions and adaptive management. EAO worked with the agencies to understand the appropriate paths forward for addressing the uncertainties, and determined that the issues could be addressed through detailed monitoring and modelling at the permitting phase under the EMA Valley-wide Permit. MOE stated that the EMA Valley Permit is open to amendments and would include a requirement for Teck to address the surface and sub-surface water flow uncertainties identified in the EA.

The advisory Working Group also raised a number of issues related to cumulative impacts on water quality including to the DOS domestic water Well #3. DOS's domestic water wells are located in the valley fill aquifer adjacent to the Elk River, and Working Group members from MOE and DOS stated that better information on the BRE Projects effects to groundwater quality in the valley is required. DOS staff mentioned that the town has seasonally shut down Well #3 due to selenium concentrations exceeding drinking water guidelines during periods of low flows in winter. Teck stated that in the area where the DOS Well #5 is located, the groundwater quality appears to reflect the Elk River and/or Michel Creek surface water quality due to surface water infiltration into the valley fill aquifer. Teck stated that adjacent to mine permitted areas, and particularly near the confluence of impacted tributaries, local groundwater quality in the valley-fill sediments may be impacted by infiltration from the tributary to the sediments underlying the floodplain. In response to this, EAO proposes a condition requiring Teck to develop a plan with DOS, MOE, FLNRO and IHA to continue surface and groundwater quality modelling and monitoring to determine when or if Teck would be required to replace Well #3.

Aquatic health

For the purposes of assessing impacts to aquatic health, the EA focused on effects that could occur during the period of time the BRE Project would begin contributing additional contaminants of concern. For the Order constituents, the EA evaluated the interim period prior to the operating EVO AWTF, and the change in effects after the AWTF is operational, in order to compare and assess the localized effects.

Although the EA considered all of the Order constituents as well as numerous non-Order constituents², the effects from selenium concentrations were a focal issue. At elevated concentrations, selenium can bio-accumulate in organism's tissues and become detrimental to reproductive processes in aquatic invertebrates, fish, birds, amphibians and other egg-laying vertebrates.

Concentrations of selenium in some streams affected by EVO are currently at levels where individuals of some sensitive species may already be experiencing decreased reproduction and development. With the commencement of the BRE Project, concentrations are predicted to continue rising over the next five years and would incrementally add loadings to the aquatic environment notably in Michel Creek, Erickson Creek and Harmer Creek. In Michel Creek, the water quality effects would not decrease until Phase 1 of the EVO AWTF becomes operational in 2020.

Under the EMA Valley-wide Permit, two water quality discharge compliance points³ have been set for Michel Creek. Teck is currently in a process to set a long-term selenium compliance limit, under the EMA Valley Permit, for the Harmer Creek compliance point. EAO notes that for the BRE Project, the EVO AWTF would only treat water associated with the Erickson Creek, Bodie Creek, Gate Creek and downstream Michel Creek watersheds, and not the Harmer Creek watershed. Although, selenium concentrations are below the EVWQP Level 1 Benchmark in Harmer Creek, selenium concentrations are expected to increase due to the BRE Project and planned spoiling of waste rock in the upstream tributary of Dry Creek. Long-term constituent loading in Harmer Creek, and specifically selenium, was identified as a major concern for aquatic health by KNC and members of the Working Group. In relation to this, MOE would require Teck to develop a long-term limit for selenium in Harmer Creek, by December 31, 2017, as well as assess practicality of excluding fish from the Harmer Creek sediment pond. Development of an acceptable long term limit is challenging, due to the fact that the current mine plan for the BRE Project includes spoiling additional waste rock in Dry Creek (a tributary to Harmer Creek). This additional waste rock would result in elevated selenium concentrations. The Working Group and KNC raised concerns of how elevated selenium concentrations would affect the aquatic health of

² Section 2.1 of the Technical Assessment Report provides details on the assessment of the Order and non-Order constituents.

³ EMA Valley-wide Permit compliance points are where all or most of the point and non-point discharges from a mine site or portions of a mine site are expected to accumulate. These accumulated discharges are subject to the limits set under the EMA Valley Permit.

Harmer Creek. Through discussions with KNC, MOE, FLNRO and MEM, EAO recommends an EAC condition that requires Teck to develop a management plan to address possible future exceedances of the Harmer Creek long-term selenium target approved by MOE.

Elevated selenium could result in decreased growth in individuals of the most sensitive species of benthic invertebrates (such as mayflies) or decreased reproduction in individuals of the most sensitive species of fish. The Application predicted the magnitude of effects in Michel Creek would decrease from low in the interim period to negligible once the EVO AWTF is operational. EAO notes that, predicted cobalt and nitrate water quality concentrations from the BRE Project could cause localized alterations to the invertebrate community structure at some locations. The Application predicts the magnitude of effects from nitrate and cobalt in Michel Creek would be low and moderate respectively in the interim period to negligible once the EVO AWTF is operational.

The Application also identifies potential moderate effects to invertebrates and potential high magnitude effects to fish in Aqueduct Wetland and Goddard Marsh due to these locations being lentic environments that act as selenium sinks. However, the Application also identifies uncertainty in the selenium bioaccumulation model that has resulted in over prediction of effects in Aqueduct Wetland and Goddard Marsh. Downstream in the Elk River and Lake Koochanusa, the magnitude of effects to benthic invertebrates and fish from selenium decreases to negligible after operation of the EVO AWTF.

As described in the Application past and presently permitted activities in the LSA are contributing to elevated and increasing levels of Order constituents, even without the addition of the BRE Project. MOE has required aquatic effects monitoring for a number of years, and the EMA Valley-wide Permit requires extensive monitoring, additional toxicity studies, reporting and adaptive management. Recognizing the breadth of the permit requirements, EAO and MOE worked closely together during the EA to define the nature of information gaps in the Application, also taking into account KNC concerns about possible aquatic impacts.

EAO concludes that there could be low-to-moderate effects on the growth and development of sensitive invertebrate species, low magnitude effects on amphibians, and moderate effects on fish in the LSA, based on conservative water quality predictions, until the EVWQP is implemented. These effects are not expected to affect the sustainability of the respective populations. EAO acknowledges there is uncertainty associated with the magnitude of effects and that monitoring is necessary. During the course of the EA, MOE determined that any residual uncertainties they had with the baseline data and modelling of aquatic effects could be addressed through existing and new conditions in the EMA Valley-wide Permit. MOE has indicated that they are considering the requirements for a regional and local aquatic effects monitoring to support detailed effects monitoring, under the EMA Valley-wide Permit. EAO agrees that detailed monitoring and adaptive management can be addressed during subsequent EMA permitting.

The Application, and EAO's analysis of residual effects to water quality and aquatic health, assumed the successful implementation of EMA Valley Permit and *Mines Act* Permit requirements and the construction and operation of both phases of the EVO AWWTFs by 2020 and 2024. EAO anticipates MEM and MOE will pose additional permitting requirements during their subsequent permitting processes.

Considering the analysis summarized in Section 2.1 of the Technical Assessment Report (Water Quality and Aquatic Health), and having regard to the proposed conditions (which would become legally binding as a condition of the EAC), the implementation of the active water treatment facilities, as well as conditions of the EMA Valley-wide Permit and the *Mines Act* permit, EAO is satisfied that the BRE Project would not have significant adverse effects on water quality and aquatic health.

Fish and Fish Habitat

The BRE Project would remove or permanently alter fish habitat by expanding existing waste rock spoils over tributary streams that support fish and fish habitat. The watersheds that would be impacted have all been affected by previous industrial activity in the project area during the 1970s, 1980s and 1990s, and certain watercourses are impassible to fish because of natural or human-made barriers. The Application predicts that there would be serious harm to fish and Teck has proposed habitat offsetting as the primary mitigation.

During the EA, in addition to participation in the advisory Working Group, Teck, FLNRO and KNC continued to engage through the Elk Valley Fish and Fish Habitat Committee (EVFFHC). The purpose of the EVFFHC is to share technical information and provide input on Teck's existing and future fisheries obligations, including *Fisheries Act* authorizations, EAC conditions, habitat banking proposals and any additional fisheries obligations that may arise. The EVFFHC strives to be a consensus-based forum to select priority fish and fish habitat offset proposals that are supportive of FLNRO and Ktunaxa Nation management direction and are consistent with fish habitat offsetting policy under the *Fisheries Act*.

During the EA, FLNRO's and KNC's main concerns were whether Teck had adequately estimated the impacts to fish habitat, particularly in Harmer Creek, due to toxicity from elevated selenium concentrations and lost habitat, and whether an adequate amount of potentially viable habitat could be identified to offset the lost habitat. The Harmer Creek sediment pond was a key issue. As a result of past mining activity, the Harmer Creek sediment pond was built in Harmer Creek and it now provides slow moving and pooled lentic aquatic habitat, acting as a selenium sink, thus creating a concern for invertebrate and fish bio-accumulating selenium. In the Application, and as part of a strategy to address effects of elevated selenium concentrations in Harmer Creek, Teck proposes to block access of WCT to the Harmer Sediment Pond as a way to address further exposure to high selenium concentrations. During the EA, Teck identified several additional options to address impacts to the WCT population currently accessing the

sediment pond. However, due to uncertainties identified by FLNRO and KNC regarding Teck's proposals, EAO is recommending a condition for Teck to develop a WCT habitat and population study to address uncertainties about the habitat use and genetic makeup of the Harmer Creek WCT population. The outcome of this study is intended to support final decisions on fish habitat management options, including habitat offsetting under the federal *Fisheries Act*, associated with the Harmer Creek sediment pond.

EAO acknowledges that the primary mitigation measure associated with impacts to fish and fish habitat is the general requirement to offset any serious harm to fish, as per subsection 35(2) of the *Fisheries Act*, and the detailed information required to support such a determination and/or application. EAO notes that the BRE Project cannot proceed without approval from DFO under subsection 35(2) of the *Fisheries Act*. Therefore, to reach a mutually-acceptable resolution on the offsetting requirements and designs for the BRE Project, EAO proposes a condition that Teck develop a fish habitat offsetting plan, in consultation with the EVFFHC, consistent with the objectives of the Regional Fish Habitat Management Plan⁴ and to the satisfaction of DFO in accordance with the *Fisheries Act*.

Considering the analysis summarized above and discussed in Section 2.4 Fish and Fish Habitat, the proposed conditions (which would become legally binding as a condition of the EAC), requirements of the EMA Valley-wide Permit, and the requirement for offsetting and authorization under the *Fisheries Act* prior to project development, EAO is satisfied that the BRE Project would not have significant adverse effects on fish and fish habitat.

Ecosystems, Vegetation and Wildlife

Over its long history in the area, mining has caused permanent landscape alteration over large areas in the Elk Valley, affecting topography, soils, natural water flows, ecosystem functioning and habitat for a variety of plant and wildlife species. Teck has implemented reclamation activities in areas where mining has ceased at their various Elk Valley operations including EVO.

The BRE Project's proposed operating area is 2,665 hectares and incorporates all areas of direct disturbances from BRE Project facilities, such as pit extension areas, waste rock spoils, and haul roads, spoil run-out zones, ditches and overcast buffers. The BRE Project footprint includes both currently disturbed and undisturbed areas and the net new disturbance of naturally vegetated ecosystems in the Project footprint is a maximum of 1,020 ha, including all buffers. The EA assessed the BRE Project's potential to have significant adverse effects on a number of individual plants and animal

⁴ The Regional Fish Habitat Management Plan is a requirement of the Line Creek Operations Phase II EAC. The plan's purpose is to develop consistent accepted methods to fish habitat assessments, standardize mitigation measures, and develop a regional strategy for habitat offsetting, and conduct studies based on fisheries management objectives.

species, as well as impacts to ecosystems that are considered important from a biodiversity management perspective.

The BRE Project would remove sections of mature and old forest, wetland areas and alpine stream riparian areas that provide habitat for a number of species. Within the BRE Project area, and the surrounding LSA, there is also habitat (potential and also verified) for provincially and federally listed plant and animal species of concern. Based on information provided in the Application, it is certain that the BRE Project would remove vegetation, remove wildlife habitat, kill some wildlife, displace wildlife and fragment habitat in the LSA. However, the LSA is small in relation to the regional study area (RSA) and the BRE Project is not likely to have adverse effects at the regional and population levels. The BRE Project would result in the losses of up to 13 hectares of avalanche paths, 38 hectares of grassland ecosystems, 2 hectares of wetlands, and 60 hectares of riparian ecosystems within the mine footprint. The BRE Project would also result in the loss of up to 558 hectares of mature forest.

The Application indicates that the BRE Project footprint was minimized to the extent possible to reduce potential effects. Overall, the BRE Project relies extensively on progressive reclamation to mitigate for impacts on plants, wildlife, and ecosystems. The Application includes a Conceptual Closure Plan outlining the framework for reclamation and end land use. Teck indicates that reclamation planning and practices would be conducted to put mine sites on a trajectory towards ecosystems similar to pre-existing conditions, with the goal of establishing a variety of self-sustaining functional ecosystems similar to those that were present prior to mine disturbance. Reclamation processes would begin during mining and continue in the closure phase.

Although the Application does not predict that the sustainability or ecological function of ecosystems would be severely affected by the addition of the BRE Project to existing cumulative effects, changes to these ecosystems from the BRE Project nevertheless impact habitat for plant and wildlife species that are provincially and/or federally listed, including grizzly bear, badgers, small mammals, birds and rare plants, and species of cultural importance to Ktunaxa Nation. In addition, forestry activities would remove additional wildlife habitat in the local and RSA.

Reclamation processes would begin during mining and continue in the closure phase returning some habitat and ecosystem function. However, mature and old forests that provide habitat for a wide range of species would not be regenerated for decades to centuries. For other ecosystems such as wetlands and riparian areas, losses would likely be permanent because reclamation would not reproduce similar complex ecosystems within an meaningful period of time, if at all.

Long term effects of fire suppression practices, mountain pine beetle and climate change introduce further uncertainty about the resiliency of some species in the RSA. EAO therefore concluded that the BRE Project's direct effects to wildlife, vegetation and biodiversity (ecosystems) VCs, although not large in area, would have a measurable and long-term effect at a local to regional scale.

The EA assessed the terrestrial VCs, by considering the cumulative effects from past developments, adding the BRE Project to this effect, and then projecting future cumulative effects if the BRE Project and other reasonably foreseeable developments were considered together. Cumulative impacts to these VCs were considered moderate and long term and EAO accepts the Application's conclusion that there could be significant cumulative adverse effects to Canada lynx, grizzly bear, whitebark pine, and mature and old growth forests. For the blue-listed/endangered whitebark pine, cumulative effects due largely to disease and climate-change related impacts could seriously affect the population of this species in the region. For the other VCs for which a potential for significant cumulative adverse effects was identified, significant adverse effects were due to habitat loss or changes in habitat connectivity under a scenario where all reasonably foreseeable developments were built.

Considering the uncertainty of future cumulative loss of wildlife habitat, EAO is proposing as part of a Wildlife Mitigation Management Plan, that Teck implement remote wildlife camera programs to monitor elk and grizzly bear movement in the Baldy Ridge and Erickson Ridge areas. EAO is also proposing as part of this condition that if requested by FLNRO through the Elk Valley Cumulative Effects Management Framework (CEMF), Teck must participate in a planning process to develop a highway crossing of Highway 3 to support regional wildlife movement.

The Application uses a combination of field work and habitat modelling to assess the potential effects on VCs. As with any modelling, there is some uncertainty about its accuracy. Teck stated that it used conservative parameters for modelling, which has the effect of potentially over-estimating some habitat potential and may not always provide the level of detailed information needed to establish future monitoring and mitigation. Accordingly, EAO proposes a condition that requires Teck to update and implement management plans for wildlife and biodiversity mitigation. These plans will contain site-specific information on effects and monitoring programs as well as an adaptive management plan for adverse effects. These management plans that are listed in the Table of Conditions must be updated in consultation with relevant regulatory authorities and KNC.

The predicted direct and cumulative effects to wildlife habitat, vegetation and ecosystems underscores the importance of regional planning efforts currently underway to monitor and manage cumulative effects, as well as Teck's own corporate biodiversity management planning initiatives. The EA considered that a wide range of tools are currently available, or in development, to manage impacts of mining on vegetation, wildlife and ecosystem values. Coordination amongst these initiatives remains a challenge and potential barrier, and also an opportunity, for achieving the best possible outcomes related to cumulative effects management in the Elk Valley. EAO acknowledges that monitoring and management tools are not complete and, therefore, there is some uncertainty regarding their exact outcomes; however, EAO also notes that these initiatives currently have a high level of participation, commitment and work-planning effort on the part of FLNRO, KNC and Teck.

Teck has a corporate commitment to Biodiversity and a Regional Biodiversity Management Program that has resulted in generating operation-specific Biodiversity Management Plans, to identify risks to biodiversity from Teck's operations in the Elk Valley. Operation-specific Biodiversity Management Plans are also a condition of the Line Creek Operations Phase II EAC and of the Fording River Swift EAC. Teck's Biodiversity Management Program applies a hierarchy of avoiding, minimizing, rehabilitating and offsetting residual effects to biodiversity, and extends beyond the effects of the BRE Project, and considers effects caused by each of Teck's operations in the Elk Valley relative to a pre-mining condition.

Due to the importance of Teck's Biodiversity Management Program in driving site-specific mine reclamation planning and potential off-setting measures, EAO proposes a condition that Teck update the existing EVO Biodiversity Management Plan. This update must demonstrate how Teck is considering BC's Environmental Mitigation Policy and how Teck is engaging with the provincially-led Elk Valley CEMF, as these initiatives must be well-integrated in order to be successful. EAO also proposes a condition that Teck develop a Reclamation and Closure Plan. This plan is to include reclamation requirements established by MEM as well as EAO's management plan requirements in order to ensure that effects identified during the EA are monitored and adaptively managed. The EVO Biodiversity Management Plan and the Reclamation and Closure would also incorporate Ktunaxa Traditional Knowledge.

Considering the analysis summarized above and discussed in the Technical Report section 2.5 Ecosystems, Vegetation and Wildlife, the proposed conditions related to reclamation, biodiversity management and wildlife impacts (which would become legally binding as conditions of the EAC); EAO is satisfied that the BRE Project would not have significant adverse effects on vegetation, wildlife and wildlife habitat, or ecosystems.

With regard to cumulative effects to ecosystems, vegetation and wildlife, EAO notes that the BRE Project would represent a small contribution to the existing and reasonably foreseeable cumulative effects in the Elk Valley, but could contribute to significant cumulative adverse effects. EAO recognizes that other proposed coal mines in the Elk Valley are currently facing challenges in becoming operational due to a number of issues including depressed coal markets, meeting the stringent requirements of the EVWQP, and being located in privately owned areas owned by Teck for conservation purposes. Forestry activities in the Elk Valley are recognized to have a considerable contribution to cumulative effects if large amounts of mature and old forest are removed affecting connectivity for bears and lynx. EAO is of the view that while there is a high degree of uncertainty regarding the cumulative effects to vegetation, ecosystems and wildlife in the region, Teck is actively participating in the Elk Valley CEMF which is a FLNRO-led process that seeks to assess and manage cumulative effects in the Elk Valley.

Socio-Community Effects

The DOS is a community with strong historical ties to the coal mining industry in the Elk Valley. Over the past several decades, DOS community members have seen the mine site change ownership numerous times and have also seen the transformation of the local mountain viewscape, due to activities such as removing ridge lines and creating large waste rock dumps visible from the town and local highways. Although on Teck's privately owned land, EVO and the BRE Project are located in the municipal boundaries of DOS and the project would be approximately 2.5 km from the town. Currently, there are 45 households who are tenants on Teck-owned land, on Michel Creek Road and GN Road in the DOS. These are the closest residents to the BRE Project, with most residents located within 1,500 metres and as close as 300 metres of the ultimate extent of the BRE Project. The residents of Michel Creek and GN Road have a multi-generational history of leasing Teck lands for housing and industrial usages. These residents have expressed to Teck, as noted in the EA public consultation reports, that they have a great sense of connection to the property and wish to stay living there in the long term.

Through active participation of the DOS municipal staff on the EA advisory Working Group and from public comments collected during public comment periods, EAO recognizes that there are existing concerns related to noise, dust, blasting related vibration, and visual quality from mining activities at EVO. These concerns were repeated and underscored during the EA due the fact that the BRE Project would bring mining activity closer to the community. However, EAO understands that the DOS ultimately supports the BRE Project due to the economic support the BRE Project provides as a tax base, providing local employment, and investment in the community.

Visual Quality

The majority of the BRE Project is located behind Baldy Ridge, Harmer Ridge and Natal Ridge. However, there would be portions of the BRE Project that are visible from the DOS, and this would include: prominent landform and vegetation disturbances related to pit development, in-pit spoil development, the development of the CCR pile, coal conveyance, and other supporting infrastructure. Most of this visible portion of the BRE Project footprint is located in Regionally Significant Visual Areas as classified by FLNRO in the Visual Landscape Inventory. Due the BRE Project potentially removing the summit of Baldy Ridge, development of visible in-pit spoils, loss of large areas of vegetation, and visible facilities and infrastructure, EAO concludes that the BRE Project would result in a significant adverse effect to visual aesthetics. Teck's primary form of mitigating visual quality effects from the BRE Project is through progressive reclamation and contouring spoils to mimic and blend with natural topography. In this regard, EAO proposes a condition requiring Teck to develop a plan to monitor and manage visual effects and specify reclamation actions designed to mitigate visual quality effects.

Socio-community

The Application assesses the nuisance effects of noise, blasting related vibration and dustfall separately and concludes that the BRE Project would not result in significant adverse effects. EAO agrees with this conclusion. The Application also identifies possible residual effects to recreational opportunities due to the expanded mine footprint. When these effects are considered together, as presented by DOS staff during the EA, the effects could result in a negative impact on the desire of individuals to live in the DOS, otherwise referred to as community livability in this report and the technical assessment report. EAO recognizes that the DOS and Teck have an existing working relationship and that Teck actively pursues opportunities to engage the DOS on how their mining activity affects the community. The DOS has also argued that although it does receive funding through the Elk Valley Property Tax Sharing Agreement⁵, the community would face the most negative effects from the BRE Project as compared to other communities participating in the tax sharing agreement. Considering the potential effects of the BRE Project on the DOS EAO proposes conditions that require Teck to implement noise, vibration, air quality and dust control, management plans. EAO also propose a condition for Teck to develop a Socio-Community and Economic Effects Management Plan that would include, if invited, Teck's participation in a DOS chaired Livability Committee, participation in a Community Livability Study if established by DOS and development of a terms of reference for engagement with the DOS.

Other Identified Effects and Proposed Conditions

The Application assesses the impacts of the BRE Project on various other VCs, identifies key mitigation measures for each and reaches conclusions on their residual effects, none of which are determined to be significant. The Technical Report chapters discussed EAO's views regarding effects, mitigations and rationale for conditions, and the Table of Conditions includes the comprehensive list of proposed conditions on the BRE Project.

Wherever possible, EAO has coordinated the management and monitoring of effects with the relevant permitting agencies and existing regional initiatives, with the goal of building upon, reinforcing and further enabling coordination in the Elk Valley to manage the impacts resulting from the BRE Project. However, the following two issues were identified late in the EA process and present uncertainty in the conclusions regarding the significance of their adverse effects.

Green House Gases

⁵ The Elk Valley Property Tax Sharing Agreement is between the DOS, District of Elkford, City of Fernie and Electoral A of Regional District of East Kootenay, and is administered by DOS and overseen by the British Columbia Ministry of Finance.

The review of greenhouse gas (GHG) emissions identified uncertainty specific to estimating levels of fugitive methane from coal seams and from handling coal and associated waste rock. In consultation with the Climate Action Secretariat (CAS), EAO determined that there is currently no provincial policy for accurately estimating or mitigating fugitive methane emissions from open pit coal mines. EAO and CAS held initial meetings during the EA to discuss this issue and propose that a broader provincial interagency government approach is needed to address the issue of accurately estimating GHG emissions under the *Greenhouse Gas Industrial Reporting and Control Act* and for decision making under the *Environmental Assessment Act*.

Human Health Risk Assessment

During the EA, the IHA identified uncertainty related to the fish consumption rate used in the Human Health Risk Assessment (HHRA) presented in the Application. The Application used a current consumption rate for fish of 43.1 g/p/day based on information provided by the Ktunaxa First Nation Diet Study (October 2013) which is less than the preferred consumption rate (e.g., how often KNC members would like to consume country foods) of 168.0 g/p/day. The 168.0 g/p/day preferred fish consumption rate was identified by a February 2016 Ktunaxa First Nation Diet Study and submitted to the EMA Valley-wide Permit Environmental Monitoring Committee during HHRA discussions. Hence, it was not available at the time the BRE Project HHRA was completed. IHA is concerned that the HHRA conducted for the BRE Project did not include the preferred consumption rate thereby underestimating the potential risk to human health for the BRE Project.

EAO understands that Teck, under the EMA Valley-wide Permit HHRA review process, will submit an evaluation of KNC preferred ingestion rates, including the 168.0 g/p/day preferred fish consumption rate, and a discussion of associated risks for dietary intake of country foods. This evaluation is expected to be completed by late 2016. This evaluation will be regionally scoped to the EVWQP and would include analysis for the individual EVWQP management units, including management units 4 and 5 which overlap the BRE Project HHRA LSAs. EAO also recognizes that EMA Valley-wide Permit includes an adaptive management process that could address future risks to human health, if any are identified. EAO is satisfied that the information provided through the technical evaluation of risk from preferred ingestion rates and adaptive management under EMA Valley-wide Permit would appropriately address the uncertainty and risk identified by IHA.

Aboriginal Consultation

EAO examined potential impacts of the BRE Project on asserted Aboriginal rights and title (Aboriginal Interests). The BRE Project lies within the asserted territories of the Ktunaxa Nation and the Shuswap Indian Band. The Shuswap Indian Band did not respond to EAO's notification letters regarding their level of interest in the BRE Project. The KNC actively participated throughout the EA.

The BRE Project overlaps the eastern part of Ktunaxa Nation's traditional territory, in the Ktunaxa traditional land district of qukinʔamakʔis (Raven's Land), which encompasses all of Teck's mining operations in the Elk Valley. This area has been more affected by coal mining than any other part of Ktunaxa traditional territory. Ktunaxa Nation have a deep relationship with the natural environment, and an over-arching philosophy of interconnectedness. Central to this idea is that Ktunaxa Nation feel they must respect and care for *ʔa'kxarʔis ʔapi qapsin* (all living things). Ktunaxa Nation oral history is intimately linked to places and resources in their traditional territory.

Ethnohistoric, oral historic information and the Application indicate that the Ktunaxa Nation historically used the area near the BRE Project for many reasons, including, but not limited to, travelling, hunting, fishing and camping at the time of European contact. This information supports a strong *prima facie* claim of Aboriginal rights for resource harvesting activities in the BRE Project area. EAO is prepared to assume that there is some *prima facie* claim to Aboriginal title to the BRE Project area. EAO has approached consultation with the Ktunaxa Nation at the deeper end of the Haida consultation spectrum.

KNC is the governing body of the Ktunaxa Nation, composed of elected members of each of the BC communities. As part of the consultation process EAO provided KNC with capacity funding to support their participation in the EA. KNC actively contributed throughout the EA and appointed technical representatives to EAO's advisory Working Group and sub-committees. KNC provided comment on key EA documents, procedural and timing aspects, and met directly with EAO to discuss issues and concerns.

EAO also assigned procedural aspects of consultation with KNC to Teck. During the EA, consultation between Teck and KNC was guided by a Working Protocol Agreement that established a broad, non-project-specific framework for ongoing meaningful engagement between the parties. In June 2010, Teck and the KNC signed a Consultation Agreement and also agreed to develop non-project-specific consultation guidelines that aimed to align with the engagement levels identified in the Strategic Engagement Agreement between the Province of BC and Ktunaxa Nation (Government of British Columbia and KNC 2010). The Teck and KNC Consultation Agreement supported the establishment of processes for consultation, information sharing and the negotiation of further agreements. Teck provides capacity funding to support KNC engagement on major projects and initiatives, including those that require EAs. Teck and KNC took a collaborative and innovative approach to the development of the section of the Application that discusses Aboriginal Interests, by co-authoring sections that present Ktunaxa Nation perspectives on the impacts of the BRE Project and by jointly developing a series of mitigations and accommodations to address effects on Ktunaxa Nation citizens in the Elk Valley. EAO also recognizes that in May, 2016, Teck and the Ktunaxa Nation announced the signing of an Impact Management Benefits Agreement (IMBA) that sets out commitments for joint consultation and engagement, environment and land stewardship, employment and business opportunities for Ktunaxa Nation citizens and cultural resources management. The IMBA replaces the Consultation Agreement between Teck and KNC.

Some of the key concerns identified over the course of the EA by KNC related to the impacts on water as a cultural value, the loss of fish habitat (particularly headwater tributaries), water quality, ecosystems and cumulative loss of old growth forest in the Elk Valley. KNC expressed to EAO their concerns about adverse cumulative effects in the Elk Valley, and shared their perspective that industrial development including mining has already resulted in significant impacts on Ktunaxa Aboriginal Interests.

EAO acknowledges there could be some potential impacts from the BRE Project to wildlife, vegetation, fish or aquatic resources and values of importance to Ktunaxa Nation, and has heard the concerns raised by KNC regarding past and potential cumulative effects on resources used for hunting, fishing, gathering and cultural practices, as well as potential for negative effects on traditional knowledge and language. Reclamation practices may address some of the concerns although EAO does not expect the post-mining ecosystems, once functional, would be naturally or culturally equivalent to the conditions prior to the BRE Project development, and the reclamation processes would take many generations. Off-setting measures, developed through the Biodiversity Management Plan, may also provide protection for areas and species of cultural importance.

During the EA, EAO has incorporated and responded to Ktunaxa Nation input on mitigations and conditions related to water quality (also considering the EVWQP), terrestrial resources, fish and fish habitat and biodiversity management planning. Based on EAO's understanding of Ktunaxa Nation historical and current use of the area, and the values that are affected by the BRE Project, EAO expects that there could be impacts to Ktunaxa's Aboriginal Interests to gather, hunt and fish. EAO is of the view that the various mitigation measures (e.g. proposed EAC conditions, measures described in the Application, relevant conditions in other EACs, and proposed conditions of any permit to be issued under the EMA) would adequately address the adverse effects to Ktunaxa Aboriginal Interests and concerns.

In addition to any conditions of an EAC, EAO understands that there are relevant regional initiatives and regulatory measures in which KNC participates such as the Elk Valley CEMF, Teck's Biodiversity Management Plan, the EVWQP and Environmental Monitoring Committee, and the EVFFHC. For all the management plans required by the EAC, EAO's proposed conditions include a requirement that Teck consult with KNC on the development of the plans, and demonstrate how Ktunaxa Aboriginal Interests have been considered in plan development and implementation.

EAO has ensured that Ktunaxa Nation has been meaningfully consulted and accommodated on the potential effects of the BRE Project. EAO's Ktunaxa Consultation Report provides further analysis related to these conclusions.

The EA also considered potential social and economic effects to Ktunaxa Nation, including potential neutral or positive effects. Proposed accommodations currently being

discussed between Teck and KNC are discussed in the section entitled *Additional Considerations* below.

Public Consultation

Public consultation requirements are intended to provide multiple, meaningful opportunities for the public to provide input. Teck was required to prepare a Public Consultation Plan early in the EA that laid out Teck's consultation objectives and activities. Through the course of the EA, Teck submitted public consultation reports to EAO describing the progress in implementing its Public Consultation Plan.

EAO hosted the following two public comment periods (PCP) and two open houses during the EA:

- The 32-day pre-Application PCP was held January 22, 2015, to February 16, 2015, for comment on the valued component selection document. The pre-Application PCP included an Open House held in the DOS where 56 people attended.
- The 35-day Application review PCP was held February 29 to April 4, 2016, including an Open House in the DOS, where 73 people attended.

In the past five years, Teck and/or EAO have held a number of open houses and PCPs in the region, including on the BRE Project, seeking input on mine extension proposals and also on the development of the EVWQP. Teck also coordinates a Communities of Interest Advisory Initiative, composed of representative from the community who meet twice a year to discuss issues and initiatives of interest to local residents and stakeholder groups.

The primary issue raised by the public during the open houses and through the submitted PCP was about visual quality and nuisance effects from noise, dust and blasting related vibration associated with the BRE Project.

Teck provided responses to all public comments. EAO summarized issues affecting the local community members in Sections 3.0 and 4.0 (Economic and Socio-community effects). Overall, EAO considers Teck's responses to issues raised by the public adequate.

Local Government Consultation

The Regional District of East Kootenay and the DOS were invited to participate on the EAO Working Group. These jurisdictions assigned representatives to the Working Group, with the DOS playing an active role in the review of the Application.

EAO is aware that the DOS currently experiences some pressure with housing availability, infrastructure and service provision. The DOS also raised several key issues related to community livability, nuisance effects and changes to visual quality. The

Application proposed a number of activities that Teck would undertake to provide benefit to local communities and residents, and minimize adverse effects. EAO proposes several conditions that requires Teck to prepare and implement the measures as described in the Application, actively engage the DOS and to manage socio-community and economic effects.

Federal Government Perspectives

EAO expects that Teck would consult with DFO on the requirements of the *Fisheries Act*. EAO understands that authorization(s) under the *Fisheries Act* are required in order for the BRE Project to proceed.

United States and Montana Consultation

EAO invited representatives from the United States Federal government and Montana State government to participate in the EA, in accordance with the *Memorandum of Understanding and Cooperation on Environmental Protection, Climate Action and Energy* between the Province of BC and the State of Montana. When the Minister of Environment ordered Teck to develop the ABMP, the US EPA and Montana Department of Environmental Quality participated on the Technical Advisory Committee. The US EPA also continues to engage in the Lake Koochanusa Monitoring and Research Working Group and the Lake Koochanusa Burbot baseline study. The US and Montana agencies did not participate in the BRE Project EA.

Additional Considerations

Ministers may consider other matters that they consider relevant to the public interest in making their decision on whether to grant an EAC to Teck. The following information regarding the potential economic benefits of the BRE Project were presented in Teck's Application.

Economic Benefits

The BRE Project, which will occur over a 29-year period, includes both construction activities (taking place in the early years of this 29-year period) and operations activities (occurring over the life of the BRE Project). Teck estimates that construction activities would support 1,652 person-years of direct employment, generating a total of \$124 million in direct employment income. When indirect and induced employment is taken into account, construction activities are anticipated to generate a total of \$285 million regionally (BC and Crowsnest Pass). Regionally, Teck estimates approximately \$236 million in business revenues due to spending on goods and services connected to construction activities.

Over the 29-year life of the BRE Project, operations activities are expected to generate an estimated 31,304 person-years of direct employment (over 1,000 full-time-equivalent employees annually) at EVO, creating \$3,860 million in direct employment income

(\$133 million annually). Regionally, when indirect and induced employment is taken into account, operations activities are anticipated to support a total of \$6,188 million of employment income over the course of the BRE Project. Teck's spending on goods and services in support of operations would lead to an estimated total of \$5,465 million in business revenues at the regional level.

The majority of current EVO employees and those hired for construction are anticipated to be living in the Regional District of East Kootenay and Crowsnest Pass area.

Teck estimates that the BRE Project could directly contribute a total of almost \$400 million to the provincial government in tax revenues over the course of construction and operations. The BRE Project is estimated to generate a Gross Domestic Product (GDP) total of \$348 million as a result of construction and \$273 million in annual GDP over the course of operations. At the local government level, Teck would continue to contribute approximately \$3.2 million annually to the Elk Valley Property Tax Sharing Agreement that is split between DOS, District of Elkford, City of Fernie and Electoral Area A of Regional District of East Kootenay.

Potential Benefits to Affected Aboriginal Communities

BC and KNC entered into an Economic and Community Development Agreement (ECDA) in 2010, which provides a framework for sharing revenues derived from the expansion of existing coal mines and the development of new coal mines in the Elk Valley including the BRE Project. The ECDA was renewed in 2013 and would continue until such time that the parties seek to terminate it under provisions in the agreement.

On May 17, 2016, the KNC and Teck announced the signing of an IMBA. The long term agreement relates to production at all 5 of Teck's steelmaking coal operations within Ktunaxa Nation territory. KNC and Teck are of the view that it is one of the most comprehensive agreements of its kind in place in Canada. Commitments for both parties are in the following areas:

- Consultation and engagement ;
- Environment and land stewardship;
- Employment and business opportunities for Ktunaxa Nation citizens; and
- Cultural resources management.

Teck and the KNC established a Procurement and Employment Operational Working Group (PEOWG) in 2007, to plan and evaluate human resources and procurement planning. The two parties have an ongoing Procurement and Employment Strategy which intends to increase the training, education and employment opportunities for Ktunaxa Nation citizens in the Elk Valley, who currently make up a small percentage of Teck's workforce. EAO understands that the IMBA provides for the continuation of the work being done under the PEOWG and Procurement and Employment Strategy.

EAO proposes several conditions which require Teck to collaborate with KNC on the development and implementation of a number of management plans, biodiversity management, mine reclamation and closure planning, as well as to report on implementation of mitigations identified in Part C of the Application that relate to Aboriginal Interests.

Conclusion

Based on:

- Information contained in Teck's Application and the supplemental information provided during Application Review;
- Teck's and EAO's efforts at consultation with potentially affected First Nations, federal, provincial and local government agencies, and the public, and Teck's commitment to ongoing consultation;
- Comments on the BRE Project made by KNC, provincial and local government agencies, as members of EAO's Working Group, and Teck's and EAO's responses to these comments;
- Comments on the BRE Project received during the public comment period, and Teck's responses to these comments;
- Issues raised by KNC regarding potential impacts of the BRE Project and Teck's responses and best efforts to address these issues;
- Requirements under the EVWQP, EMA Valley-wide Permit, and *Mines Act* permit for EVO and the BRE Project;
- The design of the BRE Project as specified in the proposed Schedule A (Certified Project Description) of the EAC to be implemented by Teck; and
- Mitigation measures identified as proposed conditions in Schedule B (Table of Conditions) of the EAC to be undertaken by Teck.

EAO is satisfied that:

- The EA has adequately identified and assessed the potential adverse environmental, economic, social, heritage and health effects of the BRE Project, having regard to the proposed conditions set out in Schedule B (Table of Conditions) to the EAC;
- Consultation with KNC, federal, provincial and local government agencies, and the public, and the distribution of information about the BRE Project have been adequately carried out by Teck and that efforts to consult with KNC will continue on an ongoing basis;
- Issues identified by KNC, federal, provincial and local government agencies, and the public, which were within the scope of the EA, were adequately and reasonably addressed by Teck during the review of the Application;
- There are number of BC-led regional initiatives underway to manage and mitigate for cumulative effects on terrestrial and aquatic values in the Elk Valley, with participation of provincial ministries, local stakeholders, and Aboriginal groups;

- Considering the above-mentioned regional initiatives and the proposed conditions for the BRE Project that would be legally-required as part of any EAC as well as the application of any subsequent permitting requirements, the potential adverse environmental, social, economic, heritage or health effects of the BRE Project would be reduced to an acceptable level and would not be significant;
- The potential for adverse effects on KNC's Aboriginal Interests has been avoided, minimized or otherwise accommodated to an acceptable level; and
- The provincial Crown has fulfilled its obligations for consultation and accommodation to potentially affected First Nations relating to the issuance of an EAC for the BRE Project.

Appendix A Summary of BRE Project Specific Issues and Effects to VCs

VCs (Section of Technical Assessment Report)	Summary of EAO's Assessment and Conclusions	EAO's Key Proposed Conditions
Environmental Effects		
<p>Water Quality and Aquatic Health (s. 2.1)</p> <ul style="list-style-type: none"> • Benthic invertebrates • Fish • Amphibians • Waterbirds 	<p>Uncertainties around potential effects to groundwater and surface water quality exist. The Working Group identified that the groundwater modelling did not include the valley-fill aquifer or ground water quality. It was determined by MOE that the EMA Valley-wide Permit would be amended to require Teck to model groundwater quality in the valley-fill aquifer underlying the DOS area. MOE would also amend the EMA Valley-wide Permit to require Teck to model and monitor surface and groundwater flow associated with the design of the EVO AWTF.</p> <p>The DOS has been required to shut down their Domestic Water Well #3 at times during the past three years during low flow periods due to selenium exceeding drinking water guidelines in the groundwater source for the well. The selenium levels in the groundwater water are attributable to selenium contamination sources from the Teck coal mines upstream of the Elk River as well as in Michel Creek from EVO. To address this issue, condition 10 was developed to monitor and potentially require replacement of the well with replacement costs to be paid for by Teck.</p> <p>An additional issue arose with regard to interim and long term selenium limits at the Harmer Creek compliance point under the EMA Valley-Wide permit. KNC in particular was concerned that Teck did not have a contingency plan if these limits were exceeded. EAO is confident that condition 17 would address this issue.</p>	<p>Condition 10 would require Teck to develop a plan for monitoring water quality related to, and for potential replacement of DOS Domestic Water Well #3.</p> <p>Condition 16 would require Teck to submit a Dry Creek and Harmer Creek Management Plan, and one tenet of this condition requires the implementation of additional mitigation to ensure the long-term selenium concentration limits established by MOE for the EVO Harmer Compliance Point are met.</p>

VCs (Section of Technical Assessment Report)	Summary of EAO's Assessment and Conclusions	EAO's Key Proposed Conditions
	<p>Water quality modelling for the BRE Project indicates that the Project would result in further increases in constituent concentrations in the local watersheds. The primary project activities that would contribute to further constituent loading include additional spoiling of waste rock in Dry Creek and Erikson Creek.</p>	
Air Quality (s.2.2)	<p>The Application identified two contaminants of potential concern, nitrogen dioxide (NO₂) and particulate matter (PM_{2.5} and PM₁₀) for the human health assessment based on the air quality modelling, comparison of predicted emissions to BC's air quality objectives and results of the screening process for the human and terrestrial wildlife health assessment. The BRE Project is predicted to emit increased levels of dust due to an expanded area of mining; however, the amount of dust fall deposition is predicted to decrease due to greater dispersion from the mine site. Dustfall was also an issue raised by the public during public comment periods. EAO is confident that the impacts to air quality would be negligible.</p>	<p>Condition 17 would require Teck to update and implement the Air Quality and Dust Control Management Plan in Appendix B9.8-1 of the Application to the satisfaction of EAO and MOE.</p>
Global Climate (s. 2.3)	<p>The majority of emissions would arise during the BRE Project's operations through activities such as waste rock placement, open pit development, coal conveyance, haulage and storage. Changes in GHG emissions due to the BRE Project is estimated to be a 0.2 percent increase in total provincial GHG emissions and a 0.02 percent increase in total national GHG emissions. The most significant source of non-energy GHG emissions at Teck's operations is the emission of methane from surface coal mining. During the EA, EAO and the Climate Action Secretariat identified uncertainties with estimating fugitive methane at open pit coal mines and concluded that further policy discussions are required to provide industry guidance on accurately estimating GHG emissions.</p>	<p>Condition 17 would require Teck to update and implement the Air Quality and Dust Control Management Plan in Appendix B9.8-1 of the Application to the satisfaction of EAO and MOE. This plan includes specific measures to monitor and reduce GHG emissions from the mine fleet vehicles.</p>

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	<p>EAO notes that Teck must report GHG emissions to the BC Government under the <i>Greenhouse Gas Industrial Reporting and Control Act</i> in BC, and to the federal government under Environment Canada's GHG Reporting Program.</p>	
<p>Fish and Fish Habitat (s.2.4)</p> <ul style="list-style-type: none"> • westslope cutthroat trout (WCT) • bull trout • longnose sucker • mountain whitefish 	<p>The BRE Project would remove or permanently alter fish habitat by expanding existing waste rock spoils over tributary streams that support fish and fish habitat (Dry Creek and Harmer Creek). The watersheds that would be impacted have previously been affected by industrial activity in the past forty years, and certain watercourses are impassible to fish because of natural or human-made barriers. The Application predicts that there would be serious harm to fish and Teck has offered a number of mitigations to reduce this impact.</p> <p>The potential impacts to Harmer Creek, and WCT in particular, were a key concern throughout the EA. Viability of the WCT in Harmer Creek would be at substantial risk due to toxicity from elevated selenium concentrations and lost habitat. Teck predicted that 97percent of the overwinter habitat would be lost in Harmer Creek. The spoiled waste rock is the primary source of contaminant loading (e.g., selenium) into water courses leading to effects to water quality and the aquatic ecosystem.</p> <p>Concentrations of selenium in some streams affected by EVO are currently at levels where individuals of some sensitive species may already be experiencing decreased reproduction and development. With the commencement of BRE Project, concentrations are predicted to continue rising over the next five years and would incrementally add loadings to the aquatic environment notably in Michel Creek, Erickson Creek and Harmer Creek. EAO concludes that there could be low-to-moderate effects on the growth and development of sensitive</p>	<p>Condition 14 would require Teck to conduct a Harmer and Grave Creek Westslope Cutthroat Trout Habitat and Population Assessment to address uncertainties about the habitat use and genetic makeup of the Harmer Creek WCT population.</p> <p>Condition 15 would require Teck to develop a Fish Habitat Offsetting Plan to offset serious harm to fish caused by habitat degradation or loss and flow alterations resulting from the Project. This plan must describe how it took the EVWQP into consideration.</p> <p>Condition 16 would require Teck to develop a Dry Creek and Harmer Creek Management Plan 90 days before the commencement of spoiling waste rock in Dry Creek.</p>

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	<p>invertebrate species, low magnitude effects on amphibians, and moderate effects on fish in the LSA, based on conservative water quality predictions, until the EVWQP is implemented.</p>	
<p>Vegetation and Ecosystems (s.2.5)</p> <ul style="list-style-type: none"> • compact grimmia • lescuraea moss • nine-leaved desert-parsley • purple oniongrass • slender mannagrass • Welsh thread-moss • whitebark pine • avalanche paths, grassland ecosystems • wetland ecosystems • riparian habitat • mature and old forests 	<p>The BRE Project would remove sections of mature forest, wetland areas and alpine stream riparian areas that provide habitat for a number of species. Within the BRE Project area and the surrounding LSA, there is also habitat (potential and also verified) for provincially and federally listed plant and animal species of concern.</p> <p>The BRE Project would result in the losses of up to 13 hectares of avalanche paths, 38 hectares of grassland ecosystems, 2 hectares of wetlands, and 60 hectares of riparian ecosystems within the mine footprint. The BRE Project would also result in the loss of up to 558 hectares of mature forest. The BRE Project relies extensively on progressive reclamation to mitigate for impacts to vegetation. For some valued components (VCs), such as wetlands and old growth forests, losses in the BRE Project area are considered permanent as reclamation would not reproduce similar complex ecosystems within a meaningful period of time, if at all.</p> <p>However, with consideration of mine site reclamation required for the Project, EAO is satisfied that the BRE Project would not have significant adverse effects on vegetation and ecosystems.</p>	<p>Condition 11 would require Teck to update the Biodiversity Management Plan in Appendix D1.10 of the Application, which must include a comparison of pre-existing baseline condition and post-closure ecosystems, an inventory of wetland, riparian and grassland classifications in the Project footprint and a species-specific action plan for BC and federally listed species.</p>

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<p>Wildlife and Wildlife Habitat (s.2.5)</p> <ul style="list-style-type: none"> • American badger • American marten • Canada lynx • Grizzly bear • Elk • American dipper • Great blue heron • Olive-sided flycatcher • Western toad. 	<p>The Application does not predict that the resilience of ecosystems would be severely affected, these ecosystems nevertheless provide habitat for wildlife species that are provincially and/or federally listed, including grizzly bear, badgers, small mammals, birds and rare plants, and species of cultural importance to KNC. Forestry activities would also remove additional wildlife habitat in the local and RSA.</p> <p>There would be localized adverse effects confined to the BRE Project footprint due to the complete conversion of ridges into pits, but the area is relatively small when compared to the LSA or RAA, and reclamation would replace some vegetation and habitat. The overall magnitude of effects at the RSA level on wildlife populations or vegetation would be negligible.</p> <p>EAO is satisfied that the BRE Project would not have significant adverse effects on wildlife and wildlife habitat. However, With regard to cumulative effects to ecosystems, vegetation and wildlife, EAO notes that the BRE Project would represent a small contribution to the existing and reasonably foreseeable cumulative effects in the Elk Valley, to Canada lynx, grizzly bear, whitebark pine and mature and old growth forest, but could contribute to significant cumulative adverse effects.</p>	<p>Condition 11 would require Teck to update the Biodiversity Management Plan in Appendix D1.10 of the Application, which must include a comparison of pre-existing baseline condition and post-closure ecosystems, an inventory of wetland, riparian and grassland classifications in the BRE Project footprint and a species-specific action plan for BC red listed species, and species listed as Endangered on Schedule 1 of the federal <i>Species at Risk Act</i>.</p> <p>Condition 12 would require Teck to retain a Qualified Professional to update the Wildlife Mitigation Management Plan in Appendix 9.14-1 of the Application. In addition, because western toads are a blue-listed species, a Species Action Plan would be developed, which would include components of monitoring and resulting mitigation if required. Condition 12 would also require Teck to implement remote wildlife camera programs to monitor elk and grizzly bear movement in the Baldy Ridge and Erickson Ridge areas. Another requirement of condition 12 is that if FLNRO determines that a wildlife highway crossing on Highway 3 is required to address cumulative effects to wildlife connectivity, Teck must participate in a highway crossing</p>

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		<p>planning process and contribute to the cost of the crossing in an amount that represents the Project's portion.</p> <p>Condition 13 requiring a Reclamation and Closure Plan must describe how it incorporates mitigation measures listed in the Wildlife Mitigation Management Plan.</p>
Economic, Social, Heritage and Health Effects		
<p>Economic Conditions (s.3.0)</p> <ul style="list-style-type: none"> • Workers • Businesses • Local and BC Governments 	<p>Economic effects are considered largely beneficial; and EAO concluded that there would not be significant adverse effects (and minimal overall effects) to the economics VC.</p>	<p>Condition 21 would require Teck to develop a Socio-Community and Economic Effects Management Plan in consultation with the DOS. The Socio-Community and Economic Management Plan must set out how Teck would monitor any adverse socio-community and economic effects related to the effects of the BRE Project on the DOS.</p>
<p>Land Use and Tenure (s.4.1)</p> <ul style="list-style-type: none"> • Local residents, businesses and local and BC governments; and • Local recreationalists and visitors. 	<p>The BRE Project is predicted to result in localised decrease of outdoor recreation opportunities, due to a combined loss of access, decreased visual quality, and potential decrease in wildlife species that support fishing and hunting activities.</p>	<p>Condition 13 requiring a Reclamation and Closure Plan that would specify reclamation activities designed to mitigate visual quality effects.</p> <p>Condition 18 would require Teck to retain a Qualified Professional to develop a Viewscape Management Plan. The plan must be developed in consultation with the DOS, KNC and FLNRO.</p> <p>Condition 21 would require Teck to</p>

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		develop a Socio-Community and Economic Effects Management Plan that would set out how Teck would monitor any adverse socio-community and economic effects related to the effects directly attributable to the BRE Project on the DOS during all BRE Project stages.
<p>Visual Aesthetics (s. 4.2)</p> <ul style="list-style-type: none"> Local residents, local recreationists, and visitors 	<p>Due the BRE Project potentially removing the summits of Baldy Ridge and Natal Ridge, development of visible in-pit spoils, loss of large areas of vegetation, and visible facilities and infrastructure, EAO concludes that the BRE Project would result in a significant adverse effect to visual aesthetics.</p>	<p>Condition 13 requiring a Reclamation and Closure Plan that would specify reclamation activities designed to mitigate visual quality effects.</p> <p>Condition 18 would require Teck to develop a Viewscape Management Plan. The plan must be developed in consultation with the DOS, KNC and FLNRO.</p>
<p>Socio-Community (s.4.3)</p> <ul style="list-style-type: none"> Local residents and local and BC governments (Housing and Community Services and Infrastructure) Local residents, local recreationists and workers (Community Wellbeing) 	<p>The Application characterizes the changes in visual resources and nuisance associated with noise, vibration, and dustfall due to the Project as low or negligible adverse effects on competitiveness and revenues of DOS businesses. The BRE Project would support continuing procurement materials, goods, and services at the LSA level, and would provide sustained business opportunities for local businesses which would otherwise be lost with closure of the present EVO. Local businesses are likely to benefit overall as a result of the BRE Project.</p> <p>It is expected that demand for housing would increase with temporary, non-resident construction workers (peak between 2021 and 2022), but this would likely be dispersed across the LSA communities and would be absorbed by new housing</p>	<p>Condition 18 would require Teck to develop a Viewscape Management Plan. The plan must be developed in consultation with the DOS, KNC and FLNRO.</p> <p>Condition 19 would require Teck to update and implement the EVO Noise Control Plan in Appendix B9.9-1 to the satisfaction of EAO and the DOS.</p> <p>Condition 20 would require Teck to update and implement the EVO Blasting and Vibration Management Plan in Appendix B9.10-1 of the Application to</p>

VCs (Section of Technical Assessment Report)	Summary of EAO's Assessment and Conclusions	EAO's Key Proposed Conditions
<ul style="list-style-type: none"> • Noise <ul style="list-style-type: none"> ○ People ○ Wildlife • Local residents and local recreationists (Public Safety) 	<p>development plans. During the operation stage, workers would be replacing retiring employees and therefore, the annual increase would be spread out rather than a large single increase. The duration is medium term as it should extend into operations but is expected to be mitigated by housing plans and strategies.</p> <p>Noise levels are predicted to comply with the <i>British Columbia Oil and Gas Commission Guidelines</i> of 40 dBA at 1.5 km from the Project footprint. The Oil and Gas Commission (OGC) guidelines were accepted methodology for noise assessment in the EA. Change in level at noise receptor sites would be below the 3dBA threshold for human response. Modelling suggests noise levels would increase by up to 5 dBA around Harmer Creek but would still be within the OGC guidelines. EAO is confident that assessed predictions of noise and vibration are within acceptable limits, and would be reversible at closure</p>	<p>the satisfaction of EAO and the.</p> <p>Condition 21 would require Teck to develop a Socio-Community and Economic Effects Management Plan that would outline out how Teck would monitor any adverse socio-community and economic effects related to the effects directly attributable to the BRE Project on the DOS during all BRE Project stages. This condition would have a provision for a DOS-led study to address concerns with community liveability resulting from BRE Project effects with support from Teck.</p>
<p>Heritage Effects (s.5.0)</p> <ul style="list-style-type: none"> • Archaeological resource materials and sites 	<p>No issues related to heritage resources were identified by EAO, KNC, Working Group members, or the public. EAO concluded that there would not be significant adverse effects (and minimal overall effects) to the heritage VC.</p>	<p>Condition 22 would require Teck to implement the Archaeological Resources and Paleontological (Fossil) Chance Find Management Procedure.</p>
<p>Human Health (s.6.0)</p> <ul style="list-style-type: none"> • People 	<p>The health risk to humans in the study area, based on available information, is currently low. Exposure to air quality COPC is expected to occur frequently during Project operation. Exposure to COPCs corresponding to harvesting or consuming contaminated organisms could occur throughout the Project operation and beyond, depending on the success of water quality treatment in reducing COPC concentrations in the LSA. There is a low magnitude of risk to humans in the assessment</p>	<p>Condition 10 would require Teck to develop a plan for monitoring water quality related to, and for potential replacement of DOS Domestic Water Well #3.</p> <p>Condition 17 would require Teck to update and implement the Air Quality and Dust Control Management Plan in</p>

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	<p>areas. The majority of exposure, and related risk, is from base conditions, as there is little to no difference between the Base and Application cases in most situations. EAO concluded that there would not be significant adverse effects (and minimal overall effects) to the human health VC.</p> <p>The DOS has been required to shut down their Domestic Water Well #3 at times during the past three years during low flow periods due to selenium exceeding drinking water guidelines in the groundwater source for the well. The selenium levels in the groundwater water are attributable to selenium contamination sources from the Teck coal mines upstream of the Elk River as well as in Michel Creek from EVO. To address this issue, condition 10 was developed to monitor and potentially require replacement of the well with replacement costs to be paid for by Teck.</p> <p>Interior Health Authority (IHA) raised an issue of uncertainty with the Project HHRA relating to the Application's use of a current fish consumption rate rather than and preferred fish consumption rate. EAO determined that under the EMA Valley-wide Permit a regional evaluation of preferred consumption rates will adequately address the uncertainty identified by IHA.</p>	<p>Appendix B9.8-1 of the Application to the satisfaction of EAO and MOE.</p>
<p>Terrestrial Wildlife Health (s.6.2)</p> <ul style="list-style-type: none"> Representative wildlife species 	<p>The EA identified that the Project would increase selenium and thallium exposure to the least chipmunk, little brown bat, bighorn sheep and grizzly bear. However, with consideration of Teck's requirements with the implementation of the EVO Biodiversity Management Plan and the Regional Aquatic Effects Monitoring Program under the EMA Valley-wide Permit EAO concluded that the predicted impact from the Project on wildlife health would likely be very low.</p>	<p>Condition 11 would require Teck to update the Biodiversity Management Plan in Appendix D1.10 of the Application, species-specific action plan for BC red listed species, and species listed as Endangered on Schedule 1 of the federal <i>Species at Risk Act</i>.</p>