

## EXECUTIVE SUMMARY

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### COAL MOUNTAIN PHASE 2 PROJECT DESCRIPTION

#### **Submitted To:**

Canadian Environmental Assessment Agency  
410-701 West Georgia Street  
Vancouver, BC V7Y 1C6  
Attention: Lucille Lukey

#### **Pursuant To:**

*Canadian Environmental Assessment Act (2012)*

#### **Submitted By:**

Teck Coal Limited

September 2014

## PROJECT NAME

Coal Mountain Phase 2 Project (the Project)

## PROPONENT

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Registered in British Columbia on January 20, 2004 (#A0061056)

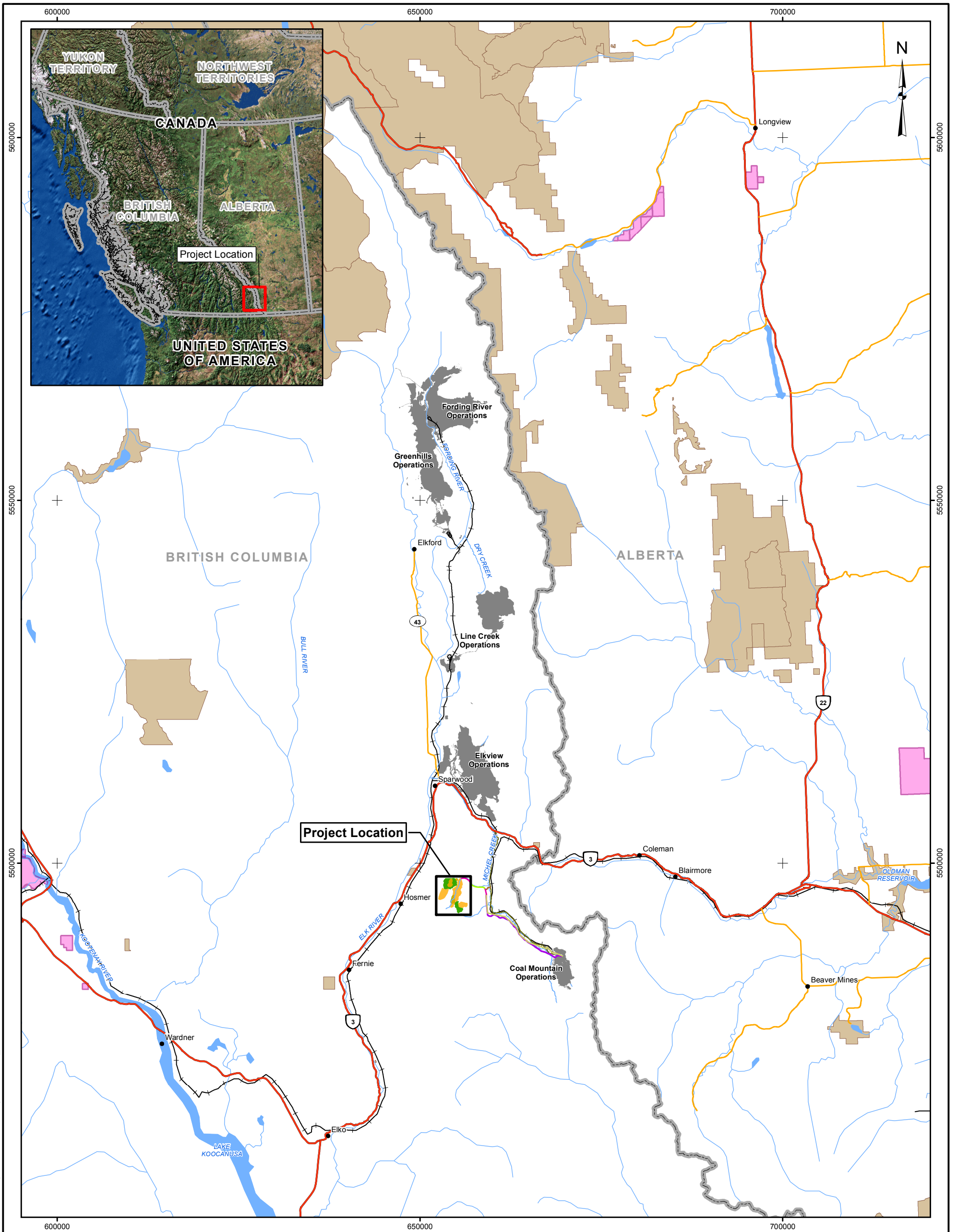
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## PROJECT LOCATION AND CONTEXT

The proposed project would be an extension of the existing Teck Coal Mountain Operations (CMO), where Teck has produced approximately 60 million metric tonnes (Mmt) of metallurgical coal. Development of the CMO2 Project would include the creation of a new mining area approximately 20 kilometres (km) northwest of the existing operation in Southeastern British Columbia (BC) (Figure 1). This new area will be referred to as the CMO2 site. The Project would be expected to produce an additional 72 Mmt of pulverised coal injection and possibly coking coal over the estimated mine life of 34 years. It would allow for the continued employment of the CMO workforce, along with additional contracting opportunities. The process plant at CMO is currently permitted to produce up to 3.5 Mmt clean coal (cc) per year (M mtcc/year) and under current operations, the plant could process CMO2 feed at a rate of approximately 2.25 M mtcc/year. Opportunities for production of 3, 4, and 5 M mtcc per year are being considered.

The centre of the Project footprint would be located at approximately 49° 35' 18.621" north (N) latitude and 114° 52' 2.642" west (W) longitude. The Project footprint would range in elevation between approximately 1,310 to 2,180 metres above sea level. It would be located entirely within the Michel Creek watershed, which drains into the Elk River at Sparwood (Figure 2). Distances of the CMO2 site from Canadian national parks are presented in Table 1.



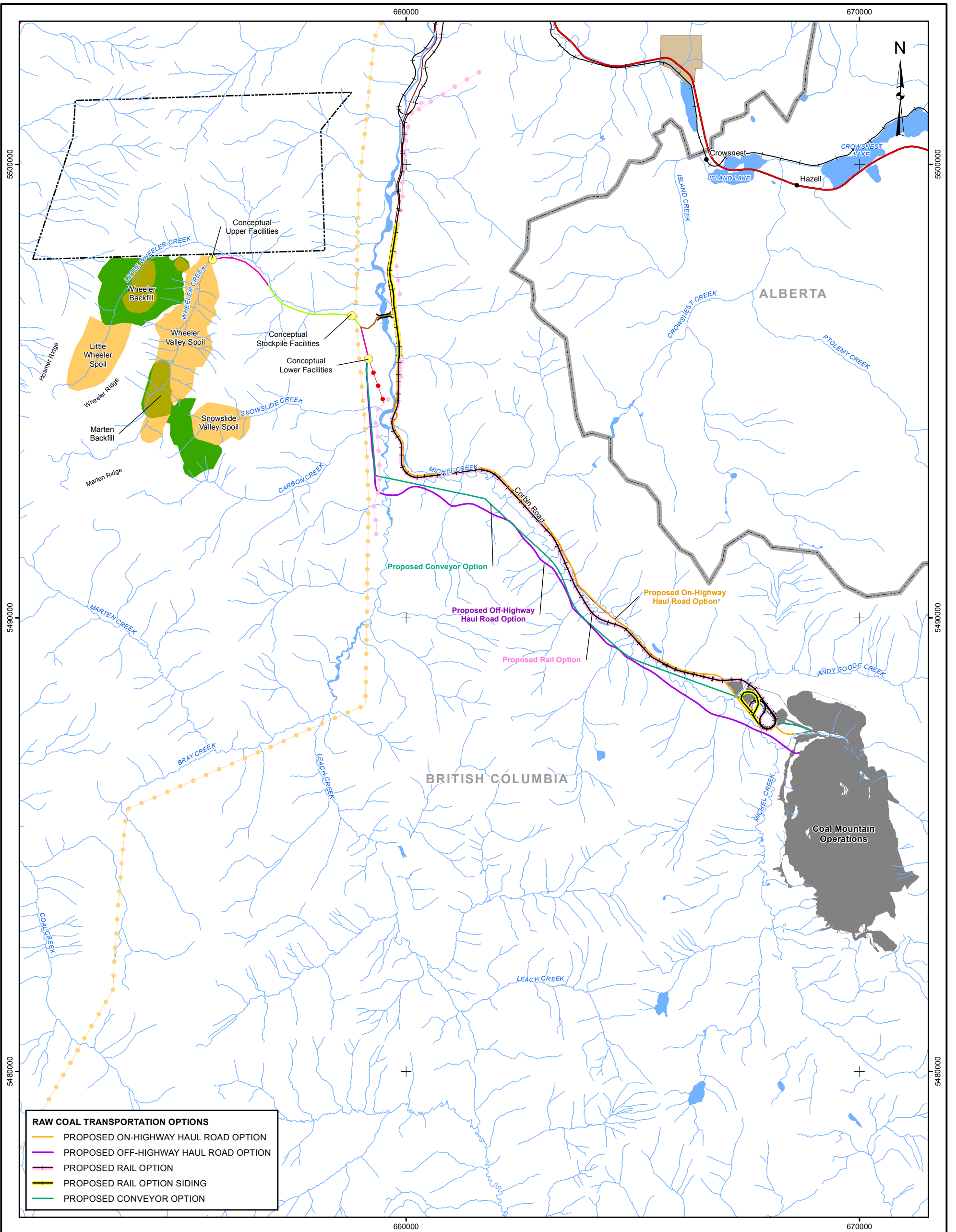
- LEGEND**
- CITY / TOWN / COMMUNITY
  - CANADIAN PACIFIC RAILWAY
  - PRIMARY HIGHWAY
  - SECONDARY HIGHWAY
  - ROAD
  - PROPOSED NEW MINE HAUL ROAD (2.2 km)
  - PROPOSED UPGRADED ACCESS ROAD (0.85 km)
  - PROPOSED UPGRADED MINE HAUL ROAD (2.4 km)
  - TRANSPORT CORRIDOR (15.5 km) - PRIMARY OPTION
  - CONVEYOR ALIGNMENT (15.3 km) - SECONDARY OPTION
  - WATERCOURSE
  - BRITISH COLUMBIA - ALBERTA BORDER
  - COAL MINING OPERATION
  - FIRST NATIONS RESERVE
  - PROPOSED PIT SURFACE LIMIT (DRAFT)
  - PROPOSED SPOIL LIMIT (DRAFT)
  - PROVINCIAL PARK / PROTECTED AREA
  - WATERBODY



|                               |                          |    |                |
|-------------------------------|--------------------------|----|----------------|
| PROJECT                       |                          |    |                |
| COAL MOUNTAIN PHASE 2 PROJECT |                          |    |                |
| TITLE                         |                          |    |                |
| PROJECT LOCATION              |                          |    |                |
| <b>Teck</b>                   | PROJECT No. 12-1349-0003 |    | SCALE AS SHOWN |
|                               | DESIGN                   | GJ | 14 Feb. 2014   |
|                               | GIS                      | DR | 23 Jun. 2014   |
|                               | CHECK                    | FN | 23 Jun. 2014   |
|                               | REVIEW                   | GJ | 12 Sep. 2014   |
| Figure 1                      |                          |    | REV. 0         |

**REFERENCE**  
 Provincial boundaries, communities and hydrography obtained from The Atlas of Canada, Natural Resources Canada. Roads obtained from Geobase. Provincial Parks/Protected Areas, railroad and First Nations data obtained from GeoGratis. Other data obtained from Teck Coal Limited. Projection: UTM Zone 11 Datum: NAD 83

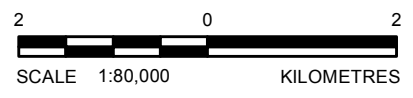
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| RAW COAL TRANSPORTATION OPTIONS |                                       |
|---------------------------------|---------------------------------------|
|                                 | PROPOSED ON-HIGHWAY HAUL ROAD OPTION  |
|                                 | PROPOSED OFF-HIGHWAY HAUL ROAD OPTION |
|                                 | PROPOSED RAIL OPTION                  |
|                                 | PROPOSED RAIL OPTION SIDING           |
|                                 | PROPOSED CONVEYOR OPTION              |

| LEGEND               |                                  |
|----------------------|----------------------------------|
| <b>BASE FEATURES</b> | <b>PROPOSED PROJECT FEATURES</b> |
|                      |                                  |
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**REFERENCE**  
 Provincial Boundary, Communities and Alberta Hydrography obtained from CanVec, Government of Canada, Natural Resources Canada. BC Hydrography, Dominion Coal Blocks and project data obtained from Teck Coal Limited. Roads obtained from Geobase. Provincial parks and Railroad data obtained from Geogratis. Projection: UTM Zone 11 Datum: NAD 83



|             |        |   |              |
|-------------|--------|---|--------------|
| PROJECT     |        | COAL MOUNTAIN PHASE 2 PROJECT                           |              |
| TITLE       |        | PROJECT FOOTPRINT AND EXISTING COAL MOUNTAIN OPERATIONS |              |
| <b>Teck</b> | DESIGN | GJ  | 14 Feb. 2014 |
|             | GIS    | DR  | 24 Jun. 2014 |
|             | CHECK  | AN  | 12 Sep 2014  |
|             | REVIEW | GJ  | 12 Sep 2014  |
|             |        | SCALE AS SHOWN  | REV. 0       |
|             |        | Figure 2  |              |

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**Table 1 Distances to National Parks from the Project Site**

| National Park                             | Approximate Distance from the Park to the Project |
|---|---|
| Banff National Park                       | 127 km south east                                 |
| Glacier National Park                     | 232 km south east                                 |
| Jasper National Park                      | 329 km south east                                 |
| Kootenay National Park                    | 131 km south east                                 |
| Revelstoke National Park                  | 271 km south east                                 |
| Waterton-Glacier International Peace Park | 68 km north west                                  |
| Yoho National Park                        | 201 km south east                                 |

km = kilometres

The CMO2 site would be located approximately 64 km north of the Canada-US border. Currently, the Project would not be taking place on, or require the use of any federal lands. However, as the Project is further defined, there may be a need for certain components to be situated upon lands within Parcel 73 of the Dominion Coal Block. Examples may include roads or water management structures. Also, Wheeler Pit and Wheeler Valley Spoil at the CMO2 site are proposed to be situated immediately adjacent to Parcel 73 of the Dominion Coal Block and water would flow from a portion of the CMO2 site through the southern part of this parcel of Federal land.

The proposed Project would not be located in a region that is the subject of a “Regional Study”, as defined by the Canadian Environmental Assessment Agency website (Canadian Environmental Assessment Agency 2014). However, Teck is undertaking initiatives in the Elk Valley to understand and manage effects associated with its mining operations at a regional scale. The initiatives include the following: Elk Valley Water Quality Plan (EVWQP), Regional Aquatic Effects Monitoring Program (RAEMP), Cumulative Effects Management Framework (CEMF), Regional Fish Habitat Management Plan, Biodiversity Management Planning and the Terrestrial Cumulative Effects Management Plan.

The Project would be located in the Regional District of East Kootenay (RDEK) (population 56,685). The incorporated communities of Fernie (population 4,448), Sparwood (population 3,667), Elkford (population 2,523), and Crowsnest Pass, Alberta (population 5,565), the unincorporated community of Hosmer (population 116), and Electoral Area A of RDEK (population 1,899) are near the Project. The Project would be located about 15 km south of Sparwood and 5 km east of Hosmer. The hamlet of Corbin, with a few dwellings, is located close to the existing CMO project as well.

The proposed Project, including both CMO and CMO2 sites, would be located within the asserted traditional territory of the Ktunaxa Nation, as represented by the Ktunaxa Nation Council (KNC), which includes the following four member groups:

- ?Akisq’nuk First Nation (formerly the Columbia Lake First Nation, Windermere);
- St. Mary’s First Nation (Cranbrook);
- Tobacco Plains Indian Band (Grasmere); and
- Lower Kootenay Indian Band (Creston).

The closest First Nation reserves are located approximately 55 km from the Project (St. Mary’s and Tobacco Plains).

While the Project would also be located within the asserted territory of the Shuswap Indian Band, the BC Environmental Assessment Office indicated in the 2013 LCO Phase 2 consultation report that the Shuswap Indian Band would not be affected by LCO Phase 2 Project. Accordingly, Teck anticipates CMO2 to have minimal effects to the Shuswap Indian Band. Teck does not currently anticipate the Project will have potential effects to the Metis Nation of British Columbia and there are no Metis settlements within proximity to the Project.

It is believed some lands locally in the Project area may be used for traditional purposes. Traditional uses may include, but not be limited to, hunting, trapping, fishing, and other resource gathering activities which could be affected by loss of land access and exploration, development, and production of the Project. The Tobacco Plains Indian Band trap line boundary is approximately 43km south of the project area. It is not expected the Project will have an effect on the Tobacco Plains trap line region.

Potential effects to traditional land use and areas of interest and concern within the Project area will be assessed. These potential effects will continue to be assessed throughout the EA process through ongoing consultation with potentially affected Aboriginal groups. Through the course of the EA and consultation with Aboriginal groups, Teck will confirm if the Project will require access to, use or occupation of, or the exploration, development and production of lands and resources currently used for traditional purposes by Aboriginal groups. Further study parameters will include: effects on health and socio-economic conditions, physical and cultural heritage or structures, and sites or things that are of historical archaeological, paleontological, or architectural significance for Aboriginal peoples. Teck continues to engage the KNC through ongoing meetings and communications, and will continue to work with the KNC and other Aboriginal groups to identify and address concerns, and build strong and mutually beneficial working relationships.

The new Project area would be located on District Lot 4589, which is fee simple land owned by Teck within the Regional District of East Kootenay (RDEK).

Teck does not anticipate any financial support from the Federal authorities for the Project.

Access to the CMO2 mine site would be south from Highway 3 via Corbin Road and then west to the CMO2 site via a new road, to be built. The CMO2 site would include the creation of new roads, coal stockpile, pits, waste spoils, and site-specific maintenance and office facilities. Open-pit mining would primarily occur on Marten and Wheeler ridges, with waste spoils being placed within the Little Wheeler, Wheeler, and Snowslide drainages (Figure 2). The existing processing plant, breaker, rail load-out, office buildings, and coal refuse facilities would remain at the CMO site, and would be utilized as part of the Project. The raw coal would likely be transported from the new mining area to the processing plant using highway-legal haul trucks via the existing Corbin Road. However, other options for raw coal transportation are currently being evaluated.

Coal Mountain Operations directly supports a workforce of about 340 employees and contributes substantially to the local economies in the Elk Valley and the East Kootenays, especially Sparwood, Elkford, Crowsnest Pass, and Fernie. Economic contributions to these communities from Teck and CMO come through employment,

charitable donations, local purchases, rentals, and a formal mine-property tax sharing pool.

Existing permitted mining areas at CMO could sustain operations until 2017, with production beginning to decline in 2016 (based on current projected production rates). To retain the existing workforce and meet market demands for steelmaking coal in the future, CMO is dependent on the development of the proposed Project. The Project would extend the Life of Mine to about 2050.

## PHYSICAL WORKS

The CMO2 site would include an approximate disturbance area of 1,000 hectares (ha), primarily within the Wheeler and Little Wheeler watersheds. Although the proposed development would use existing CMO infrastructure to the greatest extent possible, the addition of some facilities would be required to support operations. In all cases, opportunities to re-use and relocate facilities to support the Project from the existing operations would be the first consideration. The new facilities required for the Project would be located in two areas: the Upper Facilities, which are at the mine site; and the Lower Facilities, which are just off the Corbin Road intersection to the Project site.

The CMO2 site would include:

- mine pit excavations;
- waste spoils near each pit;
- newly constructed and upgraded access roads;
- office facilities (including potable water);
- maintenance facilities (including shop, warehouse and dry change);
- natural gas supply line;
- road and power corridors;
- site access bridge;
- fuelling station;
- natural gas supply;
- septic system;
- hot line station;
- surface water management systems including water supply, outfalls, potential water quality mitigation measures facilities (as determined by the EVWQP), and other water management structures; and
- coal, overburden and topsoil stockpile areas.

The CMO2 site will be linked to the existing CMO site via a raw coal transport corridor. The existing infrastructure in place at CMO will be used, including the following:

- process plant;
- the Canadian Pacific railway line and load out loop;
- additional coal stockpile areas;
- explosives storage and delivery systems; and
- coal rejects storage areas.

## **PROJECT ACTIVITIES**

Currently, the CMO2 site would be proposed to be developed in 10 phases, which are presented in Table 2.

Site preparation would be scheduled to begin in 2016, subject to receipt of regulatory approvals. Mining would primarily occur on the Wheeler and Marten ridges, with some mining also on the east side of Hosmer Ridge later in the mine life. The mine phase designs will be refined as more information becomes available; however, the general sequence and overall footprint should remain similar.

The Project's first mine phase would begin within the Marten Ridge area. In 2019, mining on Wheeler Ridge would begin. Mining would continue through in six phases, and would remain active until all of its phases have been mined out. After the Wheeler Ridge pit is completed in 2043, the Hosmer Ridge phase is planned to begin. The Hosmer Ridge phase is essentially a pushback of the Wheeler Ridge pit to the west into Hosmer Ridge. In 2046, a final phase on Marten Ridge would begin to push the pit to its ultimate limit. Development would continue until the planned end of the Project in 2050.

Highwalls are designed with 65° face angles and are double-benched with a 12 m safety berm. Road widths are designed at 28 m running surface and sufficient widths to accommodate legal berm heights. All highwalls and haul roads would be constructed to conform to the guidelines set forth in the Health, Safety and Reclamation Code for Mines in British Columbia (2008).

The ultimate footprint of the pits would be approximately the following:

- Wheeler Ridge pit: 1,500 m by 1,500 m;
- Marten Ridge pit: 2,500 m by 700 m; and
- Hosmer Ridge pit: 500 m by 1,500 m.



**Table 2 Pit Summaries by Phase (Approximate Volumes)**

| Pit                       | Phase           | Proposed Start Date | Raw Coal (M mtrc) | Clean Coal (M mtcc) | Waste Volume (M bcmw) | Raw Coal Volume (M bcmrc) | Total Volume (M bcm) |
|---------------------------|-----------------|---------------------|-------------------|---------------------|-----------------------|---------------------------|----------------------|
| <b>Wheeler Ridge (WR)</b> |                 |                     |                   |                     |                       |                           |                      |
|                           | WR1             | Year 3 (2019)       | 16                | 10                  | 66                    | 11                        | 77                   |
|                           | WR2             | Year 3 (2019)       | 16                | 10                  | 74                    | 11                        | 85                   |
|                           | WR3             | Year 11 (2027)      | 8                 | 5                   | 23                    | 6                         | 29                   |
|                           | WR4             | Year 5 (2021)       | 10                | 6                   | 41                    | 7                         | 48                   |
|                           | WR5             | Year 5 (2021)       | 16                | 10                  | 69                    | 11                        | 80                   |
|                           | WR6             | Year 12 (2028)      | 9                 | 6                   | 43                    | 6                         | 49                   |
|                           | <i>subtotal</i> |                     | 76                | 47                  | 315                   | 52                        | 368                  |
| <b>Marten Ridge (MR)</b>  |                 |                     |                   |                     |                       |                           |                      |
|                           | MR1             | Year 1 (2017)       | 9                 | 6                   | 42                    | 6                         | 49                   |
|                           | MR2             | Year 5 (2021)       | 6                 | 4                   | 29                    | 4                         | 33                   |
|                           | MR3             | Year 31 (2046)      | 14                | 9                   | 75                    | 10                        | 85                   |
|                           | <i>subtotal</i> |                     | 29                | 19                  | 146                   | 20                        | 166                  |
| <b>Hosmer Ridge (HR)</b>  |                 |                     |                   |                     |                       |                           |                      |
|                           | HR1             | Year 27 (2043)      | 11                | 6                   | 49                    | 7                         | 56                   |
| <b>Total</b>              |                 |                     | <b>116</b>        | <b>72</b>           | <b>510</b>            | <b>80</b>                 | <b>590</b>           |

WR = Wheeler Ridge; MR = Marten Ridge; HR = Hosmer Ridge; M mtrc = million metric tonnes raw coal; M mtcc = million metric tonnes clean coal; M bcmw = million bank cubic metres waste; M bcmrc = million bank cubic metres raw coal; M bcm = million bank cubic metres.

A significant effort was made to minimize the Project footprint and number of affected watersheds by using in-pit spoiling wherever possible. Due to topographical, safety, and logistical considerations, suitable in-pit spoil areas are limited.

In the initial stages of the Project, waste would be used to develop spoils in the Wheeler Creek Valley. In 2019, as mining progresses, waste would be also directed to the Little Wheeler Creek Valley. When the mining of MR1 pit is completed in 2021, it will also become available as a spoil destination for other phases. As mining progresses to the south in the remaining Wheeler Ridge phases, waste would generally be directed to the southwest into Little Wheeler Creek Valley from the higher bench elevations (above 1,740 m), and to the southeast into Wheeler Creek Valley from the lower bench elevations (below 1,740 m). Once the Wheeler Ridge phases are completed, spoil material from HR1 pit would be placed into the mined-out Wheeler Ridge pit. Waste from the final phase of mining, MR3, would be split between Wheeler and Snowslide valleys.

A description of activities through a series of conceptual Project phases is presented in Table 3. Reclamation will occur progressively as the Project is developed, where possible.

**Table 3 Representative Conceptual Mine Phases for the Project <sup>(a,b)</sup>**

| Year    | Description   |
|---------|---|
| Year 1  | <ul style="list-style-type: none"> <li>Timber and brush within the footprint of first Wheeler Creek Valley spoils and accesses are cleared, and topsoil is stockpiled for later use in reclamation.</li> <li>Access road to top of MR1 established.</li> <li>Mining upper benches of MR1 begins; majority of spoil material hauled to north.</li> <li>Begin development of upper and lower facilities and upgrade access road to the site.</li> <li>Begin development of water management facilities for the site.</li> </ul>   |
| Year 5  | <ul style="list-style-type: none"> <li>Timber and brush within the footprint of first Little Wheeler Creek Valley spoils and accesses are cleared, and topsoil is stockpiled.</li> <li>Access roads to top of MR2 and initial Wheeler Ridge phases established.</li> <li>Wheeler Ridge mining begins in WR1, WR2, WR4, and WR5; most spoil material hauled south into Little Wheeler Creek Valley. As spoils and accesses expand, further clearing and topsoil salvage is done.</li> <li>MR1 mining complete.</li> <li>MR2 mining begins. Waste is hauled to west into Wheeler Creek Valley.</li> </ul> |
| Year 10 | <ul style="list-style-type: none"> <li>WR1, WR2, and WR4 are actively mining. Material mostly sent into Wheeler Creek Valley spoils.</li> <li>MR2 mining complete. Spoil material placed in-pit from Wheeler Ridge phases and MR2.</li> </ul>   |
| Year 15 | <ul style="list-style-type: none"> <li>Ex-pit spoil in Little Wheeler Valley completed, re-sloping and reclamation activities begin.</li> <li>WR1 mining complete.</li> <li>WR6 mining begins.</li> <li>WR2, WR3, WR4, and WR5 continue to actively mine; spoil haul to Little Wheeler Creek and Wheeler Creek valleys. MR1 continues to accept spoil in-pit from MR2 and MR3.</li> </ul>   |
| Year 20 | <ul style="list-style-type: none"> <li>WR2 mining complete.</li> <li>WR3, WR4, WR5, and WR6 continue to actively mine; spoil haul to Wheeler Creek Valley. MR1 continues to accept spoil in-pit from MR2 and MR3.</li> <li>Re-sloping and reclamation activities completed for the ex-pit spoil in Little Wheeler Valley.</li> </ul>  |
| Year 25 | <ul style="list-style-type: none"> <li>WR3 and WR4 mining complete.</li> <li>WR5 and WR6 continue to actively mine; spoil haul to Wheeler Creek Valley. MR1 continues to accept spoil in-pit from MR2 and MR3.</li> </ul>   |
| Year 30 | <ul style="list-style-type: none"> <li>WR5 and WR6 mining complete; spoil haul to Wheeler Creek Valley.</li> <li>HR1 mining begins and is completed. Spoil is placed into mined-out Wheeler Ridge pit.</li> <li>Access road to top of MR3 established.</li> <li>MR3 mining begins.</li> </ul>   |
| Year 34 | <ul style="list-style-type: none"> <li>MR3 mining complete.</li> <li>Decommissioning.</li> <li>Reclamation activities will continue for several years, and monitoring will be carried out until re-growth reaches a satisfactory point of advancement.</li> </ul>   |
| Year 37 | <ul style="list-style-type: none"> <li>Completion of mine reclamation.</li> </ul>   |

<sup>(a)</sup> Water quality management measures, including timing of implementation, are being developed through the Elk Valley Water Quality Plan (EVWQP). Initial implementation of the EVWQP is proposed to include water treatment and water management features (e.g., water diversions). The EVWQP also incorporates monitoring and applied research and development to adaptively manage the plan during implementation.

<sup>(b)</sup> Assumes a production rate of 2.25 M mtcc/year. Other considered alternatives including 3, 4, and 5 M mtcc will accelerate activities accordingly and reduce overall mine life.

WR = Wheeler Ridge; MR = Marten Ridge; HR = Hosmer Ridge.

The proposed CMO2 site would be mined with traditional truck and shovel techniques currently being used for existing open-pit operations at CMO. Various sizes of hydraulic shovels are planned to mine the deposit. The current CMO fleet of excavators consists of one 27 cubic metre (m<sup>3</sup>) shovel and one 34 m<sup>3</sup> shovel. For planning purposes, it is assumed these shovels would transition from the existing fleet to mine at the CMO2 site.

One front-end loader would also be used to mine waste rock and coal from the CMO2 site.

Waste rock generated from mining would be hauled by 220-tonne class haul trucks to waste dumps located in Upper Wheeler, Little Wheeler, and Snowslide valleys. Investigations into larger capacity haulage units (290+ tonne capacity) will be ongoing as part of the regular mine planning and economic evaluations.

## WASTE MANAGEMENT

Solid waste (e.g., rubber hoses, metal, plastics, wood, paper) generated as a result of the Project would be managed through the existing CMO waste management program. This program allows for the disposal of a variety of waste into waste collection drums. The wastes are picked up by a contractor, sorted, and sent through waste streams that maximize recycling and minimize sending solid waste to landfills. The program employs waste tracking to ensure compliance and consistency with waste streams. Internal auditing of compliance is a key component of the program.

Liquid wastes generated as a result of the Project would be collected and either reused within the mining process or disposed of at appropriate upland facilities. For example, waste oils would be reused in the blasting process to minimize the use of diesel fuel or are shipped off-site for processing and disposal at approved facilities. In the case of wastewater, oils would be separated from the water and reused in cogeneration or re-processed for lubricants.

Domestic wastes are expected to be managed through existing permits and disposed of in approved landfills. Food waste at CMO is handled using best waste disposal practices and ensures minimal attraction of bears or other wildlife to the site. This method has proven successful.

Potential air emissions from the Project may include particulate matter (PM), sulphur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), and greenhouse gases (GHGs). The PM emissions arise from numerous mining activities such as drilling, blasting, and material handling. The SO<sub>2</sub> and NO<sub>2</sub> emissions are produced by the combustion of fossil fuels in vehicles, equipment, and coal dryers. Sources of GHGs at a coal mine include fossil fuel combustion as well as fugitive coal bed methane. Potential management measures include implementation of an air quality and dust control plan, efficient operation of the vehicle fleet, and watering of haul roads during non-freezing conditions.

## PHYSICAL AND BIOLOGICAL ENVIRONMENT

As part of the EA process being undertaken by Teck, baseline studies must be implemented to help characterize the existing environment. These studies have been initiated, and incorporate environmental data that were collected in and around the Project during the development of the existing CMO, as well as new data that has been collected during field programs conducted in 2012, 2013, and 2014 to date. Baseline programs being undertaken for the Project are focused on acquiring sufficient information to assess the potential environmental and socio-economic effects of the Project and include the following:

- air quality;
- noise;

- surface water hydrology;
- water quality;
- surficial geology;
- soils and terrain;
- biogeoclimatic zones and ecosystems, including species at risk;
- wildlife and wildlife habitat, including species at risk;
- fish and fish habitat, including species at risk;
- environmentally sensitive areas;
- land use and tenure;
- visual aesthetics;
- economics and socio-community health; and
- archaeological resources.

The Project would result in changes to the landscape and increased traffic along roads, especially between CMO and CMO2 sites. Teck will evaluate the development of the CMO2 site, proposed transportation method of raw coal between the CMO2 and CMO sites, and any components required at CMO as a result of the Project. A comprehensive evaluation of the potential effects of the Project will be conducted as part of the Environmental Assessment. This will be including, but not limited to, effects to the biophysical and socio-economic environments, health, physical and cultural heritage or structures, and sites or things that are of historical archaeological, paleontological, or architectural significance for Aboriginal peoples. The potential for trans-boundary effects and effects to Federal lands (including Parcel 73 of the Dominion Coal Block) will also be assessed.

### *General Setting*

The Project area would be located predominantly within the watersheds of Wheeler, Little Wheeler, Snowslide, and Carbon creeks, which are all tributaries of Michel Creek. Michel Creek flows generally northwest and discharges to the Elk River at the town of Sparwood. Other small creeks in the vicinity of the Project are Mine and Transmission creeks, which drain west to the Elk River. The Elk River flows generally southwest and discharges to Lake Koochanusa, about 80 km downstream of the Michel Creek confluence. The watersheds in the Project area are mostly natural with existing disturbances being forestry access roads, some clearings, and mine exploration activities.

In general, streams within the Project area are located in high-elevation mountain settings with moderate gradients. Within the Project area, stream gradients are moderate to high, ranging from 5% to 10% in the lower reaches of each watershed and up to 20% or higher in the upper reaches (IR 2008). Substrate within the streams is dominated by cobble with either gravel or boulder as the subdominant substrate. Generally, streams within the Project area provide adequate cover for all life stages of

fish in the form of overhead vegetation, undercut banks, woody debris, and boulder habitat.

The Project's terrestrial biology Local Study Area (LSA) is located in the Elk River Valley west of the Front Ranges of the Rocky Mountains. The LSA can be stratified by biogeoclimatic zone to describe the variation in vegetation represented across the landscape. Three biogeoclimatic zones were identified within the LSA: 1) Montane Spruce, 2) Engelmann Spruce – Subalpine Fir, and 3) Interior Cedar Hemlock.

Seasonal or permanent wildlife residents that may utilize the terrestrial biology LSA include six ungulate, 17 mammalian carnivore, 23 small mammal and bat, 169 bird, and nine amphibian species. Habitat conditions available to most wildlife species in the LSA are stratified by elevation within the three biogeoclimatic ecosystem classification BEC zones.

A variety of migratory birds travel through or use the habitat of the Project's terrestrial biology LSA. The Project's planned mine footprint, as well as on-site equipment, and construction of buildings and infrastructure will remove potential nesting, resting, and feeding areas and create possible hazards for migratory birds. It is expected that some migratory bird habitats (e.g., forests) will be removed. Teck will propose mitigation measures to minimize habitat loss to migratory birds by reusing existing disturbances, where possible, and timely reclamation. Habitat clearing is expected to be conducted outside of the migratory bird nesting period wherever possible to avoid effects on nesting birds and to comply with the *Migratory Birds Convention Act*.

#### *Regional Context for Water Quality Planning*

On April 15, 2013, the Minister issued Ministerial Order No. M113 (the "Order") under Section 89 of the BC *Environmental Management Act* (EMA), which designated the area for the plan, the process for development of the plan, and the issues to be addressed in the plan. The Order includes four environmental management objectives:

- protection of aquatic ecosystem health;
- management of bioaccumulation of the Order parameters in the receiving environment (including fish tissue);
- protection of human health; and
- protection of groundwater.

Teck has developed a comprehensive area based management plan, referred to as Elk Valley Water Quality Plan (EVWQP), to meet the objectives of the Order to protect the health of the Elk River watershed. As required by the Order, the EVWQP includes water quality targets for four Order parameters (selenium, nitrate, sulphate and cadmium) at specified locations in the Fording and Elk rivers and in Lake Koochanusa, and an implementation plan to meet the targets. The EVWQP implementation plan includes water treatment, and water management features to keep clean water clean (e.g., water diversions). The EVWQP also includes targets and an implementation plan for managing the formation of calcite. The EVWQP incorporates monitoring and applied research and development to adaptively manage the plan during implementation. The EVWQP was submitted to the BC Minister of Environment on July 22, 2014.

The development of the EVWQP included public consultation and involvement of a multi-party Technical Advisory Committee (TAC) to provide science-based technical advice to Teck and the public. The TAC consisted of representatives from:

- BC Ministry of Environment (chair);
- BC Ministry of Energy and Mines;
- BC Environmental Assessment Office;
- Government of Canada represented by Environment Canada;
- US Federal Government;
- Montana State Government;
- Ktunaxa Nation Council;
- An independent third-party qualified professional scientist selected by the TAC;  
and
- Teck

As required by the Order, Section 4.0 of the Terms of Reference for the EVWQP outlined requirements for consultation under which Teck would consult with, or notify as appropriate, the following groups identified in the Order:

- the public;
- the Government of British Columbia;
- the Government of Canada;
- local governments;
- the United States federal government and the State of Montana Department of Environmental Quality;
- BC First Nations that assert interests in the Designated Area;
- the Kootenai Tribe of Idaho and the Confederated Salish and Kootenai Tribes;
- environmental non-government organizations; and
- other resource companies: Coal Valley Resources Inc.; Crowsnest Pass Coal Mining Ltd.; NWP Coal Canada Ltd.; Centermount Coal Ltd. and Centerpoint Resources Inc.

Consultation with the above groups was conducted in multiple phases during the development of the EVWQP. In circumstances where groups were not also part of the TAC, Teck exercised the additional necessary steps to ensure that they had opportunities to participate and provide feedback during the development of the EVWQP.

In consideration of trans-boundary waters, a number of environmental sampling efforts are actively conducted by Teck within Lake Koochanusa through the Regional Aquatic

Effects Monitoring Program (RAEMP). The RAEMP is a comprehensive, long term monitoring program that was initiated in 2012 to assess water quality and aquatic biota in the Elk Valley and Lake Koochanusa. It integrates physical, chemical and biological information to assess aquatic ecosystem health. The RAEMP will be a core component of monitoring the effectiveness of the EVWQP. A wide range of environmental media are being sampled within the Elk Valley and Lake Koochanusa as part of the RAEMP. These include surface water, sediments, and biota (plankton, periphyton, benthic invertebrates, and fish). The first cycle of RAEMP monitoring extends from 2013 through 2016, with the second cycle running from 2017 through 2019. Results of each monitoring cycle will inform refinement of the program in subsequent cycles.

In consideration of activities actively being pursued by Teck through the RAEMP and the commitments made by BC MOE to the Montana state government and the U.S. Environmental Protection Agency, Teck will aim to address the concerns and advice offered by the U.S. Government during EVWQP development.

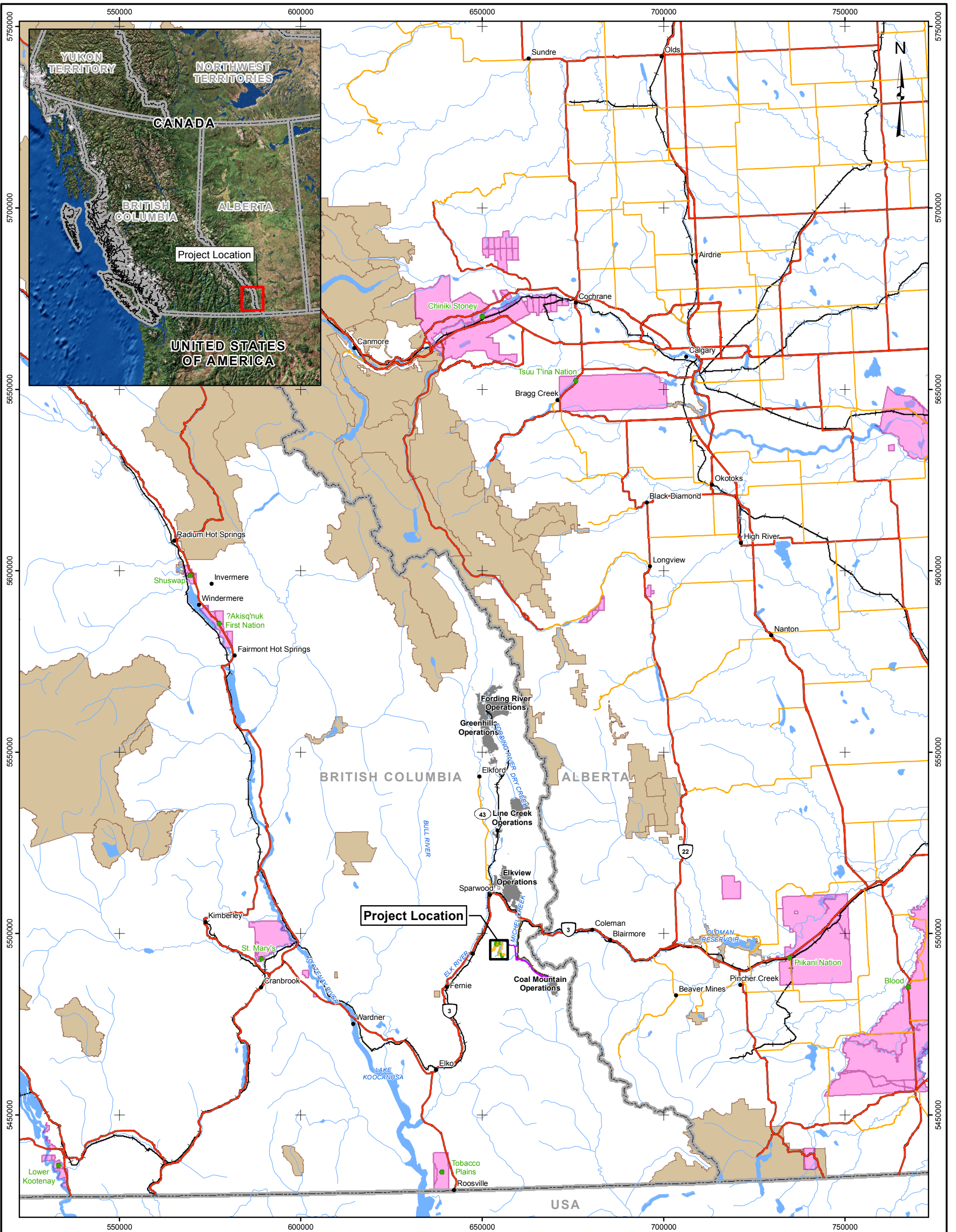
Selenium levels in Lake Koochanusa (a trans-boundary water) are below the current BC water quality guideline of 2 µg/L and meet levels that are protective of aquatic life and other sensitive organisms (Teck Coal 2013). The EVWQP manages selenium concentrations in Lake Koochanusa to remain below 2 µg/L. The EVWQP also manages other Order constituents to remain below current BC water quality guideline levels in Lake Koochanusa.

## CONSULTATION

The proposed Project, including both CMO and CMO2 sites, would be located within the asserted traditional territory of the Ktunaxa Nation, which includes the following four member groups:

- ?Akisq'nuk First Nation (formerly the Columbia Lake First Nation, Windermere);
- St. Mary's First Nation (Cranbrook);
- Tobacco Plains Indian Band (Grasmere); and
- Lower Kootenay Indian Band (Creston).

The Project would also be located within the asserted territory of the Shuswap Indian Band. The BC Environmental Assessment Office indicated in the 2013 LCO Phase 2 consultation report that the Shuswap Indian Band would not be affected by LCO Phase 2 Project, and accordingly, Teck anticipates CMO2 to have minimal effect to the Shuswap Indian Band. The Shuswap Indian Band has not been consulted during the preparation of the Project Description. Teck and the Shuswap Indian Band have a memorandum of understanding that agrees on quarterly meetings in 2014 and at least twice yearly in future years. These meetings will discuss regulatory approvals and the Shuswap Indian Band will be kept informed of the CMO2 Project development. First Nations communities in the vicinity of the Project are shown in Figure 3.

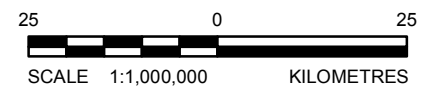


**LEGEND**

- CITY / TOWN / COMMUNITY
- FIRST NATION COMMUNITY
- CANADIAN PACIFIC RAILWAY
- CORBIN ROAD
- PRIMARY HIGHWAY
- SECONDARY HIGHWAY
- RAW COAL TRANSPORTATION OPTION LOCATIONS
- WATERCOURSE
- BRITISH COLUMBIA - ALBERTA BORDER
- COAL MINING OPERATION
- FIRST NATIONS RESERVE
- PROPOSED PIT SURFACE LIMIT (DRAFT)
- PROPOSED SPOIL LIMIT (DRAFT)
- PROVINCIAL PARK / PROTECTED AREA
- WATERBODY

**REFERENCE**

Provincial boundaries, communities and hydrography obtained from The Atlas of Canada, Natural Resources Canada. Roads obtained from Geobase. Provincial Parks/Protected Areas, railroad and First Nations data obtained from GeoGratis. First Nations Communities data obtained from Aboriginal Affairs and Northern Development Canada. Other data obtained from Teck Coal Limited. Projection: UTM Zone 11 Datum: NAD 83



|             |                 |                               |                 |
|-------------|-----------------|-------------------------------|-----------------|
| PROJECT     |                 | COAL MOUNTAIN PHASE 2 PROJECT |                 |
| TITLE       |                 | FIRST NATIONS COMMUNITIES     |                 |
| <b>Teck</b> | PROJECT No.     | 12-1349-0003                  | SCALE AS SHOWN  |
|             | DESIGN          | FN 21 Aug. 2014               | REV. 0          |
|             | GIS             | RC 21 Aug. 2014               | <b>FIGURE 3</b> |
|             | CHECK           | FN 21 Aug. 2014               |                 |
| REVIEW      | GJ 21 Aug. 2014 |                               |                 |

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Currently Teck does not anticipate the Project will have potential effects to the Metis Nation of British Columbia. There are no Metis settlements within proximity to the Project. The Metis Nation of British Columbia has not been consulted during the preparation of the Project Description.

United States of America Tribes and Alberta Aboriginal groups have not been consulted during the preparation of the Project Description. However, the Kootenai Tribe of Idaho and Confederated Salish and Kootenai Tribes have participated as observers at certain Technical Advisory Committee meetings for the EVWQP. The EVWQP includes consideration of the CMO2 Project. No further consultation activities are anticipated with United States of America Tribes.

As operator of the existing CMO, Teck has been working with the Ktunaxa Nation Council (KNC) to address issues and concerns relating to its existing operations in the Elk Valley. This working relationship was formalized through a protocol agreement on November 1, 2007. Under this agreement, Teck and the KNC have developed and implemented annual work plans to address issues and concerns, including how to build capacity within the KNC through training, education, employment, and procurement opportunities. A Consultation Agreement was formalized with the KNC on June 14, 2010. That agreement outlines the approach to relationship development, and will result in agreement on the level and nature of consultation activities related to specific Environmental Assessments or permitting projects.

Representatives from KNC were provided with an overview of the proposed Project at a meeting on April 10, 2013. In May 2013, they were provided with information on the planned baseline study approach. In May 2014, a workshop between Teck and KNC was held to review environmental baseline data-gathering methodologies and examine preliminary results.

Teck has made initial contact with the Regional District Area A, to inform them about the proposed Project and address any questions. Teck met with the Regional District of East Kootenay on February 14, 2014 and provided an overview of the Project.

Teck held an information evening in Hosmer on September 11, 2013 to provide the Project's closest community an early overview of the Project and advise them of future consultation opportunities.

Teck also consulted and collaborated with local hunting and recreation groups while creating the no-unauthorized access, no hunting, and no shooting safety boundary for the Project, and will continue to work with the groups to keep them informed about the Project. In November and December 2013, Teck held a series of meetings with recreational users, local businesses, and mayors/councils of Elkford, Sparwood, Fernie, and Crowsnest Pass, and environmental groups to advise them about the Project as well as opportunities to participate in consultations and provide input for baseline studies. Table 4 provides a summary of consultation activities and topics discussed specific to the Project.

**Table 4 Summary of Consultation Activities**

| Date           | Activity   | Topics and Actions Discussed   |
|----------------|--|--|
| December 2012  | Meeting with Hosmer Resident   | <ul style="list-style-type: none"> <li>• Potential effects to drinking water.</li> </ul>   |
| April 2013     | Introduction Meeting with KNC  | <ul style="list-style-type: none"> <li>• Provision of data (LiDAR and Orthophoto) for the Project area.</li> <li>• Rationale for final choice of the option for raw coal transportation.</li> <li>• Request for regular updates on Project progression.</li> </ul>   |
| May 2013       | Update   | <ul style="list-style-type: none"> <li>• Baseline study approach outlined to KNC.</li> </ul>   |
| September 2013 | Open House in Hosmer   | <ul style="list-style-type: none"> <li>• Transportation option for coal back to CMO.</li> <li>• Effects on water supply by the Project.</li> <li>• Visibility from Highway 3.</li> </ul>   |
| November 2013  | Meeting with District of Elkford, City of Fernie, District of Sparwood, Municipality of Crowsnest Pass | <ul style="list-style-type: none"> <li>• Road and traffic safety.</li> <li>• Development efforts of Teck and other competitors.</li> <li>• Selenium and selenium management.</li> <li>• Coal quality.</li> <li>• Possible effects to wetlands near Hosmer Creek.</li> <li>• Dust mitigation options.</li> <li>• Hunting areas.</li> <li>• Effects of mining on small communities.</li> <li>• Coal blending options.</li> <li>• Start dates at CMO2 and first coal delivery.</li> <li>• Movement of CMO workforce to CMO2.</li> </ul> |
| December 2013  | Meeting with Outdoor Recreation, Trapping and Tourism groups   | <ul style="list-style-type: none"> <li>• Scope of project, including possibility of future inclusion of Parcel 73 of the DCB.</li> <li>• Access to Corbin Road.</li> <li>• Effects on accessible recreational land in the Project area.</li> </ul>   |
| February 2014  | Group Meeting with the Regional District of East Kootenay  | <ul style="list-style-type: none"> <li>• Coal quality at CMO2 and potential retrofits at CMO.</li> <li>• Access points for Corbin Road and effects of increased traffic.</li> </ul>  |
| February 2014  | KNC Lands and Resources Planning Meeting   | <ul style="list-style-type: none"> <li>• Expectations and processes for information exchange as Project develops.</li> <li>• Role of Parcel 73 of the DCB fits into CMO2 mine design, if at all.</li> <li>• Repurposing of existing facilities from CMO and development of new ones at CMO2.</li> <li>• Plans for future water treatment facilities.</li> </ul>  |
| May 2014       | Ktunaxa Nation Council   | <ul style="list-style-type: none"> <li>• Review environmental baseline data-gathering methodologies and examine preliminary results.</li> </ul>  |

Other than through the EVWQP, additional consultation with respect to this Project has not yet occurred with the U.S. Environmental Protection Agency or the State of Montana. Should Project-specific consultation be required during the regulatory process, Teck will undertake this consultation in collaboration with the Canadian Environmental Assessment Agency and BC Environmental Assessment Office.

## FEDERAL REGULATORY CONTEXT

### ***Canadian Environmental Assessment Act (2012)***

Section 17(d) of the Regulations Designating Physical Activities under the *Canadian Environmental Assessment Act* (CEAA 2012) relates to this project. The section states that an EA is required if the project involves the following:

“The expansion of an existing coal mine that would result in an increase in the area of mine operations<sup>[1]</sup> of 50% or more and a total coal production capacity to 3,000 t/day or more.”

The current area of mine operations at CMO is approximately 1,100 ha. Therefore, the Project would likely result in an increase to the area of mine operations by 90%, significantly above the 50% criteria indicated in the regulation. The production capacity will remain above 3,000 tonnes/day. It is expected that the Project will require a Federal Environmental Assessment. Teck also anticipates that the project will require a provincial environmental assessment under the *British Columbia Environmental Assessment Act*.

### ***Explosives Act***

An explosives licence is required to acquire and store industrial explosives. As explosives will be used to develop the CMO2 site, an application under the Explosives Act for a licence will be made. Explosives will be stored in CMO magazines until a new magazine storage structure is established at the CMO2 site.

### ***Fisheries Act***

Under CEAA 2012, it is required that changes to fish and fish habitat as defined under the *Federal Fisheries Act* are taken into account as environmental effects. Section 35(1) of the *Federal Fisheries Act* (June 29, 2012 version) which came into force on November 25, 2013 prohibits “any work, undertaking or activity that results in serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery”. The placement of waste rock within Wheeler, Little Wheeler, and Snowslide creeks may be considered by DFO to cause a permanent alteration to, or destruction of, fish habitat, and, as such, may require an authorization from DFO under Section 35(2) of the *Fisheries Act*. Additionally, upgrading of stream crossings of Michel Creek and construction of water management options as determined by the EVWQP may also require authorization from DFO. Additional consultation with DFO will be undertaken to determine the need for a *Fisheries Act* Authorization.

### ***Aquatic Species - Species at Risk Act***

Effects to aquatic species, as defined in subsection 2(1) of the *Species at Risk Act* (e.g., Westslope cutthroat trout), may include loss of habitat and changes to water

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<sup>[1]</sup> “area of mine operations” means the area at ground level occupied by any open pit or underground workings, mill complex or storage area for overburden, waste rock, tailings or ore.

quality and water flow regimes. Such effects will be assessed and mitigation will be proposed. No *Species at Risk Act* listed marine plants are expected to be affected.

### ***Migratory Birds Act***

Effects to migratory birds, as defined in subsection 2(1) of the *Migratory Birds Convention Act*, may include:

- direct loss of habitat.
- sensory disturbance.
- health effects due to changes in air, water and soil quality.
- increased wildlife habitat protection for certain species.
- Health effects to aquatic resources (e.g., water birds and amphibians) due to changes in water quality.
- direct loss of riparian habitats affecting water bird and amphibians that use lentic and lotic environments.

Such effects will be assessed and mitigation will be proposed.

### ***Navigation Protection Act***

The *Navigation Protection Act* was brought into law in the spring of 2014. Works and activities proposed for the Project will be reviewed to evaluate whether an application under the *Navigation Protection Act* will be required. This information will be communicated with Transport Canada to confirm the need for review.

## **FEDERAL ACTS AND REGULATIONS**

**Note: S.C. = Statute of Canada; R.S.C. = Revised Statute of Canada.**

*Canadian Environmental Assessment Act, 2012.* S.C. 2012, c.19, S.52. Available at: <http://laws-lois.justice.gc.ca/eng/acts/c-15.21/index.html>

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*Fisheries Act.* R.S.C., 1985, c.F-14. Available at: <http://laws-lois.justice.gc.ca/eng/acts/F-14/>

*Migratory Birds Convention Act, 1994.* S.C. 1994, c.22. Available at: <http://laws-lois.justice.gc.ca/eng/acts/M-7.01/>

*Navigable Waters Protection Act.* R.S.C. 1985. c.N-22. Available at: <http://laws-lois.justice.gc.ca/eng/acts/N-22/>

*Species at Risk Act*. S.C. 2002. c.29. Available at: <http://laws-lois.justice.gc.ca/eng/acts/s-15.3/>

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