1. INTRODUCTION

1.1 PURPOSE AND ORGANIZATION OF DOCUMENT

1.1.1 Purpose of Document

This document outlines HD Mining International's (HD Mining) conceptual plan for the responsible resource development of the proposed Murray River Coal Project (the Project), an underground metallurgical coal mine located near Tumbler Ridge, BC.

The production capacity for the Project exceeds both provincial and federal environmental assessment (EA) thresholds under the British Columbia *Environmental Assessment Act* (BC EAA; 2002a) and the *Regulations Designating Physical Activities* (RDPA; SOR/2012-147) under the *Canadian Environmental Assessment Act*, 2012 (CEAA 2012).

The information, analyses, and findings of this document "Application for an Environmental Assessment Certificate/Environmental Impact Statement (Application/EIS) for the Murray River Coal Project" are intended to satisfy provincial and federal EA requirements such that environmental assessment (EA) approvals are issued, allowing HD Mining to develop the Project.

1.1.2 Organization of Document

The Application/EIS has been developed to fulfill all of the requirements of the Application Information Requirements (AIR) from the BC EAO and the EIS Guidelines from the CEA Agency. The document is organized as follows:

Chapter 1 – Introduction, Project Background, and Regulatory Framework

This chapter states the purpose of the Application/EIS, provides information which denotes that the Application/EIS meets the information requirements set out for the Project by the BC EAO and CEA Agency, summarizes the structure of the Application/EIS, provides an overview of the Project, its purpose, benefits, location and regional setting, and describes the regulatory framework considered for the Project.

Chapters 2 through 5 – Information Distribution/Consultation, Project Description and Alternatives, and Effects Assessment Methodology

These chapters summarize the Aboriginal, public, and government agency information distribution and consultation undertaken for the Project, outlines the proposed Project description and potential Project alternatives, and describes the methods used to assess potential adverse effects.

Chapters 6 through 19 – Assessment of Potential Effects, Significance of Residual Effects, and Cumulative Effects

These chapters describe the existing biophysical, economic, health, heritage, and social environments, identify specific Valued Components (VCs) as derived from baseline data collection

and stakeholder engagement, assess the potential effects of the Project on these VCs, evaluate the significance of potential residual effects from the Project, and evaluate potential cumulative effects for each residual effect.

Chapter 20 – Assessment of Aboriginal and Treaty Rights and Related Interests

This chapter identifies the Aboriginal groups named with specific interests in the Project, provides information on each group pertaining to ethnography, language, land use, governance, economy, health, communities, and traditional land use, and describes treaty and Aboriginal rights and interests that could be affected by the Project.

Chapter 21 – Federal Cumulative Effects Assessment

Consistent with EIS Guideline requirements, this chapter summarizes the cumulative effects assessments previously presented in Chapters 6-19.

Chapters 22 and 23 – Accidents and Malfunctions and Effects of the Environment on the Project

These chapters identify potential risk scenarios (e.g., accidents and major environmental events such as storms or wildfire), discuss potential environmental effects associated with these scenarios, and present information related to the Project's ability to manage and mitigate these events.

Chapters 24 and 25 –Environmental Management and Monitoring Plans and Compliance Reporting

These chapters describe the context for how mitigation and monitoring measures would be implemented during execution of the Project, and the system that would be in place to ensure compliance.

Chapter 26 – Conclusions

The conclusions for the Application/EIS summarize the Proponent's understanding of the EA process to minimize environmental, economic, social, heritage, and health effects and effects on Aboriginal and treaty rights and interests while striving to develop a project which will promote employment and sustainable resource development. The conclusions also include a request that an EA Certificate be issued for the Project and outline that subsequent requisite permitting and authorization will be sought prior to proceeding with Project development.

Appendices included through the document provide supporting studies and other pertinent documentation relevant to the review of the Application/EIS document.

1.2 PROPONENT DESCRIPTION

1.2.1 Proponent

HD Mining is a BC company that was incorporated in June 9, 2011 and is headquartered in Vancouver, BC. Its majority shareholder Huiyong Holdings (BC) is affiliated with a Chinese energy company, Huiyong Holdings Group, China. Penggui Yan is the Chairman of HD Mining and Huiyong Holdings (BC) and works in Vancouver full time. Huiyong Holdings Group, China is

currently operating several underground long wall coal mines with some of the most advanced underground long wall coal mining technology in the world. Additional information related to management and reporting structures and corporate environmental policy are included in Chapter 24, Section 24.1.2 of the Application.

HD Mining contact information is provided below.

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Suite 2288 - 1177 West Hastings Street
Vancouver BC V6E 2K3
Tel: 604-689-8669
Fax: 604-689-0969
Website: www.hdminingintl.com

Contact: Jody Shimkus, VP, Environmental & Regulatory Affairs
Email: jody.shimkus@hdminingintl.com

1.2.2 Consultants

ERM Consultants Canada Ltd. (ERM Rescan) has been retained by HD Mining to undertake environmental and socio-economic baseline studies and to prepare documents for the EA process. ERM Rescan offers a wide range of science, engineering, and socio-economic services to the resource development industry. ERM Rescan contact information is provided below. A list of the consultants involved in preparing the Application/EIS is provided in the Acknowledgements.

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Jason Rempel, Project Manager
Email: jason.rempel@erm.com

Anne Currie, Project Director
Email: anne.currie@erm.com

1.2.3 Guiding Principles

HD Mining is committed to using the EA process as a planning tool in guiding Project decisions (and related physical activities and components) in a considered, careful and precautionary manner, in order to avoid or minimize the potential for adverse environmental, social, economic, heritage and health effects. The Project will promote economic prosperity in all regions of BC, and will assist the provincial government is meeting their target of approving eight new mines and nine mine project expansions by 2015 (BC MEM 2012, Government of British Columbia 2012).

1.2.3.1 Precautionary Principle

The Government of Canada document *A Framework for the Application of Precaution in Science-based Decision Making About Risk* (Government of Canada 2003) sets out guiding principles for the application of precaution to science-based decision making in areas of federal regulatory activity for the protection of health and safety and the environment and the conservation of natural resources. This framework states that:

> *"The application of 'precaution', 'the precautionary principle' or 'the precautionary approach' recognizes that the absence of full scientific certainty shall not be used as reason for postponing decisions where there is a risk of serious or irreversible harm."*

Guidance within the framework document has been considered, where applicable, in preparing aspects of this Application/EIS that address how certainty regarding environmental effects has influenced the identification of mitigation management strategies.

HD Mining is committed to using technically and economically feasible measures in all aspects of the Project to avoid and mitigate potential adverse effects that may arise from the Project and will apply the precautionary principle as a strategy in all phases of the Project planning and design. The Project AIR and EIS Guidelines require that HD Mining demonstrate that all aspects of the Project have been examined and planned in a careful and precautionary manner to minimize and/or eliminate potential irreversible damage to the environment, especially with respect to environmental functions and integrity, system tolerance and resilience, and/or the human health of current and future generations.

For the Application/EIS document, HD Mining has utilized standard methodology recommended in provincial and federal guidelines and legislation for identifying valued components, determining potential effects, assessing significant adverse effects and identifying appropriate mitigation measures. These documents include CEAA's *Operational Policy Statement: Assessing Cumulative Environmental Effects under the CEAA, 2012* (CEA Agency 2013), *Cumulative Effects Assessment Practitioners' Guide* (CEA Agency 1999), and BC EAO *Guideline for the Selection of Valued Components and Assessment of Potential Effects* (BC EAO 2013).

Priority was given to strategies that avoided the creation of adverse effects including alternative means of conducting, designing and operating the Project, the results of which are presented in Chapter 4 (i.e., Project Alternatives) of the Application/EIS document. In addition, HD Mining has developed contingency plans to address accidents and malfunctions that may be associated with the Project, presented in Chapter 22 (Accidents and Malfunctions) of this Application/EIS.

Proposed management plans and monitoring activities, particularly in areas where scientific uncertainty may exist in the prediction of effects are discussed in various contexts in the discussion of individual VCs and also within Chapter 24, which deals with Environmental Management and Monitoring Plans.

1.2.3.2 Local and Aboriginal Traditional Knowledge

Subsection 19(3) of CEAA 2012 states that "the environmental assessment of a designated project may take into account community knowledge and Aboriginal traditional knowledge". Local knowledge and Aboriginal knowledge refers to knowledge acquired and accumulated by a community, First Nation or Metis Nation, through generations of living in close contact with a particular area or territory.

HD Mining respects the knowledge of the local and Aboriginal peoples who have historically occupied and/or used the Project area. The integration of local and Aboriginal traditional knowledge is an important consideration during the EA planning process. Engagement, communication and cooperation with local communities and Aboriginal peoples is required to ensure Project effects on local people and on potential or established Aboriginal and treaty rights, and related interests in the Project area, are minimized to the extent possible.

The Application/EIS describes the efforts made to collect local and Aboriginal traditional knowledge/traditional use (TK/TU) information within Chapter 2 (Information Distribution and Consultation). Community and TK/TU information that has been obtained has been incorporated where relevant, and non-confidential, into the effects assessments of identified VCs (Chapters 6 to 19), and the assessment of effects on the exercise of rights of Aboriginal people (Chapter 20) of the Application/EIS.

1.2.3.3 Public Consultation

Meaningful public consultation is a cornerstone of the EA planning process, and is best achieved when all parties have a clear understanding of the proposed Project as early as possible in the review process. HD Mining is required to provide current information about the Project to the public and, in particular, to the communities most likely to be affected by the Project. HD Mining has recognized the importance of carrying out consultation and has been committed to considering and, where possible, addressing issues or concerns raised by the public throughout all phases of the EA, whilst meeting all regulatory requirements.

HD Mining has considered both the *BC Environmental Assessment Act* (2002) and the *Canadian Environmental Assessment Act,* 2012 which provide for consultation with the public as a component of the EA process. Engagement and consultation measures undertaken by HD Mining during the process comply with federal and provincial regulations, best practices, and internal company policies as described in Section 1.8 of this chapter.

Since November 2010, consultation has been ongoing and has included local governments, community groups and Aboriginal communities. HD Mining has participated in all BC EAO technical working group meetings, which were comprised of government agencies (local, provincial and federal), and Aboriginal group representatives. Consultation efforts have typically included a variety of engagement methods including private meetings, community meetings and open houses, information distribution activities (i.e., communications and outreach materials), and site tours. HD Mining has and will continue to undertake engagement and consultation activities with government agencies (local, provincial, and federal), public, as well as Aboriginal groups and other

interested parties during the completion of the EA process, as well as during each phase of the Project lifecycle.

HD Mining will also continue to consult with the public and relevant stakeholder groups, including tenure holders, economic development organizations, businesses and contractors (e.g., suppliers and service providers), and special interest groups (e.g., environmental, labour, social, health, and recreation groups), as appropriate. Engagement, information sharing, and consultation will continue during the regulatory review, as well as the Construction, Operation, Decommissioning and Reclamation and Post closure phases.

Chapter 2 of the Application/EIS document (Information Distribution and Consultation) provides a more detailed description of consultation activities completed as part of the pre-Application/pre-EIS phase of the EA process and consultations planned during the Application/EIS review phase.

1.3 PROJECT LOCATION AND ACCESS

The Project is located 12.5 km southwest of the town of Tumbler Ridge, British Columbia (Figure 1.3-1). The coordinates are W 120°57'48"-121°7'38", N 54°59'42"-55°5'4". The property consists of 57 coal licences covering an area of 16, 024 hectares and is situated on Crown land within the Peace River Regional District (PRRD). The Project is accessed from Highway 52 (Heritage Highway), and the Quintette / Murray River Forest Service Road.

1.4 PROJECT OVERVIEW

The Project is an underground metallurgical coal mine. It is anticipated to produce 6 million tonnes of metallurgical coal per year over 25 years of operation. Coal will be mined using longwall mining, a form of underground coal mining where coal is mined in large panels (typically 1 to 3 km long and 200 to 400 m wide). Longwall mining is designed to maximize extraction rates while maintaining worker safety. While this mining method is not currently used in Canada (there is only one other underground coal mine in BC), this method has been used for many years at mines around the world. Based on current mine planning, the underground workings will roughly correspond to an aboveground footprint of 37 km^2.

The proposed surface layout for the mine is shown in Figure 1.4-1. The Project consists of the following on-site and off-site components:

- Underground mine and associated works:
  - two (2) declines for access of personnel/materials and product transport;
  - ventilation shafts (three (3) shafts at two (2) locations over the mine life);
  - underground operations hub near the base of the declines;
  - mainline tunnels, and longwall panel mining areas within the extent of underground mining;

Figure 1.3-1

Project Location

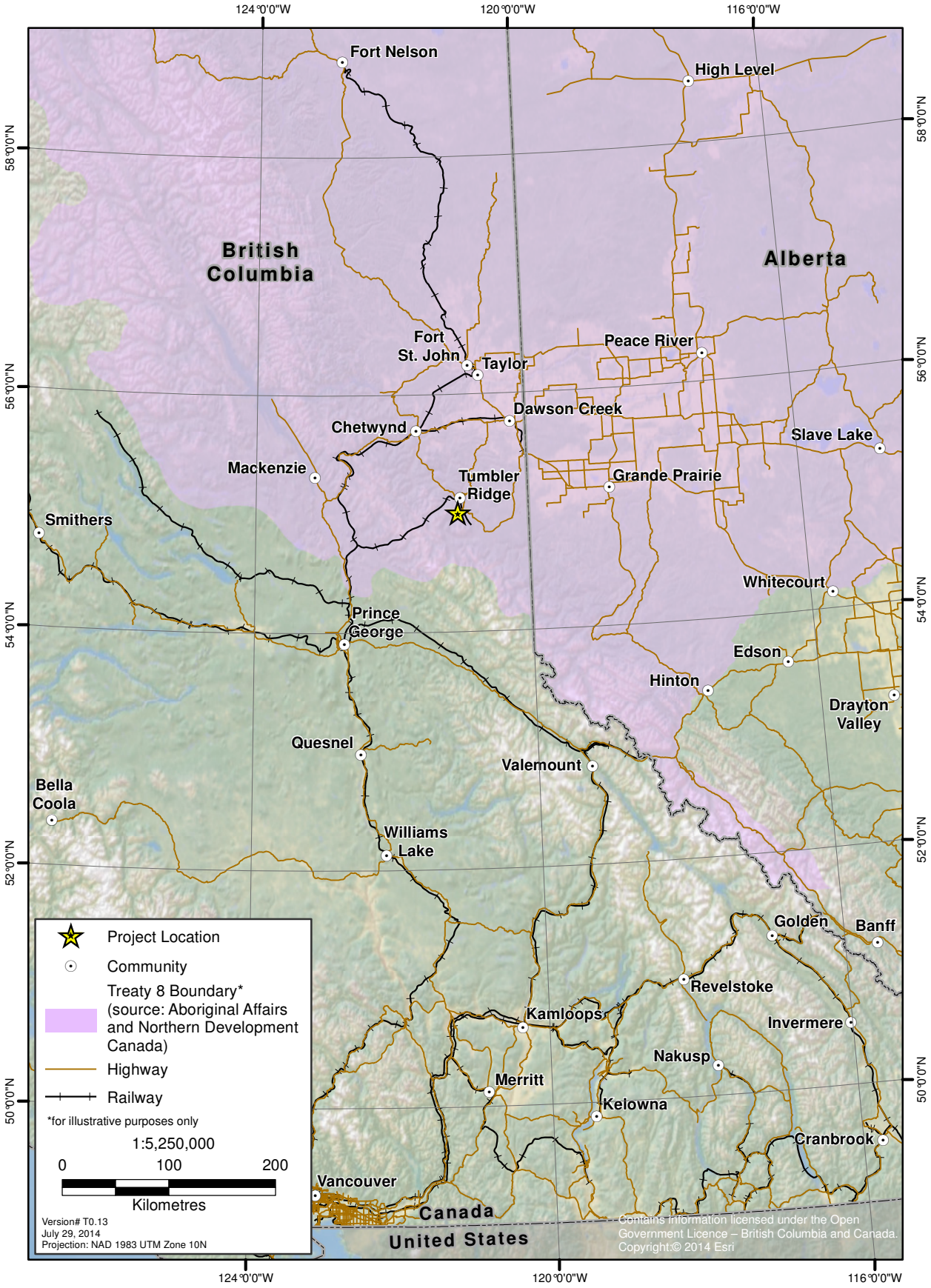
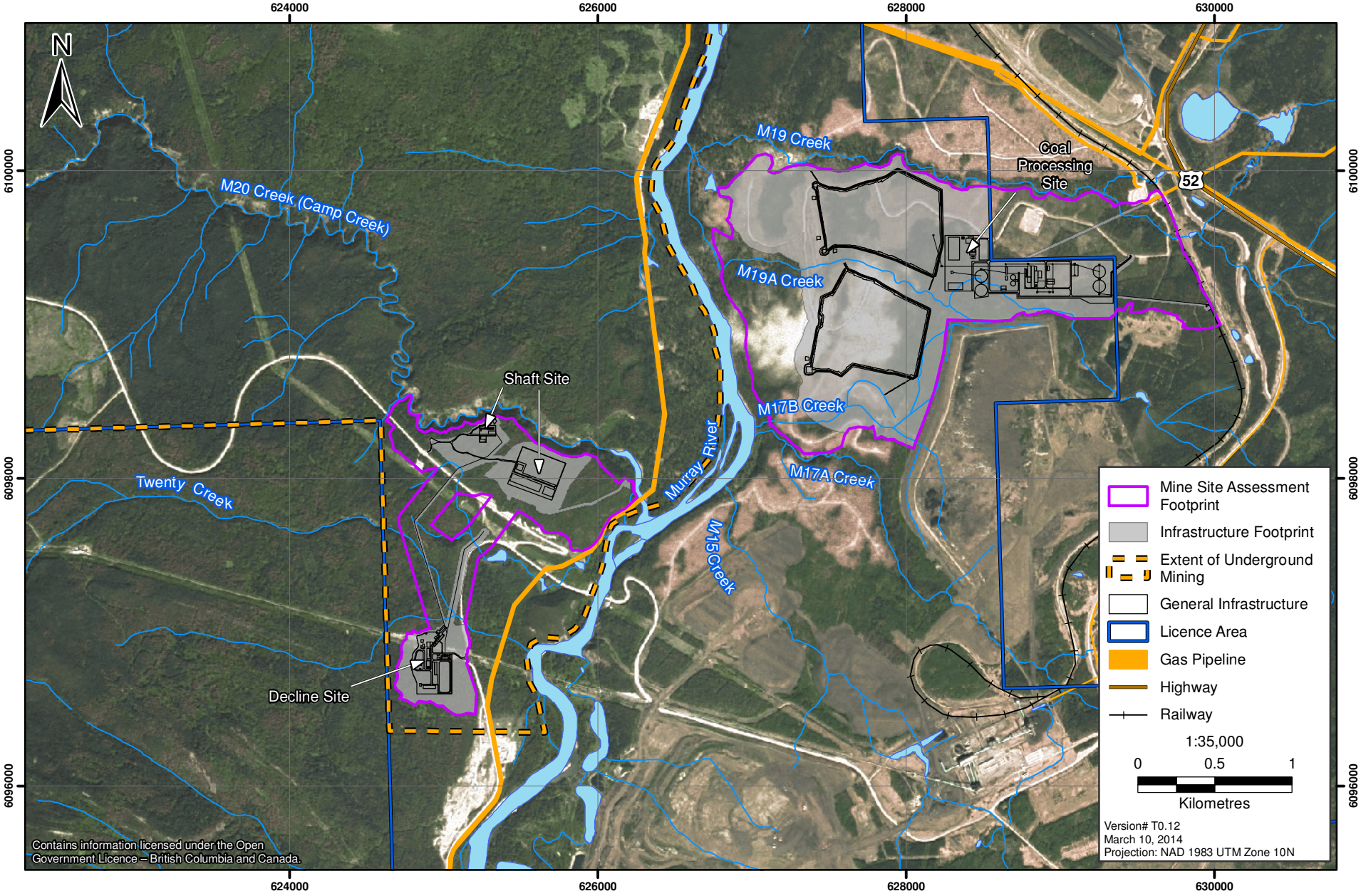


Figure 1.4-1
Preliminary Site Layout



- Shaft Site:
  - ventilation fans;
  - coalbed methane drainage system;
  - waste rock storage facilities;
  - overburden and soil storage areas;
  - explosive and storage facilities;
  - contact water collection ditches, sedimentation pond(s) and water management structures, including an existing discharge pipeline to M20 Creek;
- Decline Site:
  - maintenance, administration and warehouse facilities;
  - equipment and fuel storage areas and facilities;
  - sewage treatment facilities;
  - 230 kV electric transmission line connecting to the existing BC Hydro grid;
  - electric substation;
  - 10 kV electric transmission to distribute power to the Shaft Site;
  - natural gas storage tanks;
  - contact water collection ditches, sedimentation pond(s) and water management structures, including an existing exfiltration gallery for discharge to ground;
- Coal Processing Site:
  - coal rejects storage areas (North and South);
  - coal handling and preparation facilities (e.g., washing plant);
  - coal conveyors;
  - coal stockpiles;
  - rail load-out;
  - equipment and fuel storage areas and facilities;
  - maintenance, administration and warehouse facilities;
  - sewage treatment facilities;
  - PNG natural gas pipeline connecting to existing infrastructure;
  - contact water collection ditches, sedimentation pond(s) and water management structures, including a proposed discharge pipeline and outflow to Murray River;
- Secondary Shafts Site:
  - ventilation fans.

The above listed Project components will be permanent throughout the life of the Project. Accommodation for mine employees (i.e., worker camps at the mine site during all Project phases) will not be required as all employees will live off-site in Tumbler Ridge.

As part of exploration of the property, HD Mining has received approvals under *Mines Act* (Permit CX-9-44) from the BC Ministry of Energy, Mines (MEM) to mine a 100,000 tonne bulk sample to test the coal for use as a coking coal and for coal washability. HD Mining completed site preparation activities at the Decline Site and Shaft Site in 2012/2013, and mining of the Service Decline began in January 2014. Permitted infrastructure associated with the bulk sample includes:

- Shaft Site:
  - a shaft;
  - topsoil storage;
  - a waste rock pile; and
  - water management facilities, including a sedimentation pond and discharge structure to M20 creek (EMA Permit #106666).
- Decline Site:
  - a decline portal;
  - a decline conveyor;
  - a truck load-out;
  - topsoil storage; and
  - water treatment facilities, including a sedimentation pond and discharge infiltration galleries (EMA Permit #106666).

1.5 REGIONAL SETTING

Northeastern BC is populated by a number of small, predominantly First Nations' communities and larger centres of Tumbler Ridge, Chetwynd, Dawson Creek, and Fort St. John which provide services and supplies to much of the region. The communities are connected through Highways 97, 29, 2 and 52 (Figure 1.3-1).

1.5.1 Regional Infrastructure

The Project falls within the PRRD. The region has well established regional infrastructure to support resource activities, including forestry, oil and gas exploration, coal mining, wind energy. Existing infrastructure in the immediate vicinity of the Project include: BC Hydro transmission line; Pacific Northern Gas distribution system; CN Rail line; and forest service roads. This infrastructure can all be expanded to support the Project. The District of Tumbler Ridge and other regional communities have capacity to support growth.

1.5.2 Regional Land Use

The regional economic base is supported primarily by resource extraction industries including mining, oil and gas, power, and forestry. Mineral exploration activity has increased in recent years, providing significant employment opportunities. Forestry and tourism have fluctuated significantly in response to prevailing economic conditions.

HD Mining is committed to developing the Project in a manner that meets regional land use objectives. The Project is located in the Dawson Creek Land and Resource Management Plan (DC LRMP; Ministry of Forests Lands and Natural Resources Operations 1999). The DC LRMP encompasses 2.9 million hectares of land between Fort St. John and Prince George (Figure 1.5-1). The DC LRMP's objectives with respect to coal and minerals are to:

- provide opportunities for environmentally-responsible exploration and development of surface and sub-surface resources; and
- plan and manage coal, mineral, and aggregate exploration and development activities with sensitivity to identified wildlife (e.g., grizzly bear (*Ursus arctos*)).

The Project is located near two provincial parks and protected areas: Bearhole Lake Provincial Park and Protected Area is located approximately 17 km east of the Project; and Monkman Provincial Park is located approximately 27 km south of the Project (Figure 1.5-1).

1.5.3 Treaty 8 First Nations and Métis

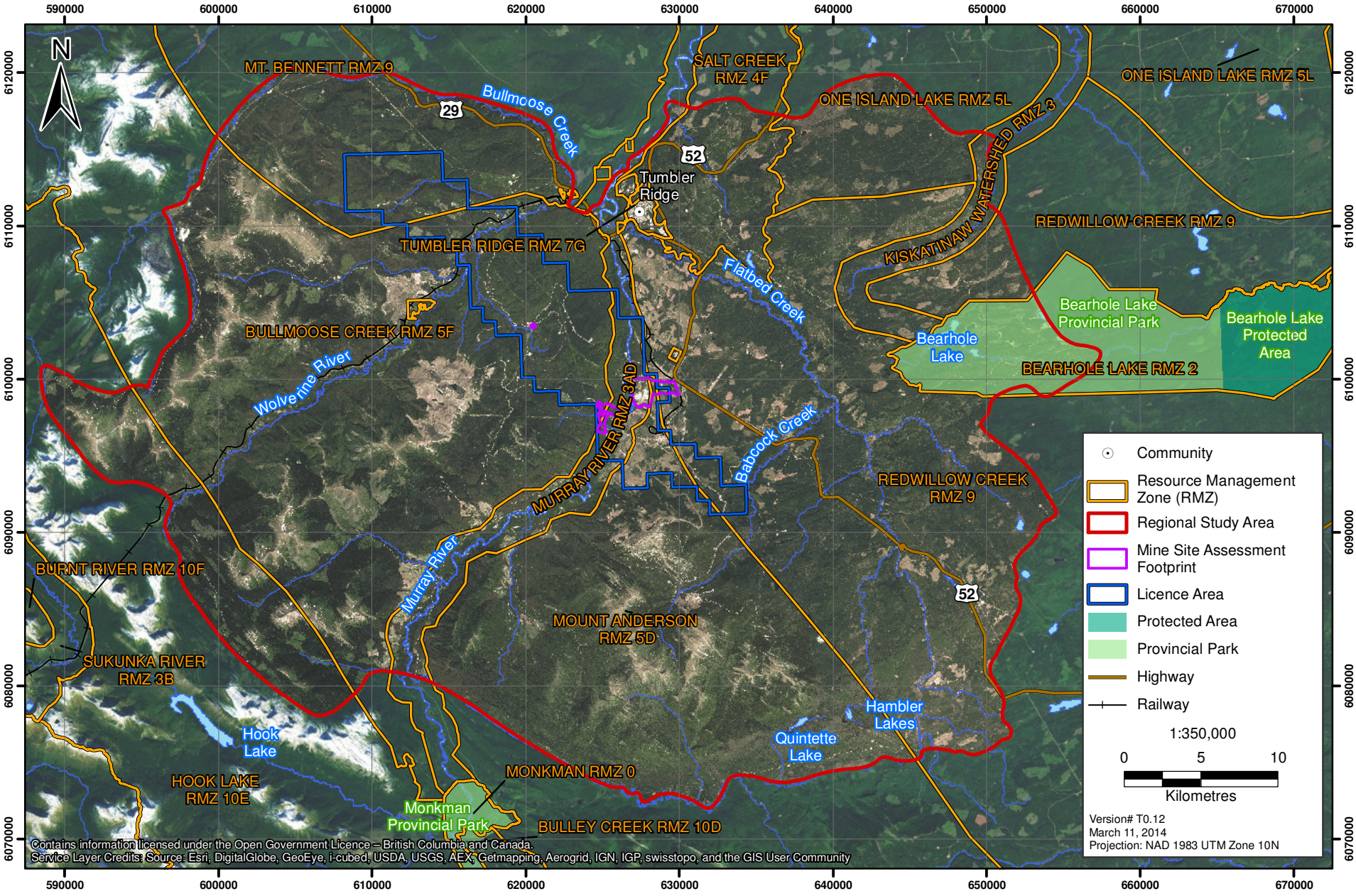
The Project is located within Treaty 8 (Figure 1.3-1). The federal Crown negotiated Treaty 8 in 1899 with Cree, Beaver, Chipewyan and other Indians, for a 840,000 km^2 (84,000,000 ha) area that encompasses northeast British Columbia, northern Alberta, the northwest corner of Saskatchewan, and part of the Northwest Territories. Adhesions were made to the agreement in 1899, 1900 and 1910. West Moberly First Nations and Saulteau First Nations were admitted to Treaty 8 in 1914[1] (Madill 1986). The McLeod Lake Indian Band adhered to Treaty 8 in 2000. Seven of the original 40 Treaty 8 First Nation communities are located in British Columbia.

Treaty 8 promises its signatories the right to "pursue their usual vocations of hunting, trapping, and fishing throughout the tract surrendered heretofore described, subject to such regulations as may from time to time be made by the Government of the country, acting under the authority of Her Majesty, and saving and excepting such tracts as may be required or taken up from time to time for settlement, mining, lumbering, trading, or other purposes". In exchange for surrendering their lands, signatory First Nations would receive Indian Reserves based on 640 acres for each family of five; families or individuals who wished to live off reserve would receive "land in severalty to the extent of 160 acres to each Indian". Treaty 8 provisions also include entitlements to land, ongoing financial support, and provisions for education, farm stock, farm implements, ammunition, twine, and clothing (Madill 1986).

[1] This admission took place at Hudson's Hope, according to local eyewitness accounts. "Admission" is used here rather than "adhesion", since no record of an actual adhesion document (with signatures) has been found. It is unknown who (if anybody) signed Treaty 8 in 1914 for the bands gathered at Hudson's Hope, though the first treaty paylist the following year (1915) shows three headmen for Hudson's Hope Band and one for Moberly Lake (Saulteaux) Band (WMFN 2012).

Figure 1.5-1

Dawson Creek LRMP Resource Management Zones (RMZs) and Provincial Parks Near the Project



The Supreme Court of Canada in *Mikisew Cree First Nation v. Canada* determined that, while the Crown has the right to "take up" lands covered by Treaty 8, it is nevertheless under an obligation to inform itself of the impact its project will have on the exercise of fishing, hunting and/or trapping rights; to communicate its findings to the potentially affected First Nations; and then attempt to deal with the First Nations in good faith, and with the intention of substantially addressing their concerns (BC EAO 2012). Additionally, a First Nation's "meaningful right to hunt" is not ascertained on a treaty-wide basis but in relation to the territories over which a First Nation traditionally hunted, fished and trapped, and continues to do so today (BC Hydro and Power Authority 2013).

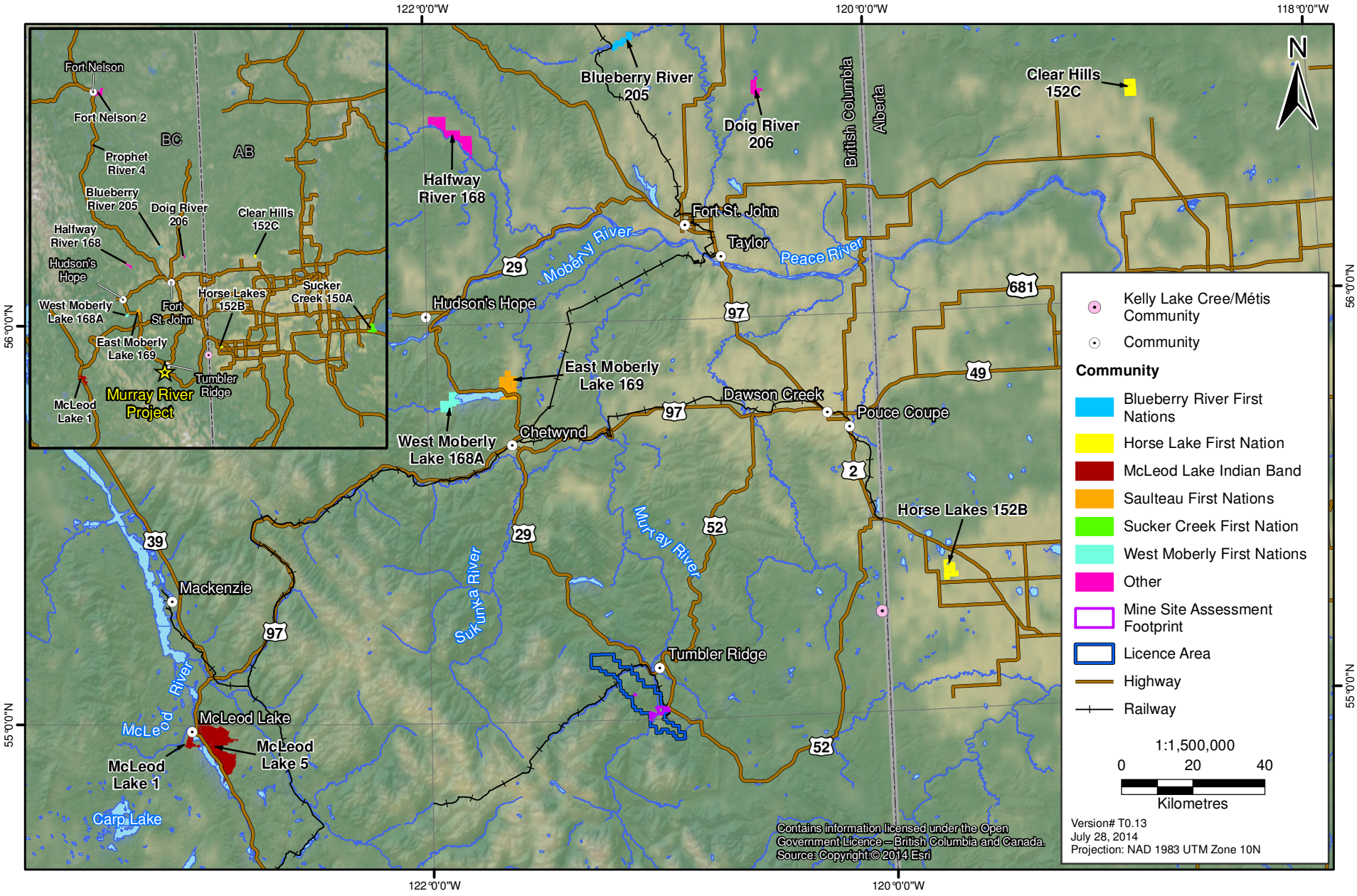
The Aboriginal groups considered in the Application/EIS are based on the direction provided by the Section 11 order issued by the British Columbia Environmental Assessment Office (BC EAO) and the EIS Guidelines issued by the Canadian Environmental Assessment Agency (CEA Agency). The Section 11 order directs HD Mining to consult with the West Moberly First Nations (WMFN), Saulteau First Nations (SFN), and McLeod Lake Indian Band (MLIB), the closest First Nations communities to the Project. Section 9.2 of the EIS Guidelines directs HD Mining to hold meetings and make key EA summary documents (baseline studies, EIS and key findings) available to the Blueberry River First Nations (BRFN), MLIB, SFN, WMFN and the Horse Lake First Nation (HLFN). The EIS Guidelines direct HD Mining to make key EA summary documents (Draft/Final EIS and key findings) accessible and make plain language summaries of these documents available to the Doig River First Nation (DRFN), Fort Nelson First Nation (FNFN), Halfway River First Nation (HRFN), Prophet River First Nation (PRFN), Kelly Lake Métis Settlement Society (KLMSS) and Métis Nation BC (MNBC). Subsequent to the issuance of the EIS Guidelines, the CEA Agency notified the Proponent on October 28, 2013 that Sucker Creek First Nation (SCFN) should be consulted based on their assertion that their Treaty 8 rights and related interests may be affected by the Project. Consultation requirements with the SCFN are the same as the DRFN, FNFN, HRFN, PRFN, KLMSS and MNBC. Figure 1.5-2 identifies the communities of Aboriginal groups considered in the assessment.

HD Mining efforts to engage with Aboriginal communities is described in Chapter 2 and Aboriginal information considered in the Application/EIS document is summarized in Chapter 20.

1.5.4 Socio-economic Setting

Situated south of the 58th parallel and east of the Rocky Mountains to the Alberta border, the PRRD encompasses 119,000 square kilometers. Seven municipalities and four electoral areas are located within the PRRD, comprising a population of approximately 58,895 residents. The closest community to the Project is Tumbler Ridge, which will provide the Project's primary location for employee housing. The community of Chetwynd is also located in close proximity to the Project and may experience population changes associated with the Project. Dawson Creek is the closest city to the Project and is expected to be a source of labour, goods and services for the Project. Fort St. John is the largest city in the north-east region and is the main government services, logistical and supply centre for the PRRD. Given its central role in the region, Fort St. John is also expected to be involved in the provision of labour force, supplies and service contracts for the Project.

Figure 1.5-2
Map of Communitites and Aboriginal Groups



Pouce Coupe, Hudson's Hope and Taylor are small, resource-based regional communities that are located within the vicinity of the Project. The mining and oil and gas industries supplied more than 9% of employment in the region in 2011. Expansion of the oil and gas industry has also stimulated construction activity (SPEDC 2012). The Peace River Region also produces 90% of BC's grain, and 40% of the province's hydroelectric power. In addition, the region has a relatively healthy timber supply areas and several large lumber and pulp and paper mills and remanufacturing facilities (NPEDC 2012). Regional employment opportunities have induced rapid population growth; nevertheless, the region is experiencing an acute labour shortage, particularly for skilled labour (NRWT 2012). Population growth has resulted in housing shortages and strains on community infrastructure and services (City Spaces 2006, Fraser Basin Council 2012). Consequently, workers are often housed in short-term accommodations (hotels and motels) or camp-style housing. This solution puts further strain on regional communities as transient workers use local infrastructure and services without contributing taxes toward their maintenance. Population influx, increasing employment and income, and a mobile workforce have also contributed to social problems such as problematic substance use, crime, violence and prostitution (Northern Health 2012; Troy Media 2012; W. Beamish Consulting Ltd. and Heartwood Solutions Consulting 2013).

The construction and operation of the Project is likely to have direct and indirect social and economic effects on local and regional communities. It will provide approximately 18,600 person-years of direct employment.

The Project is expected to create both positive and adverse social and economic effects. Increased economic development opportunities will result through the provision of locally sourced materials, supplies, and equipment. The Project will provide local, provincial and federal tax revenues annually throughout construction and operation. Training opportunities offered through Northern Lights College and on-the-job training will enhance the skill levels of the local and regional workforce. However, population growth associated with an influx of workers, particularly in Tumbler Ridge, will increase pressure on community infrastructure and services. Hiring practices and demographic changes may create challenges for social integration and equity, while population growth and increased incomes may exacerbate social problems, such as substance abuse and crime.

1.5.5 Regional Environmental Studies

HD Mining is not aware of any regional environmental studies within the local or regional Project areas as described under section 74(1) of the *Canadian Environmental Assessment Act, 2012* (2012b).

The British Columbia Ministry of Environment (BC MOE) is leading a study to determine selenium uptake and general metals content in Murray River slimy sculpin (*Cottus cognatus*) and fine bottom sediments tissue (Carmichael and Chapman 2006). The sampling program includes 3 sample sites upstream of the coal development projects on the Murray River, and 3 sample sites downstream.

To the south of the Project, the BC MOE is leading a Mountain Caribou Recovery Implementation Plan. This plan is described "as a collaborative approach with conservation organizations, First Nations, the forest industry and outdoor recreation groups in restoring the mountain caribou population to pre-1995 levels of more than 2,500 animals throughout their existing range" (ILMB 2007).

Numerous baseline environmental studies have been undertaken in the regional area to satisfy EA information requirements (Figure 1.5-3; see Chapter 5). Table 1.5-1 provides a summary of past, existing, and potential future projects that occur within the region that have been, are, or may be subject to the EA process. Some aspects of these projects may have a spatial or temporal linkage with the Project.

1.5.6 Federal Lands, Funding, and Transboundary Effects

There are no federal lands that would be affected by the Project. The nearest federal lands to the Project are the East Moberly Lake Indian Reserve 169 and West Moberly Lake Indian Reserve 168A, which are both located approximately 100 km northwest of the Project.

No federal funding is being sought or provided for the Project. No Project-related effects to federal lands are anticipated.

The Project is not expected to result in any transboundary effects to areas outside of British Columbia, including Alberta and the United States.

1.6 PURPOSE OF THE PROJECT

CEA Agency's December 2013 Operational Policy Statement 'Addressing "Purpose of" and "Alternative Means" under the Canadian Environmental Assessment Act, 2012'defines the *purpose* of a proposed project as "what is to be achieved by carrying out the project" (CEAA 2007).

The purpose of the Project is to develop HD Mining's core Canadian asset to help meet world metallurgical coal demand through responsible resource development that benefits British Columbia.

HD Mining's conceptual plan for the responsible resource development of an underground metallurgical coal project is consistent with the objectives outlined in the Government of Canada's *Economic Action Plan 2012*; it will foster economic development opportunities in the natural resources sector (Government of Canada 2012). The Project aims to promote economic prosperity in all regions of BC, and will assist the provincial government in meeting their target of approving eight new mines and nine mine project expansions by 2015—as described in *British Columbia's Mineral Exploration and Mining Strategy* (BC MEM 2012) and in *Canada Starts Here: The BC Jobs Plan* (Government of British Columbia 2012).

The Project will be an underground metallurgical coal mine. At a production rate of 6 million tonnes per annum (Mtpa), the deposit will support a 25-year mine life. The Project is expected to provide approximately 18,600 person-years of employment and has an estimated capital cost of $300 million Canadian dollars.

Figure 1.5-3
Other Human Actions in or Near the Murray River Project Regional Study Area

ERM

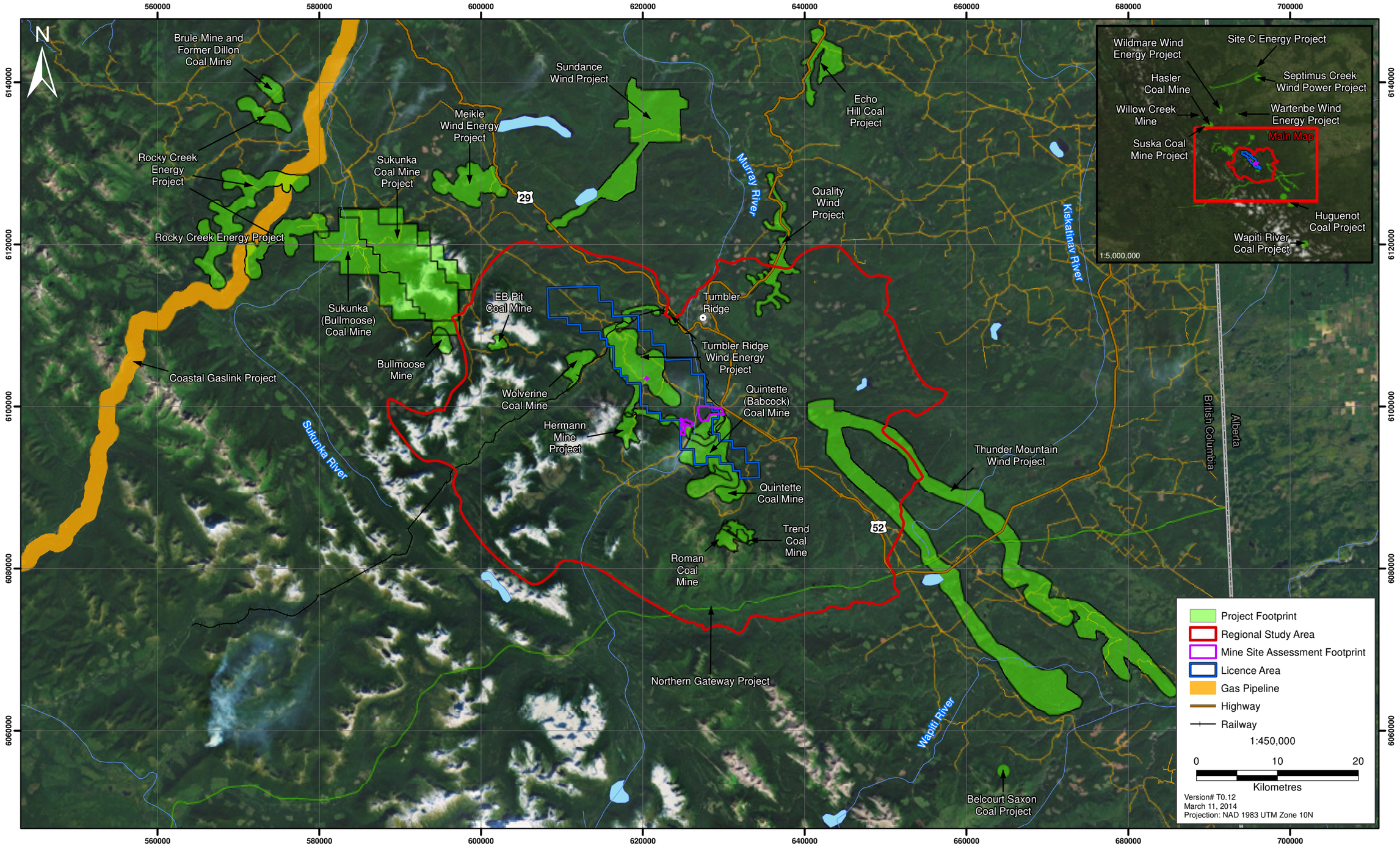


Table 1.5-1. Other Regional Activities Considered in the Murray River Effects Assessment

INDUSTRIAL PROJECTS				
A		**Name of Action**	**Dates Active**	**Proponent (if applicable)**
Past	**Historic**	Hasler Coal Mine	1941 - 1945	Hasler Creek Coal Company
		Sukunka (Bullmoose) Mine	1972 – 1975	BP Exploration Canada Ltd.
	Recent	Bullmoose Mine	1983 – 2003	Teck Corporation
		Dillon Coal Mine	2004 – 2007	Walter Energy / Western Coal
		Quintette (Babcock) Mine	1983 - 2000	Teck Corporation
		Willow Creek Mine	2000 - 2013	Walter Energy
Present		Brule Mine	2005 - 2016	Walter Energy
		Trend Mine	2003 - 2016	Peace River Coal
		Quality Wind Project	2013 - unknown	Capital Power
		Peace Canyon Dam	1980 – unknown	BC Hydro
		Wolverine Mine (Perry Creek) and EB Pit	2004 - 2016	Walter Energy
		WAC Bennett Dam	1961 – unknown	BC Hydro
Future	**Certain**	Hermann Mine	2014 - 2025	Walter Energy
		Quintette Mine	2013 - 2025	Teck Corporation
		Roman Mine Project	2013 - 2024	Peace River Coal
		Thunder Mountain Wind Park	2014 – unknown	Aeolis Wind
		Tumbler Ridge Wind Project	2013 - unknown	Pattern Energy Group
		Wartenbe Wind Project	2014 - unknown	Avro Wind Energy Inc.
	Reasonably Foreseeable	Echo Hill	2015 - 2029	Hillsborough Resources Ltd.
		Coastal Gaslink Project	2015 – 2048	TransCanada Pipelines
		Horizon Mine	2015 - 2038	Peace River Coal
		Meikle Wind Energy Project	2015 – 2041	Meikle Wind Energy Partnership
		Northern Gateway Pipeline	2016 – 2068	Enbridge Northern Gateway Pipelines
		Rocky Creek Energy Project	2015 – unknown	Rupert Peace Power Corporation
		Site C Clean Energy Project	2015 – unknown	BC Hydro
		Sukunka Coal Mine Project	2015 – 2038	Glencore
		Sundance Wind Project	2015 - unknown	EDF Energies Nouvelles
		Wildmare Wind Energy Project	2015 – unknown	Pattern Energy Group
	Hypothetical	Belcourt Saxon Coal Project	Unknown	Xstrata Coal Canada Ltd.
		Huguenot Mine	Unknown	Colonial Coal International
		Septimus Creek Wind Power Project	Unknown	Zero Emission Energy Developments
		Suska Mine	Unknown	Xstrata Coal Canada Ltd.
		Wapiti River Coal Project	Unknown	Canadian Dehua International Mines Group Inc.

(continued)

Table 1.5-1. Other Regional Activities Considered in the Murray River Effects Assessment (completed)

OTHER LAND USE ACTIVITIES
• Aboriginal harvest (fish, animals, and plants) • agriculture and range • forestry and manufacturing • industrial roads • mineral exploration • oil and gas drilling and exploration • other fishing and trapping (commercial and recreational) • recreation and tourism • transportation (road and rail access and traffic)

1.7 PROJECT BENEFITS

Economic stimulus from the natural resources sector plays an important role in the prosperity of British Columbia and Canada. The economic development of natural resources, including associated goods and services that are produced to support the sector, is estimated to account for 10% of all employment in Canada and close to 20% of the national Gross Domestic Product (GDP; Government of Canada 2012). Gross mining revenues for the BC mining industry were $ 8.5 billion in 2013 (PwC 2013). British Columbia's coal industry generated $3.2 billion in provincial GDP in 2011 and contributed $715 million in tax revenue (Coal Association of Canada 2013). Approximately 89% of Canadian metallurgical coal exports are produced in British Columbia. Canada is the third largest exporter of metallurgical coal in the world after Australia and the United States.

There were 10,720 people directly employed in B.C.'s mining industry in 2013. The estimated annual wage of people directly employed by coal companies was $95,174, twice the average provincial wage of $43,500 a year (Coal Association of Canada 2013).

The Murray River Coal Project (the Project) is expected to have substantial and long-lasting beneficial implications for the economies of local communities, the province, and Canada, while producing no significant Project-specific adverse effects to environmental, economic, social, health or heritage valued components. As an underground mine, the Project will have a small surface footprint and produce limited waste rock. The Project will utilize existing roads and utilities infrastructure (e.g., power, natural gas, rail) and minimal expansion is required to support the Project.

The Project will introduce a cutting-edge underground mining technology to BC and Canada called long-wall mining in which a long wall of coal is mined in a single slice. This innovation will result in substantial technological, human resource, and safety benefits. Long-wall is considered by many to be technologically superior to other methods and is the most appropriate method for northeast BC's complex geological stratigraphy. Long-wall mining is safer than other methods of mining because there is minimal manual handling and workers are under hydraulic roof supports when extracting coal. The Proponent is working with Northern Lights College to develop a training curriculum relating to underground long-wall mining for the Canadian workforce.

The Project is expected to result in substantial economic benefits to British Columbia and Canada as a whole for well over 35 years. The economic benefit lasts longer than the life of the Project as a result of indirect and induced benefits. Indirect benefits result from inter-industry purchases of goods and services and induced effects result from spending after-tax household income, primarily from wages and salaries.

For Construction, key economic benefits include the following:

- Direct Project employment of approximately 1,354 person-years in British Columbia and 1,766 person-years for all of Canada;
- Total employment (direct, indirect, and induced) of approximately 4,055 person-years in British Columbia and 6,483 person-years for all of Canada;
- Total GDP (direct, indirect, and induced) generated by the Project of approximately $329.5 million in British Columbia and $545.4 million for all of Canada; and
- Total tax revenue (federal and provincial) of approximately $55.3 million from economic activity in BC and $94.5 million for all of Canada.

For Operation, excluding Construction for underground mining, key economic benefits include the following:

- Direct Project employment in British Columbia and Canada of approximately 16,910 person-years;
- Total employment (direct, indirect, and induced) of approximately 72,053 person-years in British Columbia and 124,349 person-years for all of Canada;
- Total GDP (direct, indirect, and induced) generated by the Project of approximately $7.6 billion in British Columbia and $13.1 billion for all of Canada; and
- Total tax revenue (federal and provincial) of approximately $1.1 billion from economic activity in BC and $2.0 billion for all of Canada.

The Project is anticipated to result in increases in regional, provincial, and federal economic growth and revenue streams. Revenues associated with the Project are expected to be stable and long-term, increasing as the Project moves into Operation. HD Mining is also committed to working with local and Aboriginal communities to provide employment and business opportunities whenever feasible.

1.7.1 Information Sources

Information on Project benefits was derived from two main sources: 1) Project expenditure and employment estimates from the engineering design, as well as estimates of taxes paid directly by the Project to government, as reported in PwC (2014); and 2) economic impact analysis (ERM Rescan 2014)[2], which provides estimates of indirect and induced employment, personal income, Gross

[2] The *Murray River Coal Project. 2014 Economic Model Report* is included as Appendix 14-B.

Domestic Product (GDP), and government tax revenues (from personal income tax, corporate profit tax, and sales tax) as a result of the Project.

1.7.1.1 The Economic Impact Model

An economic impact model was used to estimate the direct, indirect, and induced economic benefits of the Project. The economic impact analysis was conducted using a model based on the 2008 dataset of Statistics Canada's Input-Output model, enhanced with data from various sources dating from 2008 to 2011. The core of the model operates at a level of aggregation consisting of 476 commodities and 117 industries. Both open and closed versions of the model were run for the Project. The open version is used to estimate indirect effects (effects from inter-industry purchases of goods and services), while the closed version is used to estimate induced effects (effects from spending resulting after-tax household income, primarily from wages and salaries, taking into account the propensity to save).

In addition to the model's ability to simulate the dynamic nature of the economy, its other key characteristic is its ability to estimate the distribution of the effects by Census Division (CD) within a province. The model does this through a mathematical allocation that takes into account the characteristics of existing industries and business within each CD, current economic structures and supplier relationships, and employment and skill-base profiles.

Economic impact simulations begin with a shock to the economy as represented by Construction and Operation expenditures. The main algorithm allocates the expenditures on each good and service purchased for the Project to the producing industries. These suppliers, in turn, purchase the goods and services required to produce the items being purchased for the Project.

The core of the model operates with a standard input-output algorithm. When expenditures first enter the model they are applied, for this Project, primarily to the construction, machinery, and equipment sectors. Import coefficients are applied to account for the leakage of expenditures for items that are not produced in BC. Purchases within BC are allocated to the producing industries. Each of these industries will, in turn, purchase goods and services to produce what they sell to the Project as determined by their technology mix and use of factors of production (labour and capital). For purchases outside of BC, an interprovincial trade flow matrix is used to allocate production by industry and province.

The model continues to iterate until all expenditures have dissipated (i.e., imports, taxes, and savings are all leakages that eventually reduce the amount of money available for purchases to zero). At this point, the model is stopped and the total effects as measured by gross production (sales) by industry are summed for all iterations. Using the estimate of gross production, industry-specific employment coefficients, and data on salaries by industry, employment numbers are estimated. GDP is estimated by subtracting the primary input components from gross production, also determined by industry-specific coefficients. The primary input components include indirect taxes, subsidies, salaries and benefits for employees, profits, and depreciation.

Tax revenue from personal income tax, corporate profit tax, and indirect tax (predominantly sales tax) is calculated with coefficients derived from Statistics Canada and Canada Revenue Agency information. The amount of money collected by governments is subtracted from wages and salaries

and profits at each round of expenditures. Within the model, 26 federal and provincial personal income tax coefficients are used to account for different income tax brackets.

To calculate the distribution of economic impacts by CD, regional weights are calculated and used to allocate expenditures. The mathematics used to allocate by CD take into account:

- the nature of the industry and whether or not the purchased good or service is likely to be supplied by local firms or by firms from elsewhere;
- distance from the supplier (which can be more important for some industries than others);
- the regional economic structure (industries with a strong presence in a given region are likely to be suppliers);
- the size of the local economy (a local labour supply and market for goods and services supports the development of local business); and
- transportation networks (a region well-served by air, road, and rail transportation will be in a better position to be a regionally important supplier).

Using the above approach, the economic model is able to provide reliable estimates of indirect and induced employment, personal income, GDP, and government tax revenue impacts of the Project.

1.7.2 Capital Costs

The Project's anticipated total capital construction costs, which will be executed over a three year Construction phase (2015 to 2017), is estimated at $554.9 million in current Canadian dollars (Table 1.7-1). In addition, bulk sample expenses of approximately $98.6 million are planned in 2014 and 2015, as well as other start-up costs of $6.4 million (mainly associated with the environmental assessment process). Of the total mine construction cost ($554.9 million), approximately $122.3 million will be spent on surface preparation, $75.3 million on mine management, $55.8 million on underground conveyor equipment, and $53.9 million on longwall equipment (Table 1.7-1).

Table 1.7-1. Estimated Capital Construction Costs

Construction Phase	Total ($M)
Continuous Miner Sections	$14.6
Mine Access and Ventilation	$63.2
Longwall Equipment	$53.9
Underground Conveyour Equipment	$55.8
Water Systems	$16.1
Underground Vehicles and Support	$19.1
Underground Electrics and Communications	$27.0
Office Equipment	$1.0
Rock Dust Systems	$5.5
Safety Equipment	$2.5
Underground Roadway	$34.1

(continued)

Table 1.7-1. Estimated Capital Construction Costs (completed)

Construction Phase	Total ($M)
Surface Mobile Equipment	$23.7
Mine Management	$75.3
Surface Preparation	$122.3
Other engineering construction	$40.7
Total	**$554.9**

The Project is well situated to make use of existing local facilities and infrastructure, including roads (Highway 52, Murray Forest Service Road), power (BC Hydro 230 kV line runs through the property), natural gas (Pacific Northern Gas tie-in near Highway 52), and rail (CN Rail line is adjacent to the Coal Processing Site). HD Mining has confirmed with BC Hydro, PNG, and CN Rail that the existing systems have capacity to support the Project. HD Mining has also built a new housing development in Tumbler Ridge to help offset the need for worker accommodations. Where possible, existing onsite infrastructure will be utilized. Most other Project components, construction, and installation services will be subject to competitive bid and are anticipated to be awarded to regional and provincially-based companies.

1.7.3 Operating Costs

Total costs for the Project lifespan are estimated at $8,082.5 million (excluding labour), of which $436.8 million is for rebuilds and replacements, and $8.1 million is estimated for Decommissioning and Reclamation (in current Canadian dollars). Cost of mine operation itself is predicted at $7,637.6 million. On an annual basis, HD Mining estimates that operating costs over the life of the Project (except for the first year of Operation) will be $309.2 million per year (excluding labour). Annual operating costs include costs for materials and supplies, maintenance and repairs, mining, surface materials and supplies, mine overhead, and transportation (Table 1.7-2).

Table 1.7-2. Estimated Annual Operating Costs

Item/ Activity	2018 ($M)	2019 Onwards ($M)
Materials and Supplies	$19.1	$27.3
Maintenance and Repairs	$19.1	$27.2
Mining Cash Costs	$6.4	$9.2
Surface Materials and Supplies	$12.0	$17.1
Mine Overhead Cost	$7.8	$10.8
Transportation	$152.3	$217.5
Total	**$216.7**	**$309.2**

Note: Cost estimates exclude the cost of labour.

The estimated cost of $8.1 million (excluding labour) for Decommissioning and Reclamation include, but are not limited to, costs associated with removal of surface and underground equipment and buildings, removal of the coal processing plant, closing of shafts, and reclamation of the site including the waste rock pile and Coarse Coal Rejects (CCR) piles.

For Post-closure, all infrastructure will have been removed, the decline portals and the shaft openings closed, and the site reclaimed. Monitoring is the major activity occurring during this period (see Chapter 3, Section 3.10). A specific cost estimate for Post-closure activities has yet to be developed, but on an annual basis will be substantially less than for Decommissioning and Reclamation.

1.7.4 Employment

1.7.4.1 Direct Construction Employment

Direct employment of Canadian workers for Construction of the Project is estimated at 1,766 person-years, starting from a total employment of approximately 151 workers in 2014, to 363 workers in 2015, to 612 workers in 2016 and 164 workers in 2017 (full-time equivalents). A smaller amount of direct Canadian employment associated with construction works will extend into the Operation phase. Employment of overseas workers during the initial Bulk Sample and Construction periods consists of an estimated 60 workers in 2014, 200 workers in 2015 and 2016, and 250 workers in 2017. These Construction jobs are expected to be mainly filled by contractors involved in actual construction of the Project; they do not include HD Mining employees working on site who are considered part of Operation workforce (Section 1.7.4.2, Table 1.7-3).

Table 1.7-3. Estimated Direct Employment for the Operation Phase (Person-years), 2014 to 2042

Annual Direct Employment (Person-years)							
	Canada			Overseas Workers			
Year	Hourly Employees	Management Positions	Total	Hourly Employees	Management Positions	Total	Total
2014	45	15	60	55	5	60	**120**
2015	125	25	150	180	20	200	**350**
2016	200	20	220	180	20	200	**420**
2017	200	30	230	220	30	250	**480**
2018	200	70	270	382	112	494	**764**
2019	242	70	312	340	112	452	**764**
2020	284	70	354	298	112	410	**764**
2021	332	70	402	250	112	362	**764**
2022	380	97	477	202	85	287	**764**
2023	428	120	548	154	62	216	**764**
2024	462	143	605	120	39	159	**764**
2025	508	162	670	74	20	94	**764**
2026	546	162	708	36	20	56	**764**
2027	582	162	744	0	20	20	**764**
2028	582	162	744	0	20	20	**764**
2029	582	162	744	0	20	20	**764**
2030	582	162	744	0	20	20	**764**

(continued)

Table 1.7-3. Estimated Direct Employment for the Operation Phase (Person-years), 2014 to 2042 (completed)

Annual Direct Employment (Person-years)							
	Canada			Overseas Workers			
Year	Hourly Employees	Management Positions	Total	Hourly Employees	Management Positions	Total	Total
2031	582	162	744	0	20	20	**764**
2032	582	162	744	0	20	20	**764**
2033	582	162	744	0	20	20	**764**
2034	582	162	744	0	20	20	**764**
2035	582	162	744	0	20	20	**764**
2036	582	162	744	0	20	20	**764**
2037	582	162	744	0	20	20	**764**
2038	582	162	744	0	20	20	**764**
2039	582	162	744	0	20	20	**764**
2040	582	162	744	0	20	20	**764**
2041	582	162	744	0	20	20	**764**
2042	582	162	744	0	20	20	**764**
Total	**13,264**	**3,646**	**16,910**	**2,491**	**1,069**	**3,560**	**20,470**

BC employment during Construction is expected to total 1,354 person-years or about 63% of the Canadian total. The remainder of direct Canadian employment is expected to go mainly to residents of Ontario and Alberta.

Within BC, the Peace River Regional District (PRRD) is predicted to benefit the most with an estimated 406 person-years of employment. Other Regional Districts expected to benefit substantially from employment include Fraser-Fort George (271 person-years of direct employment), Greater Vancouver (166 person-years) and Cariboo (135 person-years).

Given the work requirements the vast majority of positions will be full-time, with a small number of jobs in a limited number of positions being part-time or seasonal.

1.7.4.2 Direct Operation Employment

Leading up to and for Operation, direct employment (including both Canadian and overseas workers) is estimated at 20,470 person-years or an average of 764 jobs (full-time equivalents) by the year 2018. Table 1.7-3 shows the annual breakdown of direct HD Mining employment. For the purposes of the economic model, the estimated direct employment for Decommissioning and Reclamation is included as part of Operation employment, occurring at the end of Operation (to 2042). Note that Table 1.7-3 includes direct employment of overseas workers during the Bulk Sampling (2014) and Construction (2015 to 2017) periods, although these workers also have a role in preparing for the start of Operation. Table 1.7-3 includes only Operation workforce – all employment is assumed to be HD Mining employment and is modelled as part of the Operation phase.

The first year of Operation will provide an estimated 270 jobs for Canadian workers (Table 1.7-3). As there are currently no operating underground longwall mining operations in Canada, the remaining 494 positions required for the underground mine development will initially be filled by Temporary Foreign Workers. A training and transition plan has been developed to transfer employment from Temporary Foreign Workers to local Canadian workers by 10 percent per year over 10 years (Table 1.7-3). In total, it is estimated that for Operation the Project will generate approximately 16,910 person-years of employment to Canadian workers. More specifically, it is anticipated that most Canadian workers will be BC residents.

Within BC, the PRRD is predicted to benefit the most with an estimated 8,454 person-years of employment. Other Regional Districts expected to benefit substantially from employment include Greater Vancouver (3,384 person-years of direct employment), Fraser-Fort George (2,544 person-years), Fraser Valley (1,684 person-years) and Central Okanagan (844 person-years).

The workforce will be made up of a combination of hourly and management (salaried) employees as shown in Table 1.7-3. As with Construction, given the work requirements the vast majority of positions will be full-time, with a small number of jobs in a limited number of positions being part-time or seasonal. The total number of jobs shown in Table 1.7-3 is full-time equivalents across all positions.

1.7.4.3 Job Categories and Earnings

For Construction, a detailed breakdown of the job categories within each major category is not yet available and will be developed as part of subsequent engineering design work. The average earning for a Canadian worker during Construction is estimated to be approximately $121,420 per year (current Canadian dollars).

Direct Operation employment also consists of hourly and management (salaried) workers (Table 1.7-3).[3] Table 1.7-4 shows the average annual earnings and number of positions (Canadian and overseas workers) for each management job category. Note that the earnings estimates include an estimated 35% burden to account for benefits. Administrative positions relate to the overall management and administration of the mine and include the most senior Operation managers working on site (Table 1.7-4).

Table 1.7-5 shows the average annual earnings and number of positions (Canadian and overseas workers) for each hourly worker job category. Note that the earnings estimates include an allowance for overtime and an estimated 35% burden to account for benefits.

Total direct personal income to BC workers during Operation is estimated to be $1,577.6 million (current Canadian dollars), with approximately $788.8 million in income to workers in the PRRD.

[3] Note that job categories and earnings for Reclamation and Decommissioning are included as part of Operation.

Table 1.7-4. Earnings and Number of Positions by Management Job Category, Operation

Management Job Category	Average Annual Salary	Number of Positions for Canadian Workers (Increasing over 2018-2025)	Number of Positions for Overseas Workers (Decreasing over 2018-2025)
Financial Services	$87,000	7-9	2-0
Human Resources	$104,000	5-8	3-0
Information Technology	$112,000	1-8	9-2
Marketing	$89,000	6-7	1-0
Maintenance	$149,000	4-15	19-4
Procurement	$112,000	9-11	4-2
Mine Support	$158,000	3-53	57-7
Safety	$127,000	6-10	6-2
Administration	$213,000	1-4	4-1
Surface Operations	$133,000	16-20	5-1
Technical Services	$110,000	16-17	5-1
Total		**70-162**	**112-20**

Table 1.7-5. Earnings and Number of Positions by Hourly Employee Job Category, Operation

Job Category	Job Area	Average Annual Earnings	Number of Canadian Employees (Increasing from Years 2018 to 2028)	Number of Overseas Employees (Decreasing from Years 2018 to 2028)
Face (underground)	Longwall miners	$131,000	6-48	42-0
Non-face	Construction, beltmen, support, material haulage	$121,000	46-300	254-0
Maintenance (underground and surface)	Electricians, mechanics, welders, control room	$134,000	58-144	86-0
Surface	Operators, laborers	$117,000	90-90	0-0

1.7.4.4 Project Employment Practices and Use of Local Human Resources

Preference will be placed on hiring workers from local communities and within the PRRD, including Aboriginal persons, which meet employment requirements. Following first opportunity to workers from the region, consideration will be given to workers from elsewhere in BC, followed by the rest of Canada. Successful candidates who choose to participate in hiring will be informed in advance regarding the necessary requirements and qualifications needed for the job, service, or function.

Operation of the Project will require utilizing a longwall mining technique. Because this technique is not currently used by other mining operations in Canada, it is not likely that the majority of potential skilled and unskilled candidates at the local communities, the PRRD and provincial level will have the underground mining technical expertise required to fulfill the job requirements, at least in the initial

years of Operation. The Proponent will engage Temporary Foreign Workers over the short term for the underground mine development with the long-term strategy of providing workforce training at the local level to encourage training and recruitment of workers from within the region.

Several plans and strategies will be put in place to ensure that the Project will have an opportunity to draw workers from the currently underutilized pool of local and regional workers. Through the partnership with the Northern Lights College (NLC), HD Mining's Recruitment, Training and Employment (RTE) Plan will support training of the local labour force to maximize the number of local workers employed by the Project. On-the-job training opportunities will be also provided to support career development. A Procurement Strategy will help to increase indirect employment opportunities through the provision of business contracts. Further, engagement with First Nations and other communities will allow for continuing communication of employment opportunities. Plans and strategies to help the Project make use of any currently underutilized labour are described in more detail in Section 1.7.9 (Enhancement of Project Benefits).

Nevertheless, BC's mining industry is expected to continue to experience a skilled labour shortage. According to forecasting by the Mining Industry Human Resources (MiHR) Council (CMM 2014), approximately 145,000 workers, with a significant portion of this being worker replacement due to retirement, will be needed to service the mining industry in Canada. In BC, the industry will need to hire an estimated 13,000 to 20,000 workers by 2022 (CMM 2014). Resourcing the mining industry with sufficient numbers of skilled, locally-sourced labour is a challenge to all mine projects in BC.

1.7.4.5 Indirect and Induced Employment

It is anticipated that the Project will also result in indirect and induced increases in employment for related sectors, such as suppliers of goods and services for the Project as well as increases in employment for retail and service businesses as a result of employees and contractors spending their personal incomes earned through Project-related employment. These effects will be felt during Construction and Operation (Table 1.7-6). The PRRD is expected to benefit in 281 person-years of indirect and induced employment during Construction; the total indirect and induced employment impacts in BC are 2,701 person-years and in the rest of Canada 2,016 (Table 1.7-6). Over Operation, total indirect and induced employment impacts in PRRD are estimated at 9,357 person-years; in BC, the indirect and induced impacts are estimated at 55,143 person-years, whereas in the rest of Canada they are estimated at 52,296 person-years (Table 1.7-6).

Table 1.7-6. Estimated Indirect and Induced Employment (Person-years), Construction and Operation

	Construction (person-years)			Operation (person-years)		
	PRRD	BC	Canada	PRRD	BC	Canada
Indirect	98	1,415	2,265	2,743	28,836	57,242
Induced	183	1,286	2,452	6,614	26,307	50,197
Total (indirect and induced)	**281**	**2,701**	**4,717**	**9,357**	**55,143**	**107,439**

Similarly, substantial personal income gains will be associated with this employment. For Construction, the PRRD will see an estimated $5.6 million in indirect income and $7.9 million in induced income (Table 1.7-7). BC workers overall will see total indirect personal income of $79.4 million and induced income of $55.0 million. For Operation, the income benefits are predicted to be much larger, with an estimated $134.0 million in indirect income and $284.6 million in induced income to the PRRD, and total indirect personal income of $1,391.8 million and induced income of $1,130.0 million within BC (Table 1.7-7).

Table 1.7-7. Estimated Indirect and Induced Personal Income, Construction and Operation

	Construction ($M)			Operation ($M)		
	PRRD	BC	Canada	PRRD	BC	Canada
Indirect	$5.6	$79.4	$125.1	$134.0	$1,391.8	$2,899.3
Induced	$7.9	$55.0	$105.6	$284.6	$1,130.0	$2,148.4
Total (indirect and induced)	**$13.5**	**$134.4**	**$230.7**	**$418.6**	**$2,521.8**	**$5,047.7**

1.7.5 Contractor Supplier Services

To-date, HD Mining has invested more than $90 million in this project a significant portion of which has been spent on local goods, services and contract, including:

- $23 million for geological investigations and drilling, utilizing Canadian contractors and their workers;
- $18 million bulk sample program, utilizing Canadian contractors and their workers;
- $15 million for a housing development for workers, utilizing Canadian contractors and their workers;
- $9 million in environmental assessment utilizing Canadian contractors and their workers; and
- $16 million for equipment and other asset purchases.

For procurement, HD Mining will place a preference on use of businesses from local communities and the PRRD, including Aboriginal-owned businesses, which meet contracting requirements and are competitive in quality and price. Following regionally-based businesses, preference will be shown to BC businesses. Successful candidates who choose to participate in procurement opportunities will be informed in advance regarding the necessary requirements and qualifications needed for the good or service to be provided. Bids to provide required goods or services will be evaluated using a number of criteria, including but not limited to cost and overall value to the Project. The specific standards for purchasing will be determined during the initial stages of the Project.

The types of businesses and contractors that will benefit from Project procurement will be dependent on the availability of the required goods or services in the region, BC and elsewhere in Canada, as well as the capability of individual businesses and contractors and their response to procurement opportunities. For a project such as this, it can be expected that the main supplier industries that will benefit include transportation and warehousing; accommodation and food services; warehousing; manufacturing; and finance, insurance and real estate services.

More specifically, it is anticipated that the following goods and services will be provided by businesses in the PRRD and BC:

- personnel transportation;
- cargo and delivery services;
- hauling and trucking;
- drilling;
- excavation and other heavy equipment operators;
- road construction and maintenance;
- accommodation;
- catering and food services;
- security;
- sanitation and waste management;
- other site maintenance services;
- consumable goods (e.g., fuel);
- operating supplies;
- carpentry;
- science and engineering services; and
- electrical, mechanical and other trade services.

Other goods and services may also be provided by local businesses, depending on the responses received by HD Mining to Project procurement opportunities.

The capital costs (Section 1.7.2, Table 1.7-1) and operating costs (Section 1.7.3, Table 1.7-2) previously reported provide a breakdown of expenditures that reflects the spending on contractor and supplier services through Construction and Operation. Information on direct sales as estimated by the economic model provides additional detail on the breakdown of supplier spending by the Project[4] within the PRRD, the province, and across Canada. This is shown in Table 1.7-8.

Table 1.7-8. Total Direct Sales to Suppliers by the Project

	Construction ($M)			Operation ($M)		
	PRRD	BC	Canada	PRRD	BC	Canada
Direct Sales	$11.4	$213.1	$295.8	$560.7	$7,743.3	$7,786.3

[4] Direct spending by the Project on suppliers is estimated as (gross direct sales) – (total direct GDP). In other words, it is total Project expenditures within a specific jurisdiction (PRRD, BC, and Canada) minus the direct value added (mainly consisting of Project employees costs and business surplus).

GDP measures the value added to the economy as a result of the economic activity generated by the Project. It is also a useful indicator of economic benefits related to the Project. Estimates of GDP impacts provided by the economic impact analysis are reported below (Section 1.7.6).

1.7.6 GDP Impacts

GDP impacts are estimated for the period of 2014 to 2050, ending several years after the end of the Operation phase in 2042 as the Project is expected to have beneficial impacts extending beyond the life of the mine as earlier Project expenditures cycle through the economy.

During Construction, the total GDP impacts are estimated at $545.4 million (Table 1.7-9). Annual contributions to GDP are predicted to peak at $140.6 million in 2016. Thereafter, GDP is forecasted to increase in 2029 and 2030 as a result of the construction of the western shaft, and then largely dissipate by 2050 (see Table 1.7-11).

Table 1.7-9. Direct, Indirect and Induced GDP Impacts of Construction in Canada

Province or Territory	GDP ($M)			
	Direct	Indirect	Induced	Total
Newfoundland and Labrador	$0.0	$0.1	$0.2	$0.3
Prince Edward Island	$0.0	$0.1	$0.1	$0.2
Nova Scotia	$0.0	$0.3	$0.6	$0.9
New Brunswick	$0.0	$0.3	$0.5	$0.8
Quebec	$0.0	$10.4	$20.6	$31.0
Ontario	$21.7	$38.8	$56.0	$116.5
Manitoba	$0.0	$2.0	$3.1	$5.1
Saskatchewan	$0.0	$1.5	$2.0	$3.5
Alberta	$7.1	$23.3	$25.8	$56.2
British Columbia	$86.9	$120.3	$122.3	$329.5
Territories	$0.0	$0.8	$0.6	$1.4
Total	**$115.7**	**$197.9**	**$231.8**	**$545.4**
British Columbia as % total	*59%*	*63%*	*60%*	*59%*

Of the total GDP impacts of Construction in Canada, $329.5 million is expected to benefit the Province of British Columbia and $116.5 million is expected to benefit Ontario (Table 1.7-9). GDP impacts are also expected to be felt in Alberta and Quebec, and to a lesser extent in other Canadian provinces and territories. Direct GDP impacts are mainly predicted for British Columbia, followed by Ontario and Alberta. Indirect and induced GDP impacts are forecasted to mainly occur in British Columbia followed by Ontario and Alberta, and to a lesser extent in Quebec and other provinces and territories (Table 1.7-9).

The Construction phase of the Project is also expected to have notable regional impacts. The PRRD is expected to see an increase $25.9 million in GDP as a result of direct Project impacts of the Construction phase, with other direct impacts in British Columbia to be mostly felt in the Regional

District of Fraser-Fort George ($17.3 million) and in Greater Vancouver ($10.9 million; see Table 1.7-12). Indirect and induced GDP impacts are expected to be most substantial in Greater Vancouver, at $46.2 million and $36.1 million respectively (see Table 1.7-12).

Operation phase of the Project will bring total GDP impacts of $13.1 billion in Canada (Table 1.7-10). Annual GDP impacts are expected to increase from $10.4 million in 2014 to $188.2 million in 2018, the first year of Project Operation, and peak at $562.5 million in 2033. Thereafter, the impacts will fall to $205.5 million in 2043 and will mostly dissipate by 2050 (Table 1.7-11).

Table 1.7-10. Direct, Indirect and Induced GDP Impacts of Operation in Canada

	GDP (Millions of Dollars)			
Province or Territory	Direct	Indirect	Induced	Total
Newfoundland and Labrador	$0.0	$15.3	$7.5	$22.8
Prince Edward Island	$0.0	$4.0	$3.4	$7.4
Nova Scotia	$0.0	$53.9	$27.0	$80.9
New Brunswick	$0.0	$35.5	$19.0	$54.5
Quebec	$0.0	$851.9	$611.0	$1,462.9
Ontario	$0.3	$1,120.4	$919.6	$2,040.3
Manitoba	$0.0	$153.7	$90.8	$244.5
Saskatchewan	$0.0	$100.3	$54.3	$154.6
Alberta	$0.0	$876.3	$469.2	$1,345.5
British Columbia	$2,174.9	$2,946.0	$2,470.8	$7,591.7
Territories	$0.0	$86.6	$23.8	$110.4
Total	**$2,175.2**	**$6,243.9**	**$4,696.4**	**$13,115.5**

Of the total GDP impacts of the Operation phase, $7.6 billion will be felt in British Columbia, with the provinces of Ontario, Quebec, and Alberta expected to experience substantial benefits as well. Direct GDP impacts ($2.2 billion) of the Project will be felt in British Columbia, with indirect and induced impact mostly felt in British Columbia, followed by Ontario, Quebec and Alberta (Table 1.7-10).

Operation phase will also bring substantial GDP impacts at the regional level. In British Columbia, the PRRD is expected to benefit approximately $1.1 billion in GDP; indirect and induced impacts are mostly predicted for Greater Vancouver, followed by Peace River, Columbia-Shuswap, East Kootenay and Skeena-Queen Charlotte (Table 1.7-12).

1.7.7 Government Revenues

The Project will directly contribute to government revenues during Operation. Tax payments are estimated to total approximately $892 million in BC Mineral Tax, $656 million in provincial income tax, $895 million in federal income tax, and $69.6 million in property tax. Total direct tax payments over the life of the Project are estimated at $3.66 billion. The annual breakdown of payments is shown in Table 1.7-13.

Table 1.7-11. Annual GDP Impacts of Construction and Operation in Canada

Year	Construction ($M)	Operation ($M)
2014	$29.7	$10.4
2015	$74.6	$25.9
2016	$140.6	$39.3
2017	$87.6	$43.5
2018	$46.3	$188.2
2019	$25.5	$333.8
2020	$15.7	$406.0
2021	$10.8	$445.1
2022	$6.8	$474.3
2023	$4.9	$496.7
2024	$3.8	$518.1
2025	$2.9	$535.1
2026	$2.3	$542.3
2027	$2.1	$539.5
2028	$2.1	$518.6
2029	$27.1	$514.6
2030	$15.5	$525.1
2031	$7.7	$542.8
2032	$4.6	$556.7
2033	$3.2	$562.5
2034	$2.5	$561.5
2035	$2.2	$560.7
2036	$2.1	$562.4
2037	$2.0	$562.4
2038	$2.0	$559.7
2039	$1.9	$549.4
2040	$1.8	$526.8
2041	$1.8	$520.0
2042	$8.1	$522.5
2043	$4.0	$205.5
2044	$1.7	$88.2
2045	$0.8	$40.8
2046	$0.4	$19.4
2047	$0.2	$9.3
2048	$0.1	$4.5
2049	$0.0	$2.2
2050	$0.0	$1.7
Total	**$545.4**	**$13,115.5**

Table 1.7-12. Total GDP Impacts of Construction and Operation in British Columbia

Census Division	Construction ($M)				Operation ($M)			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
1 (Alberni-Clayoquot)	$0.0	$0.6	$0.8	$1.4	$0.2	$14.9	$16.0	$31.1
2 (Bulkley-Nechako)	$4.3	$1.3	$2.6	$8.2	$0.2	$26.8	$19.9	$46.9
3 (Capital)	$1.4	$5.5	$5.2	$12.1	$2.5	$65.6	$72.5	$140.6
4 (Cariboo)	$8.6	$2.2	$4.9	$15.7	$0.4	$22.3	$22.5	$45.2
5 (Central Coast)	$0.1	$0.1	$0.4	$0.6	$0.0	$25.9	$12.1	$38.0
6 (Central Kootenay)	$0.7	$1.4	$1.4	$3.5	$0.5	$13.8	$17.0	$31.3
7 (Central Okanagan)	$2.1	$5.8	$4.7	$12.6	$107.8	$47.4	$89.0	$244.2
8 (Columbia-Shuswap)	$2.0	$3.1	$3.1	$8.2	$0.4	$334.8	$62.4	$397.6
9 (Comox-Strathcona)	$1.1	$2.4	$2.0	$5.5	$0.6	$20.2	$21.9	$42.7
10 (Cowichan Valley)	$0.9	$2.1	$1.6	$4.6	$0.4	$12.7	$17.3	$30.4
11 (East Kootenay)	$1.1	$3.0	$2.3	$6.4	$0.3	$254.4	$57.5	$312.2
12 (Fraser Valley)	$3.5	$8.2	$5.9	$17.6	$215.4	$59.6	$135.4	$410.4
13 (Fraser-Fort George)	$17.3	$5.3	$10.4	$33.0	$321.8	$57.9	$170.4	$550.1
14 (Greater Vancouver)	$10.9	$46.2	$36.1	$93.2	$453.5	$1,123.0	$725.1	$2,301.6
15 (Kitimat-Stikine)	$0.9	$0.8	$1.1	$2.8	$0.2	$9.8	$13.2	$23.2
16 (Kootenay Boundary)	$0.4	$1.8	$1.4	$3.6	$0.5	$17.4	$16.5	$34.4
17 (Mount Waddington)	$0.0	$0.5	$0.7	$1.2	$0.1	$19.6	$16.4	$36.1
18 (Nanaimo)	$0.7	$3.4	$2.7	$6.8	$0.8	$45.7	$36.8	$83.3
19 (North Okanagan)	$0.7	$2.5	$2.3	$5.5	$0.5	$31.4	$29.8	$61.7
20 (Northern Rockies)	$0.3	$2.8	$2.6	$5.7	$0.0	$89.1	$48.5	$137.6
21 (Okanagan-Similkameen)	$0.7	$2.4	$2.2	$5.3	$0.6	$19.9	$28.0	$48.5
22 (Peace River)	$25.9	$8.6	$18.6	$53.1	$1,066.3	$281.4	$651.9	$1,999.6
23 (Powell River)	$0.1	$1.0	$1.0	$2.1	$0.1	$8.7	$13.9	$22.7
24 (Skeena-Queen Charlotte)	$0.1	$0.4	$0.7	$1.2	$0.2	$203.7	$66.3	$270.2
25 (Squamish-Lillooet)	$1.1	$2.6	$2.3	$6.0	$0.3	$21.7	$29.1	$51.1
26 (Stikine)	$0.0	$0.4	$0.8	$1.2	$0.0	$16.5	$19.6	$36.1
27 (Sunshine Coast)	$0.4	$1.5	$1.3	$3.2	$0.1	$10.6	$16.2	$26.9
28 (Thompson-Nicola)	$1.4	$4.4	$3.4	$9.2	$1.2	$91.2	$45.6	$138.0
Total	**$86.7**	**$120.3**	**$122.5**	**$329.5**	**$2,174.9**	**$2,946.0**	**$2,470.8**	**$7,591.7**

In addition, the direct, indirect and induced economic activity generated by the Project will result in additional tax revenues to the BC Government, other provincial governments in Canada, and the federal government. These taxes consist of personal income tax (on income earned through employment), taxes paid by other businesses and industry (in addition to the direct taxes paid by the Project as shown in Table 1.7-13) and sales tax (PST and GST/HST). The annual revenues from these taxes for Construction are shown in Table 1.7-14, and for Operation are shown in Table 1.7-15.

Table 1.7-13. Taxes Payable by the Project ($M), 2018 to 2042

Year	BC Mineral Tax	BC Income Tax	Federal Income Tax	Property Tax	Total
2018	$4.1			$2.0	$6.0
2019	$6.6			$2.8	$9.5
2020	$6.6	$4.7	$6.4	$2.8	$20.6
2021	$26.3	$32.1	$43.7	$2.8	$104.9
2022	$41.7	$30.3	$41.4	$2.8	$116.2
2023	$42.0	$30.4	$41.5	$2.8	$116.8
2024	$40.8	$30.6	$41.7	$2.8	$115.9
2025	$40.8	$30.5	$41.5	$2.8	$115.6
2026	$40.2	$30.4	$41.4	$2.8	$114.8
2027	$39.5	$30.2	$41.2	$2.8	$113.6
2028	$41.8	$30.2	$41.2	$2.8	$116.0
2029	$35.2	$29.7	$40.6	$2.8	$108.3
2030	$39.1	$29.3	$39.9	$2.8	$111.1
2031	$41.5	$29.2	$39.8	$2.8	$113.3
2032	$39.8	$29.6	$40.3	$2.8	$112.5
2033	$40.1	$29.5	$40.3	$2.8	$112.7
2034	$42.4	$29.5	$40.3	$2.8	$115.0
2035	$41.8	$30.0	$40.9	$2.8	$115.4
2036	$39.2	$30.2	$41.2	$2.8	$113.4
2037	$40.7	$29.9	$40.7	$2.8	$114.1
2038	$40.9	$29.9	$40.7	$2.8	$114.3
2039	$39.3	$29.9	$40.8	$2.8	$112.9
2040	$40.7	$29.7	$40.5	$2.8	$113.7
2041	$39.3	$29.8	$40.6	$2.8	$112.4
2042	$41.6	$20.7	$28.2	$2.8	$93.4
Total	**$892.1**	**$656.1**	**$894.7**	**$69.6**	**$3,657.7**

Note: There will be no taxes payable for production and business income prior to the start of Operation.

For Construction, total revenues to governments (excluding direct payments by the Project) are estimated by the economic impact model to total $94.5 million, with approximately $43.5 million to the federal government and $51.0 million to provincial governments (Table 1.7-14). The total provincial tax revenue to BC will be approximately $30.2 million.

For Operation, total revenues to governments are estimated by the economic impact model to total $2.04 billion, with approximately $1.08 billion to the federal government and $956 million to provincial governments (Table 1.7-15). The total provincial tax revenue to BC will be approximately $524 million.

Table 1.7-14. Government Tax Revenues (Excluding Direct Project Taxes) ($M) from Construction, 2014 to 2045

Year	Federal Tax Revenues	Provincial Tax Revenues	Total
2014	$2.9	$2.5	$5.4
2015	$7.3	$6.2	$13.5
2016	$13.1	$11.2	$24.3
2017	$8.1	$6.9	$15.0
2018	$4.4	$3.8	$8.2
2019	$2.4	$2.0	$4.4
2020	$1.4	$1.2	$2.6
2021	$1.0	$0.8	$1.8
2022	$0.6	$0.5	$1.1
2023	$0.4	$0.4	$0.8
2024	$0.3	$0.3	$0.6
2025	$0.2	$0.2	$0.4
2026	$0.2	$0.2	$0.4
2027	$0.2	$0.2	$0.4
2028	$0.3	$0.3	$0.6
2029	$2.4	$2.1	$4.5
2030	$1.4	$1.2	$2.6
2031	$0.7	$0.6	$1.3
2032	$0.4	$0.3	$0.7
2033	$0.3	$0.2	$0.5
2034	$0.2	$0.2	$0.4
2035	$0.2	$0.2	$0.4
2036	$0.2	$0.1	$0.3
2037	$0.1	$0.1	$0.2
2038	$0.2	$0.2	$0.4
2039	$0.2	$0.1	$0.3
2040	$0.2	$0.1	$0.3
2041	$0.2	$0.2	$0.4
2042	$0.7	$0.6	$1.3
2043	$0.4	$0.3	$0.7
2044	$0.3	$0.2	$0.5
2045	$0.1	$0.1	$0.2
Total	**$51.0**	**$43.5**	**$94.5**

Notes:
Provincial tax revenues are revenues to all Canadian provinces and territories, including BC.
Beyond the year 2045, indirect and induced tax revenues generated by the Project from Construction are negligible.

Table 1.7-15. Government Tax Revenues (Excluding Direct Project Taxes) ($M) from Operation, 2014 to 2045

Year	Federal Tax Revenues	Provincial Tax Revenues	Total
2014	$1.1	$0.9	$2.0
2015	$2.3	$2.0	$4.3
2016	$3.3	$2.9	$6.2
2017	$3.8	$3.3	$7.1
2018	$15.9	$14.0	$29.9
2019	$26.3	$23.1	$49.4
2020	$32.6	$28.8	$61.4
2021	$36.0	$31.7	$67.7
2022	$38.1	$33.6	$71.7
2023	$39.5	$34.8	$74.3
2024	$41.0	$36.2	$77.2
2025	$40.9	$36.0	$76.9
2026	$47.2	$41.6	$88.8
2027	$47.5	$41.8	$89.3
2028	$45.4	$40.0	$85.4
2029	$45.1	$39.8	$84.9
2030	$46.1	$40.6	$86.7
2031	$41.8	$36.8	$78.6
2032	$43.2	$38.2	$81.4
2033	$43.8	$38.6	$82.4
2034	$43.7	$38.5	$82.2
2035	$43.6	$38.4	$82.0
2036	$43.8	$38.6	$82.4
2037	$42.7	$37.6	$80.3
2038	$48.8	$43.0	$91.8
2039	$48.5	$42.8	$91.3
2040	$46.2	$40.8	$87.0
2041	$45.6	$40.2	$85.8
2042	$44.8	$39.5	$84.3
2043	$19.4	$17.1	$36.5
2044	$8.7	$7.7	$16.4
2045	$4.1	$3.6	$7.7
2046	$2.0	$1.7	$3.7
2047	$1.0	$0.8	$1.8
2048	$0.5	$0.4	$0.9
2049	$0.2	$0.2	$0.4
2050	$0.2	$0.1	$0.3
Total	**$1,084.7**	**$955.7**	**$2,040.4**

Note: Provincial tax revenues are revenues to all Canadian provinces and territories, including BC.
Beyond the year 2050, indirect and induced tax revenues generated by the Project from Operation are negligible.

In sum, over both Construction and Operation phases of the Project, total tax revenues to the federal government (in addition to taxes paid directly by the Project; Table 1.7-13) will be approximately $1.12 billion and to all provincial governments $1.01 billion. Total tax revenues to the Government of BC are estimated at $554 million over the life of the mine.

1.7.8 Community Development

Community development will be supported through the employment and procurement opportunities that support the further economic development of the communities within the PRRD. HD Mining will encourage the involvement of local and regional businesses interested in the opportunities to directly and indirectly supply the Project to maximize the benefits within the region. Further details on the measures that will be implemented to enhanced Project benefits are provided in Section 1.7.9 below.

HD Mining is committed to improving the quality of life in the communities in which it operates. In addition to the Project-related economic benefits discussed above and $15 million that has been invested to date to develop worker housing in Tumbler Ridge, HD Mining has also been involved with initiatives and organizations focussed on education, child development, health and wellness, arts and culture, civic and community initiatives, as well as the environment. Since first becoming involved in the Project, HD Mining has sponsored local events and assisted a number of local organizations with programs and initiatives. Some of these past initiatives include:

- supporting airport development through a financial contribution;
- sponsoring community events such as the Tumbler Ridge Car Show in 2011;
- providing a financial contribution to support construction of a community gazebo in collaboration with the Community Garden and Composting Society;
- sponsoring a school luncheon for the Forever Young Society;
- sponsorship of and participation in West Moberly Days;
- sponsorship of and participation in Pemmican Days, Saulteau First Nations;
- sponsorship of an Environmental Monitor Course for First Nations;
- participating in the Tumbler Ridge 30 year celebration; and
- donating to the Children's Summer Reading Program.

Future community development initiatives would continue to include many of the initiatives in which HD Mining has already been involved, and the company is committed to continued involvement with the communities in which they work.

1.7.9 Enhancement of Project Benefits

There are a number of measures that will be undertaken by the Proponent to enhance the positive economic effects of the Project. These include a Recruitment, Training and Employment (RTE) Plan, a Procurement Strategy, and continued engagement with First Nations and communities. These measures are described below. The RTE Plan is outlined in more detail in Chapter 24 (Section 24.16).

These measures also serve to mitigate the potential adverse economic effects of the Project (Chapter 14, Section 14.7).

1.7.9.1 Recruitment, Training and Employment Plan

The overall objective of the Recruitment, Training and Employment (RTE) Plan is to enhance the potential for the Project to create direct employment and income benefits within the Peace River Regional District and the province as a whole. This is done through employment and investment in training of the local supply base by means of hiring local labour across Project job categories and development of the local skill base.

For the RTE Plan, specific objectives are defined with respect to recruitment, training, and retention:

- Workforce recruitment – maximize the number of workers from the local communities and the region directly employed with the Project.
- Workforce training – enhance opportunities for training of the regional labour force to be employable by the Project, and provide on-the-job training opportunities to all employees to support career advancement.
- Workforce retention – maximize employee retention and minimize turnover, and provide equal opportunity for job placement and career advancement to all individuals employed by the Project.

It is anticipated that the RTE Plan will developed from the framework provided below.

Workforce Recruitment

The key activities associated with workforce recruitment include:

- early communication of activities (such as dissemination of information through a Project newsletter and email list, on a Project website, and/or at recruitment events) within LSA communities to provide advance notification of employment opportunities and expectations, hiring schedules, and skill/certification requirements;
- development of employment policies and programs that encourage recruitment, including providing a competitive compensation and benefits package for all workers that is consistent with mining industry standards in British Columbia; and
- provision of thorough on-boarding and orientation programs for new workers, so that new employees are provided with an understanding of what is expected in terms of work responsibilities, environmental protection, and health and safety management.

Workforce Training

HD Mining will have ongoing communications with Aboriginal and non-Aboriginal communities regarding prerequisite skills and entry requirements for employment with the Project. To facilitate the successful incorporation of workers from the region, HD Mining will undertake the development of co-operative working relationships with Northern Lights College (NLC) to facilitate worker preparedness for Project positions.

Through NLC, and potentially other post-secondary education organizations, training will be made available to provide sector-related skills and training in the local communities and within the region. This partnership will be designed to complement the RTE Plan and support the recruitment objective to maximize the number of local workers directly employed with the Project. This will have a positive effect on the regional workforce, which will be engaged to participate in programs specifically targeted at training for Project employment. Actual success in enhancing local employment will be based on the level of interest, skill set and demand.

A Memorandum of Understanding (MOU) between HD Mining and NLC has been developed with the objective of working collaboratively on the development of an underground coal mining education program. Key aspects of the activities within the MOU include, but are not limited to, the following:

- development of relevant curriculum for both general and longwall mining specific skill sets;
- development of relevant simulations modules;
- identification of partners for program infrastructure including a simulated underground mining environment;
- delivery of underground mining training in Tumbler Ridge; and
- development of strong community partnerships within the town of Tumbler Ridge and the First Nations communities in the LSA.

Throughout the life of the Project, HD Mining will continue to work with NLC and others by providing information related to ongoing employment requirements to coordinate with the provision of additional programs, based on demand, that would enable individuals to increase their skills training, certification, supervisory, and management skills for employment. In addition making training available to prepare local workers for employment with the Project, on-the-job training will be made available as it relates to an individual's job requirements and desired career development path. Career development opportunities will be available in all work areas.

Workforce Retention

The capability of the Project to employ and retain workers from the local communities and the region will be enhanced through the following activities:

- clearly defined and delivered workplace benefits and commitments;
- recognition of employee performance;
- creation and maintenance of a safe working environment;
- flexibility for cultural and familial commitments and responsibilities of workers;
- provision of on-the-job training opportunities for workers;
- pre-screening of workers for drug and alcohol use;
- implementation of zero-tolerance policies for drug and alcohol use, including clear communication and commitment to the policies by workers; and

- provision of an Employee and Family Assistance Program.

Human Resources policies and procedures will be developed for the Project to support the above activities.

1.7.9.2 Procurement Strategy

The Procurement Strategy will be developed in order to maximize the amount of goods and services, as well as indirect employment opportunities, created in the region and across the province as a result of the Project. Where quality and competitive costing allows, the Project will aim to engage local mining sector-related businesses to provide goods and services.

Local enterprises will be targeted for early communications on the Project's anticipated future demand. This will afford local enterprises additional time to prepare to target pieces of work for which they have the capacity to tender and deliver the desired goods or services.

Capabilities and experience will be considered in the evaluation of suppliers and in the awarding of contracts. Local enterprises may receive significant competitive and capacity development benefits through working as a partner or subcontractor with a larger, potentially international firm. Where possible, HD Mining will facilitate the development of relationships between large contractors and local enterprises through communications and invitational events.

1.7.9.3 Engagement with First Nations and Local Communities

In order to effectively communicate existing or upcoming opportunities for employment and procurement, the Project will continue to engage with First Nations and local communities to ensure there is adequate and accessible public information on the Project. To promote a shared value in the Project and obtain an ongoing social license to operate regular communications with First Nations, community, industry and other stakeholder within the local and regional area will be carried out.

Timely and accurate information will assist communities in their economic planning activities, individuals in their employment and training decision-making, and businesses in their planning and investment decisions.

1.7.10 Summary of Project Benefits

The Murray River Coal Project is predicted to result in a number of direct, indirect and induced economic benefits. The economic benefits are predicted for both the Construction and Operation phases of the Project, and will occur at a regional, provincial, and national level. Benefits include Project contributions to employment, personal income, and GDP as well as government tax revenue. Provincially, British Columbia is expected to receive majority of beneficial impacts, followed by Ontario, Quebec and Alberta. At a regional level, beneficial impacts of the Project are expected to be felt most notably in the PRRD.

Construction of the Project will require a total of 1,766 person-years of direct employment and an estimated $667.9 million in capital expenditures (with about 61.6% of it spent in Canada). The Project is expected to result in an approximately 6,483 person-years of direct, indirect and induced

employment; of that, 4,055 person-years is predicted for British Columbia. From this employment, British Columbians will benefit from $213 million in personal income. The total GDP impact for the phase is predicted at $545 million, and the government revenue is forecasted to increase by $51 million for the federal and $44 million for the provincial governments.

The Operation phase of the Project will take 25 years (2018 to 2042) over which approximately 764 direct jobs will be created accompanied by the Project's total operating expenditures of $10.7 billion, 93% of which is expected to be spent in Canada. The total employment impact (direct, indirect and induced) over Operation is estimated at 124,349 person-years of employment with the majority of it predicted for British Columbia (72,053 person-years). It is further forecasted that workers in British Columbia will benefits an additional $4.1 billion in personal income as a result of direct, indirect and induced employment opportunities. GDP impact is predicted at $13.1 billion. Government tax revenue, excluding that paid directly by the Project, is estimated at $1.1 billion contributed to the federal government and $955 million contributed to the provincial governments. In addition, the Project will pay direct taxes of approximately $892 million in BC Mineral Tax, $656 million in provincial income tax, $895 million in federal income tax, and $69.6 million in property tax. Total direct tax payments over the life of the Project are estimated at $3.66 billion.

1.8 REGULATORY FRAMEWORK

1.8.1 Scope of Assessment

1.8.1.1 Provincial Scope of the Project

Pursuant to section 3(1) of the *Reviewable Projects Regulation* (B.C. Reg. 370/2002), the proposed production capacity for the Project exceeds the criteria of 250,000 tonnes per annum (tpa) of clean coal and will require a provincial environmental assessment (EA) under the BC *Environmental Assessment Act* (BC EAA). The provincial scope of the proposed Project includes the following on-site and off-site components, pursuant to the Section 11 Order issued by the EAO:

- underground mine;
- waste rock storage facilities;
- overburden and solid storage areas;
- explosives use and storage facilities;
- coal rejects storage piles;
- equipment and fuel storage areas and facilities;
- maintenance, administration, and warehouse facilities;
- coal handling and preparation facilities;
- coal conveyor;
- rail load-out;
- contact water collection ditches, settling ponds and water management structures;

- non-contact water diversion ditch network and settling ponds;
- water supply facilities;
- sewage treatment and disposal facilities;
- electric transmission line connecting to existing BC Hydro grid and related infrastructure; and
- natural gas pipeline connecting to existing infrastructure and related infrastructure.

1.8.1.2 Federal Scope of the Project

The proposed Project is subject to CEAA 2012. The proposed Project exceeds the coal production threshold of 3,000 tonnes per day (t/d) or more identified under section 15(d) of the Regulations Designating Physical Activities list. The federal scope of the proposed Project includes the following components, pursuant to the Final EIS Guidelines:

- underground mine and associated works;
- groundwater extraction and distribution facilities;
- coal rejects storage area;
- waste rock storage facilities;
- overburden and soil storage areas;
- explosives use and storage facilities;
- contact water collection ditches, sedimentation pond(s), and water management structures, including a discharge pipeline;
- non-contact water diversion ditch network and sedimentation pond(s);
- coal handling and preparation facilities;
- equipment and fuel storage areas and facilities;
- maintenance, administration, and warehouse facilities;
- coal conveyor;
- coal stockpiles;
- sewage treatment and disposal facilities;
- rail load-out;
- natural gas pipeline connecting to existing infrastructure and related sub-station infrastructure; and
- electric transmission line connecting to the existing BC Hydro grid and related infrastructure.

1.8.2 BC Environmental Assessment Process

1.8.2.1 Overview

The Project is subject to a coordinated[5] provincial-federal EA process conducted under the principles of the now expired Canada–British Columbia Agreement for Environmental Assessment Cooperation (the Agreement; 2004c). The agreement aligns key aspects of the assessment process to minimize duplication and improve efficiency (e.g., conducting joint public comment periods, coordinating aspects of Aboriginal consultation, using common documents that meet the requirements of both governments, and establishing common working groups to facilitate the review process). The provincial EA process for the Murray River Project involves a number of phases and steps as demonstrated in Figure 1.8-1.

1.8.2.2 Pre-Application Stage

The provincial EA process begins with the pre-application phase which is initiated by the submission of a Project Description. HD Mining submitted a Project Description to the BC EAO on May 25, 2012. After reviewing the Project Description and deeming it acceptable, an Order under Section 10(1)(c) of the BC EAA (2002b) was issued by the BC EAO on June 29, 2012 indicating the Project was reviewable. The order stated that the Project required an EA Certificate and that the proponent may not proceed with the construction and operation of the Project without an assessment. On December 14, 2013 the BC EAO issued an Order pursuant to Section 11 of the BC EAA, which prescribed the scope , procedures, and methods for the provincial EA, including public, government agency, Treaty Nations, and First Nations consultation requirements.

Consistent with the requirements of the Section 11 Order, HD Mining submitted a Public Consultation Plan and a First Nations Consultation Plan, which were approved by BC EAO and posted to the electronic-Project Information Center (e-PIC) on January 16, 2013 and October 8, 2013, respectively.

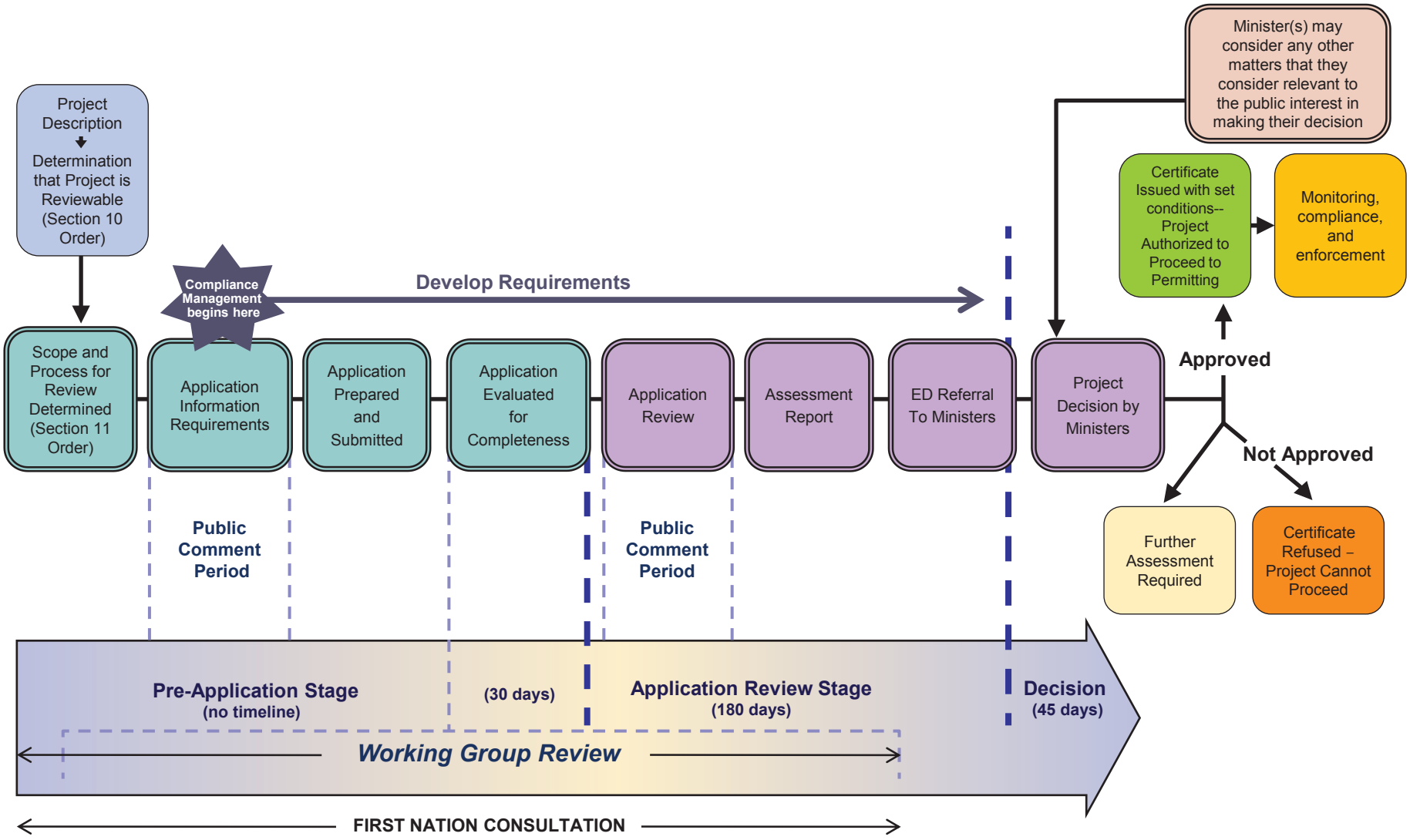
1.8.2.3 Environmental Assessment Working Group

After receipt of the Project Description the provincial authorities were notified of the Project. The BC EAO identified relevant provincial agencies with expertise to provide during Project review and extended invitations to participate in the Working Group.

[5] Under section 86 of CEAA 2012, the Minister of Environment can enter into agreements to promote cooperation and coordinated action between federal and provincial governments with respect to the assessment of the environmental effects of designated projects of common interest.

Figure 1.8-1

Provincial EA Process for the Murray River Project



Source: Canadian Environmental Assessment Agency.

The BC EAO and the CEA Agency, with the BC EAO acting as the lead agency, established the EA Working Group and began to hold Project-related meetings on October 2, 2012. The purpose of the Working Group is to review and comment on key EA documents, including the Application Information Requirements (AIR), the Application/EIS, and the BC EAO and CEA Agency assessment reports. The BC EAO also held a working group meeting on November 6, 2013 to further discuss the Project's development plans, potential effects, and possible mitigation strategies.

Typical membership of an EA Working Group includes representatives from all levels of government (federal, provincial, regional, and municipal), potentially affected Aboriginal groups, and other stakeholders as required. The members for the Murray River EA Working Group are identified in Table 1.8-1.

Table 1.8-1. Membership of the Murray River Project Environmental Assessment Working Group

Working Group Member
BC Environment Environmental Assessment Office
Canadian Environmental Assessment Agency
BC Ministry of Aboriginal Relations and Reconciliation
BC Ministry of Energy and Mines
BC Ministry of Environment
BC Ministry of Forests, Lands and Natural Resource Operations
BC Ministry of Transportation and Infrastructure
BC Ministry of Jobs, Tourism and Skills Training
BC Ministry of Agriculture
Northern Health
Canadian Wildlife Service
Health Canada
District of Tumbler Ridge
Environment Canada
Fisheries and Oceans Canada
McLeod Lake Indian Band
Natural Resources Canada
Saulteau First Nation
Transport Canada
West Moberly First Nation

1.8.2.4 Application Information Requirements

In accordance with the EA process, HD Mining prepared a draft Application Information Requirements (dAIR) for the Project; the AIR identifies the information required to be submitted in the Application. A dAIR was submitted to the BC EAO on September 25, 2012 and distributed to the EA Working Group for review. Comments were compiled into an issues tracking table for response by HD Mining. The BC EAO initiated a 30 day public comment period on the AIR, held from May 21

to June 20, 2013. Public comments were compiled in a separate issues tracking table. A summary of the issues raised during the review of the AIR are provided in Chapter 2 (Information Distribution and Consultation) of the Application/EIS.

Revisions were made to the AIR following feedback received from the EA Working Group, First Nations, and the public. The BC EAO approved the AIR on September 3, 2013.

1.8.2.5 Preparation of the Application

After receiving the final AIR, the proponent completes all required baseline studies and conducts an effects assessment for each Valued Component to identify whether the Project is likely to result in any potentially significant adverse effects. Generally in order to meet the EA approvals timeframes, the proponent will have already commenced data collection well in advance of the commencement of the EA process, as is the case with the Murray River Project.

Following data collection and review, mitigation measures that are required to avoid, reduce, control, or compensate any adverse effects are identified. Additional monitoring requirements may also be identified. Public and Aboriginal consultation activities are ongoing during this period. All of this information is compiled into an Application for an EA Certificate. Under a coordinated EA process with the federal government, the proponent may submit one document that meets the requirements of both governments, as is the case with this Murray River Project Application/EIS.

1.8.2.6 Screening of the Application

After the proponent submits the Application, a 30 day screening period (required by the BC EAA [2002b]) is initiated (which may be extended at the discretion of the BC EAO). A Table of Concordance is used by the EA Working Group to evaluate the Application by comparing it to the AIR to determine whether the required information has been adequately provided. If the BC EAO determines the Application is inadequate, the Application will be rejected for review, and the proponent is directed to address information deficiencies. If the Application contains all of the required information, the BC EAO notifies the proponent that the Application is accepted for a detailed review by the EA Working Group.

1.8.2.7 Review of the Application

Under the BC EAA (2002b), if the Application is accepted for review by the BC EAO, a legislated 180 day (6 month) review period commences. The proponent provides paper and electronic copies of the Application to the EA Working Group, Aboriginal groups, and public libraries stakeholders as directed by the BC EAO.

During the review period, a public comment period on the Application will be held to provide the public with an opportunity to review and comment on the Application. This is a joint federal-provincial process as comments are made on the Application and EIS (the federal equivalent of the Application). Comments are compiled, tracked, and responded to by the proponent using an issues-tracking table. The EA Working Group reviews the responses provided by the proponent and determines whether they are adequate. Comments received during the public comment period are

posted to the BC EAO's e-PIC website. EA Working Group meetings are held throughout the 180 day period to review the Application/EIS and to discuss and resolve outstanding technical issues. Aboriginal consultation activities by the provincial government and the proponent are ongoing during this period. Pursuant to Section 27(6) of the BC EAA (2002b), the BC EAO may suspend the time limit if additional information is required from the proponent to complete the review.

1.8.2.8 Assessment Report

During the latter stages of the Application review the BC EAO prepares an Assessment Report. The report relates to the provincial scope of the Project and summarizes the residual effects of the proposed project, identifies proposed mitigation measures, evaluates the significance of adverse effects, summarizes all public concerns and how they have been addressed, and identifies any outstanding issues. A summary of all Aboriginal consultation issues that were raised during the EA process is also included, and the adequacy of the Crown's consultation effort is provided. The report contains recommendations as to whether the project should receive an EA approval. The report is provided to the EA Working Group, to Aboriginal groups, and to the proponent for their review and comment prior to being finalised and referred for a ministerial decision.

1.8.2.9 Referral and Ministerial Decision

The BC EAO compiles a referral package that includes the Assessment Report, recommendations from the Executive Director regarding whether the provincial Minister of Environment and Minister of Energy, Mines and Natural Gas should grant an EA Certificate for the proposed project and a draft EA Certificate. If approval is granted, the EA Certificate includes conditions that the proponent must adhere to, in addition to identifying key mitigation measures and monitoring requirements that the proponent must follow. The ministers' decision is made within 45 days of a referral and is posted to the BC EAO's e-PIC website. Once issued the EA Certificate is a legally binding document granting conditional approval for the Project to proceed.

1.8.2.10 Summary of Provincial Assessment Milestones

The provincial milestones that have been achieved through the EA process to date are outlined in Table 1.8-2.

Table 1.8-2. Provincial EA Process Milestones

EA Process Milestones	Date
HD Mining submits Project Description to BC EAO	May 25, 2012
BC EAO issues Section 10 Order	June 29, 2012
HD Mining submits draft AIR to the BC EAO	September 25, 2012
Inaugural EA Working Group meeting	October 2, 2012
BC EAO issues Section 11 Order	December 14, 2012
BC EAO approves Public Consultation Plan	January 16, 2013
AIR 30 day Public Comment Period	May 21 – June 20, 2013

(continued)

Table 1.8-2. Provincial EA Process Milestones (completed)

EA Process Milestones	Date
BC EAO issues approved AIR	September 3, 2013
BC EAO approves First Nations Consultation Plan	October 8, 2013
BC EAO Working Group Meeting	November 6, 2013

1.8.3 Federal Environmental Assessment Process

1.8.3.1 Overview

The Project is subject to a coordinated[6] provincial-federal EA process conducted under the principles of the now expired Canada–British Columbia Agreement for Environmental Assessment Cooperation (the Agreement; 2004c). The agreement aligns key aspects of the assessment process to minimize duplication and improve efficiency (e.g., conducting joint public comment periods, coordinating Aboriginal consultation, using common documents that meet the requirements of both governments, and establishing common working groups to facilitate the review process). The federal EA process for the Murray River Project involves a number of phases and steps as demonstrated in Figure 1.8-2.

1.8.3.2 Pre-Submission Stage

The Federal EA process begins with the pre-submission stage which is initiated by the submission of a Project Description. HD Mining submitted a Project Description to the CEA Agency on April 4, 2013. The CEA Agency initiated a 20 day Public Comment Period, held from April 15 to May 6, 2013.

A Notice of Commencement was issued on May 31, 2013 stating that the CEA Agency had commenced an Environmental Assessment of the Project pursuant to CEAA 2012; this notice was posted on the Agency's internet site.

Draft EIS guidelines were issued by the CEA Agency on May 31, 2013 and were subject to a 30 day public comment period. Following review of the comments from the public including First Nations, the CEA Agency issued final EIS Guidelines on July 30, 2013.

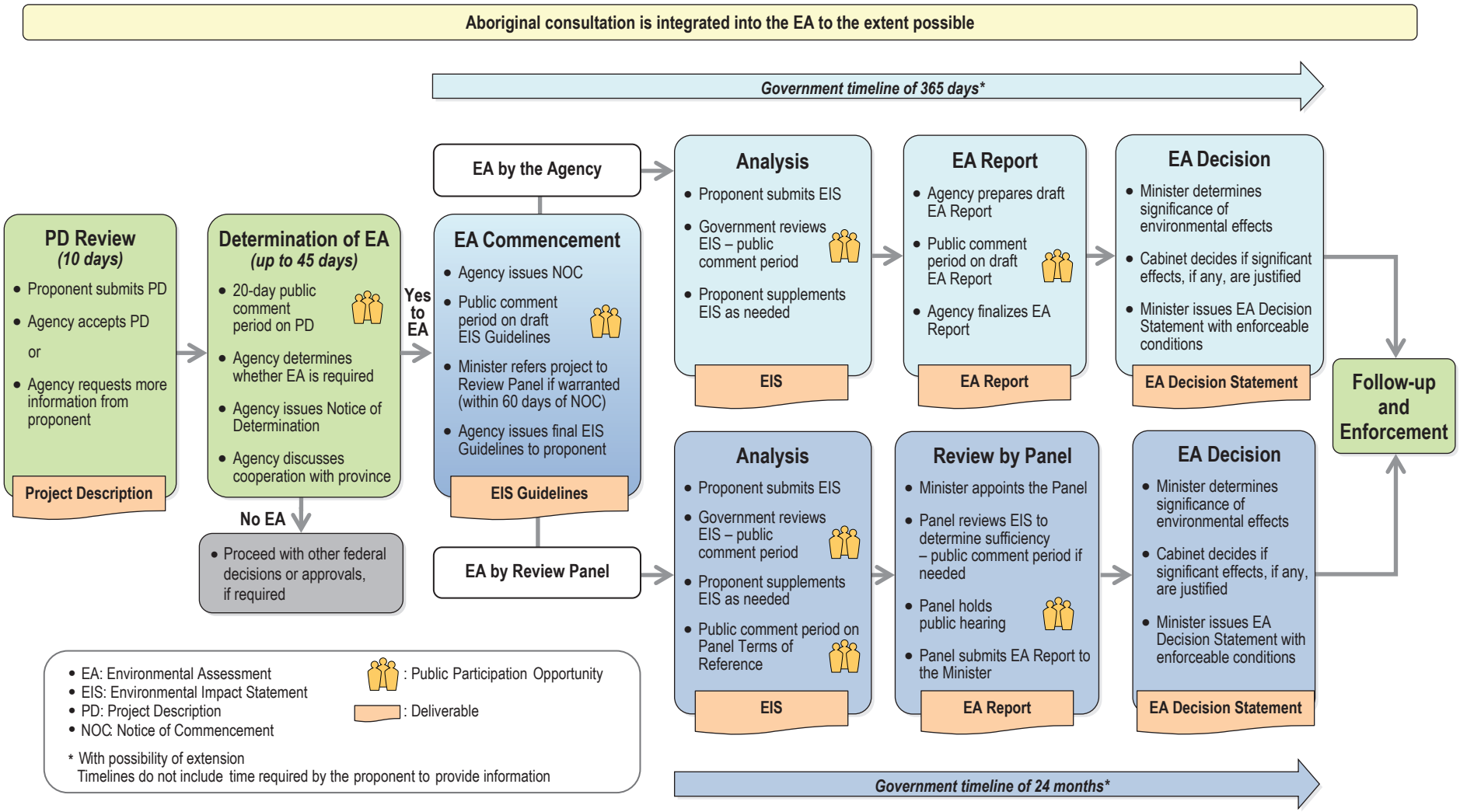
1.8.3.3 Environmental Assessment Working Group

After receipt of the Project Description the federal authorities were notified of the Project. Federal departments that either have expertise to provide (Federal Expert Authorities) or that are required to issue an authorization for the Project (Responsible Authorities, RAs) were both invited to participate in the Working Group.

[6] Under section 86 of CEAA 2012, the Minister of Environment can enter into agreements to promote cooperation and coordinated action between federal and provincial governments with respect to the assessment of the environmental effects of designated projects of common interest.

Figure 1.8-2

Federal EA Process for the Murray River Project



Source: Canadian Environmental Assessment Agency (2013).

While the Project had not yet officially entered the CEAA 2012 process, the CEA Agency participated in the first EA Working Group meeting on October 2, 2012. Following the Notice of Commencement, federal agencies then engaged as part of the EA Working Group, contributing comments on the dAIR and participating in the EA Working Group meetings. The members for the EA Working Group are identified in Table 1.8-1.

1.8.3.4 EIS Guidelines

The CEA Agency issued draft EIS Guidelines for the Project on May 31, 2013, which was followed by a mandatory public comment period of 30 days. The purpose of the EIS Guidelines is to identify the minimum information requirements for the preparation of an EIS in accordance with the CEAA 2012 and specifies in detail the nature, scope and extent of the information required. Following the 30 day public review period held May 31 to June 30, 2013, final EIS Guidelines for the Project were issued on July 30, 2013 by the CEA Agency. This EIS constitutes a submission in accordance with the Federal EIS Guidelines for the Project.

1.8.3.5 Preparation of the EIS

After receiving the final EIS Guidelines, the proponent completes all required baseline studies and conducts an effects assessment for each Valued Component to identify whether the Project is likely to result in any potentially significant adverse effects. Generally in order to meet the EA approvals timeframes, the proponent will have already commenced data collection well in advance of the commencement of the EA process, as is the case with the Murray River Project.

Following data collection and review, mitigation measures that are required to avoid, reduce, control, or compensate any adverse effects are identified. Additional monitoring requirements may also be identified. Public and Aboriginal consultation activities are ongoing during this period. All of this information is compiled into the EIS. Under a coordinated EA process, the proponent may submit one document that meets the requirements of both federal and provincial governments, as is the case with this Murray River Project Application/EIS.

1.8.3.6 Review of the EIS

Under CEAA 2012, the EA process is required to conclude within a 365 day period from the Notice of Commencement. The proponent provides paper and electronic copies of the EIS to the EA Working Group, Aboriginal groups, and public libraries as directed by the CEA Agency. The EIS is also updated to the Canadian Environmental Assessment Registry Website for the Murray River Project (available at http://www.ceaa-acee.gc.ca/050/details-eng.cfm?evaluation=80041).

During the review period, a public comment period on the EIS will be held to provide the public with an opportunity to review and comment on the EIS. Comments are compiled, tracked, and responded to by the proponent using an issues-tracking table. The EA Working Group reviews the responses provided by the proponent and determines whether they are adequate. Comments received during the public comment period are posted to the BC EAO's online e-PIC website. Working Group meetings are held throughout the review period to discuss and resolve outstanding technical issues. Aboriginal consultation activities by the federal government and by the proponent

are ongoing during this period. Pursuant to Section 27(6) of CEAA 2012, the time limit may be suspended:

> *If, under subsection 23(2), the Agency requires the proponent of a designated project to collect information or undertake a study with respect to the designated project, then the period that is taken by the proponent, in the Agency's opinion, to comply with the requirements is not included in the calculation of the time limit within which the Minister's decisions must be made.*

1.8.3.7 Environmental Assessment Report

The EA Report is submitted to the federal Minister of the Environment seeking a decision under Section 52(1) of the CEAA 2012 for the Project. If the Minister finds that the Project is likely to cause significant adverse environmental effects, the decision for the Project is referred to the Governor in Council to determine whether the significant adverse environmental effects are justified in the circumstances or not. If the effects are deemed to be not-significant, or justifiable under the circumstances, the Governor in Council is then obliged to issue conditions under which the Project can be carried out.

1.8.3.8 Referral and Ministerial Decision

After taking into consideration the EA Report, public comments and the decision of the Governor in Council (if applicable), the Minister of the Environment will issue an EA Decision Statement that informs the proponent of:

- the decisions made by the Minister as to whether or not the Project is likely to cause significant adverse environmental effects after considering mitigation measures as appropriate;
- the Governor in Council's decision as to whether the effects are justified in the circumstances (where applicable); and
- any conditions that are established under the CEAA 2012 in relation to the designated project and that must be complied with by the proponent.

1.8.3.9 Participant Funding Program

Pursuant to Subsection 58(1) of the CEAA 2012 RAs must establish a participant funding program to facilitate the participation of the public and to support consultation activities for potentially affected Aboriginal groups in federal and joint EA processes. The proponent is responsible for funding the program under the cost recovery process between the Notice of Commencement and the EA Decision, as outlined in Section 59 to 61 of the CEAA 2012.

Two funding envelopes are established: a Regular Funding Envelope (RFE) to support members of the public and an Aboriginal Funding Envelope (AFE). Funding from the Aboriginal Funding Envelope may be provided to Aboriginal groups who plan to engage in Aboriginal consultation activities with the federal government that are linked to the EA of a proposed project. The funds can be used to support their engagement in consultation activities and to provide input into the EA process. The Regular Funding Envelope is established to provide funding for individuals, Aboriginal groups, and incorporated not-for-profit organizations to participate in the EA review process. Parties applying to either funding envelope must meet certain eligibility criteria.

An independent Funding Review Committee is established to assess applications for funding and to recommend funding allocations for applicants. Disbursements are allocated to support participation and/or consultation activities during two Project phases: Phase I (pre-EIS submission) and Phase II (post-EIS submission).

On July 31, 2013 the CEA Agency announced that funding for involvement in the EA process for the Project was available under the Participant Funding Program. Applications were open until September 6, 2013. On November 4, 2013 the CEA Agency announced an allocation of $181,432.41 to six applicants to support their participation in the federal environmental assessment of the Project under the Participant Funding Program. The purpose of the funds was to enable participation in upcoming steps of the environmental assessment, including review and comment on the Environmental Impact Statement and the draft Environmental Assessment Report. The allocated funds are identified in Table 1.8-3.

Table 1.8-3. Participant Funding Program Allocations

Applicant	Allocation
Blueberry River First Nations	$50,000.00
McLeod Lake Indian Band	$50,000.00
Saulteau First Nations	$50,000.00
Sucker Creek First Nations	$10,500.00
Kelly Lake Métis Settlement Society	$10,432.41
Métis Nation of British Columbia	$10,500.00
Total	**$181,432.41**

1.8.3.10 Summary of Federal Assessment Milestones

The federal milestones that have been achieved through the EA process to date are outlined in Table 1.8-4.

Table 1.8-4. Federal EA Process Milestones

EA Process Milestones	Date
Inaugural EA Working Group meeting	October 2, 2012
HD Mining submits Project Description	April 4, 2013
20 day Public Comment Period on Project Description	April 15 – May 6, 2013
CEA Agency issues Notice of Commencement	May 31, 2013
CEA Agency issues draft EIS Guidelines	May 31, 2013
30 day Public Comment Period on draft EIS Guidelines	May 31 – June 30, 2013
CEA Agency issues final EIS Guidelines	July 30, 2013
CEA Agency issues notice stating funding information available to support the participation of public and Aboriginal groups	July 31, 2013

(continued)

Table 1.8-4. Federal EA Process Milestones (completed)

EA Process Milestones	Date
CEA Agency provides participant funding information and EIS Guidelines to Blueberry River First Nations, McLeod Lake Indian Band, Saulteau First Nations, Sucker Creek First Nation, Kelly Lake Métis Settlement Society, and Métis Nation of British Columbia	November 4, 2013
EA Working Group Meeting	November 6, 2013

1.8.4 Applicable Permits and Permitting Strategy

1.8.4.1 Provincial Authorizations

A comprehensive list of potential provincial authorizations required for the various Murray River Project components is outlined below in Table 1.8-5. The list is not intended to be exhaustive due to the complexity of government regulatory processes and the large number of minor permits, licences, approvals, consents and authorizations, and potential amendments that will be required throughout the life of the mine.

Table 1.8-5. Potential Provincial Authorizations Required for the Project

Permit Required	Enabling Legislation	Potentially Impacted Project Component
Environmental Assessment Certificate	*Environmental Assessment Act* (2002a)	Murray River Coal Project
Permit Approving Work System and Reclamation Program (mine site – initial development)	*Mines Act* (1996c)	All areas within the *Mines Act* Permit area disturbed by mining unless exempted
Amendment to Permit Approving Work System and Reclamation Program (Pre-production)	*Mines Act* (1996c)	Applicable components of the Mine Plan
Amendment to Permit Approving Work System and Reclamation Program (Bonding)	*Mines Act* (1996c)	All components of the mine involving land disturbance or constructed facilities
Amendment to Permit Approving Work System and Reclamation Program (Mine plan - production)	*Mines Act* (1996c)	Authorization to commence production
Explosives Storage and Use Permit	*Mines Act* (1996c)	Surface and underground explosive storage
Coal Lease	*Coal Act (2004a)*	General Project area within which coal will be explored for and produced
Water License – Storage and diversion	*Water Act* (2006)	Infrastructure and facilities that store and/or divert surface water
Water License - Use	*Water Act* (2006)	Infrastructure and facilities that use surface water

(continued)

Table 1.8-5. Potential Provincial Authorizations required for the Project (completed)

Permit Required	Enabling Legislation	Potentially Impacted Project Component
Authority to Make a Change in and about a Stream – Approval to make a change	*Water Act – Water Regulation* (B.C.Reg. 204/88)	Components that involve work in or about a stream involving water diversion
Groundwater Well Registration	*Water Act* (2006)	Groundwater wells for water supply
Occupant Licence to Cut	*Forest Act* (1996a)	Project areas requiring tree removal including transmission line and CCR
Road Use Permit (existing FSR)	*Forest Act* (1996a)	General offsite mine access roads outside the Mining Lease area
Special Use Permit – Construct/ maintain access road off mineral tenure on crown land	*Forest Act* (1996a)	General offsite mine access roads
Waste Management Permit – Effluent (sediment, tailings, and sewage)	*Environmental Management Act* (2003)	Water and sewage treatment plants and coal rejects management
Waste Management Permit – Air Emissions (crushers and dust)	*Environmental Management Act* (2003)	Coal Processing Plant emissions
Hazardous Waste Registration/ Hazardous Waste and Spill Management	*Environmental Management Act - Hazardous Waste Regulation* (B.C. Reg. 63/88) and *Spill Reporting Regulation* (B.C. Reg. 263/90), *Hazardous Products Act* (1985b), and *Transportation of Dangerous Goods Act* (1992)	Mine site area in general including garbage and fuel storage area
Sewage Registration and Permit	*Environmental Management Act - Municipal Wastewater Regulation* (B.C. Reg. 87/2012) and *Public Health Act* (2008)	Sewage treatment plants
Special Waste Generator Permit (waste oil)	*Environmental Management Act – Hazardous Waste Regulation* (B.C. Reg. 63/88)	Waste Oils
Fuel Storage Registration	*Environmental Management Act – Petroleum Storage and Distribution Facilities: Storm Water Regulation* (1994)	Fuel storage areas
Fuel Storage Approval	*Fire Services Act* (1996g)	Fuel storage areas
Highway Access Permit	*Transportation Act* (2004b) and *Motor Vehicle Act* (1996d)	Project access to Highway 52
Waterworks Permit - Construction	*Drinking Water Protection Act* (2001)	Potable water supply systems
Water System Permit - Operation	*Drinking Water Protection Act* (2001)	Potable water supply systems
Section 14 Heritage Inspection Permit (to conduct archaeological impact assessments)	*Heritage Conservation Act* (1996b)	Areas of archaeological potential within the mine infrastructure's surface footprint
Wildlife Permit (to handle wildlife)	*Wildlife Act* (1996e)	General mine site and access

Concurrent Permitting Framework

While the BC EAA (2002b) prohibits issuance of provincial permits before an EA Certificate is issued, the Concurrent Approval Regulation (B.C. Reg. 371/2002) allows for parallel review of related provincial permit applications within a prescribed timeframe. This regulation applies to provincial permits, authorizations, and approvals necessary to undertake works that are within the scope of the assessment under the BC EAA. The Concurrent Approval Regulation (B.C. Reg. 371/2002) sets out the provisions related to concurrent permit approvals. Statutory permit approval processes are normally more specific than those required for the EA level of review and, for example, require detailed and possibly final engineering design information for certain permits, such as the road and bridge designs.

HD Mining is not seeking to apply for permits under the Concurrent Approval Regulation.

Coordinated Authorization Framework

In 2011, under a Memorandum of Understanding between MEM and FLNRO which was amended in 2012 and again in 2013, it was agreed that, once a major mine project advanced to a stage where multiple authorizations were required, the Chief Inspector of Mines could establish a project-specific Mine Review Committee (MRC) to coordinate and review the applications and provide advice to statutory decision makers. As well, the Chief Inspector of Mines could request that FLNRO chair the committee and lead First Nations consultations on behalf of provincial permitting agencies. Once a project-specific MRC is established, FLNRO assigns a Project Manager to manage the review process and a consultation advisor to lead First Nations consultations on behalf of provincial permitting authorities.

Under the Memorandum of Understanding, the coordinated authorizations process is defined as a process initiated by the MRC aimed at harmonizing First Nations consultation and coordinating the review of multiple authorizations that may be required from the various natural resource agencies for new or expanding major mines. The coordinated authorization process is meant to improve consistency, eliminate overlap and duplication in process and information requirements by the various natural resource agencies. The MRC is strictly an advisory committee, and the Statutory Decision Makers maintain responsibility for their respective individual permitting decisions (Province of British Columbia 2013).

HD Mining will engage in the coordinated authorizations process to apply for the multiple project-specific provincial authorizations required to progress the Project, including authorizations under *Mines Act* (1996c), the *Environmental Management Act* (2003), and the *Water Act* (2006). HD Mining anticipates that some permit applications will be submitted during the EA review period, and that where appropriate, the MRC will work to conduct review of the permits in parallel with the EA review. Through consultation with the MRC, permit applications will be developed in phases, with specific applications for permits, licences and other authorizations being effectively bundled together to allow for a coordinated review by the various natural resource agencies involved.

1.8.4.2 Federal Authorizations

Table 1.8-6 presents a list of federal authorizations, licences, and permits that are anticipated to be required to develop the Project. Other federal legislation (e.g., *Species at Risk Act* (2002c), *Migratory*

Birds Convention Act (1994)), may be relevant in terms of evaluating potential effects of the Project, but specific permit requirements under those acts are not anticipated to be required.

Table 1.8-6. Anticipated Federal Authorization Requirements

Federal Authorizations	Legislation/Regulations	Project Component
CEAA Decision Statement	*Canadian Environmental Assessment Act, 2012* (2012)	Murray River Coal Project
Authorization under Section 35	*Fisheries Act* (2013)	Authorization for serious harm to fish habitat
Approval under Section 5	*Navigation Protection Act* (2014)	Approval for works in a navigable water
Radio Licenses	*Radiocommunications Act* (1985c)	On-site radio communication system
Radioisotope Licence (Nuclear Density Gauges/X-ray analyzer)	*Nuclear Safety and Control Act* (1997)	Flow meters (i.e., within discharge pipes)

Fisheries Act

Amendments made to the *Fisheries Act* in recent years focus the *Act* on protecting the productivity of recreational, commercial and Aboriginal fisheries. The Government is now focusing protection rules on real and significant threats to the fisheries and the habitat that supports them, while setting clear standards and guidelines for routine projects. These changes: focus the Ministry's efforts on protecting the productivity of commercial, recreational and Aboriginal fisheries; institute enhanced compliance and protection tools that are more easily enforceable; provide clarity, certainty and consistency of regulatory requirements; and enable enhanced partnerships with stakeholders such as other agencies of government and local groups to ensure a comprehensive approach to fisheries protection. The Fisheries Protection Policy Statement, 2013 supports changes made to the *Fisheries Act* in 2012.

The new "serious harm to fish" prohibition (Section 35) replaces the previous provisions in the 1985 *Act* pertaining to the harmful alteration, disruption or destruction (HADD) of fish habitat. In brief s*erious harm to fish* is interpreted as the death of fish; a permanent alteration to fish habitat of a spatial scale, duration or intensity; and, the destruction of fish habitat of a spatial scale, duration or intensity. In the case where a Proponent is unable to completely avoid or mitigate *serious harm of fish* an authorization under subsection 35(2) of the *Act* may be applied for in order for the project to proceed.

Potential requirements for permits under Section 35(2) of the *Fisheries Act* (2013)[7] are associated with the installation of treated water discharge infrastructure in Murray River. The Projects impact on fish and aquatic resources is discussed in detail in Chapter 9.

[7] Amendments to the *Fisheries Act* that were tabled in the *Jobs, Growth, and Long-term Prosperity Act* (Bill C-38), and further revised in Bill C-45 received Royal Assent but have not yet been brought into force. It is anticipated that the amendments will come into force during the EA review process for the Murray River project and that the current legislative requirements under the 1985 *Fisheries Act* will no longer apply. Further, it is acknowledged that the proposed expansion of the Metal Mining Effluents Regulation to include coal mines may also affect the Murray River Project with respect to the need to obtain an amendment to Schedule 2 of the MMER. The information presented in this Project Description reflects the statutory requirements as currently prescribed under the 1985 *Fisheries Act*.

Navigation Protection Act

The *Navigation Protection Act* (2014) came into force April 2014. A schedule of designated navigable waters has been proposed by Transport Canada, which will be actively regulated for placement/ construction of new works under the provisions of the new *Act*. Approximately 100 lakes and 62 rivers are listed in the schedule. Works in navigable waters not listed in the *Act*, which include Murray River, will be subject to the common law public right of navigation. Should the Proponent look for greater legal certainties around the navigability of waterways within the Project area they may opt in to Transport Canada's regulatory review and approval process.

A federal decision under NPA is not required for the Project due to the following:

- no components of the project will be on a scheduled waterway, and HD Mining has decided to not opt-in to the NPA regime for any waters affected by the Project to date.
- there is no tailings storage facility/impoundment proposed in a navigable water body; and
- HD Mining holds no existing works on unscheduled waterways previously approved under the former act (*Navigable Waters Protection Act*) that require modifications.

HD Mining may seek advice from Transport Canada in relation to design of infrastructure to minimize potential obstructions to boaters and to establishing appropriate signage.

Radiocommunications Act

The requirements of the *Radiocommunication Act* apply to any Proponent who is planning to install a radio communication system or modify an antenna system (e.g., Personal Communications Services (PCS) and cellular, fixed wireless, broadcasting, and land-mobile). System licensing applies to both land mobile systems (two-way radiocommunication) and to paging systems (one-way radiocommunication; Industry Canada 2011). The installation of a site-wide radio communication system for the Project will require authorization from Industry Canada in the form of a radio licence.

Nuclear Safety and Control Act

The *Nuclear Safety and Control Act* (NSCA) mandates the Canadian Nuclear Safety Commission (CNSC) to regulate all aspects of the nuclear industry in Canada, including the possession, management and use of a nuclear substance. With respect to paragraph 26 of the *NSCA* the Proponent will seek to obtain a licence to manage and store, at various locations on the Murray River site, the radioactive material present on the site. Flow meters used in a number of the Proponent's monitoring programs will contain radioactive material that will require the apparatus being licensed by the CNSC.

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Definitions of the acronyms and abbreviations used in this reference list can be found in the Glossary and Abbreviations section.

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