



### Executive Summary

Canada's minerals sector is a mainstay of the national economy; in 2015, the sector directly employed nearly 373,000 Canadians and accounted for 19.1% of exports, and 3.3% of the country's gross domestic product (GDP).<sup>1</sup>

British Columbia (BC) is internationally recognized as a centre of expertise in mining, metallurgy, environmental engineering, mine safety, and geoscience.<sup>2</sup> The province is home to the world's largest concentration of exploration companies and mining professionals.<sup>2</sup>

BC is Canada's largest exporter of metallurgical coal (used in steelmaking) and one of its largest copper producers, as well as a significant producer of gold, silver, lead, and zinc.<sup>3</sup> Due to increased demand from the construction industry, BC is also a hub for stone, sand, and gravel mining and quarrying, with 675 active gravel mines in the province.<sup>4</sup>

This report examines the mining sector in BC, and explores its contributions to the Columbia Basin-Boundary region. This report looks specifically at the indicators in the following areas:

- Mining sector establishments;
- Economic contributions; and
- Employment within the mining sector.

The following page presents relevant sector highlights.

### Mining sector establishments

In 2016, BC was home to 4,334 mining facilities, with the Kootenay Development Region containing 4.8% or 208.<sup>5</sup> A data request to BC Stats, indicates that the count of mining businesses in the Columbia Basin-Boundary was just slightly higher at 231. The East Kootenay Regional District has the highest number of mining facilities with 109 in 2016, a slight decrease from 2015. The Central Kootenay follows with 74 in 2016, a slight decrease from 2015, and the Kootenay Boundary has the fewest with 25 in 2016 and 2015.

### Economic contributions

In 2016, \$37.4 million was spent on exploration related activities for 62 projects in the Kootenay-Boundary region.<sup>6</sup>

In 2015, the median hourly rate in the Kootenay region for the forestry, fishing, mining, quarrying, and oil and gas sectors exceeded both the federal and provincial averages for the first time over a 10 year period with a median hourly rate of \$37.00.<sup>7</sup> In comparison, the median hourly wage for all employees in all sectors of the economy in the Kootenay region was \$23.90.

### Employment within the mining sector

BC stats estimates that the mining sector will experience modest growth until 2025.<sup>6</sup> Provincially, by 2025 it is expected that 69% of job openings will be due to retirements and deaths.<sup>8</sup>

Provincially, the mining and the support activities for mining, and oil and gas extraction sectors will see 1.0% average annual employment growth between 2016 and 2025.

For the Kootenay Development Region, between 2016 and 2025, there is an anticipated growth rate of 0.4% for mining, and -0.7% for the support activities for mining, and oil and gas extraction.<sup>6,9</sup>

The mining sector in the Kootenay Development Region will see 1,822 job openings between 2015 and 2025.<sup>6,9</sup> This accounts for 29% of all jobs in the mining sector in the province (6,376 provincially). The mining sector in the Kootenay Development Region have the second highest forecasted job openings after the Mainland/Southwest Development Region. In total, there are an anticipated 1,932 job openings forecast for the mining sector by 2025 in the Kootenay Development Region.

In the Kootenay Region, the top occupations in the mining sector expected to generate the largest number of new openings (full year job openings) between the years 2017 – 2025 include: transport truck drivers, janitors, caretakers and building superintendents, and heavy equipment operators (except crane).<sup>10</sup> The occupations in the mining sector with the highest, sustained demand in the South East region between 2015 and 2025, include transport truck drivers, janitors, caretakers and building superintendents, and accounting technicians and bookkeepers.<sup>11</sup>

## Introduction

This report is part of a Social Sciences and Humanities Research Council of Canada (SSHRC) funded project entitled, *Regional Workforce Development in Rural BC*. The purpose of this profile is to identify current mining sector market trends and issues, including current and projected labour market needs to help workforce development partners within the Columbia Basin-Boundary region understand and respond to changing labour market demands. This mining sector labour market profile identifies characteristics that comprise the BC mining sector, including performance in terms of production, and contribution to the regional economy.

The guiding research questions include:

1. What is known about the mining sector within the Columbia Basin-Boundary region and how does the region compare provincially and nationally?
2. What are the current and projected labour market needs for the Columbia Basin-Boundary region?

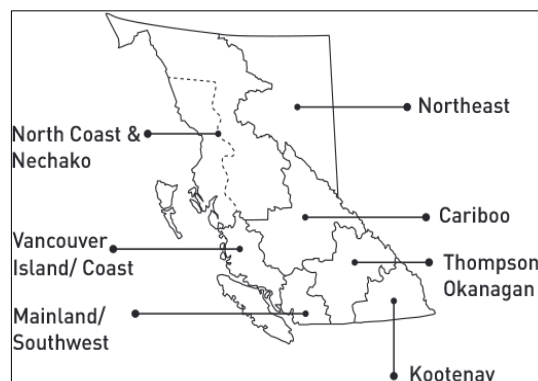
## Methodology

The Mining Labour Market Profile was prepared by reviewing the following sources (see **Appendix A: References and Resources**):

- Industry research of publically available studies and reports;
- Industry data and statistics collected from publically available sources such as Statistics Canada, BC Stats, Natural Resources Canada, The Ministry of Forests, Lands and Natural Resource Operations, as well as other relevant industry associations;
- Secondary research documents; and
- Labour Force Survey purchased through Statistics Canada.

Data related specifically to the labour market for the mining industry was selected, as well as economic data that illustrates the status of the labour market. Additional information on a sector in the Columbia-Basin Boundary region may be available as part of the State of the Basin report prepared by the Columbia Basin Rural Development Institute.

Statistics are not frequently reported for the Columbia Basin-Boundary region making it challenging in some instances to report on statistics for the Columbia Basin-Boundary in its entirety. For instance some data is collected at a Development Region level and the Columbia Basin-Boundary covers three Development Regions: Revelstoke and Golden in the Thompson-Okanagan region, Valemount in the Cariboo region, and the entirety of the Kootenay Development Region (see **Figure 1**). In other instances, data is reported for the South East region, which includes both the Thompson-Okanagan and Kootenay Development Regions, but excludes Valemount.



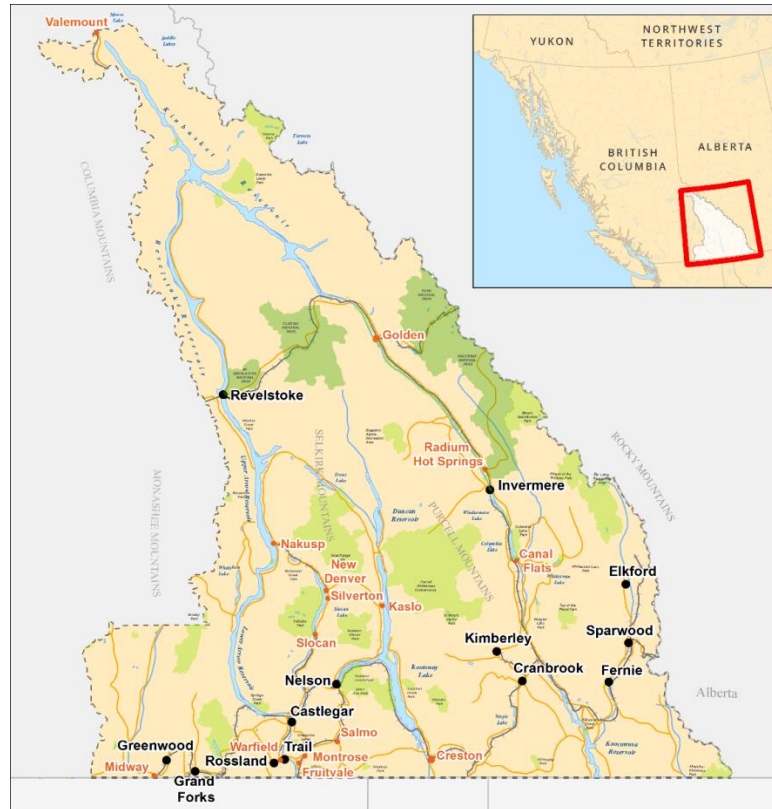
**Figure 1: BC Development Regions**<sup>i,12</sup>

<sup>i</sup> The South East region encompasses both the Thompson-Okanagan and Kootenay Development regions.

This report was researched and prepared between January 2, 2017—June 30, 2017.

### The Columbia Basin-Boundary

Located in the South East corner of British Columbia, the Columbia Basin-Boundary region (see **Figure 2**) includes the Regional Districts of East Kootenay, Central Kootenay, Kootenay Boundary, in addition to Revelstoke, Golden, Valemount and Columbia Shuswap Regional District Areas A and B. With an approximate land area of 83,171 square kilometres, the region accounts for 9% of the size of British Columbia, and is abundant with valleys and mountain ranges including the Purcells, Selkirks and Monashees.



**Figure 2:** The Columbia Basin-Boundary Region<sup>13</sup>

With a regional population of 162,900, it accounts for 3.5% of the provincial population.<sup>14</sup> The overall population is aging and while different communities have different population projections the overall regional population projection is steady with no large gains or losses.<sup>14</sup>

The economy is primarily resource-based, with forestry and mining key economic drivers. The region's hydro-electric power generation accounts for approximately 44% of electricity generated in the province and the region is home to British Columbia's largest coal fields.<sup>15</sup> The Columbia Basin-Boundary region is also amenity-rich, supporting a vibrant tourism industry.

The labour market in the Kootenay Development Region is currently strong with the second highest job growth of the seven development regions reported between 2010 and 2015 (3.5%).<sup>15</sup> While 54.2% of residents have some post-secondary education, only 5.1% have a university certificate, diploma, or degree above a bachelor's degree, and 9.9% have a university bachelor's degree.<sup>16</sup> These are both lower than BC and Canada, where in BC 8.1% have a university

certificate, diploma, or degree above a bachelor's degree, and 14.0% have a university bachelor's degree. For Canada, it is 7.5% and 13.3% respectively.<sup>16</sup> It is important to note that provincially more than 78% of all future job openings will require post-secondary education, including 36% that will require a bachelor's, graduate or first professional degree and/or significant work experience.<sup>8</sup> The unemployment rate in the Kootenay Development Region in March of 2017 is 6.4%.<sup>17</sup>

## Characteristics of the Mining Sector

### Mining in Canada

Canada's minerals sector is a mainstay of the national economy; in 2015, the sector directly employed nearly 373,000 Canadians and accounted for 19.1% of exports, and 3.3% of the country's gross domestic product (GDP).<sup>1</sup>

Canada produced some 60 minerals and metals at 200 active mines and 7,000 sand and gravel and stone quarries, worth nearly \$43 billion, in 2015.<sup>1</sup> Canada is the world's leader in the production of potash and a major global producer of key commodities such as primary aluminum, cobalt, diamonds, gold, nickel, platinum group metals, salt, tungsten, and uranium.<sup>1</sup>

In 2015, the mining, mining-related support activities, and mineral processing industries directly employed nearly 373,435 individuals and indirectly employed an additional 189,657, for a total of 563,092 (see **Table 1**)<sup>1</sup>

Mining Industries in Canada	Employment (2015)
Mining and quarrying (except oil and gas)	60,565;
Mining-related support activities	26,265
Primary metal manufacturing	71,460
Nonmetallic mineral product manufacturing	56,335
Fabricated metal product manufacturing	158,810
Indirect mining, mining-related support activities, and mineral processing	189,657
Total	563,092

**Table 1:** Employment in mining, mining support, and mineral processing, 2015<sup>1</sup>

The mining and mineral processing industry is an important employer of Indigenous Peoples, providing jobs to over 10,000 individuals in 2015, mostly in upstream activities such as mining and quarrying.<sup>1</sup> Indigenous Peoples accounted for approximately 8% of the mining and quarrying industry's labour force according to the 2011 National Household Survey, more than double the all-industry average representation of 3.4%.<sup>1</sup>

The direct GDP of mining, mining-related support activities, and mineral processing was \$60.3 billion in 2015.<sup>1</sup> Indirect GDP added a further \$18.9 billion, for a total of \$79.2 billion (see **Table 2**).



Mining Industries in Canada	GDP
Mining and quarrying (except oil and gas)	\$25.4 billion
Mining-related support activities	\$2.6 billion
Primary metal manufacturing	\$10.9 billion
Nonmetallic mineral product manufacturing	\$6.5 billion
Fabricated metal product manufacturing	\$14.9 billion
Indirect mining, mining-related support activities, and mineral processing	\$18.9 billion
Total	\$79.2 billion

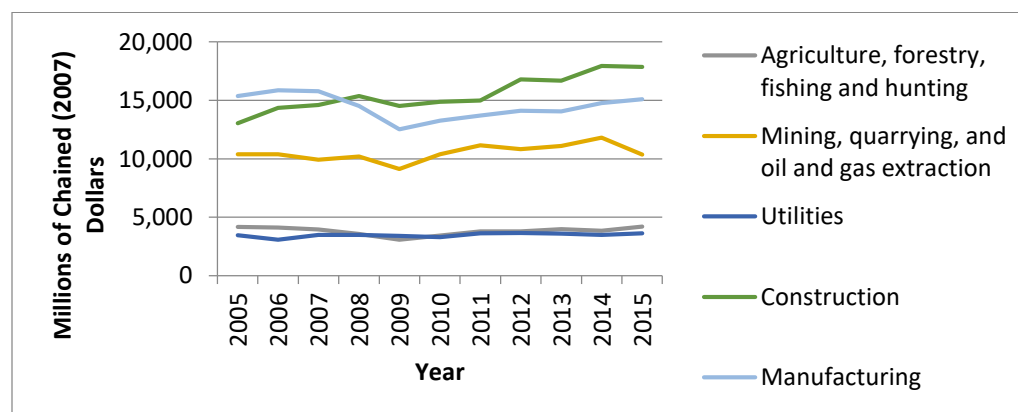
**Table 2:** GDP in the mining industries, 2015.<sup>1</sup>

### Mining in BC

British Columbia is internationally recognized as a centre of expertise in mining, metallurgy, environmental engineering, mine safety, and geoscience.<sup>2</sup> The province is home to the world's largest concentration of exploration companies and mining professionals.<sup>2</sup>

In 2015, the mining sector contributed over \$8 billion to BC's GDP and there were over 45,000 jobs in mining, energy and related sectors.<sup>2</sup>

As shown in **Figure 3**, the mining, quarrying, and oil and gas extraction industry has remained the third largest goods producing industry in BC between 2005 and 2015 after the construction and utility industries. The mining, quarrying, and oil and gas extraction industry contributes 20% to the total goods-producing industries in 2015 or approximately \$10.3 million.<sup>18</sup> When looking across all industries, the goods-producing industries contributed 25% to the total GDP in 2015, and mining, quarrying, and oil and gas extraction accounted for 5% of the total GDP in 2015.<sup>18</sup>



**Figure 3:** BC GDP (Chained Dollars<sup>ii</sup>) by goods-producing industry, 2005 – 2015<sup>18</sup>

BC is Canada's largest exporter of metallurgical coal (used in steelmaking) and one of its largest copper producers, as well as a significant producer of gold, silver, lead, and zinc.<sup>3</sup>

<sup>ii</sup> Chained dollars is a methodology implemented by Statistics Canada which takes into account fluctuations in relative prices and the composition of output over time. In "Canadian Industry Statistics", Gross Domestic Product at basic prices by industry is presented in chained dollars.<sup>26</sup>

In 2015 there were 72 mine operations and projects in BC, consisting of 15 operating metal and coal mines, three mines under construction, two pre-application (permitting) mining projects, 32 closed mines, and 20 mines on care-and-maintenance.<sup>4</sup> In 2016 there were 259 exploration projects in the province, less than the 300 projects reported in 2012.<sup>4</sup> The industry is still dealing with the fall out from a drop in mineral prices in 2011, which has resulted in a slow down in mining activities across the province.<sup>4</sup> In 2016, a leveling of commodity prices has seen the start of a resurgence in mining activities.<sup>4</sup>

BC is also a hub for stone, sand and gravel mining and quarrying, which has been growing due to increased demand from the construction industry.<sup>4</sup> The BC Stone, Sand and Gravel Association reports that there are 725 gravel mines in BC, of which 675 are currently in operation.<sup>4</sup>

Fabrication and manufacturing is another essential function of certain mining operations in BC. It primarily includes establishments that are engaged in smelting, refining of ferrous and nonferrous metals from the ore. Currently there are two major smelters operating in BC involved in the smelting of aluminum, lead, and zinc.<sup>4</sup>

Just 16% of the employed labour force in the mining sector were women in 2015. In comparison, nearly 48% of the employed labour force across all sectors is female.<sup>2</sup>

#### Mines in BC<sup>4</sup>

- 15 operating metal & coal mines
- 3 mines under construction
- 2 pre-application (permitting) mining projects
- 32 closed mines
- 20 mines on care-&-maintenance

### Mining Sector Classifications: North American Industry Classification System (NAICS)

This report focuses on NAICS<sup>iii</sup> 21: Mining, quarrying, and oil and gas extraction industry.<sup>19</sup> This sector comprises establishments primarily engaged in extracting naturally occurring minerals, such as coal and ores, crude petroleum, and natural gas. The term 'mining' is used in the broad sense to include quarrying, well operations, milling (e.g., crushing, screening, washing, or flotation) and other preparation customarily done at the mine site, or as a part of mining activity. Establishments engaged in exploration for minerals, development of mineral properties and mining operations are included in this sector. Establishments performing similar activities, on a contract or fee basis, are also included.

### Mining Sector Composition

The mining industry is made up of a number of sub-industries: mining, and quarrying, oil and gas extraction, and support activities for mining, and oil and gas extraction.<sup>2</sup>

#### 1. NAICS 211- Oil and gas extraction

This subsector comprises establishments primarily engaged in operating oil and gas field properties. Such activities may include exploration for crude petroleum and natural gas; drilling, completing and equipping wells; operating separators, emulsion breakers, desilting equipment and field gathering lines for crude petroleum; and all other activities in the preparation of oil and gas up to the point of shipment from the producing property.<sup>19</sup>

<sup>iii</sup> The North American Industry Classification System (NAICS) is an industry classification system composed of sectors (two-digit codes), subsectors (three-digit codes), industry groups (four-digit codes), industries (five-digit codes) and country specific industries (six-digit codes)

## 2. NAICS 212- Mining and quarrying (except oil and gas)

This subsector comprises establishments primarily engaged in mining, beneficiating or otherwise preparing metallic and non-metallic minerals, including coal. The term "mining" is used in the broad sense to include quarrying, well operations, milling (for example, crushing, screening, washing, or flotation) and other preparation customarily done at the mine site, or as a part of mining activity.<sup>19</sup>

## 3. NAICS 213- Support activities for mining, and oil and gas extraction

This subsector comprises establishments primarily engaged in providing support services, on a contract or fee basis, for the mining and quarrying of minerals and for the extraction of oil and gas. Establishments engaged in the exploration for minerals, other than oil or gas, are included. Exploration includes traditional prospecting methods, such as taking ore samples and making geological observations at prospective sites.<sup>19</sup>

## Mining Sector Trends & Outlook in the Columbia Basin–Boundary Region

The following indicators will be examined within the Columbia Basin-Boundary region:

- Major projects inventory;
- Mining sector establishments;
- Economic contributions; and
- Employment within the mining sector.

These indicators are presented in detail below, including a description of what is measured and its importance, as well as current data and trends where available.

### Major projects inventory

According to the BC Major Projects Inventory, in the fourth quarter of 2016, the Kootenay Development Region has a total of 28 major projects with a combined value of \$9.1 billion.<sup>20</sup> This is a 1.8% drop compared to the previous year.<sup>20</sup> Of the 28 projects, 5 projects are in the mining industry; 2 of which are on hold, and the remaining 3 are proposed.<sup>20</sup> All of the projects are located in the East Kootenay Regional District, with 4 of the projects located in Sparwood, and 1 in Elkford.

### Mining sector establishments

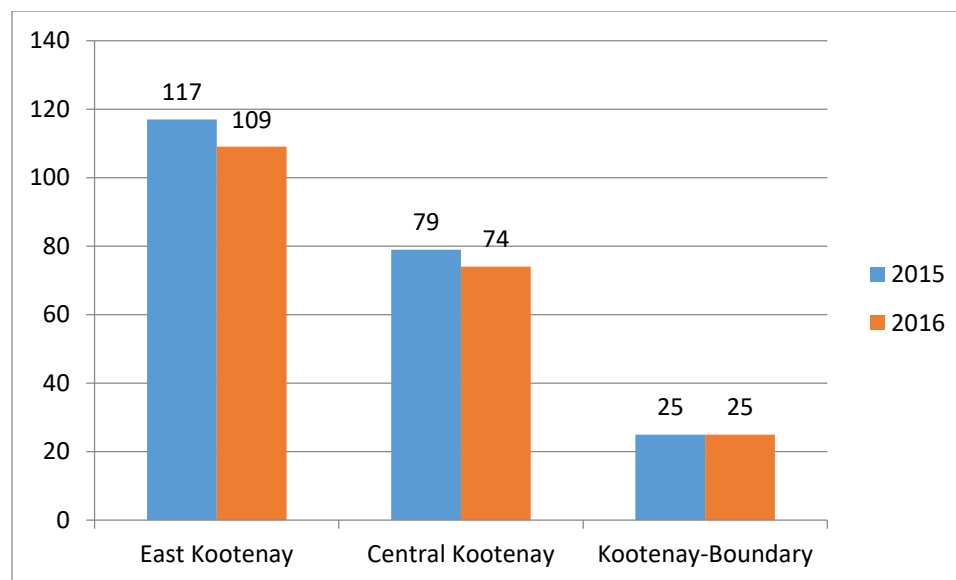
In 2016, BC was home to 4,334 mining, and oil and gas facilities<sup>iv</sup>, with the Kootenay Development Region containing 4.8% or 208.<sup>5</sup> A data request to BC Stats, indicates that the count of mining, and oil and gas businesses in the Columbia Basin-Boundary was just slightly higher at 231. **Figure 4** provides a comparison between the three Regional Districts that are fully contained in the Columbia Basin-Boundary<sup>v</sup>. The East Kootenay Regional District has the highest number of mining facilities with 109 in 2016, a slight decrease from 2015. The Central Kootenay follows with 74 in 2016, a slight decrease from 2015, and the Kootenay Boundary has the fewest with 25 in 2016 and 2015.<sup>vi</sup>

<sup>iv</sup> The count includes establishments with and without employees.

<sup>v</sup> Two other Regional Districts (Columbia Shuswap and the Fraser-Fort George Regional Districts) have portions of their region within the Columbia Basin-Boundary.

<sup>vi</sup> A change in methodology in 2014 means that comparing data with years previous may provide inaccurate results.





**Figure 4:** Count of mining, and oil and gas extraction businesses by Regional District, 2015 - 2016<sup>5</sup>

#### Economic contribution

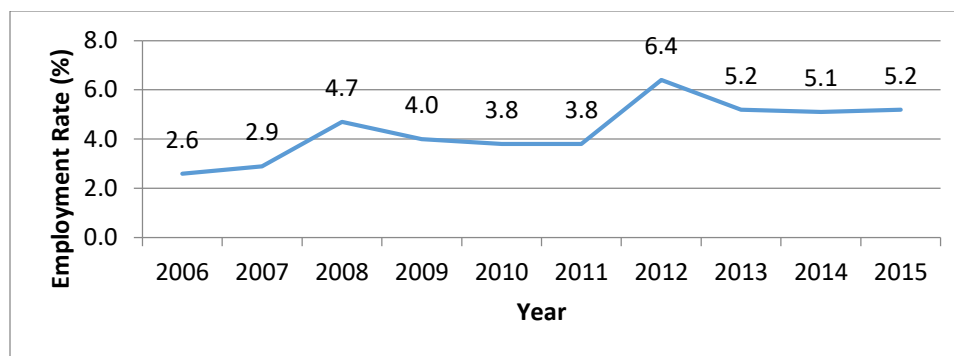
As shown in **Table 3**, over the past three years, the number of exploration projects annually has ranged from 194 to 267, and from a value of \$204.9 million to \$476 million. 2016 saw \$37.4 million spent on exploration related activities for 62 projects in the South East region. BC stats estimates that the mining sector will experience modest growth until 2025.<sup>6</sup>

Mining Regions <sup>21</sup>	2013		2014		2015		2016	
	#	\$	#	\$	#	\$	#	\$
North Central	44	102.5	35	42	39	39.6	47	29
Northwest	82	201	54	161	38	117	79	84
Northeast	21	81.6	16	50	9	31.3	10	9
South Central	19	48.2	18	30	14	30	35	43.5
South West	42	7.2	35	5	26	3.7	26	2
South East	59	35.5	64	50.4	68	50.8	62	37.4
Total	267	476	222	338.4	194	272.4	259	204.9

**Table 3:** Exploration Expenditures and Number of Projects, 2013 – 2016<sup>22, vii</sup>

**Figure 5** shows that 2012 was a peak in the employment rate in the mining, quarrying, oil and gas extraction sector with 6.4% in the Kootenay Development Region. The employment rate in 2015 was 5.2%.

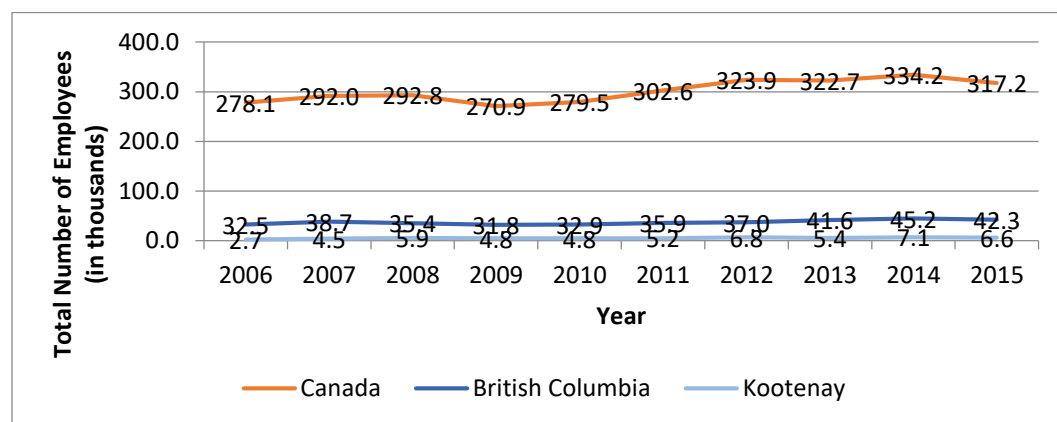
<sup>vii</sup> All dollar figures are in millions.



**Figure 5:** Mining, quarrying, oil and gas extraction sector employment in the Kootenay Development Region from 2006 to 2015<sup>23</sup>

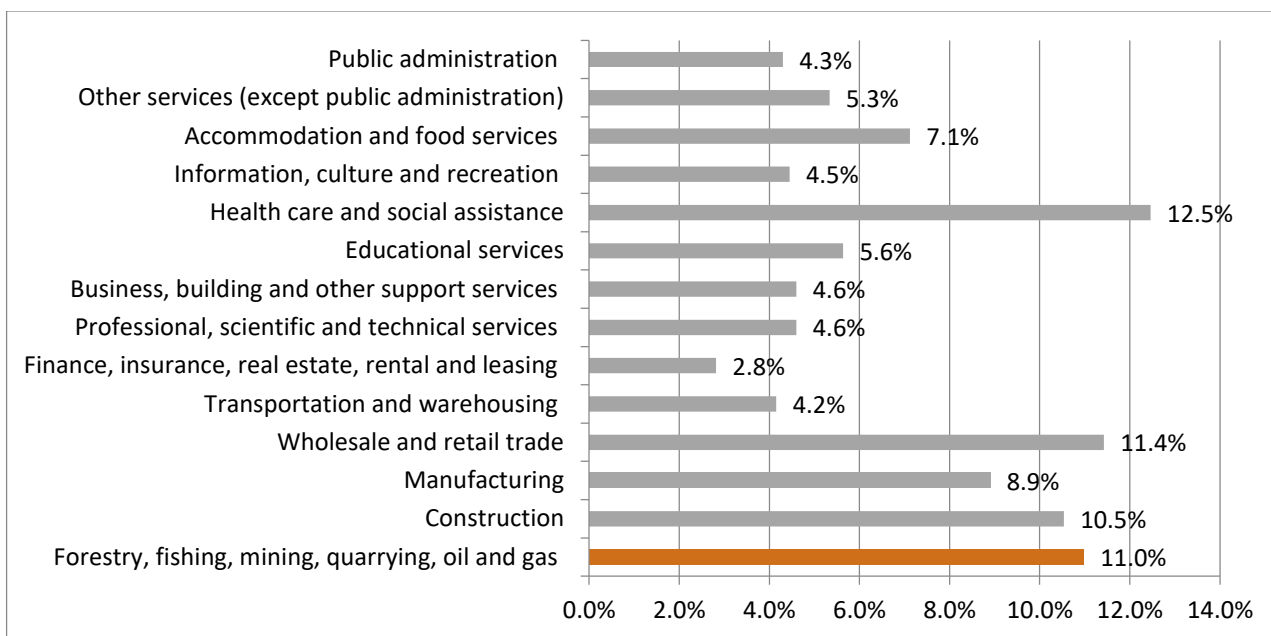
It was not possible to isolate the data for the number of employees for the mining sector, however data for the forest, fishing, mining, quarrying, oil and gas sectors combined is provided.

**Figure 6** indicates that the total number of employees has been on a steady increase in these sectors between 2006 and 2015. The total number of employees in the Kootenay Development Region has nearly tripled over that 10 year period to a total of 6,600 employees in 2015.



**Figure 6:** Total number of employees in the forest, fishing, mining, quarrying, oil and gas sectors, 2006 - 2015<sup>7</sup>

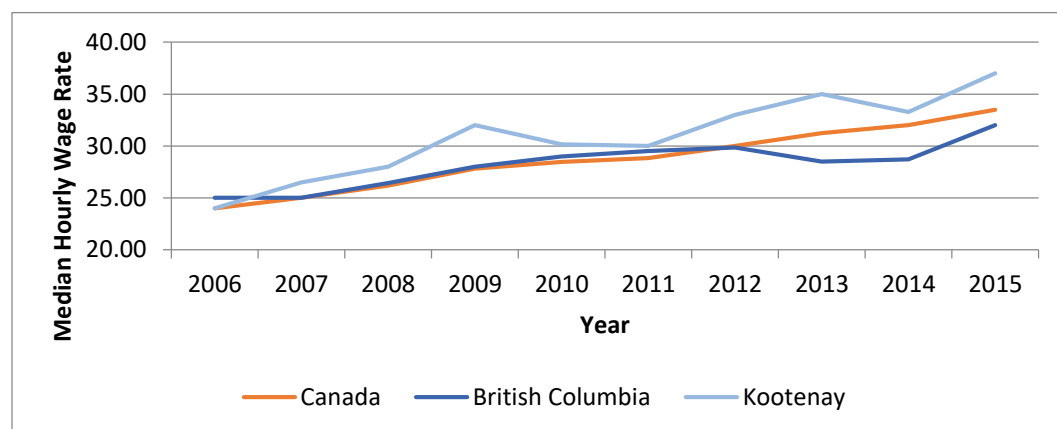
The Kootenay Development Region has a diverse economic base; with employment both in the service sector as well as the goods-producing sector. The services producing sector is the main employment sector, accounting for 67% of total employment in 2016. The goods-producing sector makes up approximately 33% of total employment. The forestry, fishing, mining, quarrying, oil and gas sector is the third highest employing sector, accounting for 11.0% of total employment (see **Figure 7**) in the Kootenay Development Region.



**Figure 7:** Percentage of employment by industry in the Kootenay Development Region, 2016<sup>24, viii</sup>

### Median Hourly Rate

**Figure 8** illustrates a steady increase in the median hourly wage rate in the forest, fishing, mining, quarrying, oil and gas sectors. In 2015, the Kootenay Development Region exceeded both the federal and provincial averages with a median hourly rate of \$37.00. As this data includes forestry, fishing, mining, quarrying, and the oil and gas sectors it is not clear how this rate reflects the hourly rate for the mining, quarrying, and oil and gas sector only.



**Figure 8:** Median hourly wage rate, total employed in the forest, fishing, mining, quarrying, oil & gas sectors, 2006 – 2015.<sup>7</sup>

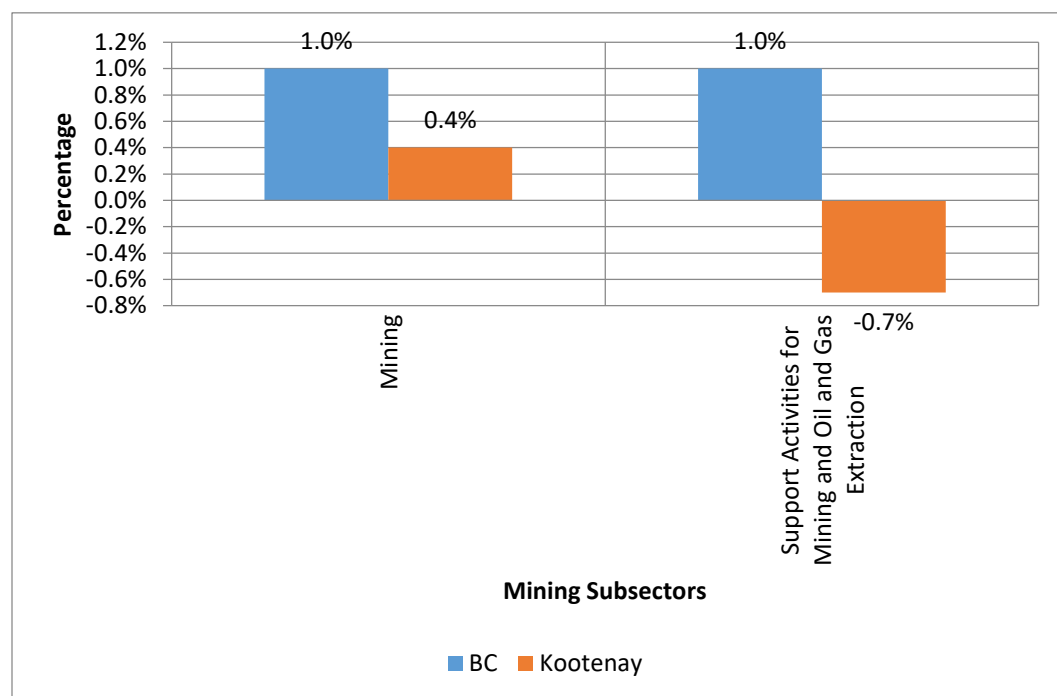
### Employment forecast

A total of 134,700 job openings are expected in the South East region by 2025 across all industries.<sup>ix,8</sup> Three in ten openings are due to economic growth and the rest are to replace

<sup>viii</sup> The Agriculture and Utilities industries were omitted due to suppressed data.

retiring workers. Employment demand in the region is forecast to increase each year by 1.1 % on average, the same rate as the provincial average.<sup>8</sup>

As shown in **Figure 9**, mining and the support activities for mining, and oil and gas extraction in BC will see the same average annual growth rate of employment between 2016 and 2025 at a rate of 1.0%. In the Kootenay Development Region, the growth rate for mining is 0.4%. In contrast to the anticipated growth rate at the provincial level, the support activities for mining, and oil and gas extraction will see a negative growth rate in the Kootenay Development Region of -0.7%.



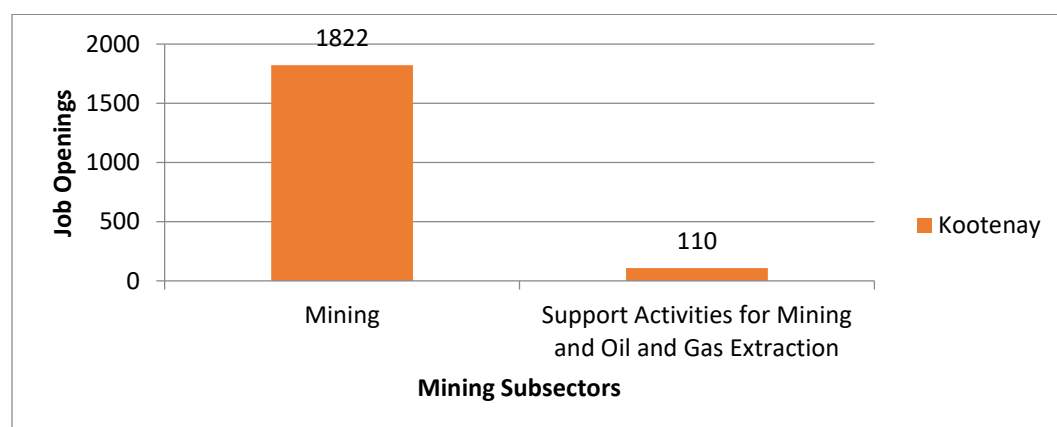
**Figure 9:** Average growth rate of employment, mining subsectors, 2016 - 2025<sup>6,9</sup>

As shown in **Figure 10**, the mining subsector in the Kootenay Development Region will see 1,822 job openings between 2015 and 2025. This accounts for 29% of all jobs in the mining sector in the province (6,376 provincially). The mining subsectors in the Kootenay Development Region have the second highest forecasted job openings after the Mainland/Southwest Development Region.

The support activities for the mining and oil and gas extraction subsector experienced a sharp decline, and there is a slight rebound in employment forecasted until 2020, which is expected to be followed by a slight decline. Job openings forecasted for the support activities for mining and oil and gas extraction are attributed to the need to replace workers leaving the labour force.<sup>9</sup>

In total, there are an anticipated 1,932 job openings forecast for the mining sector (i.e., mining and support activities for mining, and oil and gas exploration) by 2025 in the Kootenay Development Region.

<sup>ix</sup> The South East region includes Thompson-Okanagan and Kootenay Census Economic Regions. Note that while this area does not match the Columbia Basin-Boundary region it covers the majority of the region except for Valemount located in the Cariboo Census Economic Region.



**Figure 10:** Industry job openings, mining subsectors, Kootenay Development Region, 2015-2025<sup>6,9</sup>

The mining industry has reduced investment expenditures and employment in response to weak coal and minerals commodity prices. With the stabilization of commodity prices and signs of modest growth, the industry is expected to expand employment and start new mining projects. Due to a forecasted moderate recovery in commodity prices and continued labour-saving innovation in the industry, employment growth is projected to be modest.<sup>6</sup>

#### Occupational forecast<sup>x</sup>

None of the mining related occupations are in the top 10 occupations forecast to expand the fastest in the South East region.<sup>25</sup>

#### Labour demand-supply projection

The labour force supply less demand<sup>xi</sup> (**Table 4**) looks at the occupations related to the mining sector in the South East region and examines the supply of workers against the demand for workers. Labour force demand is an estimate of the number of workers needed (employment) as well as the number of workers that are normally unemployed (e.g., due to transitioning between jobs, responding to seasonal fluctuations, or lack of skills match). Labour force supply represents the possible labour force, including supply from new entrants and from migrants. Occupations shown in **Table 4 and 5** are taken from the list of occupations compiled as part of the WorkBC Industry Outlook Profile for the Mining (NAICS 212) and Support Activities for Mining and Oil and Gas Extraction (NAICS 213).<sup>6,9</sup>

As shown in **Table 4**, transport truck drivers (-788), janitors, caretakers and building superintendents (424), and accounting technicians and bookkeepers (-412) are the occupations with the highest, sustained demand in the mining sector until 2025 in the South East region.

<sup>xi</sup> Labour Force Supply Less Demand: The difference between the Labour Force Supply and Labour Force Demand. If this value is positive, then Labour Force Supply is greater than Labour Force Demand.



Geographic Area - South East	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
0016 Senior managers - construction, transportation, production and utilities	-5	0	-4	-8	-8	-11	-10	-8	-5	-5	-4	-68
0111 Financial managers	-2	1	-4	-7	-7	-8	-7	-6	-4	-4	-4	-52
0112 Human resources managers	-3	1	-1	-3	-4	-4	-4	-3	-2	-2	-2	-27
0124 Advertising, marketing and public relations managers	0	-1	-3	-5	-5	-6	-6	-5	-3	-3	-3	-40
0212 Architecture and science managers	0	0	0	0	0	0	0	0	0	0	0	0
0714 Facility operation and maintenance managers	1	-2	-9	-14	-14	-15	-14	-11	-8	-7	-7	-100
0811 Managers in natural resources production and fishing	0	-5	-3	-6	-6	-8	-7	-5	-3	-3	-3	-49
1111 Financial auditors and accountants	-38	10	-12	-27	-29	-32	-31	-25	-17	-16	-16	-233
1112 Financial and investment analysts	0	0	0	0	0	0	0	0	0	0	0	0
1122 Professional occupations in business management consulting	-5	2	-3	-5	-6	-6	-6	-5	-3	-3	-3	-43
1123 Professional occupations in advertising, marketing and public relations	-1	0	-3	-5	-5	-5	-5	-4	-3	-3	-3	-37
1311 Accounting technicians and bookkeepers	-36	7	-27	-50	-53	-61	-57	-45	-31	-30	-29	-412
1411 General office support workers	10	1	-23	-41	-43	-50	-47	-38	-27	-26	-25	-309

Geographic Area - South East	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
1525 Dispatchers	-10	1	-1	-4	-4	-5	-4	-3	-2	-2	-2	-36
2113 Geoscientists and oceanographers	-1	2	-2	-5	-5	-5	-5	-4	-2	-2	-2	-31
2115 Other professional occupations in physical sciences	0	0	0	0	0	0	0	0	0	0	0	0
2143 Mining engineers	-1	2	-2	-5	-5	-6	-5	-4	-2	-2	-2	-32
2212 Geological and mineral technologists and technicians	0	3	-3	-6	-6	-7	-6	-5	-3	-3	-3	-39
6733 Janitors, caretakers and building superintendents	-1	5	-32	-57	-59	-65	-63	-50	-35	-34	-33	-424
7311 Construction millwrights and industrial mechanics	-5	1	-10	-19	-19	-22	-19	-14	-8	-8	-7	-130
7312 Heavy-duty equipment mechanics	-6	2	-13	-24	-24	-29	-25	-19	-12	-12	-11	-173
7452 Material handlers	-11	-4	-18	-31	-31	-34	-32	-24	-15	-14	-14	-228
7511 Transport truck drivers	-287	64	-10	-69	-82	-100	-95	-73	-46	-46	-44	-788
7521 Heavy equipment operators (except crane)	1	7	-23	-43	-43	-56	-46	-37	-24	-23	-20	-307
8221 Supervisors, mining and quarrying	-2	5	-2	-7	-7	-9	-7	-6	-3	-3	-3	-44
8222 Contractors and supervisors, oil and gas drilling and services	7	4	-4	-8	-8	-10	-9	-7	-5	-5	-4	-49

Geographic Area - South East	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
8231 Underground production and development miners	-2	11	-2	-8	-9	-12	-9	-7	-4	-5	-4	-51
8232 Oil and gas well drillers, servicers, testers and related workers	-2	8	0	-2	-3	-4	-4	-3	-1	-2	-1	-14
8412 Oil and gas well drilling and related workers and services operators	-1	3	0	-2	-2	-3	-3	-2	-1	-1	-1	-13
8614 Mine labourers	-1	3	-1	-4	-4	-5	-4	-3	-2	-2	-1	-24
8615 Oil and gas drilling, servicing and related labourers	-1	3	0	-1	-1	-1	-1	-1	0	-1	0	-4
9232 Petroleum, gas and chemical process operators	-1	0	-1	-2	-2	-2	-2	-1	-1	-1	-1	-14
9411 Machine operators, mineral and metal processing	-1	-1	-1	-2	-2	-2	-2	-2	-1	-1	-1	-16
9613 Labourers in chemical products processing and utilities	0	0	0	0	0	0	0	0	0	0	0	0

**Table 4:** Labour Force Supply less Demand, South East region<sup>11</sup>

### Labour demand due to growth & attrition

**Table 5** presents the estimated total number of job openings for the Kootenay<sup>xii</sup> and South East region between 2017 and 2025 due to expansion and replacement. Provincially, by 2025 it is expected that 69% of job openings will be due to retirements and deaths.<sup>8</sup>

In the Kootenay Development Region, the top occupations expected to generate the largest number of new openings (full year job openings) between the years 2017 – 2025 include: transport truck drivers, janitors, caretakers and building superintendents, and heavy equipment operators (except crane).

Kootenay Region	Total job openings between 2017 and 2025
0016 Senior managers - construction, transportation, production and utilities	71
0111 Financial managers	48
0112 Human resources managers	28
0714 Facility operation and maintenance managers	39
0811 Managers in natural resources production and fishing	78
1111 Financial auditors and accountants	132
1122 Professional occupations in business management consulting	36
1123 Professional occupations in advertising, marketing and public relations	9
1311 Accounting technicians and bookkeepers	387
1525 Dispatchers	13
2113 Geoscientists and oceanographers	52
2143 Mining engineers	76
2212 Geological and mineral technologists and technicians	101
6733 Janitors, caretakers and building superintendents	453
7311 Construction millwrights and industrial mechanics	173
7312 Heavy-duty equipment mechanics	344
7452 Material handlers	219
7511 Transport truck drivers	728
7521 Heavy equipment operators (except crane)	426

<sup>xii</sup> The Kootenay region represents a slightly smaller geographic area than the Columbia Basin-Boundary region in so far as it excludes Valemount, Revelstoke and Golden.

Kootenay Region	Total job openings between 2017 and 2025
8221 Supervisors, mining and quarrying	171
8222 Contractors and supervisors, oil and gas drilling and services	210
8231 Underground production and development miners	94
8232 Oil and gas well drillers, servicers, testers and related workers	7
8412 Oil and gas well drilling and related workers and services operators	12
8614 Mine labourers	38
9411 Machine operators, mineral and metal processing	60
9613 Labourers in chemical products processing and utilities	11
South East Region <sup>xiii</sup>	
0124 Advertising, marketing and public relations managers	218
0212 Architecture and science managers	11
1112 Financial and investment analysts	11
2115 Other professional occupations in physical sciences	4
8615 Oil and gas drilling, servicing and related labourers	14

**Table 5:** Summary of potential job openings due to growth and attrition (in full-year jobs) by industry and occupation in mining-related industries (2017-2025), Kootenay and South East region<sup>10</sup>

## Conclusion

The purpose of this report is to identify current mining sector market trends and issues, including current and projected labour market needs to help workforce development partners within the Columbia Basin-Boundary region understand and respond to changing labour market demands.

The mining industry has reduced investment expenditures and employment in response to weak coal and minerals commodity prices. With the stabilization of commodity prices and signs of modest growth, the industry is expected to expand employment and start new mining projects. Due to a forecasted moderate recovery in commodity prices and continued labour-saving innovation in the industry, employment growth is projected to be modest.<sup>6</sup>

In total, there are an anticipated 1,932 job openings forecast for the mining sector by 2025 in the Kootenay Development Region, including mining and support activities for mining, and oil and gas exploration. This accounts for 29% of all jobs in the mining sector in the province (6,376 provincially). The vast majority (94% or 1,822) of job openings will be in the mining sector.

<sup>xiii</sup> Data for these occupations is only available at the South East region level.



In the Kootenay Development Region, the top occupations expected to generate the largest number of new openings (full year job openings) between the years 2017 – 2025 include: transport truck drivers (728), janitors, caretakers and building superintendents (453), and heavy equipment operators (except crane) (426). The occupations with the highest, sustained demand in the South East region between 2015 and 2025, include transport truck drivers (-788), janitors, caretakers and building superintendents (424), and accounting technicians and bookkeepers (-412).

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## Appendix B - BC Mining Sector NAICS & NOC Codes

### BC Mining Sector NAICS Codes

The following lists the broadly defined industrial groups within the mining sector as defined by NAICS.<sup>19</sup>

<b>21 Mining, quarrying, and oil and gas extraction</b>
<b>211 Oil and gas extraction</b>
2111 Oil and gas extraction
21111 Oil and gas extraction (except oil sands)
211110 Oil and gas extraction (except oil sands)
21114 Oil sands extraction
211141 In-situ oil sands extraction
211142 Mined oil sands extraction
<b>212 Mining and quarrying (except oil and gas)</b>
2121 Coal mining
21211 Coal mining
212114 Bituminous coal mining
212115 Subbituminous coal mining
212116 Lignite coal mining
2122 Metal ore mining
21221 Iron ore mining
212210 Iron ore mining
21222 Gold and silver ore mining
212220 Gold and silver ore mining
21223 Copper, nickel, lead and zinc ore mining
212231 Lead-zinc ore mining
212232 Nickel-copper ore mining
212233 Copper-zinc ore mining
21229 Other metal ore mining
212291 Uranium ore mining
212299 All other metal ore mining
2123 Non-metallic mineral mining and quarrying
21231 Stone mining and quarrying
212314 Granite mining and quarrying
212315 Limestone mining and quarrying
212316 Marble mining and quarrying
212317 Sandstone mining and quarrying
21232 Sand, gravel, clay, and ceramic and refractory minerals mining and quarrying
212323 Sand and gravel mining and quarrying
21232 Sand, gravel, clay, and ceramic and refractory minerals mining and quarrying
212323 Sand and gravel mining and quarrying
212326 Shale, clay and refractory mineral mining and quarrying
21239 Other non-metallic mineral mining and quarrying
212392 Diamond mining
212393 Salt mining

212394 Asbestos mining
212395 Gypsum mining
212396 Potash mining
212397 Peat extraction
212398 All other non-metallic mineral mining and quarrying
<b>213 Support activities for mining, and oil and gas extraction</b>
2131 Support activities for mining, and oil and gas extraction
21311 Support activities for mining, and oil and gas extraction
213111 Oil and gas contract drilling
213117 Contract drilling (except oil and gas)
213118 Services to oil and gas extraction
213119 Other support activities for mining

**Mining Sector National Occupation Classification (NOC) Codes as referenced in Work BC Industry Outlook Profiles for Mining and Support Activities for Mining and Oil and Gas Extraction.<sup>6,9</sup>**

<b>National Occupation Classification</b>
0016 Senior managers - construction, transportation, production and utilities
0111 Financial managers
0112 Human resources managers
0124 Advertising, marketing and public relations managers
0212 Architecture and science managers
0714 Facility operation and maintenance managers
0811 Managers in natural resources production and fishing
1111 Financial auditors and accountants
1112 Financial and investment analysts
1122 Professional occupations in business management consulting
1123 Professional occupations in advertising, marketing and public relations
1311 Accounting technicians and bookkeepers
1411 General office support workers
1525 Dispatchers
2113 Geoscientists and oceanographers
2115 Other professional occupations in physical sciences
2143 Mining engineers



2212 Geological and mineral technologists and technicians
6733 Janitors, caretakers and building superintendents
7311 Construction millwrights and industrial mechanics
7312 Heavy-duty equipment mechanics
7452 Material handlers
7511 Transport truck drivers
7521 Heavy equipment operators (except crane)
8221 Supervisors, mining and quarrying
8222 Contractors and supervisors, oil and gas drilling and services
8231 Underground production and development miners
8232 Oil and gas well drillers, servicers, testers and related workers
8412 Oil and gas well drilling and related workers and services operators
8614 Mine labourers
8615 Oil and gas drilling, servicing and related labourers
9232 Petroleum, gas and chemical process operators
9411 Machine operators, mineral and metal processing
9613 Labourers in chemical products processing and utilities