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## 14 – EMPLOYABILITY

### 14.1 INTRODUCTION

The Employability VC concerns the economic effects of the Project on human capital formation, indicated by formal education and work experience attained by workers at the local and regional levels. The Project will require substantial amounts of labour with different skill levels during the construction and Operation Phases. Meeting labour demand is expected to require substantial investments in training and capacity-development. Effects are considered for all residents of the LSA and RSA, including First Nations. Economic issues and proposed management measures are also considered. Additional information to supplement this section is available in Appendix 13A.

#### 14.1.1 Regional Setting

The Project is a proposed Open Pit mine located approximately 300 kilometres (km) northwest of Whitehorse, Yukon Territory on Crown land that is administered by Government of Yukon. The Project site is located within the Selkirk First Nation traditional territory. The Project will require construction of a road access, including upgrades to the existing Freegold Road and construction of the Freegold Road Extension on land that falls within the Selkirk First Nation and Little Salmon/Carmacks First Nation traditional territories. The Freegold Road Extension and proposed Freegold Road Upgrade will extend for approximately 200 km southeast from the Project to the village of Carmacks.

#### 14.1.2 Rationale for VC Selection

The Employability VC was identified based in consideration of the information and issues communicated by the public, Aboriginal groups, local communities and government stakeholders during the engagement process conducted in support of this Proposal. This VC and specific indicators were also selected based on professional judgement and experience in conducting effects assessments.

Employability is important to consider because it is a prominent factor in determining long-term benefits for RSA residents arising from the Project. Changes in employability can affect the well-being of individual, families and communities in the area but are not attached to the Project itself, so that they can outlast the Project and can be transferred to other activities or areas. This section of the Proposal assesses the potential effects of the Project on these conditions that could affect the employability of residents of the local communities.

### 14.2 ASSESSMENT BOUNDARIES

#### 14.2.1 Local Study Area (LSA)

The LSA for socio-economic VCs, which includes Employability, is defined in Section 13.2.1.

#### 14.2.2 Regional Study Area (RSA)

The RSA for socio-economic VCs, which includes Employability, is defined in Section 13.2.2.

#### 14.2.3 Temporal Boundaries

The temporal boundaries for the effects assessment is defined in Section 5.2 of the Proposal as the life of the Project. Details on activities associated with the construction, operation, closure and decommissioning, and post-closure phases of the Project are provided in Section 4.

### 14.3 BASELINE CONDITIONS

There are considerable differences between baseline conditions for Employability measured by educational attainment between the rural communities of Pelly Crossing and Carmacks compared to the urban community of Whitehorse. A greater proportion of residents of rural communities have lower levels of educational attainment. In 2011, 56.1% of adults in Pelly Crossing did not have any kind of educational certificate, diploma, or degree compared to 15.4% of adults in Whitehorse. 2011 data for Carmacks is not available, but in 2006 the share of adults without a certificate, diploma, or degree was 42.6% (Statistics Canada 2013; Statistics Canada 2007).

Low levels of educational attainment are correlated with lower levels of workplace training and skills; it is not clear whether this reflects the preferences of employers or workers, or a combination of both. Workers with low levels of educational attainment tend to be less comfortable with classroom learning environments and can be intimidated by complex, document-based procedures. At the same time, academic credentials can be regarded by employers as a proxy for ability and the lack of credentials may discourage them from investing in those employees without them. The end result is that, even when those with low educational attainment can find suitable employers, they often are not directed in a path that develops their capacity and employability over the long term. As a consequence, low educational attainment can indicate that a broader set of capacities learned through work experience that are useful to formal employers are under-developed (European Centre for the Development of Vocational Training 2011).

Census data for the rural communities indicate that labour forces in these regions are largely not oriented toward mining positions. In 2011 the National Household Survey reported no workers from Pelly Crossing with experience in resource industries and 11.5% of the workforce (21 people) with experience in the construction industry, whereas public administration employed 73.1% of the workforce (135 people). However, 24.2% of the labour force worked in trades, transport, and equipment operation, 6.1% in natural and applied sciences, and 6.1% in primary industries, which indicates that a sizable share of the labour force may be gaining experience in areas relevant to the needs of the mining sector even though they may be employed by local government. In addition, more recent sources show that a number of Pelly Crossing residents work at Minto mine that began operations in late 2007. According to a presentation made by Capstone Mining Corporation, the Minto mine currently employs 22 people from Selkirk First Nation (Capstone Mining Corp. 2012).

Data for Carmacks are only available for 2006, which indicate that 7.8% of the workforce (19 people) had experience in resource industries and 5.9% (14 people) had experience in construction. However, the same data indicate that 27.7% of the labour force worked in trades, transport, and equipment operation and 6.4% in primary industries. Those with experience in public administration make up 52.9% of the population (127 people) (Statistics Canada 2013; Statistics Canada 2007). Employment by local government rather than industry can restrict employability of workers, since it does not allow workers to carry over the reputation benefits of the firms they work for when they are looking for jobs even if their work experience is of relevance to private sector employers.

Detailed data from the 2011 National Household Survey concerning employment are not available for rural communities, but are available for Whitehorse. The data show that the city has a diversified industrial workforce. In the 2011 Census, 3.5% of the labour force had experience in resource-based industries (521 people) and 9% had experience in the construction industry (1,340 people). In terms of total available workers, Whitehorse likely captures most of the LSA workforce; in 2006, Whitehorse accounted for 93% of workers in the LSA with experience in the mining industry and 97% of those with experience in the construction industry (Statistics Canada 2013; Statistics Canada 2007).

In Whitehorse, trades, transport, equipment operators, and workers in primary industry accounted for a combined 17.2% of the workforce (2,560 people). Of these, 1,015 were in industrial, electrical, and construction trades; 425 in maintenance and equipment operation; 640 in transport, heavy equipment operation, and related maintenance; and 225 were trades helpers and construction labourers. In Yukon as a whole, trades, transport, equipment operators and workers in primary industry accounted for a combined 19.5% of the workforce (4,143 people). Of these, 1,275 were in industrial, electrical, and construction trades; 535 in maintenance and equipment operation; 980 in transport, heavy equipment operation, and related maintenance; and 335 were trades helpers and construction labourers (Statistics Canada 2013).

#### 14.4 PROJECT-SPECIFIC EFFECTS

##### 14.4.1 Project Interactions and Potential Effects

Table 14.4-1 identifies potential interactions between specific Project components and activities and the Employability VC. The identified interactions warrant further analyses because they may result in substantive socio-economic effects on Employability, either positive or negative. The specific nature of the impacts is evaluated and discussed in subsequent sections. The list of Project components and activities included in this table was derived from the Project Description as described in Section 4.

Project components that may affect directly or indirectly the Employability conditions during the mine construction, operations, and closure and decommissioning phases include:

- Contracted Employment; and
- Mine Staffing.

These two Project activities are identified as having potential effects on Employability through their effects on the employment and income of residents of the LSA and RSA.

##### *Contracted Employment*

The Project will result in considerable direct employment as well as contracted employment generated from contracting and procurement associated with Project expenditures. Procurement and contracting in particular were identified since purchases associated with the Project will require and thus incentivize education requirements from contractors as well as provide a valuable opportunity for contractors to build capacity and “learn by doing” over the life of their contracts. Moreover, some aspects of training programs (in particular, those relating to workplace safety) will be provided to both Project staff and contractors.

##### *Mine Staffing*

Project workforce demand was identified because hiring requirements would increase incentives for educational attainment and training among local residents; moreover, those hired would benefit from industry experience as long as they work at the Project. Employee training programs would directly enhance the skill and employment levels of residents of the LSA and RSA. The proposed Project employability effects would depend on whether Project-related jobs are filled by residents or by non-residents; and on whether non-residents relocate to the RSA or commute to work. Potential Project effects are outlined in Table 14.4-1.

**Table 14.4-1 Potential Interactions between the Project and Employability**

<b>Project Components and Activities</b>	<b>Project Phase<sup>1</sup></b> (C, O, DC, PC)	<b>Potential Interaction</b> (Y/N)	<b>Mechanism of Interaction</b> (or Rationale for No Interaction)
Accommodations (Construction and Mine Staffing)	C, O, DC	No	No specific interaction with this socio-economic VC
Aggregate Sources / Borrow Sites	C	No	No specific interaction with this socio-economic VC
Airstrip and Airstrip Access Road	C, O, DC	No	No specific interaction with this socio-economic VC
Ancillary Buildings (Explosives Storage, Security Shed, Truck Shop etc.)	C, O	No	No specific interaction with this socio-economic VC
Concentrate Transport and Loading	O	No	No specific interaction with this socio-economic VC
Concrete Batch Plant Operation	C, O	No	No specific interaction with this socio-economic VC
Contracted Employment	C, O, DC	Yes	Contracting experience improves capacity and industry experience of contractors
Contracted Employment	C, O, DC	Yes	Potential for employment with contractors will increase incentive for educational attainment and training of local residents
Cyclone Sand Plant	C, O	No	No specific interaction with this socio-economic VC
Dismantling of Facilities	DC	No	No specific interaction with this socio-economic VC
Diversion of Canadian Creek	C, O	No	No specific interaction with this socio-economic VC
Drilling and Blasting	C, O	No	No specific interaction with this socio-economic VC
Fish Habitat Compensation Construction	C, O	No	No specific interaction with this socio-economic VC
Freegold Road Extension	C, O, DC	No	No specific interaction with this socio-economic VC
Freegold Road Upgrade	C, O, DC	No	No specific interaction with this socio-economic VC
Fuel Storage and Distribution System	C, O	No	No specific interaction with this socio-economic VC
Gold Extraction Plant / Oxide Ore Processing	C, O	No	No specific interaction with this socio-economic VC
Ground Preparation Activities (e.g., cut, fill, grub, etc.)	C	No	No specific interaction with this socio-economic VC
Hazardous Materials Storage, Transport, and Disposal	C, O	No	No specific interaction with this socio-economic VC

<b>Project Components and Activities</b>	<b>Project Phase<sup>1</sup></b> (C, O, DC, PC)	<b>Potential Interaction</b> (Y/N)	<b>Mechanism of Interaction</b> (or Rationale for No Interaction)
Heap Leach Facility	C, O	No	No specific interaction with this socio-economic VC
Heap Leach Pad	C, O	No	No specific interaction with this socio-economic VC
Laydown Areas	C, O	No	No specific interaction with this socio-economic VC
LNG Transport to Site	C, O	No	No specific interaction with this socio-economic VC
Main and Supplemental Power Plant (Gas Turbine and Diesel)	C, O	No	No specific interaction with this socio-economic VC
Maximum Disturbance Area	C, O, DC	No	No specific interaction with this socio-economic VC
Mine Development	C, O, DC	No	No further interaction; already addressed in other Project components
Mine Staffing	C, O, DC	Yes	Training programs for staff enhance the local and regional skills and education profile
Mine Staffing	C, O, DC	Yes	Employment opportunities will increase incentive for educational attainment and training of local residents
Mine Staffing	C, O, DC	Yes	Work experience will improve capacity and industry experience of workers
On-site Equipment and Vehicle Use	C, O, DC	No	No specific interaction with this socio-economic VC
Open Pit Mining	C, O	No	No specific interaction with this socio-economic VC
Ore Conveyors	C, O	No	No specific interaction with this socio-economic VC
Ore Crushing	C, O	No	No specific interaction with this socio-economic VC
Ore Hauling	C, O	No	No specific interaction with this socio-economic VC
Ore Stockpiles	C, O	No	No specific interaction with this socio-economic VC
Processing Facilities for Sulphide Ore	O	No	No specific interaction with this socio-economic VC
Reagent Storage and Distribution	C, O	No	No specific interaction with this socio-economic VC
Site Reclamation / Re-Vegetation	O, DC	No	No specific interaction with this socio-economic VC
Site Security and Fencing	C, O, DC	No	No specific interaction with this socio-economic VC
Surface Water Management (Contact	C, O, DC	No	No specific interaction with this socio-

Project Components and Activities	Project Phase <sup>1</sup> (C, O, DC, PC)	Potential Interaction (Y/N)	Mechanism of Interaction (or Rationale for No Interaction)
Water)			economic VC
Surface Water Management (Non-Contact Water)	C, O, DC	No	No specific interaction with this socio-economic VC
Tailings Management Facility	C, O, DC	No	No specific interaction with this socio-economic VC
Topsoil Stockpiles	C, O	No	No specific interaction with this socio-economic VC
Traffic (Equipment and Materials to Site)	C, O, DC	No	No specific interaction with this socio-economic VC
Waste Management: Garbage and Sewage Waste Facilities	C, O	No	No specific interaction with this socio-economic VC
Wasterock and Overburden Disposal	C, O	No	No specific interaction with this socio-economic VC
Water Supply	C, O, DC, PC	No	No specific interaction with this socio-economic VC

**Note:**

1. C (Construction), O (Operation), DC (Decommissioning and Closure) and PC (Post-Closure) represent the Project phases when the potential interaction between the Project and valued component is anticipated to occur.
2. Potential mechanism(s) of interaction between the Project components and activities and the valued component are carried forward into the assessment by characterizing the potential effect(s).

#### 14.4.1.1 Potential Project Effects on Employability

During the approximate 4 year construction phase, the Project is expected to require a large workforce of contracted and employed personnel. Construction workers will be contracted, but the Project will require pre-production operations workers in all areas of activity prior to the start of the Operation Phase (Figure 13.3-1). Employment will be somewhat seasonal given the region's climate. The first phase of construction is scheduled to start in early 2016 (concurrently with the all-weather road to the site) and continue to throughout 2016. In this period the peak workforce will be approximately 264 personnel. The second phase will follow thereafter with the peak on-site workforce rising to approximately 1,000 personnel. The owner-furnished construction camp will be used by all construction contractors.

The size of the pre-production operations workforce resident in the LSA is expected to increase in this time from 68 personnel in 2017 to 196 personnel in 2019 and the share of LSA residents in the total workforce is expected to increase from approximately 45% to 65% over the same period. Unlike construction employment, in which the workforce is contracted and seasonal, operations workers are employed directly by CMC for extended periods of time. This allows these employees to develop new skills and capabilities as they advance within the company over many years. These effects are expected to increase as the LSA-resident workforce rises over the operations phase from approximately 353 personnel when production begins in 2020 to approximately 536 personnel in 2024 (Table 14.4-3). Over this period, the share of workers resident in Yukon is expected to vary from 70% to 85% of the total workforce and include a mix of high- and low-skilled workers. Over both the construction and Operation Phase, the demand for contracted services as part of Project expenditures will support employment in a range of supplier industries, which is expected to further increase demand for skilled labour.

Staffing requirements over the construction and Operation Phase will require a mixture of high- and low-skilled employees resident in the RSA. Some of these workers are expected to be people in senior positions who will migrate into the RSA (Section 16). Some of these workers will be existing residents who are either unemployed or underemployed in their current positions. A large share of these workers, however, will be workers who will need to be trained by CMC. The extent and type of training will be driven by developments in the RSA labour market over the construction and Operation Phase.

The market for skilled employees is expected to be tight over the next decade, particularly with respect to workers with mining-specific skills. A Mining Industry Human Resources Council (MiHR) study of Yukon's labour market predicts that the expectation of rapid expansion in the mining workforce, driven by a switch from what is currently an exploration-based industry to an increasingly production-based industry, will create demands for new skills that Yukon has not attracted or trained over the past decade. In particular, demand for underground miners will increase as will demands for several categories of technologist and technician in geosciences and mineral processing. It can take 4 or more years to acquire the basic skills and knowledge required for many of the mining occupations facing supply constraints, and nearly a decade or more to acquire important industry experience to replace retiring workers, a major component of labour demand in the mining sector across the country (MiHR 2012).

As discussed in Section 15.3, MiHR predicts that a gap will emerge between the amount of new labour supplied to mining occupations and the demand for new labour and replacements of workers leaving the mining industry. Using its labour market forecasting models to project the industry's needs over the next 10 years, their analysis shows that this gap will widen rapidly over the next 4 years, and remain for the next decade. Labour demand in the industry will be nearly 150% higher in 2023 compared to the demand in 2012; meanwhile, labour supply could be approximately 12% lower in 2023 than in 2012, assuming nothing is done to address the skills and labour shortages and fill the projected gaps (MiHR 2012). Table 14.4-3 compares MiHR estimates of the 2012 mining labour force and forecasted labour force growth in the mining industry in Yukon up to 2023 with MiHR's forecasts of cumulative hiring requirements for Yukon's mining industry and the projected Project's hiring requirements for Yukon-based workers in 2023. Assuming that workers for the Project are drawn from both talent growth and the existing workforce produces an estimate for the Project's share of new workers. These new workers can be drawn from skilled workers migrating to Yukon, from workers trained by CMC for their positions, from workers drawn from other parts of the mining industry (support services or exploration), or from new talent drawn to mining from other industries. The results are approximated by National Occupation Code (NOC). This analysis estimates that by 2023, 207 regional workers, or 31% of the overall Project workforce, will need to be trained for positions or recruited from other industries.

Migrants are assumed to make up an average of 25% of Yukon-based labour force, although this share is expected to change over time (Section 16). This is based on a 2013 survey of current long distance commuters in Yukon's mining industry; that survey found that between 35% to 45% of those surveyed could be incentivized to move to Yukon by measures an employer could offer (e.g., housing and travel allowances, education funding for children). It also found that no incentive could convince 35% of commuters to relocate (Herkes, Mooney and Smith 2013). This implies that in order to meet CMC's hiring targets of employing an average of 78% resident workers, at most 20% of the workforce could be composed of workers from outside Yukon enticed to migrate and the remaining 58% would be composed of local workers already resident in Yukon. Migrants are assumed to be hired only when there is a shortage of skilled regional workers available. This analysis estimates that by 2023, 134 workers would migrate into the region.

**Table 14.4-2 Potential Effects of the Project on Employability**

<b>Mechanism of Interaction</b>	<b>Key Indicator(s)<sup>1</sup></b>	<b>Project Phase<sup>2</sup> (C, O, DC, PC)</b>	<b>Potential Effect</b>	<b>Direction</b>
Project purchases	Experience	C, O, DC	Improved capacity and industry experience of contractors	Beneficial
Project purchases	Educational level	C, O, DC	Employment opportunities will increase incentive for educational attainment and training of local residents	Beneficial
Training programs	Educational level	C, O	Training programs during operations would enhance the local and regional skills profile and employment levels	Beneficial
Project workforce demands	Educational level	C, O	Employment opportunities will increase incentive for educational attainment and training of local residents	Beneficial
Project workforce demands	Experience	C, O	Project employment will improve capacity and industry experience of workers	Beneficial

**Note:**

1. Key indicators are defined as measurable parameters or attributes to qualitatively or quantitatively evaluate the potential effect.
2. C (Construction), O (Operation), DC (Decommissioning and Closure) and PC (Post-Closure) represent the Project phases when the potential interaction between the Project and valued component is anticipated to occur.

**Table 14.4-3 Mining Employment, Training, and Recruitment in Yukon to 2023**

NOCS Code	Description	2012 Mining Labour Force	Forecasted 2023 Mining Labour Force	Forecasted 2023 Mining Production Labour Force	Estimated 2023 Yukon-based Project Workforce (A)	Estimated 2023 Mining Industry Cumulative Hiring Requirements (B)	Total 2023 Yukon Hiring Requirement (A+B)	New Workers Share of Projected Workforce	Project New Workers	Migrants	Training and Recruitment
6733	Janitors	365	NA	NA	12	NA	NA	NA	NA	NA	NA
A111	Financial managers	41	41	14	1	10	11	0%	0	0	0
A381	Primary production managers (except agriculture)	3	13	5	1	10	11	59%	1	0	0
B011	Financial auditors and accountants	2	2	1	3	5	8	91%	3	1	2
B021	Specialists in human resources	8	8	3	8	25	33	92%	7	3	4
B541	Administrative clerks	26	26	9	7	80	87	90%	6	2	4
B573	Production clerks	3	3	1	8	10	18	94%	8	3	5
C013	Geologists, geochemists and geophysicists	358	378	132	2	100	102	0%	0	0	0
C032	Mechanical engineers	30	30	11	1	30	31	66%	1	0	0
C042	Metallurgical and materials engineers	13	13	5	2	40	42	89%	2	1	1
C043	Mining engineers	12	42	15	2	35	37	60%	1	0	1
C044	Geological engineers	364	394	138	12	40	52	0%	0	0	0

NOCS Code	Description	2012 Mining Labour Force	Forecasted 2023 Mining Labour Force	Forecasted 2023 Mining Production Labour Force	Estimated 2023 Yukon-based Project Workforce (A)	Estimated 2023 Mining Industry Cumulative Hiring Requirements (B)	Total 2023 Yukon Hiring Requirement (A+B)	New Workers Share of Projected Workforce	Project New Workers	Migrants	Training and Recruitment
C048	Other professional engineers.	179	179	63	1	10	11	0%	0	0	0
C132	Mechanical engineering technologists and technicians	3	3	1	8	10	18	94%	8	3	5
C141	Electrical and electronics engineering technologists and technicians	5	5	2	0	15	15	88%	0	0	0
C155	Mapping and related technologists and technicians	54	54	19	8	10	18	0%	0	0	0
H212	Industrial electricians	34	34	12	26	100	126	91%	24	9	14
H411	Construction millwrights and industrial mechanics (except textile)	39	39	14	0	120	120	89%	0	0	0
H412	Heavy-duty equipment mechanics	108	118	41	26	85	111	63%	16	6	10
H611	Heavy equipment operators (except crane)	182	222	78	80	370	450	83%	66	26	40

NOCS Code	Description	2012 Mining Labour Force	Forecasted 2023 Mining Labour Force	Forecasted 2023 Mining Production Labour Force	Estimated 2023 Yukon-based Project Workforce (A)	Estimated 2023 Mining Industry Cumulative Hiring Requirements (B)	Total 2023 Yukon Hiring Requirement (A+B)	New Workers Share of Projected Workforce	Project New Workers	Migrants	Training and Recruitment
H622	Drillers and blasters - Surface mining, quarrying and construction	239	239	84	8	25	33	0%	0	0	0
H711	Truck drivers	270	NA	NA	60	NA	NA	NA	NA	NA	NA
H812	Material handlers	60	60	21	4	0	4	0%	0	0	0
I121	Supervisors, mining and quarrying	31	31	11	14	95	109	90%	13	5	8
I214	Mine workers (welders, mechanics and helpers)	53	53	21	50	160	210	90%	45	18	27
J011	Supervisors, mineral and metal processing	47	47	16	15	140	155	89%	13	5	8
J121	Machine operators, mineral and metal processing	125	125	44	70	375	445	90%	63	25	38
J311	Workers in mineral and metal processing	217	217	76	96	140	236	68%	65	25	40
<b>Total</b>		2871	3011	1054	525	2040	2565	-	341	134	207

**Note:**

Statistics Canada estimate of total labour force in occupation. NA - not applicable

Source: MiHR, 2012. Statistics Canada, 2013.

The largest areas of training and recruitment of new workers are low-skilled support positions (40 people), heavy equipment operators (40 people), machine operators (38 people), generalized mine workers (e.g., welders, mechanics, helpers) (27 people), industrial electricians (14 people), and heavy-duty equipment mechanics (10 people). Most of these roles require specialized training and certification. Active recruitment of labour force entrants may draw new talent away from other industries (particularly construction), notably with respect to welders, mechanics, and heavy equipment operators. Two occupations, truck drivers and janitors, were not included in the MiHR analysis and consequently are left out of the analysis. Both are expected to be recruited entirely from within the RSA labour force.

The Project would also encourage secondary effects in employability. As discussed in Section 13.4.1, expenditures from the construction and Operation Phase of the Project would encourage demand for labour through the direct, indirect, and induced economic activity in the region. As shown in Section 15.4.1, economic activity will create potential business opportunities for a range of regional businesses that will in turn require workers with a variety of skill levels. Although some of that skilled labour would be met by the migration of workers to Yukon (Section 16), most of it would need to be met by private (corporate and individual) investment in capacity development, training, and education. Also in Section 15.4.1, noticeable effects on government revenue from the Project will expand public resources available for training and education. As these effects are dependent on the responses by agencies, individuals, and companies independent of CMC, estimates can be made of their direction but not of their magnitude.

Reclamation and closure expenditures are spread over 4 years (including the final year of production). These expenditures would include post-closure monitoring, which will continue until results of monitoring demonstrate that closure objectives are achieved and self-sustaining. Monitoring of various site aspects, such as water quality, is expected to continue at the site over an extended period of time. Closure activities would largely be contracted and work is expected to be seasonal and short-term, similar to construction employment. As such, little investment in training motivated by the Project is expected during this period. Monitoring work may present some opportunities for LSA residents but on a small scale.

#### 14.4.2 Identification of Mitigation Measures

The effect of the Project on the LSA and RSA employability is considered to be positive. CMC intends to provide substantial investments in human capital for RSA residents and will employ residents for long periods well-suited for professional capacity development. CMC will enhance these positive effects by:

- Implementing a hiring policy that encourages the employment of workers from Yukon and in particular the rural communities within the LSA;
- Implementing a procurement process that, where economically feasible, gives preference to suppliers from the RSA and LSA;
- Providing incentives for workers hired from outside Yukon to re-locate;
- Requiring cultural awareness training for employees and contractors;
- Monitoring Project socio-economic effects and adapting management measures where required;
- Providing on-the-job training to assist local and regional workers to develop mining-specific skills;
- Providing training and education for potential employees from Yukon and in particular the rural communities within the LSA;

- Partnering with First Nation communities to access additional funding for training;
- Supporting non-mining training and entrepreneurial initiatives;
- Implementing career training and development opportunities for employees once hired; and
- Providing continuous, on the job safety training.
- After Project production ends CMC will, for a reasonable amount of time, assist Project-related employees to enhance their employability and find new employment in the mining industry

These mitigation measures are summarized and paired to Project effects in Table 14.4-4.

**Table 14.4-4 Proposed Mitigation Measures and Potential Residual Effects for Employability**

Potential Effect	Project Phase <sup>1</sup> (C, O, DC, PC)	Direction	Proposed Mitigation (or Enhancement) Measure <sup>2</sup>	Predicted Effectiveness	Residual Effect
Training programs during operations would enhance the local and regional skills profile and employment levels	O	Beneficial	Implementation of a Recruitment, Training, and Employment Plan that would seek to encourage recruitment of local/regional/territorial residents to the extent practical	High	Yes
Employment opportunities will increase incentive for educational attainment and training of local residents	C, O, DC	Beneficial	Implementation of a Recruitment, Training, and Employment Plan that would seek to encourage recruitment of local/regional/territorial residents to the extent practical	Medium	Yes
Project employment will improve capacity and industry experience of workers	C, O, DC	Beneficial	Implementation of a Recruitment, Training, and Employment Plan that would seek to encourage recruitment of local/regional/territorial residents to the extent practical	High	Yes
Improved capacity and industry experience of contractors	C, O DC	Beneficial	CMC will implement a procurement process that, where feasible, gives preference to suppliers from the RSA and LSA; Contractors would be encouraged to hire local/regional/territorial residents to the extent practical	Medium	Yes

**Notes**

1. C (Construction), O (Operation), DC (Decommissioning and Closure) and PC (Post-Closure) represent the Project phases when the potential interaction between the Project and valued component is anticipated to occur.
2. For beneficial potential effects, opportunities, where possible, to enhance potential environmental and socio-economic benefits are included as proposed enhancement measures.

14.4.3 Significance of Residual Effects

The criteria used to discuss residual effects are discussed in detail in Section 5, Assessment Methods and Frameworks.

Table 14.4-5 outlines the seven criteria used to assess significance for the Employability VC.

**Table 14.4-5 Determining Significance of Residual Effects for Employability**

Criteria	Rating	VC Specific Definitions
Direction	Adverse	Long term trend of the residual effect.
	Beneficial	
Magnitude	Low	Effect that occurs might or might not be detectable, but is within the normal range of variability
	Medium	Effect is unlikely to pose a serious risk or benefit to the VC or to represent a management challenge
	High	Effect is likely to pose a serious risk or benefit to the selected VC and, if negative, represents a management challenge
Geographical Extent	Localized	Within the identified Local Study Area
	Widespread	Outside the identified Local Study Area
Duration	Short Term	Effect is limited to the construction period
	Long Term	Throughout operations, decommissioning and closures
	Permanent	Effects measureable Post-Closure
Frequency	Infrequent	Effects occur occasionally
	Frequent	Effects occur often or are continuous
Reversibility	Reversible	Effect will return to baseline condition after operations, decommissioning, and closure
	Irreversible	Effect is persistent after operations, decommissioning, and closure
Context	Low Resilience	Effects operate outside of regional experience and represent a challenge to local socio-economic management institutions
	High Resilience	Effects are familiar to local socio-economic management institutions
Probability of Occurrence	Low	Effects are unusual under similar circumstances and are not expected to occur with the Project
	Moderate	Effects has a reasonable risk of occurring under similar circumstances or there is not currently sufficient information to assess probability
	High	Effects have consistently occurred under similar circumstances and are expected to occur with this Project

Residual effects for employability are assessed by these criteria in Table 14.4-6.

**Table 14.4-6 Significance of Residual Effects for Employment**

Residual Effect	Predicted Degree of Effect After Mitigation (or Enhancement) Measures <sup>1</sup>								Significance of Residual Effect
	Direction	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Context	Probability of Occurrence	
Training programs during operations would enhance the local and regional skills profile and employment levels	Beneficial	High	Localized	Long Term	Continuous	Irreversible	High resilience	High	Significant
Employment opportunities will increase incentive for educational attainment and training of local residents	Beneficial	Medium	Localized	Long Term	Continuous	Irreversible	High resilience	Moderate	Not Significant
Project employment will improve capacity and industry experience of workers	Beneficial	High	Localized	Long Term	Continuous	Irreversible	High resilience	High	Significant
Improved capacity and industry experience of contractors	Beneficial	Medium	Localized	Long Term	Continuous	Irreversible	High resilience	Moderate	Not Significant

**Note:**

For beneficial potential effects, opportunities, where possible, to enhance potential environmental benefits are included as proposed enhancement measures.

**14.4.4 Discussion of Significance**

The direction of employability effects is considered to be beneficial for two reasons: first, because they represent investments in human capital, which improve the ability of regional residents to earn higher incomes, and second because these investments in human capital are sustainable given that mining-related skills are expected to be in high demand within the region over at least the next decade. As such, investments in training and education are expected to be “good” in that they will likely earn a positive rate of return for the recipients in terms of higher incomes and reduced risk of unemployment.

The re-applicability of human capital investments mean that they are not expected to depreciate except in those cases where workers choose to leave the industries for which they have been trained, and thus residual effects are considered to be irreversible.

The number of workers receiving direct training from the Project to the year 2023 is estimated at 208 or 1.0% of the current labour force for Yukon, a high magnitude. This includes worker funding training either directly through CMC or independently in order to take advantage of the opportunities the Project offers. It also includes worker training in order to advance in positions or to gain an initial position in the Project workforce. The magnitude of direct training effects (training and capacity development of Project staff) are considered to be higher than indirect training effects (contractor training and capacity development or individual pursuit of education) because the latter are dependent on investment decisions made by other parties and are thus more uncertain given the varying levels of commitment, effectiveness, and results that may be expected from partner companies, governments, and organizations. Until more is known about those commitments, the magnitude of effects is assessed to be medium and their likelihood to be only moderate.

Employability effects are concentrated in the operations phase, although the substantive number of pre-production operations staff and the necessary preparatory investments in training required to meet regional staffing objectives will see considerable employability effects in the construction phase. No noticeable effects are seen in the closure and post-closure phases. These effects are thus sustained continuously over 25 years (22 years in production and roughly 3 years of the 4-year construction phase), which is considered to be long term.

Predictions of direct employability effects (training programs offered by CMC, experience earned by employees and capacity developed by contractors) are based on three key factors: workforce requirements, which have a low margin of error; project expenditures, which have a margin of error within a range of plus 15% to minus 10% (M3 2013); the distribution of the workforce between migrants to the region and local hires, which are more uncertain. Internal training programs are under the direct control of CMC, however, which allow dynamic strategies discussed with respect to effects enhancement which help reduce uncertainties regarding these effects. As a result, direct effects are considered to have a high level of confidence. For indirect effects (the increase in incentives for educational attainment) the analysis is based on the prediction of economic effects and consequently shares the uncertainty of those underlying forecasts. As a consequence, these effects are considered to have a moderate level of confidence.

As shown in Table 14.4-7, direct training effects (Project staff) are thus considered to be beneficial and significant, and indirect effects (contractor and regional residents) are considered to be beneficial but not significant.

**Table 14.4-7 Summary of Residual Effects for Employability**

<b>Potential Residual Effect</b>	<b>Direction (Adverse/Beneficial)</b>	<b>Significance (Significant/Not Significant)</b>	<b>Level of Confidence (Low, Moderate, High)</b>
Training programs during operations would enhance the local and regional skills profile and employment levels	Beneficial	Significant	High
Employment opportunities will increase incentive for educational attainment and training of local residents	Beneficial	Not Significant	Moderate
Project employment will improve capacity and industry experience of workers	Beneficial	Significant	High
Improved capacity and industry experience of contractors	Beneficial	Not Significant	High

## 14.5 CUMULATIVE EFFECTS ASSESSMENT

### 14.5.1 Introduction

The effects assessment of the Project on employability takes into consideration past and existing projects and activities and is based on cumulative labour market forecast for Yukon's mining industry. Consequently, the assessment is already cumulative in nature. Further, the effects of construction and operations on employability are considered to be beneficial and thus are not required to be carried forward.

### 14.5.2 Identification of other Activities Potentially Affecting the VC

Training programs and capacity development associated with mine staffing, contracted employment, and procurement are estimated to have a beneficial effect on employability of workers in the region. The forecasted tightness in the labour market (Section 14.4.1.1) for skilled mining workers may enhance these effects by increasing turnover and thus incentivizing further investments in training for the purposes of both recruitment and retention. Estimates of training requirements are based on forecasted data, which already include consideration of these cumulative effects. As a consequence, no new identification of activities is necessary.

### 14.5.3 Interactions and Potential Cumulative Effects

Residual effects on employability are based on labour market forecasts and thus already include cumulative effects in their analysis. As a consequence, residual effects are already a CEA and no further assessment of cumulative effects is required. In addition, the effects of construction and operations on employability are beneficial and are not required to be carried forward.

### 14.5.4 Additional Mitigation Measures and Potential Residual Cumulative Effects

As the effects assessment of the Project has already been conducted in the context of other proposed projects and their effects on employability, no additional mitigation measures are required.

### 14.5.5 Significance of Residual Cumulative Effects

The residual cumulative Project effects on employability are the same as the effects specific to the Project provided in Table 14.4-6.

#### 14.5.6 Discussion of Significance of Residual Cumulative Effects

Training programs and capacity development associated with mine staffing, contracted employment, and procurement are estimated to have a beneficial effect on employability of workers in the region. The forecasted tightness in the labour market (Section 14.4.1.1) for skilled mining workers may enhance these effects by increasing turnover and thus incentivizing further investments in training for the purposes of both recruitment and retention. Estimates of training requirements are based on forecasted data, which already include consideration of these cumulative effects.

#### 14.6 SUMMARY AND CONCLUSIONS

The market for skilled employees is expected to be tight over the next decade, particularly with respect to workers with mining-specific skills. These skill shortages are expected to worsen across Canada, driven by retirements, and are expected to exceed the effect of slumping commodity prices. Existing mines in Yukon depend on a high percentage of non-resident workers, amounting to roughly half of workers, but CMC plans to use a higher share of regional workers among their production workforce, rising above 80% by 2024. In order to achieve this objective, the company plans to work cooperatively with Yukon College's Centre for Northern Innovation in Mining in developing and delivering training programs that would serve the needs of Casino as well as other mining operations in Yukon. Work will also be required with other government departments and the communities towards ensuring appropriate services are in place to attract and retain Yukon-based employees. Skill attainment and upgrading in the RSA would represent a sustained and substantial benefit for the employability of the region's workers. The effects would be particularly important for low-skilled workers in rural communities within the LSA that face high levels of unemployment and poverty.

The construction and operation of the Casino mine is part of a maturation of the mining industry in Yukon that is underway. Casino is expected to take place in the context of a broad and diverse industry that produces a variety of commodities at a number of different operations. This creates a stabilizing effect on the resource economy as well as employment opportunities which are transferable as job opportunities shift through the life-cycle of different mines. The long life at Casino contributes to this stability and a shift to understanding these opportunities as careers, and not just temporary jobs.