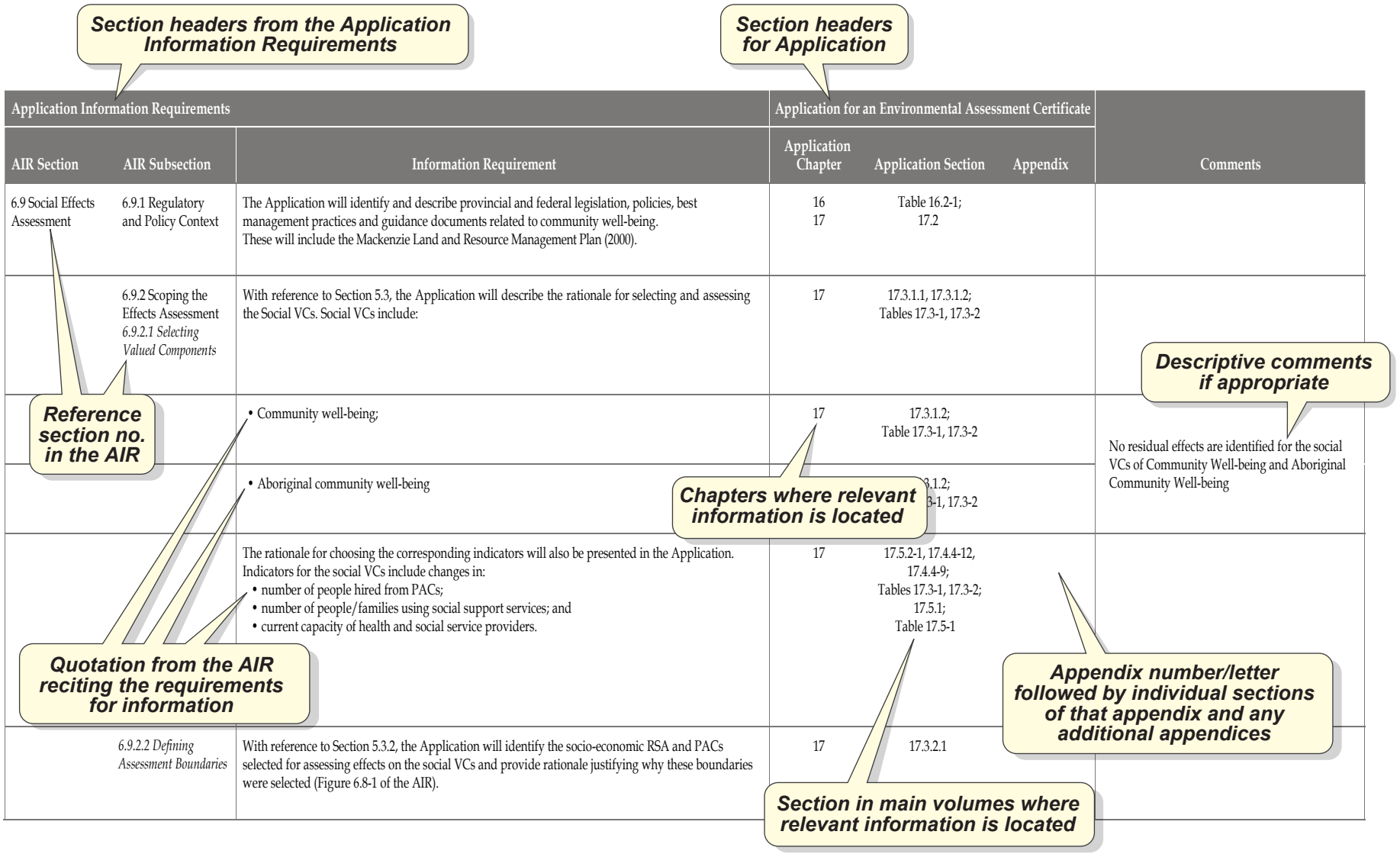
TABLE OF CONCORDANCE

This section provides a Table of Concordance, as required by the Application Information Requirements (AIR). The intent of the table is to cross-reference the final AIR with the Application for and Environmental Assessment Certificate (Application), including appendices, so that the information requested can be readily found in the Application.

The Table of Concordance is divided into two main parts: (i) *Application Information Requirements* and (ii) *Application for an Environmental Assessment Certificate*, with a final column for comments. The table presents the final AIR as direct quotes in the *Information Requirement* column in the same order they appear in the final AIR. Columns on the left-hand side of the table provide the *AIR Section* and *AIR Subsection* numbering and titles and the *Information Requirement* from the final AIR. The right-hand side of the table provides the corresponding section of the Application, with columns for cross-references to *Application Chapter*, *Application Section*, and *Appendix*. On the far right, there is a column for descriptive comments, if appropriate.

The figure on the following page provides an annotated illustration of the Table of Concordance.

Table of Concordance Example



Application Information Requirements			Application for an Environmental Assessment Certificate			
AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	Comments
6.9 Social Effects Assessment	6.9.1 Regulatory and Policy Context	The Application will identify and describe provincial and federal legislation, policies, best management practices and guidance documents related to community well-being. These will include the Mackenzie Land and Resource Management Plan (2000).	16 17	Table 16.2-1; 17.2		
	6.9.2 Scoping the Effects Assessment *6.9.2.1 Selecting Valued Components*	With reference to Section 5.3, the Application will describe the rationale for selecting and assessing the Social VCs. Social VCs include:	17	17.3.1.1, 17.3.1.2; Tables 17.3-1, 17.3-2		
		• Community well-being;	17	17.3.1.2; Table 17.3-1, 17.3-2		No residual effects are identified for the social VCs of Community Well-being and Aboriginal Community Well-being
		• Aboriginal community well-being		3.1.2; 3-1, 17.3-2		
		The rationale for choosing the corresponding indicators will also be presented in the Application. Indicators for the social VCs include changes in: • number of people hired from PACs; • number of people/families using social support services; and • current capacity of health and social service providers.	17	17.5.2-1, 17.4.4-12, 17.4.4-9; Tables 17.3-1, 17.3-2; 17.5.1; Table 17.5-1		
	6.9.2.2 Defining Assessment Boundaries	With reference to Section 5.3.2, the Application will identify the socio-economic RSA and PACs selected for assessing effects on the social VCs and provide rationale justifying why these boundaries were selected (Figure 6.8-1 of the AIR).	17	17.3.2.1		

TABLE OF CONCORDANCE

Application Information Requirements			Application for an Environmental Assessment Certificate			
AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	Comments
Table of Concordance		A Table of Concordance will be included in the Application. It will identify where the information in the final AIR can be found in the Application. The Table of Concordance will direct readers to the appropriate subsection in the Application. If the subsection is longer than 10 pages, the Table of Concordance will provide additional direction for the reader.	Table Of Concordance	-	-	
Preface to the Application		The Preface to the Application will include:				
		• a statement that the proposed Project is subject to review under the BC *Environmental Assessment Act* (EAA) and identify the trigger for the review under the EAA.	Preface	-	-	
		• a statement that the proposed Project is subject to review under the *Canadian Environmental Assessment Act 2012* (CEAA 2012) and identify the trigger for the review under CEAA 2012.	Preface	-	-	
		• a statement that the proposed Project is a substituted review pursuant to the *Memorandum between the Canadian Environmental Assessment Agency and the B.C. Environmental Assessment Office on the Substitution of Environmental Assessments (2013).*	Preface	-	-	
		• a statement that the Application has been developed pursuant to the AIR approved by the BC EAO and complies with relevant instructions in the Section 11 Order.	Preface	-	-	
		• identification of the provincial and federal government agencies, local governments, Aboriginal groups and other parties involved in the development of the Application.	Preface	-	-	
Acronyms and Abbreviations		The Application will include a list of acronyms, abbreviations and definitions used in the Application.	Acronyms and Abbreviations Glossary	-	-	
Executive Summary		The Executive Summary will include:				
		• a brief description of the proposed Project.	Executive Summary	-	-	
		• a brief description of the key benefits of the proposed Project.	Executive Summary	-	-	
		• a summary of the consultations undertaken to support the EA process and a description of the key issues raised.	Executive Summary	-	-	
		• a summary of Project and cumulative residual effects on the Valued Components (VCs), including mitigation measures.	Executive Summary	-	-	
		• a summary of Follow-up Programs (if applicable).	Executive Summary in part 24.0	-	-	
		• the Proponent's conclusions resulting from the EA.	Executive Summary	-	-	
1. Purpose and Organization of the Application		The Application will:				
		• identify the purpose of the Application.	Preface	-	-	
		• describe the organization of the Application.	Preface	-	-	

Application Information Requirements			Application for an Environmental Assessment Certificate			
AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	Comments
2. Project Overview 2.1 Proponent Description		The Application will include:				
		• a description of the Proponent, including company history, incorporation, type of company, management and reporting structures, affiliations, headquarters location, contact information including contact names, addresses, telephone numbers, fax numbers and email addresses, and corporate environmental policy.	1	1.2.1, 1.2.2, 1.2.3	-	
		• the name and contact for the firm/individual managing the EA of the proposed Project and list the parties involved in the preparation of the Application, their qualifications, and the section(s) for which they were contributors.	Preface 1	Preface 1.2.4	-	
2.2 Project Description		The Application will describe the Project purpose and will specify if the Project objectives are related to or contribute to broader corporate or public sector policies and objectives.	1 5	1.3 5.1.1	-	
	2.2.1 Project Location and Access	The Application will describe the Project location and access, and will include maps showing the longitude and latitude of the Project site.	1 5	1.9.2 5.2.1, 5.2.2	-	
		Maps showing regional context, including nearby Aboriginal and non-Aboriginal communities will be provided.	1	1.9.2	-	
		Distances to nearby communities will be provided and communities will be labelled on the regional map.	1 5	1.4 5.2.1, 5.2.2	-	
	2.2.2 Project History	The Application will identify the Proponent's mineral tenures in the Project area, including a table listing the tenures and a map showing the location of the tenures.	5	5.3	-	
		The Application will describe the mineral exploration and mining history of the proposed Project, including the operations and closure of the existing Kemess South (KS) mine, as well as the joint review panel process for the proposed Kemess North project.	1	1.5	-	
	2.2.3 Federal Lands, Funding, and Transboundary Effects	The Application will identify and describe the federal lands in the area of the Project, including Indian reserves, parks and protected areas, and whether federal funding is being provided for the Project.	1	1.6	-	
		The Application will indicate whether there is any potential for transboundary effects outside of BC, including Alberta and the United States.	1	1.6	-	
	2.2.4 Mineral Resources	The Application will provide the resource estimates for the targeted mineral zones of the Project.	1 5	1.7 5.5	5-A	
	2.2.5 Regional and Project Geology and Mineralization	The Application will include a description of the regional geology (stratigraphy, structure), property geology (stratigraphy, structure) and the resource.	5	5.4	5-A	
	2.2.6 Project Components and Activities	The Application will describe on-site components and associated on-site and off-site infrastructure and other facilities associated with the proposed Project, including figures of components and activities for the Construction, Operations, Closure, and Post-Closure phases.	5	5.1.1, 5.1.3	5-A	
		The mine plan will be developed in accordance with the *Health, Safety and Reclamation Code for Mines in British Columbia* (BC MEMPR 2008).				
		The Application will include the following information:				
		• proposed mining method and mining equipment.	5	5.6.1, 5.6.14	5-A	
		• mine planning, development and production schedules for both ore and waste.	5	5.10, 5.11.1, 5.15	5-A	
		• anticipated underground layout, showing the proposed sequence of ore extraction.	5	5.6, 5.6.10	5-A	
		• depth of mining, vertical cover thickness overlying the underground workings.	5	5.4, 5.4.2	5-A	

Application Information Requirements			Application for an Environmental Assessment Certificate			Comments
AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	
2.2 Project Description *(cont'd)*	2.2.6 Project Components and Activities *(cont'd)*	• geotechnical and hydrogeological considerations including expected rock quality in the underground workings.	5 6 24	5.6.2, 5.6.4 6.6.3.6 24.11.4	5-A, 5-E 6-A; Table 7.1	
		• conceptual ground control management and monitoring plan for workings that incorporates changes relating to ground control as a result of experience gained during initial development.	5	5.6.4	5-A	
		• methods used to estimate the areal extent and degree of expected surface subsidence.	5	5.6.3	5-B	
		• underground air quality control, ventilation and heating.	5	5.6.13.1, 5.8	-	
		• underground water balance, water quality monitoring/control and water management system, including water pumping contingencies for potential inflows that are higher than expected	5 24	5.6.13.4, 5.12 24.8	5-A (Section 4.7.4), 5-C, 5-F	
		• inventory of construction materials (e.g., for East Dam, roads) outlining source locations, volumes and geochemical characterization information.	5	5.11.1	5-A	
		• type, estimated amount, storage, use, handling, and disposal of hazardous materials, reagents, and dangerous goods including explosives.	5 24	5.6.13.8, 5.11.2 24.6	-	
		• about summary of environmental management, emergency response and safety planning, awareness, and training plans.	24	24.1, 24.2	-	
		The Application will describe the following on-site and off-site components, and provide figures illustrating the proposed Project layout including:				
		• underground facilities: – access and haulage decline; – conveyor and conveyor decline; – ventilation intake decline; – cave gallery; – gyratory crusher; – ventilation system and exhaust raise; – water sumps and pumps; – workshops, electrical substation, warehouse, storage, and explosives magazines; – refuge stations and lunchroom.	5	5.6.1 - 5.6.13	5-A	
		• surface portal facilities: – offices, workshop, and stores; – concrete batch plant; – electrical substation; – decline ventilation system; – temporary waste rock stockpile; – temporary ore stockpile; – salvaged soil stockpiles; – laydown areas; – fuel storage tank; – water handling infrastructure: o sediment settling pond, o pump house, o runoff collection ditch, o culverts.	5	5.6.13.1, 5.7.1 - 5.7.6	5-A	

Application Information Requirements			Application for an Environmental Assessment Certificate			
AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	Comments
2.2 Project Description *(cont'd)*	2.2.6 Project Components and Activities *(cont'd)*	• ventilation infrastructure: – ventilation exhaust facility; – ventilation raise access road.	5	5.8.1, 5.8.2	5-A	
		• access corridor: – access road; – tunnel including roadway and conveyor easements; – conveyor from portal (decline entrance) to mill stockpiles; – power line extension to portal; – dewatering pipeline.	5	5.9.1 - 5.9.4	5-A	
		• Tailings Storage Facility (TSF; formerly the KS Mine open pit): – existing KS Mine Pit; – East Dam.	5	5.11.1	5-A	
		• water management: – waste water storage and transport facilities; – water treatment plant(s); – discharge water line(s) and outfall(s); and – diversion infrastructure.	5	5.12.1 - 5.12.7	5-A, 5-C	
		The Application will describe transport to and from the mine site including:				
		• how mine employees will be transported to and from the Project.	5	5.2.2, 5.13.4	5-A	
		• transportation of materials and concentrate via the ORAR.	5	5.2.2, 5.10.8	5-A	
		• transportation of concentrate via the rail load-out facility in Mackenzie.	5	5.2.2, 5.10.8	5-A	
		The Application will describe any proposed modifications to the following existing components:				
		• KS mill and storage buildings	5	5.10.5 - 5.10.7, 5.13.3	5-A	
		• ore stockpile area adjacent to (north of) the mill	5	5.10.4	5-A	
		• administration and accommodation facilities	5	5.13.1, 5.13.3	5-A	
		• potable water facility and sewage facility	5	5.13.5, 5.13.6	5-A	
		• process water line.	5	5.12.6	5-A	
		• explosives magazine.	5	5.13.7	5-A	
		• power network – 230 kV power line from BC Hydro Kennedy substation to plant site. – step-down transformers, site distribution lines, and backup diesel generators.	5	5.6.13.6, 5.13.2	5-A	
		• all-weather gravel airstrip.	5	5.13.4	5-A	
		• exploration access roads.	5	5.9.1	5-A	
		The Application will discuss the results of the geotechnical investigations that have been completed to support the design of project components including, but not limited to, the following:				
		• underground excavations, including access tunnel.	5	5.6.1, 5.6.2, 5.9.2	5-A	
		• roads.	5	5.9.1, 5.9.2	5-A	

Application Information Requirements			Application for an Environmental Assessment Certificate			Comments
AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	
2.2 Project Description *(cont'd)*	2.2.6 Project Components and Activities *(cont'd)*	• water management structures.	5	5.6.13.4, 5.7.6, 5.11.1, 5.12	5-A	
		• TSF East dam.	5	5.11.1	5-A	
		• temporary and permanent stockpiles.	5	5.7.2, 5.10.4	5-A	
	2.2.7 Physical Activities	The Application will describe the physical activities associated with the Construction, Operations, Closure and Post-Closure phases of the Project and provide an anticipated timetable.	5	5.1.2, 5.1.3	5-A	
	2.2.7.1 Construction Phase	The Application will describe Construction phase activities including:				
		• construction of the Access Corridor from the KS mine site to the underground portal area.	5	5.1.2.1	5-A	
		• monitoring and controlling water quantity and quality discharged to the KUG TSF.	5	5.1.2.1, 5.12.1 - 5.12.6	5-A	
		• salvaging and stockpiling, to the greatest extent possible, of topsoil and overburden from the disturbance footprint for use in reclamation.	24	24.14	5-A	
		• timber removal and land clearing.	24	24.11, 24.14	5-A	
		• discharge of KUG TSF water required to facilitate construction of the East Dam and commencement of operations.	5 10	5.1.2.1, 5.12.5, 5.12.7 10.5.2, 10.5.3, 10.6.1	5-A 10-C	
		• construction of any water treatment plant(s) and related facilities.	5	5.1.2.1, 5.12.5	5-A	
		• construction of discharge pipeline(s) and related infrastructure.	5	5.1.2.1, 5.12.5, 5.12.7	5-A, 5-C	
		• production ventilation exhaust raise and access road and upgrades to the ventilation access road.	5	5.1.2.1, 5.8.1, 5.8.2	5-A	
		• construction of the underground portal area facilities including decline ventilation network, contractor facilities, batch plant, sub-station, settling pond, stockpiles, pumphouse, fuel storage tank, and water management infrastructure.	5	5.1.2.1, 5.6.13, 5.7.1 - 5.7.6	5-A	
		• construction of the underground workings, including major decline and caving excavations.	5	5.1.2.1, 5.6.6 - 5.6.13	5-A	
		• construction of the drawbell opening and initial cave development.	5	5.1.2.1, 5.6.6, 5.6.10	5-A	
		• excavation and installation of underground infrastructure, including crusher, conveyer, main sumps and pumps, primary fans and heaters, electrical network, water lines, workshop and stores, explosives magazines, truck load-out, and rock pass grizzlies and all associated equipment.	5	5.1.2.1, 5.6.13	5-A	
		• extraction of the initial ore to develop the stockpile and commence mill operations.	5	5.1.2.1, 5.7.2	5-A	
	2.2.7.2 Operations Phase	The Application will describe the activities occurring during the Operations phase including:				
		• underground mining	5	5.1.2.2, 5.6	5-A	
		• use of surface facilities.	5	5.1.2.2, 5.7, 5.10, 5.13	5-A	
		• waste and water management plans.	5 24	5.11.2 - 5.11.5, 5.12.1 - 5.12.7 24.16, 24.17, 24.18	5-A, 5-C	
		• power supply.	5	5.6.13.6, 5.13.2	5-A	
		• access and transportation (transportation of shift workers by air, and transportation of concentrate and project supplies by road and rail).	5	5.2.2, 5.13.4	5-A	
	2.2.8 Underground Mining	The Application will include:				
		• a description (and illustration) of the underground development plan, including operational and extraction levels and draw point(s) development dimensions.	5	5.6.6 - 5.6.12	5-A	

Application Information Requirements			Application for an Environmental Assessment Certificate			
AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	Comments
2.2 Project Description *(cont'd)*	2.2.8 Underground Mining *(cont'd)*	• geotechnical and hydrological considerations for underground development including expected rock quality.	5	5.6.2 - 5.6.5	5-A	
		• a description of the geology and the expected range of geotechnical parameters to be encountered (e.g., stress, geologic structure, rockmass rating).	5	5.4, 5.6.2	5-A	
		• a conceptual ground control management plan for the underground workings including proposed support for typical ground, areas of poor rock quality, and any major excavations.	5	5.6.4	5-A, 5-D	
		• a proposed ground support system and criteria for selection, for the expected range of rock conditions and range of excavation dimensions.	5	5.6.4	5-A, 5-D	
		• the methods used to estimate the areal extent of expected surface subsidence, the degree of expected subsidence, and potential effects (if any) on surface infrastructure.	5	5.6.3	5-A, 5-B	
		• the potential effects of subsidence on mine infrastructure, terrain stability, and the environment.	5 12	5.6.3 12.5.1	5-A	
		• an assessment of potential for inrush or air blasts associated with block caving mining method.	5	5.15	5-A	
	2.2.9 Mineral Processing	The Application will describe the mineral processing, including facilities and technologies, processing volumes, and the locations and sizes of any run-of-mine ore stockpiles.	5	5.10	5-A	
		The Application will provide a process diagram, including materials balance and addition points for process reagents.	5	5.10.1	5-A	Material balance and reagent addition points not indicated on flowsheet. Sections 24.6.4.1 and 24.18.4.2 provide details on reagents.
		The Application will describe toxicity and dosage/loading of chemical reagents.	24	24.6.4.1, 24.18.4.2	-	
	2.2.10 Water Management	The Application will include a plan for water management (measures for erosion and sediment control, disposal of surplus underground water, and provision of process water, fire and potable water) for the Construction, Operations, Closure, and Post-Closure phases.	5 24	5.9.4, 5.12, 5.13.5 24.16	5-A	
		The Application will describe the:				
		• diversion channel infrastructure	5	5.12.2, 5.12.3	5-A	
		• storage capacity of any impoundments.	5	5.7.6, 5.11.1.1, 5.12	5-A, 5-E	
		• collection and pumping of contact water.	5	5.6.13.4, 5.7.6, 5.12.3	5-A	
		• associated geohazards (e.g., landslides/terrain instability, seismicity, subsidence).	12	12.4.3.5, 12.5.2.1	4-A 6-A 12-A	
		• management of underground seepage.	5 11 24	5.1.3, 5.16.1 11.5.3.1 24.8, 24.16	5-A, 5-F 9-B	
		• sources and required volumes of process and potable water.	5	5.1.3, 5.11.1.1, 5.12.3, 5.12.6, 5.13.5	5-A, 5-C	
		In relation to water treatment, the Application will:				
		• describe water treatment requirements.	5	5.12.5	5-C	

Application Information Requirements			Application for an Environmental Assessment Certificate			Comments
AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	
2.2 Project Description *(cont'd)*	2.2.10 Water Management *(cont'd)*	• provide a conceptual design of the water treatment facilities, including: – location; – characterization of influent and effluent chemistry and flow; – treatment process information and demonstration of its effectiveness; – information on the drainage collection and conveyance systems; – predicted reagent use; – assessed performance under the expected range of flow and climatic conditions; – identification of operating, monitoring and maintenance requirements; and – anticipated capital and operating costs.	5	5.12.5	5-C	
		• provide a conceptual design of the disposal facility for the handling of any water treatment plant by-product, including: – liquid effluent sources; – predicted volumes; – variation with season, project phase and component; – physical and geochemical characteristics of waste (including long-term geochemical stability); and – disposal/management plans.	5	5.12.5, 5.12.7	5-C	
		• provide monitoring commitments and responsibilities related to water management.	24	24.8, 24.11, 24.15, 24.16, 24.18	-	
		If new and/or innovative mitigations are proposed for the project that are not in conventional use at mine sites in BC, the application will include the results of pilot testing, research and development work, and/or provide relevant analogues from other mining applications, to demonstrate their effectiveness and appropriateness for the proposed project.	5	5.12.5	5-C	
		In relation to the East Dam of the TSF, the Application will provide:				
		• geotechnical design information.	5	5.4.1, 5.11.1.1 - 5.11.1.17	6-A	
		• a description of any embankment heights, slopes, and method of construction.	5	5.4.1, 5.11.1.1 - 5.11.1.17	5-A	
		• foundation conditions including foundation angle and soil properties.	5	5.4.1, 5.11.1.1 - 5.11.1.17	6-A	
		• description of construction materials and borrow source locations.	5	5.4.1, 5.11.1.1 - 5.11.1.17	5-A	
		• geotechnical stability assessment including preliminary factors of safety.	5	5.4.1, 5.11.1.1 - 5.11.1.17	6-A	
		• conceptual plan for any proposed instrumentation or monitoring.	5	5.11.1.16	6-A	
		• a description of the method for testing non-PAG materials before and after dam construction.	5 24	5.11.1.12 24.11.4.1	6-A	
		• an assessment of geohazards that could influence the impoundments.	5 12	5.4.1, 5.11.1.1 - 5.11.1.17 12.5.2, 12.5.3	5-A	
		In relation to the TSF, the Application will provide a description of any seepage rates and seepage control measures.	5	5.11.1	5-A	
		The Application will reference the Canadian Dam Association "Dam Safety Guidelines" (2007) and 2013 revisions, where appropriate, including consequence classification, seismic design criteria, inflow design flood, and factors of safety for any dams or embankments.	5	5.11.1.1	4-C 5-A, 5-C 6-A	

Application Information Requirements			Application for an Environmental Assessment Certificate			Comments
AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	
2.2 Project Description *(cont'd)*	2.2.10 Water Management *(cont'd)*	A water balance will be prepared that incorporates the major project components through each project phase.	5	5.11.1.1	11-D	
		The water balance will be summarized at both monthly and annual time scales.	-	-	11-D	Table 3.1.1 and Figures 1.3-1 to 1.3-6 in Appendix 11-D
		Water balance model inputs (e.g., precipitation, evaporation, stream flows, groundwater discharge/recharge, hydraulic conductivity, seepage capture amounts and estimated seepage losses) will include information sources and uncertainty estimates.	10 11	10.6.1.1 11.6.1	10-A 11-D	
		The water balance will describe and consider relevant inputs from existing KS facilities including water levels (KS TSF and existing open pit) and flows (waste rock piles, KS TSF overflow, and seepage through dams).	10 11	10.6.1.1 11.6.1	11-D	
		The Application will include the potential effects of mine-related subsidence, including assessment of changes in water infiltration to underground works and groundwater recharge (both volume and rate), and any potential resulting effects on water quantity in the local receiving streams and Amazay Lake.	5 10 11	5.6.3 10.5.2, 10.6.1.2 11.5.2.2, 11.5.3.1, 11.6.2.1	10-C 11-D	
		As appropriate, the document will make reference to measurement standards or collection protocols used, as well as the assumptions that have been built into the data.	-	-	10-A 11-A, 11-D	
		Sensitivity analysis will include consideration of climatic variability (i.e., wet years and dry years) and data uncertainty. Water management plan(s) will be referenced.	24	24.16, 24.18	10-A 11-A, 11-D	
	2.2.11 Waste Management	The Application will include a description of waste sources, volumes, treatment requirements and temporary and final storage measures and locations.	5	5.11.2 - 5.11.5, 5.12.5	5-A	
		The Application will include a description of monitoring commitments related to waste management for the Construction, Operations, Closure, and Post-Closure phases.	24	24.17	-	
		The Application will identify waste discharge locations.	5	5.11.1 - 5.11.5	-	
	2.2.11.1 Waste Rock	The Application will:				
		• characterize waste rock with respect to ML/ARD.	5 7	5.4.1 7.3	5-A 7-E	
		• provide an estimate of the volumes of waste rock that will be disposed and the relative timing of each disposal.	5	5.11.1.1	5-A	
		• describe the temporary waste rock transfer pad and stockpile including location, maximum volume, maximum height, foundation material, and slope angles (foundation and dump face).	5	5.7.2	5-A, 5-E	
		• describe the proposed method for safe disposal of waste rock, including methods of testing non-acid-generating (non-PAG) rock.	5 7	5.4.1, 5.11.1.1 7.3	5-A 7-E	
		• provide discussion of the effect (if any) of the tailings on the stability of the submerged waste rock.	5	5.11.1.1, 5.11.1.2	5-A 6-A (Section 6.3)	
		• provide a series of cross-sections through the submerged tailings and the waste rock to illustrate the development sequence of waste material placements.	5	5.11.1; Figures 5.11-5, 5.11-6, 5.11-7	5-A 11-D	
		• provide a waste management plan for the handling and, where practical, segregation criteria for waste rock to prevent or minimize the likelihood of ML/ARD occurring.	24	24.11	-	
	2.2.11.2 Tailings	The Application will:				
		• characterize anticipated tailings with respect to ML/ARD potential and metal content.	5 7	5.4.1, 5.11.1.1 7.3	5-A 7-E	

Application Information Requirements			Application for an Environmental Assessment Certificate			
AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	Comments
2.2 Project Description *(cont'd)*	*2.2.11.2 Tailings (cont'd)*	• provide an estimate of the volumes of tailings and the relative timing related to their disposal.	5	5.11.1.1	5-A 6-A	
		• describe the proposed method for disposal of tailings, including: – proposed tailings slurry line(s) and discharge location(s); – any associated geohazards and required geohazard mitigation measures; – conceptual description of tailings mound dynamics; – general characteristics of the sediments at the KS pit water interface; – control measures and redundancies designed to avoid "upset conditions;" and – surface extent of tailings at various periods through mine life.	5	5.11.1.1 - 5.11.1.17	5-A 6-A	
		• provide a waste management plan for the handling for tailings to prevent or minimize the likelihood of ML/ARD occurring.	5 24	5.11.1.1 24.11	-	
	2.2.11.3 Air Emissions	The Application will describe sources of air emissions, including:				
		• fuel combustion by surface and underground equipment, and diesel generators when in use.	5 7	5.11.5 7.1	7-A, 7-C	
		• fugitive dust from vehicle traffic, waste rock handling including conveyor transport, waste rock, ore and topsoil stockpiles, blasting and crushing during underground operations.	5 7	5.11.5 7.1	7-A, 7-C	
	2.2.11.4 Hazardous Waste	The Application will describe potential sources of and facilities to store and manage, hazardous waste materials, such as spoiled reagents and used batteries.	5 24	5.11.2 24.6	-	
		The Application will refer to the management plan for handling hazardous materials.	24	24.6	-	
	2.2.11.5 Non-hazardous Waste Management	The Application will describe the proposed facilities for the management of non-hazardous waste materials, including a permitted landfill or use of regional landfill, waste collection areas for recyclable waste, and sewage effluent and sludge disposal.	5 24	5.11.3, 5.11.4, 5.13.6 24.17	5-A	
	2.2.12 Power Supply	The primary power supply to the Project will be provided from the provincial electrical grid. The existing Kemess powerline connects to the grid near the town of Mackenzie. The Application will describe the on-site transmission line, including:				
		• the transmission line right-of-way (ROW) and relevant design criteria. • conceptual ROW access plan and staging areas for construction and operation. • representative drawings of proposed stream crossings and structures (where applicable). • size of poles. • power capacity of the transmission line. • construction methods.	5	5.1.3, 5.6.13.6, 5.7.1, 5.9.5, 5.13.2	5-A	
		Any backup-power supply will also be discussed.	5	5.1.3, 5.13.1, 5.13.2	5-A	
		The Application will reference best practice methods as described in the Fisheries and Oceans Canada Pacific Region *Operational Statement for Overhead Line Construction* (Fisheries and Oceans Canada 2007) and *Operational Statement for Maintenance of Riparian Vegetation in Existing Right-of-Ways* (Fisheries and Oceans Canada 2007).	5	5.9.5	-	
	2.2.13 Mine Production Schedule	The Application will include a description of the mine production schedule, including a table summarizing key dates (e.g., Year 1, Year 2, etc.) and PAG and non-PAG material tonnage predicted to be extracted.	5	5.11.1.1, 5.1.2, 5.15	5-A	

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2.2 Project Description *(cont'd)*	2.2.14 Closure and Reclamation	Consistent with requirements of the BC *Mines Act* (1996k) and the *Health, Safety and Reclamation Code for Mines in British Columbia* (BC MEMPR 2008), a conceptual closure and reclamation plan will be provided in the Application.	5 6	5.16 6.1 – 6.7	-	
		The Proponent has an existing closure and reclamation plan for the KS Mine, which will inform the closure and reclamation plan for the KUG Project.	6	6.6.1	-	
		The closure and reclamation plan will include a proposed end land use and identify capability objectives based on current land uses, and predicted landscape, wildlife suitability, and soil conditions.	6	6.3	-	
		The closure plan will identify proposed monitoring and research plans, including timing to address potential information gaps and evaluate proposed reclamation approaches and strategies.	6	6.6.4, 6.5.3	-	
		The Application will describe the activities associated with the Closure phase of the Project including:	6	6.6.3	-	
		• closure of the underground mine.	6	6.6.3.1	-	
		• closure of the process plant, camp, conveyor system and ancillary infrastructure.	6	6.6.3.3, 6.6.3.4	-	Describes portal buildings, laydown areas, conveyor and accessory infrastructure closure. Process plant and camp closure described in 2010 Kemess South Reclamation and Closure Plan.
		• closure of waste rock and tailings storage facilities.	6	6.6.3.5	-	Waste rock will be co-disposed with tailings in KUG TSF
		• closure of roads and power lines.	6	6.6.3.4	-	
		• closure of water management infrastructure.	6	6.6.3.3, 6.6.3.5	-	
		• opportunities for ongoing and progressive reclamation throughout the life of the Project.	6	6.6.2.1	-	
		A schedule describing the timing of closure activities will be included.	6	6.6.2.4; Tables 6.6-1, 6.6-2, 6.6-3	-	
		Specific details will be provided in the Application for:				
		• development of specific reclamation details derived over the life of the mine.	6	6.6.3	-	
		• workforce requirements.	1	1.11.2; Tables 1.11-5, 1.11-6	-	
		• equipment and materials requirements (including traffic type, volume, and frequency).	5	5.2.2	5-A; Tables 4.15 and 4.16	
		• management plans required in the event of temporary or early closure scenarios.	6	6.6.2.3, 6.6.2.4	-	
		• ML/ARD prevention and management.	6	6.6.3.5	-	
		• water management, including: – subsidence effects on groundwater; – infiltration or seepage to Amazay Lake; – potential discharge from flooded underground works (discharge point); – discharge from waste rock dumps and temporary ore stockpiles (including in the event of temporary or premature closure); and – the TSF overflow or spillway.	6 9 10	6.6.2.3, 6.6.3.2, 6.6.3.3, 6.6.3.5 9.5.3., 9.6.1 10.6.1.2	9-B 10-C	
		The Application will provide an initial estimate for reclamation bonding based on provincial government guidelines, and will include the estimated costs associated with long-term monitoring and maintenance for infrastructure that will remain on site.	6	6.7	-	

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	Comments
2.2 Project Description *(cont'd)*	2.2.15 Post-Closure	The Application will describe activities associated with the Post-Closure phase, including water management.	5 6 24	5.1.2.4, , 5.11.1.17, 5.16.2; Table 5.1-2 6.6 24.16.4.6	11-D	
		Requirements for long-term monitoring and treatment will be presented, if appropriate, including the envisioned length of time.	5 6 24	5.1.2.4, 5.11.1.1, 5.16.1, 5.16.2 6.6.4 24.18.4.4, 24.18.5,	11-D	
		Monitoring will be implemented in accordance with the adaptive management plans developed for the Project, including the subsidence monitoring.	6 24	6.6.4 24	6-A	
	2.2.16 Capital Cost	The Application will provide estimates of total capital and annual operating expenditures for the Project for the Construction, Operations, Closure, and Post-Closure phases.	1	1.11.1	-	
	2.2.17 Project Workforce	The Application will describe workforce requirements during all phases of the Project.	1	1.11.2	-	
2.3 Alternative Means of Undertaking the Project		The Application will:				
		• identify the alternative means to carry out the Project, describing each alternative in sufficient detail to allow for a comparison of technical and economic feasibility.	4	4.1 - 4.4	4-C, 4-D	
		• identify the potential effects of each alternative means, including environmental effects as listed in section 19(1) of CEAA 2012 by adhering to the following steps outlined in the guidance provided in the CEA Agency's *Operational Policy Statement: Addressing "Purpose of" and "Alternative Means"* under the *Canadian Environmental Assessment Act, 2012* (CEA Agency OPS): – Step 1: Identify technically and economically feasible alternative means; – Step 2: List their potential effects on valued components; – Step 3: Select the approach for the analysis of alternative means; and – Step 4: Assess the environmental effects of alternative means	4	4.2, 4.3	4-C, 4-D	
		The alternatives assessment in the Application will identify the rationale for selecting the preferred alternative, and will assess alternative means for the following project components:	4	4.3	4-C, 4-D	
		• mining method (e.g., block caving and open pit extraction methods).	4	4.3.1	-	
		• power source.	4	4.3.2	-	
		• underground access (e.g., access corridor and tunnel routes, portal locations, conveyor routes).	4	4.3.4, 4.3.5	-	
		• water management options (e.g., water disposal, treatment and reuse).	4	4.3.7	4-D	
		• on-site haulage options (e.g., truck haulage versus conveyor).	4	4.3.3	-	
		• tailings and waste rock disposal.	4	4.3.6	4-C	
		Specific to consideration of tailings management, the Application will:				
		• include a description of options that considers technology, siting and water balance	4	4.3.6	4-C	
		• present and compare best practices and best available technologies for tailings management for the Project, along with options for managing water balance to enhance safety and reduce the risk (likelihood and consequence) of a tailings dam failure during all phases of mine life (Construction, Operations, Closure, Post-Closure)	4	4.3.6	4-C	

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	Comments
2.3 Alternative Means of Undertaking the Project *(cont'd)*		• present and compare technically and economically viable engineering solutions that are available to adequately address site conditions	4	4.3.6	4-C	
		• provide a clear and transparent evaluation of the factors (including safety, technical and financial aspects, and implications for environmental, health, social, heritage and economic values) that support the selection of the most suitable option in both the short and long-term context	4	4.3.6	4-C	
		• include life cycle cost assumptions (Construction, Operations, Closure, Post-Closure).	4	4.3.6	4-C	
		The requirements above are intended to ensure that AuRico has:				
		• considered other options that can address the potential for adverse effects on the factors noted above	4	4.3.6	4-C	
		• for the Project design option selected, considered the potential risks and implications of that option, and have a technically and economically feasible plan to address the potential risks and implications	4	4.3.6	4-C	
		• provided a clear and transparent rationale for the selected option(s)	4	4.3.6	4-C	
		The Application will describe how traditional knowledge has been incorporated into the alternatives assessment based on the consultation and engagement process.	4	4.1.1	4-C	
2.4 Land Use		The Application will identify:				
		• private or fee simple land	1	1.9.1	-	
		• Aboriginal treaty boundaries and Aboriginal traditional territories.	1	1.9.2	-	
		• Crown tenures (e.g., trapping, forestry, utilities, mineral, oil and gas, guide outfitting, commercial recreation, angling guides) and licences (e.g., water) that may be potentially affected by the proposed Project, including the status of consultations with tenure holders and private land owners, and a summary of the issues and/or concerns raised during consultations, and commercial land use income and earnings where information is available.	1	1.9.5, 1.9.6, 1.9.7, 1.9.8, 1.9.9, 1.9.10, 1.9.11, 1.9.12	17-A	
		• Crown-designated lands including federal and provincial parks and protected areas, ecological reserves, Agricultural Land Reserves.	1	1.9.4, 1.9.14	-	
		• provincially approved land and resource management plan(s) that overlap the proposed Project, including relevant management objectives and management zones.	1	1.9.3	17-A	
		• existing and/or proposed management and monitoring programs or regional studies in the regional area.	1	1.9	-	
		• other resource developments, even if not directly related to the proposed Project, which may result in overlapping effects with the proposed Project.	8	8.7	-	
		• future developments that are reasonably foreseeable and sufficiently certain to proceed.	8	8.7	-	
2.5 Project Benefits		The Application will identify:				
		• initial capital construction cost estimates, including:	1	1.11.1.1; Tables 1.11-1, 1.11-2, 1.11-3	-	
		– a breakdown of major cost categories (e.g., equipment and infrastructure).	1	1.11.1.1; Tables 1.11-1, 1.11-2, 1.11-3	-	
		– where applicable, an indication of the potential for use of local facilities and whether these are currently under-utilized.	1	1.11.4	-	

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2.5 Project Benefits *(cont'd)*		• estimated operating costs over the life of the proposed Project (for land, buildings and equipment), including	1	1.11.1.2; Table 1.11-4	-	
		– estimated annual operating costs (excluding labour).	1	1.11.1.2; Table 1.11-4	-	
		– an indication of how the costs are measured (i.e., current dollar value or the use of Net Present Value).	1	1.11.1.2; Table 1.11-4	-	
		– estimated costs for the Closure and Post-Closure phases (i.e., decommissioning, reclamation, care and maintenance, and abandonment activities).	1 6	1.11.1.3 6.7	-	
		• employment estimates, including:	1	1.11.2	-	
		– direct employment, stated in number of jobs and full time equivalents by major job category (e.g., labour, management, business services) for the Construction and Operations phases.	1	1.11.2.1; Tables 1.11-5, 1.11-6	-	
		– direct employment, stated in number of jobs, for the Closure and Post-Closure phases.	1	1.11.2.1; Tables 1.11-5, 1.11-6	-	
		– an estimate of wage levels, by major job category, for the Construction and Operations phases.	1	1.11.2.1; Table 1.11-7	-	
		– breakdown of the number of people that will be hired locally, provincially, nationally or internationally (where applicable).	1	1.11.2.1, 1.11.2.5	-	
		– an estimate of employees who require training.	1	1.11.2.5	-	
		– potential for the Proponent to use currently underutilized local human resources.	1	1.11.2.3; Table 1.11-10	-	
		– description of relevant employment policies/practices (i.e., a local hiring strategy).	1	1.11.2.4	-	
		– an estimate of indirect employment (i.e., employment in industries that supply goods and services used to produce an industry's output or to be consumed by individuals) during the Construction and Operations phases of the proposed Project. Assumptions relating to industry specific multipliers or other multipliers used will be included.	1	1.11.2.2; Tables 1.11-8, 1.11-9	-	
		– unemployment rates	1	1.11.2.3; Table 1.11-10	-	
		• contractor supply services estimates, including :	1	1.11.3.2	-	
		– a list of the major types of businesses/contractors that will benefit from the overall proposed Project, broken down at the local, provincial, and national level.	1	1.11.3.2; Table 1.11-14	-	
		– an estimate of the value of supply-service contracts expected for both the Construction and Operations phases of the proposed Project.	1	1.11.3.2; Table 1.11-15	-	
		– a description of the Proponent's local purchasing strategy (if applicable).	1	1.11.3.2	-	
		• annual government revenues for the Construction and Operations phases of the proposed Project including:	1	1.11.3.1	-	
		– local/municipal (property taxes, other).	1	1.11.3.1; Tables 1.11-11, 1.11-12, 1.11-13	-	
		– Regional District (taxes, other) provincial (income tax, sales tax, mineral tax, lease, license and tenure.	1	1.11.3.1; Tables 1.11-11, 1.11-12, 1.11-13	-	
		– federal (income tax, goods and services tax (GST); payroll taxes, other.	1	1.11.3.1; Tables 1.11-11, 1.11-12, 1.11-13	-	

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	Comments
2.5 Project Benefits *(cont'd)*		• a summary of the proposed Project's contributions to community development.	1	1.11.3.3	-	
		• a summary of all assumptions and reference information sources for the above information.	1	1.11	-	Provided throughout the section
		References from BC Stats and Statistics Canada will be provided.	1	1.11	-	Provided throughout the section
3. Assessment Process 3.1 Scope of the Assessment		The Application will:				
		• identify the provincial and federal EA thresholds triggered by the Project.	2	2.1, 2.2	-	
		• identify the type of EA process the Project is subject to.	2	2.1, 2.2, 2.3	-	
		• The Application will identify the scope of the proposed project subject to environmental assessment concordant with Part B of the Section 11 Order.	2	2.3.2.1	-	
		• indicate whether or not the Project has been designated as a major resource project pursuant to the federal Cabinet Directive on Improving the Performance of the Regulatory System for Major Resource Projects.	2	2.2	-	
3.2 Substituted Environmental Assessment Process		The Application will describe the substituted federal EA process and include the following information:	2	2.3	-	
		• a list of the federal and provincial agencies/departments/organizations involved in the EA and their roles.	2	2.1, 2.2, 2.3.2.3	-	
		• identify applicable EA milestones (including any federal milestones). Milestones must include, but are not limited to, issuance of Section 10 and 11 orders, federal EA commencement and substitution decision, working group meetings and public comment periods.	2	2.3.5	-	
3.3 Applicable Permits		The Application will:				
		• identify the applicable provincial and federal licenses, permits and/or approvals required for the Construction, Operations, and Closure phases of the Project and the associated responsible regulatory agency.	2	2.4	-	
		• identify whether or not the Proponent plans to submit provincial permits for concurrent review pursuant to the EAA Concurrent Approval Regulation (BC Reg. 371/2002).	2	2.1.4	-	
3.4 Information Distribution and Consultation		The Application will describe the information distribution and consultation activities undertaken with Aboriginal groups, public, and government agencies (including the EA Working Group) and local governments during the pre-Application stage and the plan for information distribution and consultation during the Application review phase.	3	3.1 - 3.8	-	
	3.4.1 Government Agency and Local Government	The Application will:				
		• provide a summary of the information distribution and consultation activities undertaken with government agencies and local governments, including the EAWG, during the pre-Application stage.	3	3.3, 3.7, 3.8.1.3; Table 3.8-1	-	
		• provide a list of the dates and locations of EAWG meetings/teleconferences, individual meetings with provincial and federal government agencies.	3	3.3, 3.7.1.3	3-I	
		• identify the key issues raised during meetings/teleconferences and provide responses to the issues.	3	3.7.2	3-J	
		• describe how the Application will be made available to government agencies and local governments.	3	3.7.3	-	
		• describe proposed information distribution and consultations during the Application review stage with government agencies and local governments.	3	3.7.3	-	
		• propose an approach to resolve outstanding issues.	3	3.7.3	-	

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3.4 Information Distribution and Consultation *(cont'd)*	3.4.2 Aboriginal Groups	The Application will:				
		• provide a summary of the information distribution and consultation activities undertaken with the Aboriginal groups during the pre-Application stage.	3	3.6.4, 3.6.5	3-H	
		• provide a list of the dates and locations of meetings/teleconferences with Aboriginal groups, and identify the dates of written comments received from Aboriginal groups.	3	3.6.4, 3.6.5	3-D, 3-E	
		• identify the key issues raised during meetings/teleconferences, including TKN EMC and SIC meetings, and provide responses to the issues, including related communications with the party.	3	3.6.6	3-E	
		• describe how the Application will be made available to Aboriginal groups.	3	3.6.7	-	
		• describe proposed information distribution and consultations during the Application review stage with Aboriginal groups.	3	3.6.7	-	
		• propose an approach to resolve outstanding issues.	3	3.6.7	-	
	3.4.3 Public	The Application will:				
		• provide a summary of the information distribution and dates and location of consultation activities undertaken with the public during the pre-Application stage (e.g., open houses, one-on-one meetings; media publications and advertisements, media interviews, community events, Project website).	3	3.8.1	3-L	
		• identify the key issues raised during consultations, and provide responses to the issues.	3	3.8.2	3-M	
		• describe how the Application will be made available to the public.	3	3.8.3	-	
		• describe proposed information distribution and consultations during the Application stage with the public.	3	3.8.3	-	
		• propose an approach to resolve outstanding issues.	3	3.8.3	-	
4. Predictive Studies		This section of the Application will describe the methods and results of predictive studies that were undertaken to support the characterization of potential project effects on relevant Valued Components (VCs).	7	7.1, 7.2, 7.3	-	
		Air quality, noise levels and geochemistry parameters are physical aspects of the environment that may be altered by the Project, resulting in effects on relevant VCs. For each of these predictive studies the Application will include a description of the rationale for the study, the possible pathways for effects to other VCs, regulatory framework, baseline studies, predictive study methods and results, mitigation and management, and characterization of predicted changes on the subject area.	7	7.1, 7.2, 7.3	7-A - 7-F	
4.1 Air Quality	4.1.1 Rationale and Pathway	The Application will introduce air quality conditions in the Project area and their relevance to local vegetation and soil resources, water quality, wildlife, and human health values.	7	7.1.1	-	
		The Application will describe the rationale for air quality modelling and the pathway of interaction between air quality and relevant VCs.	7 18	7.1.1 18.5.2.2; Table 18.5-1	-	
		Dispersion model results (i.e., predicted changes in ambient concentrations of contaminants of concern across the model domain and on key receptors) will be used to support the effects assessment and significance determination for soil, terrestrial ecology, water quality, wildlife, and human health VCs.	7 11 12 13 15 18	7.1.6 11.5.2.6, 11.5.3.3 12.5.2.3 13.5.3.1 - 13.5.3.4 15.5.1.7, 15.5.2.2 18.5.2.2	7-C 18-B	
	4.1.2 Regulatory and Policy Framework	The Application will identify and describe provincial and federal legislation, policies, best management practices and guidance documents related to air quality. These will include:	7	7.1.2; Table 7.1-1	-	

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4.1 Air Quality *(cont'd)*	4.1.2 Regulatory and Policy Framework *(cont'd)*	• *Canadian Environmental Protection Act* (1999).	7	7.1.2	-	
		• National Ambient Air Quality Objectives (NAAQOs).	7	7.1.2	-	
		• BC Ambient Air Quality Objectives (BC MOE 2014).	7	7.1.2	-	
		• Guidance on Application of Provincial Interim Air Quality Objectives for NO2 and SO2 (BC MOE 2014).	7	7.1.2	-	
		• Pollution Control Objectives for the Mining, Smelting, and Related Industries of British Columbia (BC MOE 1979).	7	7.1.2	-	
		• Meteorological Services of Canada (MSC) Guidelines for Co-operative Climatological Autostations (EC 2004).	7	7.1.1	-	
		• Guideline for Air Quality Dispersion Modelling in BC (BC MOE 2008).	7	7.1.2	7-A	
		• Canadian Ambient Air Quality Standards (CAAQs) for Fine Particulate Matter (PM2.5) and Ozone (CCME 2013).	7	7.1.2	-	
	4.1.3 Project Setting *4.1.3.1 Regional and Historical Setting*	The Application will describe the regional and historical setting of the Project site with respect to air quality.	7	7.1.3.1	-	
	4.1.3.2 Current Conditions	The Application will indicate the sources of the air baseline data.	7	7.1.3.2	-	
		The Application will describe the survey methods and results of the baseline studies by characterizing the current conditions with respect to criteria air contaminants (CACs) concentrations in the Project area, including, but not limited to:	7	7.1.3.2	-	
		• suspended particulates (TSP, PM_{10} and $PM_{2.5}$).	7	7.1.3.2	-	
		• dust deposition.	7	7.1.3.2	-	
		• nitrogen dioxide (NO_2).	7	7.1.3.2	-	
		• sulphur dioxides (SO_2).	7	7.1.3.2	-	
		• carbon monoxide (CO).	7	7.1.3.2	-	
		The Application will describe current baseline meteorological conditions based on data from regional and project meteorological stations. Local meteorological conditions will be described with respect to:	7	7.1.3.2	-	
		• wind.	7	7.1.3.2	7-B	
		• precipitation.	7	7.1.3.2	7-B	
		• air temperature.	7	7.1.3.2	7-B	
		• relative humidity.	7	7.1.3.2	7-B	
		• solar radiation.	7	7.1.3.2	7-B	
		The Application will describe available traditional ecological or local knowledge related to current conditions for air quality.	7	7.1.1, 7.1.3.2	20-A	
		The Application will use any relevant associated documents produced for the proposed Kemess North project, KS project and publicly available studies for other projects in northwest BC.	7	7.1.3.1, 7.1.3.2	7-B	

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	Comments
4.1 Air Quality *(cont'd)*	4.1.4 Air Quality Model Boundaries *4.1.4.1 Spatial Boundaries*	The Application will include a rationale and description of the air quality modelling domain that was selected for assessment.	7	7.1.4.1	7-A	
		A proposed modelling domain is shown in Figure 4.1-1 of the AIR. Any changes to this modelling domain will be described and justified in the Application.	-	-	-	No changes were made to the geographical boundaries of the air quality modelling domain
	4.1.4.2 Temporal Boundaries	The Application will include dispersion modelling results for the Construction and Operations phases of the Project.	7	7.1.6.1, 7.1.6.2	7-C	
		Changes in air quality are predicted to be negligible during the Closure and Post-Closure phases and results for these phases will not be reported.				
	4.1.5 Predictive Study Methods for Air Quality *4.1.5.1 Air Quality Emission Inventory*	The Application will describe the emission types and sources of air emissions from the Project during the Construction and Operation phases. An emission inventory will be compiled to identify and enumerate emission sources including:	7	7.1.5.1	-	
		• fan and heater exhaust at fresh air decline.	7	7.1.5.1	-	
		• underground mine exhaust at return air raise.	7	7.1.5.1	-	
		• diesel generator (Construction only).	7	7.1.5.1	-	
		• equipment exhaust.	7	7.1.5.1	-	
		• aircraft.	7	7.1.5.1	-	
		• road dust.	7	7.1.5.1	-	
		• material handling including conveyor transport.	7	7.1.5.1	-	
		• stockpile wind erosion.	7	7.1.5.1	-	
		• grading and bulldozing.	7	7.1.5.1	-	
	4.1.5.2 Air Quality Dispersion Model	The Application will describe the methods and standards used to assess changes in air quality.	7	7.1.5.2	7-A	
		This information will include a description of the predictive model used, and its inputs, assumptions, and limitations.	7	7.1.5.2	7-A	
		Predictions of the effect on ambient air quality will be conducted using CALMET and CALPUFF.	7	7.1.5.2, 7.1.6	7-C	
		Modelling predictions will be made for sensitive receptors, including worker camps.	7 12 13	7.1.6 12.5.2.3; Table 12.5-2 13.5.3; Tables 13.5-3, 13.5-4	7-C 18-B (Sections 3.3, 3.4)	
		Modelling predictions will be made for sensitive receptors, including temporary and permanent residences in the modelling domain.	7 12 13	7.1.6 12.5.2.3; Table 12.5-2 13.5.3; Tables 13.5-3, 13.5-4	7-C 18-B (Sections 3.3, 3.4)	
		Modelling predictions will be made for sensitive receptors, including human receptors (such as groundwater wells, surface water licences, permanent camps, recreation camps, cabins, and parks).	7 12 13	7.1.6 12.5.2.3; Table 12.5-2 13.5.3; Tables 13.5-3, 13.5-4	7-C 18-B (Sections 3.3, 3.4)	
		Modelling predictions will be made for sensitive receptors, including wetlands.	7 13	7.1.6 13.5.3; Tables 13.5-3, 13.5-4	7-C	

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	Comments
4.1 Air Quality *(cont'd)*	*4.1.5.2 Air Quality Dispersion Model (cont'd)*	Modelling predictions will be made for sensitive receptors, including key wildlife species observations.	7 12 13 15	7.1.6 12.5.2.3; Table 12.5-2 13.5.3; Tables 13.5-3, 13.5-4 15.5.2.2	7-C	
		Modelling predictions will be made for sensitive receptors, including any potentially affected traditional plant harvesting areas.	7	7.1.5.2, 7.1.6	7-C 18-B (Section 4.6.1) 20-A	
		Baseline vegetation and soil sample locations will be included in the model in order to compare predicted increases to baseline conditions for the vegetation and soil effects assessments.	12 13	12.5.2.3 13.5.3; Tables 13.5-3, 13.5-4	18-A	See sub-section for Contamination in Chapter 12
		The air quality dispersion model will adopt a conservative approach and use peak emission rates over a 12-month period (i.e., worst-case scenario) during the Construction and Operations phases to support modelling predictions.	7	7.1.5.1, 7.1.5.2	7-A	
		The selection and use of the air quality dispersion model is based on the recommendations as outlined in the *Guidelines for Air Quality Dispersion Modelling in British Columbia* (BC MOE 2008).				
		The approach to modelling will be presented in the detailed modelling plan to be appended to the Application.	-	-	7-A	
	4.1.6 Predictive Study Results for Air Quality	The Application will provide the results of the air quality dispersion model.	7	7.1.6	7-C	
		Predicted concentrations will be added to the measured or expected background levels of the CACs	7	7.1.6	7-C	
	4.1.7 Mitigation Measures for Air Quality	The Application will identify mitigation measures, as needed, to avoid, reduce or minimize the release of air contaminants (e.g., dust, exhaust gases, and other air contaminants).	7 24	7.1.7 24.3	-	
	4.1.8 Predicted Changes on Air Quality	The Application will summarize changes in air quality as predicted by the model.	7	7.1.6, 7.1.8	-	
		Relevant federal and provincial criteria selected for the assessment are summarized in Table 4.1-1 of the AIR and will be used to describe the effect of the Project on air quality and aid reviewers in interpreting results	7	7.1.6	-	
		These results will be presented in comparison to relevant ambient air quality objectives.	7	7.1.6	-	
		Rationale will be provided to justify any alternate criteria are used.	-	-	-	No alternate criteria were used to assess predicted changes in air quality
	4.1.9 Summary for Predicted Changes on Air Quality	The Application will summarize the main conclusions of predicted project-related changes to air quality.	7	7.1.8, 7.1.9	-	
4.2 Noise	4.2.1 Rationale and Pathway	The Application will describe noise conditions in the Project area and its relevance to local wildlife and human health values.	7	7.2	-	
		The Application will describe the rationale for the noise modelling study and pathway of interaction between noise and relevant VCs.	7	7.2.1	-	

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	
4.2 Noise *(cont'd)*	4.2.1 Rationale and Pathway *(cont'd)*	Model results (i.e., predicted changes in noise level across the model domain and on key receptors) will be used to support the effects assessment and significance determination for wildlife and human health VCs.	7 15 18	7.2.1, 7.2.8 15.6.1.2, 15.6.2.2, 15.6.3.2, 15.6.4.2, 15.6.5.2, 15.6.6.2, 15.6.8.2, 15.6.9.2, 15.6.10.2, 15.6.11.2 18.3.1.2, 18.4.2.1, 18.5.2.1, 18.5.4	7-D	
	4.2.2 Regulatory and Policy Framework	The Application will identify and describe provincial and federal legislation, policies, best management practices and guidance documents related to noise. These will include:	7	7.2.2	7-D	
		• Useful Information for Environmental Assessments, (Section 6: Noise Effects; Health Canada 2010).	7	7.2.2	7-D	
		• Environmental Code of Practice for Metal Mines (Environment Canada 2009).	7	7.2.2	7-D	
		• Using a Change in Percentage Highly Annoyed with Noise as a Potential Health Effect Measure for Projects Under the Canadian *Environmental Assessment Act* (Michaud, Bly, and Keith 2008).	7	7.2.2	7-D	
		• Guidelines for Community Noise (WHO 1999).	7	7.2.2	7-D	
		• Description, Measurement and Assessment of Environmental Noise – Part 1: Basic Quantities And Assessment Procedures (ISO) 1996-1:2003 (ISO1996:2).	7	7.2.2	7-D	
		• Acoustics - Attenuation of Sound During Propagation Outdoors - Part 2: General Method of Calculation (ISO 9613-2:1996 (ISO9613:2).	7	7.2.2	7-D	
		• Effects of Noise and Reverberation on Speech (Levitt and Webster 1991).	7	7.2.2	-	
		• Noise Control. Prepared by the Alberta Energy and Utilities Board (Alberta EUB. 2007. Directive 038).	7	7.2.2	7-D	
		• Structural Vibration - Effects of Vibration on Structures (German Institute for Standardisation – DIN 4150 (1999-02) Part 3 (DIN4150-3).	7	7.2.2	7-D	
		• Evaluation of Human Exposure to Vibration in Buildings (1 Hz to 80 Hz; *Human Comfort*: British Standard (BS 6472–1992).	7	7.2.2	7-D	
		• NSW Environmental Noise Management – Assessing Vibration: a Technical Guideline (*Human Comfort*: NSW Department of Environment and Conservation (2006).	7	7.2.2	-	
		• Explosives—Storage and Use. (Part 2: Use of Explosives; Standards Australia AS2187.2-2006 (AS2187.2).	7	7.2.2	7-D	
	4.2.3 Project Setting *4.2.3.1 Regional and Historical Setting*	The Application will describe the regional and historical setting of the Project site with respect to noise disturbance.	7	7.2.3.1	-	
	4.2.3.2 Current Conditions	The Application will describe current local baseline noise conditions.	7	7.2.3.2	7-D	
		Due to the remote location of project area and underground operations, it is expected that regional noise levels will be low. The Alberta Energy and Utilities Board Directive 038 (Alberta EUB 2007) estimated baseline night time noise levels for rural areas of 35 dBA (Ln) will be used for the Project. Daytime ambient sound levels (Ld) are commonly 10 dBA Leq higher than night time levels (WHO 1999).	7	7.2.3.2	-	
		The Application will describe available traditional ecological or local knowledge related to current noise conditions.	7	7.2.3	-	
		The Application will refer to any relevant documents produced for the proposed Kemess North project, KS data, and publicly available studies for other projects in northwest BC.	7	7.2.3	-	

Application Information Requirements			Application for an Environmental Assessment Certificate			Comments
AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	
4.2 Noise *(cont'd)*	4.2.4 Noise Model Boundaries *4.2.4.1 Spatial Boundaries*	The Application will include a rationale and description of the noise modeling domain selected to analyze noise.	7	7.2.4.1	7-D	
		The proposed noise modelling domain is shown in Figure 4.2-1 of the AIR. Any changes to this modelling domain will be described and justified in the Application.	-	-	-	No changes were made to the geographical boundaries of the noise modelling domain
	4.2.4.2 Temporal Boundaries	The Application will conduct noise modeling for the Construction and Operations phases of the Project.	7	7.2.4.2	7-D	
	4.2.5 Predictive Study Methods for Noise	The Application will describe the methods and standards used to assess changes in noise levels.	7	7.2.5	-	
		This information will include a description of the predictive model used, and its inputs, assumptions, and limitations.	7	7.2.5.2	7-D; Table 4.1	
		Noise modelling will be undertaken for Construction and Operations phases of the Project.	7	7.2.5.2	7-D	
		The Application will identify the sources of increased noise levels from mining operation.	7	7.2.5.4	7-D	See tables B-1 and B-2 in Annex B of Appendix 7-D
		Changes in noise levels will be modelled for point and mobile sources of noise, and tonal and impulsive noise.	7	7.2.5.2	7-D	Mobile sources of noise are referred to as "moving point sources", and impulsive noise is referred to as "instantaneous noise" in the Application. Noise modelling was limited to internal site roads. Noise sources are assumed to have no tonal characteristics.
		A conservative approach will be adopted based on noise emission sources representing worst-case assessment scenarios.	7	7.2.5.4	7-D	
		Daytime (Ld) and night time (Ln) levels will be predicted, with additional consideration for daily equivalent noise levels (Ldn).	7	7.2.5.2	7-D	
		Blasting overpressure levels (also known as peak sound pressure levels, Lpeak) will be predicted to provide blast design guidance and compliant explosive charge limits.	7	7.2.5.2	7-D	
		Noise and overpressure levels will be predicted at human and wildlife receptors, where applicable.	7	7.2.5.3	7-D	
	4.2.6 Predictive Study Results for Noise	The Application will describe the nature and extent of potential increases in ambient noise levels resulting from activities during the Construction and Operations phases of the Project.	7	7.2.6	7-D	
		The Application will provide the following information:				
		• identification of the location of potential noise-sensitive wildlife and human receptors relative to the Project area.	7	7.2.5.3; Figure 7.2-2	7-D	
		• percent highly annoyed (%HA) will be considered as part of the assessment.	7	7.2.5.5	-	
		• delineation of the distance of the Project to potential receptors using maps, including contour plots, that indicate noise levels at various distances from the Project site and identify all affected receptors.	7	7.2.4., 7.2.5.3, 7.2.6.1	7-D	
		• summary of baseline sound levels (measured or estimated) for both daytime (L_d) and night time (L_n) at receptor locations.	7	7.2.3.2	7-D	

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	Comments
4.2 Noise *(cont'd)*	4.2.6 Predictive Study Results for Noise *(cont'd)*	• description of the methods used to obtain the baseline and predicted noise levels, including detailed information on how the noise assessment was conducted.	7	7.2.3.2, 7.2.5.2	7-D	
		• identification of potential noise sources during all Project phases (e.g., traffic, heavy equipment, or sirens).	7	7.2.5.4	7-D	
		• comparison of predicted noise levels at sensitive receptor locations to relevant criteria during the Construction and Operations phases during daytime and night time.	7	7.2.6	7-D	
	4.2.7 Mitigation Measures for Noise	The Application will identify mitigation measures, as needed, to avoid, reduce or minimize noise levels.	7	7.2.7	-	
	4.2.8 Predicted Changes on Noise	The Application will summarize predicted changes on noise.	7	7.2.8	7-D	
		Relevant characterization criteria will be applied to noise predictive study results to describe the effect of the Project on noise and aid reviewers in interpreting results.	7	7.2.5.5, 7.2.6	-	
		These results will be presented in comparison to relevant guidelines.	7	7.2.6.1, 7.2.6.2	7-D	
	4.2.9 Summary for Predicted Changes on Noise	The main conclusions of predicted Project-related changes to noise levels will be summarized.	7	7.2.8	-	
4.3 Geochemistry	4.3.1 Rationale and Pathway	The Application will describe the rationale and pathway between geochemistry and relevant VCs.	7	7.3.1	-	
		Source terms identified in the geochemistry baseline report will be used to support the effects assessment and significance determination for ground and surface water quality.	7 9 11	7.3.5, 7.3.6	7-E, 7-F 11-D	Sources terms presented in Chapter 7.3 and Appendix 7-E and F are used throughout Chapters 9 and 11
	4.3.2 Regulatory and Policy Framework	The Application will identify and describe provincial and federal legislation, policies, best management practices and guidance documents related to geochemistry. These will include:	7	7.3.2	-	
		• Policy for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia. (BC MEM 1998).	7	7.3.2	-	
		• Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia. (BC MEM 1998).	7	7.3.2	-	
		• Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators. (BC MOE 2012).	7	7.3.2	-	
		• List of Potential Information Requirements in Metal Leaching/Acid Rock Drainage Assessment and Mitigation Work (Price 2005).	7	7.3.2	-	
		• Prediction Manual for Drainage Chemistry from Sulphidic Materials. Report prepared for MEND Program. MEND Report 1.20.1 (Price 2009).	7	7.3.2	-	
	4.3.3 Project Setting *4.3.3.1 Regional and Historical Setting*	The Application will describe the regional and historical setting of the Project site with respect to geology and geochemistry.	7	7.3.3, 7.3.4	7-E, 7-F	
	4.3.3.2 Current Conditions	The Application will provide a discussion of the surficial and bedrock geology of the deposit which includes geological maps and cross-sections, as well as a discussion of criteria used to select representative samples for each rock unit/lithology.	7	7.3.4.1, 7.3.4.2, 7.3.4.3	7-E, 7-F	
		Where appropriate, the following geologic parameters shall be included:				
		• representative lithologic descriptions including age, colour, grain size, mineralogy, weathering characteristics, depositional setting and correlations.	7	7.3.4.1, 7.3.4.2, 7.3.4.3	7-E, 7-F	

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	Comments
4.3 Geochemistry *(cont'd)*	*4.3.3.2 Current Conditions (cont'd)*	• spatial distribution and thickness of lithologic units.	7	7.3.4.1, 7.3.4.2, 7.3.4.3	7-E, 7-F	
		• alteration styles, mineralogy, occurrence and intensity.	7	7.3.4.1, 7.3.4.2, 7.3.4.3	7-E, 7-F	
		• structural fabric (e.g., fractures, faults, foliation and lineations) and structural relationships.	7	7.3.4.1, 7.3.4.2, 7.3.4.3	7-E, 7-F	
		• ore mineralogy, including sulphide types, abundance, mode of occurrence, extent of previous oxidation and an estimate of relative sulphide reactivity.	7	7.3.4.1, 7.3.4.2, 7.3.4.3	7-E, 7-F	
		• characterization of mine materials.	7	7.3.4.1, 7.3.4.2, 7.3.4.3	7-E, 7-F	
		• type and grade of metamorphism.	7	7.3.4.1, 7.3.4.2, 7.3.4.3	7-E, 7-F	
		• regional geologic framework including tectonic belt, terrain, regional metamorphism and structure.	7	7.3.4.1, 7.3.4.2, 7.3.4.3	7-E, 7-F	
		The Application will provide the following:				
		• descriptions of major rock units, stratigraphy, structure, paleontology and details about the ore deposit.	7 19	7.3.4.1, 7.3.4.2, 7.3.4.3 19.4.2	7-E, 7-F 19-D	See Appendix 19-D for paleontology information in the Project area
		• detailed stratigraphic description.	7	7.3.4.1, 7.3.4.2, 7.3.4.3	7-E, 7-F (Section 2.3.2, Figure 2.2)	
		• description of ore deposit information, including ore mineralogy alteration type, deposit character, deposit classification, age of mineralization, general ore controls and average assay values and reserve information (proven, probable and possible).	5	5.4	7-E, 7-F	
		• ML/ARD characterization results for all mine components and materials exposed and produced, ensuring that geochemical and spatial variability is captured.	7 24	7.3.4.2, 7.3.4.3 24.11.4.1	6-A (Section 12.3) 7-E, 7-F (Sections 2.3.2, 2.3.3)	
		• lag times to ARD onset for all potentially acid-generating materials.	7	7.3.5.2; Table 7.3-12	7-E	Section 2.2.4 of Appendix 7-E presents timing to onset of acid generation
		The Application will delineate the regional and local geological structures in the Project area that may affect the proposed infrastructure, and show their potential effect on the proposed infrastructure as well as links to metal leaching / acid rock drainage (ML/ARD) mitigation geochemistry. This includes major structural features as well as lesser local structures.	7	7.3.4.1, 7.3.4.2, 7.3.4.3	7-E, 7-F	Some infrastructure discussions are part of the previous KS project and discussions around ML/ARD mitigation have been included here as summaries
		The Application will provide a characterization of the geochemical behaviour of expected mine materials such as waste rock, ore, tailings, potential construction material, underground exposures and the high wall of the existing pit and will include:				
		• mineralogy;	7	7.3.4.2, 7.3.4.3	7-E, 7-F	
		• elemental composition of major and trace elements	7	7.3.4.2	7-E, 7-F	
		• Acid Base Accounting (ABA)	7	7.3.4.2	7-E, 7-F	
		• assessment of short term metal leaching properties	7	7.3.4.2, 7.3.4.3	7-E, 7-F	
		• longer-term kinetic testing to evaluate rates of acid generation (if any) and metal leaching	7	7.3.4.2, 7.3.4.3, 7.3.5, 7.3.6	7-E, 7-F	
		• seasonal and long-term analysis of existing water quality and loading estimates	7 11	7.3.5, 7.3.6 11.4.3	7-E, 7-F 11-A	
		The Application will use associated documents produced for the proposed Kemess North project, KS data and publicly available studies for other projects in northwest BC.	7	-	7-E, 7-F	

Application Information Requirements			Application for an Environmental Assessment Certificate			Comments
AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	
4.3 Geochemistry *(cont'd)*	4.3.4 Geochemistry Source Term Boundaries *4.3.4.1 Spatial Boundaries*	The Application will include a description and rationale of the spatial boundaries that were selected for geochemistry source terms. Proposed source terms boundaries are shown in Figure 4.3-1 of the AIR.	7	7.3.3.1	7-E, 7-F	
		The integration of geochemical source terms and water quality modelling for KS with the Project will be described in the Application.	7	7.3.6	7-F	
	4.3.4.2 Temporal Boundaries	Geochemical rates (including lag time to ML/ARD onset, if any) will be integrated into the Application, where appropriate (e.g., in the development of management plans) or to describe temporal (duration/frequency) aspects of the change to surface water and groundwater quality.	7	7.3.5.2	7-E	
	4.3.5 Predictive Study Methods for Geochemistry	The Application will describe the ML/ARD characterization, including static ABA, selection of kinetic tests (for materials specific to the Project) and surface water and groundwater data utilized in development of source terms for the rock units affected by mine activity.	7	7.3.4.2, 7.3.4.3	7-E, 7-F	
	4.3.5.1 Source Terms Development	The Application will outline assumptions made in developing the source terms and scaling factors utilized to account for differences in temperature, particle size of the material and contact flow.	7	7.3.5.2, 7.3.6	7-E, 7-F	
		Sample calculations will be presented to provide reference for scaling of test data.	7	7.3.5.2, 7.3.6	7-E, 7-F	
		The Application will present the results of the geochemistry test data and source terms used for the predictive water quality model in a clear and transparent manner, and the methods, assumptions and rationale used to generate source terms will be thoroughly explained.	7	7.3.5.2, 7.3.5.3, 7.3.6	7-E, 7-F	
		The Application will describe any limitations associated with source term development.	7	7.3.5.2, 7.3.5.3, 7.3.6	7-E, 7-F	
		Sensitivity analyses will be provided where there are significant uncertainties or risks associated with the source terms.	-	-	7-E, 7-F	
	4.3.6 Mitigation Measures for Metal Leaching/Acid Rock Drainage	The Application will identify mitigation measures, as needed, to avoid, reduce or minimize generation of ML/ARD.	7 24	7.3.7 24.11	-	
5. Environmental Assessment Methodology 5.1 Effects Assessment Approach		The Application will describe the effects assessment methodology, which will be applied to all assessment topics.	8	8.1 - 8.8	8-A	
		The methodology will follow recommended provincial and federal guidelines and legislated requirements, pursuant to the EAA (2002) and the CEAA 2012.	8	8.1	-	
		Guidance documents used to develop the assessment methods will be referenced.	8	8.1	-	
5.2 Regulatory Context		Each assessment chapter will include a description of the regulatory framework and regulatory requirements for each assessment topic.	8 [9 - 20]	8.1 [9 - 20].2	-	
		This includes laws, regulations, decrees, treaties and other instruments or declarations of relevance.	8 [9 - 20]	8.1 [9 - 20].2	-	
		In addition, the chapters will discuss land and resource management plans, best management practises or guidelines of importance to the Project or regional area, including jurisdictional policies.	8 [9 - 20]	8.1 [9 - 20].2	-	
5.3 Scoping the Effects Assessment		A scoping process will be undertaken for each assessment topic to ensure the Application focuses on the issues with the greatest potential to cause significant adverse effects. The scoping process will:	8 [9 - 20]	8.2 [9 - 20].3	-	
		• select VCs for assessment and identify indicators used to evaluate the effects and will be supported by rationale for their selection.	8 [9 - 20]	8.2.1 [9 - 20].3.1	-	
		• identify the assessment boundaries and provide rationale for their selection.	8 [9 - 20]	8.2.2 [9 - 20].3.2	-	

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	
5.3 Scoping the Effects Assessment *(cont'd)*	5.3.1 Selecting Valued Components	The BC EAO defines VCs as components "that are considered important by the proponent, public, First Nations, scientists and government agencies involved in the assessment process." (BC EAO 2013a). To be included in the EA, there must be a perceived likelihood that the VC will be affected by the proposed Project. Additionally, VCs may be selected based on a consideration of some or all of the following criteria: • presence/abundance and/or distribution within the area affected by the proposed Project; • resilience of a VC to change (i.e., the sensitivity or generalist nature of a biophysical VC); • past mining project experience; • established scientific cause-effect pathways; • legislative requirements; • policy guidance (e.g., the Conservation Framework; BC MOE 2009); • Aboriginal groups' concerns; • public interest; • feedback from the EAWG; and • best professional judgement. A preliminary list of proposed VCs was drafted early in project planning and was provided to the EAWG for review and feedback. This list was presented during the first EAWG meeting on June 26, 2014, and can be located in Table 4.1-2 of the VC Scoping document prepared by the Proponent before the AIR submission. On November 19, 2014, the VC scoping document (ERM 2014) was posted for public comment on BC EAO's e-PIC website. No public comments on the VC scoping document were received. The list of the selected VCs is summarized in Table 5.3-1 of the AIR. Proposed indicators (i.e., metrics to evaluate change for each VC) have also been listed. However, the final selection of the VCs and indicators may differ from those identified here.				
		The Application will include the rationale for any differences in the list of VCs presented in the Application from those listed in the final AIR.	8 [9 - 20]	8.2.1 [9 - 20].3.1	-	Rationale provided where VC lists were adjusted; only changes included addition of VCs (i.e. no VCs were removed from consideration)
		Any proposed change to the VCs identified in the AIR will be discussed in advance with the EAO.				
		Each assessment chapter will include a summary of how scoping feedback was incorporated into the selection of assessment subject areas, VCs, and indicators.	8 [9 - 20]	8.2.1.1 [9 - 20].3.1	-	
	5.3.2 Defining Assessment Boundaries	Assessment boundaries define the maximum limit within which the effects assessment and supporting studies (e.g., predictive models) are conducted. Boundaries encompass the areas within, and times during which the Project is expected to interact with the VCs, as well as any constraints due to political, social, and economic realities, and limitations in predicting or measuring changes.				
		Each assessment chapter of the Application will describe the spatial and temporal boundaries and rationale for their selection, as well as any administrative and technical boundaries.	8 [9 - 20]	8.2.2 [9 - 20].3.2	-	
	5.3.2.1 Spatial Boundaries	The Application will include the following:				
		• criteria used to determine the extent of spatial boundaries for each VC.	8 [9 - 20]	8.2.2.1 [9 - 20].3.2.1	-	
		• a description of the local and regional spatial extent of the assessment.	8 [9 - 20]	8.2.2.1 [9 - 20].3.2.1	-	
		• maps outlining the spatial extent of the regional and local study areas.	[9 - 20]	[9 - 20].3.2.1	-	

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	Comments
5.3 Scoping the Effects Assessment *(cont'd)*	*5.3.2.1 Spatial Boundaries (cont'd)*	For the purpose of the Application, the following definitions will be used to define the effects assessment study areas:				
		• Project Area is an area that contains all existing and new proposed infrastructure required for the Project (both surface and underground).	8	8.2.2.1	-	
		• Local Study Area (LSA) is an area surrounding the Project area within which there is a reasonable potential for immediate effects on a VC due to an interaction with a project component(s) or physical activity. Local Study Areas will be defined for each subject area and, in some cases, for each VC. The rationale for the boundary selection will be provided.	8	8.2.2.1	-	
		• Regional Study Area (RSA) is the broader spatial area representing the maximum limit where potential effects may occur. Regional Study Areas will be defined for each subject area, and the rationale for the boundary selection will be provided.	8	8.2.2.1	-	
		Study areas will be developed based on a review of existing information, potential effects, and feedback received during consultation activities.				
		The spatial boundary for each VC will be discussed and illustrated on figures.	[9 - 20]	[9 - 20].3.2.1	-	
		This rationale for selecting study boundaries for each VC was presented during the first EAWG meeting on June 26, 2014 and can be located in Table 4.1-3 of the VC Scoping Document prepared by the Proponent before the AIR submission.				
		The Application will include the explanation for any differences in the study areas and rationale; if any spatial boundaries are proposed to be reduced in area from those proposed in the AIR, this will be discussed with the EAO in advance of submission of the Application.	[9 - 20]	[9 - 20].3.2.1	-	As applicable
	5.3.2.2 Temporal Boundaries	The Application will present the temporal boundaries for each subject area, as well as the rationale for their selection.	8 [9 - 20]	8.2.2.2 9.3.2.1 [10 - 16].3.2.2 17.2.2.2 [18 - 20].3.2.2	-	
		Potential effects on VCs will be considered (where relevant) for the Construction, Operations, Closure, and Post-Closure phases.	8 [9 - 20]	8.2.2.2 9.3.2.1 [10 - 20].3.2.2	-	
		Temporal characteristics of the VCs relevant to the assessment will be documented.	8 [9 - 20]	8.2.2.2 9.3.2.1 [10 - 20].3.2.2	-	
	5.3.2.3 Other Boundaries	The Application will present the technical and administrative boundaries for each VC, as well as the rationale for their selection and inclusion.	8 [9 - 20]	8.2.2.3 9.3.2.1 10.3.2.3 11.3.2 12.3.2.2 13.3.2.3 14.3.2 [15 – 20].3.2.3	-	

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5.3 Scoping the Effects Assessment *(cont'd)*	*5.3.2.3 Other Boundaries (cont'd)*	If there are no technical or administrative boundaries, this will be stated.	8 [9 - 20]	8.2.2.3 9.3.2.1 10.3.2.3 11.3.2 12.3.2.2 13.3.2.3 14.3.2 [15 – 20].3.2.3	-	
5.4 Project Setting	5.4.1 Regional and Historical Setting	Each effects assessment chapter will provide a regional overview and description of historical activities relevant to the environmental, social, economic, heritage, and health conditions surrounding the Project or to the specific VC being assessed.	8 [9 - 20]	8.3.1 9.4.1, 9.4.2 10.4.1, 10.4.2 [11 – 20].4.1	-	
		A description of the KS activities in relation to the VC will be provided.	[9 - 20]	9.4.2.1 10.4.1.1 11.4.1.1 12.4.1.2 13.4.1 14.4.2.1 15.4.1.2 18.4.1.1 19.4.1	-	
		Regional data will be used to inform the assessment framework and to characterize project related and cumulative effects.				
	5.4.2 Current Conditions	Each effects assessment chapter will describe the current conditions for each VC within both the local study area and regional study area (LSA and RSA). Unless stated otherwise the current conditions for each VC will refer to environmental, social, heritage, economic and health conditions (as relevant) at the time of submission of the Application, by interpreting the results of the baseline studies. The current conditions will form the basis of the effects assessment, unless otherwise identified in the relevant chapters.	8 [9 - 20]	8.3.2 - 8.3.5 9.4.3, 9.4.4 10.4.2, 10.4.3 11.4.2, 11.4.3 12.4.2, 12.4.3 13.4.2. 13.4.3 14.4.3 15.4.2 - 15.4.5 16.4.2, 16.4.3 17.4.2, 17.4.3, 17.4.4 18.4.2, 18.4.3 19.4.2, 19.4.3 20.4.2, 20.4.3, 20.4.4	9-A 10-A 11-A. 11-B, 11-C, 11-E 12-B 13-A, 13-B 14-A, 14-B, 14-C, 14-D 15-A 16-A 17-A 18-A 19-A	

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5.4 Project Setting *(cont'd)*	5.4.2 Current Conditions *(cont'd)*	Key information on the study area, timeline of data collection, analysis, limitations[1] and methodology will be provided for each VC.	8 [9 - 20]	8.3.2 - 8.3.5 9.4.3, 9.4.4 10.4.2, 10.4.3 11.4.2, 11.4.3 12.4.2, 12.4.3 13.4.2. 13.4.3 14.4.3 15.4.2 - 15.4.5 16.4.2, 16.4.3 17.4.2, 17.4.3, 17.4.4 18.4.2, 18.4.3 19.4.2, 19.4.3 20.4.2, 20.4.3, 20.4.4	9-A 10-A 11-A. 11-B, 11-C, 11-E 12-B 13-A, 13-B 14-A, 14-B, 14-C, 14-D 15-A 16-A 17-A 18-A 19-A	
		Any assumptions related to the indicators listed will be clearly identified.	8 [9 - 20]	8.3.2 - 8.3.5 9.4.3, 9.4.4 10.4.2, 10.4.3 11.4.2, 11.4.3 12.4.2, 12.4.3 13.4.2. 13.4.3 14.4.3 15.4.2 - 15.4.5 16.4.2, 16.4.3 17.4.2, 17.4.3, 17.4.4 18.4.2, 18.4.3 19.4.2, 19.4.3 20.4.2, 20.4.3, 20.4.4	-	

[1] Where limitations result in assumptions regarding the VCs or indicators listed, these assumptions will be described.

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5.4 Project Setting *(cont'd)*	5.4.2 Current Conditions *(cont'd)*	Where relevant, each chapter will make reference to the potential influence of the KS Project on the current conditions, referring to baseline reports, site specific data and maps, as available.	8 [9 - 20]	8.3.1 9.4.3, 9.4.4 10.4.2, 10.4.3 11.4.2, 11.4.3 12.4.2, 12.4.3 13.4.2. 13.4.3 14.4.3 15.4.2 - 15.4.5 16.4.2, 16.4.3 17.4.2, 17.4.3, 17.4.4 18.4.2, 18.4.3 19.4.2, 19.4.3 20.4.2, 20.4.3, 20.4.4	9-A 10-A 11-A, 11-B, 11-C, 11-E 12-B 13-A, 13-B 14-A, 14-B, 14-C, 14-D 15-A 16-A 17-A 18-A 19-A	
		The detailed baseline study results and relevant supporting information will be provided as appendices to the Application for each subject area.	8	8.3.2, 8.3.3	9-A 10-A 11-A. 11-B, 11-C, 11-E 12-B 13-A, 13-B 14-A, 14-B, 14-C, 14-D 15-A 16-A 17-A 18-A 19-A	
		The discussion will identify any uncertainties encountered.	8 [9 - 20]	8.3.5 9.4.3, 9.4.4 10.4.2, 10.4.3 11.4.2, 11.4.3 12.4.2, 12.4.3 13.4.2. 13.4.3 14.4.3 15.4.2 - 15.4.5 16.4.2, 16.4.3 17.4.2, 17.4.3, 17.4.4 18.4.2, 18.4.3 19.4.2, 19.4.3 20.4.2, 20.4.3, 20.4.4	9-A 10-A 11-A. 11-B, 11-C, 11-E 12-B 13-A, 13-B 14-A, 14-B, 14-C, 14-D 15-A 16-A 17-A 18-A 19-A	

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5.4 Project Setting *(cont'd)*	5.4.2 Current Conditions *(cont'd)*	Where available, the Aboriginal communities' information will be summarized from the available sources including any available TLUS reports. The Proponent will identify where Aboriginal information was not available.	8 [9 - 20]	8.3.2, 8.3.3, 8.3.5 9.3.1.1 10.4.2.1 11.4.2.2 12.3.1.1 13.4.1, 13.4.2.2 14.4.3 15.4 16.4 17.4 18.4.2 19.4.2 20.4	-	
5.5 Effects Assessment and Mitigation	5.5.1 Screening Potential Project Effects	The relationship between project components and activities and potential project effects will be established using an impact matrix (see example in Table 5.5-1 of the AIR).	8 [9 - 20]	8.4.1 [9 - 20].5.1 [9 - 20].5.2	-	
		The extent of the assessment warranted for each interaction is determined by a consideration of the severity of the resulting potential effect, the level of understanding and acceptance of proposed mitigations, and level of concern of regulators, the public and Aboriginal groups. The review of these interactions will show that some are unlikely to result in a significant adverse residual effect, while others may.				
		A description of the potential effects identified and their interaction rankings, along with consultation feedback from Aboriginal groups, the public, other stakeholders and government agencies (as applicable) will be provided for each VC.	8 [9 - 20]	8.4.1.1 [9 - 20].5.2	-	
		All project components/activities that did not interact with a VC will not result in potential effect and will not be considered further in the assessment. Where interaction is possible or expected, there is a potential effect identified and will be moved forward in the assessment. When data is lacking, professional judgement will be used to inform this evaluation.				
		Any assumptions will be documented, and margins of error or degrees of uncertainty will be reported.	8 [9 - 20]	8.4.1.1 [9 - 20].5.2	-	
	5.5.2 Mitigation Measures	Each effect assessment chapter of the Application will discuss the availability and implementation of mitigation measures to avoid, minimize, control, compensate, or offset effects to VCs, in particular for those effects rated as moderate or high possibility interactions (see Table 5.5-1 of the AIR).	8 [9 - 20]	8.4.2 [9 - 12].5.3 13.5.4 [14 – 19].5.3 20.6.2, 20.7.2, 20.8.2	-	

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5.5 Effects Assessment and Mitigation *(cont'd)*	5.5.2 Mitigation Measures *(cont'd)*	Key approaches considered to mitigate potential effects include: • **Optimizing Alternatives**: Preventing or reducing adverse effects by changing an aspect of the Project (e.g., choosing a new access route). • **Design Changes**: Preventing or reducing adverse effects by redesigning aspects of the Project (e.g., scheduling an activity to avoid key migration periods). • **Best Available Technology (BAT):** Eliminating, minimizing, controlling, or reducing adverse effects through the use of technological applications, where safety attributes are evaluated separately from economic considerations, and cost is not the sole determining factor (e.g., filtered, unsaturated, compacted tailings). • **Best Management Practices (BMPs)**: Eliminating, minimizing, controlling, or reducing adverse effects on VCs through management practices (e.g., watering unpaved roads to control dust). • **Restoration:** Restoration focuses on establishing appropriate composition, structure, pattern, and ecological processes necessary to make systems sustainable, resilient, and healthy under current and future conditions. • **Offsetting:** Offsetting remaining effects that cannot be prevented or reduced through compensatory actions, so that the net effect on the community or ecosystem is neutral or beneficial (e.g., enhancement of similar habitat in another area, enhancement of other social/economic/cultural benefits).				
		The Application will summarize the process and methodologies used to identify and select mitigation measures to address potential adverse effects of the proposed Project.	8 [9 - 20]	8.4.2 [9 - 12].5.3 13.5.4 [14 – 19].5.3 20.6.2, 20.7.2, 20.8.2	-	
		The Application will determine whether the mitigation measures have been successfully applied in similar circumstances elsewhere or are based on accepted standards.	8 [9 - 20]	8.4.2 [9 - 12].5.3 13.5.4 [14 – 19].5.3 20.6.2, 20.7.2, 20.8.2	-	
		The Application will include any views or opinions provided by Aboriginal Groups on mitigation measures.	8 [9 - 20]	8.4.2 [9 - 12].5.3 13.5.4 [14 – 19].5.3 20.6.2, 20.7.2, 20.8.2	-	As applicable
		If the implementation of mitigation measures will eliminate a potential effect (i.e., considered highly effective) and no residual effect is identified on that VC, the effect will be eliminated from further analyses. If the proposed implementation controls and mitigation measure(s) are not sufficient to eliminate an effect, a residual effect will be identified. Residual effects for which mitigation effectiveness is low, moderate or unknown are carried forward for additional characterization and a significance determination.				

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5.5 Effects Assessment and Mitigation *(cont'd)*	5.5.2 Mitigation Measures *(cont'd)*	The effectiveness of mitigation measures will be described.	8 [9 - 20]	8.4.2.3 [9 - 12].5.3.3 13.5.4.2 14.5.3 15.5.3.3 16.5.3.2 17.5.3.2 18.5.3.3 19.5.3.3 20.6.2.3, 20.7.2.3, 20.8.2.3	-	
		Each assessment chapter will summarize the potential effects, proposed mitigation measures and its effectiveness using Table 5.5-2 of the AIR. This table will also identify the residual effects that will be carried forward for residual effects characterization and significance determination.	8 [9 - 20]	8.4.2.3 [9 - 12].5.3.3 13.5.4.2 14.5.3 15.5.3.3 16.5.3.2 17.5.3.2 18.5.3.1 19.5.3.3 20.6.2.3, 20.7.2.3, 20.8.2.3	-	
	5.5.3 Characterization of Residual Effects	Residual effects will be analyzed using best practice methods to predict the nature and extent of effects that could result from the Project. These methods will be described in each assessment chapter, including any relevant references, analyses, and explanations from scientific, engineering, community and Aboriginal knowledge.	8 [9 - 20]	8.5.1 9.6.1, 9.6.2 10.6.1 11.6.1, 11.6.2, 11.6.3 12.6.2, 12.6.3, 12.6.4 13.6.2, 13.6.3 14.6.1 15.6.2 – 15.6.12 16.6.1, 16.6.2 17.6 18.6 19.6 20.6.3, 20.7.3, 20.8.3	-	
		To determine whether a residual effect is adverse, a characterization of the residual effect will be undertaken using the following attributes:	8 [9 - 16] 20	8.5.2 9.6.1, 9.6.2 10.6.1.2 11.6.2.3, 11.6.3.3 12.6.2, 12.6.3, 12.6.4 13.6.1, 13.6.2.1, 13.6.3.1	-	
		• **Context**: This refers primarily to the current and future sensitivity and resilience of the VC to change caused by the Project. Consideration of context draws heavily on the description of current conditions of the VC (which also reflects residual effects of other projects and activities that have been carried out in the area), and also considers impact of natural and human-caused trends in the condition of the VC.				

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5.5 Effects Assessment and Mitigation *(cont'd)*	5.5.3 Characterization of Residual Effects *(cont'd)*	• **Magnitude:** This refers to the expected magnitude or severity of the residual effect. Low or negligible magnitude effects may have no impact, while medium to high magnitude effects may have an impact.		14.6.1.1, 14.6.1.2, 15.6.2 – 15.6.12 16.6.1, 16.6.2 20.6.3		
		• **Geographic Extent**: This refers to the spatial scale over which the residual effect is expected to occur. The geographic extent of biophysical effects can be discrete, local, regional or beyond regional. The geographic extent of socio-economic effects can be individual/household, community, regional, or beyond regional.				
		• **Duration:** This refers to the length of time the effect lasts; the duration of an effect can be short-term to long-term. Short-term effects may have a lower impact than long-term effects.				
		• **Frequency:** This refers to how often the effect occurs; the frequency of an effect can be frequent to infrequent. Infrequent effects may have a lower impact than frequent effects.				
		• **Reversibility:** This refers to the degree to which the effect is reversible. Effects can be fully reversible, partially reversible, or irreversible. Reversible effects may have a lower impact than irreversible effects.				
	5.5.4 Likelihood of Residual Effects	Following BC EAO guidance (BC EAO 2013b), the likelihood of residual effects occurring will be assessed prior to the determination of significance. This differs to the approach recommended by the CEA Agency (CEAA 2012), which evaluates probability following the determination of significance. While this Application follows the most recent guidance from BC EAO, in order to satisfy both EAO and CEA Agency approaches, likelihood will not be considered in the determination of significance. Significance will be assessed for all residual effects assuming that they *would* occur and does not assume a lower level of significance based on probability of occurrence; this approach provides an objective consideration of significance and is consistent with CEAA 2012. The likelihood of a residual effect occurring will be expressed as a probability, to determine the potential for the Project to cause a residual effect and will be classified as: • *Low*: an effect that is unlikely, but could occur; • *Moderate*: an effect that is likely, but may not occur; or • *High*: an effect that is highly likely to occur.				
		Narrative descriptions and justifications for the likelihood assessment will be provided along with the valuation of these attributes in each chapter of the Application.	8 [9 - 16] 20	8.5.3 9.6.1, 9.6.2 10.6.1.2 11.6.2.4, 11.6.3.4 12.6.2, 12.6.3, 12.6.4 13.6.1.3, 13.6.2.2, 13.6.3.2 14.6.1.1, 14.6.1.2, 15.6.2 – 15.6.12 16.6.1, 16.6.2 20.6.3	-	

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5.5 Effects Assessment and Mitigation *(cont'd)*	5.5.4 Likelihood of Residual Effects *(cont'd)*	Scientific rigor will be applied in the approach to determining the degree of likelihood, and where uncertainty remains, the degree of potential error and risks to assumptions will be clearly identified in the Application.	8 [9 - 16] 20	8.5.3 9.6.1, 9.6.2 10.6.1.2 11.6.2.4, 11.6.3.4 12.6.2, 12.6.3, 12.6.4 13.6.1.3, 13.6.2.2, 13.6.3.2 14.6.1.1, 14.6.1.2, 15.6.2 – 15.6.12 16.6.1, 16.6.2 20.6.3	-	
	5.5.5 Significance of Residual Effects	The significance of residual effects of the Project will be founded on a comparison of the current condition of the VC if the Project does not proceed, with the predicted state of the VC if the Project proceeds, after mitigation measures are applied.				
		The Application will determine the significance (significant/not significant) of residual effects using the characterization criteria outlined in Section 5.5.3 of the AIR. The definition of significance will be clearly defined for each VC.	8 [9 - 16] 20	8.5.4 9.6.1, 9.6.2 10.6.1.2 11.6.2.5, 11.6.3.5 12.6.2, 12.6.3, 12.6.4 13.6.1.4, 13.6.2.3, 13.6.3.3 14.6.1.1, 14.6.1.2, 15.6.2 – 15.6.12 16.6.1, 16.6.2 20.6.3	-	
		Where available, relevant thresholds will be used (e.g., aquatic life receiving environment criteria, ambient air criteria, or land and resource management planning objectives) to assist with the determination of significance.	8 [9 - 16] 20	8.5.4 9.6.1, 9.6.2 10.6.1.2 11.6.2.5, 11.6.3.5 12.6.2, 12.6.3, 12.6.4 13.6.1.4, 13.6.2.3, 13.6.3.3 14.6.1.1, 14.6.1.2, 15.6.2 – 15.6.12 16.6.1, 16.6.2 20.6.3	-	

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5.5 Effects Assessment and Mitigation *(cont'd)*	5.5.5 Significance of Residual Effects *(cont'd)*	The Application will define any thresholds used as well as the source literature for those thresholds.	8 [9 – 16] 20	8.5.4 9.6.1, 9.6.2 10.6.1.2 11.6.2.5, 11.6.3.5 12.6.2, 12.6.3, 12.6.4 13.6.1.4, 13.6.2.3, 13.6.3.3 14.6.1.1, 14.6.1.2, 15.6.2 – 15.6.12 16.6.1, 16.6.2 20.6.3	-	As applicable
	5.5.6 Confidence and Risk	Confidence, which can be defined as scientific uncertainty, is a measure of how well residual effects are understood, which includes a consideration of the acceptability of the data inputs and analytical methods used to predict and assess project effects.				
		The reliability of data inputs and analytical methods used to predict Project effects, confidence regarding the effectiveness of mitigation measures and certainty of the predicted outcome will be considered.	8 [9 - 16] 20	8.5.5 9.6.1, 9.6.2 10.6.1.2 11.6.2.6, 11.6.3.6 12.6.2, 12.6.3, 12.6.4 13.6.1.5, 13.6.2.4, 13.6.3.4 14.6.1.1, 14.6.1.2, 15.6.2 – 15.6.12 16.6.1, 16.6.2 20.6.3	5-B 22-A	
		Where available the Application will present the quantitative data and methods used to define the level of uncertainty.	8 [9 – 16] 20	8.5.5 9.6.1, 9.6.2 10.6.1.2 11.6.2.6, 11.6.3.6 12.6.2, 12.6.3, 12.6.4 13.6.1.5, 13.6.2.4, 13.6.3.4 14.6.1.1, 14.6.1.2, 15.6.2 – 15.6.12 16.6.1, 16.6.2 20.6.3	5-D	

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5.5 Effects Assessment and Mitigation *(cont'd)*	5.5.6 Confidence and Risk *(cont'd)*	Confidence estimates will allow the decision-maker to evaluate risk associated with the Project.	8 [9 - 16] 20	8.5.5 9.6.1, 9.6.2 10.6.1.2 11.6.2.6, 11.6.3.6 12.6.2, 12.6.3, 12.6.4 13.6.1.5, 13.6.2.4, 13.6.3.4 14.6.1.1, 14.6.1.2, 15.6.2 – 15.6.12 16.6.1, 16.6.2 20.6.3	5-D	
		In some situations, where effects are not well understood due to lack of confidence in scientific data, or because of the use of unproven mitigation technology, it may be necessary to conduct risk analyses. In these cases, the Application will summarize the process and methodology used for risk analysis	8 [9 - 16] 20	8.5.5 9.6.1, 9.6.2 10.6.1.2 11.6.2.6, 11.6.3.6 12.6.2, 12.6.3, 12.6.4 13.6.1.5, 13.6.2.4, 13.6.3.4 14.6.1.1, 14.6.1.2, 15.6.2 – 15.6.12 16.6.1, 16.6.2 20.6.3	-	As applicable
	5.5.7 Summary of Residual Effects Assessment	The Application will summarize the main conclusions for residual effects on VCs using the format presented in Table 5.5-3 of the AIR.	8 [9 - 20]	8.6 9.6.3 10.6.2 11.6.4 12.6.5 13.6.4 14.6.2 15.6.13 16.6.2.1 [17 – 19].6 20.9	-	
5.6 Cumulative Effects Assessment		The Application will assess potential environmental, economic, health, social, and heritage cumulative effects of the Project. The methodology, used throughout all assessment chapters, will consider the following guidance documents specific to cumulative effects:	[8 – 19] 20	[8 - 19].7 20.10	-	
		• Guidelines for the Selection of Valued Components and Assessment of Potential Effects. British Columbia Environmental Assessment Office: Victoria, BC. (BC EAO 2013b)	[8 - 19] 20	[8 - 19].7 20.10	-	
		• Assessing Cumulative Environmental Effects under the *Canadian Environmental Assessment Act, 2012*, Operational Policy Statement (CEA Agency 2014a)	[8 - 19] 20	[8 - 19].7 20.10	-	
		• Draft Technical Guidance for Assessing Cumulative Environmental Effects under the *Canadian Environmental Assessment Act, 2012* (CEA Agency, 2014b)	[8 - 19] 20	[8 - 19].7 20.10	-	

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5.6 Cumulative Effects Assessment *(cont'd)*		• Practitioners Glossary for the Environmental Assessment of Designated Projects under the *Canadian Environmental Assessment Act, 2012* (CEA Agency 2013a)	[8 - 19] 20	[8 - 19].7 20.10	-	
		• Reference Guide: Addressing Cumulative Environmental Effects (CEA Agency 1994).	[8 - 19] 20	[8 - 19].7 20.10	-	
		The approach to assessing cumulative effects will generally follow the same steps as the Project-specific effects assessment, namely scoping, identification and analysis of potential cumulative effects, identification and description of mitigation measures, with subsequent identification of residual cumulative effects, and characterization of residual cumulative effects to determine significance.	[8 - 19] 20	[8 - 19].7 20.10	-	
	5.6.1 Scoping Cumulative Effects *5.6.1.1 Identifying Valued Components for Cumulative Effects Assessment*	According to recent CEA Agency guidance (2014b), a CEA is carried out only on VCs for which residual effects are predicted after consideration of mitigation measures, regardless of their significance. Each assessment chapter will clearly indicate the VCs and residual effects that are considered for the CEA.	[8 - 16] [17-19] 20	[8 – 16].7.1.1 [17 – 19].7 20.10.2.1	-	
	5.6.1.2 Defining Cumulative Effects Assessment Boundaries	Similar to the Project effects assessment, the CEA boundaries are defined as the maximum spatial and temporal scales over which there is a potential for residual Project effects to interact with the residual effects of other past, present, and future projects and activities. Each effects assessment chapter will identify and describe the methodology and consideration for the spatial and temporal boundaries selected, as these may vary according to the VC being assessed.	[8 - 16] [17 – 19] 20	[8 – 16].7.1.2 [17 – 19].7 20.10.2.2	-	
	5.6.1.3 Projects and Activities Considered	This section of the Application will identify past, present and reasonably foreseeable future projects and activities (e.g., forestry, recreational land use, mineral exploration, water use, agriculture) that are located within the CEA boundary and have the potential to interact with the residual effects on project VCs.	[8 - 16] [17 – 19] 20	[8 – 16].7.1.3 [17 – 19].7 20.10.2.3	-	
		The following definitions were used to select past, present and future projects and activities for the CEA: • *past:* no longer operational projects and activities that were implemented in the past and are expected to have effects on the VCs (i.e., beyond the effects reflected in the existing conditions of the VC); • *present*: active and inactive projects and activities; and • *future*: projects and activities that are certain to proceed, and reasonably foreseeable projects and activities that are likely to occur. These projects are restricted to those that (1) have been publicly announced with a defined project execution period and with sufficient project details for assessment, and/or (2) are currently undergoing an environmental assessment, and/or (3) are in a permitting process.				
		The projects and activities list will be developed from a wide variety of information sources, including municipal, regional, provincial, and federal government agencies; other stakeholders; and commercial websites.	[8 – 16] [17 - 19] 20	[8 – 16].7.1.3 [17 – 19].7 20.10.2.3	-	
		The Application will include, but will not be limited to the projects identified in Table 5.6-1 of the AIR.	8 [9 - 19] [17 – 19] 20	8.7.1.3; Table 8.7-1 [9 – 16].7.1.3 [17 – 19].7 20.10.2.3	-	

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5.6 Cumulative Effects Assessment *(cont'd)*	*5.6.1.3 Projects and Activities Considered (cont'd)*	Activities scoped into the CEA will include activities at all stages (past, present and reasonably foreseeable future activities).	[8 – 16] [17 - 19] 20	[8 – 16].7.1.3 [17 – 19].7 20.10.2.3	-	
	5.6.2 Potential Cumulative Effects Analysis	The relationship between past, present and reasonably foreseeable future projects and activities, and the Project will be established using an impact matrix. This process serves to focus the cumulative effects assessment on the Project and activities that are likely to have the most influential effects on each VC.	[8 – 16] [17 - 19] 20	[8 – 16].7.2 [17 – 19].7 20.10.3	-	
		The impact matrix will use a range of characterization and prediction methods, including qualitative and quantitative techniques to predict the nature of the effects.	[8 – 16] [17 - 19] 20	[8 – 16].7.2 [17 – 19].7 20.10.3	-	
		When data are lacking, professional judgement will be used to determine the extent of potential cumulative effects.	[8 – 16] [17 - 19] 20	[8 – 16].7.2 [17 – 19].7 20.10.3	-	
		Screening criteria will be applied to determine whether projects and activities should be included or excluded from the cumulative effects assessment, including some or all of the following considerations:	[8 – 13] 14 15 16 [17 - 19] 20	[8 – 13].7.2.2 14.7.2.1 15.7.2.2 16.7.2.2 [17 – 19].7 20.10.3.2	-	
		• a project/activity is within the regional study area of a VC	[8 – 13] 14 15 16 [17 - 19] 20	[8 – 13].7.2.2 14.7.2.1 15.7.2.2 16.7.2.2 [17 – 19].7 20.10.3.2	-	
		• a project/activity is within zone of influence of Project effects	[8 – 13] 14 15 16 [17 - 19] 20	[8 – 13].7.2.2 14.7.2.1 15.7.2.2 16.7.2.2 [17 – 19].7 20.10.3.2	-	
		• a project/activity is within or effects overlap with socio-economic influenced areas	[8 – 13] 14 15 16 [17 - 19] 20	[8 – 13].7.2.2 14.7.2.1 15.7.2.2 16.7.2.2 [17 – 19].7 20.10.3.2	-	

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5.6 Cumulative Effects Assessment *(cont'd)*	5.6.2 Potential Cumulative Effects Analysis *(cont'd)*	• a project/activity has an effect on migratory species	[8 – 13] 14 15 16 [17 - 19] 20	[8 – 13].7.2.2 14.7.2.1 15.7.2.2 16.7.2.2 [17 – 19].7 20.10.3.2	-	
		• a high degree of confidence exists that the other project or activity would not interact with the residual effects of the Project	[8 – 13] 14 15 16 [17 - 19] 20	[8 – 13].7.2.2 14.7.2.1 15.7.2.2 16.7.2.2 [17 – 19].7 20.10.3.2	-	
		An impact matrix will be provided in each effects assessment chapter where a CEA is undertaken using the example layout shown in Table 5.6-2 of the AIR; supporting rationale for the assigned cumulative interaction rating will be provided.	8 [9 - 12] 13 14 15 16 [17 – 19] 20	8.7.2.2; Table 8.7-5 [9 – 12].7.2.2; Tables [9 – 12].7-1 13.7.1; Table 13.7-1 14.7.2.1; Table 14.7-1 15.7.2.2; Table 15.7-3 16.7.2.2; Table 16.7-2 [17 – 19].7 20.10.3.2; Table 20.10-2	-	
	5.6.3 Mitigation Measures and Effectiveness	Mitigation measures for cumulative effects involves taking further action, where possible, to avoid or minimize cumulative effects on VCs. Because cumulative effects typically result from the combined effects of multiple developments, responsibility for their prevention and management is shared among the various contributing developments. It is usually beyond the responsibility or capability of any one party to implement all of the measures needed to reduce or eliminate cumulative effects; therefore, collaborative efforts are needed.				
		Mitigation measures that can be implemented by the Proponent will be described for each cumulative effect in the relevant chapters of the Application (as applicable).	8 [9 - 11] 12 13 14 15 16 [17 – 19] 20	8.7.3 [9 – 11].7.2 12.7.2.3 13.7.2.2 14.7.2.2 15.7.2.3 16.7.2.3 [17 – 19].7 20.10.3	-	

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5.6 Cumulative Effects Assessment *(cont'd)*	5.6.3 Mitigation Measures and Effectiveness *(cont'd)*	The Application will also include any views or opinions provided by Aboriginal groups on mitigation measures.	8 [9 - 20]	8.7.3 10.7.2.3 11.5.3, 11.7.2 12.5.3, 12.7.2.3 13.5.4, 13.7.2 14.5.3, 14.7.2.2 15.5.3, 15.7.2.3 16.5.3, 16.7 17.5.3, 17.7 18.5.3, 18.7 20.10.3	-	
		If the proposed implementation controls and mitigation measure(s) eliminate or reduce the risk of a potential of cumulative interaction to no effect, then the effect is eliminated from further analyses (as there is minimal risk of the cumulative effect being residual). If the proposed implementation controls and mitigation measure(s) are deemed insufficient to eliminate a potential cumulative effect for a VC, a cumulative residual effect is identified and carried through to significance determination.				
		A summary of the proposed mitigation measures and their effectiveness for potential cumulative effects will be provided using the Table 5.6-3 of the AIR.	8 12 15 16	8.7.3; Table 8.7-6 12.7.2.3; Table 12.7-2 15.7.2.3; Table 15.7-10 16.7.2.3; Table 16.7-3	-	
	5.6.4 Residual Cumulative Effects Assessment	Cumulative residual effects will be characterized and evaluated using the same criteria and definition thresholds established for the project-specific effects assessment (see Section 5.5.3 of the AIR).	8 12 13 15 16	8.7.4 12.8 13.8.1.1, 13.8.2.1 15.8 16.8	-	Chapters listed contain full Residual Cumulative Effects Assessment
		The likelihood of a residual cumulative effect will be assessed.	8 12 13 15 16	8.7.4 12.8 13.8.1.2, 13.8.2.2 15.8 16.8	-	
		The effects assessment chapters will determine the significance of residual cumulative effects using the same standards or thresholds established for the effects on individual VCs.	8 12 13 15 16	8.7.4 12.8 13.8.1.3, 13.8.2.3 15.8 16.8	-	
		Peer reviewed literature will be referenced and assumptions stated, as relevant.	8 12 13 15 16	8.7.4 12.8 13.8 15.8 16.8	-	

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5.6 Cumulative Effects Assessment *(cont'd)*	5.6.4 Residual Cumulative Effects Assessment *(cont'd)*	Once a significance determination is made, a discussion of the confidence in the cumulative effects assessment will be provided based on:	8 12 13 15 16	8.7.4 12.8 13.8.1.4, 13.8.2.4 15.8 16.8	-	
		• scientific certainty related to quantifying or estimating the effect, including the quality and/or quantity of data and the understanding of the effect mechanisms.	8 12 13 15 16	8.7.4 12.8 13.8.1.4, 13.8.2.4 15.8 16.8	-	
		• scientific certainty relative to the effectiveness of the proposed mitigation measures.	8 12 13 15 16	8.7.4 12.8 13.8.1.4, 13.8.2.4 15.8 16.8	-	
		• professional judgement from prior experience including proven mitigation measures.	8 12 13 15 16	8.7.4 12.8 13.8.1.4, 13.8.2.4 15.8 16.8	-	
	5.6.5 Summary of Cumulative Effects Assessment	A summary of the residual cumulative effects assessment is provided using the table format in Table 5.6-4 of the AIR.	8 12 13 15 16	8.7.5; Table 8.7-7 12.8.4; Table 12.8-3 13.8.3; Table 13.8-1 15.8.7 16.8.3; Table 16.8-1	-	
5.7 Conclusions		Each effects assessment chapter will provide a summary of the residual Project and cumulative effects in a table format, as reflected in Table 5.7-1 of the AIR, as well as in a synoptic section of text	8 [9 – 20]	8.8; Table 8.8-1 9.8 10.8 11.8; Table 11.8-1 12.9; Table 12.9-1 13.9; Table 13.9-1 14.8; Table 14.8-1 15.9; Table 15.9-1 16.9; Table 16.9-1 17.8; Table 17.8-1 18.7; Table 18.7-1; 18.8 19.8 20.11; Table 20.11-1	-	

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	Comments
6. Assessment of Potential Environmental Effects 6.1 Hydrogeology	6.1.1 Regulatory and Policy Context	The Application will identify and describe provincial and federal legislation, policies, best management practices and guidance documents related to groundwater quantity and quality. These will include:	9	9.2	9-A	
		• BC *Water Act* (1996) and Regulations (234/2013).	9	9.2; Table 9.2-1	-	
		• *Drinking Water Protection Act* (2001) and Drinking Water Protection Regulation (BC Reg. 200/203)	9 24	9.2; Table 9.2-1 24.9.2, 24.9.3, 24.9.5	-	
		• Guidelines for Groundwater Modelling to Assess Impacts of Proposed Natural Resource Development Activities (BC MOE 2012).	9	9.2; Table 9.2-2	-	
		• BC Water Quality Guidelines for Protection of Freshwater Aquatic Life and Drinking Water (BC MOE 2010).	9 24	9.2; Table 9.2-2 24.9.2, 24.9.3, 24.9.5	-	
		• Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators (BC MOE 2012).	9 24	9.2; Table 9.2-2 24.9.2, 24.9.3, 24.9.5	-	
	6.1.2 Scoping the Effects Assessment *6.1.2.1 Selecting Valued Components*	With reference to Section 5.3.1 of the AIR, the Application will describe the rationale for selecting and assessing groundwater quantity and quality as Hydrogeology VCs.	9	9.3.1.2	-	
		The rationale for choosing the corresponding indicators will also be presented in the Application. Indicators for the groundwater quantity VC include changes in: • groundwater levels; and • flow volume and directions. Indicators for the groundwater quality VC include changes in: • total and dissolved metals; • anions/nutrients; • alkalinity/acidity • turbidity; • total suspended solids (TSS); • pH, • conductivity; and • temperature	9	9.3.1.2	-	
	6.1.2.2 Defining Assessment Boundaries	With reference to Section 5.3.2 of the AIR, the Application will identify the groundwater quantity and quality local and regional study areas for the hydrogeological baseline, numerical modelling and the effects assessment, and provide the rationale for the boundaries. Proposed groundwater quantity and quality study area boundaries are identified in Figure 6.1-1 of the AIR.	9	9.3.2.1	-	
		The Application will identify and describe the rationale for the temporal boundaries related to the assessment of groundwater quantity and quality.	9	9.3.2.1	-	
		Administrative or technical boundaries that are relevant to the effects assessment of the VC will be described. If there are no technical or administrative boundaries, this will be stated	9	9.3.2.1	-	
	6.1.3 Project Setting *6.1.3.1 Regional and Historical Setting*	The Application will describe the regional and historic hydrogeologic setting of the Project area, including identification of the hydrogeologic properties (e.g., permeability of geological materials) and associated groundwater quantity (e.g., water levels and creek baseflow sustained by groundwater discharge) and groundwater quality (e.g., physical parameters, major ions, nutrients, total metals and dissolved metals) of the underlying hydrostratigraphic units.	9	9.4	9-A	

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6.1 Hydrogeology *(cont'd)*	*6.1.3.2 Current Conditions*	The Application will include a hydrogeological baseline report that describes baseline studies undertaken for the Project and will include the following:	9	9.4.3	9-A	
		• laboratory reports, well logs, hydraulic test results, core photographs.	9		9-A	
		• a map of groundwater wells and sampling locations in relation to proposed or existing mine facilities or discharges.	9	9.4.3.2	9-A	
		• data collected from multi-level installations including data collected at least monthly over a period of at least one year.	9	9.4.4.2	9-A	
		• groundwater quality data collected over the range of seasonal variability for a period of at least one year.	9	9.4.4.5	9-A	
		• data to demonstrate that groundwater chemistry has equilibrated.	9		9-A	
		• existing and potential uses of groundwater down-gradient of the Project area.	9	9.4.3.2, 9.4.4.6	9-A	
		• a description of hydrostratigraphic units in which groundwater occurs and the characteristics of the units.	9	9.4.4.1, 9.4.4.4	9-A	
		• data summaries that characterize spatial and temporal variations of water levels, baseflow and groundwater quality.	9	9.4.3.2, 9.4.4.2, 9.4.4.3, 9.4.4.5	9-A	
		• potentiometric surface (water level contour) maps depicting groundwater flow direction, and hydro-stratigraphic cross-sections parallel and perpendicular to groundwater flowpaths.	9	9.4.4.4	9-A, 9-B, 9-C	
		The Application will indicate the sources of the regional, local and site-specific data, including the time frame and data collection methods.	9	9.4.3.1, 9.4.3.2	9-A, 9-B, 9-C	
		Margins of error or degree of uncertainty will be reported.	9	9.4.4.1, 9.6.1.1, 9.6.1.2, 9.6.2.1, 9.6.2.2	9-A, 9-B, 9-C	
		Information will be derived from a review and analysis of available geology and hydrogeological information (e.g., regional published reports and maps), any available traditional ecological or community knowledge related to hydrogeology, and from site-specific groundwater wells installed throughout the proposed study area.	9	9.3.1.1	-	
		Any data gaps, assumptions and uncertainty will be reported.	9	9.4.4.1, 9.6.1.1, 9.6.1.2, 9.6.2.1, 9.6.2.2	9-A, 9-B, 9-C	
		The Application will use any relevant documents produced for the proposed Kemess North project, KS baseline data and publicly available information for other projects in northwest BC.	9	9.4.3.1	9-A, 9-C	
		The Application will describe current conditions that will allow for:	9	9.4.3	9-A, 9-B, 9-C	
		• the characterization of aquifers and aquitards, including spatial extent, thickness and continuity, hydraulic properties, and the degree of aquifer confinement.	9	9.4.4.1, 9.4.4.4	9-A, 9-B, 9-C	
		• the characterization of groundwater flow patterns and water quality.	9	9.4.4.2 to 9.4.4.5	9-A, 9-B, 9-C	
		• the identification of groundwater recharge and discharge zones.	9	9.4.4.3, 9.4.4.4	9-A, 9-B, 9-C	
		• the characterization of groundwater and surface water interactions.	9	9.4.4.3, 9.4.4.4	9-A, 9-C	
	6.1.4 Effects Assessment and Mitigation *6.1.4.1 Screening and Analyzing Potential Effects*	The Application will identify and analyze potential effects on local and regional groundwater flow systems during each Project phase in relation to:	9	9.5, 9.6	9-B, 9-C	
		• changes in groundwater levels, flow and stream baseflow.	9 24	9.5.1, 9.5.2 24.8	9-B, 9-C	
		• changes in groundwater quality.	9 24	9.5.1, 9.5.2 24.8	9-B, 9-C	

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6.1 Hydrogeology *(cont'd)*	*6.1.4.1 Screening and Analyzing Potential Effects (cont'd)*	With reference to Section 5.5.1 of the AIR, the Application will describe the methodologies and standards used to determine the effects of the proposed Project on groundwater quantity and quality.	9	9.5.1, 9.5.2, 9.6.1, 9.6.2	9-B, 9-C	
		For local study areas, the Application will consider potential effects on groundwater quantity and quality based on the results of a three-dimensional numerical groundwater model, and empirical information from the KS project.	9	9.6.1, 9.6.2	9-B, 9-C	
		The model and empirical analysis will be developed on the basis of the available hydrogeological baseline information.	9	9.6.1, 9.6.2	9-B, 9-C	
		Information will be provided to justify the assertion that seepage from the KS TSF reports to surface water upstream of Kemess Creek.	-	-	11-D	See Section 1.3.9 in Appendix 11-D
		The results of the geochemistry predictive study will be used to inform the effects on the groundwater quality.	9	9.6.2	-	
		A representative hydrogeological conceptual model will be developed using the available information and based on a geological model for the Project site, and the conceptual model will illustrate the pathways of groundwater flowing from the key mine components into the receiving surface waterbodies.	9	9.4.4.4	9-A, 9-B, 9-C	
		A hydrogeological baseline numerical model will then be developed using industry standard software and on the basis of the conceptual model, consistent with the Guidelines for Groundwater Modelling to Assess Impacts of Proposed Natural Resource Development Activities (BC MOE 2012).	9	9.6.1.1, 9.6.1.2	9-B, 9-C	
		The model will be calibrated/verified to steady state conditions which include hydraulic heads in the vicinity of the underground development and regional values, as well as measured and synthetically generated streamflow records in the vicinity of the underground development.	9	9.6.1.1	9-B	
		Recharge rates will be related to observed precipitation in the area.	-	-	9-B	
		Calibration statistics for the groundwater flow model will be provided.	9	9.6.1.1; Table 9.6-1	9-A, 9-B	
		Once calibrated and input assumptions are verified, the model will be utilized to simulate groundwater quantity and quality effects.	9	9.6.1, 9.6.2	9-B, 9-C	
		The Application will include a list of head and streamflow calibration targets and rationale for these targets.	9	9.6.1.1	9-B	
		The model will be used to assess each of the following: regional flow, underground inflows, short-term effects due to the drawdown in proximity to the underground workings, and any long-term environmental effects.	9	9.6.1.1	9-B	
		Per the BC MOE Guidelines for Groundwater Modelling to Assess Impacts of Proposed Natural Resource Development Activities (BC MOE 2012b) (Section 8.7), the model sensitivity with respect to calibration of the baseline model and predictions of the predictive model(s) will be analyzed to assess the range of uncertainty in the model predictions.	9	9.6.1.1	9-B	
		Model inputs to be varied will include but are not necessarily limited to recharge rate and distribution, hydraulic conductivity, boundary conditions, transport porosity and porosity of cave-zone/specific yield.	9	9.6.1.1, 9.6.1.2	9-B (Sections 4.4, 7.1.2, 7.2.2, 7.3.1), 9-C	
		The results of each sensitivity scenario will be assessed by examining the effects on model calibration and model prediction.	9	9.6.1.1	9-B	
		The model calibration will be assessed with the following measures:				
		• calibration statistics for groundwater elevation, including mean residual, absolute mean residual and normalized RMS error	9	9.6.1.1	9-B	
		• modelled groundwater discharge rates relative to estimates of groundwater discharge derived from low-flow stream flow measurements and water balance modelling	9	9.6.1.1	9-B	

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6.1 Hydrogeology *(cont'd)*	*6.1.4.1 Screening and Analyzing Potential Effects (cont'd)*	• discharge locations modelled by the particle tracking model relative to expected discharge locations	9	9.6.1.1	9-B	Discharge locations were not modelled using particle tracking; however, simulated and observed vertical groundwater gradients are presented in the KUG model report (App 9-B). The simulated groundwater head contour map was compared to the observed groundwater contour map and found to be in agreement. The observed heads were contoured respecting expected areas of groundwater discharge.
		• qualitative measures of calibration	9	9.6.1.1	9-B	
		The model predictions will include but are not necessarily limited to the following predictions:				
		• mine dewatering rates	9	9.6.1.1	9-B	
		• effects of mine dewatering on Amazay Lake	9	9.6.1.1	9-B	
		• time required to flood the mine after closure	9	9.6.1.1	9-B	
		• equilibrium elevation of groundwater table after closure	9	9.6.1.1	9-B	
		• estimates of contact-water flow paths and flow rates via groundwater pathways during Operations and Post-Closure	9	9.6.1.1	9-B	
		Similar to the guideline in BC MOE, 2012 (Section 8.4), the scenarios chosen for sensitivity with respect to prediction will capture a range of conditions considered to represent the lower bound, upper bound and expected cases of the respective model predictions.	9	9.6.1.1, 9.6.1.2	9-B, 9-C	
		Rationale will be provided for the choice of model parameters and range of parameters in all sensitivity scenarios.	-	-	9-B, 9-C, 9-D	
		The range of scenarios will reflect the uncertainty in model calibration targets including, for example, those targets related to estimates of groundwater discharge rates.	9	9.6.1.1, 9.6.1.2	9-B, 9-C, 9-D	
		Per BC MOE (2012b) (Section 8.7) and ASTM D5611, the results of the sensitivity scenarios will be used to determine the sensitivity type as follows:	9	9.6.1.1	9-D	
		• Type I: insensitive with respect to both prediction and calibration	9	9.6.1.1	9-D	
		• Type II: insensitive with respect to prediction but sensitive with respect to calibration	9	9.6.1.1	9-D	
		• Type III: sensitive with respect to both prediction and calibration	9	9.6.1.1	9-D	
		• Type IV: sensitive with respect to prediction but insensitive with respect to calibration	9	9.6.1.1	9-D	
		Establishing appropriate values for Type I and Type II parameters is relatively less important because they do not affect model predictions. An appropriate value for a Type III parameter is relatively more important because the model prediction is sensitive to that parameter, and this value can be relatively well defined through the model calibration. Type IV parameters will be identified and discussed because these parameters are sensitive with respect to model predictions but insensitive with respect to calibration, which indicates that they cannot be defined through the calibrating the model.	9	9.6.1.1	9-D	
		The approach for dealing with Type IV parameters will be discussed, including but not necessarily limited to the following:	9 24	9.6.1.1 24.8.5	9-D	

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6.1 Hydrogeology *(cont'd)*	*6.1.4.1 Screening and Analyzing Potential Effects (cont'd)*	• additional site investigations and data collection	24	24.8.5	-9-D	
		• monitoring	24	24.8.5	9-D	
		• water management strategy as described in Section 2.2.10 of the AIR, Water Management	5 24	5.9.4, 5.12, 5.13.5 24.16	-	
		The model will integrate the local hydrogeology with the development of mine site infrastructure and geochemical characterization to allow for the assessment of flow-paths in the local and regional study areas.	9	9.6.1, 9.6.2	9-B, 9-C	
		Baseline groundwater quality will be used in the particle tracking model to predict contaminant transport to receiving waters.	9	9.6.1.1, 9.6.1.2	9-B, 9-C	'Particle tracking' does not utilize chemical parameters; it shows groundwater flow paths based on the simulated flow system. Particle tracks and flow paths are shown on representative plan and cross-sections maps under section 9.6.1 and associated modeling reports.
		The model will assess the relevant key phases (e.g., end of Operations, Post-Closure) of the proposed Project.	9	9.6.1.1	9-B	
		Input parameters, boundary conditions and limitations of the model will be discussed in a clear and transparent manner.	9	9.6.1.1, 9.6.1.2	9-B, 9-C	
		The accuracy of predictions, data gaps and assumptions will be explicitly stated.	9	9.6.1.1, 9.6.1.2	9-B	
		All input parameter estimates (e.g., recharge rates, stream flows, soil and rock permeability) reported will include the source of information (either estimates or empirical) and will make reference to measurement methods or collection protocols used. Input ranges for parameters will be reported.	9	9.4.3.1, 9.4.4	9-B, 9-C	
	6.1.4.2 Mitigation Measures	The Application will identify mitigation measures, including associated management plans, as needed, that will avoid, reduce or minimize effects on hydrogeology VCs.	9 24	9.5.3.1, 9.5.3.2 24.8	9-B	
		A Groundwater Monitoring Plan will be provided including a description of how monitoring wells, piezometers and low-flow gauging stations would be used.	9 24	9.5.3.2 24.8.4, 24.8.5	9-D	
		Items which will be considered for monitoring include underground inflow rates.	24	24.8	-	
		Items which will be considered for monitoring include short-term effects due to the drawdown in proximity to the underground workings.	24	24.8	9-D	
		Items which will be considered for monitoring include time required to refill the underground workings.	24	24.8	-	
		Items which will be considered for monitoring include long-term equilibrium groundwater level after closure.	24	24.8	-	
		Items which will be considered for monitoring include short and long-term effects of contact water along groundwater flowpaths.	24	24.8	-	
		Information provided by Aboriginal groups will be incorporated into the mitigation measures and monitoring plan as available.	9	9.3.1	-	
		The Application will include a discussion of applicable Project design changes and assessment of the effectiveness of mitigation measures.	9	9.5.3.1, 9.5.3.3, 9.6.1.1, 9.6.2.2	-	

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6.1 Hydrogeology *(cont'd)*	*6.1.4.3 Characterization of Residual Effects, Likelihood, Significance and Confidence*	The Application will compare groundwater modelling predictions to baseline conditions to characterize the residual effects of the Project on groundwater quantity and quality.	9	9.6.1, 9.6.2	-	
		With reference to Section 5.5.3 of the AIR, the Application will identify, assess and characterize residual effects of the Project using the following criteria: magnitude, geographic extent, duration, frequency, reversibility, and context.	9	9.6.1, 9.6.2	-	
		The likelihood of residual effects occurring will be evaluated, significance determined, and the confidence in the conclusions of the EA will be presented in the Application.	9	9.6.1, 9.6.2	-	
	6.1.5 Cumulative Effects Assessment	With reference to Section 5.6 of the AIR, the Application will identify past, present and future projects and activities that may cumulatively interact with residual effects on groundwater quantity and quality VCs.	9	9.7.1.3, 9.7.2.1, 9.7.2.2	-	
		Cumulative residual effects will be described and their significance will be assessed.	9	9.7.2	-	
	6.1.6 Summary	A summary of the Project phase, mitigation measures, residual project effects, significance evaluation and cumulative residual effects on groundwater VCs will be provided in the Application.	9	9.7.2.2, 9.8	-	
		This information will also be provided in a summary table.	9	9.6.3; Tables 9.6-15, 9.6-16	-	
6.2 Surface Hydrology	6.2.1 Regulatory and Policy Context	The Application will identify and describe provincial and federal legislation, policies, best management practices and guidance documents related to surface hydrology. These will include:	10	10.2	-	
		• BC *Water Act* (1996) and Regulations (234/2013).	10	10.2; Table 10.2-1	-	
		• *Fish Protection Act* (SBC 1997).	10	10.2; Table 10.2-1	-	
		• *Canada Water Act* (1985).	10	10.2; Table 10.2-1	-	
		• BC *Drinking Water Protection Act* (1996).	10	10.2; Table 10.2-1	-	
		• *Fisheries Act* (R.S.C. 1985, C.F-14).	10	10.2; Table 10.2-1	-	
		• CEAA 2012 s. 5(1)(a).	10	10.2; Table 10.2-1	-	
		• Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators (BC Ministry of Environment 2012).	10	10.2; Table 10.2-1	-	
		• Manual of Standard Operating Procedures for Hydrometric Surveys in British Columbia (RISC 2009).	10	10.2; Table 10.2-1	-	
	6.2.2 Scoping the Effects Assessment *6.2.2.1 Selecting Valued Components*	With reference to Section 5.3.1 of the AIR, the Application will describe the rationale for selecting and assessing the Surface Hydrology VC.	10	10.3.1, 10.3.1.2	-	
		The rationale for choosing the corresponding indicators will also be presented in the Application. Indicators for the surface hydrology VC include changes in: • flows; and • volumes of water.	10	10.3.1, 10.3.1.2	-	
	6.2.2.2 Defining Assessment Boundaries	With reference to Section 5.3.2 of the AIR, the Application will identify the surface hydrology local and regional study areas for the assessment, and provide rationale justifying why the study area boundary was selected. Study areas are shown in Figure 6.2-1 of the AIR.	10	10.3.2	-	
		The Application will identify and describe the rationale for the temporal boundaries related to the assessment of Project effects on surface hydrology.	10	10.3.2	-	

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6.2 Surface Hydrology *(cont'd)*	*6.2.2.2 Defining Assessment Boundaries (cont'd)*	Administrative or technical boundaries that are relevant to the effects assessment of the VC will be described. If there are no technical or administrative boundaries, this will be stated	10	10.3.2	-	
	6.2.3 Project Setting *6.2.3.1 Regional and Historical Setting*	The Application will describe the regional climate and hydrology setting for the proposed Project and will include analysis of long-term meteorological (i.e., climate stations, snow courses, and snow pillows) and hydrometric data collected at regional stations	10	10.4.3, 10.4.4	10-A	
	6.2.3.2 Current Conditions	The Application will list watersheds associated with proposed Project activities.	10	10.4.3.2	10-A	
		The Application will describe the surface water hydrology current conditions of the proposed Project area including:	10	10.4.4	10-A, 10-B, 10-C	
		• identification of monitoring locations (regional and project-specific).	10	10.4.3; Tables 10.4-1, 10.4-2	10-A	
		• description of record periods for all gauging stations (regional and project-specific).	10	10.4.3.2	10-A	
		• a map of hydrometric stations.	10	10.4.3; Figure 10.4.2	-	
		• a recurrence interval analysis of peak and low flow events, as well as longer return periods, such as 7Q10.	10	10.4.4.3, 10.4.4.4, 10.4.4.5	10-A	
		• a delineation of drainage basins, at appropriate scales, for all waterbodies that could potentially be affected by the Project.	10	10.4.3; Figure 10.4.2	10-A	
		• a description of baseline hydrologic conditions based on stream flow analysis and flow monitoring.	10	10.4.4.1, 10.4.4.2,	10-A	
		• a description of baseline statistics for key hydrologic parameters (e.g., annual runoff, seasonal runoff, seasonal runoff distribution, and annual peak and low flows).	10	10.4.4	10-A	
		• a description of runoff generation processes in the context of climate condition and physiography (e.g., elevation and aspect).	-	-	10-A	
		• a description of relevant climate conditions, including air temperature, wind speed, evaporation, precipitation, and snow pack as snow water equivalents.	-	-	10-A	Metadata for all site-specific and regional hydrometric and climate monitoring stations are provided in Appendix 10-A, Surface Water Hydrology Baseline Report
		• an identification of any local and regional potable surface water resource that could potentially be exposed to project effects.	10	10.4.4.6	-	
		The Application will identify the sources of regional and project-specific data, including the time frame and data collection methods, baseline study design, hydrometric station installation methods. Any data gaps and assumptions will be documented, and margins of error or degree of uncertainty will be reported.	10	10.4.2	10-A (Section 3.3.5, Appendices C1 and C2)	
		The baseline report, including processed raw data, will be included in an appendix to the Application.	-	-	10-A	
		It will include rating curves, manual measurements, plots of site-specific discharge data, and site photos.	-	-	10-A	
		The Application will describe any available traditional ecological or community knowledge related to hydrology.	10	10.4.3.1	-	
		The Application will synthesize hydrology documents relevant to the proposed Project (e.g., Kemess North studies, Kemess South baseline hydrology data, and hydrology studies for northwest BC published in open literature.	10	10.4.3.1	10-A	

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6.2 Surface Hydrology *(cont'd)*	6.2.4 Effects Assessment and Mitigation *6.2.4.1 Screening and Analyzing Potential Effects*	The Application will identify and analyze potential effects on surface hydrology during each Project phase (i.e., Construction, Operations, Closure and Post-Closure) including:	10	10.5	10-C	
		• annual runoff.	10	10.5.1, 10.5.2	10-C	
		• seasonal distribution of flow.	10	10.5.1, 10.5.2	10-C	
		• timing and magnitude of peak and low flow events.	10	10.5.1, 10.5.2	10-C	
		• changes to groundwater-surface water interactions.	10	10.5.1, 10.5.2	10-C	
		The Application will describe the methodology and standards used to determine the potential effects of the proposed Project on surface hydrology	10	10.5.1, 10.5.2, 10.6.1.1	11-D	
		The assessment will consider all components of the proposed Project that could affect surface hydrology including:	10	10.5.1, 10.5.2, 10.6.1.1	-	
		• any alterations to runoff conditions.	10	10.5.1, 10.5.2, 10.6.1.1	-	
		• drainage pathways and catchment area attributable to the subsidence zone.	10	10.5.1, 10.5.2, 10.6.1.1	-	
		• discharges from the TSF, TSF collection pond, process plant, water treatment facilities, tunnels, settling ponds, open pits (i.e., pit dewatering and sumps) and other mine workings.	10	10.5.1, 10.5.2, 10.6.1.1	-	
		Monthly site water balances will be developed for the proposed infrastructure and will be used to facilitate the effects assessment on the hydrologic regime within and downstream of these areas.	10	10.5.1, 10.5.2, 10.6.1.1	11-D	
		The water balance model will include the following general characteristics:	10	10.6.1.1	-	
		• The water balance model will consider relevant hydrological inputs such as precipitation (including snow accumulation), snow melt, and evapotranspiration to estimate runoff in sub-watersheds without long-term synthetic time-series for runoff.	10	10.6.1.1	11-D	
		• The model will account for surface and sub-surface flow, as well as groundwater-surface water interaction.	10	10.6.1.1	11-D	
		• Simulated flows will be calibrated to synthetically generated long-term stream flow time-series at stream-gauging stations where applicable. Simulated flows for actual site conditions (precipitation, temperature, etc.) during the period of record will be compared to the corresponding stream flow record based on the stage-discharge curve and to actual streamflow measurements.	10	10.6.1.1	10-C 11-D	Sections 3.1.3, 3.1.4, 3.3.4. and 4.3.2 of Appendix 10-C discuss calibration and scaling of synthetically generated time series. Sections 2.3.2 and 2.3.3 of Appendix 11-D presents calibration and verification of runoff estimates in the water balance model.
		The water balances will also be integrated into the site-wide water quality model and will be an important input to the processes of predicting post-development water quality.	10 11	10.6.1 11.6.1.1	11-D	
		The Application will identify the interaction between groundwater and surface water quality and quantity.	10 11	10.6.1 11.6.1.1	11-D	
		The Application will assess how the proposed Project will affect flow and levels on the waterbodies within the Surface Hydrology LSA and RSA.	10	10.6.1.2	10-C	
	6.2.4.2 Mitigation Measures	The Application will identify mitigation measures, including associated management plans, as needed, that will avoid, reduce or minimize effects on surface hydrology VC.	10	10.5.3.1, 10.5.3.2	4-D	
		Information provided by Aboriginal groups will be incorporated into the mitigation and management plans.	10 24	10.5.3.1 24.16, 24.18	4-D	
		The Application will also include a discussion of applicable project design changes and assessment of the effectiveness of mitigation measures.	10 24	10.5.3.1, 10.5.3.3 24.16, 24.18	4-D	

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6.2 Surface Hydrology *(cont'd)*	*6.2.4.3 Characterization of Residual Effects, Likelihood, Significance, and Confidence*	The Application will characterize the residual effects of the Project on surface hydrology.	10	10.6.1.2	10-C	
		With reference to Section 5.5.3 of the AIR, the Application will identify, assess and characterize residual effects of the Project on surface hydrology using the following criteria:	10	10.6.1.2, 10.6.2	-	
		• magnitude	10	10.6.1.2, 10.6.2	-	
		• geographic extent	10	10.6.1.2, 10.6.2	-	
		• duration	10	10.6.1.2, 10.6.2	-	
		• frequency	10	10.6.1.2, 10.6.2	-	
		• reversibility	10	10.6.1.2, 10.6.2	-	
		• context	10	10.6.1.2, 10.6.2	-	
		The likelihood of residual effects occurring will be evaluated, significance determined, and the confidence in the conclusions of the EA will be presented in the Application.	10	10.6.1.2, 10.6.2	-	
	6.2.5 Cumulative Effects Assessment	With reference to Section 5.6 of the AIR, the Application will identify past, present and future projects and activities that may cumulatively interact with residual effects on the Surface Hydrology VC.	10	10.7.1.3, 10.7.2.2	-	
		Cumulative residual effects will be described and their significance will be assessed.	10	10.7.2.2	-	
	6.2.6 Summary	A summary of the Project phase, mitigation measures, residual project effects, significance evaluation and cumulative residual effects on surface water hydrology will be provided in the Application.	10	10.7.2.2	-	
		This information will also be provided in a summary table.	10	10.6	-	
6.3 Surface Water Quality	6.3.1 Regulatory and Policy Context	The Application will identify and describe provincial and federal legislation, policies, best management practices and guidance documents related to surface water quality. These will include:	11	11.2; Table 11.2-1	11-A	Appendix 11-A corresponds to the baseline water quality reporting to support the Project, identifies applicable legislation and policies in Section 3.0.
		• BC *Water Act* (1996) and Regulations (234/2013).				
		• BC *Environmental Management Act* (EMA; SBC 2003) and Waste Discharge Regulation (BC Reg. 320/2004).				
		• Metal Mining Effluent Regulations (MMER; SOR/2002-222) under the *Fisheries Act* (R.S.C. 1985, C.F-14).				
		• Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia. (BC MEM 1998).				
		• Working Water Quality Guidelines for BC (BC MOE 2015).				
		• British Columbia Approved Water Quality Guidelines (BC WQG) (BC MOE 2015).				
		• Canadian Council of Ministers of the Environment (CCME) Canadian Environmental Quality Guidelines (CEQG) for the Protection of Aquatic Life (CCME 2014).				
	6.3.2 Scoping the Effects Assessment *6.3.2.1 Selecting Valued Components*	With reference to Section 5.3.1 of the AIR, the Application will describe the rationale for selecting and assessing the Surface Water Quality VC.	11	11.3.1.1, 11.3.1.2	-	
		The rationale for choosing the corresponding indicators will also be presented in the Application. Indicators for the surface water quality VC include changes in: • total and dissolved metals; • anions/nutrients; • alkalinity/acidity • turbidity; • TSS; • pH, • conductivity; and • temperature.	11	11.3.1.1, 11.3.1.2	-	

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6.3 Surface Water Quality *(cont'd)*	*6.3.2.2 Defining Assessment Boundaries (cont'd)*	With reference to Section 5.3.2 of the AIR, the Application will identify the surface water quality local and regional study area boundaries for the assessment, and provide rationale justifying why the boundary was selected. Study area boundaries are identified in Figure 6.3-1 of the AIR.	11	11.3.2	-	
		The Application will identify and describe the rationale for the temporal boundaries related to the assessment of surface water quality.	11	11.3.2.2	-	
		Administrative or technical boundaries that are relevant to the effects assessment of the VC will be described. If there are no technical or administrative boundaries, this will be stated	11	11.3.2	-	There are no instances where administrative (e.g., political constraints) or technical issues (e.g., sampling difficulties) limit the assessment for surface water quality, and consequently no corresponding administrative or technical boundaries (*e.g.*, sampling constraints) were applied to the effects assessment.
	6.3.3 Project Setting *6.3.3.1 Regional and Historical Setting*	The Application will describe the regional and historical setting for surface water quality, including long-term and seasonal water quality trends related to operations in the KS Mine.	11	11.4.1	11-A, 11-B, 11-C	
	6.3.3.2 Current Conditions	The Application, including detailed baseline reports provided as appendices, will list watersheds associated with proposed project activities.	11	11.4.2, 11.4.3	11-A, 11-B, 11-C	
		The baseline description will be in accordance with the Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators (BC MOE 2012).	11	11.4.2.2	11-A, 11-B, 11-C	
		The Application will:				
		• describe the surface water quality study design, including methods and quality assurance and quality control procedures.	11	11.4.2	11-A, 11-B, 11-C	
		• describe the method of calculation of seasonal baseline water quality.	11	11.4.3	11-A, 11-B, 11-C	
		• provide a map of the sample sites in relation to mine activities, seepage and discharge points.	11	11.3.1; Figures 11.3-1, 11.3-2	11-A, 11-B, 11-C	
		• provide data summaries that characterize spatial and temporal variations and identify location, frequency, duration and magnitude of applicable standard or environmental quality guideline exceedances.	11	11.4.3.1, 11.4.3.2, 11.4.3.3	11-A, 11-B, 11-C	
		• provide processed raw data for current water quality conditions and model predictions.	-	-	11-A, 11-B, 11-C, 11-D	Raw data for currently water quality conditions are presented in baseline reports (Appendices 11-A, 11-B, 11-C) Raw data of model inputs are presented in Appendix 2 of Appendix 11-D; raw data for model predictions are presented in Appendices 3 and 4 of Appendix 11-D
		• provide limnological data where available.	11	11.4.3.2, 11.4.3.3	11-A, 11-B, 11-C	

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6.3 Surface Water Quality *(cont'd)*	*6.3.3.2 Current Conditions (cont'd)*	• identify data gaps and uncertainties.	11	11.4.2.1	-	There are no identified sampling difficulties, data gaps, or water quality data uncertainties that limit the assessment for surface water quality
		• identify downstream surface water receptors, including fish species.	14	14.3.1.2	-	
		The Application will describe current surface water quality conditions in the proposed Project area that will allow for:				
		• characterization of current surface water quality conditions at monitoring sites including both lake and stream sites.	11	11.4.3.1, 11.4.3.2, 11.4.3.3	11-A, 11-B, 11-C	
		• description of spatial and temporal variation in surface water quality.	11	11.4.3.1, 11.4.3.2, 11.4.3.3	11-A, 11-B, 11-C	
		• summary of key water quality parameters including: physical parameters (e.g., pH, hardness, turbidity, total suspended solids), major anions, nutrients, cyanides, total organic carbon, and total and dissolved metals.	11	11.4.3.1, 11.4.3.2, 11.4.3.3	11-A, 11-B, 11-C	
		The Application will indicate the sources of the regional and site-specific data, including the time frame and data collection methods where available.	11	11.4.2.1	-	
		The Application will describe available traditional ecological or community knowledge related to surface water quality.	11	11.3.1.1, 11.4.2.2	-	
		The Application will use relevant associated documents produced for the proposed Kemess North project, KS monitoring data and publicly available studies for other projects in northwest BC.	11	11.4.2.1	11-A 11-B	
	6.3.4 Effects Assessment and Mitigation *6.3.4.1 Screening and Analyzing Potential Effects*	The Application will identify and analyze potential effects on surface water quality during each Project phase, including any effects resulting from the water withdrawals and discharges from the Project.	11	11.5.1	-	
		The Application will consider the potential effects of the proposed Project in relation to suspended solids, metals, nutrients and major ion concentrations of both controlled and uncontrolled site runoff and seepage due to geochemistry, blasting residues, and erosion.	11	11.5.1, 11.5.2	-	
		The results of the air quality and geochemistry predictive studies will be used to identify the effects on the surface water quality VC.	11	11.5.1.1, 11.5.1.3, 11.5.1.6, 11.5.2.1, 11.5.2.3, 11.5.2.6	7-E, 7-F 11-D	Results of geochemistry predictive studies are presented in Appendices 7-E and 7-F Incorporation of geochemistry predictive study results into predictive water quality modelling is discussed in Appendix 11-D
		Water quality predictions will be provided for each mine component, discharge location and receiving environment assessment node for key flow conditions and relevant time-steps within the temporal boundaries (i.e. Construction, Operations, Closure, Post-Closure).	11	11.6.2.1, 11.6.2.2	11-D	
		The Application will:				
		• include a conceptual model or framework to describe the transport of key contaminants from source to receiving environment.	-	-	11-D	Section 1.3 of Appendix 11-D
		• describe and justify the prediction approach and modelling methods.	11	11.6.1	11-D	11.6.1 presents a summary of approach and inputs to predictive water quality modelling, Appendix 11-D is the associated model report

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6.3 Surface Water Quality *(cont'd)*	*6.3.4.1 Screening and Analyzing Potential Effects (cont'd)*	• include calculations and tabulated data.	11	11.6.2.1, 11.6.2.2	11-D	
		• include information on prediction uncertainties and data gaps.	11	11.6.1.2	11-D	
		• identify receiving water effects, discharges and seepages and associated contaminant concentrations and loadings.	11	11.6.2.1, 11.6.2.2	11-D	
		• provide predicted incremental changes over current receiving environment water quality and applicable water quality guidelines/criteria.	11	11.6.2.1, 11.6.2.2	11-D	
		• include water quality predictions for Thutade Lake, Amazay Lake, and the Finlay River, given their known historical and cultural importance to the TKN.	11	11.6.2.1, 11.6.2.2	11-D	
		Water quality predictions will consider seasonal variability of current water quality and quantity conditions, geochemical source loadings from existing KS infrastructure, and various hydro-climatic conditions (wet/dry events, including 7Q10 low flow).	11	11.6.1, 11.6.2.1, 11.6.2.2	11-D	Section 3.2.1 of Appendix 11-D presents discussion of model inputs specific to seasonal existing water quality and geochemical source loadings from existing KS infrastructures Appendix 2 of Appendix 11-D presents input values for seasonal loadings values for inputs representing existing geochemical loadings from the former KS Mine
	6.3.4.2 Mitigation Measures	The Application will identify mitigation measures, including associated management plans, as needed, that will avoid, reduce or minimize effects on the surface water quality VC.	11 24	11.5.3.1, 11.5.3.2, 11.6.1.1 24.3, 24.7, 24.11, 24.13, 24.15, 24.16, 24.18	5-C	
		Information provided by Aboriginal groups will be incorporated into the mitigation and management plans.	11 24	11.5.1.1, 11.5.3.1 24.18		
		The Application will also include a discussion of applicable project design changes and assessment of the effectiveness of mitigation measures.	11	11.5.3.3, 11.6.2	4-D	
	6.3.4.3 Characterization of Residual Effects, Likelihood, Significance and Confidence	The Application will compare surface water quality modelling results to relevant guidelines to characterize the residual effects of the Project on surface water quality.	11	11.6.1.3, 11.6.2.1, 11.6.2.2	11-D	
		The Application will describe water quality modelling methodologies, including details on how source terms were developed and incorporated, clear statements of assumptions and the rationale/justification for the assumptions, and how and where predictions are developed for receiving environment nodes, as well as discussion of uncertainty and how these were estimated.	11	11.6.1	7-E, 7-F, 11-D	Appendix 11-D Is the Water Balance and Water Quality Modelling Report: -Section 3.1.1 discusses model nodes -Section 3.2 presents model inputs -Section 3.3 presents , model Assumptions by Project Area Geochemical source terms to them are presented in Appendices 7-E and 7-F
		With reference to Section 5.5.3 of the AIR, the Application will identify, assess and characterize residual effects of the Project using the following criteria: magnitude, geographic extent, duration, frequency, reversibility, and context.	11	11.6.2.3, 11.6.3.3	-	
		The likelihood of residual effects occurring will be evaluated, significance determined, and the confidence in the conclusions of the EA will be presented in the Application.	11	11.6.2.4, 11.6.2.5, 11.6.2.6, 11.6.3.4, 11.6.3.5, 11.6.3.6, 11.6.4	-	

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6.3 Surface Water Quality *(cont'd)*	6.3.5 Cumulative Effects	With reference to Section 5.6 of the AIR, the Application will identify past, present and future projects and activities that may cumulatively interact with residual effects on surface water quality.	11	11.7.1.3	-	
		Cumulative residual effects will be described and their significance will be assessed.	11	11.7.2	-	
	6.3.6 Summary	A summary of the Project phase, mitigation measures, residual project effects, significance evaluation and cumulative residual effects on surface water quality will be provided in the Application.	11	11.6.4, 11.8	-	
		This information will also be provided in a summary table.	11	11.8; Table 11.8-1	-	
6.4 Terrain and Soils	6.4.1 Regulatory and Policy Context	The Application will identify and describe provincial and federal legislation, policies, best management practices and guidance documents related to terrain stability and soils. These will include:	12	12.2	-	
		• BC Mines Act (1996) and the Health, Safety and Reclamation Code for Mines in British Columbia (BC MEMPR 2008).	12	12.2; Table 12.2-1	-	
		• BC Forest and Range Practices Act (2002).	12	12.2; Table 12.2-1	-	
		• BC Wildlife Act (1996).	12	12.2; Table 12.2-1	-	
		• BC Weed Control Act (RSBC 1996).	12	12.2; Table 12.2-1	-	
		• Fisheries Act (1985).	12	12.2; Table 12.2-1	-	
		• CEAA 2012 s.19.	12	12.2; Table 12.2-1	-	
		• Soil Quality Guidelines for the Protection of Environmental and Human Health (CCME 2013).	12	12.2; Table 12.2-1	-	
		• Mackenzie Land and Resource Management Plan (LRMP; BC ILMB 2000).	12	12.2; Table 12.2-1	-	
	6.4.2 Scoping the Effects Assessment *6.4.2.1 Selecting Valued Components*	With reference to Section 5.3.1 of the AIR, the Application will describe the rationale for selecting and assessing terrain and soil VCs. Terrain and Soils VCs selected for the assessment include:	12	12.3	-	
		• terrain stability.	12	12.3.1	-	
		• soil quality.	12	12.3.1	-	
		• soil quantity.	12	12.3.1	-	
		The rationale for choosing the corresponding indicators will also be presented in the Application.	12	12.3.1.2; Table 12.3-2	-	
		Indicators for the terrain stability VC include changes in geohazard risk (including landslides and erosion). Indicators for the soil quality VC include changes in the soil quality (associated with erosion, salvage, and contamination). Indicators for the soil quantity VC include changes in quantity of ecologically valuable soil.	12	12.3.1; Table 12.3-2	-	
	6.4.2.2 Defining Assessment Boundaries	With reference to Section 5.3.2 of the AIR, the Application will identify the study area for the assessment, and provide rationale justifying why the boundaries were selected. Figure 6.4-1 of the AIR identifies the terrain and soils study area boundaries.	12	12.3.2	-	
		The Application will identify and describe the rationale for the temporal boundaries related to the assessment of terrain and soils.	12	12.3.2.2	-	
		Administrative or technical boundaries that are relevant to the effects assessment of the VC will be described. If there are no technical or administrative boundaries, this will be stated.	12	12.3.2.2	-	
	6.4.3 Project Setting *6.4.3.1 Regional and Historical Project Setting*	The Application will provide regional and historical project setting for terrain and soils VCs.	12	12.4.1	-	

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	
6.4 Terrain and Soils *(cont'd)*	*6.4.3.2 Current Conditions*	The Application will describe current conditions for terrain and soil VCs including:	12	12.4.3	-	
		• a description of regional climate, surficial geology, physiography, and how they have influenced terrain and soil development.	12	12.4.3	12-A	
		• a description of terrain within the LSA, including topography, terrain stability classification, seismicity, and a history of known geohazards.	12	12.4.3.5	12-A	
		• a description of soils within the LSA including soil classification, erosion potential, and suitability for reclamation.	12	12.4.3.6	12-B	
		• mapping for terrain and soil classification within the LSA.	12	12.4.2.2	12-A	
		• mapping of soils to indicate general levels of soil erodibility, salvage suitability, and terrain stability within the proposed Project footprint.	12	12.4.2.2	12-B	
		The Application will indicate the sources of the baseline data, including the time frame and data collection methods.	12	12.4.2.1	12-A, 12-B	
		Any assumptions will be documented, and uncertainty will be reported. The Application will describe any available traditional ecological or community knowledge relevant to terrain and soils.	12	12.3.1.1, 12.4.3.7	12-A	
		The Application will use relevant documents produced for the proposed Kemess North project, KS data and publicly available studies for other projects in northwest BC.	12	12.3.1.1, 12.4.2.1	-	
	6.4.4. Effects Assessment and Mitigation *6.4.4.1 Screening and Analyzing Potential Effects*	The Application will identify and analyze potential project effects on terrain stability and soil quality and quantity.	12	12.5.1	-	
		The Application will describe the methodology and standards used to determine the effects of the proposed Project on terrain stability and soil quality and quantity.	12	12.3.2.1, 12.6.1	-	
		The results of the air quality predictive studies will be used to identify the effects on the terrain and soils VCs.	12	12.5.2.3	-	
		The Application will include erosion potential mapping to inform the water management and erosion and sediment control plans.	-	-	12-A, 12-B	
		The Application will identify potential direct and indirect effects on the stability of terrain features based on terrain stability class ratings, and potential effects on infrastructure (on-site and off-site) resulting from surface subsidence associated with underground mining.	12	12.5.2.1	-	
	6.4.4.2 Mitigation Measures	The Application will identify mitigation measures, including associated management plans, as needed, that will avoid, reduce or minimize effects on terrain and soils VCs.	12	12.5.3	-	
		Information provided by Aboriginal groups will be incorporated into the mitigation and management plans.	12	12.4.3.6	-	
		The Application will also include a discussion of applicable Project design changes and assessment of the effectiveness of mitigation measures.	12	12.5.3.2, 12.5.3.3	-	
	6.4.4.3 Characterization of Residual Effects, Likelihood, Significance and Confidence	The Application will characterize the residual effects of the Project on terrain stability and soil quality and quantity.	12	12.6	-	
		With reference to Section 5.5.3, the Application will identify, assess and characterize residual effects of the Project using the following criteria: magnitude, geographic extent, duration, frequency, reversibility, and context.	12	12.6.2.1, 12.6.3.1, 12.6.4.1	-	
		The likelihood of residual effects occurring will be evaluated, significance determined, and the confidence in the conclusions of the EA will be presented in the Application.	12	12.6.2.1, 12.6.3.1, 12.6.4.1	-	

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	
6.4 Terrain and Soils *(cont'd)*	6.4.5 Cumulative Effects Assessment	With reference to Section 5.6, the Application will identify past, present and future projects and activities that may cumulatively interact with residual effects on the terrain and soils VCs.	12	12.7.1.3	-	
		Cumulative residual effects will be described and their significance will be assessed.	12	12.8.1, 12.8.2, 12.8.3	-	
	6.4.6 Summary	A summary of the Project phase, mitigation measures, residual project effects, significance evaluation and cumulative residual effects on terrain and soils will be provided in the Application.	12	12.9	-	
		This information will also be provided in a summary table.	12	12.9; Table 12.9-1	-	
6.5 Terrestrial Ecology	6.5.1 Regulatory and Policy Context	The Application will identify and describe provincial and federal legislation, policies, best management practices and guidance documents related to terrestrial ecology. These will include but not be limited to:	13	13.2; Table 13.2-1	-	
		• BC *Forest and Range Practices Act* (2002b).	13	13.2	-	
		• BC *Wildlife Act* (1996j).	13	13.2	-	
		• Canadian Biodiversity Strategy (Environment Canada 1995).	13	13.2	-	
		• Guidelines for Amphibian and Reptile Conservation during Urban and Rural Land Development in BC (BC MOE 2014c).	-15	-15.2.2, 15.6.12	-	Reference to this guidance is included as it pertains to wildlife in Sections 15.2.2 and 15.6.12
		• *Species at Risk Act* (2002).	13	13.2	-	
		• BC *Weed Control Act* (1996).	13	13.2	-	
		• Mackenzie LRMP (BC ILMB 2000).	13	13.2	-	
		• Federal Policy on Wetland Conservation (Environment Canada 2014).	13	13.2	-	
		• Wetlands Environmental Assessment Guideline (Milko 1998b).	13	13.2	-	
		• Wetland Ways: Interim Guidelines for Wetland Protection and Conservation in British Columbia (WSP 2009).	13	13.2	-	
		If applicable, the Application will describe how the Federal Policy on Wetland Conservation (FPWC; EC 1991) and the FWPC – Guidance For and Application and Implementation in Environmental Assessment (Canadian Wildlife Service 2014) will be adhered to.	13	13.2, 13.5.3.3; Tables 13.2-1, 13.4-5, 13.5-1	-	
	6.5.2 Scoping the Effects Assessment *6.5.2.1 Selecting Valued Components*	With reference to Section 5.3.1, the Application will describe the rationale for selecting and assessing the terrestrial ecology VCs. Terrestrial ecology VCs selected for the assessment include:	13	13.3.1	-	
		• alpine and parkland ecosystems.	13	13.3.1	-	
		• forested ecosystems.	13	13.3.1	-	
		• wetland ecosystems.	13	13.3.1	-	
		• Red and Blue-listed ecosystems.	13	13.3.1	-	
		• harvestable plants	13	13.3.1	-	
		• rare plants and lichens and associated habitat.	13	13.3.1	-	
		The rationale for choosing the corresponding indicators will also be presented in the Application. Indicators for the alpine and parkland ecosystems, forested ecosystems, wetland ecosystems, and Red and Blue-listed ecosystems VCs include changes in ecosystem function and/or extent Indicators for the harvestable plants and rare plants and lichens and associated habitat VCs include changes in population and/or extent of habitat	13	13.3.1.2	-	

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	
6.5 Terrestrial Ecology *(cont'd)*	*6.5.2.2 Defining Assessment Boundaries*	With reference to Section 5.3.2, the Application will identify the terrestrial ecology local and regional study area boundaries for the assessment, including applicable buffers, and provide rationale for selection of the boundaries. Study area boundaries are identified in Figure 6.5-1 of the AIR.	13	13.3.2	-	
		The Application will identify and describe the rationale for the temporal boundaries related to the assessment of the terrestrial ecology VCs.	13	13.3.2.2	-	
		Administrative or technical boundaries that are relevant to the effects assessment of the VC will be described. If there are no technical or administrative boundaries, this will be stated.	13	13.3.2.3	-	
	6.5.3 Project Setting *6.5.3.1 Regional and Historical Setting*	The Application will provide regional and historical project setting for terrestrial ecology VCs.	13	13.4.1	13-A	
	6.5.3.2 Current Conditions	The Application will include a description of current conditions related to:				
		• invasive plants	13	13.4.3.7	13-A	
		• rare plants and lichens, including species listed under the *Species at Risk Act (SARA,* 2002c).	13	13.4.3.5	13-A, 13-B	
		• mapped terrestrial ecosystems following applicable mapping guidelines (e.g. RISC 1998), and descriptions of the vegetation structure in the local Project area	13	13.4.3.2	13-A	
		• mapped wetland classes, wetland extent, and wetland functions (e.g., hydrologic, biochemical, ecological and habitat) using standard classification and assessment techniques (e.g., Wetlands of British Columbia: a Guide to Identification; MacKenzie and Moran 2004)	13	13.4.3.3	13-A, 13-B	
		The information will be provided by the ecosystem mapping in the LSA.	13	13.4.2.2	-	
		The mapping will be further supported by any available traditional ecological or community knowledge relevant to terrestrial ecology.	13	13.4.2.2	-	
		The Application will identify the location of Red- and Blue-listed ecological communities.	13	13.4.3.4	13-A	
		The Application will indicate the sources of the baseline data, including the time frame and data collection methods.	13	13.4.2.1, 13.4.3		
		The Application will use any relevant documents produced for the proposed Kemess North project, KS data and publicly available studies for other projects in the region.	13	13.4.2.1, 13.4.3	13-A	
	6.5.4 Effects Assessment and Mitigation *6.5.4.1 Screening and Analyzing Potential Effects*	The Application will identify and analyze potential effects on terrestrial ecology VCs.	13	13.5, 13.6	-	
		The Application will describe the analysis methodology and standards used to determine the effects of the proposed Project on terrestrial ecology VCs.	13	13.5.1, 13.5.2	-	
		The results of the air quality predictive studies will be used to identify the effects on the terrestrial ecology VCs.	13	13.5.3	-	
		The Application will identify potential direct and indirect effects on the environment related to the loss of terrestrial ecology VCs spatial extent, and alteration of function as a result of the Project.	13	13.5.3	-	
	6.5.4.2 Mitigation Measures	The Application will identify mitigation measures, including associated management plans, as needed, that will avoid, reduce, or minimize effects on terrestrial ecology VCs.	13	13.5.4	-	
		Information provided by Aboriginal groups will be incorporated into the mitigation and management plans.	13	13.5.4	-	
		The Application will also include a discussion of applicable Project design changes and assessment of the effectiveness of mitigation measures.	13	13.5.4.2, 13.6	-	

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6.5 Terrestrial Ecology *(cont'd)*	6.5.4.3 Characterization of Residual Effects, Likelihood, Significance and Confidence	The Application will characterize the residual effects of the Project on terrestrial ecology VCs.	13	13.6	-	
		With reference to Section 5.5.3, the Application will identify, assess and characterize residual effects of the Project using the following criteria: magnitude, geographic extent, duration, frequency, reversibility, and context.	13	13.6.1, 13.6.2.1, 13.6.3.1, 13.6.4	-	
		The likelihood of residual effects occurring will be evaluated, significance determined, and the confidence in the conclusions of the EA will be presented in the Application.	13	13.6.1 - 13.6.4	-	
	6.5.5 Cumulative Effects Assessment	With reference to Section 5.6, the Application will identify past, present, and future projects and activities that may cumulatively interact with residual effects on the terrestrial ecology VCs.	13	13.7.1.3	-	
		Cumulative residual effects will be described and their significance will be assessed.	13	13.8	-	
	6.5.6 Summary	A summary of the Project phase, mitigation measures, residual project effects, significance evaluation and cumulative residual effects on terrestrial ecology VCs will be provided in the Application.	13	13.9	-	
		This information will also be provided in a summary table.	13	13.9; Table 13.9-1	-	
6.6 Fish and Aquatic Habitat	6.6.1 Regulatory and Policy Framework	The Application will identify and describe provincial and federal legislation, policies, best management practices and guidance documents related to fish and aquatic habitat. These will include:	14	14.2	14-A	
		• BC *Fish Protection Act* (1997)	14	14.2	-	
		• BC *Water Act* (1996m)	14	14.2	-	
		• BC *Environmental Management Act* (2003) and Waste Discharge Regulation (B.C. Reg. 320/2004)	14	14.2	-	
		• *Fisheries Act* (1985c) and Metal Mine Effluent Regulations (SOR/2002-222)	14	14.2	14-A	
		• *Species at Risk Act* (SARA; 2002c)	14	14.2	14-A	
		• British Columbian Conservation Data Center (BC MOE 2010)	14	14.2	14-A	
		• Department of Fisheries and Oceans Protection Policy Statement (DFO 2013)	14	14.2		
		• BC Water and Sediment Quality Guidelines (BC MOE 2006a)	14	14.2	11-C 14-A	
		• BC Tissue Residue Guidelines (BC MOE 2001 and 2014)	14	14.2, 14.4.3.2	14-A	
		• Site-Specific Toxicity Thresholds for Dolly Varden Tissue and Eggs (McDonald et al. 2010)	14	14.4.3.2, 14.5.2.4	14-A	
		• Canadian Sediment Quality Guidelines (CCME 2011)	14	14.2	11-C 14-A	
		• Canadian Tissue Residue Guidelines (CCME 2001)	14	14.2	14-A	
		• CEAA 2012 s.5(1)(a)(i)	-	-	11-C, Section 1.5; 14-A, Section 2.1; 14-B, Section 1.4	
	6.6.2 Scoping the Effects Assessment *6.6.2.1 Selecting Valued Components*	With reference to Section 5.3.1, the Application will describe the rationale for selecting and assessing the fish and aquatic habitat VCs	14	14.3.1.2	-	
		The following fish species were selected for the assessment:	14	14.3.1.2	-	
		• adfluvial bull trout	14	14.3.1.2	-	
		• Dolly Varden	14	14.3.1.2	-	
		• rainbow trout	14	14.3.1.2	-	
		The following aquatic habitat VCs were selected for the assessment:	14	14.3.1.2	-	

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6.6 Fish and Aquatic Habitat *(cont'd)*	*6.6.2.1 Selecting Valued Components (cont'd)*	• periphyton	14	14.3.1.2	-	
		• benthic invertebrates	14	14.3.1.2	-	
		• sediment quality	14	14.3.1.2	-	
		The rationale for choosing the corresponding indicators will also be presented in the Application. Indicators for the fish species VC include changes in: fish health, fish habitat (quality and availability), and recruitment (as measured through changes in abundance and population structure). Indicators for the periphyton and benthic invertebrates VCs include changes in primary productivity, abundance, and diversity. Indicators for the sediment quality VC include changes in concentrations for chemicals of potential concern (COPCs).	14	14.3.1.2	-	
	6.6.2.2 Defining Assessment Boundaries	With reference to Section 5.3.2, the Application will identify the fish and aquatic habitat local and regional study area boundaries for the assessment, and provide rationale justifying why the boundary was selected.	14	14.3.2.1	-	
		Study area boundaries are identified in Figure 6.6-1 of the AIR.	14	14.3.2.1	-	
		The Application will identify and describe the rationale for the temporal boundaries related to the assessment of fish and aquatic habitat.	14	14.3.2.2	-	
		Administrative or technical boundaries that are relevant to the effects assessment of the VC will be described. If there are no technical or administrative boundaries, this will be stated.	14	14.3.2	-	
	6.6.3 Project Setting *6.6.3.1 Regional and Historical Setting*	The Application will provide regional and historical project setting for fish and aquatics VCs.	14	14.4.1, 14.4.2, 14.4.3	-	
	6.6.3.2 Current Conditions	The Application will describe current conditions of aquatic resources of Attycelley Creek (including Amazay Lake and tributaries including Central Cirque Creek), East Cirque Creek, El Condor Creek, Kemess Creek and Kemess Lake, Waste Rock Creek, Attichika Creek, Thutade Lake, and Finlay River.	14	14.4.3.3	-	
		This section will describe the approach and methods used, and baseline results for key parameters, including:	14	14.4.3.2, 14.4.3.3	-	
		• physical limnology (temperature and light penetration), where available	14	14.4.3.2, 14.4.3.3	11-C, 11-E 14-A	
		• sediment quality (particle size, organic carbon, and total metal concentrations	14	14.4.3.2, 14.4.3.3	11-E 14-A, 14-C	
		• stream periphyton community (taxon richness, relative abundance, and biomass as chlorophyll *a*)	14	14.4.3.2, 14.4.3.3	11-E 14-A, 14-C	
		• stream benthic invertebrate community (taxon richness, relative abundance, and diversity)	14	14.4.3.2, 14.4.3.3	11-E 14-A, 14-C	
		• lake phytoplankton community (taxon richness, density, relative abundance, diversity and biomass as chlorophyll *a*)	14	14.4.3.2, 14.4.3.3	11-C, 11-E 14-A	
		• lake benthic invertebrate community (taxon richness, density, relative abundance, and diversity)	14	14.4.3.2, 14.4.3.3	11-C 14-A	
		• lake zooplankton community (taxon richness, density, relative abundance, and diversity)	14	14.4.3.2, 14.4.3.3	11-C 14-A	

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6.6 Fish and Aquatic Habitat *(cont'd)*	*6.6.3.2 Current Conditions (cont'd)*	The Application will summarize the current conditions for key fish species within the Project area, including but not limited to Attycelley Creek downstream of the mine site, Kemess Lake and Attichika Creek. Current conditions summarized will include:	14	14.4.3.3	14-A, 14-B. 14-C, 14-D	
		• fish species composition	14	14.4.3.3	14-A, 14-B. 14-C, 14-D	
		• relative abundance and distribution	14	14.4.3.3	14-A, 14-B. 14-C, 14-D	
		• descriptions of habitat use, life history characteristics, seasonal movements, and metal burdens	14	14.4.3.3	14-A, 14-B. 14-C, 14-D	
		The Application will:				
		• identify if any aquatic species listed under SARA (2002c) are located in the Project area	14	14.2; Table 14.2-1		
		• provide data summaries that characterize spatial and temporal variations	14	14.4.3.2, 14.4.3.3	11-C, 11-E 14-A, 14-B, 14-C, 14-D	
		• provide processed raw data for sediment and tissue quality baseline and predictions as applicable	-	-	11-C, 11-E 14-A, 14-B, 14-C, 14-D	
		• provide a map of regional and site-specific fish and aquatic habitat monitoring locations	14	14.3.2.1, 14.4.3.2, 14.4.3.3	11-C 14-A, 14-B, 14-C	
		• indicate the sources of the baseline data, including the time frame and data collection methods	14	14.4.3.1, 14.4.3.2	11-C 14-A, 14-B, 14-C, 14-D	
		• identify location, frequency, duration and magnitude of applicable standard or environmental quality guideline exceedances	14	14.4.3.3	11-C 14-A, 14-B, 14-C	
		• identify and discuss data gaps and uncertainties	14	14.4.3.1, 14.4.3.2, 14.5.3, 14.6.1	14-A	
		• demonstrate that the baseline aquatic life monitoring program is sufficiently robust to assess future monitoring in detecting a biologically significant predetermined change	14	14.4.3	11-C, 11-E 14-A, 14-B, 14-C, 14-D	
		The Application will describe any available traditional ecological or local knowledge related to fish and aquatic habitat.	14	14.3.1.1, 14.3.1.2, 14.4.3.1, 14.4.3.2, 14.4.3.3, 14.5.3	14-A	
		The Application will use any relevant documents produced for the proposed Kemess North project, KS baseline data and publicly available studies for other projects in northwest BC.	14	14.4.3.1, 14.4.3.2, 14.4.3.3	14-A, 14-B	
	6.6.4 Effects Assessment and Mitigation *6.6.4.1 Screening and Analyzing Potential Effects*	The Application will describe the analysis methodology and standards used to determine the potential effects on the Fish and Aquatic Habitat VCs during each phase of the proposed Project.	14	14.5.1, 14.5.2	-	
		The Application will also identify data gaps and uncertainties.	14	14.4.3.1, 14.5.3, 14.6.1	-	
		The Application will develop conceptual models or frameworks to describe the contaminant transport linking sources to receptors and ensure changes to aquatic resources at species, community and ecosystem levels are assessed as appropriate.	14	14.5.1, 14.5.2	-	
		The following potential effects will be assessed:				
		• direct fish habitat effects due to the mine footprint	14	14.5.1, 14.5.2	-	
		• direct (lethal) and indirect (sub-lethal) effects on fish due to mine development	14	14.5.1, 14.5.2	-	
		• bioaccumulation effects and nutrient enrichment effects in the aquatic environment	14	14.5.1, 14.5.2	-	
		• effects from effluents, seepages and contaminants in sediments that can cause acute and/or chronic toxicity	14	14.5.1, 14.5.2	-	
		• changes in water quantity on fish and aquatic habitat downstream of the mine development	14	14.5.1, 14.5.2	-	

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6.6 Fish and Aquatic Habitat *(cont'd)*	*6.6.4.1 Screening and Analyzing Potential Effects (cont'd)*	• changes in water quality (i.e., suspended solids, metals, and nutrients) and sediment quality (i.e., metals) on fish and aquatic habitat downstream of potential discharges	14	14.5.1, 14.5.2	-	
		• changes in water quality (i.e., major ion concentrations) on fish and aquatic habitat of both controlled and uncontrolled discharge, site runoff, and seepage influenced by the Project through mechanisms such as tailings and sewage discharge, geochemistry, blasting residues, and erosion	14	14.5.1, 14.5.2	-	
		The identification of potential effects will be guided by results from the water quality and water quantity modelling.	14	14.5.1, 14.5.2, 14.6.1	-	
		Potential linkages with other VCs (e.g., water quality, water quantity, wildlife) will be identified.	14	14.5.1, 14.5.2	-	
	6.6.4.2 Mitigation Measures	The Application will identify mitigation measures, including associated management plans, as needed, that will avoid, reduce or minimize effects on fish and aquatic habitat VCs.	14 24	14.5.3 24.7	-	
		Information provided by Aboriginal groups will be incorporated into the mitigation and management plans.	14	14.5.3	-	
		The Application will also include a discussion of applicable Project design changes and assessment of the effectiveness of mitigation measures.	14	14.5.3	-	
		If necessary, a fisheries offsetting plan will be developed that meets DFO's *Fisheries Protection Policy Statement* (2013).	14	14.5.3.1, 14.5.3.5	-	
		Fisheries offsetting alternatives will be developed that are consistent with regional fisheries management objectives and DFO's preference hierarchy.	14	14.5.3.1, 14.5.3.5	-	
	6.6.4.3 Characterization of Residual Effects, Likelihood, Significance and Confidence	The Application will characterize the residual effects of the Project for each fish and aquatic habitat VCs.	14	14.6	-	
		With reference to Section 5.5.3, the Application will identify, assess and characterize residual effects of the Project using the following criteria: magnitude, geographic extent, duration, frequency, reversibility, and context.	14	14.6	-	
		The likelihood of residual effects occurring will be evaluated, significance determined, and the confidence in the conclusions of the EA will be presented in the Application.	14	14.6	-	
	6.6.5 Cumulative Effects Assessment	With reference to Section 5.6, the Application will identify past, present and future projects and activities that may cumulatively interact with residual effects on fish and aquatic habitat VCs.	14	14.7.1.3	-	
		Residual cumulative effects will be described and their significance will be assessed.	14	14.7.2	-	
	6.6.6 Summary	A summary of the Project phase, mitigation measures, residual project effects, significance evaluation and cumulative residual effects on fish and aquatic habitat will be provided in the Application.	14	14.6.2, 14.8	-	
		This information will also be provided in a summary table.	14	14.6.2, 14.8; Table 14.8-1	-	
6.7 Wildlife	6.7.1 Regulatory and Policy Context	The Application will identify and describe provincial and federal legislation, policies, best management practices and guidance documents related to wildlife.	15	15.2.1	15-A	
		Wildlife will be assessed using guidance such as but not limited to, the following documents and legislation:	15	15.2	15-A	
		• BC *Forest and Range Practices Act* (2002b)	15	15.2.1, 15.2.3	15-A	
		• Recovery Strategy for the Woodland Caribou, Southern Mountain population (*Rangifer tarandus* caribou) in Canada (Environment Canada 2014)	15	15.2.2, 15.6.2	15-A, 15-C	Mitigation consistent with the Recovery Strategy in Appendix 15-C is outlined in section 4.2.
		• Best Management Practices for Raptor Conservation during Urban and Rural Land Development in BC (BC MOE 2013)	15	15.2.1	15-A	
		• British Columbia Wildlife Habitat Rating Standards (RISC 1999)	15	15.2.2, 15.4.2.3, 15.4.3	15-B	

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6.7 Wildlife *(cont'd)*	6.7.1 Regulatory and Policy Context *(cont'd)*	• Management Plan for the Mountain Goat (*Oreamnos americanus*) in British Columbia (BC MOE 2010a)	15	15.2.2, 15.6.4	-	
		• Mackenzie LRMP (BC ILMB 2000)	15	15.2.2	15-A	
		• Best Management Practices for Amphibians and Reptiles in Urban and Rural Environments in British Columbia (BC MWLAP 2004a)	15	15.2.1	15-A	
		• Environmental Mitigation Policy for British Columbia (May 2014)	15	15.2.2, 15.5.3.1	-	
		• Migratory Birds Environmental Assessment Guideline (Milko 1998a)	15	15.2.1	15-A	
		• *Species at Risk Act* (2002c)	15	15.2.1	15-A	
		• Canadian Biodiversity Strategy (Environment Canada 1995)	15	15.2.2	-	
		• BC *Wildlife Act* (1996j)	15	15.2.1	15-A	
		• British Columbia Grizzly Bear Conservation Strategy (BC MOE 1995)	15	15.2.2, 15.4.3.4, 15.6.5	-	
		• *Migratory Birds Convention Act* (1994)	15	15.2.1	15-A	
		• Furbearer Management Guidelines - Wolverine *Gulo gulo* (Hatler 2003)	15	15.2.2, 15.4.3.5	-	
	6.7.2 Scoping the Effects Assessment *6.7.2.1 Selecting Valued Components*	With reference to Section 5.3.1, the Application will describe the rationale for selecting and assessing the Wildlife VCs. The wildlife VCs are:	15	15.3.1	-	
		• woodland caribou	15	15.3.1	-	
		• moose	15	15.3.1	-	
		• grizzly bear	15	15.3.1	-	
		• hoary marmot	15	15.3.1	-	
		• furbearers (using American marten and wolverine as the representative species	15	15.3.1	-	
		• mountain goat	15	15.3.1	-	
		• migratory landbirds	15	15.3.1	-	
		• migratory waterbirds	15	15.3.1	-	
		• raptors	15	15.3.1	-	
		• bats	15	15.3.1	-	
		• western toad	15	15.3.1	-	
		The rationale for choosing the corresponding indicators will also be presented in the Application. Indicators for the wildlife VCs include changes in: • habitat (loss or alteration); • sensory disturbance; • disruption of movement; • direct mortality; • indirect mortality; • attractants; and • chemical hazards	15	15.5.1	-	
	6.7.2.2 Defining Assessment Boundaries	With reference to Section 5.3.2, the Application will identify the Wildlife VCs local and regional study area boundaries for the assessment, including applicable buffers used to support the effects assessment, and rationalization for why the boundary was selected. Study area boundaries are identified in Figure 6.7-1 of the AIR.	15	15.3.2	15-A	

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6.7 Wildlife *(cont'd)*	*6.7.2.2 Defining Assessment Boundaries (cont'd)*	The Application will identify and describe the rationale for the temporal boundaries related to the assessment of Wildlife VCs.	15	15.3.2.2	-	
		Administrative or technical boundaries that are relevant to the effects assessment of the VC will be described. If there are no technical or administrative boundaries, this will be stated.	15	15.3.2.3	-	
	6.7.3 Project Setting *6.7.3.1 Regional and Historical Setting*	The Application will provide regional and historical project setting for wildlife VCs.	15	15.4.1	-	
	6.7.3.2 Current Conditions	The Application will describe current conditions for wildlife VCs and their associated habitats in the local and regional study areas, where data are available.	15	15.4.3, 15.4.4, 15.4.5	15-A 15-B	
		The limitations and assumptions will be described.	15	15.4.2.2	15-A, 15-B	Limitations and assumptions in Appendix 15-A are in the following sections; 2.7, 3.7, 4.7, 5.7, 6.7, 7.7, 8.7, 9.7, 10.7, 11.7, and 12.7. Limitations in Appendix 15-B are included in section 2.2. Habitat rating assumptions are specified for species in Appendices 1-7 of 15-B.
		The Application will include a description of wildlife VC that occur in the area with a specific focus on species of conservation concern (e.g., species covered by SARA, COSEWIC, or BC provincial red- and blue-Lists (BC Species and Ecosystems Explorer) and species of importance to local and Aboriginal communities.	15	15.4.3, 15.4.4, 15.4.5	15-A	
		The Application will describe seasonal distribution from the baseline work conducted between 2003 and 2014.	15	15.4.3, 15.4.4, 15.4.5	15-A	
		Habitat characterization will be guided by terrestrial ecosystem mapping and/or other available vegetation mapping products.	15	15.4.2.3	15-B	
		The Application will include available traditional ecological or community knowledge related to wildlife and wildlife habitat.	15 20	15.4.3, 15.4.4, 15.4.5	15-A 20-A	
		The Application will use regional studies, and relevant documents produced for the Kemess North project and publicly available literature for other projects in northwest BC, as well as KS baseline data.	15	15.4.3, 15.4.4, 15.4.5	15-A	
	6.7.4 Effects Assessment and Mitigation *6.7.4.1 Screening and Analyzing Potential Effects*	The Application will identify and analyze potential effects on wildlife VCs during each Project phase.	15	15.5	-	
		The Application will describe the methodology and standards used to determine the effects of the proposed Project on wildlife VCs.	15	15.5.2 15.6.1	-	
		For each wildlife VC, the Application will identify potential direct and indirect effects on both wildlife species and their habitats resulting from the Project, including consideration of:	15	15.6.2 - 15.6.12	-	

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	
6.7 Wildlife *(cont'd)*	*6.7.4.1 Screening and Analyzing Potential Effects (cont'd)*	• direct habitat loss or alteration for wildlife VCs using the results of habitat suitability modelling, where available (changes in habitat – loss or alteration)	15	15.6.2.1, 15.6.3.1, 15.6.4.1, 15.6.5.1, 15.6.6.1, 15.6.7.1, 15.6.8.1, 15.6.9.1, 15.6.10.1, 15.6.11.1, 15.6.12.1	-	
		• direct habitat loss or alteration for wildlife VCs using existing Wildlife Habitat Areas (WHAs) and Ungulate Winter Ranges (UWRs) as defined under the *Forest and Range Practices Act* (changes in habitat – loss or alteration)	15	15.6.4.1	-	
		• disturbance to wildlife populations or avoidance of important wildlife habitats because of noise, increased human presence, access, development activities, or other activities (changes in sensory disturbance and disruption of movement)	15	15.6.2.2, 15.6.2.3, 15.6.3.2, 15.6.3.3, 15.6.4.2, 15.6.4.3, 15.6.5.2, 15.6.5.3, 15.6.6.2, 15.6.6.3, 15.6.8.2, 15.6.9.2, 15.6.10.2, 15.6.11.2, 15.6.12, 15.6.12.2	-	
		• increased predator access due to development activities (changes in indirect mortality)	15	15.6.3.4, 15.6.4.5, 15.6.6.4	-	
		• direct and indirect wildlife mortality. Potential sources of mortality may include clearing activities, machinery, vehicle traffic, transmission line structures, increased hunting pressure, or increased potential for wildlife-human conflicts (changes in direct and indirect mortality)	15	15.6.3.4, 15.6.4.4, 15.6.4.5, 15.6.5.4, 15.6.6.4, 15.6.7.2, 15.6.8.3, 15.6.9.3, 15.6.10.3, 15.6.11.3, 15.6.12.3	-	
		• health risk to wildlife from access or exposure to elevated metal concentrations (changes in chemical hazards)	15	15.5.2.2, 15.5.2.3, 15.6.2.4, 15.6.3.6, 15.6.5.6, 15.6.6.6, 15.6.9.5, 15.6.10.4, 15.6.12.5	-	
		In particular, any potential for change to a listed species, its habitat or the residences of individuals of that species (as defined in SARA, COSEWIC, or BC provincial red- and blue-Lists (BC Species and Ecosystems Explorer)) will be discussed.	15	15.6.2, 15.6.5, 15.6.6, 15.6.8, 15.6.9, 15.6.10, 15.6.11, 15.6.12	-	
		The Application will consider the results of the noise modeling, air quality modelling, water quality modeling, and vegetation assessments when evaluating effects on wildlife VCs.	15	15.6.2.2, 15.6.3.2, 15.6.4.2, 15.6.5.2, 15.6.6.2, 15.6.8.2, 15.6.9.2, 15.6.10.2, 15.6.11.2, 15.5.2.2, 15.5.2, 15.6.2.4, 15.6.3.6, 15.6.9.5, 15.6.10.4, 15.6.12.5, 15.4.2.3, 15.8	-	
		Potential direct and indirect effects to wildlife related to Project traffic and year round maintenance (including snow clearing) on the Omineca Resource Access Road will be qualitatively assessed for the upper portion of the road where AuRico is the sole industrial user.	15	15.6.2, 15.6.3.2, 15.6.4.2, 15.6.5.3, 15.6.5.4, 15.6.6.4	15-C	
		If water quality modelling results indicate that thresholds for wildlife are exceeded as a result of Project-related effects, the relevant COPC will be evaluated for its potential risk to wildlife health.	15	15.5.2, 15.6.2.4, 15.6.3.6, 15.6.9.5, 15.6.10.4, 15.6.12.5	-	
		For this purpose, relevant thresholds to be considered will include wildlife guidelines (where available), aquatic life guidelines (for wildlife with a predominantly aquatic life history) where wildlife guidelines are not available, or drinking water guidelines for livestock (for all other species).	15	15.5.2.1	-	
		For bioaccumulative COPCs (mercury and selenium), exceedances of tissue residue guidelines in fish for consumption by wildlife (based on predicted fish concentrations) will be considered similarly.	15	15.5.2.1	-	
		If any bioaccumulative COPCs are identified as exceeding guideline thresholds and baseline conditions, a literature search will be conducted regarding the risk of this COPC, such as the risk of trophic transfers, for VCs as well as other susceptible species, e.g. otter.	15	15.5.2.2	-	

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6.7 Wildlife *(cont'd)*	*6.7.4.1 Screening and Analyzing Potential Effects (cont'd)*	Any limitations and assumptions when screening and analyzing potential effects on VCs will be clearly identified in the Application.	15	15.5.2.1, 15.6.1	15-C	Assumptions related to the assessment in Appendix 15-C are listed in Section 5.1.
	6.7.4.2 Mitigation Measures	The Application will identify mitigation measures, including associated management plans, as needed, that will avoid, reduce or minimize effects on wildlife VCs.	15 24	15.5.3, 15.6.13 24.19	15-C	
		Information provided by Aboriginal groups will be incorporated into the mitigation and management plans.	15 24	15.5.3.1 24.19	-	
		The proposed mitigation and management measures will be consistent with regional land management plans, recovery strategy planning for the region, and federal recovery strategies, if available.	15	15.5.3.1	15-C	
		The Application will use the Environmental Mitigation Policy of British Columbia (May 2013) to assess potential offset measures for identified significant adverse environmental effects.	-	-	-	No significant adverse environmental effects were identified.
		The Application will also include a discussion of applicable Project design changes and assessment of the effectiveness of mitigation measures.	15	15.5.3.1, 15.5.3.3	-	
	6.7.4.3 Characterization of Residual Effects, Likelihood, Significance and Confidence	The Application will characterize the residual effects of the Project on wildlife VCs.	15	15.6.2.3, 15.6.3.3, 15.6.5.3, 15.6.5.5, 15.6.6.3, 15.6.6.5, 15.6.7.1, 15.6.7.2, 15.6.11.1, 15.6.11.2, 15.6.12.2, 15.6.13	-	
		With reference to Section 5.5.3, the Application will identify, assess and characterize residual effects of the Project using the following criteria: magnitude, geographic extent, duration, frequency, reversibility, and context.	15	15.6.2.3, 15.6.3.3, 15.6.5.3, 15.6.5.5, 15.6.6.3, 15.6.6.5, 15.6.7.1, 15.6.7.2, 15.6.11.1, 15.6.11.2, 15.6.12.2, 15.6.13	-	
		The likelihood of residual effects occurring will be evaluated, significance determined, and the confidence in the conclusions of the EA will be presented in the Application.	15	15.6.2.3, 15.6.3.3, 15.6.5.3, 15.6.5.5, 15.6.6.3, 15.6.6.5, 15.6.7.1, 15.6.7.2, 15.6.11.1, 15.6.11.2, 15.6.12.2, 15.6.13	-	
	6.7.5 Cumulative Effects	With reference to Section 5.6, the Application will identify past, present and future projects and activities that may cumulatively interact with residual effects on the wildlife VCs.	15	15.7.1.3	15-C	
		Cumulative residual effects will be described and their significance will be assessed.	15	15.8	15-C	
	6.7.6 Summary	A summary of the Project phase, mitigation measures, residual project effects, significance evaluation and cumulative residual effects on wildlife VCs will be provided in the Application.	15	15.6.13, 15.8.7, 15.9	-	
		This information will also be provided in a summary table.	15	15.9; Table 15.9-1	-	
6.8 Economic Effects Assessment	6.8.1 Regulatory and Policy Context	The Application will identify and describe provincial and federal legislation, policies, best management practices and guidance documents related to economic development. These will include:	16	16.2; Table 16.2-1	-	
		• *Local Government Act* (1996)	16	16.2; Table 16.2-1	-	
		• *Indian Act* (1985)	16	16.2; Table 16.2-1	-	
		• BC Jobs Plan (2011)	16	16.2; Table 16.2-1	-	
		• BC Mineral Exploration and Mining Strategy (2012)	16	16.2; Table 16.2-1	-	
		• Mackenzie Land and Resource Management Plan (2000)	16	16.2; Table 16.2-1	-	
		• Canada's Economic Action Plan (2012, 2013)	16	16.2; Table 16.2-1	-	

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	Comments
6.8 Economic Effects Assessment *(cont'd)*	6.8.2 Scoping the Effects Assessment *6.8.2.1 Selecting Valued Components*	With reference to Section 5.3.1, the Application will summarize the rationale for selecting and assessing the economic VCs:	16	16.3.1.1, 16.3.1.2; Tables 16.3-1, 16.3-2	-	
		• Aboriginal labour market conditions	16	16.3.1.2; Table 16.3-2	-	
		• Non-Aboriginal labour market conditions	16	16.3.1.2; Table 16.3-2	-	
		The rationale for choosing the corresponding indicators will also be presented in the Application. Indicators for the economic VCs include changes in: • unemployment and labour force participation rates; • number of individuals hired from communities; • competition for skilled labour; and • average wages in communities.	16	16.3.1.2, 16.5.1, 16.5.1.1, 16.5.1.2, 16.5.2, 16.5.2.1, 16.5.2.2; Table 16.3-2	-	
	6.8.2.2 Defining Assessment Boundaries	With reference to Section 5.3.2, the Application will identify the socio-economic RSA and Potentially Affected Communities (PACs) for the assessment, and provide rationale justifying why the RSA and PACs were selected (Figure 6.8-1 of the AIR).	16	16.3.2.1; Table 16.3-3	-	
		The social and economic effects of the Project pertain to the same RSA and PACs.	16 17	16.3.2.1 17.3.2.1	-	
		Regional Districts within the RSA include Fraser-Fort George, Peace River, Bulkley-Nechako, and Kitimat-Stikine. PACs include the Aboriginal communities of the Takla Lake First Nation (Takla Landing), Kwadacha Nation (Kwadacha) and Tsay Keh Dene Nation (Tsay Keh) as well as the municipalities of Mackenzie, Prince George, Smithers, and Terrace.	16	16.3.2.1; Table 16.3-3	-	
		The Application will identify and describe the rationale for the temporal boundaries related to the assessment of economic effects.	16	16.3.2.2; Table 16.3-4	-	
		Administrative or technical boundaries that are relevant to the effects assessment of the VC will be described. If there are no technical or administrative boundaries, this will be stated.	16	16.3.2.3	-	
	6.8.3 Project Setting *6.8.3.1 Regional and Historical Setting*	The Application will describe the economic regional and historical setting of the Project for the RSA and PACs (where data is available) including:	16	16.4.1	16-A	
		• population trends and demographic characteristics, including the active labour force (a more detailed account of population demography to be provided in the social effects assessment)	16	16.4.3.1, 16.4.3.2, 16.4.3.3	16-A	
		• local and regional economic characteristics described in terms of labour force capacity, employment, income, and business activities, specifically:	16	16.4.3.3, 16.4.3.4, 16.4.3.5	16-A	
		– provincial and regional labour supply and demand by job sector and category	16	16.4.3.3, 16.4.3.5	16-A	
		– key economic sectors, industries, and trends	16	16.4.3.5	16-A	
		Information and trends will be based on federal and provincial data including:	16	16.4.2	-	
		• Statistics Canada and BC Stats data (community profiles, Aboriginal population profiles and economic reports)	16	16.4.2,	-	
		• regional and local government economic planning information	16	16.4.2,	16-A (Section 4.2)	
		Where available, data from recent years (e.g. 2014, 2015) will be used.	16	16.4.2,	-	
	6.8.3.2 Current Conditions	The Application will describe current conditions for the economic VCs, based on:	16	16.4.3	-	
		• publicly available information including census statistics and provincial/regional economic reports	16	16.4.2.1, 16.4.2.2	-	

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6.8 Economic Effects Assessment *(cont'd)*	*6.8.3.2 Current Conditions (cont'd)*	• interviews with local and regional informants, where relevant, to gather information on local and regional socio-economic conditions. Potential informants may include (but may not be limited to) local government and service providers, including those related to economic development, employment and training	16	16.4.2.1, 16.4.2.2	16-A	
		• publicly available associated documents produced for the proposed Kemess North project, KS data and for other projects in northwest BC	16	16.4.2.1, 16.4.2.2	16-A	
		• documents and information made available by Aboriginal groups that characterize the local economy and employment conditions	16	16.4.2.1, 16.4.2.2	-	
	6.8.4 Effects Assessment and Mitigation *6.8.4.1 Screening and Analyzing Potential Effects*	The Application will identify and analyze potential effects on labour market conditions, including projected number of employees expected to be hired for the Project, including potential labour sources, changes in labour supply and demand within PACs and Aboriginal communities, during the Construction, Operations, Closure and Post-Closure phase; and potential competition for skilled workers.	16	16.5.1, 16.5.2	-	
		The Application will describe the methodology used to determine the effects of the proposed Project on Aboriginal and non-Aboriginal labour market conditions.	16	16.5.1, 16.5.2	-	
		Potential effects will be considered for all phases of the Project, including potential adverse effects related to mine closure.	16	16.5.1, 16.5.2	-	
	6.8.4.2 Mitigation Measures	The Application will identify mitigation measures including associated management plans, as needed, that will avoid, reduce or minimize adverse effects on labour market conditions. Information provided by Aboriginal groups will be incorporated into the mitigation and management plans.	16	16.5.3.1; Table 16.5-5	-	
		The Application will also include a discussion of applicable Project design changes and assessment of the effectiveness of mitigation measures.	16	16.5.3.2; Table 16.5-5	-	
	6.8.4.3 Characterization of Residual Effects, Likelihood, Significance and Confidence	The Application will compare the proposed Project's labour requirements with the baseline labour supply to characterize the residual effects of the Project on the VCs (Aboriginal and non-Aboriginal labour market conditions).	16	16.5.2.1, 16.5.2.2, 16.5.3, 16.6.1.1 - 16.6.2.2; Tables 16.6-1, 16.6-2, 16.6-3	-	
		With reference to Section 5.5.3, the Application will identify, assess and characterize residual effects of the Project using the following criteria: magnitude, geographic extent, duration, frequency, reversibility, and context.	16	16.6.1.1, 16.6.1.2, 16.6.2.1, 16.6.2.2; Tables 16.6-1, 16.6-2, 16.6-3	-	
		The likelihood of residual effects occurring will be evaluated and significance determined for each VC.	16	16.6.1.1, 16.6.1.2, 16.6.2.1, 16.6.2.2; Tables 16.6-1, 16.6-2, 16.6-3	-	
		A rating of the confidence in the conclusions of the EA will also be presented in the Application.	16	16.6.1.1, 16.6.1.2, 16.6.2.1, 16.6.2.2; Tables 16.6-1, 16.6-2, 16.6-3	-	
	6.8.5 Cumulative Effects Assessment	With reference to Section 5.6, the Application will identify past, present and future projects and activities that may cumulatively interact with residual effects on Aboriginal and non-Aboriginal labour market conditions.	16	16.7.1.3; Figure 16.7-1	-	
		Cumulative residual effects will be described and their significance will be assessed.	16	16.8; Table 16.8-1	-	
	6.8.6 Summary	A summary of the Project phase, mitigation measures, residual project effects, significance evaluation and cumulative residual effects on economic VCs will be provided in the Application. Requirements to describe Project Benefits are discussed in Section 2.5.	16	16.9	-	
		This information will also be provided in a summary table.	16	16.9; Table 16.9-1	-	

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	
6.9 Social Effects Assessment	6.9.1 Regulatory and Policy Context	The Application will identify and describe provincial and federal legislation, policies, best management practices and guidance documents related to community well-being. These will include the Mackenzie Land and Resource Management Plan (2000).	16 17	16.2; Table 16.2-1 17.2	-	
	6.9.2 Scoping the Effects Assessment *6.9.2.1 Selecting Valued Components*	With reference to Section 5.3, the Application will describe the rationale for selecting and assessing the Social VCs. Social VCs include:	17	17.3.1.1, 17.3.1.2; Tables 17.3-1, 17.3-2	-	
		• community well-being;	17	17.3.1.2; Tables 17.3-1, 17.3-2	-	
		• Aboriginal community well-being	17	17.3.1.2; Tables 17.3-1, 17.3-2	-	
		The rationale for choosing the corresponding indicators will also be presented in the Application. Indicators for the social VCs include changes in: • number of people hired from PACs; • number of people/families using social support services; and • current capacity of health and social service providers.	17	17.3.1.2, 17.4.4.12, 17.4.4-9	-	
	6.9.2.2 Defining Assessment Boundaries	With reference to Section 5.3.2, the Application will identify the socio-economic RSA and PACs selected for assessing effects on the social VCs and provide rationale justifying why these boundaries were selected (Figure 6.8-1 of the AIR).	17	17.3.2.1	-	
		The assessment boundaries for the social and economic VCs are the same and include a RSA and PACs (Section 6.8.2 of the AIR).	16 17	16.3.2 17.3.2	-	
		The Application will identify and describe the rationale for the temporal boundaries related to the assessment of social effects.	17	17.3.2.2; Table 17.3-3	-	
		Administrative or technical boundaries that are relevant to the effects assessment of the VC will be described. If there are no technical or administrative boundaries, this will be stated.	17	17.3.2.3	-	
	6.9.3 Project Setting *6.9.3.1 Regional and Historical Setting*	The Application will describe the regional and historical setting of the Project area, for both Aboriginal and non-Aboriginal communities, including information relating to:	17	17.4	-	
		• population, demographics including age and gender distribution, and other characteristics of local, regional populations	17	17.4.4.2	16-A	
		• educational levels and skills	17	17.4.4.4, 17.4.4.5	16-A	
		• regional and local education and training resources, program, and facilities	17	17.4.4.3	16-A	
		• community and regional infrastructure and services (e.g., social, housing, emergency response, health, transportation)	17	17.4.4.7, 17.4.4.9, 17.4.4.10	16-A	
		• community well-being (e.g., health and social trends)	17	17.4.4.8, 17.4.4.12	16-A	
	6.9.3.2 Current Conditions	The Application will describe current conditions for social VCs and will identify the methodology used to collect information for the effects assessment.	17	17.4.2.2, 17.4.4.1 – 17.4.4.13	-	
		Analysis and trends will be based on the most up-to-date federal, provincial, and local data available.	17	17.4.2.1, 17.4.2.2, 17.5.2, 17.5.3	-	
		To support the development of socio-economic baseline documentation, information will be obtained from the following sources, including:	17	17.4.2.1, 17.4.2.2; Table 17.4-1	-	

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6.9 Social Effects Assessment *(cont'd)*	*6.9.3.2 Current Conditions (cont'd)*	• Statistics Canada and BC Stats (community profiles, Aboriginal population profiles and socio-economic reports)	17	17.4.2.1, 17.4.2.2; Table 17.4-1	-	
		• BC Ministry of Health, Ministry of Education and other provincial ministries (community profiles, health and educational services capacity, trends, and issues)	17	17.4.2.1, 17.4.2.2; Table 17.4-1	-	
		• interviews with key informants, for example the Northern Health Authority, government and community representatives, employment and training officers, Aboriginal government or Band Council staff, health and education services representatives, non-governmental organizations, and community-based organizations	17	17.4.2.1, 17.4.2.2; Table 17.4-1	-	
		• relevant reports produced for the proposed Kemess North project and publicly available studies for other projects in northwest BC.	17	17.4.2.1, 17.4.2.2; Table 17.4-1	-	
	6.9.4 Effects Assessment and Mitigation *6.9.4.1 Screening and Analyzing Potential Effects*	The Application will describe the analysis methodology and standards used to determine the effects of the proposed Project on the Social VCs: community well-being and Aboriginal community well-being.	8 17	8.4 17.1, 17.5.1, 17.5.2	-	
		The Application will assess potential effects on social VCs within PACs that may arise as a result of the proposed Project. A discussion of how social VCs may be affected by Project components or activities for each Project phase will be provided in the Application.	17	17.5.1, 17.5.2	-	
	6.9.4.2 Mitigation Measures	The Application will identify mitigation measures, including associated management plans, as needed, that will avoid, reduce or minimize effects on social VCs.	17	17.5.3.1; Table 17.5-3	-	
		Information provided by Aboriginal groups will be incorporated into the mitigation measures.	17	17.5.3.1; Table 17.5-3	-	
		The Application will also include a discussion of applicable Project design changes and assessment of the effectiveness of mitigation measures, where applicable.	17	17.5.3.2; Table 17.5-3	-	
	6.9.4.3 Characterization of Residual Effects, Likelihood, Significance and Confidence	The Application will use the results of the analysis to characterize the residual effects of the Project on social VCs.	17	17.6	-	No residual effects are identified for the social VCs of Community Well-being and Aboriginal Community Well-being
		With reference to Section 5.5.3, the Application will identify, assess and characterize residual effects of the Project using the following criteria: magnitude, geographic extent, duration, frequency, reversibility, and context.	17	17.6	-	No residual effects are identified for the social VCs of Community Well-being and Aboriginal Community Well-being
		The likelihood of residual effects occurring will be evaluated, significance determined, and the confidence in the conclusions of the EA will be presented in the Application.	17	17.6	-	No residual effects are identified for the social VCs of Community Well-being and Aboriginal Community Well-being
	6.9.5 Cumulative Effects Assessment	With reference to Section 5.6, the Application will identify past, present and future projects and activities that may cumulatively interact with residual effects on the social VCs.	17	17.7	-	Cumulative effects are not predicted for the social VCs community well-being and Aboriginal community well-being.
		Cumulative residual effects will be described and their significance will be assessed.	17	17.7	-	Cumulative effects are not predicted for the social VCs community well-being and Aboriginal community well-being.

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6.9 Social Effects Assessment *(cont'd)*	6.9.6 Summary	A summary of the Project phase, mitigation measures, residual project effects, significance evaluation and cumulative residual effects on social VCs will be provided in the Application.	17	17.8	-	
		This information will also be provided in a summary table.	17	17.8; Table 17.8-1	-	
6.10 Human Health Effects Assessment	6.10.1 Rationale and Pathway	The Application will describe baseline conditions in the Project area and their relevance to human health via a baseline human health risk assessment (HHRA), that follows guidance provided by Health Canada (2010a, 2010c, 2011).	18	18.4.3	18-A	
		This includes the assessment of all potential contaminant exposure pathways: air inhalation, drinking water ingestion, country food ingestion, incidental soil ingestion, and dermal exposure to soil.	18	18.4.3	18-A	
		The baseline HHRA will also include the assessment of baseline noise levels in the Project area. While Health Canada (2010c) also recommends the assessment of radiological and EMF effects, those types of exposures are not anticipated for this Project, which is a proposed mine; thus, radiological and EMF effects will not be assessed.	18	18.4.3	18-A	
		A Project-related HHRA will also be conducted, which assesses the worst-case emission years from the Project during the Construction and Operations phases for all human exposure pathways.	18	18.5.2.5	18-B	
		Air quality, water quality, and noise model results (i.e., predicted changes in contaminant/noise levels across the model domain and on key receptors) will be used to support the Project-related HHRA, the effects assessment, and the significance determination for the human health VC.	7 11 18	7.1.6, 7.2.6 11.6.2 18.5.2.5	7-C, 7-D 11-D 18-B	
	6.10.2 Regulatory and Policy Context	The Application will identify and describe provincial and federal legislation, policies, best management practices and guidance documents related to the human health. These will include:	18	18.2; Table 18.2-1	18-A	
		• BC *Environmental Management Act* (2003)	18	18.2; Table 18.2-1	-	
		• Useful Information for Environmental Assessments (Health Canada 2010c)	18	18.2; Table 18.2-1	-	
		• Air Quality Guidelines for the Protection of Human Health and the Environment (CCME 2012a)	18	18.2; Table 18.2-1	-	
		• BC Ambient Air Quality Objectives and Standards (BC MOE 2014a)	18	18.2; Table 18.2-1	-	
		• National Ambient Air Quality Objectives and Canada-wide Standards for Air Pollutants (Health Canada 1998)	18	18.2; Table 18.2-1	-	
		• Guidelines for Community Noise (World Health Organization 1999)	18	18.2; Table 18.2-1	-	
		• Information on levels of environmental noise requisite to protect public health and welfare with an adequate margin of safety (US EPA 1974)	18	18.2; Table 18.2-1	-	
		• BC *Drinking Water Protection Act* (2001)	18	18.2; Table 18.2-1	-	
		• BC Drinking Water Protection Regulation (BC Reg 200/2003)	18	18.2; Table 18.2-1	-	
		• Guidelines for Canadian Drinking Water Quality – Summary Table (Health Canada 2012b)	18	18.2; Table 18.2-1	-	
		• Federal Contaminated Site Risk Assessment in Canada, Supplemental Guidance on Human Health Risk Assessment for Country Foods (Health Canada 2010b)	18	18.4.2.2, 18.5.2.5	-	
		• Federal Contaminated Site Risk Assessment in Canada, Part I: Guidance on Human Health Preliminary Quantitative Risk Assessment (PQRA), Version 2.0 (Health Canada 2010a)	18	18.2	-	
		• Federal Contaminated Site Risk Assessment in Canada, Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical-Specific Factors, Version 2.0 (Health Canada 2010a)	18	18.2; Table 18.2-1	-	

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	
6.10 Human Health Effects Assessment *(cont'd)*	6.10.3 Scoping the Effects Assessment *6.10.3.1 Selecting Valued Components*	With reference to Section 5.3.1, the Application will describe the rationale for selecting and assessing the human health VC.	18	18.3.1; Table 18.3-1	-	
		The rationale for choosing the corresponding indicators will also be presented in the Application. Indicators for the human health VC include changes in: • air quality; • noise levels; • drinking water quality; and • country foods. The interaction between the VCs and predictive studies (e.g., air quality and noise) will be described.	18	18.3.1.1, 18.3.1.2; Tables 18.3-1, 18.3-2, 18.3-3	-	
	6.10.3.2 Defining Assessment Boundaries	With reference to Section 5.3.2, the Application will identify the human health study boundaries selected for the assessment, and provide rationale justifying why the boundaries were selected (Figure 6.10-1 of the AIR).	18	18.3.2.1; Figure 18.3-1	-	
		Any changes to the study areas shown in Figure 6.10-1 will be described and justified in the Application; any reductions in the study areas will be discussed in advance with the EAO.	18	18.3.2.1	-	Boundaries remained the same as those presented in the AIR.
		The Application will identify and describe the rationale for the temporal boundaries related to the assessment of human health.	18	18.3.2.2; Table 18.3-4	-	
		Administrative or technical boundaries that are relevant to the effects assessment of the VC will be described. If there are no technical or administrative boundaries, this will be stated.	18	18.3.2.3	-	
		Air quality and noise modelling will be conducted for the Construction and Operations phases for the Project to capture worst-case scenarios, thus the Project-related HHRA will also focus on these two phases with worst-case emissions.	7 18	7.1.6, 7.2.6 18.5.2.1, 18.5.2.2	7-C, 7-D 18-B	
	6.10.4 Project Setting *6.10.4.1 Regional and Historical Setting*	The Application will describe the regional and historical setting for human health, including air quality and noise levels, drinking water quality and consumption of country foods.	18	18.4.1, 18.4.2	18-A	
	6.10.4.2 Current Conditions	The Application will describe current conditions for human health and will summarize the potential for exposure to contaminants or noise from each of the above exposure pathways from a human health perspective in the baseline HHRA.	18	18.4.3	18-A	
		Data will be derived from literature and existing data sources, as well as baseline environmental studies and available land use surveys and traditional ecological or community knowledge.	18	18.4.2.1, 18.4.3	18-A	
		Food chain modelling will be conducted as part of the baseline HHRA to estimate baseline tissues of country foods, including large and small mammals, based on site-specific metal levels in water, soil, and vegetation.	18	18.4.2.2	18-A, 18-B	
		Relevant documents produced for the Kemess North project, KS and publicly available studies for other projects in northwest BC will be used.	18	18.4.1, 18.4.2	18-A	
	6.10.5 Effects Assessment and Mitigation *6.10.5.1 Screening and Analyzing Potential Effects*	The Application will describe the analysis methodology and standards used to determine the effects of the proposed Project from all exposure pathways on the human health VC.	18	18.5.1; Figure 18.5-1; 18.5.2; Table 18.5-1; 18.5.4	18-B	
		This will be accomplished with a Project-related HHRA that will be compared to the baseline HHRA.	18	18.5.1, 18.5.2, 18.5.4	18-B	
		Potential health risks to the general population and to Aboriginal groups will be discussed as part of the HHRAs.	18	18.5.2.5, 18.5.4	7-C 18-B	

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	Comments
6.10 Human Health Effects Assessment *(cont'd)*	*6.10.5.1 Screening and Analyzing Potential Effects (cont'd)*	The Application will refer to air quality, noise, water quality, and country foods modelling results to examine the potential for the proposed Project to cause increased exposure to human health.	7 11 18	7.1.6, 7.2.6 11.6.2 18.5.2.1, 18.5.2.2, 18.5.2.3, 18.5.2.4	7-C, 7-D 11-D 18-B	
		The information provided in the assessment will include a description of the predictive models used, the inputs, assumptions, and uncertainties.	7 11 18	7.1.6, 7.2.6 11.6.1 18.5.2.1, 18.5.2.2, 18.5.2.3, 18.5.2.4	7-C, 7-D 11-D 18-B	
		The Application will identify the sources of increased noise levels and contaminant concentrations from the Project.	18	18.5.1; Figure 18.5-1; 18.5.2; Table 18.5-1	-	
		The Application will describe the nature and extent of potential increases in noise levels and contaminant concentrations resulting from activities during the Construction and Operations phases of the Project.	18	18.5.1, 18.5.2.1, 18.5.2.2, 18.5.2.3, 18.5.2.4	18-B	
		The Application will provide the following information:				
		• identification of the location of potential human receptors relative to the Project area;	18	18.3.2.1; Figure 18.3-2	18-A	
		• summary of baseline noise levels and contaminant concentration in environmental media in the Project area	18	18.4.3	18-A	
		• description of the methods used to calculate exposure and risk to human receptors in the baseline HHRA (sample calculations will also be provided)	18	18.4.2.1, 18.4.2.2	18-A	
		• identification of potential Project-related noise and contaminant sources during all Project phases	18	18.5.1; Figure 18.5-1; 18.5.2; Table 18.5-1,	-	
		• description of the methods used to calculate the exposure and risk to human receptors in the Project-related HHRA	18	18.5.1, 18.5.2.1 – 18.5.2.5	18-B	
		The assessment will not focus on on-site worker health and safety as the mine will be operated in accordance with the *Health, Safety and Reclamation Code for Mines in British Columbia* (BC MEMPR 2008) and other relevant legislation/regulations. However, off-duty workers will be considered in the Project-related HHRA.	18	18.1, 18.2.1, 18.3.1.2, 18.3.2.1	18-B	
	6.10.5.2 Mitigation Measures	The Application will identify mitigation measures, including associated management plans, as needed, that will avoid, reduce or minimize effects on human health VC.	18	18.5.3.1, 18.5.3.2	-	
		Information provided by Aboriginal groups will be incorporated into the mitigation and management plans.	18	18.5.3.1, 18.5.3.2	-	
		The Application will include a discussion of applicable Project design changes and assessment of the effectiveness of mitigation measures.	18	18.5.3.1, 18.5.3.2, 18.5.3.3	-	
	6.10.5.3 Characterization of Residual Effects, Likelihood, Significance and Confidence	The Application will integrate the results of predictive studies and other information (e.g., water quality predictions, country foods information from the current use of lands and resources for traditional purposes assessment, and locations of human receptors) to characterize the residual effects of the Project on human health.	18	18.5.4, 18.6	-	
		With reference to Section 5.5.3, the Application will identify, assess and characterize residual effects of the Project using the following criteria: magnitude, geographic extent, duration, frequency, reversibility, and context.	18	18.6	-	No residual effects due to the Project were identified for the Human Health VC.
		The likelihood of residual effects occurring will be evaluated, significance determined, and the confidence in the conclusions of the EA will be presented in the Application.	18	18.6	-	No residual effects due to the Project were identified for the Human Health VC.

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	Comments
6.10 Human Health Effects Assessment *(cont'd)*	6.10.6 Cumulative Effects Assessment	With reference to Section 5.6, the Application will identify past, present and future projects and activities that may cumulatively interact with residual effects on the human health VC.	18	18.7	-	No residual effects due to the Project were identified for the Human Health VC. Therefore, no assessment of cumulative effects or a significance determination is required.
		Cumulative residual effects will be described and their significance will be assessed.	18	18.7	-	No residual effects due to the Project were identified for the Human Health VC. Therefore, no assessment of cumulative effects or a significance determination is required.
	6.10.7 Summary	A summary of the Project phase, mitigation measures, residual project effects, significance evaluation and cumulative residual effects on human health VCs will be provided in the Application.	18	18.5.3.1, 18.5.3.2, 18.5.3.3, 18.5.4, 18.6, 18.7, 18.8	-	No residual effects due to the Project were identified for the Human Health VC. Therefore, no assessment of cumulative effects or a significance determination is required.
		This information will also be provided in a summary table.	18	18.7; Table 18.7-1	-	
6.11 Heritage Resources Effects Assessment	6.11.1 Regulatory and Policy Context	The Application will identify and describe provincial and federal legislation, policies, best management practices and guidance documents related to the heritage resources. These will include:	19	19.2; Table 19.2-1	-	
		• BC *Heritage Conservation Act* (1996m);	19	19.2; Table 19.2-1	-	
		• BC Freedom of Information and Protection of Privacy Act (1996b)	19	19.2; Table 19.2-1	-	
		• BC Archaeological Impact Assessment Guidelines (Archaeology Branch 1998)	19	19.2; Table 19.2-1	-	
	6.11.2 Scoping the Effects Assessment *6.11.2.1 Selecting Valued Components*	With reference to Section 5.3.1, the Application will describe the rationale for selecting and assessing the Heritage Resources VCs as regulated under the BC *Heritage Conservation Act* (1996m) and per the requirements under Section 5.1(c)(ii) of CEAA 2012.	19	19.2; 19.3	-	
		As per the "Technical Guidance for Assessing Physical and Cultural Heritage or any Structure, Site or Thing that is of Historical, Archeological, Paleontological or Architectural Significance under the Canadian Environmental Assessment Act, 2012" (2013b), heritage resources VCs will include:	19	19.3.1.2	-	
		• Physical and cultural heritage Resources (including any structure site or thing of historical, archaeological or architectural significance)	19	19.3.1.2	-	
		• Paleontological resources	19	19.3.1.2	-	
		Indicators for the heritage resources VCs include changes (loss, alteration, and/or degradation) of: • physical and cultural heritage resources; and • paleontological resources.	19	19.3.1.2	-	
	6.11.2.2 Defining Assessment Boundaries	With reference to Section 5.3.2, the Application will identify the heritage resources study boundary selected for the assessment, and provide rationale justifying why the boundary was selected.	19	19.3.2.1	-	
		The Application will identify and describe the rationale for the temporal boundaries related to the assessment of heritage resources.	19	19.3.2.2	-	
		Administrative or technical boundaries that are relevant to the effects assessment of the VC will be described. If there are no technical or administrative boundaries, this will be stated	19	19.3.2.3	-	

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	Comments
6.11 Heritage Resources Effects Assessment *(cont'd)*	6.11.3 Project Setting *6.11.3.1 Regional and Historical Setting*	The Application will provide regional and historical project setting for heritage resources VCs, including an overview of heritage resources in the regional area, including the potential for structures, sites or things that are of historical, archaeological, paleontological or architectural significance.	19	19.4.1, 19.4.2	19-A, 19-B, 19-C, 19-D	
	6.11.3.2 Current Conditions	The Application will provide the overview of current conditions for heritage recourses VCs, including:	19	19.4	-	
		• describe the archaeological and heritage studies that have been undertaken to support the proposed Project, including Archaeological Overview Assessment (AOA) and Archaeological Impact Assessment(s) (AIA)	19	19.4.2	-	
		• describe the distribution and density of known archaeological materials and deposits within the proposed Project footprint, making use of traditional ecological or community knowledge included in the TLUS and other available studies	19	19.4.3	-	
		• identify locations of habitations, trails, burial sites, cultural landscapes and other important cultural features	19	19.4	-	
		• identify provincially registered heritage resources within the proposed Project footprint	19	19.4.3	-	
		• describe the methods used to undertake the archaeological baseline program	19	19.4.2.2	-	
		The Application will describe any available traditional ecological or local knowledge relevant to heritage. The Application will use relevant documents produced for the proposed Kemess North project, KS baseline data and publicly available studies for other projects in northwest BC	19	19.4.1	-	
		It is noted that archaeological resources are protected under the BC *Heritage Conservation Act* (1996b), and receive special consideration under the *Freedom of Information and Protection of Privacy Act* in order to prevent vandalism and other unauthorised alterations. The Application will present archaeological information in a manner that is consistent with this legislation.				
	6.11.4 Effects Assessment and Mitigation *6.11.4.1 Screening and Analyzing Potential Effects*	The Application will describe the methodology used to assess the effects of the proposed Project on heritage resources (Archaeology Branch 1998).	19	19.5.2, 19.5.3.1	-	
		An AIA will be included in the Application, as required by BC Archaeology Branch.	-	-	19-B	
		The Application will assess potential effects on archaeological and heritage resources and consider all of the requirements of the BC *Heritage Conservation Act* (1996m).	19	19.5 - 19.8	19-C	
	6.11.4.2 Mitigation Measures	The Application will identify mitigation measures including associated management plans, as needed, that will avoid, reduce or minimize effects on heritage VCs.	19 24	19.5.3.1, 19.5.3.2 24.9	-	
		Information provided by Aboriginal groups will be incorporated into the mitigation and management plans.	19 24	19.5.3.1 24.9	-	
		The Application will also include a discussion of applicable Project design changes and assessment of the effectiveness of mitigation measures.	19 24	19.5.3.3 24.9	-	
	6.11.4.4 Characterization of Residual Effects, Likelihood, Significance and Confidence	The Application will characterize the residual effects of the Project on heritage resources.	19	19.6	-	No residual effects on known and as-yet undiscovered heritage resources are anticipated
		With reference to Section 5.5.3, the Application will identify, assess and characterize residual effects of the Project using the following criteria:	19	19.6	-	No residual effects on known and as-yet undiscovered heritage resources are anticipated

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6.11 Heritage Resources Effects Assessment *(cont'd)*	*6.11.4.4 Characterization of Residual Effects, Likelihood, Significance and Confidence (cont'd)*	• magnitude	19	19.6	-	No residual effects on known and as-yet undiscovered heritage resources are anticipated
		• geographic extent	19	19.6	-	No residual effects on known and as-yet undiscovered heritage resources are anticipated
		• duration	19	19.6	-	No residual effects on known and as-yet undiscovered heritage resources are anticipated
		• frequency	19	19.6	-	No residual effects on known and as-yet undiscovered heritage resources are anticipated
		• reversibility	19	19.6	-	No residual effects on known and as-yet undiscovered heritage resources are anticipated
		• context	19	19.6	-	No residual effects on known and as-yet undiscovered heritage resources are anticipated
		The likelihood of residual effects occurring will be evaluated, significance determined, and the confidence in the conclusions of the EA will be presented in the Application	19	19.6	-	No residual effects on known and as-yet undiscovered heritage resources are anticipated
	6.11.5 Cumulative Effects Assessment	With reference to Section 5.6, the Application will identify past, present and future projects and activities that may cumulatively interact with residual effects on the Heritage Resources VC.	19	19.7	-	No residual effects on heritage resources have been identified so a cumulative effects assessment has not been undertaken.
		Cumulative residual effects will be described and their significance will be assessed.	19	19.7	-	No residual effects on heritage resources have been identified so a cumulative effects assessment has not been undertaken.
	6.11.6 Summary	A summary of the Project phase, mitigation measures, residual project effects, significance evaluation and cumulative residual effects on heritage resource VCs will be provided in the Application.	19	19.8	-	
		This information will also be provided in a summary table.	19	19.5.3.3; Table 19.5-2	-	
6.12 Effects of Changes to the Environment on Aboriginal Peoples	6.12.1 Regulatory and Policy Context	The Application will identify and describe provincial and federal legislation, policies, best management practices, and guidance documents related to CEAA 2012 s. 5(1)(c).	20	20.2.1	-	
	6.12.2 Scoping the Effects Assessment *6.12.2.1 Selecting Valued Components*	With reference to Section 5.3, the Application will describe the rationale for selecting and assessing the VCs related to CEAA 2012 section 5(1)(c).	20	20.3.1	-	
		• health and socio-economic conditions;	20	20.3.1	-	
		• physical and cultural heritage	20	20.3.1	-	
		• current use of lands and resources for traditional purposes	20	20.3.1	-	
		• any structure, site or thing of historical, archaeological, paleontological or architectural significance	20	20.3.1	-	

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6.12 Effects of Changes to the Environment on Aboriginal Peoples *(cont'd)*	*6.12.2.1 Selecting Valued Components (cont'd)*	The rationale for choosing the corresponding indicators will also be presented in the Application. Indicators for the health and socio-economic conditions VC include changes in: • predicted air quality in Aboriginal harvesting areas; • predicted noise levels in Aboriginal harvesting areas; • predicted water quality in Aboriginal harvesting areas • changes in quality (or perceived quality) of country foods. • proportion of households that regularly consume country foods; • proportion of household diet derived from country foods; and • changes in business revenues or employment for land-based businesses.	20	20.3.1, 20.4.1.2, 20.5.1; Tables 20.3-2, 20.5-1	-	
		Indicators for the physical and cultural heritage VC include changes (loss, alteration, and/or degradation) to physical and cultural heritage resources.	20	20.3.1, 20.4.1.3, 20.5.1; Tables 20.3-2, 20.5-1	-	
		Indicators for the current use of lands and resources for traditional purposes VC include changes in: • wildlife, fish and plant resources (as reported for biophysical VCs) available for harvesting; • distribution of wildlife, fish and plant resources (as reported for biophysical VCs) in harvesting areas; • methods and routes of access, frequency and duration of trips, for Aboriginal harvesters' hunting, trapping, fishing, gathering sites, physical objects, and cultural landscapes; • number of access corridors in the RSA (e.g., roads, transmission lines, water lines); • predicted sensory disturbance (e.g. noise, air quality, visual impact) in Aboriginal harvesting areas; and • changes in quality (or perceived quality) of country foods and other harvests.	20	20.3.1, 20.4.1.1, 20.5.1; Tables 20.3-2, 20.5-1	-	
		Indicators for the any structure, site or thing of historical, archaeological, paleontological, or architectural significance VC include loss, alteration, and/or degradation of any structure, site or thing of historical, archaeological, paleontological, or architectural significance.	20	20.3.1, 20.4.1.3, 20.5.1; Tables 20.3-2, 20.5-1	-	
	6.12.2.2 Defining Assessment Boundaries	The assessment will consider the above VCs for all Aboriginal groups identified in the section 11 Order (Schedule B and Schedule C).	20	20.1.1	-	
		With reference to Section 5.3.2, the Application will identify the boundaries of the assessment including local and regional study area and/or PACs, selected for assessing effects on the social VCs and provide rationale justifying why these boundaries were selected.	20	20.3.2.1	-	
		The Application will identify and describe the rationale for the temporal boundaries related to the assessment of social effects. Administrative or technical boundaries that are relevant to the effects assessment of the VC will be described. If there are no technical or administrative boundaries, this will be stated.	20	20.3.2.2, 20.3.2.3	-	
	6.12.3 Project Setting *6.12.3.1 Regional and Historical Setting*	The Application will describe the regional and historical setting of the Project area, including Aboriginal territories, communities, cultural heritage, and historical use of lands and resources, for all Aboriginal groups identified in the section 11 Order (schedules B and C).	20	20.4.1, 20.4.4	17-A 20-A	
	6.12.3.2 Current Conditions	The Application will describe the current conditions, for all Aboriginal groups identified in the section 11 Order (schedules B and C), with respect to:	20	20.4.4	20-A	
		• health conditions	20	20.4.4	-	
		• socio-economic conditions	20	20.4.4	16-A 17-A	

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6.12 Effects of Changes to the Environment on Aboriginal Peoples *(cont'd)*	*6.12.3.2 Current Conditions (cont'd)*	• current use of lands and resources for traditional purposes	20	20.4.4	17-A 20-A	
		• physical and cultural heritage, including any site, structure or thing of historical, archaeological, paleontological or architectural significance	20	20.4.4	20-A	
		Where information is provided to the Proponent or publicly available and not confidential, the Application will describe the Aboriginal groups' use of lands and resources for harvesting, consumption, and/or cultural activities, and related subsistence livelihoods, including:	20	20.4.1, 20.4.4	20-A	
		• fishing activities, including species harvested and locations	20	20.4.4	20-A	
		• hunting activities, including species harvested and locations	20	20.4.4	20-A	
		• trapping activities, including species harvested and locations	20	20.4.4	20-A	
		• gathering activities, including species harvested and locations	20	20.4.4	20-A	
		• use of spiritual, ceremonial and other culturally significant sites	20	20.4.4	20-A	
		To support the development of baseline documentation characterizing the current use of land and resources for traditional purposes, information will be obtained from the following sources (where available):	20	20.4.2	20-A	
		• ethnographic, traditional knowledge and land use reports for each Aboriginal group identified in the section 11 Order (Schedule B and Schedule C)	20	20.4.2.1	20-A	
		• previously developed ethnographic and TLUS reports developed for or by each potentially affected Aboriginal group	20	20.4.2.1	20-A	
		• documentation or other materials (e.g., maps, oral histories) provided by Aboriginal groups	20	20.4.2.1	20-A	
		Where information is available but is confidential, the Proponent will describe the efforts undertaken to collect information, describe the type of information that was requested and, in its absence, will necessarily have to make a general assessment of current use of lands and resources for traditional purposes	20	20.4.2.3	20-A	
	6.12.4 Effects Assessment and Mitigation *6.12.4.1 Screening and Analyzing Potential Effects*	The Application will describe the analysis methodology and standards used to determine the effects of changes to the environment caused by the Project on Aboriginal peoples.	20	20.5.1 20.5.2	-	
		The Application will assess potential effects of changes to the environment caused by the Project on Aboriginal peoples, including potential effects on health conditions; socio-economic conditions; current use of lands and resources for traditional purposes; and physical and cultural heritage.	20	20.6.1 20.7.1 20.8.1	-	
		The assessments of effects related to air quality, water quality, noise, vegetation resources, wildlife resources, fisheries resources, heritage, and human health will be considered with respect to how changes to these components could affect Aboriginal peoples.	20	20.6.1 20.7.1 20.8.1	-	
	6.12.4.2 Mitigation Measures	The Application will identify mitigation measures including associated management plans, as needed, that will avoid, reduce, or minimize effects of changes in the environment on Aboriginal peoples	20	20.6.2 20.7.2 20.8.2	-	
	6.12.4.3 Characterization of Residual Effects, Likelihood, Significance and Confidence	The Application will use the results of the analysis to characterize the residual effects of changes in the environment caused by the Project on Aboriginal peoples.	20	20.6.3 20.7.3 20.8.3 20.9	-	

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AIR Section	AIR Subsection	Information Requirement	Application Chapter	Application Section	Appendix	Comments
6.12 Effects of Changes to the Environment on Aboriginal Peoples *(cont'd)*	*6.12.4.3 Characterization of Residual Effects, Likelihood, Significance and Confidence (cont'd)*	With reference to Section 5.5.3, the Application will identify, assess and characterize residual effects of the Project using the following criteria: magnitude, geographic extent, duration, frequency, reversibility, and context.	20	20.6.3; Table 20.6-3	-	
		The likelihood of residual effects occurring will be evaluated, significance determined, and the confidence in the conclusions of the EA will be presented in the Application.	20	20.6.3	-	
	6.12.5 Cumulative Effects Assessment	With reference to Section 5.6, the Application will identify past, present and future projects and activities that may cumulatively interact with residual effects of environmental changes on Aboriginal peoples. Cumulative residual effects will be described and their significance will be assessed.	20	20.10.2, 20.10.3	-	
	6.12.6 Summary	A summary of the Project phase, mitigation measures, residual project effects, significance evaluation and cumulative residual effects of changes in the environment on Aboriginal peoples will be provided in the Application.	20	20.11	-	
		This information will also be provided in a summary table.	20	20.11; Table 20.11-1	-	
7. Accidents and Malfunctions		Consideration of the environmental effects of malfunctions or accidents that may occur in connection with the designated project is required to be assessed under s.19(1)(a) of CEAA, 2012 and in the BC EAO AIR template (2013).	-	-	22-A	
		The Application will identify potential accidents, malfunctions and unplanned events that may occur in any phase of the Project.	22	22.7.2	22-A	
		The circumstances under which these events could occur will be described.	22	22.5, 22.6	22-A	
		Accidents and/or malfunction events that will be assessed include, but are not limited to:	22	-	-	
		• spills of hazardous substances stored on site (reagents, fuels, contained liquid waste)	22	22.5.2, 22.6, 22.7.4	22-A	
		• leakage or spill of materials with potential risks to the environment (including petroleum products, chemicals and other materials) as a result of road, air, and/or water line transportation	22	22.5.2, 22.6, 22.7.5	22-A	
		• accidental release of contaminants from ore/waste rock stockpiles	22	22.5.2, 22.6	22-A	
		• breach or failure of tailings dam or other containment structure	22	22.5.2, 22.6, 22.7.7	22-A	
		• accidental discharge of off-specification effluent from treatment plants	22	22.5.2, 22.6	22-A	
		• sediment releases into watercourses	22	22.5.2, 22.6	22-A	
		• accidents related to construction and operation of underground facilities	22	22.5.2, 22.6	22-A	
		• fires or explosions	22	22.5.2, 22.6, 22.7.6	22-A	
		• failure of permanent and temporary waste rock dumps or stockpiles	22	22.5.2, 22.6	22-A	
		• inrushes to the underground mine	22	22.5.2, 22.6	22-A	
		• air blasts in the underground mine	22	22.5.2, 22.6	22-A	
		• fly rock from blasting	22	22.5.2, 22.6	22-A	
		The Application will include a Failure Modes and Effects Analysis (FMEA) to evaluate the likelihood of a hypothetical failure of a designed system and the potential consequences (effects) of that failure on the selected VCs.	22	22.4, 22.5, 22.6, 22.7; Tables 22.6-6, 22.7-4	-	
		The assessment will:				
		• describe the key environmental effects of such failures, including any effects on CEAA 2012 s.5 components	22	22.7, 22.7.4, 22.7.5, 22.7.6, 22.7.7	22-A	

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		• identify mitigation/controls that are incorporated into the proposed Project design to reduce the risk	22	22.5.5	22-A	
		• identify contingency plans and response options to address residual risks	22	22.6.3	-	
8. Effects of the Environment on the Project		Consideration of any changes to the designated project that may be caused by the environment is required to be assessed under s.19(1)(h) of CEAA, 2012 and as required in the BC EAO AIR template (2013).				
		The Application will identify how local environmental conditions and natural hazards may adversely affect the proposed Project.	23	23.2 – 23.10	-	
		Environmental factors that will be assessed include, but are not limited to:	23	23.3 - 23.8	-	
		• predicted climate change effects throughout the Project lifecycle, including extreme weather events (e.g., heavy rain/snowfall, flooding, extreme temperatures, drought and wind)	23	23.3, 23.4, 23.8	-	
		• avalanches	23	23.5.2	-	
		• landslides	23	23.5.1	-	
		• natural seismic events	23	23.5.3	-	
		• lightning and forest fire	23	23.6, 23.7	-	
		The "Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners" (2003; Federal-Provincial-Territorial Committee on Climate Change and Environmental Assessment) guidance document will be considered in preparing the assessment of how climate change could affect the Project.	23	23.8	-	
		The effects of the environment on the Project assessment will identify the likelihood and severity of the changes or effects, and identify mitigation measures, including environmental management plans and design strategies, planned to avoid or minimize the likelihood and severity of the changes or effects.	23	23.2 – 23.9	-	
9. Environmental Management and Monitoring Plans		The Application will identify and describe the Environmental Management System (EMS) and conceptual level environmental management and monitoring plans that will be required for the Construction, Operations, Closure, and Post-Closure phases of the Project.	24	24.1	-	
		The management/monitoring plans will be developed in a manner consistent with the EMS and will include:	24	24.1.5	-	
		• Access Management Plan (including ORAR (upper road portion) related monitoring)	24	24.2	-	
		• Air Quality Management Plan (including dust management)	24	24.3	-	
		• Aquatics Effects Monitoring Plan	24	24.7	-	
		• Emergency Response Plan	24	24.5	-	
		• Erosion and Sediment Control Plan	24	24.15	-	
		• Groundwater Monitoring Plan	24	24.8	-	
		• Hazardous Materials Management Plan	24	24.6	-	
		• Heritage Management Plan	24	24.9	-	
		• ML/ARD Management Plan	24	24.11	-	
		• Occupational Health and Safety Plan	24	24.12	-	
		• Spill Prevention and Response Plan	24	24.6	-	
		• Tailings Management Plan	24	24.11	-	
		• Terrain and Soil Management Plan (including subsidence effects monitoring)	24	24.13, 24.14	-	

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9. Environmental Management and Monitoring Plans *(cont'd)*		• Vegetation Management Plan (including invasive plant management)	24	24.4, 24.10	-	
		• Waste Rock Management Plan	24	24.11	-	
		• Reclamation and Closure Plan	6	6.1 – 6.7	-	
		• Surface Water Management Plan	24	24.16	-	
		• Water Treatment Plan	24	24.18	-	
		• Wetlands Monitoring Plan	24	24.0	-	A Wetlands Monitoring Plan is not required as residual effects were not predicted for wetlands after mitigation.
		• Wildlife Management and Monitoring Plan	24	24.19	-	
		Additional environmental management and monitoring plans may be developed and added as the Application is prepared to implement mitigation measures identified during the effects assessment.	24	24.0, 24.17	-	
		Where applicable, the Application will identify the monitoring programs that will involve empirical data collection to allow for data analysis and comparison between data collection periods.	24	24.1.5.2, 24.3.5, 24.4.5, 24.7.5, 24.8.5, 24.11.5, 24.13.5, 24.15.5, 24.16.5, 24.17.5, 24.18.6, 24.19.5	-	
9.1 Follow-up Program		If applicable, the Application will identify any proposed follow-up programs required to verify the accuracy of the environmental assessment predictions and/or determine the effectiveness of any mitigation measures, in accordance with CEAA 2012.	9 11 22 24	9.7.2.3 11.7.2.3 22.6.3, 22.7.5.1, 22.7.5.2 24.0, 24.1.5.2	25-B	
9.2 Compliance Reporting		Compliance reporting commitments will be identified in each of the various environmental management/monitoring plans.	24	24.0, 24.1.5.2, 24.2.6, 24.3.6, 24.4.6, 24.5.6, 24.6.8, 24.7.6, 24.8.6, 24.9.6, 24.10.6, 24.11.6, 24.12.6, 24.13.6, 24.14.6, 24.15.6, 24.16.6, 24.17.6, 24.18.7, 24.19.6	-	
10. Assessment of Aboriginal Rights and Interests 10.1 Background Information		The Application will:				
		• identify the Aboriginal groups potentially affected by the proposed Project	21	21.1	-	
		• provide maps of established and/or asserted traditional territories of potentially affected Aboriginal groups	21	21.3	-	
		• provide background information for each potentially affected Aboriginal group including but not limited to ethnography, language, land use setting and planning, governance, economy, and reserves	21	21.3	-	
10.2 Aboriginal Consultation		The Application will:				
		• summarize consultations undertaken with Aboriginal groups during the pre-Application stage and identify consultations planned during the Application stage	21	21.4	-	
		• summarize key issues of relevance to the EA and responses to these issues (summarized in an issues tracking table)	3 21	3.6 21.4	3-E	
		• identify potential adverse impacts of the Project on potential or established Aboriginal and treaty rights as identified by affected Aboriginal groups	21	21.4	-	
		• identify Aboriginal interest in long-term monitoring	21	21.4	-	

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10.2 Aboriginal Consultation *(cont'd)*		• identify, for each Nation, where and how Aboriginal traditional knowledge or other Aboriginal views were incorporated into baseline information, the consideration of environmental effects and potential adverse impacts on potential or established Aboriginal and treaty rights and related interests, as well as consideration of the Aboriginal knowledge in proposed mitigation measures and management plans	21	21.4	-	
		• describe the efforts undertaken to engage with Aboriginal groups as part of collecting the information identified above	21	21.4	-	
10.3 Asserted and Established Aboriginal Rights		The Application will:				
		• make reference to the current use of lands and resources for traditional purposes assessment and identify uses of the proposed Project area by Aboriginal groups	21	21.6	-	
		• summarize relevant findings from previous effects assessment sections of the Application and describe their relevance to asserted and established Aboriginal rights	21	21.7.1, 21.7.2	-	
		• identify any specific asserted Aboriginal rights about which the Proponent has received information from First Nations or other sources	21	21.6	-	
		• identify potential effects of the proposed Project on asserted or established Aboriginal rights	21	21.7.1, 21.7.2	-	
		• identify treaty rights which could be affected by the Project	21	21.7.1, 21.7.2	-	
		• describe mitigation measures to avoid or accommodate for potential effects on asserted or established Aboriginal rights	21	21.7.3	-	
10.4 Other Aboriginal Interests		The Application will:				
		• identify Aboriginal interests with respect to potential environmental, economic, social, heritage, and health effects of the proposed Project (to the extent not already identified in previous sections)	20 21	20.4.4 21.9	20-A	
		• describe how these interests have been addressed	20	20.6, 20.7, 20.8	-	
10.5 Summary		The Application will identify accommodation measures, including design considerations, mitigation measures, and specific commitments which address potential effects on Aboriginal rights using the format of Table 10.5-1 in the AIR.	21	21.10; Table 21.10-1	-	
11. Summary of Residual Effects and Mitigation Measures		The Application will provide a summary of each environmental, economic, social, heritage, or health effect that cannot be substantively avoided or mitigated through the re-design or relocation of the proposed Project or through Proponent commitments.	25	25.3.1 – 25.3.12	-	
		The Application will summarize the proposed mitigation measures to prevent or reduce adverse environmental, economic, social, heritage or health effects, or address impacts to Aboriginal asserted or established rights. This information will be presented using the format of Tables 11-1 and 11-2 in the AIR.	25	25.3; Table 25.3-1; 25.4.1, 25.4.2	-	
12. Conclusion		The Application will:				
		• summarize the Proponent's understanding of the BC EA process in promoting sustainable development, while minimizing adverse environmental, economic, social, heritage, and health effects	25	25.1, 25.6	-	
		• describe how the proposed Project aligns with the goal of the BC EA process	25	25.1, 25.6	-	
		• explain how the CEAA 2012 requirements were met	25	25.5	25-A	
		• include a statement requesting an EA Certificate for the proposed Project and the need to successfully complete the federal EA process and subsequent permitting processes prior to proceeding with proposed Project construction, operation, and decommissioning	25	25.6	-	

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References		The Application will provide a list of references used in developing the Application.	1 - 25	-	-	References are provided with each chapter of the Application
Appendices		The Application will include applicable appendices, including all additional reports prepared by professionals and provided under their professional seal.	-	-	-3A, 3-B, 3-C, 3-D, 3-E, 3-F, 3-G, 3-H, 3-I, 3-J, 3-K, 3-L, 3-M, 3-N 4-A, 4-B, 4-C, 4-D 5-A, 5-B, 5-C 6-A 7-A, 7-B, 7-C, 7-D, 7-E, 7-F 8-A 9-A, 9-B, 9-C 10-A, 10-B, 10-C 11-A, 11-B, 11-C, 11-D, 11-E 12-A, 12-B 13-A, 13-B 14-A, 14-B, 14-C, 14-D 15-A, 15-B, 15-C 16-A, 16-B 17-A 18-A, 18-B 19-A, 19-B, 19-C, 19-D 20-A 22-A 25-A	
		As the Project will undergo the substituted EA process, the Appendices will also include a substitution table that summarizes how all subsection 5(1), 5(2), and 19(1) requirements of the CEAA, 2012 have been considered as part of the assessment, and will identify the sections in the Application where additional information on section 5 and 19(1) requirements can be found. The table will follow the format and contents included in the example Substitution Summary Table provided in the approved Application Information Requirements.	-	-	25-A	