



Kiggavik Project Environmental Impact Statement

Tier 1 Appendix 1E
Project Environment Interactions

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E-1 PROJECT ENVIRONMENT INTERACTIONS

1.1 CONSTRUCTION

1.2 OPERATION

Operation								Atmospheric Environment			Terrestrial Environment						Aquatic Environment						Marine Environment				Human Health						Community							
	Activities	Study Area	Component	Linkage Diagram	Air Quality (including dust)	Noise and Vibration Levels	Climate Conditions (ie greenhouse gases)	Ground Stability and Permafrost	Geology and Geomorphology (landforms)	Soil Quality	Vegetation	Wildlife (including habitat and migration)	COPC Exposure to Wildlife	Birds (including habitat and migration)	COPC Exposure to Birds	Hydrogeology and groundwater quality	Surface Hydrology	Surface Water Quality	Sediment Quality	Aquatic Biota (includes habitat)	COPC Exposure to Aquatic Biota	Marine Water Quality	Marine Sediment Quality	Marine Organisms and Fish	Marine Mammals and Habitat	Radiation Dose to Workers	Other COPC Exposure to Workers	Radiation Dose to General Public	Other COPC Exposure to Public	Physical Hazards	Archaeological, Palaeontological and Cultural Historic Sites	Traditional Land Use and Ways of Life	Designated Environmental Areas	Community Health and Wellness	Transportation and Community Infrastructure	Education and Training	Employment	Business and Economic Development		
Economic Activities	Workforce Management (hiring and training)																																							
	Employment																																							
	Contracts and Taxes																																							
Mining	Mining ore (blasting, loading, hauling)	Mine Site	East Zone, Centre Zone, Main Zone, Andrew Lake open pits End Grid Underground Haul Road		X X X	X X X	X X X	X X X	X X X	X X X	X X X	X X X	X X X	X X X	X X X	- - -	- - -	1 1 1	1 1 1	1 1 1	1 1 1	- - -	- - -	- - -	- - -	X X X	X X X	X X X	X X X	X X X	- - -	- - -	- - -	- - -						
	Ore stockpiling	Mine Site	Kiggavik ore stockpile Sissons ore stockpile		X X	X X	- -	X X	- -	X X	X X	X X	X X	X X	X X	- -	1 1	1 1	1 1	1 1	1 1	- - -	- - -	- - -	- - -	X X	X X	X X	X X	X X	- - -	- - -	- - -	- - -						
	Mining special waste (blasting, loading, hauling)	Mine Site	East Zone, Centre Zone, Main Zone, Andrew Lake open pits End Grid Underground		X X	X X	X X	X X	X X	X X	X X	X X	X X	X X	X X	- -	- -	2 2	1 1	1 1	2 2	- - -	- - -	- - -	- - -	X X	X X	X X	X X	X X	- - -	- - -	- - -	- - -						
	Special waste stockpiling		Kiggavik special waste stockpile Sissons special waste stockpile		X X	X X	- -	X X	- -	X X	X X	X X	X X	X X	X X	- -	- -	2 2	1 1	1 1	2 2	- - -	- - -	- - -	- - -	X X	X X	X X	X X	X X	- - -	- - -	- - -	- - -						
	Mining clean waste (blasting, loading, hauling)		East Zone, Centre Zone, Main Zone, Andrew Lake open pits End Grid Underground		X X	X X	X X	X X	X X	X X	X X	X X	X X	X X	X X	- -	- -	1 1	1 1	1 1	1 1	- - -	- - -	- - -	- - -	- -	X -	- -	X -	X -	X -	- - -	- - -	- - -						
	Clean rock stockpiling	Mine Site	Kiggavik clean rock stockpile Sissons clean rock stockpile		X X	X X	- -	X X	- -	- -	X X	X X	- -	X -	X -	- -	- -	1 1	1 1	1 1	1 1	- - -	- - -	- - -	- - -	- -	X -	- -	X -	X -	X -	- - -	- - -	- - -						
	Mine dewatering	Mine Site	East Zone, Centre Zone, Main Zone, Andrew Lake open pits End Grid Underground		- -	- -	- -	X -	- -	- -	- -	- -	X -	- -	X -	- -	2 2	2 2	- -	- -	2 2	- -	- - -	- - -	- - -	- -	X X	X X	X X	X X	X X	- - -	- - -	- - -	- - -					
	Underground ventilation	Mine Site	End Grid Underground		X X	X X	- -	X X	X X	X X	X X	X X	X X	X X	X X	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	X X	X X	X X	X X	X X	- - -	- - -	- - -	- - -					
	Backfill production and underground placement	Mine Site	End Grid Underground		X X	X X	- -	X X	- -	- -	- -	- -	- -	- -	- -	- -	X -	- -	- -	- -	- -	- -	- -	- -	- -	- -	X X	X X	X X	X X	X X	- - -	- - -	- - -	- - -					
Milling	Transfer ore to mill	Mine Site			X X	X X	X X	- -	- -	X X	X X	X X	X X	X X	X X	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	X X	X X	X X	X X	X X	- - -	- - -	- - -	- - -						
	Crushing and grinding	Mine Site			X X	X X	- -	X X	- -	X X	X X	X X	X X	X X	X X	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	X X	X X	X X	X X	X X	- - -	- - -	- - -	- - -						
	Leaching and U Recovery	Mine Site			X X	X X	- -	X X	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	X X	X X	X X	X X	X X	- - -	- - -	- - -	- - -						
	U Purification	Mine Site			X X	X X	- -	X X	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	X X	X X	X X	X X	X X	- - -	- - -	- - -	- - -						
	Yellowcake drying and packaging	Mine Site			X X	X X	- -	X X	- -	X X	X X	X X	X X	X X	X X	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	X X	X X	X X	X X	X X	- - -	- - -	- - -	- - -						
	Tailings neutralization	Mine Site			X X	X X	- -	X X	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	X X	X X	X X	X X	X X	- - -	- - -	- - -	- - -						
	Reagents Preparation and Use	Mine Site																																						
Tailings Management	Pumping and placement of tailings slurry	Mine Site	East Zone, Centre Zone, Main Zone TMFs; pipelines		X X	- -	- -	X X	- -	X X	X X	X X	X X	X X	X X	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	X X	X X	X X	X X	X X	- - -	- - -	- - -	- - -						
	Consolidation of tailings	Mine Site	East Zone, Centre Zone, Main Zone TMFs		X X	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	X X	- -	- -	- -	- -	- -	- -	- -	- -	X X	X X	X X	X X	X X	- - -	- - -	- - -	- - -						
	Pumping of TMF supernatant	Mine Site	East Zone, Centre Zone, Main Zone TMFs; pipelines		- -	- -	- -	X X	- -	X X	X X	X X	X X	X X	X X	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	X X	X X	X X	X X	X X	- - -	- - -	- - -	- - -						
	Create and maintain water levels	Mine Site	East Zone, Centre Zone, Main Zone TMFs					X X	- -	- -	- -	- -	X X	- -	X X	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	X X	X X	X X	X X	X X	- - -	- - -	- - -	- - -						
Water Management	Freshwater withdrawal	Site Access Mine Site	Ice flooding winter road Kiggavik site, potable and industrial use Sissons site, potable and industrial use		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	1 2	- -	- -	1 2	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -					
	Potable water treatment	Mine Site	Kiggavik Sissons		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	1 1	- -	- -	1 1	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -					
	Collection of site and stockpile drainage	Mine Site	Site runoff ditches and ponds Purpose built pit Snow fencing and clearing Stockpile drainage collection		- -	- -	- -	X X	- -	- -	- -	X X	X X	X X	X X	- -	- -	1 1	1 1	1 1	1 1	- -	- -	- -	- -	X X	X X	X X	X X	X X	- - -	- - -	- - -	- - -						
	Water and sewage treatment	Mine Site	Kiggavik water treatment plant Sissons water treatment plant		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	1 1	1 1	1 1	1 1	2 2	- -	- -	- -	- -	X X	X X	X X	X X	X X	- - -	- - -	- - -	- - -					
	Discharge of treated effluents (including grey water)	Site Access Mine Site	Domestic wastewater Kiggavik treated effluent Sissons treated effluent Clean waste stockpile excess runoff		- -	- -	- -	- -	- -	X X	X X	X X	X X	X X	X X	- -	- -	1 1	2 2	2 2	2 2	- -	- -	- -	- -	- -	X X	X X	X X	X X	X X	- -<								

1.3 DECOMMISSIONING

